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# The Global Innovation Index 2014

## The Human Factor in Innovation



Confederation of  
Indian Industry



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# The Global Innovation Index 2014

## The Human Factor in Innovation

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**Soumitra Dutta, Bruno Lanvin, and Sacha Wunsch-Vincent**  
Editors



Confederation of Indian Industry



*The Global Innovation Index 2014: The Human Factor in Innovation* is the result of a collaboration between Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO) as co-publishers, and their Knowledge Partners.

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## Releasing the Global Innovation Index 2014: Nurturing the Essential Human Factor in Innovation



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We are pleased to present the Global Innovation Index (GII) 2014. This year, the theme of the report is the ‘Human Factor in Innovation’. The GII 2014, in its 7th edition, is again co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO, a specialized agency of the United Nations).

The GII recognizes the key role of innovation as a driver of economic growth and well-being. It aims to capture the multi-dimensional facets of innovation and to be applicable to developed and emerging economies alike. In doing so, it helps policy makers and business leaders move beyond one-dimensional innovation metrics towards a more holistic analysis of innovation drivers and outcomes.

Over the last seven years, the GII has established itself as a leading reference on innovation. When launching this same report last year, United Nations Secretary-General Ban Ki-moon stressed that the GII is a ‘unique tool for refining innovation policies ... for providing an accurate picture on the role of science, technology and innovation in sustainable development’, and for assessing where more efforts are urgently needed.

We like to think of the GII as a ‘tool for action’ for decision makers with the goal of improving countries’ innovation performances. Numerous workshops in different countries have brought innovation actors together around the GII results with the aim of improving data availability, boosting the country’s innovation performance, and designing fresh policy actions that are targeted for effective impact. These exchanges on the ground also generate feedback that, in turn, improves the GII.

The theme of this year’s GII, the ‘Human Factor in Innovation’, explores the role of the individuals and teams behind the innovation process. Statistically capturing this human contribution to innovation is a daunting challenge. Even more complex are the challenges faced by all those who try to properly nurture the human factor in innovation.

Great efforts have been made to foster the availability of scientists and engineers in the developed and the developing world alike. But important gaps remain between rich and poor countries. Top talents continue to be scarce, and they cluster and grow around top infrastructure and institutions. Still, the availability and mobility of human capital worldwide has changed for the better in the past two decades, and with it the geography of innovation.

Workers with advanced degrees are an essential starting point for innovation. Yet their existence does not guarantee scientific or technological breakthroughs or other forms of non-technological or social innovations. Creative and critical thinking, and the appetite for taking risks and thinking entrepreneurially, often matter at least as much as technical qualifications. In addition, innovation is spurred by having favourable conditions in which actors and society are open to new approaches.

Putting the right environment in place that will nurture, promote, and enable the human factor behind business and social innovation is a complex task, but a critical one. There are many strands of action in the field of education, training, and skill formation; in collaboration; in the diffusion of knowledge; and in other areas, as described in this report. A particularly interesting issue concerns implementing new policies to help developing and developed countries retain, involve, or attract talent, sometimes by involving their skilled diaspora abroad in national innovation activities. A few developing countries have put these approaches into practice, generating lessons that can be refined and applied elsewhere.

This year the changes to the GII innovation framework are less numerous than in recent years. This is a sign of the increased stability of the measurement framework. At the same time, the journey to more effective innovation measurement is far from over. The GII team continually tests the model for relevance to better reflect an improved understanding of innovation. Thus the GII is both a user of novel innovation metrics and an effective ‘demandeur’ for further measurement exercises.

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We hope that the collective efforts of all members and users of the GII project will continue to pave the way for better innovation policies around the world. We thank our Knowledge Partners in 2014, the Confederation of Indian Industry, du, and Huawei as well as our Advisory Board Members for their support.

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## The Human Factor: The Fundamental Driver of Innovation



The fundamental driver behind any innovation process is the human factor associated with it. We observe that some nations take the lead in innovation capability over others. A major factor for this disparity of innovation prowess is the quality of human capital linked to the innovation activities carried out in these nations. Other factors, such as technology and capital, also influence the innovation process; these directly correlate with the human factor. Hence nurturing human capital at all levels and in all sections of society can be crucial for developing the foundation for innovation.

Across the world, talented human capital is formed in two primary ways. First, each nation creates the infrastructure (by creating schools and colleges and other academic/R&D institutions) to enhance the knowledge of its population in various technological and non-technological fields of study by providing both basic and advanced teaching and R&D facilities. Second, a nation attracts talented human capital from other parts of the world by providing suitable incentives, and then grooms and employs these workers in various innovation activities. The nation that can nurture and attract the best talent becomes the innovation trendsetter. For example, the United States of America has successfully built its innovation ecosystem by attracting the best brains in the world. US universities have been exceptionally effective in their quest to engage some of the most prominent people in the world, and have simultaneously created an ecosystem for entrepreneurs who have been able to establish some of the globe's biggest organizations. The crux of this success has always been the people who have been able to find the right kind of incentives in the US system that allow them to pursue their innovation dream.

In today's world, innovation is a subject of great importance because it stimulates sustainable growth in a highly competitive market. Scholars across the world are studying innovation in great detail and trying to determine the different parameters that influence its behaviour. Actors such as institutions, industry, academia, and

government, along with factors such as R&D, funding, incubation, mentoring, infrastructure, markets, and businesses, have all been identified as crucial to any innovation ecosystem. But at the heart of all innovation lies the human factor, identified as its soul and purpose. The message is very clear: in order to build an innovation-driven nation we need to educate our people well, and to provide them enough resources and incentives to chase their dreams. Innovation will follow. India, with its billion plus population—the youngest population in terms of the number of people below the age of 30—is in a position to create unprecedented opportunities domestically as well as globally to drive future innovations. But this can happen only if India can drive its human capital effectively towards a knowledge economy.

The theme of the current edition of Global Innovation Index is very apt. It tries to capture the nuances of the human factor that is responsible for innovation and growth. The different chapters of this report illustrate how human capital influences innovation trends and how nations in the developing world struggle to innovate to their full potential by providing inadequate infrastructure for education. Chapter 4, for example, presents the case of India, which now has an opportunity to make its education system into a source of high-quality graduates in areas such as engineering, basic sciences, and liberal arts; these highly qualified workers will contribute to India's innovative capacity.

I thank the entire GII team and all other Knowledge Partners in this report for coming up once again with this wonderful edition. I feel humble to have been part of this report for last few years and hope that this edition of the GII, like all previous editions, may strengthen the tools of policy makers across the world to enable them to make the right decisions for stimulating innovation.

Thank you.

**CHANDRAJIT BANERJEE**  
Director General  
Confederation of Indian Industry



## The Connected Human Factor: The Heart of Innovation



Throughout the last decade, the United Arab Emirates (UAE) has made great strides in diversifying its economy, enabling it to establish its next growth chapter through its strategic plan, Vision 2021. The vision calls for the UAE to transform its economy into one where growth is driven by both knowledge and innovation. And with Dubai winning the right to host Expo 2020 and its ambition of becoming the global capital of the Islamic economy, the UAE is on the fast track to achieving its objectives.

It is without a doubt that this year's theme, the 'Human Factor in Innovation', is at the centre of the UAE government's Vision 2021 of becoming a knowledge-based economy. A core pillar of this vision is to actively embed digital solutions in everyday lives to guarantee efficient connectedness among citizens, researchers, entrepreneurs, businesses, and government. Connectivity and broadband have become essential requirements for human well-being, and the people of the UAE are continuously and increasingly inspired by the vision of the nation's leadership as the country progresses towards a 'smart' future. The UAE's Smart Government and Dubai's Smart City initiatives will pave the way for some of the most innovative digital applications available, which in turn will further enable the human factor through better, faster, and smarter communication and knowledge diffusion. That is what a smart city is all about—creating a better life for people in a happier, more connected world.

We at du are proud to play an active role in supporting the achievement of the UAE's vision by accelerating innovation and helping to make it accessible to everyone. Connected innovation—in particular the benefits of connectedness for the human factor in innovation—is at the heart of du and the company's aspirations.

We are working extensively with our partners to create citizen-centric services, smart devices, and connected ecosystems that will benefit our whole community. These solutions are not only in line with the national vision, but will also become the showcase for

international cities aspiring to become digital-enabled. They will empower and facilitate creativity, business acumen, interaction, and the lives of all UAE residents and tourists.

As a key player in the UAE's economy, we are working hand-in-hand with national and international players to ensure that the country's innovation ecosystem is conducive for the next evolution as described in Vision 2021. We have a dream of connected innovation and want to share it with everyone. We owe it to our leaders, our citizens, our customers, our employees, and ourselves to ensure that the country can enjoy the benefits of a knowledge-based economy, powered by connectedness. The GII 2014 report provides tools that we, and every economy wanting to enhance its innovation capacity, can use.

**OSMAN SULTAN**  
Chief Executive Officer  
du





## Human-Centric Innovation: Inspired Talent Is the Engine of Innovation



Humans have always improved life through innovation. From the discovery of fire to electricity, the Internet and beyond, new thinking is fundamental to social progress and economic growth. At its most effective, innovation is an inherently human endeavour. Successful innovation happens when people with skills, experience, and capabilities come together to understand or predict, and then address, other people's challenges. Talent, like capital and technology, is a key success factor for innovation. Inspiring potential talent will drive innovation and growth.

Education is a fundamental element in innovation and access to both basic and vocational education is key to talent development. Countries should invest more in education, building the human infrastructure to drive innovation and growth. It is equally important for industries and businesses to get involved in enhancing education systems. Advances in information and communication technologies (ICT) in recent years played a crucial role in transforming traditional education and making it more accessible, affordable, and effective globally. To support this, Huawei developed Telecom Seeds for the Future, a programme to develop local ICT talent, promote understanding and interest in ICTs, and develop participation in the digital community. Through this programme we have established 16 training centres where over 10,000 ICT students worldwide have been trained.

Businesses should build platforms for talent to thrive. Solid education sets the foundation for talent's future growth but is only the beginning. Professional practices in businesses and organizations are more important in cultivating talent. At the same time, success of talent brings business success. That is why Huawei is building a global platform for talented people to work and innovate together, share the value created, and realize their dreams.

Under Huawei's talent pyramid model, young professionals can grow on either our management or subject expert tracks. We encourage innovation by electing our

most exceptional thinkers as prestigious Huawei Fellows and our layered reward model with tangible and intangible benefits enables high-performing employees to share in short-term monetary returns as well as long-term incentives. We also tailor policies and training to best suit different cultures and talent types, and we help employees better understand and live our core corporate values.

Global innovation needs global talent. To be successful in business today, when capital, goods, talent, and knowledge move quickly around the world, we need to treat global markets as a single market, building global value chains that integrate the world's best resources. By doing this, local innovation is promoted and used globally, making local innovation truly valuable in the global ecosystem. Huawei has put this theory into practice by integrating the world's top resources. Our 16 R&D centres in resource-rich locations, 28 joint-innovation centres, and more than 40 professional competency centres transform our global value chain into a larger global innovation platform that enables customers worldwide to access innovations from all over the world in the shortest time possible.

We are proud to be a Knowledge Partner for the Global Innovation Index in 2014 and explore the role and highlight the importance of human capital in fostering innovation. Like many institutions around the world, we are focused on finding and sharing best practice and developing and nurturing our most important resource, our people. The 2014 GII report will further the discussions needed among people so we can learn from each other and create an open and effective innovation environment. For Huawei, our commitment helps us deliver a major objective—to enable better connected people, societies, and countries, and ultimately a better connected world.

**KEN HU**  
Deputy Chairman  
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PwC Global entertainment and media outlook 2013-2017, [www.pwc.com/outlook](http://www.pwc.com/outlook)

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In 2011, an Advisory Board was set up to provide advice on the research underlying the Global Innovation Index (GII), generate synergies at its stages of development, and assist with the dissemination of its messages and results. The Advisory Board is a select group of leading international practitioners and experts with unique knowledge and skills in the realm of innovation. Its members, while coming from diverse geographical and institutional backgrounds (international organizations, the public sector, non-governmental organizations, business, and academia), participate in their personal capacity. We are grateful for the time and support provided by the Advisory Board members.

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## Executive Summary

The Global Innovation Index (GII) 2014 covers 143 economies around the world and uses 81 indicators across a range of themes. Thus, the GII 2014 presents us with a rich dataset to analyse for global innovation trends. The theme for this year's GII is the 'Human Factor in Innovation'. The importance of both individual and collective efforts of creators and scientists in the innovation process has been well documented in the literature. The results of the GII provide additional evidence of this significance.

This report presents chapters that discuss different aspects of the index and the theme, followed by appendices that provide the data from individual data tables for each indicator, a profile for each of the countries/economies covered this year, detailed information about the sources and definitions of each indicator, and technical notes about the composition of the index.

Below we provide a summary of the chapters.

**Chapter 1**, 'The Global Innovation Index 2014: Nurturing New Sources of Growth by Developing the Human Factor in Innovation' written by Soumitra Dutta, Rafael Escalona Reynoso, and Alexandra L. Bernard from Cornell University; Bruno Lanvin from INSEAD; and Sacha Wunsch-Vincent from WIPO, introduces the theme of the human factor and discusses the results of this year's rankings. The material below summarizes the key findings from the chapter:

- The need to gather more knowledge of, and a better understanding of, the role that the human factor—along with technology and capital—plays in innovation is critical. Statistically and analytically capturing this contribution and nurturing it through adequate education, training, and motivation in schools, universities, businesses, civil society, and the government itself is a challenge.
- As of 2013, a fall in the growth of public R&D support coupled with the continued hesitancy of company R&D expenditures seems to be leading to slower overall growth of total R&D expenditures worldwide; this is the case especially in high-income countries. If indeed future-oriented policies aimed at stimulating innovation and new sources of growth are not widely pursued, hopes for sustained global growth could be dashed.
- The top 10 economies in the GII 2014 edition are Switzerland, the United Kingdom (UK), Sweden, Finland, the Netherlands, the United States of America (USA), Singapore, Denmark, Luxembourg, and Hong Kong (China). Nine of these economies were already in the GII top 10 in 2013; Ireland, which was 10th in 2013, dropped to 11th this year, and Luxembourg climbed up into the top 10 from 12th position in 2013.
- The GII 2014 confirms the continued existence of global innovation divides even within income groups. All top 25 economies are in the high-income group. China and Malaysia are the only upper-middle income countries getting closer to these ranks.
- Sub-Saharan Africa is the region that sees the most significant improvement in GII rankings in 2014. Thirty-three countries make up the region in the GII. Of these 33, 17 climb in the rankings this year, three remain in the same position, two new countries are added, and the remaining 11 exhibit a drop in rank.
- Regional trends in the GII 2014 show some interesting new aspects. The BRICS economies show signs of divergence, with China improving at a significantly faster pace than its BRICS counterparts and India slipping back. If China continues to improve at this pace, it would not be a surprise to see it move from its current 29th position to within the top 25 within a few years. The divergence of India from the rest of the BRICS economies is the result of the challenges it faces in integrating its efforts along the

different dimensions of innovation to sustain a high level of innovation success.

In **Chapter 2**, 'The Human Factor in Innovation', Martin Schaaper from the UNESCO Institute for Statistics analyses and discusses major global trends related to the presence of skilled labour in countries. In particular, he makes the following points:

- The more developed the region, the higher the percentage of the population that have completed tertiary education.
- More and more students are enrolling in tertiary education.
- On tertiary enrolment, again the richer regions are far ahead of the poorer regions, in particular Sub-Saharan Africa.
- The regions with the highest numbers of people with tertiary education and with the highest enrolment ratios in higher education are also those with the most researchers as a proportion of the total population.
- Economies that are catching up are more dependent on technology transfer than they are on original R&D.
- R&D is generally unprofitable in countries with low levels of human capital.
- A very relevant factor for innovation is the movement of highly skilled people, whether they are students or experienced professionals.
- Economies at the lowest levels of development may be trapped in a vicious circle: low economic development does not offer a context that provides enough incentives for young people to pursue higher education, and without a skilled population, economies will not grow.
- More information is needed about the demand for skills by employers and the supply of these skills by highly educated people.

The chapter also provides some region-specific statistics:

- The two regions with the highest numbers of people with a tertiary education and with the highest enrolment ratios in higher education are also the two regions with the most researchers as a proportion of the total population: North America and Western Europe and Central and Eastern Europe

- The highest growth rates in enrolment in tertiary education are in Asia, with the exception of Central Asia, where the gross enrolment ratio even decreased after 2007.
- This region is dominated by China, which has not only been extensively expanding its higher education system, but has enlarged its research system even more.
- The magnitude of the global emigration rate of highly skilled persons from Africa is striking: it is estimated at 10.6% (9.7% for migration to OECD countries), compared with other regions of origin and the world average of 5.4% (4.3% to OECD countries).
- The leading countries of origin among immigrants with a highest degree in science and engineering are China and India.

**Chapter 3**, 'Educating Innovators and Entrepreneurs' written by Richard Scott and Stéphan Vincent-Lancrin from the OECD Directorate for Education and Skills, discusses the necessity of education and skills for successful innovation. The chapter offers some region-specific observations:

- Countries range from those with comparatively low test scores and high interest in science (e.g., Mexico) to those with comparatively high scores and low interest (e.g., Finland), but a few do have relatively high scores and high interest (e.g., Japan).
- Even in many Asian economies, where education systems have typically been associated with traditional learning models and a narrow focus on STEM subjects, there are signs of new efforts to emphasize creativity and critical thinking in national curricula.

The chapter concludes:

- Improving skills is one of the most important ways to raise innovation, productivity, and economic growth, and to improve social welfare and equality.
- Education systems that narrowly focus on test-based academic performance and numbers of students enrolled in science and technology subjects are not necessarily those that will produce young people with the creativity, critical thinking, and communication skills that innovative societies require.
- Analysis of PISA scores highlight a negative correlation between national-level student test scores in science and interest in science, but certain teaching



activities are able to improve scientific knowledge without undermining the development of other skills.

- Graduates of tertiary arts programmes are among the most likely to contribute to product or service innovation.
- Evidence of the effectiveness of school-level entrepreneurship education programmes is mixed; more work is needed to determine the successful elements of this type of intervention.
- Although many countries are addressing the kinds of skills needed for innovation in their curricula, school assessment methods may provide a barrier to their development.

**Chapter 4, 'Higher Education in India: Growth with Challenges'** written by Naushad Forbes from the Confederation of Indian Industry and Forbes Marshall Ltd, describes the characteristics of the higher education system in India. In particular, he makes the following points:

- Higher education has grown very rapidly in India over the last 30 years.
- Most of the growth has occurred primarily in professional fields, especially engineering and management.
- The growth has occurred in teaching rather than in research, with public research in India highly concentrated in autonomous research institutes instead of universities.
- Most of the growth has been in private institutes rather than public ones.
- Because the most dramatic growth has been in professional education such as engineering and management, the humanities and social sciences have been neglected.
- India now faces the following challenges: the need to ensure quality, to build graduate education and research universities, to provide equity of access, and to build excellent liberal arts universities.
- More useful measures have taken the form of various schemes to entice Indians with PhDs who are working overseas to come back home.

**Chapter 5, 'Innovative Activities and Skills'** written by Leonid Gokhberg and Valentina Poliakova from the National Research University – Higher School of

Economics, Russian Federation, posits that successful innovation requires the population to obtain a higher level of education, to be more creative, and to boost their ability to perceive essential achievements in science, technology, and innovation (STI) and implement those in daily practices.

Further, the chapter explains:

- Groups of the population that do not participate in the implementation and consumption of innovation because of the specificities of their jobs and/or their quality of life are at risk of being left behind by social exclusion and subsequent backwardness.
- Discrepancies between perception and impact assessments correlate with an economy's position on a transition curve towards a post-industrial, innovation-based economic model.
- The larger the shares of innovating companies and allied employment, the more operational the population's function as producers of innovation.
- Children have become a strong factor affecting technology diffusion, a fact explained by its deepening penetration into the contemporary lifestyle.
- As shown by the surveys, four types of survey respondents can be distinguished according to their attitude towards technological novelties: 'admirers' (9%), those who respond 'positively' (65%), those who respond 'indifferently' (16%), and those who respond 'negatively' (5%).
- The innovative potential of an individual is not an instinctive feature, and essential skills for innovation can be learned.
- National education systems are motivated to transform formal curricula and teaching techniques and to promote life-long learning aimed at supporting the innovative patterns of a population's behaviour and attitudes.
- There is a need to modernize education systems so that they will ensure the development of knowledge, innovative skills, and personal qualities (such as entrepreneurship, tolerance, self-confidence, leadership, creativity, activeness, and risk propensity) from early childhood.
- Popularizing innovation and allied novel practices aimed at upgrading competences and developing an innovation-friendly environment are also important components of boosting competitiveness.

**Chapter 6**, ‘United Arab Emirates: Fostering a Unique Innovation Ecosystem for a Knowledge Based Economy’ written by Ahmad Bin Byat and Osman Sultan from du, discusses the United Arab Emirates’ (UAE’s) path towards transformation into an innovative economy. The authors find three pillars of innovation in the UAE: human capital, financial capital, and technological capital. Innovation occurs at the intersection of these three, and policy in the country is aimed at enhancing these pillars.

The chapter explains:

- Telecommunications infrastructure and services are the backbone of a knowledge-based economy. Aside from this, the telecommunications sector in the UAE also has a key role to play in promoting innovation and in supporting the country’s evolution towards a knowledge-based economy.
- To further the aim of the UAE’s Vision 2021, the UAE has invested significantly in education and capability development, setting the foundation for long-term competitiveness.
- The UAE is actively working to promote innovation through policies and targeted initiatives aimed at developing human capital while addressing the requirements of financial and technological capital.
- The UAE currently boasts one of the most advanced education systems in the Middle East and North Africa (MENA) region, thanks to continuous investments across all education levels.
- The UAE’s budget allocation to education represents more than 20% of its total government budget, higher than the benchmark average of 13%.
- The key imperative going forward is to develop the deep technical skills that are required for disruptive innovations, as opposed to generalist skills.
- Attracting foreign talent is an important aspect of establishing and maintaining an innovative environment.
- Immigrants constituted 96% of the total UAE workforce in 2013 and 99.5% of the nation’s 4 million private-sector employees. The UAE government is also encouraging the local population, which has been more drawn towards working in the public sector, to join the private sector to develop their skill sets.
- One other essential element of a successful ecosystem of innovation is the encouraging and fostering of young entrepreneurs. One of the most effective

ways to do this is through mentoring, and the UAE is emerging as one of the best places for entrepreneurship to thrive.

- The UAE government’s R&D efforts are targeted at specific sectors to solve its market needs and key socioeconomic challenges.
- Fostering an innovation ecosystem requires ensuring adequate early-stage funding, venture capital, and growth equity.
- Cultural barriers to innovation—such as fear of failure and an aversion to taking risks—can present serious difficulties, yet are starting to diminish in the UAE.

In **Chapter 7**, ‘Retaining Top Innovators: An Essential Element of Competitiveness for Developing Countries’, David R. Walwyn from the Department of Engineering and Technology Management, University of Pretoria, and Sibusiso Sibisi from the Council for Scientific and Industrial Research, South Africa, posit that the mobility of talented people is critical to a system’s capacity for learning, adapting, and innovating. They explain:

- A small number of researchers and innovators account for a major proportion of the overall output.
- The most productive innovators are also the most mobile.
- The retention of this cohort of innovators is a neglected but important policy objective for developing countries.
- Talented innovators tend to cluster in the same places, even at the same institutions.
- Leading researchers and entrepreneurs are more likely to pursue their careers in the USA or the UK.
- The migration of innovators from developing to developed countries is also evident in statistics on inventions, where it has been shown that inventors in developed countries such as the USA and Switzerland are more likely to be immigrants than natives.
- The capacity of some countries to attract and support higher levels of extraordinary talent, allowing it to develop and flourish, is a consequence of many factors that include funding, facilities, international migration, strong local networks and clustering, and the ‘Sanger factor’.

- Developing countries should pursue priorities other than the provision of research and innovation infrastructure necessary to retain the elite cohort.

**Chapter 8**, ‘The Moroccan Diaspora and its Contribution to the Development of Innovation in Morocco’ co-written by a collection of authors from the Moroccan Industrial and Commercial Property Office (OMPIC), R&D Maroc, several Moroccan ministries, the National Centre for Scientific and Technical Research, and the Hassan II Foundation for Moroccans Living Abroad, describes the Moroccans living abroad and the mobilization of the country’s highly educated workforce. The chapter considers following points in detail:

- The mobilization of a highly educated workforce is an important part of international migration strategies.
  - The lack of qualified human resources in a globalized and competitive market place that requires knowledge and know-how generates new reasons for Morocco’s population to be mobile.
  - The feminization of the group of Moroccans Living Abroad (MLAs) has continued, with the migration of single women reflecting the evolving emancipation of women in Moroccan society.
  - Highly skilled Moroccans (those with a tertiary or graduate degree) make up 15% of the Moroccan Diaspora.
  - The share of persons with a university diploma is twice as high among the MLAs as it is among the domestic Moroccan population.
  - Identifying the skilled members of the Diaspora who contribute actively to innovation is extremely difficult because the data are often simply not available.
  - Of the patent applications published under the PCT (Patent Cooperation Treaty), 876 have been filed by MLA inventors at international locations in the 16 years from 1995 through 2011.
  - An analysis of patents issued under the PCT enables the identification of patents by inventors who belong to the Moroccan Diaspora, which can serve as a proxy for determining MLA inventors.
  - MLAs constitute a scientific potential of creativity and innovation for Morocco through mobilization programmes of the Moroccan Diaspora skills.
- There has been a steady return of migrants of working age in the last decade. Of those who returned to Morocco, 81% are under 54 years old, and more than two-thirds have their own businesses.
  - To get those working abroad to return home, the following is recommended:
    - » considering specific return campaigns centred around major technology projects,
    - » mobilizing these human resources in a targeted manner and earmarking these projects, and
    - » creating the conditions and environment favorable to the contribution of professionals who are now abroad to further the development of innovation in Morocco.



# Rankings

## Global Innovation Index rankings

| Country/Economy          | Score (0–100) | Rank | Income | Rank | Region | Rank | Efficiency Ratio | Rank | Median: 0.74 |
|--------------------------|---------------|------|--------|------|--------|------|------------------|------|--------------|
| Switzerland              | 64.78         | 1    | HI     | 1    | EUR    | 1    | 0.95             | 6    |              |
| United Kingdom           | 62.37         | 2    | HI     | 2    | EUR    | 2    | 0.83             | 29   |              |
| Sweden                   | 62.29         | 3    | HI     | 3    | EUR    | 3    | 0.85             | 22   |              |
| Finland                  | 60.67         | 4    | HI     | 4    | EUR    | 4    | 0.80             | 41   |              |
| Netherlands              | 60.59         | 5    | HI     | 5    | EUR    | 5    | 0.91             | 12   |              |
| United States of America | 60.09         | 6    | HI     | 6    | NAC    | 1    | 0.77             | 57   |              |
| Singapore                | 59.24         | 7    | HI     | 7    | SEAO   | 1    | 0.61             | 110  |              |
| Denmark                  | 57.52         | 8    | HI     | 8    | EUR    | 6    | 0.76             | 61   |              |
| Luxembourg               | 56.86         | 9    | HI     | 9    | EUR    | 7    | 0.93             | 9    |              |
| Hong Kong (China)        | 56.82         | 10   | HI     | 10   | SEAO   | 2    | 0.66             | 99   |              |
| Ireland                  | 56.67         | 11   | HI     | 11   | EUR    | 8    | 0.79             | 47   |              |
| Canada                   | 56.13         | 12   | HI     | 12   | NAC    | 2    | 0.69             | 86   |              |
| Germany                  | 56.02         | 13   | HI     | 13   | EUR    | 9    | 0.86             | 19   |              |
| Norway                   | 55.59         | 14   | HI     | 14   | EUR    | 10   | 0.78             | 51   |              |
| Israel                   | 55.46         | 15   | HI     | 15   | NAWA   | 1    | 0.79             | 42   |              |
| Korea, Republic of       | 55.27         | 16   | HI     | 16   | SEAO   | 3    | 0.78             | 54   |              |
| Australia                | 55.01         | 17   | HI     | 17   | SEAO   | 4    | 0.70             | 81   |              |
| New Zealand              | 54.52         | 18   | HI     | 18   | SEAO   | 5    | 0.75             | 66   |              |
| Iceland                  | 54.05         | 19   | HI     | 19   | EUR    | 11   | 0.90             | 13   |              |
| Austria                  | 53.41         | 20   | HI     | 20   | EUR    | 12   | 0.74             | 69   |              |
| Japan                    | 52.41         | 21   | HI     | 21   | SEAO   | 6    | 0.69             | 88   |              |
| France                   | 52.18         | 22   | HI     | 22   | EUR    | 13   | 0.75             | 64   |              |
| Belgium                  | 51.69         | 23   | HI     | 23   | EUR    | 14   | 0.78             | 55   |              |
| Estonia                  | 51.54         | 24   | HI     | 24   | EUR    | 15   | 0.81             | 34   |              |
| Malta                    | 50.44         | 25   | HI     | 25   | EUR    | 16   | 0.99             | 3    |              |
| Czech Republic           | 50.22         | 26   | HI     | 26   | EUR    | 17   | 0.87             | 18   |              |
| Spain                    | 49.27         | 27   | HI     | 27   | EUR    | 18   | 0.76             | 60   |              |
| Slovenia                 | 47.23         | 28   | HI     | 28   | EUR    | 19   | 0.78             | 53   |              |
| China                    | 46.57         | 29   | UM     | 1    | SEAO   | 7    | 1.03             | 2    |              |
| Cyprus                   | 45.82         | 30   | HI     | 29   | NAWA   | 2    | 0.77             | 56   |              |
| Italy                    | 45.65         | 31   | HI     | 30   | EUR    | 20   | 0.78             | 52   |              |
| Portugal                 | 45.63         | 32   | HI     | 31   | EUR    | 21   | 0.74             | 73   |              |
| Malaysia                 | 45.60         | 33   | UM     | 2    | SEAO   | 8    | 0.74             | 72   |              |
| Latvia                   | 44.81         | 34   | HI     | 32   | EUR    | 22   | 0.82             | 32   |              |
| Hungary                  | 44.61         | 35   | UM     | 3    | EUR    | 23   | 0.90             | 15   |              |
| United Arab Emirates     | 43.25         | 36   | HI     | 33   | NAWA   | 3    | 0.54             | 127  |              |
| Slovakia                 | 41.89         | 37   | HI     | 34   | EUR    | 24   | 0.79             | 45   |              |
| Saudi Arabia             | 41.61         | 38   | HI     | 35   | NAWA   | 4    | 0.74             | 70   |              |
| Lithuania                | 41.00         | 39   | HI     | 36   | EUR    | 25   | 0.68             | 89   |              |
| Mauritius                | 40.94         | 40   | UM     | 4    | SSF    | 1    | 0.75             | 65   |              |
| Barbados                 | 40.78         | 41   | HI     | 37   | LCN    | 1    | 0.69             | 87   |              |
| Croatia                  | 40.75         | 42   | HI     | 38   | EUR    | 26   | 0.81             | 36   |              |
| Moldova, Republic of     | 40.74         | 43   | LM     | 1    | EUR    | 27   | 1.07             | 1    |              |
| Bulgaria                 | 40.74         | 44   | UM     | 5    | EUR    | 28   | 0.84             | 25   |              |
| Poland                   | 40.64         | 45   | HI     | 39   | EUR    | 29   | 0.72             | 76   |              |
| Chile                    | 40.64         | 46   | HI     | 40   | LCN    | 2    | 0.68             | 92   |              |
| Qatar                    | 40.31         | 47   | HI     | 41   | NAWA   | 5    | 0.60             | 114  |              |
| Thailand                 | 39.28         | 48   | UM     | 6    | SEAO   | 9    | 0.76             | 62   |              |
| Russian Federation       | 39.14         | 49   | HI     | 42   | EUR    | 30   | 0.79             | 49   |              |
| Greece                   | 38.95         | 50   | HI     | 43   | EUR    | 31   | 0.70             | 85   |              |
| Seychelles               | 38.56         | 51   | UM     | 7    | SSF    | 2    | 0.74             | 74   |              |
| Panama                   | 38.30         | 52   | UM     | 8    | LCN    | 3    | 0.85             | 20   |              |
| South Africa             | 38.25         | 53   | UM     | 9    | SSF    | 3    | 0.68             | 93   |              |
| Turkey                   | 38.20         | 54   | UM     | 10   | NAWA   | 6    | 0.93             | 11   |              |
| Romania                  | 38.08         | 55   | UM     | 11   | EUR    | 32   | 0.84             | 24   |              |
| Mongolia                 | 37.52         | 56   | LM     | 2    | SEAO   | 10   | 0.68             | 94   |              |
| Costa Rica               | 37.30         | 57   | UM     | 12   | LCN    | 4    | 0.81             | 38   |              |
| Belarus                  | 37.10         | 58   | UM     | 13   | EUR    | 33   | 0.83             | 27   |              |
| Montenegro               | 37.01         | 59   | UM     | 14   | EUR    | 34   | 0.62             | 106  |              |
| TFYR of Macedonia        | 36.93         | 60   | UM     | 15   | EUR    | 35   | 0.70             | 82   |              |
| Brazil                   | 36.29         | 61   | UM     | 16   | LCN    | 5    | 0.74             | 71   |              |
| Bahrain                  | 36.26         | 62   | HI     | 44   | NAWA   | 7    | 0.60             | 117  |              |
| Ukraine                  | 36.26         | 63   | LM     | 3    | EUR    | 36   | 0.90             | 14   |              |
| Jordan                   | 36.21         | 64   | UM     | 17   | NAWA   | 8    | 0.80             | 40   |              |
| Armenia                  | 36.06         | 65   | LM     | 4    | NAWA   | 9    | 0.83             | 28   |              |
| Mexico                   | 36.02         | 66   | UM     | 18   | LCN    | 6    | 0.71             | 79   |              |
| Serbia                   | 35.89         | 67   | UM     | 19   | EUR    | 37   | 0.79             | 46   |              |
| Colombia                 | 35.50         | 68   | UM     | 20   | LCN    | 7    | 0.63             | 102  |              |
| Kuwait                   | 35.19         | 69   | HI     | 45   | NAWA   | 10   | 0.78             | 50   |              |
| Argentina                | 35.13         | 70   | UM     | 21   | LCN    | 8    | 0.79             | 43   |              |
| Viet Nam                 | 34.89         | 71   | LM     | 5    | SEAO   | 11   | 0.95             | 5    |              |
| Uruguay                  | 34.76         | 72   | HI     | 46   | LCN    | 9    | 0.73             | 75   |              |

## Global Innovation Index rankings (continued)

| Country/Economy                   | Score (0–100) | Rank | Income | Rank | Region | Rank | Efficiency Ratio | Rank | Median: 0.74 |
|-----------------------------------|---------------|------|--------|------|--------|------|------------------|------|--------------|
| Peru                              | 34.73         | 73   | UM     | 22   | LCN    | 10   | 0.62             | 107  |              |
| Georgia                           | 34.53         | 74   | LM     | 6    | NAWA   | 11   | 0.68             | 90   |              |
| Oman                              | 33.87         | 75   | HI     | 47   | NAWA   | 12   | 0.58             | 121  |              |
| India                             | 33.70         | 76   | LM     | 7    | CSA    | 1    | 0.82             | 31   |              |
| Lebanon                           | 33.60         | 77   | UM     | 23   | NAWA   | 13   | 0.59             | 119  |              |
| Tunisia                           | 32.94         | 78   | UM     | 24   | NAWA   | 14   | 0.66             | 98   |              |
| Kazakhstan                        | 32.75         | 79   | UM     | 25   | CSA    | 2    | 0.59             | 118  |              |
| Guyana                            | 32.48         | 80   | LM     | 8    | LCN    | 11   | 0.74             | 68   |              |
| Bosnia and Herzegovina            | 32.43         | 81   | LM     | 26   | EUR    | 38   | 0.65             | 101  |              |
| Jamaica                           | 32.41         | 82   | UM     | 27   | LCN    | 12   | 0.65             | 100  |              |
| Dominican Republic                | 32.29         | 83   | UM     | 28   | LCN    | 13   | 0.85             | 21   |              |
| Morocco                           | 32.24         | 84   | LM     | 9    | NAWA   | 15   | 0.70             | 83   |              |
| Kenya                             | 31.85         | 85   | LI     | 1    | SSF    | 4    | 0.84             | 26   |              |
| Bhutan                            | 31.83         | 86   | LM     | 10   | CSA    | 3    | 0.60             | 112  |              |
| Indonesia                         | 31.81         | 87   | LM     | 11   | SEAO   | 12   | 0.96             | 4    |              |
| Brunei Darussalam                 | 31.67         | 88   | HI     | 48   | SEAO   | 13   | 0.43             | 139  |              |
| Paraguay                          | 31.59         | 89   | LM     | 12   | LCN    | 14   | 0.75             | 63   |              |
| Trinidad and Tobago               | 31.56         | 90   | HI     | 49   | LCN    | 15   | 0.63             | 103  |              |
| Uganda                            | 31.14         | 91   | LI     | 2    | SSF    | 5    | 0.71             | 77   |              |
| Botswana                          | 30.87         | 92   | UM     | 29   | SSF    | 6    | 0.50             | 133  |              |
| Guatemala                         | 30.75         | 93   | LM     | 13   | LCN    | 16   | 0.68             | 95   |              |
| Albania                           | 30.47         | 94   | UM     | 30   | EUR    | 39   | 0.50             | 131  |              |
| Fiji                              | 30.39         | 95   | UM     | 31   | SEAO   | 14   | 0.34             | 141  |              |
| Ghana                             | 30.26         | 96   | LM     | 14   | SSF    | 7    | 0.81             | 37   |              |
| Cabo Verde                        | 30.09         | 97   | LM     | 15   | SSF    | 8    | 0.55             | 126  |              |
| Senegal                           | 30.06         | 98   | LM     | 16   | SSF    | 9    | 0.85             | 23   |              |
| Egypt                             | 30.03         | 99   | LM     | 17   | NAWA   | 16   | 0.76             | 59   |              |
| Philippines                       | 29.87         | 100  | LM     | 18   | SEAO   | 15   | 0.81             | 35   |              |
| Azerbaijan                        | 29.60         | 101  | UM     | 32   | NAWA   | 17   | 0.58             | 120  |              |
| Rwanda                            | 29.31         | 102  | LI     | 3    | SSF    | 10   | 0.46             | 137  |              |
| El Salvador                       | 29.08         | 103  | LM     | 19   | LCN    | 17   | 0.60             | 116  |              |
| Gambia                            | 29.03         | 104  | LI     | 4    | SSF    | 11   | 0.76             | 58   |              |
| Sri Lanka                         | 28.98         | 105  | LM     | 20   | CSA    | 4    | 0.87             | 17   |              |
| Cambodia                          | 28.66         | 106  | LI     | 5    | SEAO   | 16   | 0.74             | 67   |              |
| Mozambique                        | 28.52         | 107  | LI     | 6    | SSF    | 12   | 0.57             | 124  |              |
| Namibia                           | 28.47         | 108  | UM     | 33   | SSF    | 13   | 0.55             | 125  |              |
| Burkina Faso                      | 28.18         | 109  | LI     | 7    | SSF    | 14   | 0.71             | 78   |              |
| Nigeria                           | 27.79         | 110  | LM     | 21   | SSF    | 15   | 0.94             | 8    |              |
| Bolivia, Plurinational State of   | 27.76         | 111  | LM     | 22   | LCN    | 18   | 0.70             | 84   |              |
| Kyrgyzstan                        | 27.75         | 112  | LI     | 8    | CSA    | 5    | 0.46             | 136  |              |
| Malawi                            | 27.61         | 113  | LI     | 9    | SSF    | 16   | 0.67             | 96   |              |
| Cameroon                          | 27.52         | 114  | LM     | 23   | SSF    | 17   | 0.80             | 39   |              |
| Ecuador                           | 27.50         | 115  | UM     | 34   | LCN    | 19   | 0.63             | 104  |              |
| Côte d'Ivoire                     | 27.02         | 116  | LM     | 24   | SSF    | 18   | 0.93             | 10   |              |
| Lesotho                           | 27.01         | 117  | LM     | 25   | SSF    | 19   | 0.40             | 140  |              |
| Honduras                          | 26.73         | 118  | LM     | 26   | LCN    | 20   | 0.53             | 128  |              |
| Mali                              | 26.18         | 119  | LI     | 10   | SSF    | 20   | 0.83             | 30   |              |
| Iran, Islamic Republic of         | 26.14         | 120  | UM     | 35   | CSA    | 6    | 0.57             | 122  |              |
| Zambia                            | 25.76         | 121  | LM     | 27   | SSF    | 21   | 0.79             | 44   |              |
| Venezuela, Bolivarian Republic of | 25.66         | 122  | UM     | 36   | LCN    | 21   | 0.95             | 7    |              |
| Tanzania, United Republic of      | 25.60         | 123  | LI     | 11   | SSF    | 22   | 0.60             | 113  |              |
| Madagascar                        | 25.50         | 124  | LI     | 12   | SSF    | 23   | 0.62             | 105  |              |
| Nicaragua                         | 25.47         | 125  | LM     | 28   | LCN    | 22   | 0.53             | 129  |              |
| Ethiopia                          | 25.36         | 126  | LI     | 13   | SSF    | 24   | 0.67             | 97   |              |
| Swaziland                         | 25.33         | 127  | LM     | 29   | SSF    | 25   | 0.57             | 123  |              |
| Uzbekistan                        | 25.20         | 128  | LM     | 30   | CSA    | 7    | 0.61             | 108  |              |
| Bangladesh                        | 24.35         | 129  | LI     | 14   | CSA    | 8    | 0.68             | 91   |              |
| Zimbabwe                          | 24.31         | 130  | LI     | 15   | SSF    | 26   | 0.79             | 48   |              |
| Niger                             | 24.27         | 131  | LI     | 16   | SSF    | 27   | 0.50             | 132  |              |
| Benin                             | 24.21         | 132  | LI     | 17   | SSF    | 28   | 0.60             | 115  |              |
| Algeria                           | 24.20         | 133  | UM     | 37   | NAWA   | 18   | 0.53             | 130  |              |
| Pakistan                          | 24.00         | 134  | LM     | 31   | CSA    | 9    | 0.89             | 16   |              |
| Angola                            | 23.82         | 135  | UM     | 38   | SSF    | 29   | 0.82             | 33   |              |
| Nepal                             | 23.79         | 136  | LI     | 18   | CSA    | 10   | 0.49             | 134  |              |
| Tajikistan                        | 23.73         | 137  | LI     | 19   | CSA    | 11   | 0.45             | 138  |              |
| Burundi                           | 22.43         | 138  | LI     | 20   | SSF    | 30   | 0.46             | 135  |              |
| Guinea                            | 20.25         | 139  | LI     | 21   | SSF    | 31   | 0.61             | 109  |              |
| Myanmar                           | 19.64         | 140  | LI     | 22   | SEAO   | 17   | 0.71             | 80   |              |
| Yemen                             | 19.53         | 141  | LM     | 32   | NAWA   | 19   | 0.60             | 111  |              |
| Togo                              | 17.65         | 142  | LI     | 23   | SSF    | 32   | 0.25             | 142  |              |
| Sudan                             | 12.66         | 143  | LM     | 33   | SSF    | 33   | 0.09             | 143  |              |

Note: World Bank Income Group Classification (July 2013): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Regions are based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; SSF = Sub-Saharan Africa.





# Chapters



# The Global Innovation Index 2014: Nurturing New Sources of Growth by Developing the Human Factor in Innovation

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The global economic recovery is now more sustained and broad-based than it was when we released the Global Innovation Index (GII) last year. The challenge today is to overcome a number of remaining obstacles and to spur sustainable growth and employment throughout the world.

## New sources of growth for a stronger global economy

The global economy is on a stronger footing in 2014 than it was in the years directly following the crisis. Policy makers have rather effectively addressed urgent short-term financial pressures. Considering all factors, and because of progress being made in many advanced economies, economic growth is now more balanced across emerging markets and high-income countries, and the confidence of the private sector and investors, although still fragile, is generally on the rise.

Differences remain, however, regarding the speed of recovery among high-income economies. The United States of America (USA) is leading, and Europe and Japan are also returning to positive growth. Although the growth prospects in fast-developing emerging economies remain modest by historical standards, they are still significantly positive. Although risks remain, the possibility of a major set-back to the recovery is diminished. The

projections of leading economic institutions for 2015 are positive, and better than for 2014.

This generally optimistic perspective is mitigated by high unemployment and the certainty that all countries share the need to sustain the growth momentum. Indeed, potential economic output and current productivity levels are far lower than the growth trajectory that had been anticipated before the economic crisis.

The basic dilemma concerning the sources of future growth raised in last year's GII is ever more topical: On the one hand, governments feel constrained by the little room they have for fiscal stimulus and public investment while firms are still facing an uncertain economic environment. On the other hand, investment and future-oriented pro-growth policies are needed to avoid a generalized low-growth scenario and to spur employment. The importance of innovation and entrepreneurship cannot be overemphasized in this context.

## Innovation expenditures: Resilient but in need of renewed attention

Over the last few years, this report and others cautioned that the economic crisis might have a lasting effect on innovation, slowing future growth levers that would be greatly needed. Governments were urged to compensate, where

necessary, for shortfalls in private innovation expenditures. Stimulus packages included a number of future-oriented policies geared to innovation, such as infrastructure projects, investments in research and development (R&D), and green technologies.

This approach has borne fruit: The marked dip in business R&D spending in 2009 caused by the economic crisis was efficiently compensated for by public R&D investments and other policies (see Box 1). Government support of R&D and a renewed pick-up of business R&D ensured the healthy growth of innovation expenditure during 2010–12. Initially, advanced economies also preserved expenditures on education in the aftermath of the crisis. In terms of the global use of intellectual property (IP), the recovery has so far also been swift and broad-based. After 2009, patent applications worldwide experienced solid growth. The latest figures point to 9.2% patent filing growth in 2012, the strongest rate in nearly two decades, with China now topping the ranking of patents filed since 2011. Even if, as the GII often emphasizes, innovation cannot be reduced to investments in R&D and patents, these are encouraging signs.

Yet the fact that innovation expenditures will continue to grow cannot be taken for granted.

First, as of 2013, a fall in the growth of public R&D support

### Box 1: Global R&D spending: Strong post-crisis recovery between 2010 and 2012; growth slowing since

Research and development (R&D) expenditures of firms dropped significantly in 2009 as a result of the economic crisis. This dip was efficiently mitigated by the public R&D investments that were taken by many economies in the following three years.

The recovery of business R&D spending in 2010 was quick, reaching 3% growth at the global level,<sup>1</sup> and, although the data are still incomplete, 4.5% in 2011.<sup>2</sup> In high-income countries of the Organisation for Economic Co-operation and Development (OECD), business R&D grew by 0.6% in 2010 and 4.8% in 2011, but it slowed again in 2012, reaching only 3.6% in that year.<sup>3</sup> R&D spending among the top 1,000 spenders globally reached an all-time high of US\$638 billion in 2013, an increase of 5.8% from the previous year—but this growth is already significantly lower than it was in 2011 and 2012.<sup>4</sup>

Total economy-wide R&D spending—private and public R&D combined—also overcame the dip seen in 2009, and was followed by a constant growth of over 3% in 2010 and 2011.<sup>5</sup> Total R&D increased in most high-income countries as well, growing by 1.3% in 2010, 4% in 2011, and a lower 3% in 2012.<sup>6</sup> The slower growth seen in 2012 had already been influenced by weakening public R&D expenditures in high-income

countries, in particular in higher education institutions and the government sector.<sup>7</sup> This growth slowdown in 2012 was encountered in the majority of high-income countries in the OECD, except a few such as the United States of America (USA). In some high-income countries—such as Spain, Finland, Portugal, Canada, the United Kingdom (UK), and Italy—overall R&D spending actually declined in 2012.

For 2013 and 2014, unofficial estimates point to a further slowdown in global R&D spending growth.<sup>8</sup> The main drivers of this slowdown in growth are the declining support of public R&D caused by fiscal consolidation and the end of stimulus packages coupled with the hesitant growth of company R&D expenditures.

To be sure, the majority of countries for which data are available continue to show positive R&D expenditure growth in 2013 and 2014. Yet strong R&D spending growth in 2013 and 2014 is expected to take place mostly in Asia, in particular in China, the Republic of Korea, and India. Anticipated R&D spending growth in absolute terms or as a share of GDP in top R&D spending high-income countries such as the USA and Japan, as well as the UK and other European economies, is expected to be flat or much or much reduced when compared with 2011

or 2012, the latter of which had often already seen slower growth.

In sum, business and total R&D spending are both now significantly above pre-crisis levels in some economies; in others they are below those levels, and some economies have been unaffected (see Tables 1.1 and 1.2 on facing page). A large number of Eastern European countries, other large European economies such as France and Germany, some high-income Asian economies such as the Republic of Korea, and emerging economies such as China and the Russian Federation have experienced no aggregate fall in their R&D spending as a result of the crisis. Some economies have seen important dips in R&D spending during the crisis but also experienced an important recovery (e.g., Estonia and the Netherlands); some (e.g., Israel) have seen a more timid recovery. The USA and Singapore, for instance, have recently returned to their pre-crisis levels for combined public and private R&D. And some high-income economies, such as Spain, Finland, and Portugal, as well as the UK and Japan, continue to exhibit R&D spending below their pre-crisis levels.

#### Note

Notes and references for this box appear at the end of the chapter.

(Continued)

coupled with the continued hesitancy of company R&D expenditures seems to be leading to slower overall growth of total R&D expenditures worldwide; this is the case especially in high-income countries (see Box 1). In many advanced countries, fiscal consolidation also seems to have negatively affected public spending on education since 2010. Second, although governments have effectively included a significant number of future innovation-related growth projects in stimulus packages in 2009, support for such efforts

seems to have lost momentum in some countries.

There is a distinct danger that such trends could extend across various parts of the world. If indeed future-oriented policies aimed at stimulating innovation and new sources of growth are not widely pursued, hopes for sustained global growth could be dashed.

In many respects, however, the global innovation landscape is more active and inclusive than ever: In addition to higher levels of expenditures on innovation, we also see signs that the number and geographical

spread of students, researchers, and entrepreneurs are rising. If appropriately empowered, the more abundant and diverse skills and talent available worldwide to drive innovation can prove exceptionally effective.

#### The human factor in innovation

This year's theme, the 'Human Factor in Innovation,' explores the role of individual innovators and creators in the innovation process. This choice of theme stems from the growing interest that firms and governments have shown in identifying

### Box 1: Global R&D spending: Strong post-crisis recovery between 2010 and 2012; growth slowing since (cont'd.)

**Table 1.1: Business enterprise expenditure on R&D (BERD): Crisis and recovery compared**

Countries with no fall in BERD during the crisis that have expanded since

|                    | CRISIS |      | RECOVERY |      |                  |
|--------------------|--------|------|----------|------|------------------|
|                    | 2008   | 2009 | 2010     | 2011 | 2012             |
| Poland             | 100    | 105  | 111      | 136  | 202              |
| Slovenia           | 100    | 103  | 124      | 160  | 185 <sup>p</sup> |
| Hungary            | 100    | 118  | 125      | 138  | 152              |
| Ireland            | 100    | 115  | 115      | 116  | 121              |
| France             | 100    | 102  | 105      | 108  | 110 <sup>p</sup> |
| Russian Federation | 100    | 110  | 100      | 102  | 103              |

BERD above pre-crisis levels in 2012

|                          | CRISIS |      | RECOVERY |      |                  |
|--------------------------|--------|------|----------|------|------------------|
|                          | 2008   | 2009 | 2010     | 2011 | 2012             |
| Estonia                  | 100    | 98   | 129      | 261  | 227 <sup>p</sup> |
| Slovakia                 | 100    | 93   | 130      | 127  | 174              |
| Netherlands              | 100    | 93   | 98       | 127  | 134 <sup>p</sup> |
| Czech Republic           | 100    | 96   | 104      | 119  | 131 <sup>p</sup> |
| Belgium                  | 100    | 97   | 105      | 115  | 114 <sup>p</sup> |
| Germany                  | 100    | 97   | 100      | 107  | 108              |
| Austria                  | 100    | 96   | 101      | 103  | 107 <sup>p</sup> |
| Israel                   | 100    | 96   | 96       | 102  | 105              |
| Romania                  | 100    | 102  | 94       | 98   | 104              |
| Norway                   | 100    | 98   | 95       | 100  | 104              |
| United States of America | 100    | 96   | 94       | 97   | 103 <sup>p</sup> |
| Italy                    | 100    | 99   | 101      | 102  | 101 <sup>p</sup> |

BERD below pre-crisis levels in 2012

|                | CRISIS |      | RECOVERY |      |                 |
|----------------|--------|------|----------|------|-----------------|
|                | 2008   | 2009 | 2010     | 2011 | 2012            |
| United Kingdom | 100    | 96   | 96       | 102  | 98 <sup>p</sup> |
| Denmark        | 100    | 104  | 97       | 95   | 95 <sup>p</sup> |
| Canada         | 100    | 98   | 92       | 92   | 91 <sup>p</sup> |
| Sweden         | 100    | 89   | 86       | 89   | 89              |
| Portugal       | 100    | 100  | 96       | 92   | 88 <sup>p</sup> |
| Spain          | 100    | 94   | 93       | 91   | 88              |
| Finland        | 100    | 94   | 93       | 95   | 85              |
| Luxembourg     | 100    | 97   | 77       | 77   | 77              |

Source: OECD MSTI, January 2014; data used: Business enterprise expenditure on R&D (BERD) at constant 2005 PPP\$, Index = 2008.

Note: p = provisional data.

**Table 1.2: Gross domestic expenditure on R&D (GERD): Crisis and recovery compared**

Countries with no fall in BERD during the crisis that have expanded since

|                    | CRISIS |      | RECOVERY |      |                  |
|--------------------|--------|------|----------|------|------------------|
|                    | 2008   | 2009 | 2010     | 2011 | 2012             |
| China              | 100    | 126  | 144      | 165  | 192              |
| Poland             | 100    | 113  | 128      | 140  | 168              |
| Slovenia           | 100    | 103  | 118      | 140  | 155 <sup>p</sup> |
| Republic of Korea  | 100    | 106  | 119      | 133  | 146              |
| Czech Republic     | 100    | 100  | 106      | 126  | 143 <sup>p</sup> |
| Hungary            | 100    | 108  | 110      | 116  | 122              |
| Chile              | 100    | 108  | 116      | n/a  | n/a              |
| Argentina          | 100    | 114  | 130      | 148  | n/a              |
| Turkey             | 100    | 111  | 121      | 134  | n/a              |
| Belgium            | 100    | 100  | 106      | 114  | 115 <sup>p</sup> |
| Ireland            | 100    | 109  | 108      | 109  | 113              |
| Germany            | 100    | 100  | 103      | 110  | 111              |
| Russian Federation | 100    | 111  | 104      | 105  | 111              |
| France             | 100    | 104  | 104      | 106  | 107 <sup>p</sup> |
| Denmark            | 100    | 105  | 101      | 101  | 101 <sup>p</sup> |

GERD above pre-crisis levels in 2012

|                          | CRISIS |      | RECOVERY |      |                  |
|--------------------------|--------|------|----------|------|------------------|
|                          | 2008   | 2009 | 2010     | 2011 | 2012             |
| Estonia                  | 100    | 95   | 111      | 179  | 171 <sup>p</sup> |
| Netherlands              | 100    | 99   | 103      | 113  | 119 <sup>p</sup> |
| Austria                  | 100    | 98   | 103      | 104  | 108 <sup>p</sup> |
| Israel                   | 100    | 96   | 96       | 100  | 103              |
| Slovakia                 | 100    | 97   | 132      | 147  | 181              |
| Norway                   | 100    | 101  | 99       | 102  | 105              |
| United States of America | 100    | 99   | 99       | 101  | 105 <sup>p</sup> |
| Singapore                | 100    | 83   | 88       | 101  | n/a              |

GERD below pre-crisis levels in 2012

|                | CRISIS |      | RECOVERY |      |                 |
|----------------|--------|------|----------|------|-----------------|
|                | 2008   | 2009 | 2010     | 2011 | 2012            |
| Italy          | 100    | 99   | 101      | 100  | 99 <sup>p</sup> |
| Sweden         | 100    | 93   | 93       | 95   | 97              |
| Japan          | 100    | 91   | 93       | 96   | 97              |
| United Kingdom | 100    | 99   | 98       | 99   | 96 <sup>p</sup> |
| Canada         | 100    | 100  | 97       | 96   | 94 <sup>p</sup> |
| Portugal       | 100    | 106  | 105      | 99   | 94 <sup>p</sup> |
| Finland        | 100    | 97   | 100      | 100  | 92              |
| Spain          | 100    | 99   | 99       | 96   | 91              |
| Romania        | 100    | 76   | 73       | 82   | 80              |
| Luxembourg     | 100    | 99   | 89       | n/a  | n/a             |

Source: OECD MSTI, January 2014; data used: Gross domestic expenditure on R&D (GERD) at constant 2005 PPP\$, Index = 2008.

Note: p = provisional data.

and energizing innovative individuals and teams. To point out relevant strategies and policies in this regard, it is important to learn more about what happens at the intersection of people, technology, financing, policy, and institutions. The need to gather more knowledge of, and a better understanding of, the role that the human factor—along with technology and capital—plays in innovation is critical. Statistically and analytically capturing this contribution and nurturing it through adequate education, training, and motivation in schools, universities, businesses, civil society, and the government itself is a challenge. The rich collection of chapters presented in this report provides a glimpse of how and which of these human aspects are affecting the innovation performance of nations globally.

Undoubtedly human capital plays a central role in the inception, the implementation, and the inter-organizational, national, and international diffusion of innovation. As outlined in Chapter 2 by Martin Schaaper and Chapter 3 by Richard Scott and Stéphan Vincent-Lancrin, improving skills is one of the most important ways to raise innovation, productivity, and economic growth and to improve social welfare and equality.

Indeed, modern growth theory treats human capital formation as a central element and driver of the technical and innovative progress necessary for growth as the economic literature demonstrates. Becker (1964) was one of the first economic and social theorists to recognize human capital as a set of skills that increase the productivity of the worker within firms and—ultimately—the overall production process of nations.<sup>1</sup> Although its role in production processes may be difficult to outline, human capital can

be thought of as the stock of knowledge or skills positively impacting economic output. Expanding on this notion, Nelson and Phelps suggest that ‘educated people make good innovators’;<sup>2</sup> thus education speeds the process of technological diffusion. Lucas distinguishes between two sources of human capital accumulation: education and experience (learning-by-doing).<sup>3</sup> Aghion and Howitt attest that differences in growth between nations and regions can be attributed in great part to differences in the levels of human capital and to their capacity to retain, attract, and expand these endogenously.<sup>4</sup> Nelson and Phelps and the Schumpeterian growth literature describe economic growth as being driven by the stock of human capital, which in turn affects a country’s ability to innovate or catch-up with more advanced and innovation-efficient economies. Current research and practical case studies at the national and regional level continue to empirically test and validate these new growth theories.

According to the OECD’s *Oslo Manual*:

the most significant innovation capability is the knowledge accumulated by the firm, which is mainly embedded in human resources, but also in procedures, routines and other characteristics of the firm. Innovation capabilities, as well as technological capabilities, are the result of learning processes, which are conscious and purposeful, costly and time-consuming, non-linear and path-dependent and cumulative.<sup>5</sup>

Innovations, therefore, emerge from the complex thinking, acting, and interacting of people going about their everyday work under certain framework conditions. In this context, it is particularly important that the traditional technology and product-oriented perspective on innovation evolves into a more holistic one in which the key role

of people and their working conditions is acknowledged.<sup>6</sup> Moreover, there is also a demand side to innovation. As expressed in Chapter 5 by Leonid Gokhberg and Valentina Poliakova, successful innovations rely also on the various actors in society—for example, consumers, the government, and others—that will ultimately be the recipients and users of these innovations. Thus the human factor in innovation does not stop at the supply side but reaches far into how innovations are received, accepted, and diffused.

Globalization has altered the mobility of people across geographic and cultural boundaries, and thus has also contributed to promote these paradigm shifts. As underlined by Lanvin and Evans,

Today’s economy benefits from being global and mobile. ... Mobility has been redefined. Ideas, know-how, and innovative and entrepreneurial people routinely cross borders and generate value locally and globally; projects involve people collaborating across different continents, all of whom are living outside their respective countries of birth. The engine of this global and mobile world is talent.<sup>7</sup>

Yet, as pointed out in Chapter 6, contributed by Ahmad Bin Byat and Osman Sultan, a key imperative going forward in the development of this mobile talent is also to advance in it the deep technical skills that are required for disruptive innovations.

While cross-border mobility and willingness to relocate abroad are possible with lower immigration and emigration barriers, nations—like corporations—now have to compete for talent. Inter-country and regional economic and demographic differences also stimulate labour flows; so do comparative gaps in real wage rates and differences in labour force age profiles.<sup>8</sup> On the other hand, many barriers still exist; these limit the ways in which migrations by workers could benefit both their

countries of origin and their countries of destination.<sup>9</sup> Yet mobility of talent remains critical for learning, adapting, and innovating within any regional systems of innovation.

Economists have made important progress in better understanding the causes and consequences of skilled-worker migrations. Recent research has shown that close to 75% of migrant inventors from low- and middle-income countries reside in the USA. China and India clearly stand out as the two largest middle-income countries of origin, followed by Russia, Turkey, Iran, Romania, and Mexico.<sup>10</sup> Chapter 8 of this report, by Nour-Eddine Boukharouaa and co-authors, introduces the particular case of the Moroccan Diaspora, which is mainly located in France (32%), Spain (20%), Italy (12%), and other European countries, Arab countries (6%), the USA and Canada (together 3%), and some African and Asian countries. At the same time, countries are busily at work reversing the so-called brain drain and keen to help emerging economies to retain, involve, or attract talent, sometimes by simply involving their skilled diaspora abroad.

These diaspora networks, however, have changed the way in which highly skilled mobility is understood and examined by economists and policy makers.<sup>11</sup> They have altered the traditional brain drain migration outflow into a brain gain skills circulation by turning the loss of human resources into a remote-although-accessible asset of expanded networks.<sup>12</sup> This shifted the traditional emphasis on embedded knowledge of potential returnees (a human capital approach) to a connectionist approach where social capital, including technical and institutional links, is crucial. These diaspora networks are then perceived by firms

and governments as the latest bridge institutions connecting developing economy insiders, with their risk-mitigating knowledge and connections, to outsiders in command of technical know-how and investment capital—all essential elements of innovation.<sup>13</sup>

Nonetheless, reverse migration trends are beginning to intensify.<sup>14</sup> Many countries are luring returnee immigrants as a group of highly trained and qualified people with valuable managerial experience and entrepreneurial skills who simultaneously possess local market knowledge and access to networks in the host country.<sup>15</sup> Chapter 7 of this report, by David Walwyn and Sibusiso Sibisi, explores in more detail some of the elements behind the capacity to attract and support higher levels of ‘extraordinary’ talent drawn from the example of South Africa. Such elements include, among other factors, adequate levels of funding, state-of-the-art facilities, international migration, strong local networks and clustering, as well as the ‘Sanger factor’—the idea that success breeds success.

There is strong evidence of the positive impact of diasporas on portfolio investments and foreign direct investment (FDI).<sup>16</sup> Moreover, supported by government policies and economic liberalization, dynamic reverse migration can convert brain drain into an inward talent flow.<sup>17</sup> But today’s reality is that only a remarkably small number of countries have actually ignited return migration or successfully implicated their diaspora in innovation activities or the crafting of innovation policies at home.

Understanding in more detail the human aspects behind innovation is essential for the design of policies that help promote the virtuous cycles that lead towards higher

economic development and richer innovation-prone environments locally.

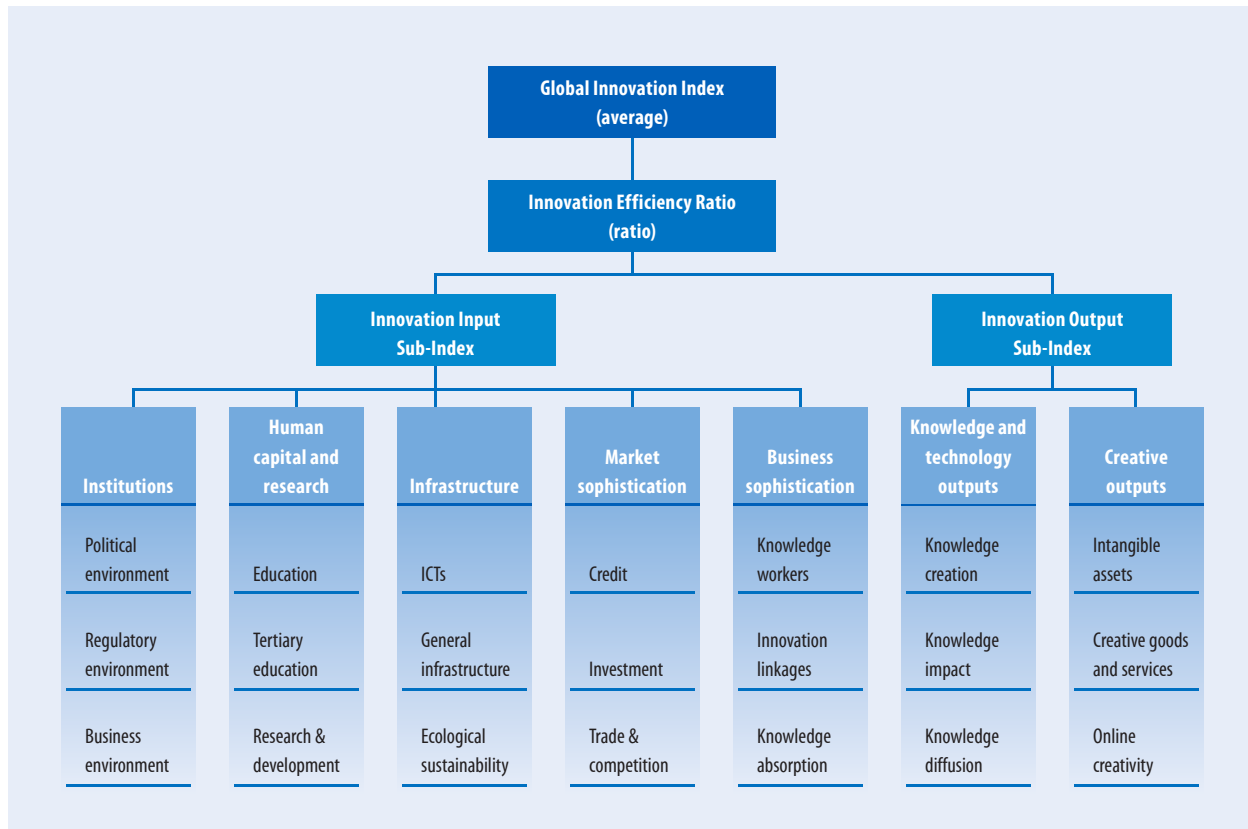
**The GII conceptual framework**

As in previous years, the GII relies on two sub-indices—the Innovation Input Sub-Index and the Innovation Output Sub-Index—each built around pillars. Four overall measures are calculated: the GII, the Input and Output Sub-Indices, and the Innovation Efficiency Ratio (Figure 1).

- **The Innovation Input Sub-Index:** Five input pillars capture elements of the national economy that enable innovative activities: (1) Institutions, (2) Human capital and research, (3) Infrastructure, (4) Market sophistication, and (5) Business sophistication.
- **The Innovation Output Sub-Index:** Innovation outputs are the results of innovative activities within the economy. There are two output pillars: (6) Knowledge and technology outputs and (7) Creative outputs.
- **The overall GII score** is the simple average of the Input and Output Sub-Indices.
- **The Innovation Efficiency Ratio** is the ratio of the Output Sub-Index over the Input Sub-Index. It shows how much innovation output a given country is getting for its inputs.

Each pillar is divided into three sub-pillars and each sub-pillar is composed of individual indicators, for a total of 81 indicators. Further details on the GII framework and the indicators used are provided in Annex 1. This year the GII model includes 143 economies, representing 92.9% of the world’s population

Figure 1: Framework of the Global Innovation Index 2014



and 98.3% of the world's GDP (in current US dollars).

### Global Innovation Index 2014: Main findings

The 143 economies and 81 indicators presented in the GII 2014 cover a range of themes, presenting us with a rich dataset to analyse global innovation trends. However, it is important to note that the GII model has evolved over the last editions. Each year the variables included in the GII computation are reviewed and updated to provide the best snapshot of global innovation (more details of these changes to the framework are provided in Annex 2). Thus care needs to be exercised when analysing year-on-year changes in GII ranks.

#### Stability at the top

As expected, there is relative stability in the top 10: Switzerland leads again in 2014, the United Kingdom (UK) takes the second spot, and Finland makes it into the top 5. The USA (6th) declines by one spot this year.

Except for one change, the top 10 ranked economies in the GII 2014 remain the same as in 2013. Luxembourg (ranked 12th in 2013) enters the top 10 at 9th position, pushing Ireland just over to 11th position in 2014 (down from rank 10 in 2013). The top 10 economies in 2014 are listed below; Figure 2 shows movement in the top 10 ranked economies over the last four years:

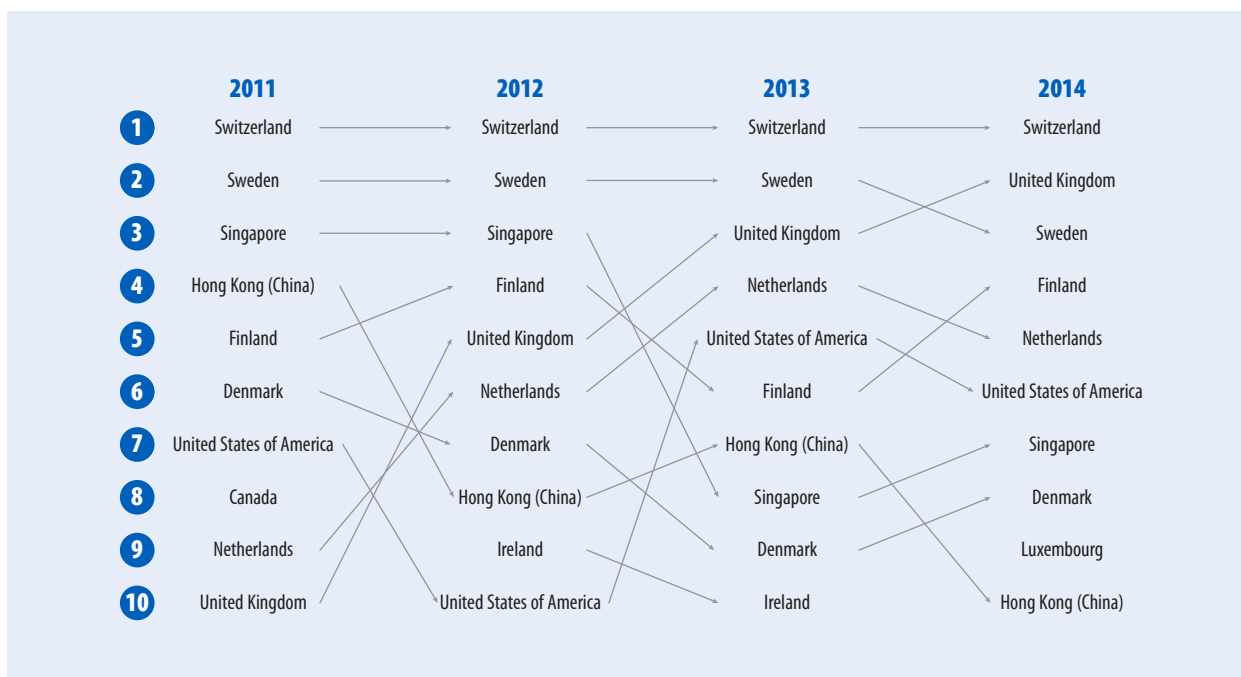
1. Switzerland
2. United Kingdom (UK)
3. Sweden
4. Finland

5. Netherlands
6. United States of America (USA)
7. Singapore
8. Denmark
9. Luxembourg
10. Hong Kong (China)

At first glance, these economies from around the world appear to have high income as a common factor explaining their dominance. However, several other high-income economies rank lower and struggle to break into the top tier. The answer lies in the GII model, which reflects the fact that innovation is a multi-faceted phenomenon with several input drivers and different output results. These innovation leaders are remarkable in consistently scoring high on most dimensions of the GII model. For example, top-ranked Switzerland secures a spot among the top 25 in



Figure 2: Movement in the top 10 of the GII



all pillars and sub-pillars with only four exceptions. Leadership from both business and government is essential for innovation excellence, and with the right approach, even a large economy such as the USA can be among the top innovators.

Other high-income countries inching towards the top tier performers include the Republic of Korea (21st in 2012, 18th in 2013, 16th in 2014) and Japan (25th in 2012, 22nd in 2013, 21st in 2014); both economies can attribute their ascent to improved rankings on the Output Sub-Index. Consequently they are closing the gap between Inputs and Outputs and improving their Innovation Efficiency Ratios.

**Global innovation divides persist**

The GII 2014 confirms the continued existence of global innovation divides (Box 2). Despite the increased globalization of R&D, the literature has noted that the actual production of high-quality scientific

research papers over the last three decades is spiky and geographically concentrated in only a few centres of excellence.<sup>18</sup> The world’s leading cities for the production of scientific papers at the highest levels have remained essentially the same for the past three decades.<sup>19</sup> The GII takes a more holistic view of innovation, which includes several factors other than R&D spending and scientific publications, but GII findings show that even with such a broader view, sharp divides in innovation results remain widespread—across and within income groups and geographical regions.

The three top-ranked lower-middle-income and low-income countries are, respectively, the Republic of Moldova (43rd in 2014; 45th in 2013), Mongolia (56th; 72nd), and Ukraine (63rd; 71st); and Kenya (85th; 99th), Uganda (91st; 89th), and Rwanda (102nd; 112th). The average GII score (on a scale of 100) for high-income countries

is 48.83 (50.11 in 2013) as compared with 29.53 (29.83) and 25.62 (26.43) for low-middle-income and low-income countries, respectively. The average GII scores for Northern America (58.11) and Europe (47.23) are significantly higher than those for other regions such as Northern Africa and Western Asia (35.73) and Latin America and the Caribbean (32.85). Innovation divides also exist within and between world regions. Europe shows significant differences in ranks and GII scores across nations—examples are Finland (ranked 4th; score of 60.67), Spain (27th; 49.27), and Portugal (32nd; 45.63).

Although some limited movement has been seen across divides (see Box 2 for a more detailed analysis), the changes are slow and innovation divides are likely to persist. While less-developed nations continue to progress, they are often unable to keep pace with improvements being made by more wealthy nations. The

## Box 2: The innovation divide persists

A persistent trait of the GII rankings has been the stability identified at the top (see Box 2 of Chapter 1 in the GII 2013). In 2014, Switzerland remains the indisputable leader for the fourth consecutive year. Among the top 10 and top 25, rankings have changed but the list of economies remains unaltered. Once again, all top 25 are exclusively high-income economies. The sole change in the top 10 this year is Luxembourg (9th) moving in and Ireland (11th) moving out. The fact that, at least since the GII began four years ago, the top 25 economies have all shared the characteristic of high income suggests the presence of an innovation divide, where the leaders remain uncontested and most major ranking moves occur only in lower tiers.

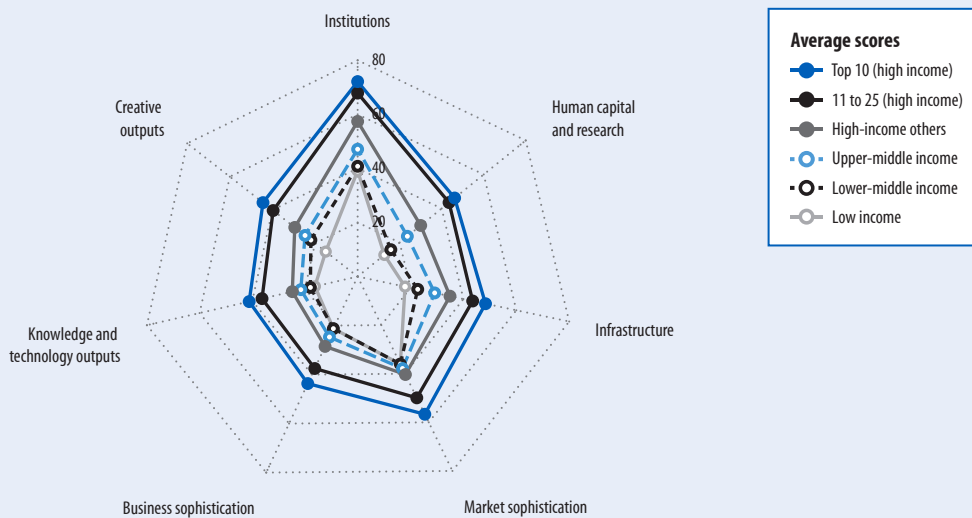
There is a clear distance between the top ranked economies and their followers. Figure 2.1 shows the average scores for three tiers of high-income economies (top 10, 15

through 25, and the remaining high-income economies), and the upper- and lower-middle-income and low-income economies. The top 10 economies exhibit clear strengths over the second tier high-income economies in all areas, and particularly the three areas where the divide between these two tiers has increased since 2013: Infrastructure (information and communication technologies, general infrastructure, and ecological sustainability), Business sophistication (knowledge workers, innovation linkages, and knowledge absorption), and Creative outputs (Intangible assets, creative goods and services, and online creativity).

The widest divide among all groups is between the second tier and the third tier in high-income economy groups. Although the third tier appears to be performing marginally better in Infrastructure, Market sophistication, and Creative outputs, the

divide is mostly attributable to a worse performance from the second tier. The divide between the third tier high-income group and the upper-middle-income group remains nearly unchanged in all pillars. The gap between high-income and middle-income performances is the largest in Institutions (20.62 points) and Human capital and research (17.22 points). However, the divide between these two continues to narrow in Market (10.94 points), Business sophistication (12.10 points), and Knowledge and technology outputs (12.63 points). Although the individual pillar scores for economies in either of these income groups are virtually indistinguishable, the group of upper-middle-income countries has not yet been able to move closer to the group of top 25 innovators. The only two non-high-income economies that have

Figure 2.1: The persistent innovation divide: Stability among the top 10 and top 25



Note: Countries/economies are classified according to the World Bank Income Group Classification (July 2013).

(Continued)

**Box 2: The innovation divide persists (cont'd.)**

managed to do so are China (29th) and Malaysia (33rd).

Between the lower-income groups the divide remains much less apparent. The lower-middle and low-income economies perform almost identically in four out of the seven pillars: Institutions, (2.12 points), Market (0.03 points) and Business sophistication (0.02 points), and Knowledge and technology outputs (2.14 points). This does not mean that economies at the lower levels of income are not making substantial changes in rank. On the contrary, the largest combined number of economies that changed their GII ranking this year—a total of 52—are found at these income levels. This is because the scores of many of these economies are very similar, especially for those countries in positions 76 to 100 (a span of 3.83 points)

and 101 to 125 (4.13 points), which suggests that small improvements to low-income economies' scores can have considerable impacts on their respective rankings.

When ranking regions from highest to lowest based on average GII score, the order is as follows: Northern America (58.11), Europe (47.23), South East Asia and Oceania (41.72), Northern Africa and Western Asia (35.73), Latin America and the Caribbean (32.85), Central and Southern Asia (27.48), and Sub-Saharan Africa (27.45).<sup>1</sup> The regional innovation divide between nations is largest between Northern America and Europe (10.88 points) and smallest between Central and Southern Asia and Sub-Saharan Africa (0.03). The gap between the other nations is, on average, around 4.94 points.

When comparing average scores on the pillar level, the innovation divide between regions is the largest in the Human capital and research pillar (with a span of 41.04 points between Northern America and Sub-Saharan Africa), and the smallest in the Creative outputs pillar (with a span of 26.04 points between Northern America and Central and Southern Asia). The gap between the first and second strongest performing regions (Northern America and Europe, respectively) is the largest in Market sophistication (25.40) and narrows significantly in Creative outputs (3.55).

**Note**

- 1 The regional groups are based on the United Nations classification.

benefits of legacy investments in human capital and the institutional context are difficult to replicate rapidly. For example, investments in the educational infrastructure in many low-income countries may take years to show results in terms of skilled graduates and even more time to yield tangible innovative outputs. This raises the pressure and the need for nations on the wrong side of the divide to accelerate their progress in driving innovation. Across the globe, however, some positive news is starting to register on that front, as discussed next.

**Sub-Saharan Africa: A region of innovation learners**

Sub-Saharan Africa now has more countries that are innovation learners. Over 2013, five African economies—Burkina Faso, Gambia, Malawi, Mozambique, and Rwanda—became part of the group

of economies defined as 'innovation learners' (economies that perform at least 10% higher than expected for their level of GDP; see Box 4 for more details), and the Sub-Saharan African region now makes up nearly 50% of the innovation learner economies. These five economies demonstrate rising levels of innovation, particularly in the areas of human capital and research (collectively improving in their ranking on this pillar by 71 places) and market sophistication (collectively improving by 148 places). By and large, Sub-Saharan Africa has seen the most significant improvement of all regions in the GII rankings, with Côte d'Ivoire showing the biggest improvement (20 places) and Mauritius taking the leading regional position (40th, an improvement of 13 places from 53rd in 2013.).

Many Sub-Saharan African countries are fostering innovation

through the implementation of various initiatives and programmes. For example, the government of Rwanda launched the Rwanda Innovation Endowment Fund (RIEF) to fund R&D to foster innovative areas such as agriculture, manufacturing, ICTs, and energy, in partnership with the United Nations Economic Commission for Africa (UNECA) and One UN Rwanda.<sup>20</sup> In other examples, Gambia has grown its ICT infrastructure and innovative services through various initiatives, and Gambia's Ministry of Trade, Industry, Regional Integration and Employment has also launched an innovation grant as part of the Social Development Fund in order to commercialize local projects.<sup>21</sup> Regional examples of projects that foster innovation include the Children and Community Initiative for Development (CAID) and the Africa Youth Panel (AYP), which

have rolled out a range of capacity building initiatives for youth in the Sub-Saharan Africa. Although a direct link between these programs and the GII rankings is not formally demonstrated here, these policy initiatives show commitment to innovation at the right policy levels.

### **The BRICS economies: Trajectories may be diverging**

In prior editions of the GII,<sup>22</sup> we posited the inherent innovation challenge for middle-income economies, including the BRICS countries. We described how middle-income economies need to adopt a comprehensive knowledge-based growth strategy to integrate their efforts along the different dimensions of the GII framework and sustain a high level of innovation success.

Among the BRICS (Brazil, Russia, India, China, and South Africa), four improved their positions (Brazil by three places to reach the 61st rank, the Russian Federation by 13 places to reach 49th, China by six places to reach 29th, and South Africa by five places to reach 53rd). India, on the other hand, has continued to slip by a further 10 places, dropping to 76th position this year. The progress of China and the Russian Federation in the rankings is among the most notable of all countries; China's ranking is now comparable to that of many high-income economies.

Most of the BRICS economies are also showing other signs of progress. All of them, with the exception of South Africa, qualify as 'efficient innovators' this year, meaning that they have innovation efficiency scores (calculated as total innovation outputs over total innovation inputs) greater than or equal to the average (0.74). When a subset of GII indicators related to the quality of innovation is considered,<sup>23</sup> three

BRICS economies (China, Brazil, and India) top the group of middle-income countries.

Alone among the BRICS, China seems on track to enter the top 25 in the GII. China ranks 2nd in innovation efficiency in 2014 on a global basis and is improving steadily along many dimensions of the GII. The country enjoys an impressive 2nd position in the Knowledge and technology outputs pillar and shows decent improvements in the Creative outputs pillar, ranking 1st in Creative goods exports. However, there is room for significant improvement in the Institutions pillar.

While all of the other BRICS economies have their own strengths and weaknesses, they are not yet showing the kind of accelerated and holistic improvements that are necessary to propel them into the top ranks of the GII. India, in particular, faces various challenges, education being one of the most acute. As pointed out in Chapter 4 by Naushad Forbes, 'Higher education has grown very rapidly in India over the last 30 years.' He explains that such rapid growth, concentrated in private rather than public institutions and focused on only a few professional fields, has given the rise to four crucial challenges: the need to (1) ensure quality, (2) build graduate education and research universities, (3) provide equity of access, and (4) build excellent liberal arts universities. Addressing these aspects may allow India to re-align its trajectory with the rest of the BRICS. If India does not start to focus on these challenges and on improving its innovation output, the country is likely continue to drop in the rankings and become less innovation efficient.

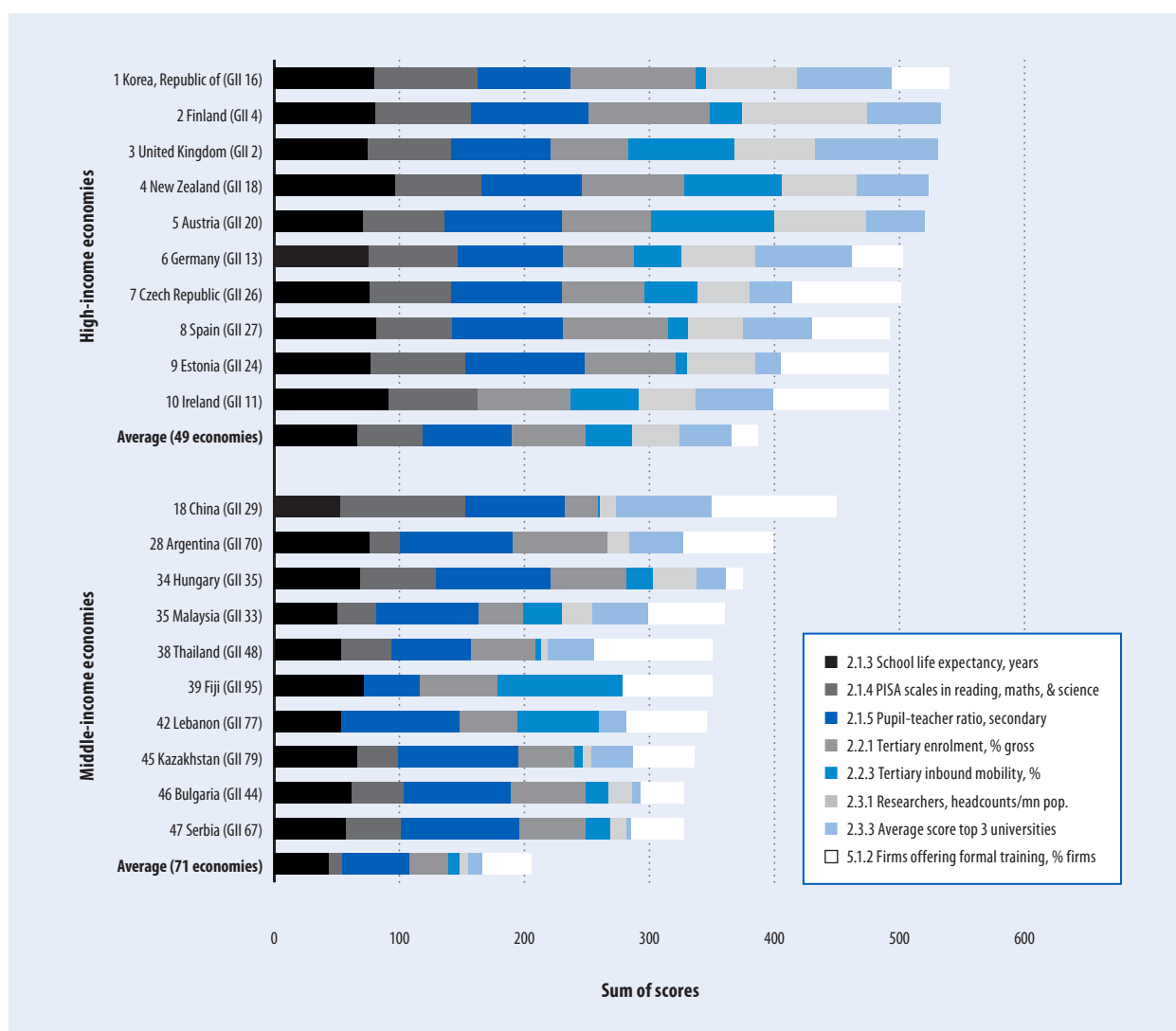
### **The human factor: The essential spark to innovation**

Attempting to measure the entire spectrum of human factors behind innovation would be an impossible task. However, the GII framework offers a number of indicators that provide valuable evidence of the human factor (see Figure 3), such as school life expectancy (2.1.3); PISA scales in reading, mathematics, and science (2.1.4); pupil-teacher ratio (2.1.5); tertiary enrolment (2.2.1); tertiary inbound mobility (2.2.3), researchers (2.3.1); average score of the top 3 universities (2.3.3); and firms offering formal training (5.1.2).

According to the sum of their scores on this subset of indicators, the bottom 10 economies by income group include mostly underperforming economies (economies performing at levels below expected according to their level of development) in addition to economies performing only on par with expectations. However, the number of the economies classified as underperformers decreases as the income group moves from high to low income. For example, 7 out of the 10 poorest performing high-income economies are underperformers, 4 out of the bottom 10 middle-income economies are underperformers, and 2 out of the bottom 10 low-income economies are underperformers. This indicates that higher-income economies are more reliant on the human factor to improve innovation performance.

The top performers within the high-income economies for the above subset of human factor-related variables are the Republic of Korea, Finland, and the UK. China takes the top position among the middle-income countries.

**Figure 3: Education as a human aspect of innovation: Top 10 high- and top 10 middle-income economies**



Notes: Numbers to the left of the economy name are the rank of education as a human aspect of innovation. Numbers in parentheses to the right of the economy name are the overall GII rank. Economies are classified by income according to the World Bank Income Group Classification (July 2013). Upper- and lower-middle income categories were grouped together as middle-income economies.

### Discussion of results: The world's top innovators

The following section describes and analyses the salient features of the GII 2014 results for the global leaders in each index and the best performers in light of their income level.<sup>24</sup> A short discussion of the rankings at the regional level follows.<sup>25</sup>

Tables 1 through 3 present the rankings of all economies included in the GII 2014 for the GII and the Input and Output Sub-Indices.

### The top 10 in the Global Innovation Index

The top 10 economies in the GII 2014 edition are Switzerland, the UK, Sweden, Finland, the Netherlands, the USA, Singapore, Denmark, Luxembourg, and Hong Kong (China). Nine of these economies were already in the GII top 10 in 2013; Ireland, which was in the top 10 in 2013, dropped to 11th place this year, and Luxembourg climbed up into the top 10 from 12th position in 2013.

**Switzerland** maintains its 2011, 2012, and 2013 position as number 1 in the GII, as well as its 2012 and 2013 1st place position in the Innovation Output Sub-Index and in Knowledge and technology outputs and its 2nd place in Creative outputs. It achieves a spot among the top 25 in all pillars and sub-pillars with only four exceptions: sub-pillars Education (where it ranks 52nd); Knowledge absorption (47th), Business environment (32nd),

Table 1: Global Innovation Index rankings

| Country/Economy          | Score (0–100) | Rank | Income | Rank | Region | Rank | Efficiency Ratio | Rank | Median: 0.74 |
|--------------------------|---------------|------|--------|------|--------|------|------------------|------|--------------|
| Switzerland              | 64.78         | 1    | HI     | 1    | EUR    | 1    | 0.95             | 6    |              |
| United Kingdom           | 62.37         | 2    | HI     | 2    | EUR    | 2    | 0.83             | 29   |              |
| Sweden                   | 62.29         | 3    | HI     | 3    | EUR    | 3    | 0.85             | 22   |              |
| Finland                  | 60.67         | 4    | HI     | 4    | EUR    | 4    | 0.80             | 41   |              |
| Netherlands              | 60.59         | 5    | HI     | 5    | EUR    | 5    | 0.91             | 12   |              |
| United States of America | 60.09         | 6    | HI     | 6    | NAC    | 1    | 0.77             | 57   |              |
| Singapore                | 59.24         | 7    | HI     | 7    | SEAO   | 1    | 0.61             | 110  |              |
| Denmark                  | 57.52         | 8    | HI     | 8    | EUR    | 6    | 0.76             | 61   |              |
| Luxembourg               | 56.86         | 9    | HI     | 9    | EUR    | 7    | 0.93             | 9    |              |
| Hong Kong (China)        | 56.82         | 10   | HI     | 10   | SEAO   | 2    | 0.66             | 99   |              |
| Ireland                  | 56.67         | 11   | HI     | 11   | EUR    | 8    | 0.79             | 47   |              |
| Canada                   | 56.13         | 12   | HI     | 12   | NAC    | 2    | 0.69             | 86   |              |
| Germany                  | 56.02         | 13   | HI     | 13   | EUR    | 9    | 0.86             | 19   |              |
| Norway                   | 55.59         | 14   | HI     | 14   | EUR    | 10   | 0.78             | 51   |              |
| Israel                   | 55.46         | 15   | HI     | 15   | NAWA   | 1    | 0.79             | 42   |              |
| Korea, Republic of       | 55.27         | 16   | HI     | 16   | SEAO   | 3    | 0.78             | 54   |              |
| Australia                | 55.01         | 17   | HI     | 17   | SEAO   | 4    | 0.70             | 81   |              |
| New Zealand              | 54.52         | 18   | HI     | 18   | SEAO   | 5    | 0.75             | 66   |              |
| Iceland                  | 54.05         | 19   | HI     | 19   | EUR    | 11   | 0.90             | 13   |              |
| Austria                  | 53.41         | 20   | HI     | 20   | EUR    | 12   | 0.74             | 69   |              |
| Japan                    | 52.41         | 21   | HI     | 21   | SEAO   | 6    | 0.69             | 88   |              |
| France                   | 52.18         | 22   | HI     | 22   | EUR    | 13   | 0.75             | 64   |              |
| Belgium                  | 51.69         | 23   | HI     | 23   | EUR    | 14   | 0.78             | 55   |              |
| Estonia                  | 51.54         | 24   | HI     | 24   | EUR    | 15   | 0.81             | 34   |              |
| Malta                    | 50.44         | 25   | HI     | 25   | EUR    | 16   | 0.99             | 3    |              |
| Czech Republic           | 50.22         | 26   | HI     | 26   | EUR    | 17   | 0.87             | 18   |              |
| Spain                    | 49.27         | 27   | HI     | 27   | EUR    | 18   | 0.76             | 60   |              |
| Slovenia                 | 47.23         | 28   | HI     | 28   | EUR    | 19   | 0.78             | 53   |              |
| China                    | 46.57         | 29   | UM     | 1    | SEAO   | 7    | 1.03             | 2    |              |
| Cyprus                   | 45.82         | 30   | HI     | 29   | NAWA   | 2    | 0.77             | 56   |              |
| Italy                    | 45.65         | 31   | HI     | 30   | EUR    | 20   | 0.78             | 52   |              |
| Portugal                 | 45.63         | 32   | HI     | 31   | EUR    | 21   | 0.74             | 73   |              |
| Malaysia                 | 45.60         | 33   | UM     | 2    | SEAO   | 8    | 0.74             | 72   |              |
| Latvia                   | 44.81         | 34   | HI     | 32   | EUR    | 22   | 0.82             | 32   |              |
| Hungary                  | 44.61         | 35   | UM     | 3    | EUR    | 23   | 0.90             | 15   |              |
| United Arab Emirates     | 43.25         | 36   | HI     | 33   | NAWA   | 3    | 0.54             | 127  |              |
| Slovakia                 | 41.89         | 37   | HI     | 34   | EUR    | 24   | 0.79             | 45   |              |
| Saudi Arabia             | 41.61         | 38   | HI     | 35   | NAWA   | 4    | 0.74             | 70   |              |
| Lithuania                | 41.00         | 39   | HI     | 36   | EUR    | 25   | 0.68             | 89   |              |
| Mauritius                | 40.94         | 40   | UM     | 4    | SSF    | 1    | 0.75             | 65   |              |
| Barbados                 | 40.78         | 41   | HI     | 37   | LCN    | 1    | 0.69             | 87   |              |
| Croatia                  | 40.75         | 42   | HI     | 38   | EUR    | 26   | 0.81             | 36   |              |
| Moldova, Republic of     | 40.74         | 43   | LM     | 1    | EUR    | 27   | 1.07             | 1    |              |
| Bulgaria                 | 40.74         | 44   | UM     | 5    | EUR    | 28   | 0.84             | 25   |              |
| Poland                   | 40.64         | 45   | HI     | 39   | EUR    | 29   | 0.72             | 76   |              |
| Chile                    | 40.64         | 46   | HI     | 40   | LCN    | 2    | 0.68             | 92   |              |
| Qatar                    | 40.31         | 47   | HI     | 41   | NAWA   | 5    | 0.60             | 114  |              |
| Thailand                 | 39.28         | 48   | UM     | 6    | SEAO   | 9    | 0.76             | 62   |              |
| Russian Federation       | 39.14         | 49   | HI     | 42   | EUR    | 30   | 0.79             | 49   |              |
| Greece                   | 38.95         | 50   | HI     | 43   | EUR    | 31   | 0.70             | 85   |              |
| Seychelles               | 38.56         | 51   | UM     | 7    | SSF    | 2    | 0.74             | 74   |              |
| Panama                   | 38.30         | 52   | UM     | 8    | LCN    | 3    | 0.85             | 20   |              |
| South Africa             | 38.25         | 53   | UM     | 9    | SSF    | 3    | 0.68             | 93   |              |
| Turkey                   | 38.20         | 54   | UM     | 10   | NAWA   | 6    | 0.93             | 11   |              |
| Romania                  | 38.08         | 55   | UM     | 11   | EUR    | 32   | 0.84             | 24   |              |
| Mongolia                 | 37.52         | 56   | LM     | 2    | SEAO   | 10   | 0.68             | 94   |              |
| Costa Rica               | 37.30         | 57   | UM     | 12   | LCN    | 4    | 0.81             | 38   |              |
| Belarus                  | 37.10         | 58   | UM     | 13   | EUR    | 33   | 0.83             | 27   |              |
| Montenegro               | 37.01         | 59   | UM     | 14   | EUR    | 34   | 0.62             | 106  |              |
| TFYR of Macedonia        | 36.93         | 60   | UM     | 15   | EUR    | 35   | 0.70             | 82   |              |
| Brazil                   | 36.29         | 61   | UM     | 16   | LCN    | 5    | 0.74             | 71   |              |
| Bahrain                  | 36.26         | 62   | HI     | 44   | NAWA   | 7    | 0.60             | 117  |              |
| Ukraine                  | 36.26         | 63   | LM     | 3    | EUR    | 36   | 0.90             | 14   |              |
| Jordan                   | 36.21         | 64   | UM     | 17   | NAWA   | 8    | 0.80             | 40   |              |
| Armenia                  | 36.06         | 65   | LM     | 4    | NAWA   | 9    | 0.83             | 28   |              |
| Mexico                   | 36.02         | 66   | UM     | 18   | LCN    | 6    | 0.71             | 79   |              |
| Serbia                   | 35.89         | 67   | UM     | 19   | EUR    | 37   | 0.79             | 46   |              |
| Colombia                 | 35.50         | 68   | UM     | 20   | LCN    | 7    | 0.63             | 102  |              |
| Kuwait                   | 35.19         | 69   | HI     | 45   | NAWA   | 10   | 0.78             | 50   |              |
| Argentina                | 35.13         | 70   | UM     | 21   | LCN    | 8    | 0.79             | 43   |              |
| Viet Nam                 | 34.89         | 71   | LM     | 5    | SEAO   | 11   | 0.95             | 5    |              |
| Uruguay                  | 34.76         | 72   | HI     | 46   | LCN    | 9    | 0.73             | 75   |              |

Table 1: Global Innovation Index rankings (continued)

| Country/Economy                   | Score (0–100) | Rank | Income | Rank | Region | Rank | Efficiency Ratio | Rank | Median: 0.74 |
|-----------------------------------|---------------|------|--------|------|--------|------|------------------|------|--------------|
| Peru                              | 34.73         | 73   | UM     | 22   | LCN    | 10   | 0.62             | 107  |              |
| Georgia                           | 34.53         | 74   | LM     | 6    | NAWA   | 11   | 0.68             | 90   |              |
| Oman                              | 33.87         | 75   | HI     | 47   | NAWA   | 12   | 0.58             | 121  |              |
| India                             | 33.70         | 76   | LM     | 7    | CSA    | 1    | 0.82             | 31   |              |
| Lebanon                           | 33.60         | 77   | UM     | 23   | NAWA   | 13   | 0.59             | 119  |              |
| Tunisia                           | 32.94         | 78   | UM     | 24   | NAWA   | 14   | 0.66             | 98   |              |
| Kazakhstan                        | 32.75         | 79   | UM     | 25   | CSA    | 2    | 0.59             | 118  |              |
| Guyana                            | 32.48         | 80   | LM     | 8    | LCN    | 11   | 0.74             | 68   |              |
| Bosnia and Herzegovina            | 32.43         | 81   | UM     | 26   | EUR    | 38   | 0.65             | 101  |              |
| Jamaica                           | 32.41         | 82   | UM     | 27   | LCN    | 12   | 0.65             | 100  |              |
| Dominican Republic                | 32.29         | 83   | UM     | 28   | LCN    | 13   | 0.85             | 21   |              |
| Morocco                           | 32.24         | 84   | LM     | 9    | NAWA   | 15   | 0.70             | 83   |              |
| Kenya                             | 31.85         | 85   | LI     | 1    | SSF    | 4    | 0.84             | 26   |              |
| Bhutan                            | 31.83         | 86   | LM     | 10   | CSA    | 3    | 0.60             | 112  |              |
| Indonesia                         | 31.81         | 87   | LM     | 11   | SEAO   | 12   | 0.96             | 4    |              |
| Brunei Darussalam                 | 31.67         | 88   | HI     | 48   | SEAO   | 13   | 0.43             | 139  |              |
| Paraguay                          | 31.59         | 89   | LM     | 12   | LCN    | 14   | 0.75             | 63   |              |
| Trinidad and Tobago               | 31.56         | 90   | HI     | 49   | LCN    | 15   | 0.63             | 103  |              |
| Uganda                            | 31.14         | 91   | LI     | 2    | SSF    | 5    | 0.71             | 77   |              |
| Botswana                          | 30.87         | 92   | UM     | 29   | SSF    | 6    | 0.50             | 133  |              |
| Guatemala                         | 30.75         | 93   | LM     | 13   | LCN    | 16   | 0.68             | 95   |              |
| Albania                           | 30.47         | 94   | UM     | 30   | EUR    | 39   | 0.50             | 131  |              |
| Fiji                              | 30.39         | 95   | UM     | 31   | SEAO   | 14   | 0.34             | 141  |              |
| Ghana                             | 30.26         | 96   | LM     | 14   | SSF    | 7    | 0.81             | 37   |              |
| Cabo Verde                        | 30.09         | 97   | LM     | 15   | SSF    | 8    | 0.55             | 126  |              |
| Senegal                           | 30.06         | 98   | LM     | 16   | SSF    | 9    | 0.85             | 23   |              |
| Egypt                             | 30.03         | 99   | LM     | 17   | NAWA   | 16   | 0.76             | 59   |              |
| Philippines                       | 29.87         | 100  | LM     | 18   | SEAO   | 15   | 0.81             | 35   |              |
| Azerbaijan                        | 29.60         | 101  | UM     | 32   | NAWA   | 17   | 0.58             | 120  |              |
| Rwanda                            | 29.31         | 102  | LI     | 3    | SSF    | 10   | 0.46             | 137  |              |
| El Salvador                       | 29.08         | 103  | LM     | 19   | LCN    | 17   | 0.60             | 116  |              |
| Gambia                            | 29.03         | 104  | LI     | 4    | SSF    | 11   | 0.76             | 58   |              |
| Sri Lanka                         | 28.98         | 105  | LM     | 20   | CSA    | 4    | 0.87             | 17   |              |
| Cambodia                          | 28.66         | 106  | LI     | 5    | SEAO   | 16   | 0.74             | 67   |              |
| Mozambique                        | 28.52         | 107  | LI     | 6    | SSF    | 12   | 0.57             | 124  |              |
| Namibia                           | 28.47         | 108  | UM     | 33   | SSF    | 13   | 0.55             | 125  |              |
| Burkina Faso                      | 28.18         | 109  | LI     | 7    | SSF    | 14   | 0.71             | 78   |              |
| Nigeria                           | 27.79         | 110  | LM     | 21   | SSF    | 15   | 0.94             | 8    |              |
| Bolivia, Plurinational State of   | 27.76         | 111  | LM     | 22   | LCN    | 18   | 0.70             | 84   |              |
| Kyrgyzstan                        | 27.75         | 112  | LI     | 8    | CSA    | 5    | 0.46             | 136  |              |
| Malawi                            | 27.61         | 113  | LI     | 9    | SSF    | 16   | 0.67             | 96   |              |
| Cameroon                          | 27.52         | 114  | LM     | 23   | SSF    | 17   | 0.80             | 39   |              |
| Ecuador                           | 27.50         | 115  | UM     | 34   | LCN    | 19   | 0.63             | 104  |              |
| Côte d'Ivoire                     | 27.02         | 116  | LM     | 24   | SSF    | 18   | 0.93             | 10   |              |
| Lesotho                           | 27.01         | 117  | LM     | 25   | SSF    | 19   | 0.40             | 140  |              |
| Honduras                          | 26.73         | 118  | LM     | 26   | LCN    | 20   | 0.53             | 128  |              |
| Mali                              | 26.18         | 119  | LI     | 10   | SSF    | 20   | 0.83             | 30   |              |
| Iran, Islamic Republic of         | 26.14         | 120  | UM     | 35   | CSA    | 6    | 0.57             | 122  |              |
| Zambia                            | 25.76         | 121  | LM     | 27   | SSF    | 21   | 0.79             | 44   |              |
| Venezuela, Bolivarian Republic of | 25.66         | 122  | UM     | 36   | LCN    | 21   | 0.95             | 7    |              |
| Tanzania, United Republic of      | 25.60         | 123  | LI     | 11   | SSF    | 22   | 0.60             | 113  |              |
| Madagascar                        | 25.50         | 124  | LI     | 12   | SSF    | 23   | 0.62             | 105  |              |
| Nicaragua                         | 25.47         | 125  | LM     | 28   | LCN    | 22   | 0.53             | 129  |              |
| Ethiopia                          | 25.36         | 126  | LI     | 13   | SSF    | 24   | 0.67             | 97   |              |
| Swaziland                         | 25.33         | 127  | LM     | 29   | SSF    | 25   | 0.57             | 123  |              |
| Uzbekistan                        | 25.20         | 128  | LM     | 30   | CSA    | 7    | 0.61             | 108  |              |
| Bangladesh                        | 24.35         | 129  | LI     | 14   | CSA    | 8    | 0.68             | 91   |              |
| Zimbabwe                          | 24.31         | 130  | LI     | 15   | SSF    | 26   | 0.79             | 48   |              |
| Niger                             | 24.27         | 131  | LI     | 16   | SSF    | 27   | 0.50             | 132  |              |
| Benin                             | 24.21         | 132  | LI     | 17   | SSF    | 28   | 0.60             | 115  |              |
| Algeria                           | 24.20         | 133  | UM     | 37   | NAWA   | 18   | 0.53             | 130  |              |
| Pakistan                          | 24.00         | 134  | LM     | 31   | CSA    | 9    | 0.89             | 16   |              |
| Angola                            | 23.82         | 135  | UM     | 38   | SSF    | 29   | 0.82             | 33   |              |
| Nepal                             | 23.79         | 136  | LI     | 18   | CSA    | 10   | 0.49             | 134  |              |
| Tajikistan                        | 23.73         | 137  | LI     | 19   | CSA    | 11   | 0.45             | 138  |              |
| Burundi                           | 22.43         | 138  | LI     | 20   | SSF    | 30   | 0.46             | 135  |              |
| Guinea                            | 20.25         | 139  | LI     | 21   | SSF    | 31   | 0.61             | 109  |              |
| Myanmar                           | 19.64         | 140  | LI     | 22   | SEAO   | 17   | 0.71             | 81   |              |
| Yemen                             | 19.53         | 141  | LM     | 32   | NAWA   | 19   | 0.60             | 110  |              |
| Togo                              | 17.65         | 142  | LI     | 23   | SSF    | 32   | 0.25             | 142  |              |
| Sudan                             | 12.66         | 143  | LM     | 33   | SSF    | 33   | 0.09             | 143  |              |

Note: World Bank Income Group Classification (July 2013): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Regions are based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; SSF = Sub-Saharan Africa.



Table 2: Innovation Input Sub-Index rankings

| Country/Economy          | Score (0–100) | Rank | Income | Rank | Region | Rank | Median: 40.29 |
|--------------------------|---------------|------|--------|------|--------|------|---------------|
| Singapore                | 73.60         | 1    | HI     | 1    | SEAO   | 1    |               |
| Hong Kong (China)        | 68.57         | 2    | HI     | 2    | SEAO   | 2    |               |
| United Kingdom           | 68.21         | 3    | HI     | 3    | EUR    | 1    |               |
| United States of America | 67.92         | 4    | HI     | 4    | NAC    | 1    |               |
| Finland                  | 67.53         | 5    | HI     | 5    | EUR    | 2    |               |
| Sweden                   | 67.46         | 6    | HI     | 6    | EUR    | 3    |               |
| Switzerland              | 66.44         | 7    | HI     | 7    | EUR    | 4    |               |
| Canada                   | 66.27         | 8    | HI     | 8    | NAC    | 2    |               |
| Denmark                  | 65.52         | 9    | HI     | 9    | EUR    | 5    |               |
| Australia                | 64.57         | 10   | HI     | 10   | SEAO   | 3    |               |
| Netherlands              | 63.46         | 11   | HI     | 11   | EUR    | 6    |               |
| Ireland                  | 63.31         | 12   | HI     | 12   | EUR    | 7    |               |
| New Zealand              | 62.47         | 13   | HI     | 13   | SEAO   | 4    |               |
| Norway                   | 62.37         | 14   | HI     | 14   | EUR    | 8    |               |
| Japan                    | 62.21         | 15   | HI     | 15   | SEAO   | 5    |               |
| Korea, Republic of       | 62.17         | 16   | HI     | 16   | SEAO   | 6    |               |
| Israel                   | 61.80         | 17   | HI     | 17   | NAWA   | 1    |               |
| Austria                  | 61.33         | 18   | HI     | 18   | EUR    | 9    |               |
| Germany                  | 60.31         | 19   | HI     | 19   | EUR    | 10   |               |
| France                   | 59.51         | 20   | HI     | 20   | EUR    | 11   |               |
| Luxembourg               | 58.78         | 21   | HI     | 21   | EUR    | 12   |               |
| Belgium                  | 58.23         | 22   | HI     | 22   | EUR    | 13   |               |
| Estonia                  | 56.81         | 23   | HI     | 23   | EUR    | 14   |               |
| Iceland                  | 56.77         | 24   | HI     | 24   | EUR    | 15   |               |
| United Arab Emirates     | 56.23         | 25   | HI     | 25   | NAWA   | 2    |               |
| Spain                    | 55.94         | 26   | HI     | 26   | EUR    | 16   |               |
| Czech Republic           | 53.59         | 27   | HI     | 27   | EUR    | 17   |               |
| Slovenia                 | 53.07         | 28   | HI     | 28   | EUR    | 18   |               |
| Portugal                 | 52.56         | 29   | HI     | 29   | EUR    | 19   |               |
| Malaysia                 | 52.46         | 30   | UM     | 1    | SEAO   | 7    |               |
| Cyprus                   | 51.73         | 31   | HI     | 30   | NAWA   | 3    |               |
| Italy                    | 51.21         | 32   | HI     | 31   | EUR    | 20   |               |
| Malta                    | 50.57         | 33   | HI     | 32   | EUR    | 21   |               |
| Qatar                    | 50.38         | 34   | HI     | 33   | NAWA   | 4    |               |
| Latvia                   | 49.21         | 35   | HI     | 34   | EUR    | 22   |               |
| Lithuania                | 48.73         | 36   | HI     | 35   | EUR    | 23   |               |
| Chile                    | 48.44         | 37   | HI     | 36   | LCN    | 1    |               |
| Barbados                 | 48.32         | 38   | HI     | 37   | LCN    | 2    |               |
| Saudi Arabia             | 47.85         | 39   | HI     | 38   | NAWA   | 5    |               |
| Poland                   | 47.31         | 40   | HI     | 39   | EUR    | 24   |               |
| Hungary                  | 47.04         | 41   | UM     | 2    | EUR    | 25   |               |
| Mauritius                | 46.89         | 42   | UM     | 3    | SSF    | 1    |               |
| Slovakia                 | 46.75         | 43   | HI     | 40   | EUR    | 26   |               |
| Greece                   | 45.94         | 44   | HI     | 41   | EUR    | 27   |               |
| China                    | 45.79         | 45   | UM     | 4    | SEAO   | 8    |               |
| Montenegro               | 45.61         | 46   | UM     | 5    | EUR    | 28   |               |
| South Africa             | 45.60         | 47   | UM     | 6    | SSF    | 2    |               |
| Bahrain                  | 45.45         | 48   | HI     | 42   | NAWA   | 6    |               |
| Fiji                     | 45.21         | 49   | UM     | 7    | SEAO   | 9    |               |
| Croatia                  | 45.10         | 50   | HI     | 43   | EUR    | 29   |               |
| Mongolia                 | 44.76         | 51   | LM     | 1    | SEAO   | 10   |               |
| Thailand                 | 44.75         | 52   | UM     | 8    | SEAO   | 11   |               |
| Seychelles               | 44.45         | 53   | UM     | 9    | SSF    | 3    |               |
| Bulgaria                 | 44.34         | 54   | UM     | 10   | EUR    | 30   |               |
| Brunei Darussalam        | 44.30         | 55   | HI     | 44   | SEAO   | 12   |               |
| Russian Federation       | 43.77         | 56   | HI     | 45   | EUR    | 31   |               |
| TFYR of Macedonia        | 43.45         | 57   | UM     | 11   | EUR    | 32   |               |
| Colombia                 | 43.45         | 58   | UM     | 12   | LCN    | 3    |               |
| Oman                     | 42.82         | 59   | HI     | 46   | NAWA   | 7    |               |
| Peru                     | 42.82         | 60   | UM     | 13   | LCN    | 4    |               |
| Lebanon                  | 42.22         | 61   | UM     | 14   | NAWA   | 8    |               |
| Mexico                   | 42.19         | 62   | UM     | 15   | LCN    | 5    |               |
| Brazil                   | 41.74         | 63   | UM     | 16   | LCN    | 6    |               |
| Panama                   | 41.40         | 64   | UM     | 17   | LCN    | 7    |               |
| Romania                  | 41.36         | 65   | UM     | 18   | EUR    | 33   |               |
| Costa Rica               | 41.30         | 66   | UM     | 19   | LCN    | 8    |               |
| Botswana                 | 41.20         | 67   | UM     | 20   | SSF    | 4    |               |
| Georgia                  | 41.10         | 68   | LM     | 2    | NAWA   | 9    |               |
| Kazakhstan               | 41.10         | 69   | UM     | 21   | CSA    | 1    |               |
| Belarus                  | 40.51         | 70   | UM     | 22   | EUR    | 34   |               |
| Albania                  | 40.51         | 71   | UM     | 23   | EUR    | 35   |               |
| Jordan                   | 40.29         | 72   | UM     | 24   | NAWA   | 10   |               |



Table 2: Innovation Input Sub-Index rankings (continued)

| Country/Economy                   | Score (0–100) | Rank | Income | Rank | Region | Rank | Median: 40.29 |
|-----------------------------------|---------------|------|--------|------|--------|------|---------------|
| Uruguay                           | 40.26         | 73   | HI     | 47   | LCN    | 9    |               |
| Rwanda                            | 40.19         | 74   | LI     | 1    | SSF    | 5    |               |
| Serbia                            | 40.06         | 75   | UM     | 25   | EUR    | 36   |               |
| Bhutan                            | 39.76         | 76   | LM     | 3    | CSA    | 2    |               |
| Tunisia                           | 39.75         | 77   | UM     | 26   | NAWA   | 11   |               |
| Turkey                            | 39.66         | 78   | UM     | 27   | NAWA   | 12   |               |
| Kuwait                            | 39.44         | 79   | HI     | 48   | NAWA   | 13   |               |
| Moldova, Republic of              | 39.42         | 80   | LM     | 4    | EUR    | 37   |               |
| Armenia                           | 39.39         | 81   | LM     | 5    | NAWA   | 14   |               |
| Bosnia and Herzegovina            | 39.36         | 82   | UM     | 28   | EUR    | 38   |               |
| Argentina                         | 39.18         | 83   | UM     | 29   | LCN    | 10   |               |
| Jamaica                           | 39.17         | 84   | UM     | 30   | LCN    | 11   |               |
| Cabo Verde                        | 38.89         | 85   | LM     | 6    | SSF    | 6    |               |
| Trinidad and Tobago               | 38.64         | 86   | HI     | 49   | LCN    | 12   |               |
| Lesotho                           | 38.58         | 87   | LM     | 7    | SSF    | 7    |               |
| Ukraine                           | 38.15         | 88   | LM     | 8    | EUR    | 39   |               |
| Morocco                           | 37.99         | 89   | LM     | 9    | NAWA   | 15   |               |
| Kyrgyzstan                        | 37.92         | 90   | LI     | 2    | CSA    | 3    |               |
| Azerbaijan                        | 37.35         | 91   | UM     | 31   | NAWA   | 16   |               |
| Guyana                            | 37.28         | 92   | LM     | 10   | LCN    | 13   |               |
| India                             | 36.97         | 93   | LM     | 11   | CSA    | 4    |               |
| Guatemala                         | 36.69         | 94   | LM     | 12   | LCN    | 14   |               |
| Namibia                           | 36.67         | 95   | UM     | 32   | SSF    | 8    |               |
| Mozambique                        | 36.42         | 96   | LI     | 3    | SSF    | 9    |               |
| El Salvador                       | 36.42         | 97   | LM     | 13   | LCN    | 15   |               |
| Uganda                            | 36.32         | 98   | LI     | 4    | SSF    | 10   |               |
| Paraguay                          | 36.01         | 99   | LM     | 14   | LCN    | 16   |               |
| Viet Nam                          | 35.75         | 100  | LM     | 15   | SEAO   | 13   |               |
| Dominican Republic                | 34.95         | 101  | UM     | 33   | LCN    | 17   |               |
| Honduras                          | 34.84         | 102  | LM     | 16   | LCN    | 18   |               |
| Kenya                             | 34.69         | 103  | LI     | 5    | SSF    | 11   |               |
| Egypt                             | 34.05         | 104  | LM     | 17   | NAWA   | 17   |               |
| Ecuador                           | 33.71         | 105  | UM     | 34   | LCN    | 19   |               |
| Ghana                             | 33.50         | 106  | LM     | 18   | SSF    | 12   |               |
| Iran, Islamic Republic of         | 33.24         | 107  | UM     | 35   | CSA    | 5    |               |
| Nicaragua                         | 33.22         | 108  | LM     | 19   | LCN    | 20   |               |
| Malawi                            | 32.97         | 109  | LI     | 6    | SSF    | 13   |               |
| Philippines                       | 32.93         | 110  | LM     | 20   | SEAO   | 14   |               |
| Gambia                            | 32.92         | 111  | LI     | 7    | SSF    | 14   |               |
| Burkina Faso                      | 32.87         | 112  | LI     | 8    | SSF    | 15   |               |
| Cambodia                          | 32.85         | 113  | LI     | 9    | SEAO   | 15   |               |
| Tajikistan                        | 32.82         | 114  | LI     | 10   | CSA    | 6    |               |
| Bolivia, Plurinational State of   | 32.74         | 115  | LM     | 21   | LCN    | 21   |               |
| Senegal                           | 32.56         | 116  | LM     | 22   | SSF    | 16   |               |
| Indonesia                         | 32.42         | 117  | LM     | 23   | SEAO   | 16   |               |
| Niger                             | 32.35         | 118  | LI     | 11   | SSF    | 17   |               |
| Swaziland                         | 32.21         | 119  | LM     | 24   | SSF    | 18   |               |
| Tanzania, United Republic of      | 31.98         | 120  | LI     | 12   | SSF    | 19   |               |
| Nepal                             | 31.83         | 121  | LI     | 13   | CSA    | 7    |               |
| Algeria                           | 31.65         | 122  | UM     | 36   | NAWA   | 18   |               |
| Madagascar                        | 31.41         | 123  | LI     | 14   | SSF    | 20   |               |
| Uzbekistan                        | 31.26         | 124  | LM     | 25   | CSA    | 8    |               |
| Sri Lanka                         | 30.92         | 125  | LM     | 26   | CSA    | 9    |               |
| Burundi                           | 30.63         | 126  | LI     | 15   | SSF    | 21   |               |
| Cameroon                          | 30.59         | 127  | LM     | 27   | SSF    | 22   |               |
| Ethiopia                          | 30.36         | 128  | LI     | 16   | SSF    | 23   |               |
| Benin                             | 30.28         | 129  | LI     | 17   | SSF    | 24   |               |
| Bangladesh                        | 29.00         | 130  | LI     | 18   | CSA    | 10   |               |
| Zambia                            | 28.74         | 131  | LM     | 28   | SSF    | 25   |               |
| Mali                              | 28.65         | 132  | LI     | 19   | SSF    | 26   |               |
| Nigeria                           | 28.63         | 133  | LM     | 29   | SSF    | 27   |               |
| Togo                              | 28.31         | 134  | LI     | 20   | SSF    | 28   |               |
| Côte d'Ivoire                     | 28.01         | 135  | LM     | 30   | SSF    | 29   |               |
| Zimbabwe                          | 27.18         | 136  | LI     | 21   | SSF    | 30   |               |
| Venezuela, Bolivarian Republic of | 26.32         | 137  | UM     | 37   | LCN    | 22   |               |
| Angola                            | 26.21         | 138  | UM     | 38   | SSF    | 31   |               |
| Pakistan                          | 25.44         | 139  | LM     | 31   | CSA    | 11   |               |
| Guinea                            | 25.14         | 140  | LI     | 22   | SSF    | 32   |               |
| Yemen                             | 24.36         | 141  | LM     | 32   | NAWA   | 19   |               |
| Sudan                             | 23.20         | 142  | LM     | 33   | SSF    | 33   |               |
| Myanmar                           | 23.03         | 143  | LI     | 23   | SEAO   | 17   |               |

Note: World Bank Income Group Classification (July 2013): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Regions are based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; SSF = Sub-Saharan Africa.

Table 3: Innovation Output Sub-Index rankings

| Country/Economy          | Score (0–100) | Rank | Income | Rank | Region | Rank | Median: 29.27 |
|--------------------------|---------------|------|--------|------|--------|------|---------------|
| Switzerland              | 63.11         | 1    | HI     | 1    | EUR    | 1    |               |
| Netherlands              | 57.73         | 2    | HI     | 2    | EUR    | 2    |               |
| Sweden                   | 57.13         | 3    | HI     | 3    | EUR    | 3    |               |
| United Kingdom           | 56.52         | 4    | HI     | 4    | EUR    | 4    |               |
| Luxembourg               | 54.94         | 5    | HI     | 5    | EUR    | 5    |               |
| Finland                  | 53.82         | 6    | HI     | 6    | EUR    | 6    |               |
| United States of America | 52.27         | 7    | HI     | 7    | NAC    | 1    |               |
| Germany                  | 51.74         | 8    | HI     | 8    | EUR    | 7    |               |
| Iceland                  | 51.33         | 9    | HI     | 9    | EUR    | 8    |               |
| Malta                    | 50.31         | 10   | HI     | 10   | EUR    | 9    |               |
| Ireland                  | 50.04         | 11   | HI     | 11   | EUR    | 10   |               |
| Denmark                  | 49.52         | 12   | HI     | 12   | EUR    | 11   |               |
| Israel                   | 49.11         | 13   | HI     | 13   | NAWA   | 1    |               |
| Norway                   | 48.82         | 14   | HI     | 14   | EUR    | 12   |               |
| Korea, Republic of       | 48.37         | 15   | HI     | 15   | SEAO   | 1    |               |
| China                    | 47.35         | 16   | UM     | 1    | SEAO   | 2    |               |
| Czech Republic           | 46.85         | 17   | HI     | 16   | EUR    | 13   |               |
| New Zealand              | 46.57         | 18   | HI     | 17   | SEAO   | 3    |               |
| Estonia                  | 46.27         | 19   | HI     | 18   | EUR    | 14   |               |
| Canada                   | 45.99         | 20   | HI     | 19   | NAC    | 2    |               |
| Austria                  | 45.49         | 21   | HI     | 20   | EUR    | 15   |               |
| Australia                | 45.46         | 22   | HI     | 21   | SEAO   | 4    |               |
| Belgium                  | 45.15         | 23   | HI     | 22   | EUR    | 16   |               |
| Hong Kong (China)        | 45.08         | 24   | HI     | 23   | SEAO   | 5    |               |
| Singapore                | 44.88         | 25   | HI     | 24   | SEAO   | 6    |               |
| France                   | 44.85         | 26   | HI     | 25   | EUR    | 17   |               |
| Japan                    | 42.61         | 27   | HI     | 26   | SEAO   | 7    |               |
| Spain                    | 42.60         | 28   | HI     | 27   | EUR    | 18   |               |
| Hungary                  | 42.18         | 29   | UM     | 2    | EUR    | 19   |               |
| Moldova, Republic of     | 42.06         | 30   | LM     | 1    | EUR    | 20   |               |
| Slovenia                 | 41.38         | 31   | HI     | 28   | EUR    | 21   |               |
| Latvia                   | 40.41         | 32   | HI     | 29   | EUR    | 22   |               |
| Italy                    | 40.09         | 33   | HI     | 30   | EUR    | 23   |               |
| Cyprus                   | 39.92         | 34   | HI     | 31   | NAWA   | 2    |               |
| Malaysia                 | 38.74         | 35   | UM     | 3    | SEAO   | 8    |               |
| Portugal                 | 38.70         | 36   | HI     | 32   | EUR    | 24   |               |
| Bulgaria                 | 37.13         | 37   | UM     | 4    | EUR    | 25   |               |
| Slovakia                 | 37.02         | 38   | HI     | 33   | EUR    | 26   |               |
| Turkey                   | 36.74         | 39   | UM     | 5    | NAWA   | 3    |               |
| Croatia                  | 36.40         | 40   | HI     | 34   | EUR    | 27   |               |
| Saudi Arabia             | 35.37         | 41   | HI     | 35   | NAWA   | 4    |               |
| Panama                   | 35.20         | 42   | UM     | 6    | LCN    | 1    |               |
| Mauritius                | 34.99         | 43   | UM     | 7    | SSF    | 1    |               |
| Romania                  | 34.80         | 44   | UM     | 8    | EUR    | 28   |               |
| Russian Federation       | 34.50         | 45   | HI     | 36   | EUR    | 29   |               |
| Ukraine                  | 34.37         | 46   | LM     | 2    | EUR    | 30   |               |
| Viet Nam                 | 34.02         | 47   | LM     | 3    | SEAO   | 9    |               |
| Poland                   | 33.98         | 48   | HI     | 37   | EUR    | 31   |               |
| Thailand                 | 33.81         | 49   | UM     | 9    | SEAO   | 10   |               |
| Belarus                  | 33.68         | 50   | UM     | 10   | EUR    | 32   |               |
| Costa Rica               | 33.31         | 51   | UM     | 11   | LCN    | 2    |               |
| Lithuania                | 33.27         | 52   | HI     | 38   | EUR    | 33   |               |
| Barbados                 | 33.24         | 53   | HI     | 39   | LCN    | 3    |               |
| Chile                    | 32.84         | 54   | HI     | 40   | LCN    | 4    |               |
| Armenia                  | 32.73         | 55   | LM     | 4    | NAWA   | 5    |               |
| Seychelles               | 32.68         | 56   | UM     | 12   | SSF    | 2    |               |
| Jordan                   | 32.13         | 57   | UM     | 13   | NAWA   | 6    |               |
| Greece                   | 31.95         | 58   | HI     | 41   | EUR    | 34   |               |
| Serbia                   | 31.73         | 59   | UM     | 14   | EUR    | 35   |               |
| Indonesia                | 31.20         | 60   | LM     | 5    | SEAO   | 11   |               |
| Argentina                | 31.07         | 61   | UM     | 15   | LCN    | 5    |               |
| Kuwait                   | 30.94         | 62   | HI     | 42   | NAWA   | 7    |               |
| South Africa             | 30.90         | 63   | UM     | 16   | SSF    | 3    |               |
| Brazil                   | 30.84         | 64   | UM     | 17   | LCN    | 6    |               |
| India                    | 30.42         | 65   | LM     | 6    | CSA    | 1    |               |
| TFYR of Macedonia        | 30.42         | 66   | UM     | 18   | EUR    | 36   |               |
| Mongolia                 | 30.28         | 67   | LM     | 7    | SEAO   | 12   |               |
| United Arab Emirates     | 30.27         | 68   | HI     | 43   | NAWA   | 8    |               |
| Qatar                    | 30.24         | 69   | HI     | 44   | NAWA   | 9    |               |
| Mexico                   | 29.86         | 70   | UM     | 19   | LCN    | 7    |               |
| Dominican Republic       | 29.64         | 71   | UM     | 20   | LCN    | 8    |               |
| Uruguay                  | 29.27         | 72   | HI     | 45   | LCN    | 9    |               |

Table 3: Innovation Output Sub-Index rankings (continued)

| Country/Economy                   | Score (0–100) | Rank | Income | Rank | Region | Rank | Median: 29.27 |
|-----------------------------------|---------------|------|--------|------|--------|------|---------------|
| Kenya                             | 29.01         | 73   | LI     | 1    | SSF    | 4    | ■             |
| Montenegro                        | 28.41         | 74   | UM     | 21   | EUR    | 37   | ■             |
| Georgia                           | 27.95         | 75   | LM     | 8    | NAWA   | 10   | ■             |
| Guyana                            | 27.67         | 76   | LM     | 9    | LCN    | 10   | ■             |
| Colombia                          | 27.55         | 77   | UM     | 22   | LCN    | 11   | ■             |
| Senegal                           | 27.55         | 78   | LM     | 10   | SSF    | 5    | ■             |
| Paraguay                          | 27.18         | 79   | LM     | 11   | LCN    | 12   | ■             |
| Bahrain                           | 27.08         | 80   | HI     | 46   | NAWA   | 11   | ■             |
| Sri Lanka                         | 27.04         | 81   | LM     | 12   | CSA    | 2    | ■             |
| Ghana                             | 27.03         | 82   | LM     | 13   | SSF    | 6    | ■             |
| Nigeria                           | 26.95         | 83   | LM     | 14   | SSF    | 7    | ■             |
| Philippines                       | 26.80         | 84   | LM     | 15   | SEAO   | 13   | ■             |
| Peru                              | 26.65         | 85   | UM     | 23   | LCN    | 13   | ■             |
| Morocco                           | 26.49         | 86   | LM     | 16   | NAWA   | 12   | ■             |
| Tunisia                           | 26.14         | 87   | UM     | 24   | NAWA   | 13   | ■             |
| Côte d'Ivoire                     | 26.04         | 88   | LM     | 17   | SSF    | 8    | ■             |
| Egypt                             | 26.01         | 89   | LM     | 18   | NAWA   | 14   | ■             |
| Uganda                            | 25.96         | 90   | LI     | 2    | SSF    | 9    | ■             |
| Jamaica                           | 25.65         | 91   | UM     | 25   | LCN    | 14   | ■             |
| Bosnia and Herzegovina            | 25.51         | 92   | UM     | 26   | EUR    | 38   | ■             |
| Gambia                            | 25.15         | 93   | LI     | 3    | SSF    | 10   | ■             |
| Venezuela, Bolivarian Republic of | 24.99         | 94   | UM     | 27   | LCN    | 15   | ■             |
| Lebanon                           | 24.98         | 95   | UM     | 28   | NAWA   | 15   | ■             |
| Oman                              | 24.92         | 96   | HI     | 47   | NAWA   | 16   | ■             |
| Guatemala                         | 24.82         | 97   | LM     | 19   | LCN    | 16   | ■             |
| Trinidad and Tobago               | 24.49         | 98   | HI     | 48   | LCN    | 17   | ■             |
| Cambodia                          | 24.46         | 99   | LI     | 4    | SEAO   | 14   | ■             |
| Cameroon                          | 24.46         | 100  | LM     | 20   | SSF    | 11   | ■             |
| Kazakhstan                        | 24.40         | 101  | UM     | 29   | CSA    | 3    | ■             |
| Bhutan                            | 23.89         | 102  | LM     | 21   | CSA    | 4    | ■             |
| Mali                              | 23.71         | 103  | LI     | 5    | SSF    | 12   | ■             |
| Burkina Faso                      | 23.49         | 104  | LI     | 6    | SSF    | 13   | ■             |
| Zambia                            | 22.79         | 105  | LM     | 22   | SSF    | 14   | ■             |
| Bolivia, Plurinational State of   | 22.78         | 106  | LM     | 23   | LCN    | 18   | ■             |
| Pakistan                          | 22.57         | 107  | LM     | 24   | CSA    | 5    | ■             |
| Malawi                            | 22.25         | 108  | LI     | 7    | SSF    | 15   | ■             |
| Azerbaijan                        | 21.84         | 109  | UM     | 30   | NAWA   | 17   | ■             |
| El Salvador                       | 21.73         | 110  | LM     | 25   | LCN    | 19   | ■             |
| Zimbabwe                          | 21.45         | 111  | LI     | 8    | SSF    | 16   | ■             |
| Angola                            | 21.44         | 112  | UM     | 31   | SSF    | 17   | ■             |
| Ecuador                           | 21.28         | 113  | UM     | 32   | LCN    | 20   | ■             |
| Cabo Verde                        | 21.28         | 114  | LM     | 26   | SSF    | 18   | ■             |
| Mozambique                        | 20.61         | 115  | LI     | 9    | SSF    | 19   | ■             |
| Botswana                          | 20.54         | 116  | UM     | 33   | SSF    | 20   | ■             |
| Albania                           | 20.43         | 117  | UM     | 34   | EUR    | 39   | ■             |
| Ethiopia                          | 20.35         | 118  | LI     | 10   | SSF    | 21   | ■             |
| Namibia                           | 20.28         | 119  | UM     | 35   | SSF    | 22   | ■             |
| Bangladesh                        | 19.70         | 120  | LI     | 11   | CSA    | 6    | ■             |
| Madagascar                        | 19.58         | 121  | LI     | 12   | SSF    | 23   | ■             |
| Tanzania, United Republic of      | 19.21         | 122  | LI     | 13   | SSF    | 24   | ■             |
| Uzbekistan                        | 19.14         | 123  | LM     | 27   | CSA    | 7    | ■             |
| Brunei Darussalam                 | 19.04         | 124  | HI     | 49   | SEAO   | 15   | ■             |
| Iran, Islamic Republic of         | 19.04         | 125  | UM     | 36   | CSA    | 8    | ■             |
| Honduras                          | 18.62         | 126  | LM     | 28   | LCN    | 21   | ■             |
| Swaziland                         | 18.45         | 127  | LM     | 29   | SSF    | 25   | ■             |
| Rwanda                            | 18.43         | 128  | LI     | 14   | SSF    | 26   | ■             |
| Benin                             | 18.13         | 129  | LI     | 15   | SSF    | 27   | ■             |
| Nicaragua                         | 17.72         | 130  | LM     | 30   | LCN    | 22   | ■             |
| Kyrgyzstan                        | 17.58         | 131  | LI     | 16   | CSA    | 9    | ■             |
| Algeria                           | 16.74         | 132  | UM     | 37   | NAWA   | 18   | ■             |
| Myanmar                           | 16.25         | 133  | LI     | 17   | SEAO   | 16   | ■             |
| Niger                             | 16.20         | 134  | LI     | 18   | SSF    | 28   | ■             |
| Nepal                             | 15.74         | 135  | LI     | 19   | CSA    | 10   | ■             |
| Fiji                              | 15.56         | 136  | UM     | 38   | SEAO   | 17   | ■             |
| Lesotho                           | 15.45         | 137  | LM     | 31   | SSF    | 29   | ■             |
| Guinea                            | 15.35         | 138  | LI     | 20   | SSF    | 30   | ■             |
| Yemen                             | 14.70         | 139  | LM     | 32   | NAWA   | 19   | ■             |
| Tajikistan                        | 14.65         | 140  | LI     | 21   | CSA    | 11   | ■             |
| Burundi                           | 14.23         | 141  | LI     | 22   | SSF    | 31   | ■             |
| Togo                              | 6.98          | 142  | LI     | 23   | SSF    | 32   | ■             |
| Sudan                             | 2.11          | 143  | LM     | 33   | SSF    | 33   | ■             |

Note: World Bank Income Group Classification (July 2013): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Regions are based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; SSF = Sub-Saharan Africa.

and General infrastructure (29th). A knowledge-based economy of 8.0 million people with one of the highest GDP per capita in the world (PPP\$46,430.1), its high Innovation Efficiency Ratio (6th highest of all economies in the index, and 1st among the GII top 10) allows Switzerland to translate its robust innovation capabilities into high-level innovation outputs. In addition, Switzerland is one of the five economies at the efficient frontier (see Annex 3).

The runner-up, the **United Kingdom** (UK) has gradually improved its ranking over time, from 3rd place in 2013 (up from 5th in 2012 and 10th in 2011), and comes 3rd in inputs and 4th in outputs. The UK places within the top 25 in all pillars and sub-pillars with only three exceptions: sub-pillars General infrastructure (60th), Intangible assets (40th), and Knowledge absorption (29th). With roughly six times the population of Sweden and eight times that of Switzerland, these results are commendable. Relative weaknesses are in the growth of its labour productivity (102nd) and the level of gross capital formation over GDP (132nd). Other indicators pointed out as weaknesses in the 2013 findings have since shown improvement, including its level of FDI net inflows (improving significantly this year, by 37 positions) and market access conditions to foreign markets for non-agricultural exports (improving by five positions), a result of the country's economic recovery. In addition, the UK is one of the five economies at the efficient frontier.

**Sweden** occupies 3rd place in 2014 (down from the runner-up position it held for the last four years), although it continues to lead among the Nordic countries. It ranks 3rd in outputs, and its drop to 6th place in inputs this year is the

main reason for its fall to 3rd position. Sweden does particularly well in the sub-pillar Research and development: its number of researchers (6th), gross expenditure on R&D (4th), and average score of the top 3 QS university rankings (14th) are all good showings. It also ranks 3rd in Knowledge and technology outputs because of its high number of PCT resident patent applications (5th) and royalties and license fee receipts (7th). In addition, Sweden is one of the five economies at the efficient frontier.

**Finland** is ranked 4th in the GII this year (6th in 2013), 5th in the Input Sub-Index, and 6th in the Output Sub-Index. It achieves positions among the top 25 in all pillars (1st place in Institutions and Human capital and researchers), 16 out of 21 sub-pillars (1st place in Political environment), and 56 out of the 79 indicators with available data. Its weakest showing is in Market sophistication, which, although still respectable, is slowly declining at 22nd position. At the indicator level, Finland achieves 1st place in government effectiveness; press freedom; the number of researchers; communications, computer and information services exports; ICTs and business model creation; and ICTs and organizational model creation. Some of its major weaknesses (measured in percent ranks to take account of missing values) are in gross capital formation (102nd), the growth rate of GDP per person employed (87th), FDI inflows (121st), and intensity of local competition (83rd). In addition, Finland is one of the five economies at the efficient frontier.

**The Netherlands** is ranked 5th, down from 4th in 2013, yet still higher than in previous years. Similar to 2013, it ranks 2nd in outputs, yet 11th in inputs (down slightly from 10th in 2013), and

drastically improves its innovation efficiency by 14 positions to 12th (2nd after Switzerland among the GII top 10). The country achieves leading positions (within the top 25) on all pillars, 16 of the 21 sub-pillars, and 55 out of 78 indicators with data, including 1st place in online e-participation and 2nd place in both press freedom and country-code top-level domains. Its major weakness are in Tertiary education (although progress was made again this year—the Netherlands ranks 59th, up from 61st in 2013) and in General infrastructure (48th, down from 29th in 2013).

**The United States of America** (USA) is ranked 6th, down from 5th in 2013, and leads the rankings in Northern America, coming in 4th in inputs and 7th in outputs. The USA occupies 1st place in the Market sophistication sub-pillar and has leading positions (within the top 25) for all pillars and in 16 of the 21 sub-pillars, ranking 1st in Investment. It is also 1st out of 11 of the 77 indicators with data, including cost of redundancy dismissal, government's online service, total value of stocks traded, venture capital deals, number of GMAT test takers, domestic resident patent applications, citable documents H index, computer software spending, royalty and license fee receipts, generic top-level domains, and video uploads on YouTube. Some areas of concern persist, however. In Tertiary education, where it ranks 41st, the USA continues to be the victim of its own success: the high level of its academic institutions leads to a 3rd position in tertiary enrolment, but to relatively low levels of student exchange with the rest of the world (where the USA ranks 49th). The level of tertiary graduates in science and engineering is also low (84th), although it has seen improvements in its weaker

areas, including Ecological sustainability (58th, up from 74th in 2013) and Intangible assets (72nd, up from 86th in 2013).

**Singapore** is ranked 7th, up one position from 2013, and is one of the five economies at the efficient frontier as well as the leading economy in Asia. It shows strength across the board in the Input Sub-Index, where it takes 1st place: Business sophistication (1st), Human capital and research (2nd), Infrastructure (2nd), Market sophistication (4th), and Institutions (6th). But it ranks only 25th in the Output Sub-Index, a result of its 13th place in Knowledge and technology outputs and 33rd place in Creative outputs. As a result, Singapore has the lowest efficiency ratio of the top 10 (110th—albeit an improvement from 121st in 2013). And Singapore has the lowest efficiency ratio of the top 10. Singapore has a leading position (within the top 25) in 6 out of 7 pillars (including 1st in Business sophistication) and 16 out of 21 sub-pillars, ranking 1st in 3 of them: Regulatory environment, Business environment, and Knowledge absorption. Singapore performs less well in government expenditure on education (111th), communications, computer and information services exports (96th), domestic resident trademark applications (82nd), and printing and publishing output (73rd).

**Denmark** is ranked 8th, up one position from 9th place in 2013. The strength of this country of 5.6 million people lies in its solid performance in both the Input Sub-Index (at 9th place) and the Output Sub-Index (12th). It achieves a leading position (within the top 25) in all pillars and in 13 out of 21 sub-pillars, with strengths in the cost of redundancy dismissal (1st), domestic credit to private sector (2nd), government effectiveness

(3rd), government expenditure on education (3rd), the number of researchers (3rd), the number of scientific and technical articles (3rd), and country-code top-level domains (3rd). Denmark experience several steep drops in 2014, resulting in the country's main weaknesses: its FDI net inflows (128th, 61st in 2013), GERD financed by abroad (53rd, 41st in 2013), high-tech imports less re-imports (70th, 37th in 2013), and printing and publishing manufactures (44th, 9th in 2013).

**Luxembourg** is ranked 9th in 2014 (up three places from 2013), the first time it has made its way into the top 10, with a strong performance in outputs (5th) and innovation efficiency (9th). Its pillar rankings of 2nd in Business sophistication (7th in 2013) and 16th in Knowledge and technology outputs (43rd in 2013) played a major role in achieving its place in the top 10. Its biggest strengths lie in the Creative outputs pillar, where it ranks 1st in four indicators: Madrid system trademark applications, cultural and creative services exports, national feature films produced, and generic top-level domains. Luxembourg's weaknesses remain in the cost of redundancy dismissal, tertiary enrolment, average QS university ranking top 3, ease of getting credit, ease of protecting investors, total value of stocks traded, market access to foreign markets for non-agricultural exports, high-tech imports less re-imports, growth rate of GDP per worker, and high- and medium-high-tech manufactures.

**Hong Kong (China)** is ranked 10th this year, down three positions from 7th in 2013 and losing the lead among Asian economies to Singapore. With a population of 7.2 million and a GDP per capita of PPP\$52,722.0, its major leverage comes from the Input Sub-Index,

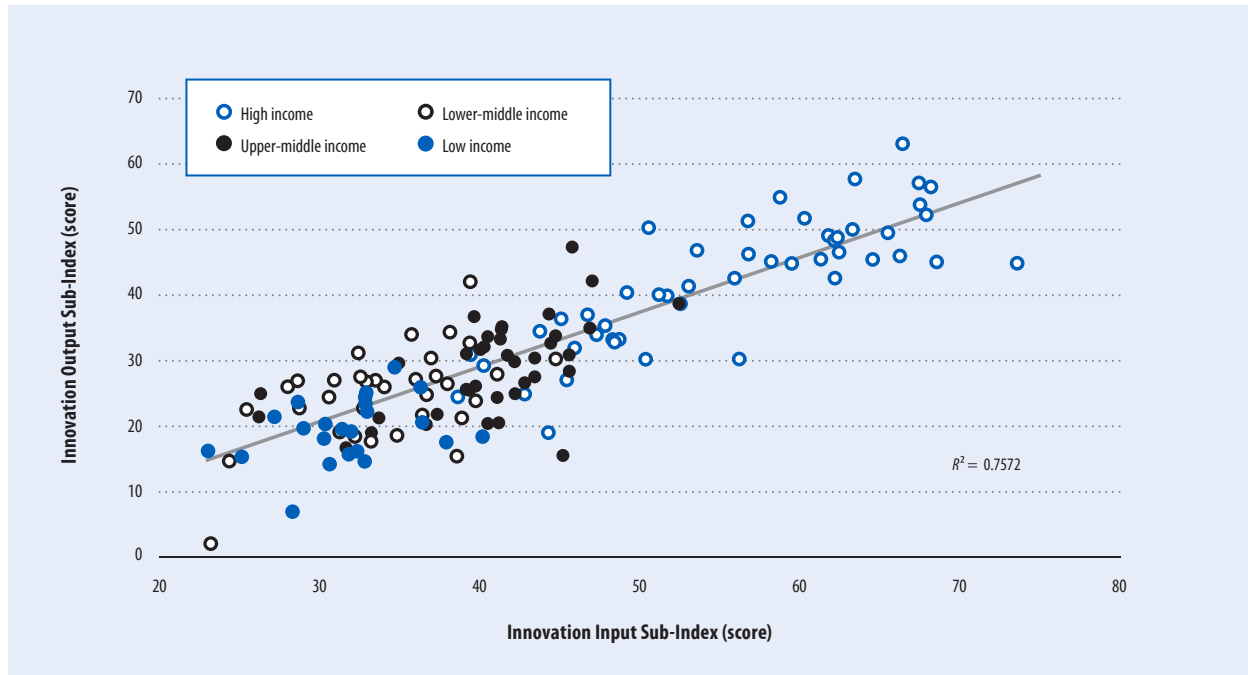
where it ranks 2nd after Singapore. The economy takes 1st place in Infrastructure, 3rd in Market sophistication (coming after the USA and the UK), and includes top positions in the Ecological sustainability, Credit, and Knowledge absorption sub-pillars. On the input side, its relative weakness is in Human capital and research (although still a very good 23rd position). Its less good showing in the Output Sub-Index, where it ranks 24th (down from 15th in 2013), is the result of a worsening position in the key Knowledge and technology outputs pillar (45th this year); this is, however, compensated for by a 6th place in Creative outputs. At the indicator level, Hong Kong (China) achieves 1st place in 10 indicators. Its major weaknesses are in the Knowledge diffusion sub-pillar (80th), with poor performances in high-tech exports less re-exports (101st) and communication, computer and information services exports (103rd). Other areas of concern are the Education sub-pillar (57th), with weaknesses in government expenditure on education (97th), government expenditure per pupil in secondary education (70th), and pupil-teacher ratio in secondary education (75th).

#### The top 10 in the Innovation Input Sub-Index

The Innovation Input Sub-Index considers the elements of an economy that enable innovative activity through five pillars. The top 10 economies in the Innovation Input Sub-Index are Singapore, Hong Kong (China), the UK, the USA, Finland, Sweden, Switzerland, Canada, Denmark, and Australia. Canada and Australia are the only economies in this group that are not also in the GII top 10.

**Canada** is ranked 12th, down from 11th in 2013. It ranks 8th

Figure 4: Innovation Output Sub-Index vs. Innovation Input Sub-Index



Note: Countries/economies are classified according to the World Bank Income Group Classification (July 2013).

overall in the Input Sub-Index, with top 10 rankings on the Institutions pillar (7th)—linked to its strong performance (2nd) in the Business environment sub-pillar—and the Market sophistication pillar (5th), the result of a robust performance in the Investment (4th) and Trade and competition (5th) sub-pillars.

**Australia** is ranked 17th, up two positions from 19th in 2013. It ranks 10th overall in the Input Sub-Index, with top 10 rankings on three pillars: Human capital and research (7th), Infrastructure (7th), and Market sophistication (10th). Its strengths are in the Tertiary education (7th), Research and development (8th), ICTs (9th), General infrastructure (9th), and Trade and competition (1st) sub-pillars. The effects of the government's new venture capital

grants are evident in the improvement of the number of venture capital deals entered into, an indicator that shows an improvement of three places (from 26th to 23rd place). The results within the Creative goods and services sub-pillar are mixed, with two strengths and two weaknesses. Australia's weak variables include cultural and creative services exports (52nd) and national feature films produced (49th); the country's strengths include global entertainment and media output (3rd) as well as printing and publishing output (5th).

#### The top 10 in the Innovation Output Sub-Index

The Innovation Output Sub-Index variables provide information on elements that are the result of

innovation within an economy. Although scores on the Input and Output Sub-Indices might differ substantially, leading to important shifts in rankings from one sub-index to the other for particular countries, the data confirm that efforts made to improve enabling environments are rewarded with increased innovation outputs (Figure 4).

The top 10 countries in the Innovation Output Sub-Index are Switzerland, the Netherlands, Sweden, the UK, Luxembourg, Finland, the USA, Germany, Iceland, and Malta. The USA enters the list this year (ranked 12th in 2013), while Israel (among the top 10 in 2013) drops to 13th place. Seven of these countries are in the GII top 10; their profiles are discussed there.

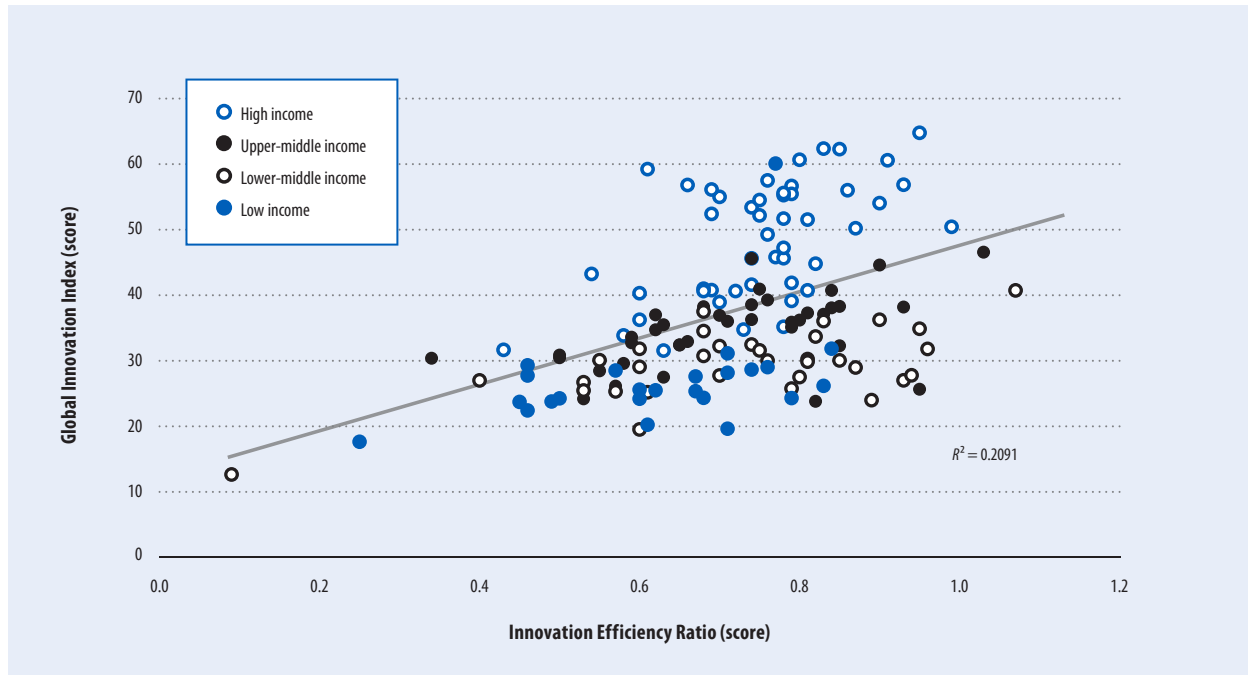
Table 4: Ten best-ranked economies by income group (rank)

|  | Global Innovation Index             | Innovation Input Sub-index          | Innovation Output Sub-index         | Innovation Efficiency Ratio           |
|--|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|
| <b>High-income economies (45 in total)</b>         |                                     |                                     |                                     |                                       |
| 1  | <b>Switzerland (1)</b>              | Singapore (1)                       | <b>Switzerland (1)</b>              | Malta (3)                             |
| 2  | <b>United Kingdom (2)</b>           | Hong Kong (China) (2)               | Netherlands (2)                     | <b>Switzerland (6)</b>                |
| 3  | <b>Sweden (3)</b>                   | <b>United Kingdom (3)</b>           | <b>Sweden (3)</b>                   | Luxembourg (9)                        |
| 4  | <b>Finland (4)</b>                  | <b>United States of America (4)</b> | <b>United Kingdom (4)</b>           | Netherlands (12)                      |
| 5  | Netherlands (5)                     | <b>Finland (5)</b>                  | Luxembourg (5)                      | Iceland (13)                          |
| 6  | <b>United States of America (6)</b> | <b>Sweden (6)</b>                   | <b>Finland (6)</b>                  | Czech Republic (18)                   |
| 7  | Singapore (7)                       | <b>Switzerland (7)</b>              | <b>United States of America (7)</b> | Germany (19)                          |
| 8  | Denmark (8)                         | Canada (8)                          | Germany (8)                         | <b>Sweden (22)</b>                    |
| 9  | Luxembourg (9)                      | Denmark (9)                         | Iceland (9)                         | <b>United Kingdom (29)</b>            |
| 10   | Hong Kong (China) (10)              | Australia (10)                      | Malta (10)                          | Latvia (32)                           |
| <b>Upper-middle-income economies (40 in total)</b> |                                     |                                     |                                     |                                       |
| 1  | <b>China (29)</b>                   | Malaysia (30)                       | <b>China (16)</b>                   | <b>China (2)</b>                      |
| 2  | Malaysia (33)                       | <b>Hungary (41)</b>                 | <b>Hungary (29)</b>                 | Venezuela, Bolivarian Republic of (7) |
| 3  | <b>Hungary (35)</b>                 | <b>Mauritius (42)</b>               | Malaysia (35)                       | Turkey (11)                           |
| 4  | <b>Mauritius (40)</b>               | <b>China (45)</b>                   | <b>Bulgaria (37)</b>                | <b>Hungary (15)</b>                   |
| 5  | <b>Bulgaria (44)</b>                | Montenegro (46)                     | Turkey (39)                         | Panama (20)                           |
| 6  | Thailand (48)                       | South Africa (47)                   | Panama (42)                         | Dominican Republic (21)               |
| 7  | Seychelles (51)                     | Fiji (49)                           | <b>Mauritius (43)</b>               | Romania (24)                          |
| 8  | Panama (52)                         | Thailand (52)                       | Romania (44)                        | <b>Bulgaria (25)</b>                  |
| 9  | South Africa (53)                   | Seychelles (53)                     | Thailand (49)                       | Belarus (27)                          |
| 10   | Turkey (54)                         | <b>Bulgaria (54)</b>                | Belarus (50)                        | Angola (33)                           |
| <b>Lower-middle-income economies (36 in total)</b> |                                     |                                     |                                     |                                       |
| 1  | <b>Moldova, Republic of (43)</b>    | <b>Mongolia (51)</b>                | <b>Moldova, Republic of (30)</b>    | <b>Moldova, Republic of (1)</b>       |
| 2  | <b>Mongolia (56)</b>                | <b>Georgia (68)</b>                 | <b>Ukraine (46)</b>                 | Indonesia (4)                         |
| 3  | <b>Ukraine (63)</b>                 | Bhutan (76)                         | Viet Nam (47)                       | Viet Nam (5)                          |
| 4  | <b>Armenia (65)</b>                 | <b>Moldova, Republic of (80)</b>    | <b>Armenia (55)</b>                 | Nigeria (8)                           |
| 5  | Viet Nam (71)                       | <b>Armenia (81)</b>                 | Indonesia (60)                      | Côte d'Ivoire (10)                    |
| 6  | <b>Georgia (74)</b>                 | Cabo Verde (85)                     | India (65)                          | <b>Ukraine (14)</b>                   |
| 7  | India (76)                          | Lesotho (87)                        | <b>Mongolia (67)</b>                | Pakistan (16)                         |
| 8  | <b>Guyana (80)</b>                  | <b>Ukraine (88)</b>                 | <b>Georgia (75)</b>                 | Sri Lanka (17)                        |
| 9  | Morocco (84)                        | Morocco (89)                        | <b>Guyana (76)</b>                  | Senegal (23)                          |
| 10   | Bhutan (86)                         | <b>Guyana (92)</b>                  | Senegal (78)                        | <b>Armenia (28)</b>                   |
| <b>Low-income economies (21 in total)</b>          |                                     |                                     |                                     |                                       |
| 1  | <b>Kenya (85)</b>                   | Rwanda (74)                         | <b>Kenya (73)</b>                   | <b>Kenya (26)</b>                     |
| 2  | <b>Uganda (91)</b>                  | Kyrgyzstan (90)                     | <b>Uganda (90)</b>                  | Mali (30)                             |
| 3  | Rwanda (102)                        | <b>Mozambique (96)</b>              | <b>Gambia (93)</b>                  | Zimbabwe (48)                         |
| 4  | <b>Gambia (104)</b>                 | <b>Uganda (98)</b>                  | <b>Cambodia (99)</b>                | <b>Gambia (58)</b>                    |
| 5  | <b>Cambodia (106)</b>               | <b>Kenya (103)</b>                  | Mali (103)                          | <b>Cambodia (67)</b>                  |
| 6  | <b>Mozambique (107)</b>             | <b>Malawi (109)</b>                 | <b>Burkina Faso (104)</b>           | <b>Uganda (77)</b>                    |
| 7  | <b>Burkina Faso (109)</b>           | <b>Gambia (111)</b>                 | <b>Malawi (108)</b>                 | <b>Burkina Faso (78)</b>              |
| 8  | Kyrgyzstan (112)                    | <b>Burkina Faso (112)</b>           | Zimbabwe (111)                      | Myanmar (80)                          |
| 9  | <b>Malawi (113)</b>                 | <b>Cambodia (113)</b>               | <b>Mozambique (115)</b>             | Bangladesh (91)                       |
| 10   | Mali (119)                          | Tajikistan (114)                    | Ethiopia (118)                      | <b>Malawi (96)</b>                    |

Note: Economies with top 10 positions in the GII, the Input Sub-Index, and the Output Sub-Index within their income group are highlighted in bold.



Figure 5: Global Innovation Index vs. Innovation Efficiency Ratio



Note: Countries/economies are classified according to the World Bank Income Group Classification (July 2013).

**Iceland** is ranked 19th in the GII, down six positions from 13th in 2013. This Nordic country of 0.3 million people ranks 24th in the Input Sub-Index and 9th in the Output Sub-Index. On the output side, a 36th position in Knowledge and technology outputs is explained by some difficulty in translating good levels of patenting and scientific publications into high- and medium-high-tech output (82nd) and knowledge diffusion (120th). The main leverage on the output side comes from its 1st place in Creative outputs, where Iceland shows strengths in all sub-pillars and most indicators, particularly in online creativity (1st).

**Germany** is ranked 13th in the GII, up two places from its 2012 and 2013 position. As has been the case

for the past three years, Germany's relative strength lies in the Output Sub-Index (8th), although it ranks a respectable 19th in the Input Sub-Index and shows a balanced profile, with pillar rankings ranging from 11th to 25th, and all sub-pillars ranking among the top 50. Germany's output strengths are attributable to its 1st place in the citable documents H index and 5th position in both domestic resident patent applications and country-code top-level domains.

**Malta** is ranked 25th in the GII this year, down one place from 2013 with a drop of five places from its 5th place in the Output Sub-Index in 2013 to 10th place in 2014. With a rank of 33rd in the Input Sub-Index, explained in great measure by relative weakness in Human capital and

research (49th) and Market sophistication (65th), it achieves one of the highest efficiency ratios (ranked 3rd). Malta ranks 18th in Knowledge and technology outputs and 8th in Creative outputs.

#### Learning to innovate: Top performers by income group

Identifying the underlying conditions of a country and comparing performances among peers is the key to a good understanding of the implications of a country's ranking on the GII. This report attempts to abide by this underlying principle by assessing results on the basis of the development stages of countries.

Table 4 shows the 10 best performers in each index by income group. The top 28 positions in



the GII are taken by high-income economies, three fewer than in 2013. Switzerland, the UK, Sweden, Finland, and the USA are among the high-income top 10 on the three main indices, while Switzerland, Luxembourg, and Malta are the only economies also in the high-income top 10 in the efficiency ratio.

Among the upper-middle-income 10 best performers, only three remain from 2013: China (29th), Malaysia (33rd), and Bulgaria (44th). Hungary (35th), Mauritius (40th), Thailand (48th), Seychelles (51st), Panama (52nd), South Africa (53rd), and Turkey (54th) enter the list this year, displacing Costa Rica (57th), Montenegro (59th), Romania (55th), and the Former Yugoslav Republic of Macedonia (60th), as well as Latvia, Lithuania, and Chile (these latter three were reclassified as high-income countries during 2013). China, Hungary, Mauritius, and Bulgaria are among the 10 best performers in the three indices; of these, China, Hungary, and Bulgaria also make it to the upper-middle-income top 10 in the efficiency ratio.

The same analysis for lower-middle-income countries shows that eight of the top 10 countries from 2013 remain in the top 10 this year, with Morocco (84th) and Bhutan (86th) displacing Indonesia (87th) and Guatemala (93rd). The Republic of Moldova (43rd), Mongolia (56th), Ukraine (63rd), Armenia (65th), Georgia (74th), and Guyana (80th) are among the top 10 in the three indices; of these, the Republic of Moldova, Ukraine, and Armenia are the only countries with top 10 positions in the efficiency ratio as well.

Among low-income countries, nine out of 10 economies remain in the top 10, with Gambia (104th) displacing Tajikistan (137th). Those showing above-par performances in the three indices are Kenya (85th),

Uganda (91st), Gambia (104th), Cambodia (106th), Mozambique (107th), Burkina Faso (109th), and Malawi (113th); all of them, with the exception of Mozambique, are in the low-income top 10 on efficiency.

#### **Doing more with less: The Innovation Efficiency Ratio**

While the GII is calculated as the average of its Input and Output Sub-Indices, the Innovation Efficiency Ratio is calculated as the ratio of the Output over the Input Sub-Index. The relationship between the GII rankings and the efficiency ratios is slightly positive, as expected, implying that more efficient countries achieve, on average, better GII scores (Figure 5).

The efficiency ratio is designed to be independent from countries' stages of development, and indeed, the data reflect this. That said, the analysis by income group for efficiency ratios is particularly crucial, because economies might reach a relatively high efficiency ratio as a result of particularly low input scores. Efficiency ratios must be analysed jointly with GII, Input, and Output scores, and with development stages of the economies in mind. Efficiency ratios are reported next to the GII scores for this reason (Table 1).

The 10 countries with the highest Innovation Efficiency Ratios are countries that are particularly good at surmounting relative weaknesses on their Input Sub-Indices with relatively robust output results, with GII rankings ranging from 1st to 122nd: the Republic of Moldova (43rd), China (29th), Malta (25th), Indonesia (87th), Viet Nam (71st), Switzerland (1st), the Bolivarian Republic of Venezuela (122nd), Nigeria (110th), Luxembourg (9th), and Côte d'Ivoire (116th).

Three of the top 10 most efficient economies are high-income economies: Malta, Switzerland, and Luxembourg. Within this group of high-income economies, European countries take up the first 20 positions, with the exception of Israel (14th) and Kuwait (18th). The USA and Canada are ranked 25th and 37th, respectively. In the high-income group, 36.7% have better rankings in outputs than they do in inputs.

Among upper-middle-income countries, China and the Bolivarian Republic of Venezuela are in the top 10. China, Hungary, Bulgaria, and Malaysia make it to the top 40 globally in outputs, surmounting lower capabilities (except for Malaysia, which ranks 30th in inputs and 35th in outputs). In this income group, 39.5% of countries have better rankings in outputs than in inputs.

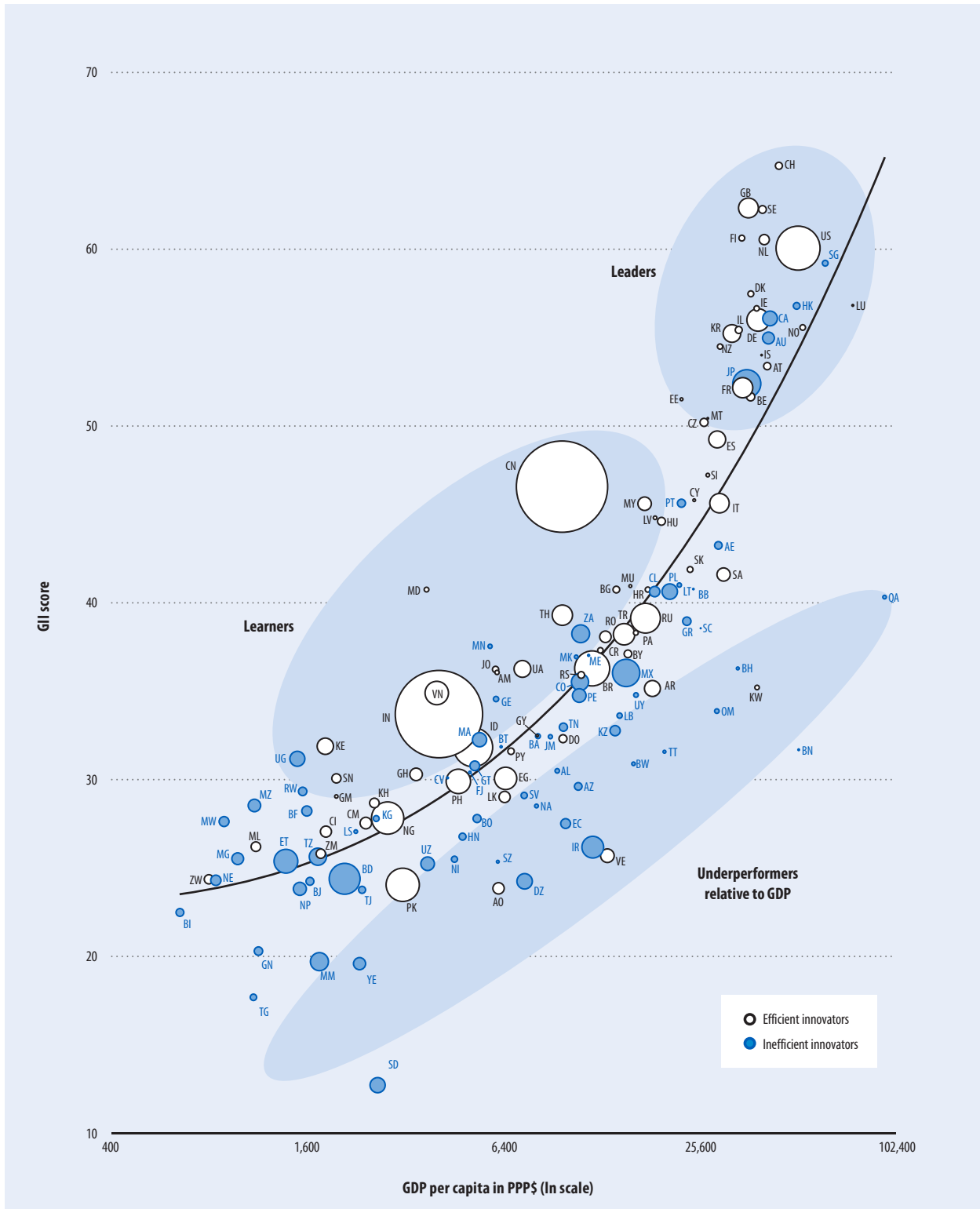
Among lower-middle-income countries, the Republic of Moldova, Indonesia, Viet Nam, Nigeria, and Côte d'Ivoire are among the global top 10. The Republic of Moldova, Viet Nam, and Ukraine are in the global top 50 in outputs, with lower positions in inputs. Within this income group, 63.6% of countries have better rankings in outputs than in inputs. No low-income countries are in the top 10 innovation efficiency rankings.

#### **Leaders and learners: The reward of leveraging strengths and addressing weaknesses**

Figure 6 illustrates the above findings by presenting the GII scores plotted against GDP per capita in PPP\$ (in natural logs). When countries' stages of development are considered, the GII results can be interpreted in a new light.

The economies that appear close to the trend line show results that are in accordance with what is expected

Figure 6: GII scores and GDP per capita in PPP\$ (bubbles sized by population)



Note: 'Efficient innovators' are countries/economies with Innovation Efficiency ratios  $\geq 0.74$ ; 'Inefficient innovators' have ratios  $< 0.74$ ; the trend line is a polynomial of degree three with intercept ( $R^2 = 0.7163$ ).

Figure 6: GII scores and GDP per capita in PPP\$ (bubbles sized by population): ISO-2 Country Codes

| Code | Country                    | Code | Country            | Code | Country                    |
|------|----------------------------|------|--------------------|------|----------------------------|
| AE   | United Arab Emirates       | GH   | Ghana              | NG   | Nigeria                    |
| AL   | Albania                    | GM   | Gambia             | NI   | Nicaragua                  |
| AM   | Armenia                    | GN   | Guinea             | NL   | Netherlands                |
| AO   | Angola                     | GR   | Greece             | NO   | Norway                     |
| AR   | Argentina                  | GT   | Guatemala          | NP   | Nepal                      |
| AT   | Austria                    | GY   | Guyana             | NZ   | New Zealand                |
| AU   | Australia                  | HK   | Hong Kong (China)  | OM   | Oman                       |
| AZ   | Azerbaijan                 | HN   | Honduras           | PA   | Panama                     |
| BA   | Bosnia and Herzegovina     | HR   | Croatia            | PE   | Peru                       |
| BB   | Barbados                   | HU   | Hungary            | PH   | Philippines                |
| BD   | Bangladesh                 | ID   | Indonesia          | PK   | Pakistan                   |
| BE   | Belgium                    | IE   | Ireland            | PL   | Poland                     |
| BF   | Burkina Faso               | IL   | Israel             | PT   | Portugal                   |
| BG   | Bulgaria                   | IN   | India              | PY   | Paraguay                   |
| BH   | Bahrain                    | IR   | Iran, Islamic Rep. | QA   | Qatar                      |
| BI   | Burundi                    | IS   | Iceland            | RO   | Romania                    |
| BJ   | Benin                      | IT   | Italy              | RS   | Serbia                     |
| BN   | Brunei Darussalam          | JM   | Jamaica            | RU   | Russian Federation         |
| BO   | Bolivia, Plurinational St. | JO   | Jordan             | RW   | Rwanda                     |
| BR   | Brazil                     | JP   | Japan              | SA   | Saudi Arabia               |
| BT   | Bhutan                     | KE   | Kenya              | SC   | Seychelles                 |
| BW   | Botswana                   | KG   | Kyrgyzstan         | SD   | Sudan                      |
| BY   | Belarus                    | KH   | Cambodia           | SE   | Sweden                     |
| CA   | Canada                     | KR   | Korea, Rep.        | SG   | Singapore                  |
| CH   | Switzerland                | KW   | Kuwait             | SI   | Slovenia                   |
| CI   | Côte d'Ivoire              | KZ   | Kazakhstan         | SK   | Slovakia                   |
| CL   | Chile                      | LB   | Lebanon            | SN   | Senegal                    |
| CM   | Cameroon                   | LK   | Sri Lanka          | SV   | El Salvador                |
| CN   | China                      | LS   | Lesotho            | SZ   | Swaziland                  |
| CO   | Colombia                   | LT   | Lithuania          | TG   | Togo                       |
| CR   | Costa Rica                 | LU   | Luxembourg         | TH   | Thailand                   |
| CV   | Cabo Verde                 | LV   | Latvia             | TJ   | Tajikistan                 |
| CY   | Cyprus                     | MA   | Morocco            | TN   | Tunisia                    |
| CZ   | Czech Republic             | MD   | Moldova, Rep.      | TR   | Turkey                     |
| DE   | Germany                    | ME   | Montenegro         | TT   | Trinidad and Tobago        |
| DK   | Denmark                    | MG   | Madagascar         | TZ   | Tanzania, United Rep.      |
| DO   | Dominican Republic         | MK   | TFYR of Macedonia  | UA   | Ukraine                    |
| DZ   | Algeria                    | ML   | Mali               | UG   | Uganda                     |
| EC   | Ecuador                    | MM   | Myanmar            | US   | United States of America   |
| EE   | Estonia                    | MN   | Mongolia           | UY   | Uruguay                    |
| EG   | Egypt                      | MT   | Malta              | UZ   | Uzbekistan                 |
| ES   | Spain                      | MU   | Mauritius          | VE   | Venezuela, Bolivarian Rep. |
| ET   | Ethiopia                   | MW   | Malawi             | VN   | Viet Nam                   |
| FI   | Finland                    | MX   | Mexico             | YE   | Yemen                      |
| FJ   | Fiji                       | MY   | Malaysia           | ZA   | South Africa               |
| FR   | France                     | MZ   | Mozambique         | ZM   | Zambia                     |
| GB   | United Kingdom             | NA   | Namibia            | ZW   | Zimbabwe                   |
| GE   | Georgia                    | NE   | Niger              |      |                            |

from their level of development.<sup>26</sup> A majority of economies are in this category. The farther up and above the trend line a country appears, the better its innovation performance compared with that of its peers at the same stage of development. White bubbles in the figure correspond to the efficient innovators (a majority of them are situated above the trend line), while the blue bubbles represent those countries in the lower half of the Innovation Efficiency Ratio.

- Among the innovation leaders we find the top 25 countries already discussed above and in Box 2: they are the same economies as in 2013, all with GII scores above 50. They have succeeded in creating well-linked innovation ecosystems where investments in human capital thrive in fertile and stable innovation infrastructures to create impressive levels of innovation outputs.<sup>27</sup>
- The group of innovation learners (to the left of the diagram) includes 12 high- and middle-income countries: the Republic of Moldova, China, Mongolia, Viet Nam, India, Jordan, Armenia, Senegal, Malaysia, Thailand, Ukraine, and Georgia (these countries appear 10% or more above the trend line, and are listed here in order of distance). They demonstrate rising levels of innovation results because of improvements made to institutional frameworks, a skilled labour force with expanded tertiary education, better innovation infrastructures, a deeper integration with global credit investment and trade markets, and a sophisticated business community—even if progress on these dimensions is not uniform across their economies. Among

low-income countries, Kenya, Uganda, Mozambique, Rwanda, Malawi, Gambia, and Burkina Faso (all from the Sub-Saharan African region) display above-par performances.

#### **The paradox of plenty: High GII rankings and below-par performances**

Nine high-income economies, 21 middle-income economies, and 4 low-income economies show relative weaknesses in their innovation ecosystems when compared with countries of similar income levels (scores that are 10% or more below the trend line).

In the Middle East, with the exception of the United Arab Emirates, the resource-rich economies of the Gulf Cooperation Council (GCC) are in this group: Qatar, Oman, Kuwait, Saudi Arabia, and Bahrain. Other high-income economies included here are Brunei Darussalam, Trinidad and Tobago, Greece, and Uruguay.

Although the scaling by GDP of a few indicators (required for comparability across countries) penalizes these relatively wealthy countries, they often exhibit relative shortcomings in important areas in which this effect does not prevail, such as Institutions, Market sophistication, and Business sophistication.

These countries, however, are uniquely positioned to do better in the years to come. Many of them have been diversifying towards innovation-rich sectors already. But several of these countries are resource-rich in oil, gas, or some other natural resource, and their resource-extracting activities tend to crowd out investment in other productive sectors and hinder innovation. This phenomenon—reminiscent of what has been called the ‘resource curse’ or the ‘paradox of plenty’—has been well documented

historically and across regions, and is noted by the GII.

#### **The middle-income innovation challenge: The need for knowledge-based growth strategies**

Middle-income countries with below-par performances, beginning with the farthest from the trend line, include Sudan, the Bolivarian Republic of Venezuela, the Islamic Republic of Iran, Botswana, Algeria, Ecuador, Angola, Seychelles, Argentina, Azerbaijan, Yemen, Swaziland, Kazakhstan, Lebanon, Namibia, Albania, Nicaragua, El Salvador, Pakistan, Uzbekistan, and Honduras.

In previous editions, the GII posited that countries might develop their innovation capabilities and results following an innovation transition model in four stages, briefly sketched here.<sup>28</sup>

- **Stage 1:** A critical level must be reached in all input areas for innovation activities to take off.
- **Stage 2:** Innovation results increase from improvements in institutions, tertiary education, infrastructure, and market and business sophistication.
- **Stage 3:** Input rankings improve with an innovation hysteresis effect that explains the steepness of the trend line, as illustrated in Figure 6. Innovation learners are found in stages 2 and 3.
- **Stage 4:** For innovation leaders, innovation capabilities and results stabilize at a higher level.

The remarkable stability of the top 25 and the steepness of the trend line between these top 25 and their middle-income followers is a phenomenon reflecting an inability of middle-income countries to compete with both high-skill economies

### Box 3: Top-scoring middle-income economies narrowing the gap on innovation quality

Not all innovation inputs and outputs have the same impact on actual innovation. Where possible, introducing metrics on the quality of innovation inputs and outputs is desirable (see Box 3 in the GII 2013). Three indicators of innovation quality are used in the GII to overcome the traditional quantity-focused innovation metrics: (1) an indicator measuring the performance of a country's universities (2.3.3, QS university ranking average score of top 3 universities); one measuring the international scope of domestic inventions (5.2.5, Patent families filed in at least three offices); and, finally, one assessing the extent to which scientific publications emanating from one country are cited (6.1.5, Citable documents H index).

Figure 3.1 was constructed by summing the scores of these three indicators

to show the best-performing high- and middle-income economies in these innovation quality variables.

In terms of the innovation quality indicators, the United States of America (USA) holds the top place within the high-income group (as compared to its 6th place in the overall GII rankings). The USA keeps its leadership across these quality indicators for the second year in a row because, in part, of its top score in the citable documents H index and its 2nd place in the QS university ranking average. Japan reaches the 2nd spot in this innovation quality list, a rise from 4th position in 2013 and in striking difference to its lower overall GII ranking of 21st. In achieving this position, Japan is helped by its 1st position in patent families filed in at least three offices, its 6th position in

the citable documents H index, and its 7th position in the QS university ranking average score. France (22nd in the overall GII) and the Republic of Korea (16th) are similar to Japan in that they score far better in innovation quality indicators than in the overall GII rankings. France remains in 6th place in the high-income economies group because of an overall good performance in the quality indicators, particularly with the 4th largest number of citable documents. The Republic of Korea retains its 10th position with the 2nd highest number of inventions with international scope, in addition to good university scores and a higher than average number of citable documents. Although Germany does not make it into the overall GII top 10, it ranks 3rd in the quality indicators,

*(Continued)*

to the right and low-cost economies to the left (see Figure 6).

To address this situation, knowledge-based growth strategies are required to encourage innovation and creativity through a supportive ecosystem. To reach that goal, these middle-income economies must closely monitor the quality of their innovation inputs and outputs as yet another tool to achieve innovation competitiveness. We find that a few middle-income countries perform particularly well on innovation quality (see Box 3). Other adjustments made to the GII framework point in the same direction (Annex 2 includes a table summarizing adjustments made this year).

#### Regional rankings

This section discusses regional and sub-regional trends, with snapshots for some of the economies leading in the rankings. The two countries

in the Northern America region are examined earlier: The USA's rankings are discussed in the section on 'The top 10 in the Global Innovation Index' and Canada's rankings are discussed in the section on 'The top 10 in the Innovation Input Sub-Index.' The other six regions are each considered here. Table 5 presents a heatmap with the scores for the top 10, along with average scores by income and regional groups. To put the discussion of rankings further into perspective, Figure 7 presents, for each region, bars representing the median pillar scores (second quartile) as well as the range of scores determined by the first and second quartile; regions are presented in decreasing order of their average GII rankings (except for the EU, which is placed at the end).

Some observations are noteworthy. For example, the great dispersion seen in South East Asia and Oceania in the first three pillars is greatly

reduced in Business sophistication and Creative outputs; even if it is still lagging in overall GII rankings, the group of Sub-Saharan African countries achieve a better median score than the median Central and Southern Asian countries in three pillars; and the median score in South East Asia and Oceania is above that of Europe in Market and Business sophistication. Although Human capital and research, Infrastructure, and Knowledge and technology outputs present the expected shape, Institutions, Market sophistication, Business sophistication, and Creative outputs present the greatest dispersion in median scores compared to the GII. Knowledge and technology outputs is now less dispersed, a result of catching up by Northern Africa and West Asia, Latin America and the Caribbean, Central and Southern Asia, and Sub-Saharan Africa.

### Box 3: Top-scoring middle-income economies narrowing the gap on innovation quality (cont'd.)

primarily because it has the highest rank for citable scientific publications.

#### Top 10 middle-income economies

Because of a change in income group status from middle income to high income, Chile and the Russian Federation dropped out of the top 10 middle-income economies in this chart this year. The list of top 10 middle-income economies with the highest scores in quality indicators continues to be led by China, which ranks 29th in the GII and 21st in quality indicators (29th/21st). China's top scores in two of the three innovation quality variables—the QS university average ranking and the citable documents H index—result in its continued leadership among the middle-income countries in terms of

innovation quality indicators.

Apart from the Russian Federation, which left the middle-income category, the remaining BRICS economies are in the top 10 on innovation quality. India (76th/29th) is the only BRICS country that moved down in overall GII rank and yet managed to move up one position on quality in the middle-income group.

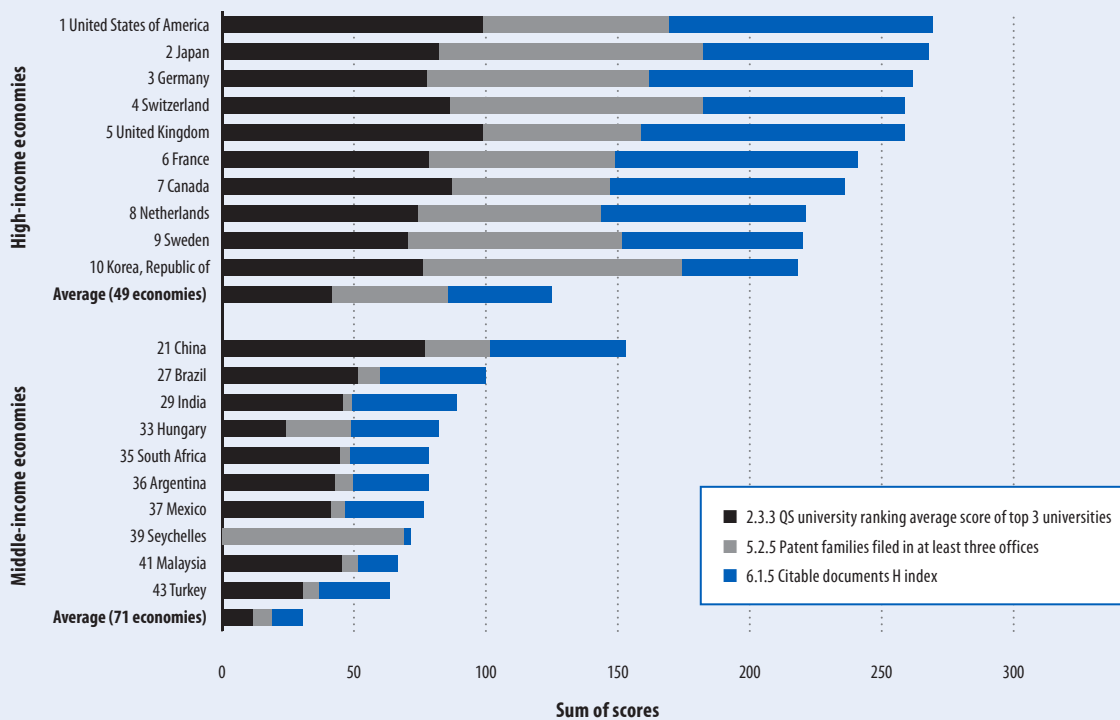
South Africa (53rd/35th) improved in the quality indicators by one place, primarily because of its jump in the ranking of patent families filed in at least three offices—from 81st place in GII 2013 to 53rd place this year.

Unlike the high-income economies—which display a more balanced quality indicator score portfolio—the majority in the middle-income economy group rely more

heavily on the QS university ranking average to boost their overall quality scores, while performing less well in patent families filed in at least three offices. Both China and Brazil highlight this point. The gap between high-income and middle-income average performance is the largest in patents (36.7 points), followed by university scores (30.1 points), then citable documents (28.0 points).

Although neither Chile nor the Russian Federation made it to the list of top 10 in their new high-income category, both still display a much better sum of scores in these three quality indicators than the majority of the top 10 middle-income countries.

Figure 3.1: Metrics for quality of innovation: Top 10 high- and top 10 middle-income economies



Notes: Numbers to the left of the economy name are the innovation quality rank. Economies are classified by income according to the World Bank Income Group Classification (July 2013). Upper- and lower-middle income categories were grouped together as middle-income economies.

Table 5: Heatmap for GII top 10 economies and regional and income group averages (1–100)

| Country/Economy                  | GI          | Institutions | Human capital and research | Infrastructure | Market sophistication | Business sophistication | Input        | Knowledge and technology outputs | Creative outputs | Output       | Efficiency  |
|----------------------------------|-------------|--------------|----------------------------|----------------|-----------------------|-------------------------|--------------|----------------------------------|------------------|--------------|-------------|
| Switzerland                      | 64.78       | 87.64        | 56.66                      | 58.97          | 74.75                 | 54.20                   | 66.44        | 60.89                            | 65.33            | 63.11        | 0.95        |
| United Kingdom                   | 62.37       | 88.59        | 60.29                      | 60.57          | 81.43                 | 50.18                   | 68.21        | 56.42                            | 56.62            | 56.52        | 0.83        |
| Sweden                           | 62.29       | 89.75        | 61.89                      | 63.59          | 68.19                 | 53.86                   | 67.46        | 58.83                            | 55.43            | 57.13        | 0.85        |
| Finland                          | 60.67       | 95.28        | 66.51                      | 59.69          | 61.36                 | 54.79                   | 67.53        | 54.24                            | 53.41            | 53.82        | 0.80        |
| Netherlands                      | 60.59       | 93.29        | 50.45                      | 58.66          | 63.57                 | 51.31                   | 63.46        | 53.76                            | 61.70            | 57.73        | 0.91        |
| United States of America         | 60.09       | 86.21        | 58.34                      | 57.55          | 83.78                 | 53.70                   | 67.92        | 58.10                            | 46.45            | 52.27        | 0.77        |
| Singapore                        | 59.24       | 92.76        | 64.86                      | 65.56          | 78.15                 | 66.67                   | 73.60        | 46.68                            | 43.07            | 44.88        | 0.61        |
| Denmark                          | 57.52       | 93.65        | 61.48                      | 59.11          | 67.78                 | 45.60                   | 65.52        | 46.65                            | 52.39            | 49.52        | 0.76        |
| Luxembourg                       | 56.86       | 82.95        | 47.17                      | 53.39          | 49.65                 | 60.76                   | 58.78        | 45.80                            | 64.09            | 54.94        | 0.93        |
| Hong Kong (China)                | 56.82       | 91.42        | 49.47                      | 67.38          | 79.71                 | 54.85                   | 68.57        | 33.31                            | 56.84            | 45.08        | 0.66        |
| <b>Average</b>                   | <b>36.9</b> | <b>62.51</b> | <b>31.02</b>               | <b>37.09</b>   | <b>50.16</b>          | <b>33.32</b>            | <b>42.82</b> | <b>29.15</b>                     | <b>32.82</b>     | <b>30.99</b> | <b>0.71</b> |
| <b>Region</b>                    |             |              |                            |                |                       |                         |              |                                  |                  |              |             |
| Northern America                 | 58.11       | 89.47        | 57.35                      | 57.98          | 79.83                 | 50.83                   | 67.09        | 50.89                            | 47.38            | 49.13        | 0.73        |
| Europe                           | 47.23       | 75.78        | 44.16                      | 47.14          | 54.43                 | 39.97                   | 52.30        | 40.52                            | 43.82            | 42.17        | 0.80        |
| South East Asia and Oceania      | 41.72       | 65.19        | 38.73                      | 43.13          | 57.94                 | 38.49                   | 48.70        | 33.69                            | 35.78            | 34.74        | 0.73        |
| Northern Africa and Western Asia | 35.73       | 61.92        | 32.06                      | 38.57          | 48.49                 | 30.43                   | 42.29        | 26.49                            | 31.86            | 29.17        | 0.69        |
| Latin America and the Caribbean  | 32.85       | 55.95        | 24.96                      | 33.44          | 45.95                 | 32.68                   | 38.59        | 22.69                            | 31.52            | 27.11        | 0.70        |
| Central and Southern Asia        | 27.48       | 48.64        | 22.14                      | 31.12          | 45.14                 | 21.27                   | 33.66        | 21.24                            | 21.34            | 21.29        | 0.64        |
| Sub-Saharan Africa               | 27.45       | 53.14        | 16.31                      | 24.43          | 44.75                 | 27.82                   | 33.29        | 20.55                            | 22.66            | 21.61        | 0.65        |
| <b>Income level</b>              |             |              |                            |                |                       |                         |              |                                  |                  |              |             |
| High income                      | 48.83       | 79.49        | 46.81                      | 50.37          | 58.25                 | 42.96                   | 55.58        | 39.58                            | 44.58            | 42.08        | 0.75        |
| Upper-middle income              | 34.76       | 58.87        | 29.58                      | 36.41          | 47.30                 | 30.85                   | 40.60        | 26.95                            | 30.87            | 28.91        | 0.71        |
| Lower-middle income              | 29.53       | 50.98        | 19.76                      | 28.41          | 45.01                 | 26.56                   | 34.14        | 22.41                            | 27.43            | 24.92        | 0.73        |
| Low income                       | 25.62       | 48.86        | 15.89                      | 22.40          | 45.04                 | 26.54                   | 31.74        | 20.27                            | 18.73            | 19.50        | 0.62        |

Worst Average Best

Note: Darker shadings indicate better performances. Countries/economies are classified according to the World Bank Income Group and the United Nations Regional Classifications (July 2012 and 11 February 2013, respectively)

### Sub-Saharan Africa (33 countries)

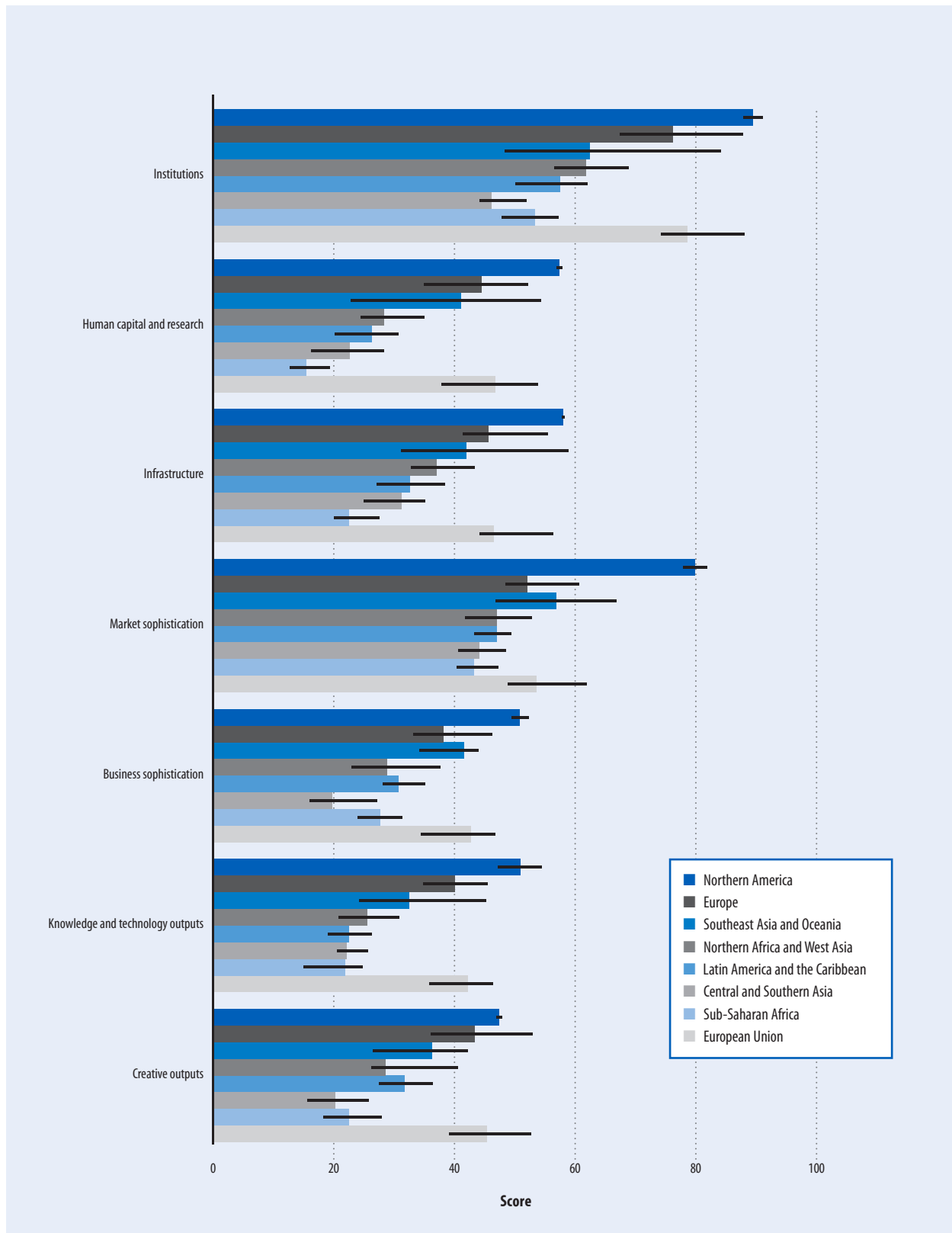
As pointed out in this report's main findings, a large group of the innovation learner economies are from Sub-Saharan Africa. Since the first edition of this report, only two Sub-Saharan African countries have reached positions in the upper half of the GII rankings: Mauritius has been in the top half since 2011 and is

40th in 2014 (up from 54rd in 2013); and South Africa, which has been in the top half of the rankings in all previous editions of the GII, is 53rd in 2014 (up from 58th in 2013). This year, however, a new Sub-Saharan African country has been included in the GII rankings: Seychelles, 51st in its first year in the index, is the third Sub-Saharan African country

to be placed in the upper half of the GII rankings. In addition, six countries from this region are ranked among the top 100: Kenya, Uganda, Botswana, Ghana, Cabo Verde, and Senegal.

The remaining 24 countries in this region can be found at the bottom of the rankings (100 or lower); 13 of them have improved since

Figure 7: Median scores by regional group and by pillar



Note: The bars show median scores (second quartiles); the lines show the range of scores between the first and third quartiles.



#### Box 4: Sub-Saharan Africa: A region of innovation learners

Sub-Saharan Africa is the region that sees the most significant improvement in GII rankings in 2014. Thirty-three countries make up the region in the GII. Of these 33, 17 climb in the rankings this year, three remain in the same position, two new countries are added, and the remaining 11 exhibit a drop in ranking. Three countries—Mauritius (40th), Seychelles (51st), and South Africa (53th)—are in the upper half of the overall GII rankings.

This year, Rwanda (102nd), Gambia (104th), Mozambique (107th), Burkina Faso (109th), and Malawi (113th) join Kenya, Uganda, and Senegal among the Sub-Saharan countries referred to as ‘innovation learners’ (see Figure 6). This is an increase of five countries—an achievement when considering that the average GDP per capita of each of these five nations is below PPP\$2,000. The region now makes up nearly 50% of the innovation learner economies in this year’s rankings. With respect to innovation efficiency, Senegal, Kenya, and Gambia stand out among economies that are innovation learners. With efficiency ratios (ERs) of 0.85, 0.84, and 0.76, respectively, these

perform above much larger economies such as India (ER 0.82), Thailand (ER 0.76), and Georgia (ER 0.68).

Figure 4.1 compares the scores of four of Sub-Saharan Africa countries (Mauritius, South Africa, Kenya, and Nigeria) with the average scores for all Sub-Saharan African countries, the average scores for upper-middle-income countries, and the average scores for high-income countries for all pillars and indices. The low-income country grouping includes half of the countries in Sub-Saharan Africa; on average, their scores are very close, which is why that income grouping is not shown separately in the graph.

Mauritius, one of the innovation learners, climbs 13 places, from 53rd to 40th rank. It performs above the upper-middle income group average score in GII ranking (40th), the Input Sub-Index (42nd), the Output Sub-index (43rd), Infrastructure (67th), Market sophistication (20th), and Creative outputs (31st). Its greatest strength is in Institutions (27th), where it performs above the average score of the high-income group. It remains below the average of the

upper-middle income group in Human capital and research (80th), yet is closing the gap in both Business sophistication (80th) and Knowledge and technology outputs (72nd).

South Africa (improves by five places, moving up from 58th to 53rd) and also places above the upper-middle-income group average score in the three indices: GII (53rd), Input (47th), and Output (63rd). Its relatively strong pillars are Institutions (44th), Knowledge and technology outputs (62nd), Business sophistication (68th), and Creative outputs (70th). However, its greatest strength is in the Market sophistication pillar (18th), with a score that is above the average performance of high-income economies. Its performance is below par in Infrastructure (84th) and Human capital and research (70th).

Kenya, another one of Sub-Saharan Africa’s innovation learners, improves by 14 places, rising from 99th to 85th in the rankings. It has scores in all three indices that are above those of the low-income group: GII (85th), Input (103rd), and Output (73rd). Its greatest strengths are in Institutions (97th), where it performs even above the level of

(Continued)

2013. Kenya, Uganda, Mozambique, Rwanda, Senegal, Malawi, Gambia, and Burkina Faso are among innovation learners this year, while middle-income countries Namibia, Swaziland, Angola, and Sudan have below-par performances.

#### Central and Southern Asia (11 economies)

In all prior editions of the GII, only India (76th), Kazakhstan (79th), and Sri Lanka (105th) have consistently achieved positions among the first 100; this year, Sri Lanka drops out of the top 100 and is displaced by Bhutan (86th), a new addition to the GII. The remaining seven countries

of the region can be found at the bottom of the rankings: Kyrgyzstan (112th), the Islamic Republic of Iran (120th), Uzbekistan (128th), Bangladesh (129th), Pakistan (134th), Nepal (136th), and Tajikistan (137th). In 2014, none of the Central and Southern Asian countries are innovation leaders, with only India as an innovation learner, and Tajikistan, Uzbekistan, Pakistan, Kazakhstan, and Islamic Republic of Iran with below-par performances relative to their GDP (Figure 6).

**India** still comes 1st in the region, although it is now ranked 7th among lower-middle-income

countries (3rd in 2013) and has dropped 10 positions in the overall GII since 2013. With more than 1.2 billion inhabitants and a robust economy (India showed a GDP per capita of PPP\$4,077.1 in 2013, up from PPP\$3,851.3 of the previous year), this low-income country is again among the innovation learners. As noted earlier, India lost traction in the Output Sub-Index this year (65th, down from 42nd in 2013, but still 1st in the region) over the Input Sub-Index (93rd, down from 87th in 2013), which led to a further fall in its efficiency ratio (to 31st this year, down from 11th in 2013). Weak

#### Box 4: Sub-Saharan Africa: A region of innovation learners (cont'd.)

lower-middle-income countries; and Market sophistication (40th), in which it scores well above the upper-middle-income average and quite close to that of the high-income group. With only the two exceptions of Human capital and research (117th) and Infrastructure (127th), Kenya performs above all the lower-middle income scores—one income group above its own.

Nigeria also improves in the GII rankings this year, from 120th to 110th place. It places above both its region's average and its income group's average (lower-middle) in both its efficiency score (ranked 8th) and performance in Creative outputs (69th).

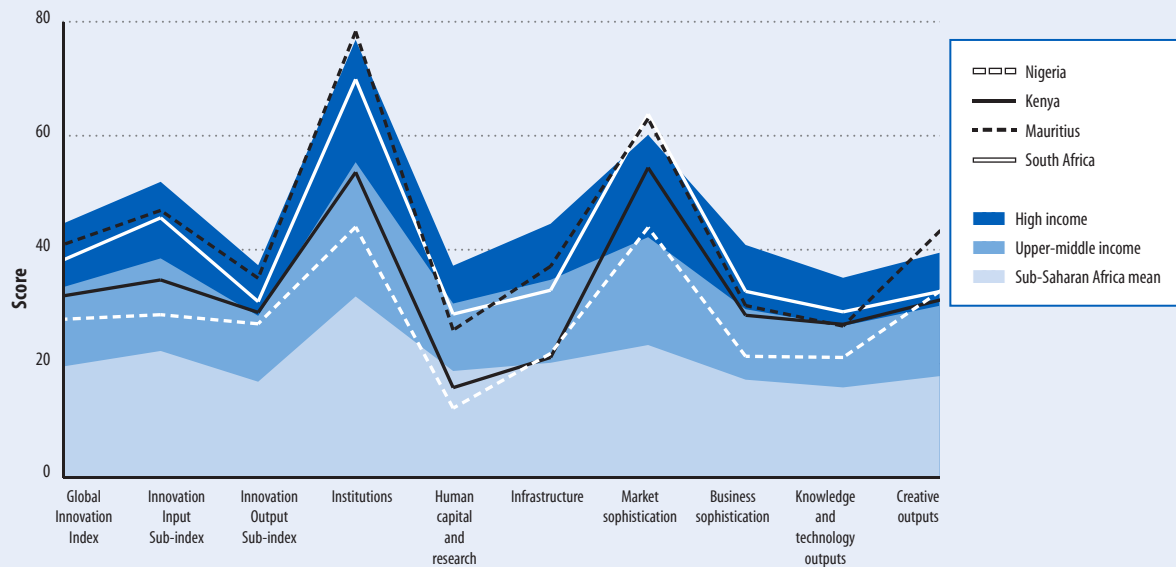
This group of Sub-Saharan African economies in the top half of the GII rankings, along with those described as innovative learners (a few exceptions aside),<sup>1</sup> performs close to or better than the regional average. The relative performance advantage of some of these nations is significant, reaching scores over 35% above the regional average in some areas. Examples include Mauritius's high score in Institutions, Ghana's score in Human capital and research, Seychelles' performance in Infrastructure, South Africa's high score in Market sophistication, Rwanda's levels of Business sophistication, Gambia's performance in Knowledge and

technology outputs, and Seychelles' score in Creative outputs.

#### Note

- 1 The exceptions are Malawi, Senegal, Burkina Faso, and Gambia in the Input Sub-Index; Rwanda in the Output Sub-Index; Mozambique and Gambia in Institutions; Kenya, Gambia, Burkina Faso, Malawi, and Senegal in Human capital and research; Malawi, Burkina Faso, Gambia, Kenya, and Rwanda in Infrastructure; Seychelles, Uganda, Burkina Faso, Senegal, and Malawi in Market sophistication; Senegal in Business sophistication; and Malawi, Gambia, Rwanda, and Mozambique in Creative outputs.

Figure 4.1: Sub-Saharan Africa: Best-ranked countries compared



positions in Institutions (106th) and Human capital and research (96th), as well as Business sophistication (93rd), remain, with rankings in

Knowledge and technology outputs (50th) and Creative outputs (82nd) worsening (from 37th and 65th in 2013, respectively). India's strengths

are in the sub-pillars Knowledge diffusion (24th), R&D (31st), and General infrastructure (33rd).

### Latin America and the Caribbean (22 economies)

Latin America and the Caribbean includes only upper- and middle-income economies, except for high-income Barbados, Trinidad and Tobago, Chile, and Uruguay (Chile and Uruguay both reclassified from upper-middle income to high income in 2013).

This year, Barbados (41st) reaches 1st place in the regional rankings, followed by Chile (46th) and upper-middle-income countries Panama (52nd), Costa Rica (57th), Brazil (61st), Mexico (66th), Colombia (68th), and Argentina (70th), all in the first half of the rankings.

The remaining countries in the top 100 are Uruguay (72nd), Peru (73rd), and Guyana (80th), followed by the two Caribbean countries Jamaica (82nd) and Dominican Republic (83rd), as well as Paraguay (89th), Trinidad and Tobago (90th), and Guatemala (93rd). The remaining countries are ranked below 100: El Salvador (103rd), the Plurinational State of Bolivia (111th), Ecuador (115th), Honduras (118th), the Bolivarian Republic of Venezuela (122nd), and Nicaragua (125th).

No countries in the region are among innovation learners this year; eight display below-par performances relative to their GDP per capita (Figure 6): Honduras, El Salvador, Uruguay, Nicaragua, Argentina, Ecuador, Trinidad and Tobago, and the Bolivarian Republic of Venezuela.

**Barbados** is ranked 41st, up six positions from 47th place in 2013. With a population of 0.3 million and a GDP per capita of PPP\$25,180.9, Barbados ranks 38th in the Input Sub-Index (up from 42nd in 2013). It comes in at 53rd in the Output Sub-Index (down from 49th), primarily because of a lack of data for pillar 7 Creative outputs. The majority of its

strengths are on the input side, particularly in the Business sophistication pillar, where it ranks 5th (from 15th in 2013). Barbados ranks 3rd in patent families filed in three or more offices, 7th in joint venture-strategic alliance deals, and 11th in the number of GMAT test takers. Although its position in Human capital and research continues to deteriorate (from 38th to 58th), it improved in Infrastructure (131st to 103rd).

**Brazil** is ranked 61st (up from 64th in 2013), 16th among upper-middle-income countries (up from 21st), and 5th in the region (up from 8th). Brazil is one of the four countries in the region that improves in the rankings this year. With a population of 198.7 million and a GDP per capita of PPP\$12,220.9, Brazil ranks 63rd in the Input Sub-Index, 64th in the Output Sub-Index, and 71st in the efficiency ratio; it also shows relative strengths in Business sophistication (37th), Infrastructure (60th), Human capital and research (62nd), Creative outputs (64th), and Knowledge and technology outputs (65th). Brazil's strongest performance is in the Knowledge absorption sub-pillar, ranking in the top 30 for three out of the four variables. Brazil's weaknesses remain in Institutions (95th), particularly in the Business environment sub-pillar (137th).

### Northern Africa and Western Asia (19 economies)

Israel (15th) and Cyprus (30th) achieve the top two positions in the region for the third year running. Three of the six countries of the Gulf Cooperation Council (GCC) come next: the United Arab Emirates (36th), Saudi Arabia (38th), and Qatar (47th). With per capita incomes ranging from PPP\$29,813.16 (Oman, 75th) to PPP\$98,813.66 (Qatar), most GCC

economies achieve rankings below those of their peers in GDP per capita (with the exception of the UAE, which performs on par with those of its peers), a feature common to most resource-rich economies.

In past editions of the GII, GCC countries appeared all together in a block right after Israel and Cyprus; the regional rankings are now more dispersed: Bahrain (62nd) comes behind Turkey (54th), Armenia (65th) and Kuwait (69th) come behind Jordan (64th), and Oman (75th) comes behind Georgia (74th).

At the bottom of the regional rankings we find Lebanon (77th), Tunisia (78th), Morocco (84th), Egypt (99th), Azerbaijan (101st), Algeria (133rd), and Yemen (141st). Although Israel is the only innovation leader in the region (its profile is discussed in the section on the Output Sub-Index top 10), Armenia, Jordan, and Georgia remain in the group of innovation learners, while Saudi Arabia, Lebanon, Azerbaijan, Yemen, Algeria, Bahrain, Oman, Kuwait, and Qatar show below-par performances compared to their income levels (Figure 6).

### South East Asia and Oceania (17 economies)

This region includes 17 economies that are very dissimilar in levels of development. The first five rank among the top 25 in the three indices (GII, input, and output): Singapore (7th), which displaces Hong Kong (China) at the top of the regional rankings this year; Hong Kong (China), which is now 10th globally and 2nd regionally; the Republic of Korea (16th), Australia (17th), and New Zealand (18th). These five economies, as well as Japan (21st), are innovation leaders, all placing within the top 25. High-income Brunei Darussalam ranks a disappointing 88th place (13th out of 17 in the region).

Among upper-middle-income economies, China (29th) and Malaysia (33rd) rank high, with Thailand climbing from 57th in 2013 to 48th in 2014. Lower-middle-income Mongolia (56th), Viet Nam (71st), Indonesia (87th), and upper-middle income Fiji (95th) and lower-middle-income Philippines (100th) are among the top 100. Low-income Cambodia is ranked 106th and Myanmar—another new addition to the 2014 GII—is ranked 140th.

China, Mongolia, Viet Nam, Malaysia, and Thailand are among the innovation learners this year, whereas Myanmar and Brunei Darussalam show below-par performance (Figure 6).

For the third year in a row (even more markedly in 2014), **China** shows several remarkable strengths: Overall, it is ranked 29th, up from 35th in 2012, 1st among upper-middle-income countries and 7th in the region. Ranking a strong 2nd in efficiency, China continues to improve in the Input Sub-Index (from 46th to 45th) and Output Sub-Index (from 25th to 16th). China's biggest improvement is in the Creative outputs pillar, partly due to retaining 1st position in the Creative goods exports variable (measured as the total value of creative goods exports net of re-imports over total trade), and an improvement from 12th to 8th position in the number of domestic resident trademark applications. Moreover, China remains 2nd overall in the Knowledge and technology outputs pillar, with strengths in all sub-pillars.

#### Europe (39 countries)

As last year, a total of 16 European countries (13 of them from the EU) are among the top 25: Switzerland (1st), the UK (2nd), Sweden (3rd), Finland (4th), the Netherlands (5th),

Denmark (8th), Luxembourg (9th), Ireland (11th), Germany (13th), Norway (14th), Iceland (19th), Austria (20th), France (22nd), Belgium (23rd), Estonia (24th), and Malta (25th). All of them achieve positions in the top 25 in both the Output and Input Sub-Indices with the exception of France (26th in outputs) and Malta (33rd in inputs).

Fifteen countries follow among the top 50, including all remaining EU countries, with the exception of Romania (55th): the Czech Republic (26th), Spain (27th), Slovenia (28th), Italy (31st), Portugal (32nd), Latvia (34th), Hungary (35th), Slovakia (37th), Lithuania (39th), Croatia (42nd), the Republic of Moldova (43rd), Bulgaria (44th), Poland (45th), the Russian Federation (49th), and Greece (50th).

Romania (55th), Belarus (58th), Montenegro (59th), the Former Yugoslav Republic of Macedonia (60th), Ukraine (63rd), Serbia (67th), Bosnia and Herzegovina (81st), and Albania (94th) make up the rest of the European economies, all of which are ranked in the top 100. In addition, the Republic of Moldova and Ukraine are positioned among the innovation learners, while Greece and Albania show below-par performances (Figure 6).

Ranked 49th, up 11 positions from its 62nd place in 2013, the **Russian Federation** (also discussed above in the BRICS section) is ranked 42nd among high-income countries and 30th in Europe. This year, the country makes significant progress in the Output Sub-Index (from 72nd in 2013 to 45th) closing gaps in Knowledge and technology outputs (from 48th in 2013 to 34th) and Creative outputs (from 101st in 2013 to 72nd). Its relatively strong position in Human capital and research (30th) was maintained, although it fell from 74th to 111th in

Market sophistication this year. The Russian Federation's main strengths are in Education, with robust scores in pupil-teacher ratio in secondary levels, tertiary enrolment, and graduates in science and engineering, in addition to Knowledge creation (number of domestic resident applications, domestic resident utility model applications, and citable documents H index).

#### Conclusion

The Global Innovation Index (GII) has grown over the years into a unique study of innovation capabilities and results around the world. The GII 2014 covers 143 economies and uses 81 indicators across a range of themes to analyse innovation in each economy. Thus the GII 2014 presents us with a rich dataset to analyse for global innovation trends.

The GII model is revised every year in a transparent exercise to improve the way innovation is measured. Such evolution will continue over the years as new metrics that provide better and more accurate measures of innovation, capabilities, and impact become available. Therefore the scores and rankings from one year to the next are not directly comparable (see Annex 2 for further details). The GII is focused both on improving the 'journey' to better measuring and understanding innovation and on identifying targeted policies and good practices.

Some of the results from GII 2014 mirror those from last year. We note that high-income economies continue to dominate the top 10 rankings. Innovation leaders such as Switzerland consistently score high on most dimensions of the GII model. Although not all high-income economies make it to the top of the GII rankings, the results show that innovation divides continue

to exist around the world—across income groups, across regions, and also within income groups and regions. The persistence of these innovation divides can be traced to the challenges of making progress in a holistic manner along all dimensions of the GII model and to the legacy benefits of investments (in education, infrastructure, institutions, etc.) made by leading economies in the sophistication of their business and market conditions, among other aspects.

Some interesting new regional trends are revealed in the GII 2014. The BRICS economies mostly progress in the rankings but show some divergence, with China improving at a significantly faster pace than its BRICS counterparts and India slipping back. If China continues to improve at this pace, it would not be a surprise to see that country move from its current 29th position to within the top 25 within a few years. The divergence of India from the rest of the BRICS economies is the result of the challenges it faces in integrating its efforts along the different dimensions of innovation to sustain a high level of innovation success.

A significant development is evident this year in selected parts of Sub-Saharan Africa. Five economies from this region—Burkina Faso, Gambia, Malawi, Mozambique, and Rwanda—entered the group of innovation learners (economies that perform greater than or equal to 10% of their expected level of development with respect to GDP—see Box 4 for more details). Sub-Saharan Africa now comprises nearly 50% of the innovation learner economies. These economies demonstrate rising levels of innovation, particularly in the areas of Human capital and research and Market sophistication.

The GII shows that it is crucial for lower-income economies to continue exploring ways to foster the environments in which new sources of innovation-based growth will flourish. These nations also face the challenges of optimizing the mix of institutional, infrastructural, and knowledge-based systems that will allow them to continue expanding their human capital, knowledge production capacity, and overall technology success.

The theme for this year's GII is the 'Human Factor in Innovation'. The importance of both individual and collective efforts of creators and scientists in the innovation process has been well documented in the literature. The results of the GII provide additional evidence of this significance. Further analysis of the GII results shows that the human factor is more critical for innovation success in higher-income economies than in lower-income economies. It is likely that better educated citizens are more successful in higher-income economies in leveraging the favourable contexts (in business and markets) for driving innovation.

The GII also recognizes that some important qualitative aspects of innovation policies and processes are not captured adequately within the GII model. Hence the GII report also includes special analytical chapters and case studies focused on country experiences. The following chapters provide additional details on successful strategies for leveraging the human factor in innovation.

## Notes and References for Box 1

### Notes

- 1 UNESCO-UIS Science & Technology Data Center and OECD Main Science and Technology Indicators (MSTI), update from 2 May 2014. Data used: GERD, performed by Business enterprise (in '000 PPP\$, constant prices, 2005). Economies included: Australia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hong Kong (China), Hungary, Ireland, Israel, Italy, Japan, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Mongolia, the Netherlands, Norway, Panama, Poland, Portugal, the Republic of Korea, the Republic of Moldova, Romania, the Russian Federation, Serbia, Singapore, Slovakia, Slovenia, Spain, Sweden, Turkey, Ukraine, the United Kingdom, and the United States of America.
- 2 UNESCO-UIS Science & Technology Data Center, update from 2 May 2014. Data used: GERD, performed by Business enterprise in '000 PPP\$ (constant prices, 2005). Economies included: Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canada, China, Colombia, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Mongolia, the Netherlands, Norway, Poland, Portugal, the Republic of Moldova, Romania, the Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Ukraine, the United Kingdom, and the United States of America.
- 3 OECD MSTI, updated 4 February 2014. Data used: Business enterprise expenditure on R&D (BERD) at constant 2005 PPP\$. OECD countries are represented by the Main Science and Technology Indicators (MSTI) indicator 'OECD-total'.
- 4 Booz & Company, 2013. This growth is based on a changing sample of firms of the top 1,000 R&D spenders of a given year. Hence the numbers are upward biased compared with a stable sample of top R&D firms. That said, the composition of the top 1,000 spender list is quite stable over time.



- 5 UNESCO-UIS Science & Technology Data Center, updated 5 May 2014. Data used: GERD in '000 PPP\$ (in constant prices, 2005). Countries included: Armenia, Austria, Azerbaijan, Belarus, Belgium, Brazil, Bulgaria, Burundi, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Egypt, El Salvador, Estonia, Finland, France, Germany, Guatemala, Hong Kong (China), Hungary, Iraq, Ireland, Israel, Italy, Japan, Kazakhstan, Kuwait, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Macao (China), Madagascar, Malta, Mexico, Mongolia, the Netherlands, Norway, Panama, Poland, Portugal, the Republic of Korea, the Republic of Moldova, Romania, the Russian Federation, Serbia, Singapore, Slovakia, Slovenia, Spain, Sweden, Tajikistan, Trinidad and Tobago, Turkey, Ukraine, the United Kingdom, the United States of America, and Uruguay. For 2011, data were available for all the above-mentioned countries except for Brazil, Chile, El Salvador, Guatemala, Hong Kong (China), Japan, Panama, the Republic of Korea, Singapore, Trinidad and Tobago, and Uruguay.
- 6 OECD MSTI, updated 4 February 2014. Data used: Gross domestic expenditure on R&D (GERD) at constant 2005 PPP\$. OECD countries are represented by the Main Science and Technology Indicators (MSTI) indicator 'OECD-total'.
- 7 OECD MSTI, updated 4 February 2014.
- 8 Batelle and *R&D Magazine*, 2014.

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- 6 Trantow et al., 2011.
- 7 Lanvin and Evans, 2013, p. 7.
- 8 Pritchett, 2006.
- 9 Luthria and Dale, 2013.
- 10 Fink et al., 2013.
- 11 Meyer and Wattiaux, 2006.
- 12 Meyer and Wattiaux, 2006.
- 13 Kuznetsov and Sabel, 2006.
- 14 Beechler and Woodward, 2009.
- 15 Tung and Lazarova, 2007.
- 16 Leblang, 2011.
- 17 Carr et al., 2005.
- 18 Dutta et al., 2013.
- 19 Dutta et al., 2013.
- 20 See <http://mineduc.gov.rw/rief/>.
- 21 See <http://yourstory.com/2014/04/innovation-africa-digital-summit-2014>.
- 22 Dutta et al., 2013, p. 23.
- 23 The three indicators are: university rankings, patent families and cited documents.
- 24 Countries are grouped according to the World Bank classification. Economies are divided according to 2011 gross national income (GNI) per capita, calculated using the World Bank Atlas method. The groups are: low-income, US\$1,025 or less; lower-middle-income, US\$1,026 to US\$4,035; upper-middle-income, US\$4,036 to US\$12,475; and high-income, US\$12,476 or more.
- 25 Since 2012, the regional groups have been based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEA = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; and SSF = Sub-Saharan Africa.
- 26 Polynomial of degree 3 with intercept.
- 27 Although the Czech Republic achieved a score at the level of all leader economies (above 50), it is not considered to be a leader economy because it is not among the top 25.
- 28 See the GI 2012 for a complete overview of the four stages.

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- 2 Nelson and Phelps, 1966.
- 3 Lucas, 1988.
- 4 Aghion and Howitt, 1999.
- 5 Eurostat and OECD 2005, p. 141.

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## The Global Innovation Index (GII) Conceptual Framework

### The rationale for the Global Innovation Index

The Global Innovation Index (GII) project was launched by INSEAD in 2007 with the simple goal of determining how to find metrics and approaches that better capture the richness of innovation in society and go beyond such traditional measures of innovation as the number of research articles and the level of research and development (R&D) expenditures.<sup>1</sup>

There were several motivations for setting this goal. First, innovation is important for driving economic progress and competitiveness—for both developed and developing economies. Many governments are putting innovation at the centre of their growth strategies. Second, the definition of innovation has broadened—it is no longer restricted to R&D laboratories and to published scientific papers. Innovation could be and is more general and horizontal in nature, and includes social innovations and business model innovations as well as technical ones. Last but not least, recognizing and celebrating innovation in emerging markets is seen as critical for inspiring people—especially the next generation of entrepreneurs and innovators.

The GII helps to create an environment in which innovation factors are under continual evaluation, and it provides a key tool and a rich database of detailed metrics for refining innovation policies.

The GII is not meant to be the ultimate and definitive ranking of economies with respect to innovation. Measuring innovation outputs and impacts remains difficult; hence great emphasis is placed on measuring the climate and infrastructure for innovation and on assessing related outcomes.

Although the end result takes the shape of several rankings, the GII is more concerned with improving the ‘journey’ to better measure and understand innovation and with identifying targeted policies, good practices, and other levers that foster innovation. The rich metrics can be used—on the level of the index, the sub-indices, or the actual raw data of individual variables—to monitor performance over time and to benchmark developments against countries in the same region or of the same income class.

Drawing on the expertise of the GII’s Knowledge Partners and its prominent Advisory Board, the GII model is continually updated to reflect the improved availability of statistics and our understanding of innovation. This year, however, the model has reached a level of maturity that requires only minor updates (refer to Annex 2).

### An inclusive perspective on innovation

The GII adopts a broad notion of innovation, originally developed in the *Oslo Manual* developed by the European Communities and

the Organisation for Economic Co-operation and Development (OECD):<sup>2</sup>

An innovation is the implementation of a new or significantly improved product (good or service), a new process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations.

This definition reflects the evolution of the way innovation has been perceived and understood over the last two decades.<sup>3</sup>

Previously economists and policy makers focused on R&D-based technological product innovation, largely produced in-house and mostly in manufacturing industries. This type of innovation was performed by a highly educated labour force in R&D-intensive companies. The process leading to such innovation was conceptualized as closed, internal, and localized. Technological breakthroughs were necessarily ‘radical’ and took place at the ‘global knowledge frontier’. This characterization implied the existence of leading and lagging countries, with low- or middle-income economies only catching up.

Today, innovation capability is seen more as the ability to exploit new technological combinations; it embraces the notion of incremental innovation and ‘innovation without research’. Non-R&D innovative expenditure is an important component of reaping the rewards of technological innovation. Interest in understanding how innovation takes

### Box 1: Building a statistical and analytical framework of the highly skilled

Human capital is a central element of the innovation process, and the highly skilled play an especially important role in a knowledge-based economy. Significant efforts are now being devoted to improving both statistical and analytical frameworks and the availability and quality of the corresponding data to better understand the contribution of the human factor and its role in innovation. In particular, variables of interest for building indicators along the four different dimensions of measurement concerning the highly skilled, as elaborated as part of work being done by the Organisation for Economic Co-operation and Development (OECD), are set out in Figure 1.1. These dimensions are education, occupation, skills, and mobility.

A first set of indicators for measuring human capital focuses both on the role that education systems play in building competencies for science, technology, and innovation and on how this human capital is actually deployed in the labour market. These indicators position countries by looking at the performance of students from a young age and throughout the education system, with a special focus on those with scientific skills; those with science and engineering

degrees; and doctoral holders, who are specifically trained for research.

Additional indicators look beyond the education systems to labour market outcomes (the occupation dimension), the dimension of skills and related mismatches, and finally the mobility dimension.

Different data sources may be used to look at the dimensions illustrated in Figure 1.1. Some may be dedicated to a specific dimension, such as education statistics; others are more general and cover several dimensions, such as population censuses. Efforts to measure highly skilled labour at the international level have long relied on standard statistical sources such as censuses or labour force surveys. These are particularly useful with regard to their international harmonization and comparability, but present a number of limitations in terms of their frequency (population censuses) and sample size (labour force surveys). It has also become increasingly apparent that aggregate numbers derived from such data mask very heterogeneous situations across degree levels, fields of education, occupations, industries, countries, and so on, calling for the use of complementary information

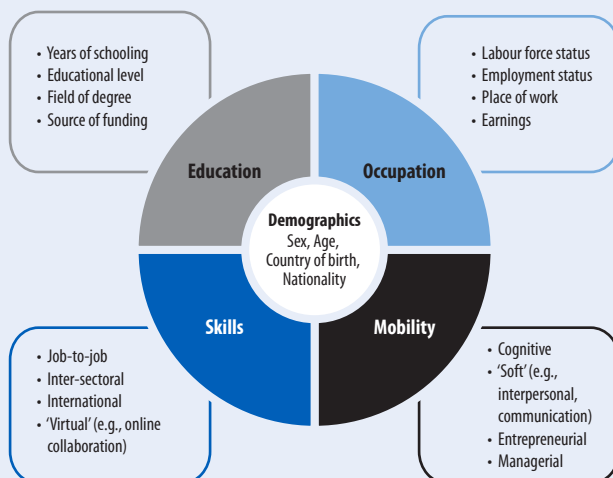
from other data sources. Recent work by the OECD suggests that a statistical data framework and infrastructure characterized by the following statistical activities would meet the requirements for developing a comprehensive evidence base of the highly skilled population across the wide range of measurement dimensions illustrated in Figure 1.1:

1. analysis at different levels of aggregation: macro (basic aggregates), meso (e.g., industries), and micro (individual data);
2. consistent coverage of relevant populations of interest (e.g., researchers, doctorate holders, publishing scientists, etc.); and
3. access to and analysis of data at the micro level (e.g., enabling the linking of data collected from different sources and econometric analysis at the level of decision-making units).

The following links give examples of OECD statistical data work and analyses that use such a framework in different ways:

- Database on education statistics: <http://www.oecd.org/education/database.htm>.
- Statistics and indicators on the Careers of Doctorate Holders: [www.oecd.org/sti/cdh](http://www.oecd.org/sti/cdh).
- Evidence on the mobility of scientists, based on bibliometric affiliation data: <http://www.oecd.org/sti/researchers-on-the-move-the-impact-of-brain-circulation.pdf>.
- Database on immigrants in OECD and non-OECD countries: <http://www.oecd.org/els/mig/dioc.htm>.
- Programme for the International Assessment of Adult Competencies (PIAAC): <http://www.oecd.org/site/piaac/>.

**Figure 1.1: Measurement dimensions of interest for a statistical and analytical framework of the highly skilled**



Source: OECD Secretariat.

Note: The variables listed in the figure are not exhaustive, but rather are a minimal set of variables for which data are considered most informative.

place in low- and middle-income countries is increasing, along with an awareness that incremental forms of innovation can impact development. Furthermore, the process of innovation itself has changed significantly. Investment in innovation-related activity has consistently intensified at the firm, country, and global levels, adding both new innovation actors from outside high-income economies and nonprofit actors. The structure of knowledge production activity is more complex and geographically dispersed than ever.

A key challenge is to find metrics that capture innovation as it actually happens in the world today.<sup>4</sup> Direct official measures that quantify innovation outputs remain extremely scarce.<sup>5</sup> For example, there are no official statistics on the amount of innovative activity—defined as the number of new products, processes, or other innovations—for any given innovation actor, let alone for any given country (see Box 1, Annex 1 of Chapter 1 in the GII 2013). Most measures also struggle to appropriately capture the innovation outputs of a wider spectrum of innovation actors, such as the services sector or public entities.

The GII aims to move beyond the mere measurement of such simple innovation metrics. To do so will require the integration of new variables, with a trade-off between the quality of the variable on the one hand and achieving good country coverage on the other hand.

The timeliest possible indicators are used for the GII: 28.3% of data obtained are from 2013, 34.6% are from 2012, 11.6% are from 2011, 5.0% from 2010, and the small remainder (5.3%) from earlier years.<sup>6</sup>

Further, the *Oslo Manual* states that the human factor is important for enabling innovation at the

firm level because ‘much essential knowledge, particularly technological knowledge, is unwritten.’<sup>7</sup>

The theme of this year’s GII, the ‘Human Factor in Innovation’, explores the role of the individuals and teams behind the innovation process. Statistically capturing this human contribution to innovation is a daunting challenge.

The organizations—such as the OECD and the National Science Foundation (NSF)—specializing in developing new innovation metrics, for instance, have started to address this lack of data by attempting to better understand precisely what is needed to measure the impact of talented human capital.

The OECD Innovation Strategy addresses four key areas when assessing the role of the highly skilled: education, occupation, skills, and mobility (see Box 1).

The NSF’s *Science and Engineering Indicators 2014* report points out that measuring R&D human resources is not the only way to assess the human factor in innovation (Box 2). Other metrics—including employment in knowledge and technology-intensive industries and business sectors other than those specific to R&D—also need to be assessed.

### The GII conceptual framework

The GII is an evolving project that builds on its previous editions while incorporating newly available data and that is inspired by the latest research on the measurement of innovation. This year the GII model includes 143 countries/economies that represent 92.9% of the world’s population and 98.3% of the world’s GDP (in current US dollars). The GII relies on two sub-indices—the Innovation Input Sub-Index and the Innovation Output Sub-Index—each built around pillars. Four measures are calculated (see Figure 1):

- 1. Innovation Input Sub-Index:** Five input pillars capture elements of the national economy that enable innovative activities.
- 2. Innovation Output Sub-Index:** Innovation outputs are the results of innovative activities within the economy. Although the Output Sub-Index includes only two pillars, it has the same weight in calculating the overall GII scores as the Input Sub-Index.
- 3. The overall GII score** is the simple average of the Input and Output Sub-Indices.
- 4. The Innovation Efficiency Ratio** is the ratio of the Output Sub-Index to the Input Sub-Index. It shows how much innovation output a given country is getting for its inputs.

Each pillar is divided into three sub-pillars, each of which is composed of individual indicators, for a total of 81 indicators. The GII pays special attention to presenting a scoreboard for each economy that includes strengths and weaknesses (Appendix I Country/Economy Profiles), making accessible the data series (Appendix II Data Tables), and providing data sources and definitions (Appendix III) and detailed technical notes (Appendix IV). Adjustments to the GII framework, including a detailed analysis of the factors influencing year-on-year changes, are detailed in Annex 2. In addition, since 2011 the GII has been submitted to an independent statistical audit performed by the Joint Research Centre of the European Union (results are detailed in Annex 3).

A table is included here for each pillar. That table provides a list of the pillar’s indicators, specifying their type (composite indicators are

## Box 2: New measurement approaches show innovation outside of R&D laboratories

Measuring the human factor in innovation is an important part of understanding the economic and social conditions that foster innovation and assessing its impact. The National Science Foundation's National Center for Science and Engineering Statistics (NCSES) has indicators on the human factor in innovation largely from data on the education, occupations, and activities of highly skilled people in the United States of America and worldwide. The NCSES reports much of this human innovation-related data in the National Science Board's

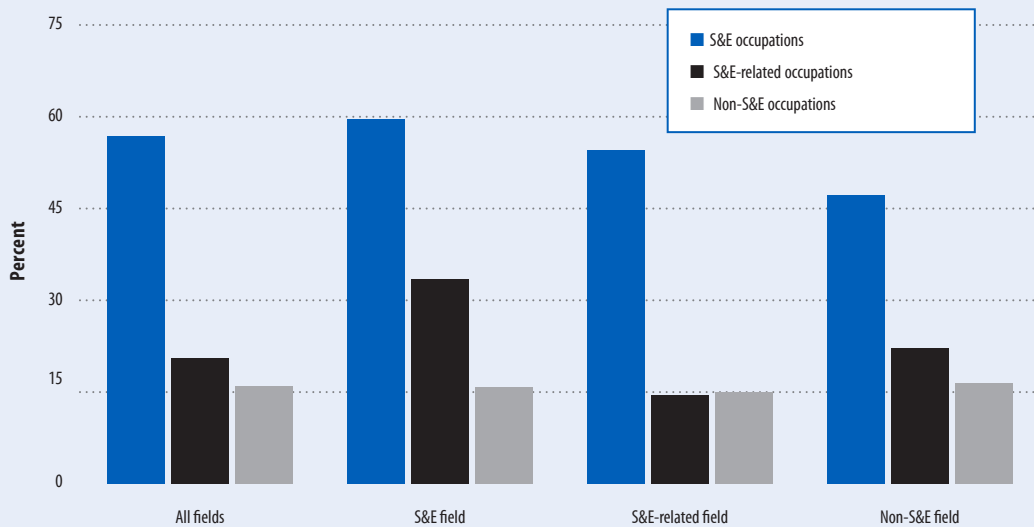
biannual publication *Science and Engineering Indicators (SEI)*.

*SEI 2014* reported several findings that shed light on the human factor in innovation. The first highlights the important role of scientists and engineers who use their knowledge in research and development (R&D).<sup>1</sup> The 2010 data are from the National Science Foundation's SESTAT database,<sup>2</sup> which indicate that 27% of employed US scientists and engineers reported R&D as a primary or secondary work activity (Figure 2.1). Although the scientists and

engineers employed in S&E occupations are those most likely to perform R&D (57%) as a primary or secondary work activity, a considerable proportion of those in S&E-related (21%) or non-S&E occupations (16%) also reported R&D as a primary or secondary activity.

To get at a more refined notion of the human factor in commercial innovation, for the first time in 2014, *SEI 2014* reported employment in US knowledge- and technology-intensive industries (Table 2.1). This group consists of eight industries comprising

**Figure 2.1: Employed scientists and engineers with R&D activity, by broad field of highest degree and broad occupational category, 2010**



Source: NSF/NCSES, 2010.

Notes: Scientists and engineers include those with one or more S&E or S&E-related degrees at the bachelor's level or higher or those who have only a non-S&E degree at the bachelor's level or higher and are employed in an S&E or S&E-related occupation. R&D activity here refers to the share of workers reporting basic research, applied research, design, or development as a primary or secondary work activity in their principal job—activities ranking first or second in work hours.

(Continued)

identified with an asterisk '\*', survey questions with a dagger '†', and the remaining indicators are hard data); their weight in the index (indicators with half weight are identified with the letter 'a'); and the direction of their effect (indicators for which higher values imply worse outcomes are identified with the letter

'b'). The table then provides each indicator's average values (in their respective units) per income group (World Bank classification) and for the whole sample of 143 economies retained in the final computation (Tables 1a through 1g).

### The Innovation Input Sub-Index

The first sub-index of the GII, the Innovation Input Sub-Index, has five enabler pillars: Institutions, Human capital and research, Infrastructure, Market sophistication, and Business sophistication. Enabler pillars define aspects of the environment

## Box 2: New measurement approaches show innovation outside of R&D laboratories (continued)

**Table 2.1: Employment and R&D for selected US industries, 2012 or most recent year**

| Industry               | Employment<br>(millions of persons) | S&E share  | Average salary<br>(actual US dollars) | Business R&D<br>(2009) (US\$ billions) |
|------------------------|-------------------------------------|------------|---------------------------------------|--|
| <b>All industries</b>  | <b>133.7</b>                        | <b>4.4</b> | <b>45,000</b>                         | <b>282.4</b>                           |
| Commercial KI services | 18.4                                | 15.8       | 68,000                                | 78.8                                   |
| HT manufacturing       | 1.8                                 | 26.4       | 70,000                                | 135.9                                  |

Sources: BEA, Annual Industry Accounts, available at <http://www.bea.gov/industry/index.htm#annual>; BLS, Current Employment Statistics, available at <http://www.bls.gov/ces/>; BLS, Occupational Employment Statistics, special tabulations, accessed 15 July 2013; NSF/NCSES, 2013; NSB, 2014.

Notes: Business R&D consists of domestic funding by companies' own internal funds and funds from other sources. Employment consists of the nonagricultural workforce. HT manufacturing industries and KI services are classified by the Organisation for Economic Co-operation and Development. HT manufacturing includes computers, communications, semiconductors, electronic and measuring instruments, aircraft and space vehicles, and pharmaceuticals. KI services include health, education, business, information, and financial services. Commercial KI services include business, information, and financial services. Business R&D of commercial KI services consists of professional and technical services and information. Coverage of some industries may vary among data sources due to differences in classification of industries. Salaries are rounded to the nearest thousand.

three commercial knowledge-intensive (KI) services—business, financial, and telecommunications; and five high-technology (HT) industries—aircraft and spacecraft, communications and semiconductors, computers, pharmaceuticals, and scientific instruments. US commercial KI services industries employ 18 million workers, or 14% of the non-government US labour force; US HT manufacturing industries employ 1.8 million workers, or 16% of the US manufacturing labour force (this comes to 1% of the total US non-government labour force). Both commercial KI services and HT manufactures pay higher-than-average wages because, in part, of their high concentration of highly skilled S&E workers. These data together cover a fuller range of human contributions to innovative business sectors, going beyond direct R&D personnel alone.

However, more work remains if we are to fully measure the human factor in innovation. The current approach of using data from education and labour force surveys

provides an incomplete picture of the human impact on innovation. One limitation to this approach is the lack of systematic data on the skills themselves, which is arguably as important as data on occupation or education in human capital. A further limitation is the lack of data on the technological know-how of employees and workers. Technological know-how is probably at least as important as formal education and training, and it becomes increasingly important as individuals advance in their careers. Advances in gathering data that allow for the more precise measurement of the skills and know-how of the people who work in these fields would help economies tailor policies to enhance the human factor of the innovative environment.

### Notes

- 1 Scientists and engineers are defined as people who work in science and engineering (S&E) or S&E-related occupations or who hold at least a bachelor's level degree in an S&E or S&E-related field.

- 2 The Scientists and Engineers Statistical Data System (SESTAT) database is available at <http://ncesdata.nsf.gov/sestat/sestat.html>.

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conducive to innovation within an economy.

### Pillar 1: Institutions

Nurturing an institutional framework that attracts business and fosters growth by providing good governance and the correct levels of protection and incentives is essential

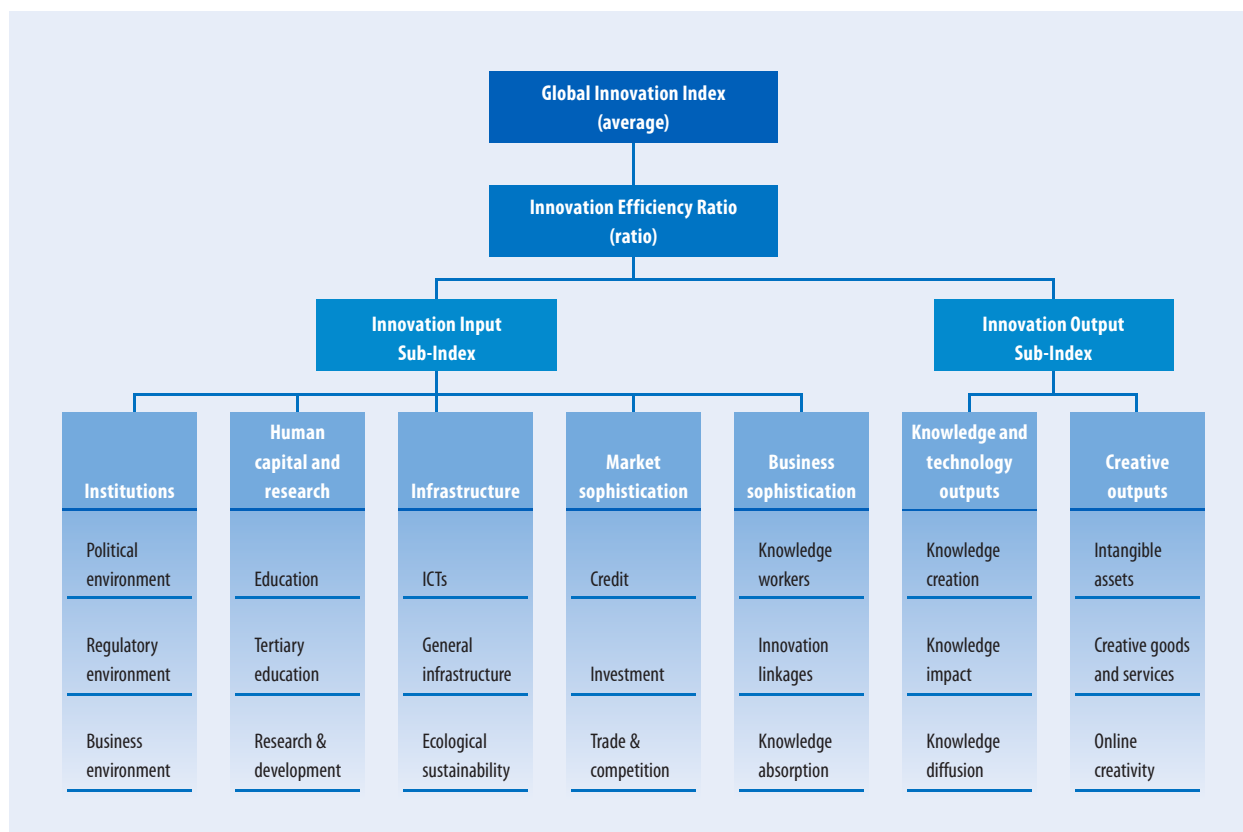
to innovation. The Institutions pillar captures the institutional framework of a country (Table 1a).

The political environment sub-pillar includes three indices that reflect perceptions of the likelihood that a government might be destabilized; the quality of public and civil services, policy formulation, and

implementation; and perceptions of violations to press freedom.

The regulatory environment sub-pillar draws on two indices aimed at capturing perceptions on the ability of the government to formulate and implement cohesive policies that promote the development of the private sector and at

Figure 1: Framework of the Global Innovation Index 2014



evaluating the extent to which the rule of law prevails (in aspects such as contract enforcement, property rights, the police, and the courts). The third indicator evaluates the cost of redundancy dismissal as the sum, in salary weeks, of the cost of advance notice requirements added to severance payments due when terminating a redundant worker.

The business environment sub-pillar expands on three aspects that directly affect private entrepreneurial endeavours by using the World Bank indices on the ease of starting a business; the ease of resolving insolvency (based on the recovery rate recorded as the cents on the dollar recouped by creditors through reorganization, liquidation, or debt enforcement/foreclosure proceedings); and the ease of paying taxes.

### Pillar 2: Human capital and research

The level and standard of education and research activity in a country are prime determinants of the innovation capacity of a nation. This pillar tries to gauge the human capital of countries (Table 1b).

The first sub-pillar includes a mix of indicators aimed at capturing achievements at the elementary and secondary education levels. Education expenditure and school life expectancy are good proxies for coverage. Government expenditure per pupil, secondary gives a sense of the level of priority given to secondary education by the state. The quality of education is measured through the results to the OECD Programme for International Student Assessment (PISA), which examines 15-year-old students' performances in reading,

mathematics, and science, as well as the pupil-teacher ratio.

Higher education is crucial for economies to move up the value chain beyond simple production processes and products. The sub-pillar on tertiary education aims at capturing coverage (tertiary enrolment); priority is given to the sectors traditionally associated with innovation (with a series on the percentage of tertiary graduates in science and engineering, manufacturing, and construction); and the inbound and mobility of tertiary students, which plays a crucial role in the exchange of ideas and skills necessary for innovation.

The last sub-pillar, on R&D, measures the level and quality of R&D activities, with indicators on researchers (headcounts), gross



expenditure, and the quality of scientific and research institutions as measured by the average score of the top three universities in the QS World University Ranking of 2013. By design, this indicator aims at capturing the availability of at least three higher education institutions of quality within each economy (i.e., included in the global top 700), and is not aimed at assessing the average level of all institutions within a particular economy.

### Pillar 3: Infrastructure

The third pillar includes three sub-pillars: information and communication technologies (ICTs), general infrastructure, and ecological sustainability (Table 1c).

Good and ecologically friendly communication, transport, and energy infrastructures facilitate the production and exchange of ideas, services, and goods and feed into the innovation system through increased productivity and efficiency, lower transaction costs, better access to markets, and sustainable growth.

The ICTs sub-pillar includes four indices developed by international organizations on ICT access, ICT use, online service by governments, and online participation of citizens.

The sub-pillar on general infrastructure includes the average of electricity output in kWh per capita; a composite indicator on logistics performance; and gross capital formation, which consists of outlays on additions to the fixed assets and net inventories of the economy, including land improvements (fences, ditches, drains); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.

**Table 1a: Institutions pillar**

| Indicator   | Average value by income group (0–100) |                     |                     |            | Mean  |
|---|---------------------------------------|---------------------|---------------------|------------|-------|
|   | High income                           | Upper-middle income | Lower-middle income | Low income |       |
| <b>1 Institutions</b>   |                                       |                     |                     |            |       |
| <b>1.1 Political environment*</b>                                   |                                       |                     |                     |            |       |
| 1.1.1 Political stability*.....                                     | 0.69                                  | -0.25               | -0.56               | -0.77      | -0.08 |
| 1.1.2 Government effectiveness*.....                                | 1.17                                  | -0.10               | -0.48               | -0.82      | 0.13  |
| 1.1.3 Press freedom* <sup>b</sup> .....                             | 21.07                                 | 34.51               | 37.50               | 33.96      | 30.57 |
| <b>1.2 Regulatory environment</b>                                   |                                       |                     |                     |            |       |
| 1.2.1 Regulatory quality* <sup>a</sup> .....                        | 1.11                                  | -0.06               | -0.42               | -0.68      | 0.16  |
| 1.2.2 Rule of law* <sup>a</sup> .....                               | 1.13                                  | -0.31               | -0.59               | -0.82      | 0.03  |
| 1.2.3 Cost of redundancy dismissal, salary weeks <sup>b</sup> ..... | 14.17                                 | 19.01               | 26.05               | 19.41      | 19.04 |
| <b>1.3 Business environment</b>                                     |                                       |                     |                     |            |       |
| 1.3.1 Ease of starting a business*.....                             | 87.05                                 | 80.66               | 79.43               | 68.90      | 80.68 |
| 1.3.2 Ease of resolving insolvency*.....                            | 66.44                                 | 37.93               | 27.95               | 22.45      | 43.01 |
| 1.3.3 Ease of paying taxes*.....                                    | 80.22                                 | 65.51               | 56.49               | 56.44      | 67.08 |

Note: (\*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

**Table 1b: Human capital & research pillar**

| Indicator  | Average value by income group (0–100) |                     |                     |            | Mean     |
|--|---------------------------------------|---------------------|---------------------|------------|----------|
|  | High income                           | Upper-middle income | Lower-middle income | Low income |          |
| <b>2 Human capital and research</b>                              |                                       |                     |                     |            |          |
| <b>2.1 Education</b>   |                                       |                     |                     |            |          |
| 2.1.1 Expenditure on education, % GDP.....                       | 5.28                                  | 4.69                | 4.67                | 4.23       | 4.81     |
| 2.1.2 Gov't expend on edu/pupil, secondary <sup>1</sup> .....    | 24.92                                 | 17.32               | 19.90               | 25.16      | 22.09    |
| 2.1.3 School life expectancy, years.....                         | 15.90                                 | 13.69               | 11.67               | 9.84       | 13.36    |
| 2.1.4 PISA scales in reading, maths & science <sup>a</sup> ..... | 496.34                                | 427.85              | 360.19              | n/a        | 469.85   |
| 2.1.5 Pupil-teacher ratio, secondary <sup>a,b</sup> .....        | 11.18                                 | 16.16               | 20.03               | 28.17      | 17.54    |
| <b>2.2 Tertiary education</b>                                    |                                       |                     |                     |            |          |
| 2.2.1 Tertiary enrolment, % gross <sup>a</sup> .....             | 62.50                                 | 43.02               | 23.16               | 9.46       | 39.50    |
| 2.2.2 Graduates in science & engineering, %.....                 | 22.57                                 | 23.01               | 18.57               | 16.82      | 21.08    |
| 2.2.3 Tertiary inbound mobility, % <sup>a</sup> .....            | 9.59                                  | 4.33                | 1.21                | 1.88       | 5.38     |
| <b>2.3 Research and development (R&amp;D)</b>                    |                                       |                     |                     |            |          |
| 2.3.1 Researchers, headcounts/mn pop.....                        | 4,918.58                              | 1,192.64            | 508.06              | 122.86     | 2,155.99 |
| 2.3.2 Gross expenditure on R&D, % GDP.....                       | 1.67                                  | 0.52                | 0.28                | 0.34       | 0.90     |
| 2.3.3 QS university ranking, average score top 3*.....           | 41.37                                 | 16.30               | 5.47                | 0.25       | 19.81    |

Note: (\*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

<sup>1</sup> Scaled by percent of GDP per capita.

The sub-pillar on ecological sustainability includes three indicators: GDP per unit of energy use (a measure of efficiency in the use of energy), the Environmental Performance Index of Yale and Columbia Universities, and the number of certificates of conformity with standard ISO 14001 on environmental management systems issued.

### Pillar 4: Market sophistication

The ongoing global financial crisis has underscored how crucial the availability of credit, investment funds, and access to international markets is for businesses to prosper. The Market sophistication pillar has three sub-pillars structured around market conditions and the total level of transactions (Table 1d).

The credit sub-pillar includes a measure on the ease of getting credit

**Table 1c: Infrastructure pillar**

| Indicator   | Average value by income group (0–100) |                     |                     |            | Mean     |
|---|---------------------------------------|---------------------|---------------------|------------|----------|
|   | High income                           | Upper-middle income | Lower-middle income | Low income |          |
| <b>3 Infrastructure</b>   |                                       |                     |                     |            |          |
| <b>3.1 Information and communication technologies (ICTs)</b>          |                                       |                     |                     |            |          |
| 3.1.1 ICT access*.....  | 7.38                                  | 4.81                | 3.27                | 2.05       | 4.99     |
| 3.1.2 ICT use*.....   | 5.78                                  | 2.56                | 1.35                | 0.37       | 3.13     |
| 3.1.3 Government's online service*.....                               | 0.72                                  | 0.49                | 0.40                | 0.28       | 0.51     |
| 3.1.4 E-participation*.....   | 0.49                                  | 0.24                | 0.19                | 0.06       | 0.29     |
| <b>3.2 General infrastructure</b>                                     |                                       |                     |                     |            |          |
| 3.2.1 Electricity output, kWh/cap <sup>a</sup> .....                  | 9,476.98                              | 2,808.78            | 1,305.40            | 577.56     | 4,816.63 |
| 3.2.2 Logistics performance <sup>a</sup> .....                        | 3.49                                  | 2.85                | 2.63                | 2.45       | 2.95     |
| 3.2.3 Gross capital formation, % GDP.....                             | 20.24                                 | 25.52               | 25.16               | 25.37      | 23.59    |
| <b>3.3 Ecological sustainability</b>                                  |                                       |                     |                     |            |          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....               | 7.44                                  | 7.26                | 5.41                | 3.68       | 6.54     |
| 3.3.2 Environmental performance*.....                                 | 70.29                                 | 53.78               | 42.77               | 33.46      | 53.51    |
| 3.3.3 ISO 14001 environ. certificates/bn PPP\$ GDP <sup>a</sup> ..... | 4.54                                  | 3.30                | 0.49                | 0.30       | 2.79     |

Note: (\*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

**Table 1d: Market sophistication pillar**

| Indicator   | Average value by income group (0–100) |                     |                     |            | Mean  |
|---|---------------------------------------|---------------------|---------------------|------------|-------|
|   | High income                           | Upper-middle income | Lower-middle income | Low income |       |
| <b>4 Market sophistication</b>  |                                       |                     |                     |            |       |
| <b>4.1 Credit</b>   |                                       |                     |                     |            |       |
| 4.1.1 Ease of getting credit*.....  | 70.41                                 | 63.65               | 61.36               | 50.54      | 63.33 |
| 4.1.2 Domestic credit to private sector, % GDP.....                       | 110.96                                | 55.82               | 36.39               | 23.23      | 65.19 |
| 4.1.3 Microfinance gross loans, % GDP.....                                | 0.14                                  | 0.97                | 2.43                | 3.08       | 1.92  |
| <b>4.2 Investment</b>   |                                       |                     |                     |            |       |
| 4.2.1 Ease of protecting investors*.....                                  | 59.73                                 | 56.84               | 47.07               | 47.10      | 54.01 |
| 4.2.2 Market capitalization, % GDP <sup>a</sup> .....                     | 67.46                                 | 42.21               | 26.03               | 31.10      | 49.31 |
| 4.2.3 Total value of stocks traded, % GDP <sup>a</sup> .....              | 39.85                                 | 13.08               | 3.71                | 3.66       | 22.20 |
| 4.2.4 Venture capital deals/tr PPP\$ GDP <sup>a</sup> .....               | 0.21                                  | 0.02                | 0.02                | 0.09       | 0.13  |
| <b>4.3 Trade and competition</b>  |                                       |                     |                     |            |       |
| 4.3.1 Applied tariff rate, weighted mean, % <sup>a,b</sup> .....          | 2.34                                  | 5.63                | 6.44                | 8.35       | 5.10  |
| 4.3.2 Non-agricultural mkt access weighted tariff, % <sup>a,b</sup> ..... | 2.29                                  | 1.34                | 1.41                | 1.72       | 1.75  |
| 4.3.3 Intensity of local competition <sup>†</sup> .....                   | 5.38                                  | 4.64                | 4.76                | 4.53       | 4.92  |

Note: (\*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

aimed at measuring the degree to which collateral and bankruptcy laws facilitate lending by protecting the rights of borrowers and lenders, as well as the rules and practices affecting the coverage, scope, and accessibility of credit information. Transactions are given by the total value of domestic credit and, in an attempt to make the model more applicable to emerging markets, by

the gross loan portfolio of microfinance institutions.

The investment sub-pillar includes the ease of protecting investors index as well as three indicators on the level of transactions. To show whether market size is matched by market dynamism, stock market capitalization is complemented by the total value of shares traded. The last metric is a hard data metric on venture capital deals, taking into

account a total of 18,860 deals in 71 countries in 2013.

The last sub-pillar tackles trade and competition. The market conditions for trade are given by two indicators: the average tariff rate weighted by import shares and a measure capturing non-agricultural market access conditions to foreign markets (five major export markets weighted actual applied tariffs for non-agricultural exports). The third and last indicator is a survey question that reflects on the intensity of competition in local markets. Efforts made at finding hard data on competition have so far proved unsuccessful.

#### Pillar 5: Business sophistication

The last enabler pillar tries to capture the level of business sophistication to assess how conducive firms are to innovation activity (Table 1e). The Human capital and research pillar (pillar 2) made the case that the accumulation of human capital through education, and particularly higher education and the prioritization of R&D activities, is an indispensable condition for innovation to take place. That logic is taken one step further here with the assertion that businesses foster their productivity, competitiveness, and innovation potential with the employment of highly qualified professionals and technicians.

The first sub-pillar includes four quantitative indicators on knowledge workers: employment in knowledge-intensive services; the availability of formal training at the firm level; R&D performed by business enterprise (GERD) as a percentage of GDP (i.e., GERD over GDP); and the percentage of total gross expenditure of R&D that is financed by business enterprise. In addition, the sub-pillar includes an indicator related to the Graduate Management



Admission Test (GMAT).<sup>8</sup> The total number of GMAT test takers (scaled by population aged 20 to 34 years old) were taken as a proxy for the entrepreneurial mindset of young graduates).

Innovation linkages and public/private/academic partnerships are essential to innovation. In emerging markets, pockets of wealth have developed around industrial or technological clusters and networks, in sharp contrast to the poverty that may prevail in the rest of the territory. The innovation linkages sub-pillar draws on both qualitative and quantitative data regarding business/university collaboration on R&D, the prevalence of well-developed and deep clusters, the level of gross R&D expenditure financed by abroad, and the number of deals on joint ventures and strategic alliances. The latter covers a total of 2,978 deals announced in 2013, with firms headquartered in 127 participating economies.<sup>9</sup> In addition, the total number of Patent Cooperation Treaty (PCT) and national office published patent family applications filed by residents in at least three offices is included this year to proxy for international linkages.

In broad terms, pillar 4 on market sophistication makes the case that well-functioning markets contribute to the innovation environment through competitive pressure, efficiency gains, and economies of transaction and by allowing supply to meet demand. Markets that are open to foreign trade and investment have the additional effect of exposing domestic firms to best practices around the globe, which is critical to innovation through knowledge absorption and diffusion, which are considered in pillars 5 and 6. The rationale behind sub-pillars 5.3 on knowledge absorption (an enabler) and 6.3 on knowledge diffusion (a

**Table 1e: Business sophistication pillar**

| Indicator   | Average value by income group (0–100) |                     |                     |            | Mean   |
|---|---------------------------------------|---------------------|---------------------|------------|--------|
|   | High income                           | Upper-middle income | Lower-middle income | Low income |        |
| <b>5 Business sophistication</b>  |                                       |                     |                     |            |        |
| <b>5.1 Knowledge workers</b>  |                                       |                     |                     |            |        |
| 5.1.1 Knowledge-intensive employment, %.....                              | 37.42                                 | 22.37               | 17.48               | 6.71       | 26.63  |
| 5.1.2 Firms offering formal training, % firms.....                        | 45.12                                 | 40.57               | 30.78               | 31.68      | 36.75  |
| 5.1.3 GERD performed by business, % GDP <sup>a</sup> .....                | 1.11                                  | 0.24                | 0.09                | 0.07       | 0.64   |
| 5.1.4 GERD performed by business, % <sup>a</sup> .....                    | 52.68                                 | 32.68               | 21.92               | 17.05      | 40.15  |
| 5.1.5 GMAT test takers/mn pop. 20–34 <sup>a</sup> .....                   | 292.64                                | 95.33               | 37.09               | 13.47      | 136.62 |
| <b>5.2 Innovation linkages</b>  |                                       |                     |                     |            |        |
| 5.2.1 University/industry research collaboration <sup>†a</sup> .....      | 4.49                                  | 3.58                | 3.20                | 3.07       | 3.75   |
| 5.2.2 State of cluster development <sup>†</sup> .....                     | 4.34                                  | 3.65                | 3.63                | 3.33       | 3.85   |
| 5.2.3 GERD financed by abroad, %.....                                     | 12.37                                 | 9.26                | 12.87               | 30.97      | 14.33  |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP <sup>a</sup> .....         | 0.07                                  | 0.03                | 0.03                | 0.05       | 0.05   |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP <sup>a</sup> ..... | 1.11                                  | 0.08                | 0.03                | 0.06       | 0.50   |
| <b>5.3 Knowledge absorption</b>   |                                       |                     |                     |            |        |
| 5.3.1 Royalty & license fees pay'ts, % total trade <sup>a</sup> .....     | 1.55                                  | 0.51                | 0.38                | 0.10       | 0.77   |
| 5.3.2 High-tech imports less re-imports, % tot. trade.....                | 9.35                                  | 9.24                | 7.46                | 6.80       | 8.53   |
| 5.3.3 Comm., comp. & info services imp., % tot. trade.....                | 1.21                                  | 0.85                | 0.71                | 1.26       | 1.01   |
| 5.3.4 FDI net inflows, % GDP.....   | 4.55                                  | 4.19                | 4.80                | 5.17       | 4.61   |

Note: (\*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

result)—two sub-pillars designed to be mirror images of each other—is precisely that together they will reveal how good countries are at absorbing and diffusing knowledge.

Sub-pillar 5.3 includes four statistics that are linked to sectors with high-tech content or are key to innovation: royalty and license fees payments as a percentage of total imports; high-tech imports (net of re-imports) as a percentage of total trade; imports of communication, computer and information services as a percentage of total trade;<sup>10</sup> and net inflows of foreign direct investment (FDI) as a percentage of GDP.

### The Innovation Output Sub-Index

Innovation outputs are the results of innovative activities within the economy. Although the Output Sub-Index includes only two pillars, it has the same weight in calculating the overall GII scores as the Input Sub-Index. There are two output pillars: Knowledge and technology outputs and Creative outputs.

### Pillar 6: Knowledge and technology outputs

This pillar covers all those variables that are traditionally thought to be the fruits of inventions and/or innovations (Table 1f). The first sub-pillar refers to the creation of knowledge. It includes five indicators that are the result of inventive and innovative activities: patent applications filed by residents both at the national patent office and at the international level through the PCT; utility model applications filed by residents at the national office; scientific and technical published articles in peer-reviewed journals; and an economy's number of articles (H) that have received at least H citations.

The second sub-pillar, on knowledge impact, includes statistics representing the impact of innovation activities at the micro- and macro-economic level or related proxies: increases in labour productivity, the entry density of new firms, spending on computer software, and the number of certificates of conformity with standard ISO 9001 on quality

**Table 1f: Knowledge & technology outputs pillar**

| Indicator  | Average value by income group (0–100) |                     |                     |            | Mean   |
|--|---------------------------------------|---------------------|---------------------|------------|--------|
|  | High income                           | Upper-middle income | Lower-middle income | Low income |        |
| <b>6 Knowledge and technology outputs</b>                          |                                       |                     |                     |            |        |
| <b>6.1 Knowledge creation</b>                                      |                                       |                     |                     |            |        |
| 6.1.1 Domestic resident patent app/bn PPP\$ GDP <sup>a</sup>       | 7.33                                  | 3.38                | 2.32                | 1.35       | 4.58   |
| 6.1.2 PCT resident patent app/bn PPP\$ GDP <sup>a</sup>            | 3.28                                  | 0.38                | 0.11                | 0.11       | 1.46   |
| 6.1.3 Domestic res utility model app/bn PPP\$ GDP                  | 1.95                                  | 4.05                | 5.85                | 1.07       | 3.22   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP <sup>a</sup>    | 31.57                                 | 13.25               | 7.67                | 10.18      | 17.65  |
| 6.1.5 Citable documents H index <sup>a</sup>                       | 314.53                                | 113.79              | 74.91               | 60.17      | 164.98 |
| <b>6.2 Knowledge impact</b>  |                                       |                     |                     |            |        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %                           | 0.91                                  | 1.92                | 2.18                | 2.16       | 1.59   |
| 6.2.2 New businesses/th pop. 15–64 <sup>a</sup>                    | 5.82                                  | 2.96                | 0.79                | 0.36       | 3.38   |
| 6.2.3 Computer software spending, % GDP <sup>a</sup>               | 0.49                                  | 0.31                | 0.27                | 0.31       | 0.39   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP <sup>a</sup>      | 16.61                                 | 12.65               | 3.34                | 1.26       | 10.09  |
| 6.2.5 High- & medium-high-tech manufactures, % <sup>a</sup>        | 33.10                                 | 22.78               | 16.45               | 7.27       | 25.00  |
| <b>6.3 Knowledge diffusion</b>                                     |                                       |                     |                     |            |        |
| 6.3.1 Royalty & license fees receipts, % total trade <sup>a</sup>  | 1.03                                  | 0.10                | 0.31                | 0.20       | 0.50   |
| 6.3.2 High-tech exports less re-exports, % tot. trade <sup>a</sup> | 6.32                                  | 5.05                | 1.45                | 0.50       | 4.08   |
| 6.3.3 Comm., comp. & info. services exp, % tot. trade <sup>a</sup> | 2.27                                  | 1.34                | 1.87                | 1.74       | 1.85   |
| 6.3.4 FDI net outflows, % GDP                                      | 12.69                                 | 19.91               | 0.28                | (0.41)     | 10.46  |

Note: (\*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

**Table 1g: Creative outputs pillar**

| Indicator  | Average value by income group (0–100) |                     |                     |            | Mean     |
|--|---------------------------------------|---------------------|---------------------|------------|----------|
|  | High income                           | Upper-middle income | Lower-middle income | Low income |          |
| <b>7 Creative outputs</b>  |                                       |                     |                     |            |          |
| <b>7.1 Intangible assets</b>                                       |                                       |                     |                     |            |          |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP                      | 60.53                                 | 61.17               | 92.92               | 26.96      | 62.79    |
| 7.1.2 Madrid trademark applications/bn PPP\$ GDP <sup>a</sup>      | 2.01                                  | 0.73                | 0.73                | 0.10       | 1.33     |
| 7.1.3 ICTs & business model creation <sup>†</sup>                  | 4.90                                  | 4.22                | 4.12                | 3.87       | 4.39     |
| 7.1.4 ICTs & organizational model creation <sup>†</sup>            | 4.68                                  | 4.04                | 3.90                | 3.59       | 4.18     |
| <b>7.2 Creative goods and services</b>                             |                                       |                     |                     |            |          |
| 7.2.1 Cultural & creative services exp, % total trade <sup>a</sup> | 0.51                                  | 0.30                | 0.11                | 0.04       | 0.30     |
| 7.2.2 National feature films/mn pop. 15–69 <sup>a</sup>            | 7.92                                  | 2.69                | 5.26                | 0.68       | 5.15     |
| 7.2.3 Global ent. & media output/th pop. 15–69 <sup>a</sup>        | 1.30                                  | 0.24                | 0.05                | 0.06       | 0.84     |
| 7.2.4 Printing & publishing manufactures, %                        | 2.65                                  | 0.02                | 0.01                | 0.02       | 0.02     |
| 7.2.5 Creative goods exports, %                                    | 1.77                                  | 2.20                | 1.01                | 0.12       | 1.48     |
| <b>7.3 Online creativity</b>                                       |                                       |                     |                     |            |          |
| 7.3.1 Generic TLDs/th pop. 15–69                                   | 38.54                                 | 9.65                | 1.68                | 0.41       | 16.22    |
| 7.3.2 Country-code TLDs/th pop. 15–69                              | 51.61                                 | 28.80               | 13.03               | 3.66       | 28.93    |
| 7.3.3 Wikipedia monthly edits/mn pop. 15–69                        | 19,630.51                             | 4,827.56            | 2,107.01            | 173.15     | 8,568.66 |
| 7.3.4 Video uploads on YouTube/pop. 15–69                          | 84.55                                 | 67.09               | 46.56               | 22.78      | 72.00    |

Note: (\*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes. Scores rather than values are presented for indicators 7.3.1, 7.3.2, and 7.3.4.

management systems issued. To strengthen the sub-pillar, the measure of high- and medium-high-tech industrial output over total manufactures output was added this year.

The third sub-pillar, on knowledge diffusion, is the mirror image

of the knowledge absorption sub-pillar of pillar 5. It includes four statistics all linked to sectors with high-tech content or that are key to innovation: royalty and license fees receipts as a percentage of total trade; high-tech exports (net of re-exports) as a percentage of total trade; exports

of communication, computer and information services as a percentage of total trade;<sup>11</sup> and net outflows of FDI as a percentage of GDP.

### Pillar 7: Creative outputs

The role of creativity for innovation is still largely underappreciated in innovation measurement and policy debates. Since its inception, the GII has always emphasized measuring creativity as part of its Innovation Output Sub-Index. The last pillar, on creative outputs, has three sub-pillars (Table 1g).

The first sub-pillar on intangible assets includes statistics on trademark applications by residents at the national office; trademark applications under the Madrid System by country of origin,<sup>12</sup> and two survey questions regarding the use of ICTs in business and organizational models, new areas that are increasingly linked to process innovations in the literature.

The second sub-pillar on creative goods and services includes proxies to get at creativity and the creative outputs of an economy. This year, in an attempt to include broader sectoral coverage, a global entertainment and media output composite was added. In addition, the indicator on audio-visual and related services exports was renamed ‘Cultural and creative services exports’ and expanded to include information services, advertising, market research and public opinion polling, and other personal, cultural, and recreational services (as a percentage of total trade). These two indicators complement the remainder of the sub-pillar, which measures national feature films produced in a given country (per capita count); printing and publishing output (as a percentage of total manufactures output); and creative goods exports (as a percentage of total trade), all which are

aimed at providing an overall sense of the international reach of creative activities in the country.

The third sub-pillar on online creativity includes four indicators, all scaled by population aged 15 through 69 years old: generic (biz, info, org, net, and com) and country-code top level domains, average monthly edits to Wikipedia, and video uploads on YouTube. Attempts made to strengthen this sub-pillar with indicators in areas such as blog posting, online gaming, the development of applications, and have so far proved unsuccessful.

## Notes

- 1 For a fuller introduction to the Global Innovation Index, see the GII 2011. Examples of other composite innovation indices were reviewed there too. The Global Innovation Policy Index of the Information Technology and Innovation Foundation, which is quite complementary to the GII, was formulated in 2012.
- 2 Eurostat and OECD, 2005.
- 3 OECD, 2010; INSEAD, 2011; and WIPO, 2011.
- 4 INSEAD, 2011; OECD Scoreboard, 2013; WIPO, 2011.
- 5 INSEAD, 2011; OECD, 2011; WIPO, 2011
- 6 For completeness, 2.1% of data points are from 2009, 1.2% from 2008, 0.7% from 2007, 0.5% from 2006, 0.4% from 2005, and 0.3%. In addition, the GII is calculated on the basis of 9,820 data points (compared to 11,583 with complete series), implying that 15.22% of data points are missing. Data Tables (Appendix II) include the reference year for each data point and mark missing data as not available (n/a).
- 7 Eurostat and OECD, 2005, p. 21.
- 8 The GMAT is a standardized test aimed at measuring aptitude to succeed academically in graduate business studies. It is an important part of the admissions process for nearly 5,600 graduate management programmes in approximately 2,000 business schools worldwide.
- 9 These data were determined from a query on joint ventures/strategic alliances deals announced in 2013 from Thomson Reuters SDC Platinum database. A count variable was created: each participating nation of each company in a deal ( $n$  countries per deal) gets, per deal, a score equivalent to  $1/n$  so that all country scores add up to the total number of deals.
- 10 In previous editions of the GII, indicators 5.3.1, 5.3.2, and 5.3.3 were scaled by total services imports.
- 11 In previous editions of the GII, indicators 6.3.1, 6.3.2, and 6.3.3 were scaled by total services exports.
- 12 Domestic resident trademarks and the Madrid System trademarks are now counted by number of applications, not by registrations, as was the case in previous editions of the GII.

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## Adjustments to the Global Innovation Index Framework and Year-on-Year Comparability of Results

The Global Innovation Index (GII) is a cross-country performance assessment, compiled on an annual basis, which continuously seeks to update/improve the way innovation is measured. The GII report pays special attention to making accessible the statistics used in the Country/Economy Profiles and Data Tables, providing data sources and definitions and detailing the computation methodology (Appendices I, II, III, and IV, respectively). This annex summarizes the changes made this year and provides an assessment of the impact of these changes on the comparability of rankings.

### Adjustments to the Global Innovation Index framework

The GII model is revised every year in a transparent exercise. This year, no change was made at the pillar or sub-pillar level.

Beyond the use of World Intellectual Property Organization (WIPO) data, we collaborate with both public international bodies such as the International Energy Agency; the United Nations Educational, Scientific and Cultural Organization (UNESCO); and the International Telecommunication Union (ITU) and private organizations such as the International Organization for Standardization (ISO); the Graduate Management Admission Council (GMAC); Thomson Reuters; IHS Global Insight; QS Quacquarelli

**Table 1: Changes to the Global Innovation Index framework**

| GII 2013 |  | GII 2014 |   |
|----------|--|----------|---|
| 2.1.1    | Current expenditure on education, % GNI  | 2.1.1    | Government expenditure on education, % GDP  |
| 2.1.2    | Public expenditure on education per pupil, all levels                                  | 2.1.2    | Expenditure on education per pupil, secondary   |
| 2.2.4    | Gross tertiary outbound enrolment ratio  |          | Deleted   |
| 3.2.2    | Electricity consumption  |          | Deleted   |
| 3.2.3    | Logistics Performance Index  | 3.2.2    | Logistics Performance Index   |
| 3.2.4    | Gross capital formation  | 3.2.3    | Gross capital formation   |
| 5.1.4    | GERD financed by business, %   |          | GERD performed by business, %   |
| 5.1.5    | GMAT mean score  |          | Deleted   |
| 5.1.6    | GMAT test takers   | 5.1.5    | GMAT test takers  |
| 5.3.1    | Royalty and license fees payments, % of total services imports                         | 5.3.1    | Royalty and license fees payments, % of total trade   |
| 5.3.2    | High-tech imports less re-imports, %   | 5.3.2    | High-tech imports less re-imports, % total trade  |
| 5.3.3    | Communications, computer and information services imports, % of total services imports | 5.3.3    | Communications, computer and information services imports, % of total trade                                   |
| 6.3.1    | Royalty and license fees receipts, % of total services imports                         | 6.3.1    | Royalty and license fees receipts, % of total trade   |
| 6.3.2    | High-tech exports less re-exports, %   | 6.3.2    | High-tech imports less re-imports, % total trade  |
| 6.3.3    | Communications, computer and information services exports, % of total services imports | 6.3.3    | Communications, computer and information services exports, % of total trade                                   |
| 7.1.1    | National office resident trademark Registrations                                       | 7.1.1    | National office resident trademark applications   |
| 7.1.2    | Madrid system trademark registrations by country of origin                             | 7.1.2    | Madrid System trademark applications by country of origin   |
| 7.2.1    | Audiovisual and related services exports, % of total services exports                  | 7.2.1    | Cultural and creative services exports, % of total trade (compilation including EBOPS 264, 278, 288, and 897) |
| 7.2.3    | Daily newspapers circulation   | 7.2.3    | Global entertainment and media output   |
| 7.2.5    | Creative goods exports, % of total goods exports                                       | 7.2.5    | Creative goods exports, % of total trade  |

Note: White rows indicate indicators that were deleted or replaced; dark blue rows indicate indicator numbers that have changed; and light blue rows indicate indicators that have undergone methodological changes.

Symonds Ltd; ZookNIC Inc; Google; and PwC to obtain the best available data on innovation measurement globally.

Although the rationale for the adjustments made to the GII framework is explained in detail in Annex

1, Table 1 provides a summary of these changes for quick referencing. A total of 18 indicators were modified: 4 indicators were deleted or replaced, 11 underwent methodological changes (new computation methodology at the source, change

of scaling factor, change of classification, etc.), and 3 changed indicator number as a result of the framework adjustments.

Eight GII indicators (refer to Table 1 for details) now use total trade as a denominator to better assess their overall economic importance when compared with a broader base.

The statistical audit performed by the Joint Research Centre (Annex 3) provides a confidence interval for each ranking following a robustness and uncertainty analysis of the modelling assumptions.

### Sources of changes in the rankings

The GII compares the performance of national innovation systems across economies, but it also presents changes in economy rankings over time.

Importantly, scores and rankings from one year to the next are not directly comparable (see Annex 2 of the GII 2013 for a full explanation). Making inferences about absolute or relative performance on the basis of year-on-year differences in rankings can be misleading. Each ranking reflects the relative positioning of that particular country/economy on the basis of the conceptual framework, the data coverage, and the sample of economies—elements that change from one year to another.

A few particular factors influence the year-on-year ranking of a country/economy:

- the actual performance of the economy in question;
- adjustments made to the GII framework;
- data updates, the treatment of outliers, and missing values; and
- the inclusion or exclusion of countries/economies in the sample.

Additionally, the following characteristics complicate the time-series analysis based on simple GII scores or rankings:

- **Missing values:** The GII produces relative index scores, which means that a missing value for one economy affects the index score of other economies.
- **Reference year:** The data underlying the GII do not refer to a single year, but to several years, depending on what the latest available year is for any given variable. In addition, the reference years for the different variables are not the same for each economy. The motivation for this approach is that it widens the set of data points for cross-economy comparability.
- **Normalization factor:** Most GII variables are normalized using either GDP or population. This approach is also intended to enable cross-economy comparability. Yet, again, year-on-year changes in individual variables may be driven either by the variable's numerator or by its denominator.
- **Consistent data collection:** Finally, measuring year-on-year performance changes relies on the consistent collection of data over time. Changes in the definition of variables or in the data collection process could create movements in the rankings that are unrelated to true performance.

The GII has been transparent about these time-series caveats since its inception.

A detailed economy study based on the GII database and the country/economy profile over time, coupled with analytical work on the ground

that includes innovation actors and decision makers, yields the best results in terms of grasping an economy's innovation performance over time as well as possible avenues for improvement.

Changes to the way missing information is managed have also been implemented. In particular, the following indicators were affected when data were not readably available:

- 4.2.4 Venture capital deals per trillion PPP\$ GDP, and 5.2.4 Joint venture/strategic alliance deals per trillion PPP\$ GDP

For these indicators, countries were given 'n/a' rather than zero if they were not included in the in the SDC Platinum database provided by Thomson Reuters, which is our source of data on joint ventures and strategic alliance deals.

- 5.2.5 Patent families per billion PPP\$ GDP

For indicator 5.2.5, those countries not included in the WIPO Statistic Database were given 'n/a'; those included in the database that had no data, zero, or 'n/a' were given zero as a value at the suggestion of WIPO.

- 7.3.4 Video uploads on YouTube

For indicator 7.3.4, those countries where Google is an official launched platform and those countries where comScore has determined a market share above 45% all received non-zero scores. All other economies in GII 2014 received 'n/a' for this indicator.

These changes can have implications on the overall rankings of particular economies for which data were not available this time around.

## Joint Research Centre Statistical Audit of the 2014 Global Innovation Index

MICHAELA SAISANA and ANDREA SALTELLI, European Commission Joint Research Centre (Ispra, Italy)

Modelling the concepts underlying innovation at the national scale around the globe, as attempted in the Global Innovation Index (GII), raises both conceptual and practical challenges. The conceptual challenges are discussed in the main text of Chapter 1 of the GII 2014 report. In this annex, the focus is on the practical challenges related to the data quality and the methodological choices made by grouping these data into 21 sub-pillars, 7 pillars, 2 sub-indices, and an overall index.

We consider statistical soundness to be a necessary but not a sufficient condition for a sound GII. Given that the statistical analysis of an index is based primarily, but not solely, on correlations, correspondence of the GII with real-world phenomena needs to be critically addressed, whereas ‘correlations need not necessarily represent the real influence of the individual indicators on the phenomenon being measured’.<sup>1</sup> The point we are making here is that the validity of the GII relies on the interplay between statistical and conceptual soundness. To this end, the development of the GII has followed an iterative process that went back and forth between a theoretical understanding of innovation on the one hand and empirical observations of the data underlying the variables on the other.

The Econometrics and Applied Statistics Unit at the European Commission Joint Research Centre

(JRC) in Ispra (Italy) was invited for a fourth consecutive year to audit the GII following some adjustments that were made to the list of indicators included in the GII framework (see Chapter 1 for more details).

The JRC assessment of the 2014 GII focused on two main issues: the statistical soundness of its multi-level structure and the impact of key modelling assumptions on its scores and ranks.<sup>2</sup> These are necessary steps to ensure the transparency and reliability of the GII, to enable the public to derive more accurate and meaningful conclusions, and to support policy makers with choices on priority setting and policy formulation.

As in past GII reports, the JRC analysis complements the country rankings with confidence intervals for the GII, the Innovation Input Sub-Index, and the Innovation Output Sub-Index in order to better appreciate the robustness of these ranks to the computation methodology. In addition, the JRC analysis includes an assessment of potential redundancy of information in the GII and a measure of distance to the efficient frontier of innovation by using data envelopment analysis.

### Conceptual and statistical coherence in the GII framework

An earlier version of the GII model was assessed by the JRC in April 2014. Fine-tuning suggestions were taken into account in the final

computation of the rankings in an iterative process with the JRC aimed at establishing the foundation for a balanced index. The entire process followed four steps (see Figure 1):

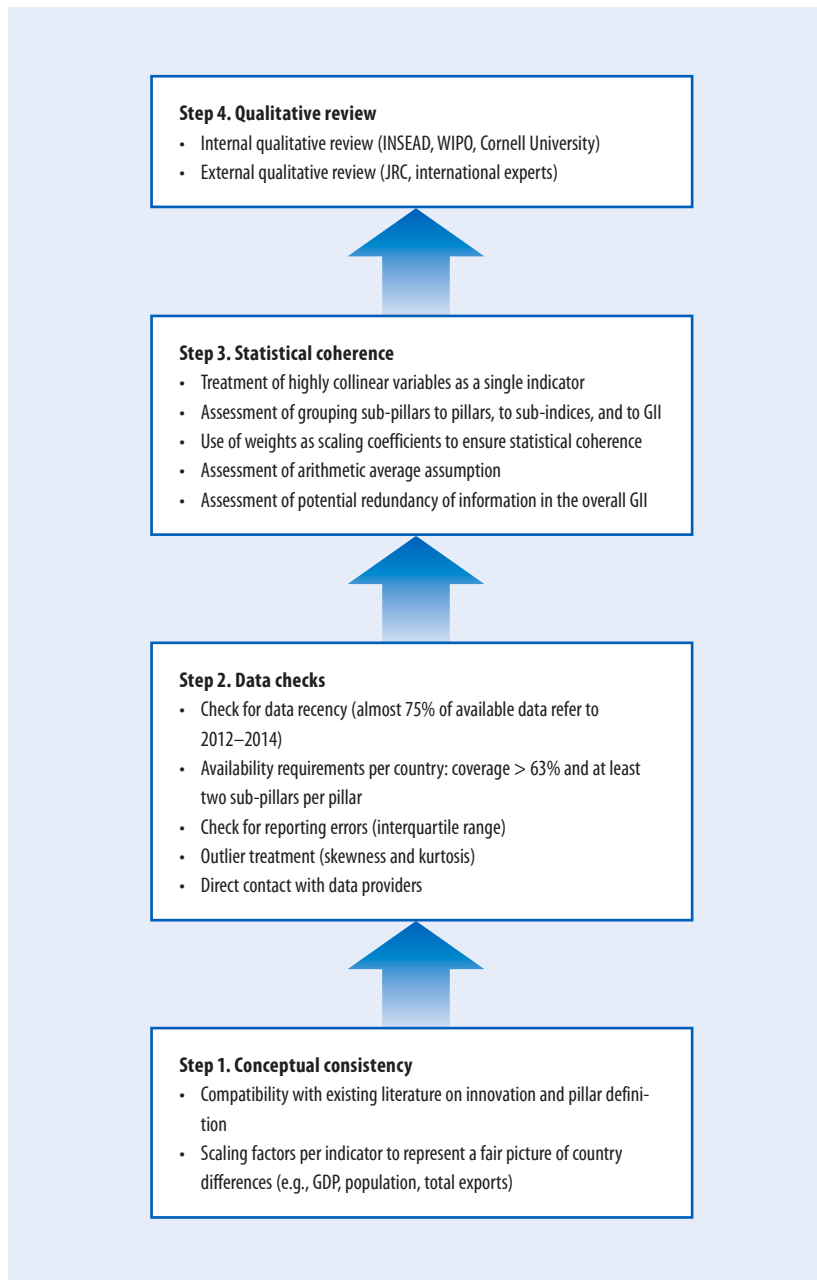
#### Step 1: Conceptual consistency

Eighty-one indicators were selected for their relevance to a specific innovation pillar on the basis of the literature review, expert opinion, country coverage, and timeliness. To represent a fair picture of country differences, indicators were scaled either at the source or by the GII team as appropriate and where needed.

#### Step 2: Data checks

The most recently released data were used for each country with a cut-off year of 2004. Almost 75% of the available data refer to 2012 or a more recent year. Countries were included if data availability was at least 63% (i.e., 51 out of 81 variables) and at least two of the three sub-pillars in each pillar could be computed. Potentially problematic indicators that could bias the overall results were identified as those having absolute skewness greater than 2 and kurtosis greater than 3.5;<sup>3</sup> these were treated either by winsorization or by taking the natural logarithm (in cases with more than five outliers). These criteria were decided jointly with the JRC in 2011 (see Appendix IV Technical Notes for details).



**Figure 1: Conceptual and statistical coherence in the GII 2014 framework**

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

### Step 3: Statistical coherence

#### *Weights as scaling coefficients*

Weights of 0.5 or 1.0 were decided jointly with the JRC and the GII team in 2012 to be scaling coefficients and not importance coefficients, with the aim of arriving at

sub-pillar and pillar scores that were balanced in their underlying components (i.e., that indicators and sub-pillars can explain a similar amount of variance in their respective sub-pillars/pillars). Paruolo et al. (2013) show that, in weighted arithmetic

averages, the ratio of two nominal weights gives the rate of substitutability between the two indicators, and hence can be used to reveal the relative importance of individual indicators. This importance can then be compared with ex-post measures of variables' importance, such as the non-linear Pearson correlation ratio. As a result of this analysis, 36 out of 81 indicators and two sub-pillars—7.2 Creative goods and services and 7.3 Online creativity—were assigned half weights, while all other indicators and sub-pillars were assigned a weight 1.0.

#### *Principal components analysis and reliability item analysis*

Principal component analysis (PCA) was used to assess to what extent the conceptual framework is confirmed by statistical approaches. PCA results confirm the presence of a single latent dimension in each of the seven pillars (one component with an eigenvalue greater than 1.0) that captures between 57% (pillar 4: Market sophistication) up to 82% (pillar 1: Institutions) of the total variance in the three underlying sub-pillars. These results reveal that the adjustments made to the 2014 GII framework did not affect the solid statistical coherence properties of the previous version. Furthermore, results confirm the expectation that the sub-pillars are more correlated to their own pillar than to any other (see Table 1). It is interesting to note that sub-pillar 7.3 Online creativity has the same degree of correlation (0.86) with its own pillar Creative outputs (pillar 7) that it has with Human capital and research (pillar 2) and Infrastructure (pillar 3), which evidences an association between human capital and infrastructure on one hand and online content, such as Wikipedia monthly edits and video uploads on YouTube, on the other.



**Table 1: Statistical coherence in the GII: Correlations between sub-pillars and pillars**

| Sub-pillar  | Institutions | Human capital and research | Infrastructure | Market sophistication | Business sophistication | Knowledge and technology outputs | Creative outputs |
|---|--------------|----------------------------|----------------|-----------------------|-------------------------|----------------------------------|------------------|
| Political environment                             | 0.91         | 0.71                       | 0.76           | 0.61                  | 0.74                    | 0.63                             | 0.77             |
| Regulatory environment                            | 0.93         | 0.65                       | 0.69           | 0.61                  | 0.67                    | 0.56                             | 0.65             |
| Business environment                              | 0.88         | 0.75                       | 0.78           | 0.71                  | 0.63                    | 0.60                             | 0.66             |
| Education   | 0.62         | 0.77                       | 0.63           | 0.43                  | 0.50                    | 0.59                             | 0.54             |
| Tertiary education                                | 0.57         | 0.81                       | 0.68           | 0.49                  | 0.56                    | 0.47                             | 0.54             |
| Research and development (R&D)                    | 0.72         | 0.89                       | 0.82           | 0.69                  | 0.69                    | 0.82                             | 0.71             |
| Information and communication technologies (ICTs) | 0.78         | 0.88                       | 0.93           | 0.65                  | 0.71                    | 0.72                             | 0.77             |
| <b>INPUT</b>                                      |              |                            |                |                       |                         |                                  |                  |
| General infrastructure                            | 0.46         | 0.50                       | 0.68           | 0.39                  | 0.44                    | 0.38                             | 0.46             |
| Ecological sustainability                         | 0.72         | 0.69                       | 0.82           | 0.53                  | 0.58                    | 0.61                             | 0.71             |
| Credit  | 0.68         | 0.68                       | 0.64           | 0.86                  | 0.56                    | 0.62                             | 0.60             |
| Investment  | 0.41         | 0.40                       | 0.40           | 0.81                  | 0.43                    | 0.38                             | 0.28             |
| Trade and competition                             | 0.51         | 0.42                       | 0.45           | 0.56                  | 0.42                    | 0.40                             | 0.45             |
| Knowledge workers                                 | 0.74         | 0.79                       | 0.75           | 0.62                  | 0.87                    | 0.72                             | 0.70             |
| Innovation linkages                               | 0.51         | 0.37                       | 0.42           | 0.38                  | 0.72                    | 0.33                             | 0.51             |
| Knowledge absorption                              | 0.45         | 0.41                       | 0.43           | 0.39                  | 0.72                    | 0.43                             | 0.44             |
| <b>OUTPUT</b>                                     |              |                            |                |                       |                         |                                  |                  |
| Knowledge creation                                | 0.61         | 0.78                       | 0.67           | 0.60                  | 0.61                    | 0.85                             | 0.62             |
| Knowledge impact                                  | 0.41         | 0.52                       | 0.51           | 0.39                  | 0.34                    | 0.75                             | 0.45             |
| Knowledge diffusion                               | 0.49         | 0.46                       | 0.45           | 0.44                  | 0.63                    | 0.71                             | 0.51             |
| Intangible assets                                 | 0.44         | 0.34                       | 0.42           | 0.29                  | 0.49                    | 0.32                             | 0.75             |
| Creative goods and services                       | 0.64         | 0.62                       | 0.69           | 0.49                  | 0.60                    | 0.60                             | 0.79             |
| Online creativity                                 | 0.81         | 0.86                       | 0.86           | 0.63                  | 0.73                    | 0.78                             | 0.86             |

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

The five input pillars share a single statistical dimension that summarizes 78% of the total variance, and the five loadings (correlation coefficients) of these pillars are all very similar. This similarity suggests that the five pillars make roughly equal contributions to the variation of the Innovation Input Sub-Index scores, as envisaged by the developing team. The reliability of the Input Sub-Index, measured by the Cronbach alpha value, is very high, at 0.93, which is well above the 0.70 threshold for a reliable aggregate.<sup>4</sup>

The two output pillars—Knowledge and technology outputs and Creative outputs—are sufficiently correlated with each other (0.67); they are also both strongly correlated with the Innovation

Output Sub-Index (0.91). This result suggests that the Output Sub-Index is also well balanced in its two pillars.

Finally, building the GII as the simple average of the Input and Output Sub-Indices is also statistically justifiable because the Pearson correlation coefficient of either sub-index with the overall GII is 0.97; the two sub-indices have a correlation of 0.87. Thus far, results show that the grouping of sub-pillars into pillars, sub-indices, and the overall GII 2014 is statistically coherent, and that the GII has a balanced structure at each aggregation level.

#### *Assessing potential redundancy of information in the GII*

As already discussed, the Input and Output Sub-Indices correlate

strongly with each other and with the overall GII. Furthermore, the five pillars in the Input Sub-Index have a very high statistical reliability. These results—the strong correlation between Input and Output Sub-Indices and the statistical reliability of the five Input pillars—may be interpreted by some as a sign of redundancy of information in the GII. Yet this is not the case here. In fact, for more than 51.7% (up to 74.1%) of the 143 economies included in the 2014 GII, the GII ranking and any of the seven pillar rankings differ by 10 positions or more (see Table 2). This is a desired outcome because it demonstrates the added value of the GII ranking, which helps to highlight other components of innovation that do

**Table 2: Distribution of differences between pillar and GII rankings**

| Rank differences (positions) | Innovation Input Sub-Index |                                |                    |                           | Innovation Output Sub-Index |                                      |                      |
|------------------------------|----------------------------|--------------------------------|--------------------|---------------------------|-----------------------------|--------------------------------------|----------------------|
|                              | Institutions (%)           | Human capital and research (%) | Infrastructure (%) | Market sophistication (%) | Business sophistication (%) | Knowledge and technology outputs (%) | Creative outputs (%) |
| More than 29                 | 18.2                       | 14.0                           | 12.6               | 32.9                      | 23.8                        | 22.4                                 | 8.4                  |
| 20–29                        | 10.5                       | 18.2                           | 11.9               | 18.2                      | 15.4                        | 10.5                                 | 12.6                 |
| 10–19                        | 24.5                       | 25.2                           | 30.1               | 23.1                      | 22.4                        | 21.7                                 | 30.8                 |
| <b>10 or more*</b>           | <b>53.1</b>                | <b>57.3</b>                    | <b>54.5</b>        | <b>74.1</b>               | <b>61.5</b>                 | <b>54.5</b>                          | <b>51.7</b>          |
| 5–9                          | 21.0                       | 18.2                           | 21.0               | 16.1                      | 19.6                        | 23.8                                 | 24.5                 |
| Less than 5                  | 22.4                       | 22.4                           | 21.7               | 9.1                       | 16.1                        | 17.5                                 | 23.1                 |
| Same rank                    | 0.0                        | 0.0                            | 2.1                | 2.1                       | 2.8                         | 2.8                                  | 2.8                  |
| <b>Total†</b>                | <b>100.0</b>               | <b>100.0</b>                   | <b>100.0</b>       | <b>100.0</b>              | <b>100.0</b>                | <b>100.0</b>                         | <b>100.0</b>         |

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

\* This column is the sum of the prior three rows.

† This column is the sum of all white rows.

not emerge directly by looking into the seven pillars separately.

#### Step 4: Qualitative review

Finally, the GII results—including overall country classifications and relative performances in terms of the Innovation Input or Output Sub-Indices—were evaluated to verify that the overall results were, to a great extent, consistent with current evidence, existing research, and prevailing theory. Notwithstanding these statistical tests and the positive outcomes on the statistical coherence of the GII structure, it is important to note that the GII model is and has to remain open for future improvements as better data, more comprehensive surveys and assessments, and new relevant research studies become available.

#### Impact of modelling assumptions on the GII results

Every economy score on the GII and its two sub-indices depends on modelling choices: the seven-pillar structure, the indicators selected, the imputation or not of missing data, the normalization, the weights, and the aggregation method, among

other elements. These choices are based on expert opinion (e.g., selection of indicators), or common practice (e.g., min–max normalization in the [0, 100] range), driven by statistical analysis (e.g., treatment of outliers) or simplicity (e.g., no imputation of missing data). The robustness analysis performed by the JRC aimed at assessing the simultaneous and joint impact of these modelling choices on the rankings. It thus complements the GII 2014 ranks with error estimates stemming from the unavoidable uncertainty in the choices made.

The robustness assessment of the GII was based on the combination of a Monte Carlo experiment and a multi-modelling approach, following good practices suggested in the composite indicators literature.<sup>5</sup> We focused on three key issues: pillar weights, missing data, and the aggregation formula. The data are assumed to be error-free because potential outliers and eventual errors and typos were corrected during the computation phase (see Step 2 in Figure 1).

The Monte Carlo simulation related to the issue of weighting and comprised 1,000 runs, each

corresponding to a different set of weights for each of the seven pillars, randomly sampled from uniform continuous distributions centred in the reference values. The choice of the range for the weights' variation was driven by two different needs: to ensure a wide enough interval to have meaningful robustness checks and to respect the rationale of the GII that places the Input Sub-Index and the Output Sub-Index on equal footings. Given these considerations, limit values of uncertainty intervals for the pillar weights are: 10%–30% for the five Input pillars and 40%–60% for the two Output pillars (see Table 3).

The GII developing team, for transparency and replicability, has always opted not to estimate missing data. The 'no imputation' choice, which is common in similar contexts, might encourage economies not to report low data values.<sup>6</sup> To overcome this limitation, the JRC estimated missing data using the Expectation Maximization (EM) algorithm.<sup>7</sup>

Regarding the aggregation formula, decision-theory practitioners have challenged the use of simple arithmetic averages because of their

**Table 3: Uncertainty parameters: Missing values, aggregation, and weights**

|   |                                  | Reference                      | Alternative                                   |
|---|----------------------------------|--------------------------------|---|
| <b>I. Uncertainty in the treatment of missing values</b>              |                                  | No estimation of missing data  | Expectation Maximization (EM)                 |
| <b>II. Uncertainty in the aggregation formula at the pillar level</b> |                                  | Arithmetic average             | Geometric average                             |
| <b>III. Uncertainty intervals for the GII weights</b>                 |                                  |                                |   |
| GII Sub-Index   | Pillar                           | Reference value for the weight | Distribution assigned for robustness analysis |
| <b>Innovation Input</b>   | Institutions                     | 0.2                            | U[0.1, 0.3]                                   |
|   | Human capital and research       | 0.2                            | U[0.1, 0.3]                                   |
|   | Infrastructure                   | 0.2                            | U[0.1, 0.3]                                   |
|   | Market sophistication            | 0.2                            | U[0.1, 0.3]                                   |
|   | Business sophistication          | 0.2                            | U[0.1, 0.3]                                   |
| <b>Innovation Output</b>  | Knowledge and technology outputs | 0.5                            | U[0.4, 0.6]                                   |
|   | Creative outputs                 | 0.5                            | U[0.4, 0.6]                                   |

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

fully compensatory nature, in which a comparative high advantage on a few indicators can compensate for a comparative disadvantage on many indicators.<sup>8</sup> We relaxed this strong perfect substitutability assumption inherent in the arithmetic average and we considered instead the geometric average, which is a partially compensatory approach that rewards economies with balanced profiles and motivates economies with unbalanced profiles to improve in the GII pillars in which they perform poorly, and not just in *any* GII pillar.<sup>9</sup>

Four models were tested based on the combination of no imputation versus EM imputation, and arithmetic versus geometric average, combined with 1,000 simulations per model (random weights versus fixed weights), for a total of 4,000 simulations for the GII and each of the two sub-indices (see Table 3 for a summary of the uncertainties considered in the GII 2014).

#### Uncertainty analysis results

The main results of the robustness analysis are shown in Figure 2 with median ranks and 90% confidence intervals computed across the

4,000 Monte Carlo simulations for the GII and the two sub-indices. Countries are ordered from best to worst according to their reference rank (black line), the dot being the median rank.

All published GII 2014 ranks lay within the simulated 90% confidence intervals, and for most economies these intervals are narrow enough for meaningful inferences to be drawn: there are fewer than 10 positions for 81 of the 143 economies. However, it is also true that some economy ranks vary significantly with changes in weights and aggregation function and, where applicable, they also vary because of the estimation of missing data. Indeed, 21 economies have 90% confidence interval widths between 20 and 29. Confidence interval widths for 6 of them lie between 30 and 39 (Bangladesh, Fiji, the Islamic Republic of Iran, Togo, Uganda, and the Bolivarian Republic of Venezuela), and for 2 countries the widths are over 40 (Bhutan, Tajikistan). For these countries, the GII ranks should be interpreted cautiously. Some caution is also warranted in the Input Sub-Index for 32 economies that have 90% confidence

interval widths over 20 (up to 37 for Dominican Republic). The Output Sub-Index is more sensitive to the methodological choices: 40 economies have 90% confidence interval widths over 20 (up to 67 for Bhutan). This sensitivity is mostly the consequence of the estimation of missing data and the fact that there are only two pillars (with 0.68 correlation); hence changes to the imputation method, weights, or aggregation formula have a more notable impact on the country ranks.

Although some economy ranks, either in the GII 2014 or its two sub-indices, appear to be sensitive to the methodological choices, the published rankings for the vast majority can be considered representative of the plurality of scenarios we have simulated herein. Taking the median rank as our yardstick for an economy's average rank in the realm of the GII's unavoidable methodological uncertainties, we find that 75% of the economies shift fewer than five positions with respect to the median rank in the GII (four and seven positions in the Input and Output Sub-Index, respectively).

For full transparency and information, Table 4 reports the GII 2014

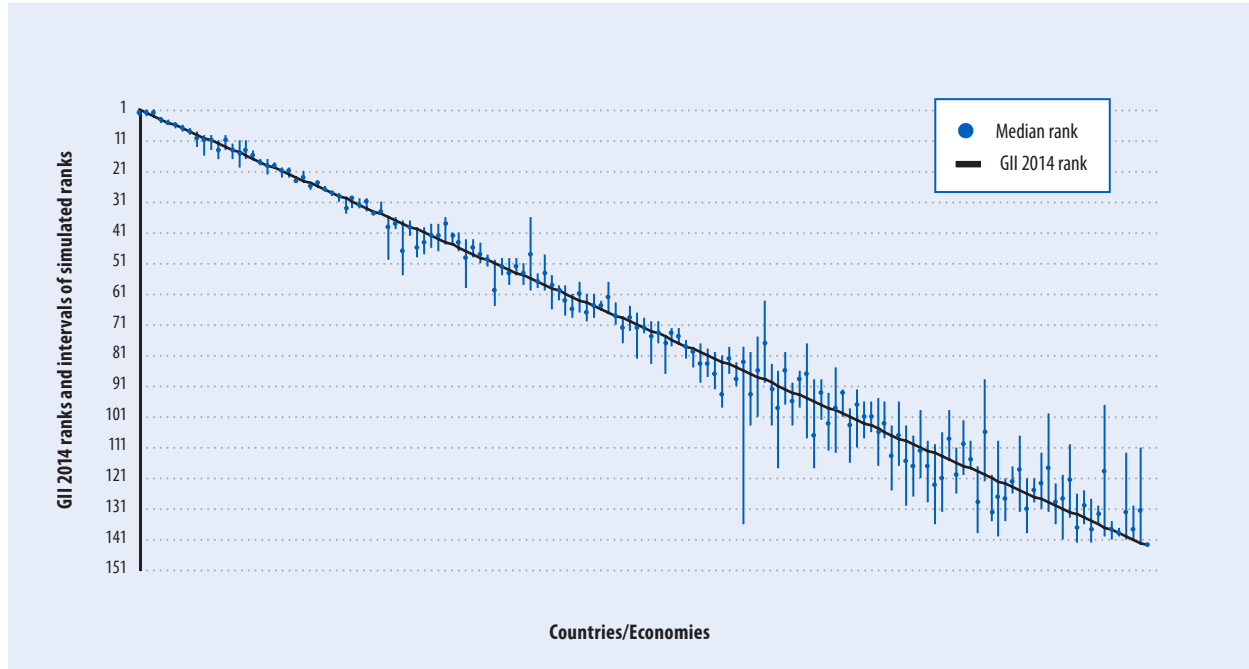
Table 4: GII 2014 and Input/Output Sub-Indices: Ranks and 90% confidence intervals

| Country/Economy          | GII 2014 |          | Input Sub-Index |           | Output Sub-Index |          |
|--------------------------|----------|----------|-----------------|-----------|------------------|----------|
|                          | Rank     | Interval | Rank            | Interval  | Rank             | Interval |
| Switzerland              | 1        | [1, 3]   | 7               | [6, 9]    | 1                | [1, 3]   |
| United Kingdom           | 2        | [1, 3]   | 3               | [2, 5]    | 4                | [1, 4]   |
| Sweden                   | 3        | [1, 3]   | 6               | [3, 6]    | 3                | [1, 3]   |
| Finland                  | 4        | [4, 5]   | 5               | [2, 8]    | 6                | [5, 6]   |
| Netherlands              | 5        | [4, 6]   | 11              | [10, 14]  | 2                | [2, 4]   |
| United States of America | 6        | [5, 7]   | 4               | [3, 6]    | 7                | [7, 11]  |
| Singapore                | 7        | [6, 8]   | 1               | [1, 1]    | 25               | [21, 26] |
| Denmark                  | 8        | [7, 9]   | 9               | [7, 10]   | 12               | [8, 13]  |
| Luxembourg               | 9        | [8, 13]  | 21              | [18, 23]  | 5                | [5, 6]   |
| Hong Kong (China)        | 10       | [9, 16]  | 2               | [2, 6]    | 24               | [20, 28] |
| Ireland                  | 11       | [9, 14]  | 12              | [10, 17]  | 11               | [9, 13]  |
| Canada                   | 12       | [11, 17] | 8               | [6, 9]    | 20               | [18, 26] |
| Germany                  | 13       | [9, 14]  | 19              | [17, 19]  | 8                | [7, 9]   |
| Norway                   | 14       | [12, 17] | 14              | [11, 18]  | 14               | [12, 17] |
| Israel                   | 15       | [11, 20] | 17              | [11, 21]  | 13               | [11, 16] |
| Korea, Rep.              | 16       | [11, 17] | 16              | [11, 17]  | 15               | [11, 15] |
| Australia                | 17       | [14, 17] | 10              | [10, 12]  | 22               | [19, 25] |
| New Zealand              | 18       | [17, 19] | 13              | [12, 19]  | 18               | [17, 22] |
| Iceland                  | 19       | [17, 22] | 24              | [23, 26]  | 9                | [7, 15]  |
| Austria                  | 20       | [18, 20] | 18              | [15, 20]  | 21               | [19, 23] |
| Japan                    | 21       | [20, 23] | 15              | [13, 16]  | 27               | [26, 31] |
| France                   | 22       | [20, 23] | 20              | [19, 21]  | 26               | [20, 25] |
| Belgium                  | 23       | [23, 25] | 22              | [21, 23]  | 23               | [21, 25] |
| Estonia                  | 24       | [21, 24] | 23              | [21, 25]  | 19               | [15, 20] |
| Malta                    | 25       | [25, 27] | 33              | [30, 35]  | 10               | [9, 13]  |
| Czech Republic           | 26       | [24, 26] | 27              | [26, 29]  | 17               | [15, 18] |
| Spain                    | 27       | [26, 27] | 26              | [23, 26]  | 28               | [27, 29] |
| Slovenia                 | 28       | [28, 29] | 28              | [27, 29]  | 31               | [29, 31] |
| China                    | 29       | [28, 31] | 45              | [34, 53]  | 16               | [14, 23] |
| Cyprus                   | 30       | [29, 35] | 31              | [29, 36]  | 34               | [33, 34] |
| Italy                    | 31       | [30, 33] | 32              | [30, 33]  | 33               | [32, 34] |
| Portugal                 | 32       | [30, 33] | 29              | [28, 32]  | 36               | [35, 36] |
| Malaysia                 | 33       | [30, 34] | 30              | [26, 31]  | 35               | [35, 38] |
| Latvia                   | 34       | [34, 35] | 35              | [35, 39]  | 32               | [32, 33] |
| Hungary                  | 35       | [31, 35] | 41              | [37, 45]  | 29               | [28, 31] |
| United Arab Emirates     | 36       | [36, 50] | 25              | [23, 31]  | 68               | [57, 95] |
| Slovakia                 | 37       | [36, 40] | 43              | [41, 48]  | 38               | [37, 40] |
| Saudi Arabia             | 38       | [37, 55] | 39              | [35, 45]  | 41               | [41, 69] |
| Lithuania                | 39       | [37, 42] | 36              | [34, 39]  | 52               | [46, 53] |
| Mauritius                | 40       | [39, 49] | 42              | [39, 58]  | 43               | [43, 48] |
| Barbados                 | 41       | [39, 48] | 38              | [34, 48]  | 53               | [48, 56] |
| Croatia                  | 42       | [38, 46] | 50              | [45, 53]  | 40               | [39, 42] |
| Moldova, Rep.            | 43       | [38, 47] | 80              | [74, 83]  | 30               | [27, 30] |
| Bulgaria                 | 44       | [36, 45] | 54              | [48, 55]  | 37               | [35, 38] |
| Poland                   | 45       | [41, 45] | 40              | [39, 43]  | 48               | [45, 50] |
| Chile                    | 46       | [41, 47] | 37              | [33, 39]  | 54               | [53, 60] |
| Qatar                    | 47       | [43, 59] | 34              | [32, 36]  | 69               | [65, 83] |
| Thailand                 | 48       | [43, 49] | 52              | [42, 55]  | 49               | [46, 50] |
| Russian Federation       | 49       | [44, 51] | 56              | [45, 60]  | 45               | [42, 49] |
| Greece                   | 50       | [48, 52] | 44              | [42, 51]  | 58               | [56, 62] |
| Seychelles               | 51       | [50, 65] | 53              | [47, 78]  | 56               | [52, 63] |
| Panama                   | 52       | [49, 55] | 64              | [60, 72]  | 42               | [39, 51] |
| South Africa             | 53       | [49, 58] | 47              | [39, 56]  | 63               | [60, 70] |
| Turkey                   | 54       | [49, 55] | 78              | [66, 83]  | 39               | [37, 40] |
| Romania                  | 55       | [51, 58] | 65              | [59, 70]  | 44               | [41, 52] |
| Mongolia                 | 56       | [36, 60] | 51              | [40, 54]  | 67               | [39, 68] |
| Costa Rica               | 57       | [54, 59] | 66              | [58, 72]  | 51               | [50, 53] |
| Belarus                  | 58       | [48, 60] | 70              | [57, 80]  | 50               | [41, 54] |
| Montenegro               | 59       | [55, 66] | 46              | [44, 55]  | 74               | [61, 79] |
| TFYR of Macedonia        | 60       | [58, 63] | 57              | [54, 72]  | 66               | [58, 68] |
| Brazil                   | 61       | [58, 68] | 63              | [54, 69]  | 64               | [61, 71] |
| Bahrain                  | 62       | [61, 69] | 48              | [44, 53]  | 80               | [75, 83] |
| Ukraine                  | 63       | [57, 67] | 88              | [72, 92]  | 46               | [43, 50] |
| Jordan                   | 64       | [61, 70] | 72              | [66, 81]  | 57               | [56, 65] |
| Armenia                  | 65       | [61, 69] | 81              | [71, 87]  | 55               | [53, 56] |
| Mexico                   | 66       | [63, 66] | 62              | [55, 63]  | 70               | [67, 71] |
| Serbia                   | 67       | [57, 67] | 75              | [64, 82]  | 59               | [52, 61] |
| Colombia                 | 68       | [64, 71] | 58              | [49, 59]  | 77               | [74, 78] |
| Kuwait                   | 69       | [69, 77] | 79              | [72, 84]  | 62               | [59, 76] |
| Argentina                | 70       | [65, 73] | 83              | [62, 89]  | 61               | [61, 67] |
| Viet Nam                 | 71       | [67, 82] | 100             | [89, 103] | 47               | [44, 58] |
| Uruguay                  | 72       | [69, 74] | 73              | [68, 82]  | 72               | [68, 72] |

Table 4: GII 2014 and Input/Output Sub-Indices: Ranks and 90% confidence intervals (continued)

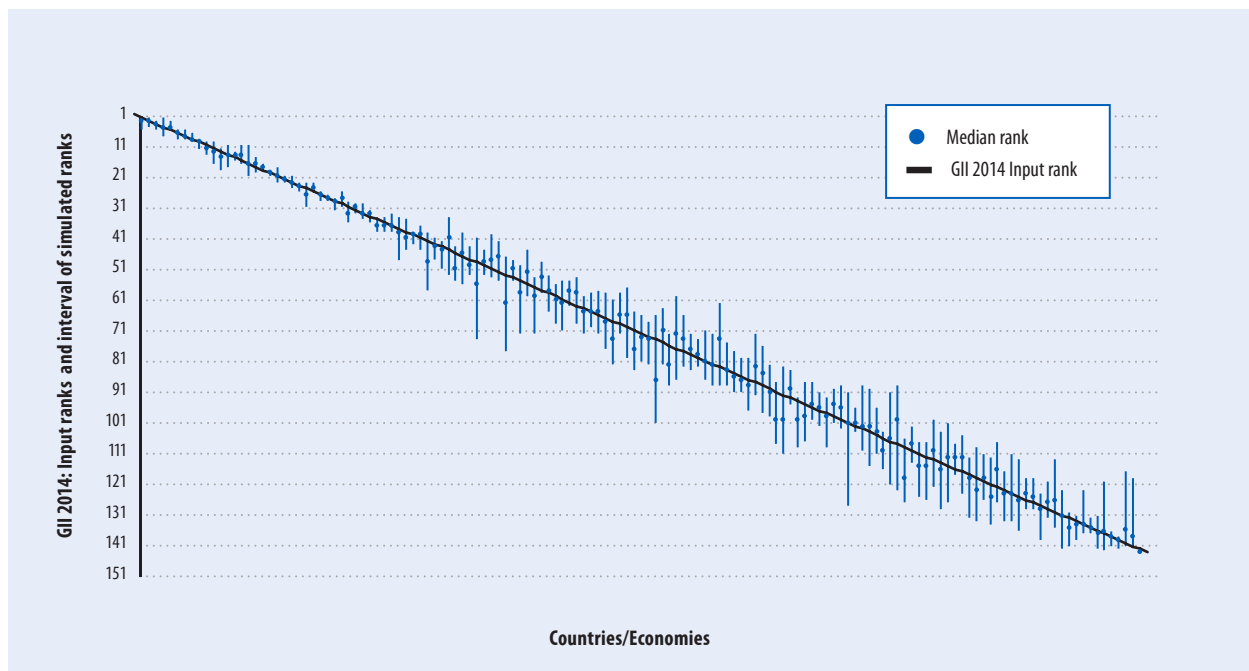
| Country/Economy            | GII 2014 |            | Input Sub-Index |            | Output Sub-Index |            |
|----------------------------|----------|------------|-----------------|------------|------------------|------------|
|                            | Rank     | Interval   | Rank            | Interval   | Rank             | Interval   |
| Peru                       | 73       | [70, 84]   | 60              | [56, 69]   | 85               | [81, 104]  |
| Georgia                    | 74       | [70, 77]   | 68              | [61, 82]   | 75               | [72, 78]   |
| Oman                       | 75       | [75, 87]   | 59              | [53, 65]   | 96               | [93, 117]  |
| India                      | 76       | [72, 78]   | 93              | [84, 95]   | 65               | [61, 69]   |
| Lebanon                    | 77       | [72, 77]   | 61              | [55, 71]   | 95               | [79, 95]   |
| Tunisia                    | 78       | [76, 82]   | 77              | [60, 87]   | 87               | [84, 91]   |
| Kazakhstan                 | 79       | [78, 85]   | 69              | [59, 72]   | 101              | [97, 102]  |
| Guyana                     | 80       | [77, 90]   | 92              | [83, 111]  | 76               | [63, 86]   |
| Bosnia and Herzegovina     | 81       | [79, 88]   | 82              | [72, 89]   | 92               | [84, 95]   |
| Jamaica                    | 82       | [80, 92]   | 84              | [75, 89]   | 91               | [90, 100]  |
| Dominican Republic         | 83       | [81, 98]   | 101             | [91, 128]  | 71               | [69, 108]  |
| Morocco                    | 84       | [78, 87]   | 89              | [76, 98]   | 86               | [78, 86]   |
| Kenya                      | 85       | [83, 91]   | 103             | [89, 110]  | 73               | [69, 79]   |
| Bhutan                     | 86       | [78, 136]  | 76              | [72, 89]   | 102              | [73, 140]  |
| Indonesia                  | 87       | [80, 104]  | 117             | [105, 124] | 60               | [59, 86]   |
| Brunei Darussalam          | 88       | [75, 101]  | 55              | [50, 72]   | 124              | [100, 128] |
| Paraguay                   | 89       | [63, 90]   | 99              | [90, 101]  | 79               | [45, 94]   |
| Trinidad and Tobago        | 90       | [84, 104]  | 86              | [80, 91]   | 98               | [97, 124]  |
| Uganda                     | 91       | [86, 118]  | 98              | [93, 109]  | 90               | [85, 125]  |
| Botswana                   | 92       | [80, 97]   | 67              | [59, 77]   | 116              | [101, 118] |
| Guatemala                  | 93       | [90, 104]  | 94              | [93, 109]  | 97               | [95, 110]  |
| Albania                    | 94       | [86, 98]   | 71              | [65, 84]   | 117              | [91, 117]  |
| Fiji                       | 95       | [77, 108]  | 49              | [41, 74]   | 136              | [92, 137]  |
| Ghana                      | 96       | [89, 118]  | 106             | [104, 116] | 82               | [75, 121]  |
| Cabo Verde                 | 97       | [89, 102]  | 85              | [78, 91]   | 114              | [90, 116]  |
| Senegal                    | 98       | [93, 112]  | 116             | [108, 118] | 78               | [75, 113]  |
| Egypt                      | 99       | [85, 113]  | 104             | [90, 115]  | 89               | [83, 115]  |
| Philippines                | 100      | [92, 101]  | 110             | [102, 114] | 84               | [79, 85]   |
| Azerbaijan                 | 101      | [98, 116]  | 91              | [88, 108]  | 109              | [108, 123] |
| Rwanda                     | 102      | [92, 111]  | 74              | [66, 101]  | 128              | [94, 128]  |
| El Salvador                | 103      | [96, 108]  | 97              | [91, 102]  | 110              | [108, 118] |
| Gambia                     | 104      | [96, 106]  | 111             | [107, 125] | 93               | [74, 100]  |
| Sri Lanka                  | 105      | [95, 117]  | 125             | [113, 136] | 81               | [77, 87]   |
| Cambodia                   | 106      | [96, 108]  | 113             | [100, 122] | 99               | [95, 102]  |
| Mozambique                 | 107      | [104, 125] | 96              | [88, 100]  | 115              | [111, 138] |
| Namibia                    | 108      | [96, 117]  | 95              | [88, 107]  | 119              | [115, 123] |
| Burkina Faso               | 109      | [104, 130] | 112             | [107, 126] | 104              | [102, 130] |
| Nigeria                    | 110      | [107, 127] | 133             | [131, 139] | 83               | [80, 103]  |
| Bolivia, Plurinational St. | 111      | [99, 121]  | 115             | [101, 127] | 106              | [104, 115] |
| Kyrgyzstan                 | 112      | [109, 129] | 90              | [82, 99]   | 131              | [128, 140] |
| Malawi                     | 113      | [110, 136] | 109             | [106, 127] | 108              | [107, 135] |
| Cameroon                   | 114      | [106, 132] | 127             | [119, 129] | 100              | [98, 132]  |
| Ecuador                    | 115      | [99, 115]  | 105             | [96, 111]  | 113              | [110, 117] |
| Côte d'Ivoire              | 116      | [111, 126] | 135             | [132, 137] | 88               | [82, 108]  |
| Lesotho                    | 117      | [102, 120] | 87              | [80, 97]   | 137              | [124, 137] |
| Honduras                   | 118      | [109, 118] | 102             | [96, 104]  | 126              | [123, 127] |
| Mali                       | 119      | [117, 139] | 132             | [130, 141] | 103              | [102, 130] |
| Iran, Islamic Rep.         | 120      | [89, 122]  | 107             | [91, 121]  | 125              | [78, 124]  |
| Zambia                     | 121      | [120, 135] | 131             | [123, 142] | 105              | [103, 131] |
| Venezuela, Bolivarian Rep. | 122      | [109, 140] | 137             | [120, 142] | 94               | [92, 122]  |
| Tanzania, United Rep.      | 123      | [121, 135] | 120             | [111, 126] | 122              | [120, 137] |
| Madagascar                 | 124      | [117, 126] | 123             | [117, 133] | 121              | [110, 122] |
| Nicaragua                  | 125      | [107, 132] | 108             | [89, 123]  | 130              | [128, 133] |
| Ethiopia                   | 126      | [121, 139] | 128             | [124, 139] | 118              | [114, 134] |
| Swaziland                  | 127      | [121, 129] | 119             | [109, 133] | 127              | [117, 128] |
| Uzbekistan                 | 128      | [113, 131] | 124             | [111, 133] | 123              | [106, 129] |
| Bangladesh                 | 129      | [100, 132] | 130             | [113, 135] | 120              | [88, 121]  |
| Zimbabwe                   | 130      | [123, 136] | 136             | [131, 142] | 111              | [99, 112]  |
| Niger                      | 131      | [120, 141] | 118             | [112, 132] | 134              | [119, 141] |
| Benin                      | 132      | [110, 134] | 129             | [120, 132] | 129              | [89, 129]  |
| Algeria                    | 133      | [126, 142] | 122             | [107, 127] | 132              | [130, 142] |
| Pakistan                   | 134      | [125, 136] | 139             | [138, 142] | 107              | [96, 107]  |
| Angola                     | 135      | [128, 142] | 138             | [136, 141] | 112              | [108, 137] |
| Nepal                      | 136      | [130, 136] | 121             | [112, 134] | 135              | [125, 137] |
| Tajikistan                 | 137      | [97, 140]  | 114             | [104, 129] | 140              | [88, 141]  |
| Burundi                    | 138      | [135, 141] | 126             | [119, 129] | 141              | [138, 141] |
| Guinea                     | 139      | [137, 140] | 140             | [117, 141] | 138              | [135, 139] |
| Myanmar                    | 140      | [113, 141] | 143             | [117, 143] | 133              | [93, 134]  |
| Yemen                      | 141      | [130, 141] | 141             | [119, 141] | 139              | [130, 140] |
| Togo                       | 142      | [111, 142] | 134             | [123, 137] | 142              | [88, 142]  |
| Sudan                      | 143      | [143, 143] | 142             | [142, 143] | 143              | [143, 143] |

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

**Figure 2a: Robustness analysis (GII rank vs. median rank, 90% confidence intervals)**

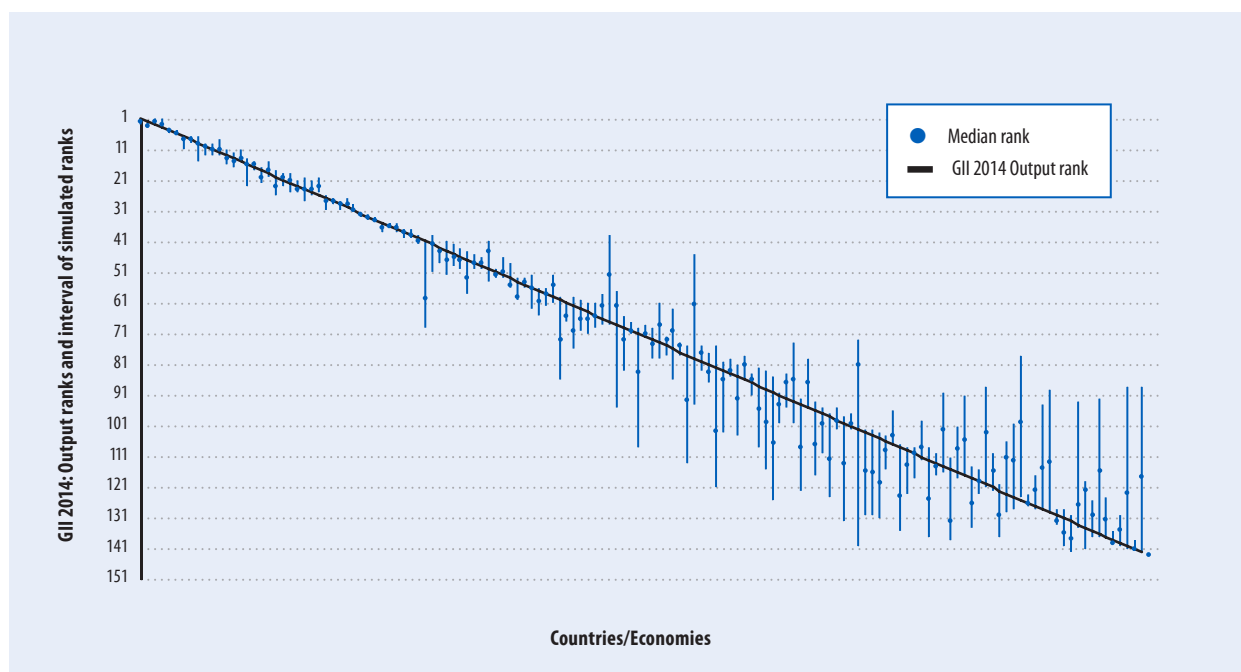
Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

Notes: The Spearman rank correlation between the median rank and the GI 2014 rank is 0.993. Median ranks and intervals are calculated for over 4,000 simulated scenarios combining random weights, imputed versus missing values, and geometric versus arithmetic averages at the pillar level.

**Figure 2b: Robustness analysis (Input rank vs. median rank, 90% confidence intervals)**

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

Notes: The Spearman rank correlation between the median rank and the Innovation Input 2014 rank is 0.997. Median ranks and intervals are calculated for over 4,000 simulated scenarios combining random weights, imputed versus missing values, and geometric versus arithmetic averages at the pillar level.

**Figure 2c: Robustness analysis (Output rank vs. median rank, 90% confidence intervals)**

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

Note: The Spearman rank correlation between the median rank and the Innovation Output 2014 rank is 0.981. Median ranks and intervals are calculated for over 4,000 simulated scenarios combining random weights, imputation versus no imputation of missing values, and geometric versus arithmetic averages at the pillar level.

Index and Sub-Index country ranks together with the simulated median ranks and 90% confidence intervals in order to better appreciate the robustness of the results to the choice of weights and aggregation function and the impact of estimating missing data (where applicable).

#### Sensitivity analysis results

Complementary to the uncertainty analysis, sensitivity analysis has been used to identify which of the modelling assumptions have the highest impact on certain country ranks. Figure 3 plots the rankings of the GII and its sub-indices versus one-at-a-time changes of either the EM imputation method or the geometric aggregation formula, with random weights, with summary results included in Table 5. The most influential assumption is the choice of no imputation versus

EM imputation, in particular for the Output Sub-Index, next for the GII, and least for the Input Sub-Index. This sensitivity is a result of data availability, which is less satisfactory in the case of the Output Sub-Index: although no economy has indicator coverage of less than 63% over the 54 variables in the Input Sub-Index, 38 economies have data coverage below this threshold over the 27 variables in the Output Sub-Index. This factor has impacted the uncertainty analysis as well, and has propagated from the Output Sub-Index to the estimation of the overall GII. The choice of the aggregation formula has a very limited impact on the country/economy ranks.

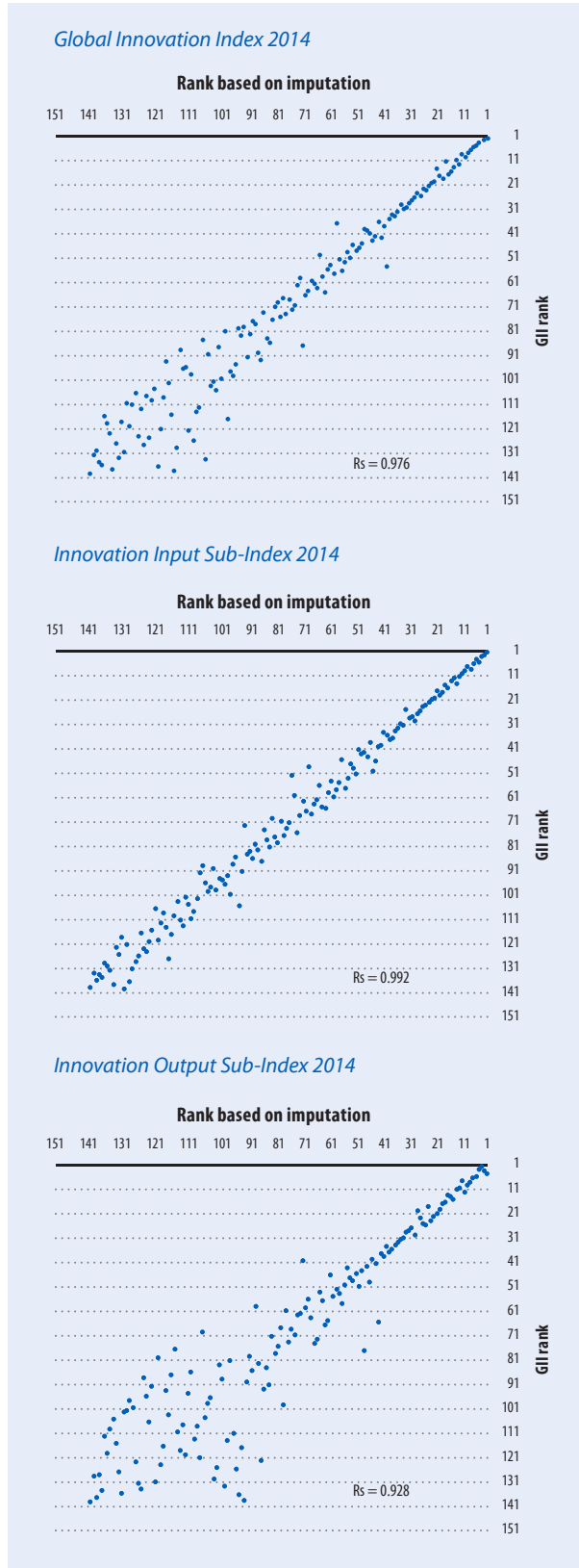
Our recommendation would be to consider country/economy ranks in the GII 2014 and in the Input and Output Sub-Indices not only at face value but also within the 90%

confidence intervals in order to better appreciate to what degree a country/economy rank depends on the modelling choices.

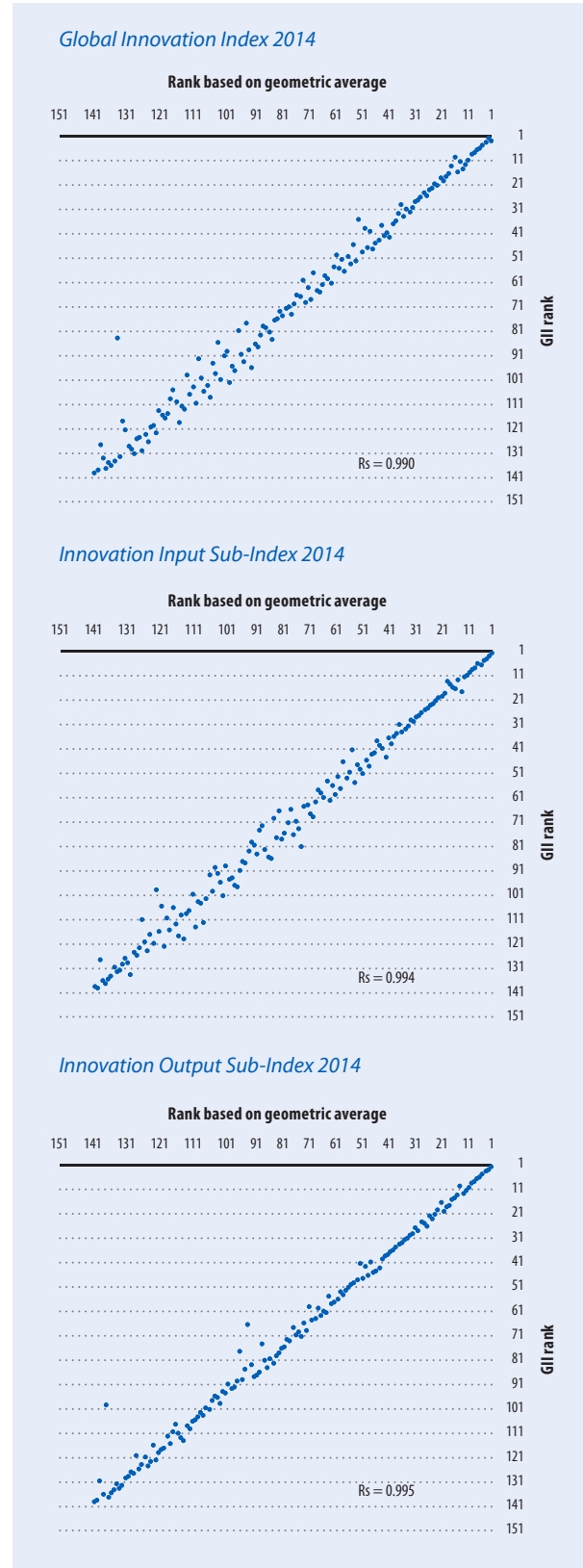
#### Distance to the efficient frontier in the GII by data envelopment analysis

Several innovation-related policy issues at the national level entail an intricate balance between global priorities and economy-specific strategies. Comparing the multi-dimensional performance on innovation by subjecting economies to a fixed and common set of weights may prevent acceptance of an innovation index on the grounds that a given weighting scheme might not be fair to a particular economy. An appealing feature of the more recent data envelopment analysis (DEA) literature applied in real decision-making settings is that it

**Figure 3a: Sensitivity analysis: Impact of modelling choices (Imputation)**



**Figure 3b: Sensitivity analysis: Impact of modelling choices (Geometric average)**



Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

Note: Rs = Spearman rank correlation; imputation based on expectation-maximization algorithm.

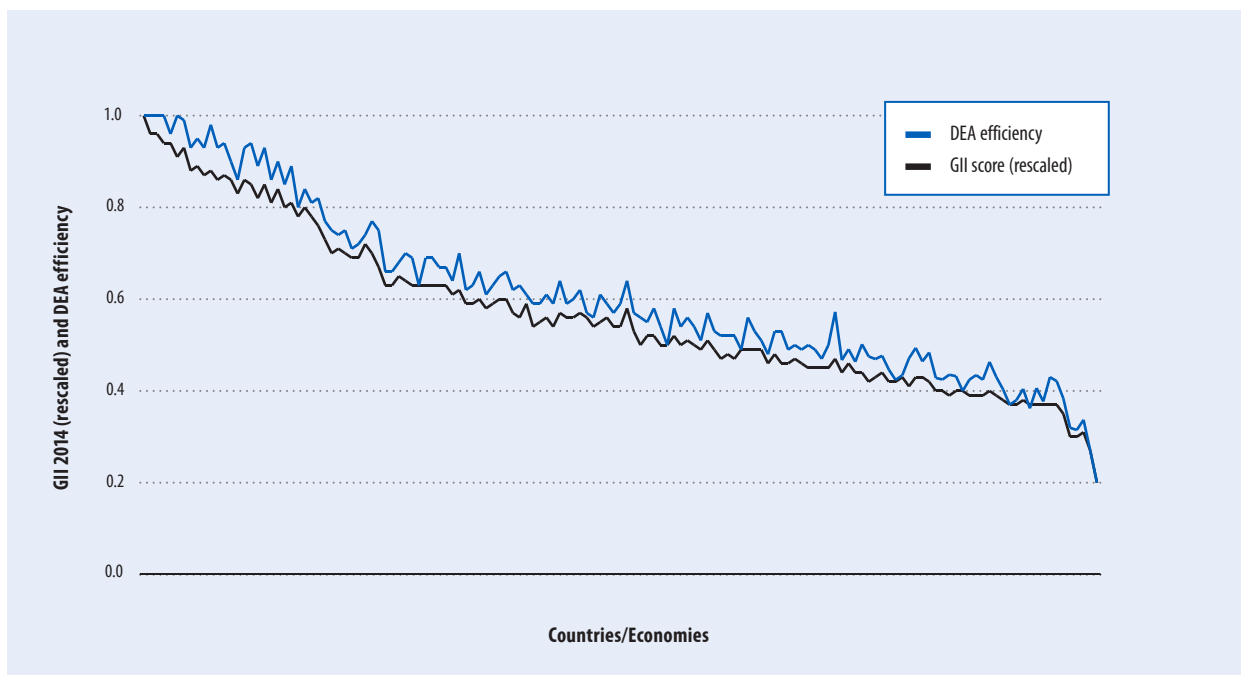


**Table 5: Sensitivity analysis: Impact of modelling choices on economies with most sensitive ranks**

| Index or Sub-Index      | Uncertainty tested (pillar level only)  | Number of economies that <i>improve</i> by 20 or more positions | Number of economies that <i>deteriorate</i> by 20 or more positions |
|-------------------------|---|---|---|
| <b>GII</b>              | Geometric vs. arithmetic average  | 0   | 1   |
|                         | EM imputation vs. no imputation of missing data                               | 6   | 0   |
|                         | Geometric average and EM imputation vs. arithmetic average and missing values | 7   | 3   |
| <b>Input Sub-Index</b>  | Geometric vs. arithmetic average  | 0   | 0   |
|                         | EM imputation vs. no imputation of missing data                               | 0   | 0   |
|                         | Geometric average and EM imputation vs. arithmetic average and missing values | 1   | 1   |
| <b>Output Sub-Index</b> | Geometric vs. arithmetic average  | 0   | 1   |
|                         | EM imputation vs. no imputation of missing data                               | 13  | 16  |
|                         | Geometric average and EM imputation vs. arithmetic average and missing values | 13  | 16  |

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

**Figure 4: GII 2014 scores and DEA 'distance to the efficient frontier' scores**



Note: For comparison purposes, we have rescaled the GII scores by dividing them with the best performer in the overall GII 2014.

**Table 6: Pie shares and distance to the efficient frontier: Top 15 economies in the GII 2014**

| Country/Economy          | DEA efficiency | Institutions | Human capital and research | Infrastructure | Market sophistication | Business sophistication | Knowledge and technology outputs | Creative outputs |
|--------------------------|----------------|--------------|----------------------------|----------------|-----------------------|-------------------------|----------------------------------|------------------|
| United Kingdom           | 1.00           | 0.08         | 0.19                       | 0.19           | 0.19                  | 0.07                    | 0.19                             | 0.08             |
| Switzerland              | 1.00           | 0.06         | 0.19                       | 0.10           | 0.09                  | 0.18                    | 0.19                             | 0.19             |
| Singapore                | 1.00           | 0.07         | 0.20                       | 0.20           | 0.12                  | 0.20                    | 0.17                             | 0.05             |
| Sweden                   | 1.00           | 0.15         | 0.20                       | 0.20           | 0.05                  | 0.10                    | 0.20                             | 0.11             |
| Finland                  | 1.00           | 0.20         | 0.20                       | 0.11           | 0.05                  | 0.16                    | 0.20                             | 0.08             |
| United States of America | 0.99           | 0.20         | 0.20                       | 0.06           | 0.20                  | 0.09                    | 0.20                             | 0.05             |
| Hong Kong (China)        | 0.98           | 0.20         | 0.05                       | 0.20           | 0.20                  | 0.15                    | 0.05                             | 0.15             |
| Netherlands              | 0.96           | 0.20         | 0.06                       | 0.20           | 0.05                  | 0.20                    | 0.09                             | 0.20             |
| Denmark                  | 0.95           | 0.20         | 0.20                       | 0.20           | 0.15                  | 0.05                    | 0.05                             | 0.15             |
| Canada                   | 0.94           | 0.20         | 0.17                       | 0.20           | 0.20                  | 0.05                    | 0.05                             | 0.13             |
| Ireland                  | 0.93           | 0.20         | 0.08                       | 0.05           | 0.20                  | 0.20                    | 0.20                             | 0.07             |
| Israel                   | 0.93           | 0.05         | 0.20                       | 0.07           | 0.20                  | 0.20                    | 0.20                             | 0.08             |
| Luxembourg               | 0.93           | 0.20         | 0.07                       | 0.20           | 0.05                  | 0.20                    | 0.08                             | 0.20             |
| Germany                  | 0.90           | 0.20         | 0.20                       | 0.18           | 0.05                  | 0.05                    | 0.20                             | 0.12             |
| Iceland                  | 0.86           | 0.20         | 0.20                       | 0.20           | 0.09                  | 0.05                    | 0.06                             | 0.20             |

Source: Saisana and Saltelli, European Commission Joint Research Centre, 2014.

Note: Pie shares are in absolute terms, bounded by 0.05 and 0.20.

can determine endogenous weights that maximize the overall score of each decision-making unit given a set of other observations.

In this section, the assumption of fixed pillar weights common to all economies is relaxed once more; this time economy-specific weights that maximize an economy's score are determined endogenously by DEA.<sup>10</sup> In theory, each economy is free to decide on the relative contribution of each pillar to its score, so as to achieve the best possible score in a computation that reflects its innovation strategy. In practice, the DEA method assigns a higher (lower) contribution to those pillars in which an economy is relatively strong (weak). Reasonable constraints on the weights are assumed to preclude the possibility of an economy achieving a perfect score by assigning a zero weight to weak pillars: for each economy, the share of each pillar score (i.e., the pillar score

multiplied by the DEA weight over the total score) has upper and lower bounds of 5% and 20%, respectively. The DEA score is then measured as the weighted average of all seven pillar scores, where the weights are the economy-specific DEA weights compared to the best performance among all other economies with those same weights. The DEA score can be interpreted as a measure of the distance to the efficient frontier.

Table 6 presents the pie shares and DEA scores for the top 15 economies in the GII 2014. All pie shares are determined in accordance with a starting point that grants leeway to each economy when assigning shares while not violating the (relative) upper and lower bounds. The pie shares are quite diverse and reflect current national innovation strategies. This year, for example, Switzerland assigns 19% of its DEA score to *Creative outputs*, while the same pillar accounts for no more

than 5% of Sweden's DEA score. More than half of the top 15 economies assign the maximum allowed (20%) to the first three Input pillars of the GII: *Institutions*, *Human capital and research*, and *Infrastructure*. Five economies—the United Kingdom, Switzerland, Singapore, Sweden, and Finland—reach a perfect DEA score of 1, and the United States of America and Hong Kong (China) are very close to the frontier. It is worth noting that the 15 economies that achieved the highest DEA scores are the same economies in the top 15 of the GII (except for Iceland, which ranks 19th in the GII). Figure 4 shows how closely related the DEA scores and GII 2014 scores are for all 143 economies (correlation of 0.994).

## Conclusion

The JRC analysis suggests that the conceptualized multi-level structure

of the GII 2014 with its 21 sub-pillars, 7 pillars, 2 sub-indices, and overall index is statistically sound and balanced: that is, each indicator and sub-pillar makes a similar contribution to the variation of its respective sub-pillar or pillar. The no-imputation choice of not treating missing values, common in relevant contexts and justified on the grounds of transparency and replicability, can at times have an undesirable impact on some country scores for the Innovation Output Sub-Index in particular, with the additional negative side effect that it may encourage countries not to report low data values. The choice of the GII team this year to use weights as scaling coefficients during the development of the index (the same choice that was made for the GII 2012 and 2013) constitutes a significant departure from the traditional vision of weights as a reflection of indicators' importance in a weighted average. Such a consideration will, it is hoped, also be made by other developers of composite indicators.

The strong correlations among the GII components are proven not to be a sign of redundancy of information in the GII. For more than 51.7% (up to 74.1%) of the 143 economies included in the GII 2014, the GII ranking and any of the seven pillar rankings differ by 10 positions or more. This demonstrates the added value of the GII ranking, which helps to highlight other components of innovation that do not emerge directly by looking into the seven pillars separately.

All published GII 2014 ranks lie within the simulated 90% confidence intervals that take into account the unavoidable uncertainties in the estimation of missing data, the weights (fixed vs. random), and the aggregation formula (arithmetic vs. geometric average) at the pillar level.

For most economies, these intervals are narrow enough for meaningful inferences to be drawn: fewer than 10 positions for 81 of the 143 economies. Caution is needed for some countries with ranks that are highly sensitive to the methodological choices. The Output Sub-index is more sensitive to the methodological choices, mostly because of the estimation of missing data and the fact that this sub-index has only two pillars (with 0.68 correlation); hence changes to the imputation method, weights, or aggregation formula have a more notable impact on the country ranks. Nevertheless, country ranks, either in the GII 2014 or in the two sub-indices, can be considered representative of the many possible scenarios: 75% of the economies shift fewer than five positions with respect to the median rank in the GII (four and seven positions, respectively, in the Input and Output Sub-Indices).

The distance to the efficient frontier measure calculated with DEA scores could replace the Innovation Efficiency Ratio as a measure of efficiency, even if it is conceptually closer to the GII score than it is to the Efficiency Ratio. In fact, the 15 economies that achieved the highest DEA scores are the same economies in the top 15 of the GII (except for Iceland, which is ranked 19th in the GII).

All things considered, the JRC audit conducted herein shows the usefulness of the GII 2014 as a statistically sound benchmarking tool in reliably identifying strengths and weaknesses in national innovation practices around the world. We invite readers and users of the GII 2014 not to use this index as a standalone metric but to see it instead as a pointer back to the wealth of information gathered in the GII framework, which is a sound attempt to pave the

way for better and more informed innovation policies worldwide.

## Notes

- 1 OECD/EC JRC, 2008, p. 26.
- 2 The JRC analysis was based on the recommendations of the OECD/EC JRC (2008) *Handbook on Composite Indicators* and on more recent research from the JRC. The JRC audits on composite indicators are conducted upon request of the Index developers and are available at <http://composite-indicators.jrc.ec.europa.eu/>.
- 3 Groeneveld and Meeden (1984) set the criteria for absolute skewness above 1 and kurtosis above 3.5. The skewness criterion was relaxed to account for the small sample of 143 economies.
- 4 See Nunnally, 1978.
- 5 Saisana et al., 2005; Saisana et al., 2011.
- 6 With arithmetic average, the no-imputation choice is equivalent to replacing missing values with the average of the available (normalized) data within each sub-pillar.
- 7 The Expectation-Maximization (EM) algorithm (Little and Rubin, 2002) is an iterative procedure that finds the maximum likelihood estimates of the parameter vector by repeating two steps: (1) The expectation E-step: Given a set of parameter estimates, such as a mean vector and covariance matrix for a multivariate normal distribution, the E-step calculates the conditional expectation of the complete-data log likelihood given the observed data and the parameter estimates. (2) The maximization M-step: Given a complete-data log likelihood, the M-step finds the parameter estimates to maximize the complete-data log likelihood from the E-step. The two steps are iterated until the iterations converge.
- 8 Munda, 2008.
- 9 In the geometric average, pillars are multiplied as opposed to summed as they are in the arithmetic average. Pillar weights appear as exponents in the multiplication. All pillar scores were greater than zero, hence there was no reason to rescale them to avoid zero values that would have led to zero geometric averages.

- 10 The original question in the DEA literature concerned how to measure each unit's relative efficiency in production compared with a sample of peers, given observations on input and output quantities and, often, no reliable information on prices (Charnes and Cooper, 1985). A notable difference between the original DEA question and the one applied here is that no differentiation between inputs and outputs is made (Melyn and Moesen, 1991; Cherchye et al., 2008). To estimate DEA-based distance to the efficient frontier scores, we consider the  $m = 7$  pillars in the GII 2014 for  $n = 143$  economies, with  $y_{ij}$  the value of pillar  $j$  in economy  $i$ . The objective is to combine the pillar scores per economy into a single number, calculated as the weighted average of the  $m$  pillars, where  $w_j$  represents the weight of the  $j$ th pillar. In absence of reliable information about the true weights, the weights that maximize the DEA-based scores are endogenously determined. This gives the following linear programming problem for each country  $i$ :

$$Y_i = \max_{w_j} \frac{\sum_{j=1}^m y_{ij} w_j}{\max_{\substack{y_j \in \{worst\} \\ y_j \in \{best\}}} \sum_{j=1}^m y_j w_j} \quad (\text{bounding constraint})$$

subject to

$$w_j \geq 0, \quad (\text{non-negativity constraint})$$

where

$$j = 1, \dots, 7, \\ i = 1, \dots, 143$$

In this basic programming problem, the weights are non-negative and a country's score is between 0 (worst) and 1 (best).

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## The Human Factor in Innovation

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This chapter will analyse and discuss major global trends related to the presence of skilled labour in countries, drawing on aggregated data collected by UNESCO through its Institute for Statistics (UIS) and other international organizations. Although there is a rich literature on the relation between skills and innovation, it is not possible in this chapter to delve deeply into that literature and explore the data accordingly. Such an analysis would require both more space than is available here and a micro-econometric data analysis. The data presented here are nationally aggregated data that do not allow for such detailed consideration.

### The role of innovation

Innovation is instrumental to the increase of human well-being. It can make a difference in addressing urgent developmental challenges such as providing access to drinking water, eradicating neglected diseases, and reducing hunger. Technology and technological advances are a key component of innovation—they raise productivity and, by extension, contribute to economic growth.<sup>1</sup> Particularly in high- and middle-income economies, the evidence of innovation's vital importance is overwhelming, but it is important for economies at

all stages of development, although different types and degrees of innovation play different roles at various stages. In order for low- and middle-income countries to reach per capita income levels similar to those of the richest economies, they need to expand both their access to technology and their capacity to use it.<sup>2</sup> This process of 'catching up' generally occurs through imitation and technology acquisition rather than independent research and experimental development (R&D) and innovation.<sup>3</sup> However, technology transfer itself poses substantial problems of adaptation and absorption that are related to investments in technological capability. A successful transfer requires a complex array of skills, knowledge, and organizational structures in order to operate a technology efficiently and accomplish any process of technological change.<sup>4</sup>

### Skills for innovation

Innovation depends on people who are able to generate and apply knowledge and ideas in the workplace and in society at large, but explicit links between specific skills and innovation are difficult to establish.<sup>5</sup> And although a 'strong connection between education and economic development has often been proposed, the content, mechanisms,

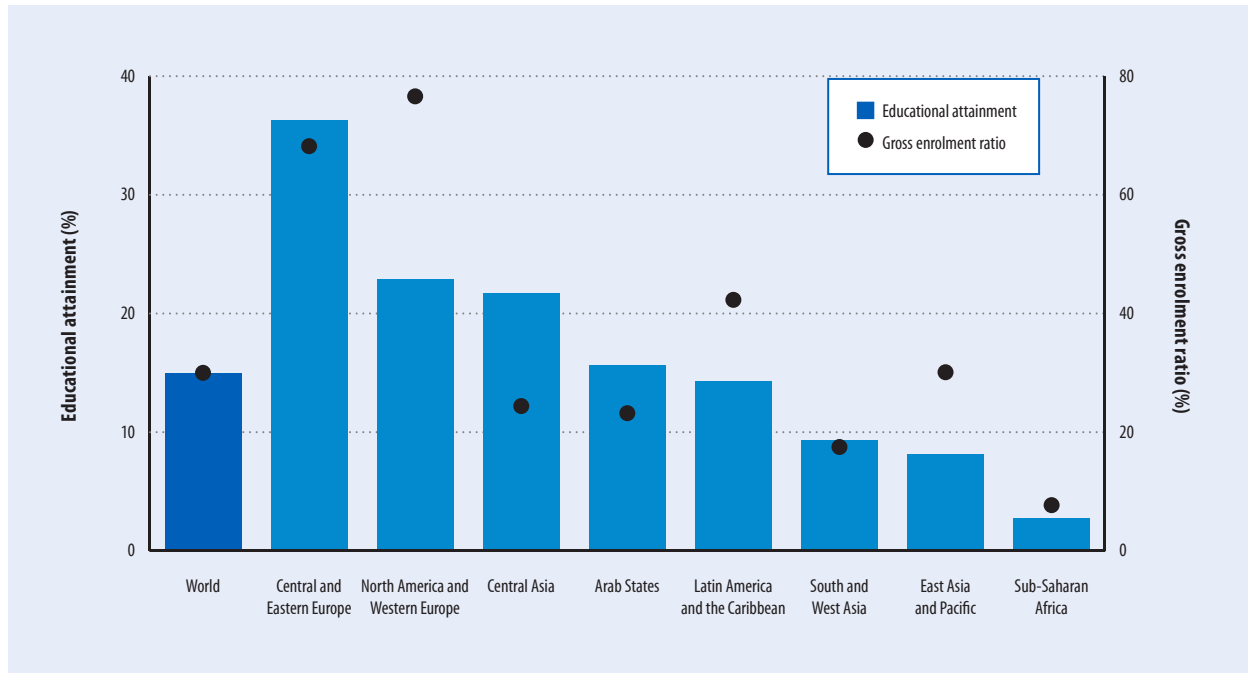
and outcomes of this link remain a matter of debate'.<sup>6</sup> The broad definitions of skills and innovation, the difficulty of measuring human capital and innovation outputs and outcomes, and the relative scarcity of innovation-specific empirical studies all serve to limit the clear identification of such relationships. Furthermore, no simple or unambiguous connection exists between a given innovation or technology and the demand it makes for skilled workers.

How a technology is deployed is mediated by many factors, most notably [...] by firm strategies and work organisation methods. Moreover, the direction of causation is ambiguous: skills and knowledge are both an input and output of innovation. Implementing a particular innovation often requires training a workforce and use of a given innovation by the workforce in the production process and consumption gives rise to incremental improvements to the original innovation.<sup>7</sup>

To take maximum advantage of R&D and other innovative activities being carried out in a country, framework conditions conducive to innovation are vital. The most important condition is the presence of a large, well-educated stock of human capital, which helps countries accelerate technological catch-up.<sup>8</sup> The connection between human capital and innovation in low- and middle-income countries, and its corresponding impact on productivity, stems mainly from the

Terminology on states and territories used throughout this chapter is that of UNESCO and differs from UN common practice.

**Figure 1: Proportion of population aged 25 years and older with tertiary education and gross enrolment ratio in tertiary education, by region (2011, %)**



Source: UIS Data Centre, accessed January 2014.

Notes: Based on data for the latest year available for 114 economies; no estimations were made. The 'gross enrolment ratio' (GER) for tertiary education is defined as the number of students enrolled in tertiary education, regardless of age, expressed as a percentage of the five-year age group starting from the official secondary school graduation age. The composition of the regions can be found in the annex at the end of this chapter.

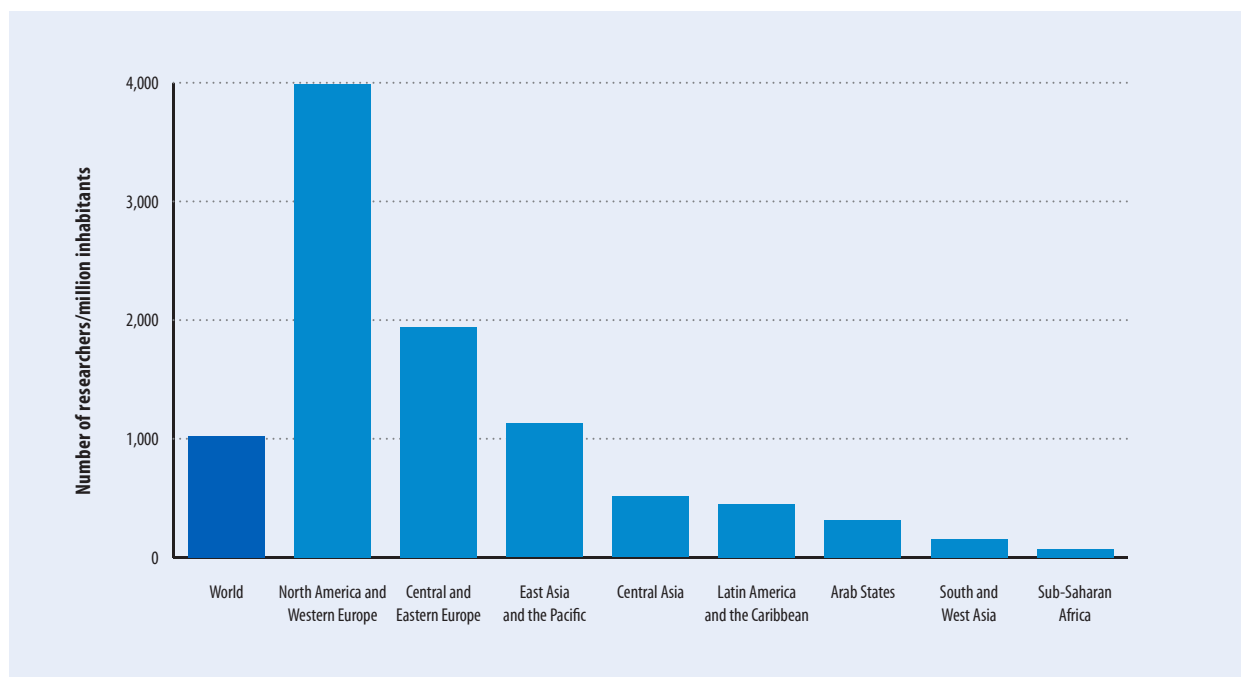
contribution of skilled workers dedicated to adapting existing technologies.<sup>9</sup> The negative effect of a large, poorly educated population is the primary reason for poor innovative performance. Positive externalities from higher educational attainment are found in the form of both a higher rate of innovation and more rapid technology transfer.<sup>10</sup> The existence of skilled labour is a more decisive element in the transmission of tacit knowledge than university or industry research.<sup>11</sup> Improving human capital through formal education and continuous R&D activities increases firms' absorptive capacity, thereby facilitating technology adoption and mastery. The chain reaction that results from a more highly skilled labour force offers possibilities for generating improvements and follow-up innovations.<sup>12</sup>

### Higher education and educational attainment

Although the link between a country's stock of highly educated people and its wealth is not clear-cut or direct, correlations can be observed. Analysing enrolment rates in tertiary education provides an indication of whether and how this situation may change in the years to come. Figure 1 shows the proportion of the population over 25 years old that has completed tertiary education, broken down by region on the primary axis. The figure also shows regional averages for the gross enrolment ratio (GER) in tertiary education for the year 2011 on the secondary axis.

What stands out is that the highest proportion of population with a university degree is found in Central and Eastern Europe, at 36%—far ahead of richer North America and

Western Europe (23%) and also ahead of Central Asia (22%). At the other end of the scale, and more according to expectations, we find Sub-Saharan Africa at only 3%. The data further show that the highest enrolment ratio is found in North America and Western Europe, indicating that this region is catching up in educational attainment—but only slowly, because the countries in Central and Eastern Europe follow closely. The two regions that follow—Latin America and the Caribbean and East Asia and the Pacific—are adding more people with a tertiary education to their populations than the other regions, and will therefore over time move up in the rankings. It is noteworthy that the global enrolment ratio, at 30%, is double the global stock of people with a tertiary education, meaning that more people are pursuing tertiary education than in the

**Figure 2: Researchers per million inhabitants (2009)**

Source: UIS Data Centre, accessed January 2014; data calculated December 2011.  
 Note: The composition of the regions can be found in the annex at the end of this chapter.

past. Looking at the evolution of the global GER over the last decade, the premium placed on a higher education degree becomes clear. There has been an explosion in enrolment in tertiary education, with the global GER almost doubling between 1998 and 2011. This growth has been uneven across regions, however. The highest growth rates are in Asia, with the exception of Central Asia, where the GER even decreased after 2007.

### Research and experimental development

Since World War II, investment in R&D has been regarded as one of the key strategies needed to secure technological potential and, therefore, innovation and economic growth. However, R&D is unprofitable for low levels of human capital; it becomes profitable only when human capital reaches a certain threshold.<sup>13</sup> This implies a correlation between

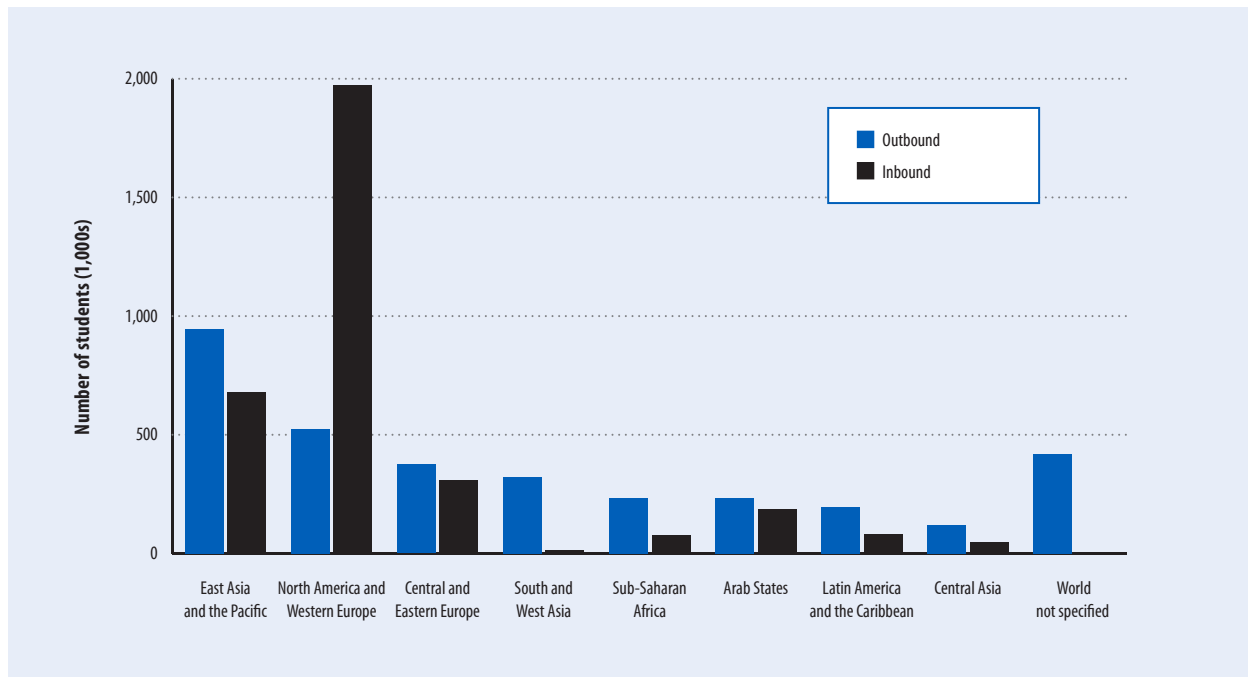
the data shown in the previous section and the volume of R&D carried out in economies. Figure 2 sheds light on this.

Figure 2 shows the strong correlation between the educational attainment and enrolment (GER) shown in Figure 1 and the number of researchers. The two regions with the highest numbers of people with a tertiary education and with the highest enrolment ratios in higher education are also the two regions with the most researchers as a proportion of the total population: North America and Western Europe and Central and Eastern Europe. At the other end, South and West Asia and Sub-Saharan Africa have the fewest highly educated people and the fewest researchers. East Asia and the Pacific deserves a special mention, as it ranks higher on the share of researchers in the population than it does on the attainment scale. This region is dominated by China,

which has not only been extensively expanding its higher education system, but has enlarged its research system even more.

Digging a bit deeper into the data contributes a perspective on the role of women in research. Although globally more girls than boys enter university, at the PhD level, even though they are close, the share of girls drops below 50%. However, the proportion of women in research shows a particularly large gap, with women making up only 30% of the global research population. This gap can be observed not only in the poorer parts of the world, but also in the richer parts. Various explanations are offered, including gender stereotyping and working conditions that are unfavourable for women, especially during their childbearing years. The fact remains, however, that a great deal of potential remains unused, and governments should



**Figure 3: Internationally mobile students, thousands (2009)**

Source: UIS Data Centre, accessed January 2014.

Notes: 'Internationally mobile students' (or 'mobile students') are those who have crossed a national border and moved to another country with the objective of studying. The composition of the regions can be found in the annex at the end of this chapter.

take action to tap into this pool of potential researchers.

Despite the observed correlations among attainment, enrolment, and the number of researchers, more elements are at play than skills alone. For example, in the Community Innovation Survey 2010<sup>14</sup>—when firms in the European Union were asked which factors were the most important obstacles to innovation—the lack of qualified personnel as a highly important factor hampering innovation activities on average ranked only 6th for innovative enterprises and 7th for non-innovative enterprises out of 11 factors proposed.<sup>15</sup> The UIS is currently collecting global innovation statistics. When the results are released in July 2014, the lack of skills will be an indicator that can be studied for many more countries.

### International mobility

The last decades have seen an explosion in the cross-border traffic of people of all skill levels. In this migratory trend, the most relevant factor for innovation is the movement of highly skilled people, whether they are students or experienced professionals. Figure 3 shows the number of internationally mobile students in 2009.

In 2009, almost 3.4 million students were studying abroad. By far the most popular destinations were the developed economies of North America and Western Europe—this was the only region with a net inflow. It received close to 2 million students, of which about one-third attended university in the United States of America (USA). Mobility is of course not limited to students. The Careers of Doctorate Holders (CDH) survey—developed by the Organisation for Economic

Co-operation and Development (OECD), the UIS, and Eurostat<sup>16</sup>—includes a module on international mobility. According to Auriol et al., '[t]he 2009 CDH figures reveal that, in the countries for which data are available, an average of 14% of national citizens with a doctorate have been internationally mobile in the previous 10 years';<sup>17</sup> furthermore, 'the USA steadily appears among the three first destination countries [...]. Likewise, the three largest EU countries (France, Germany, and the United Kingdom) appear among the favourite destinations, as well as those countries with strong historical, cultural, or linguistic links with the reporting country'.<sup>18</sup>

The CDH indicators provide interesting information on international mobility, but they do not enlighten us about the migration patterns of doctorate holders and the possible resulting brain drain for economies. The data at hand are



too sparse and insufficiently robust to allow such analysis. In order to study migration better, the OECD has compiled data on migrant stocks from a wide array of origin countries. This database (called DIOC-E) covers 89 destination countries and includes information on 110 million migrants aged 15 and over.<sup>19</sup> Of all migrants in the database, 68% live in OECD countries; the remaining 32% live in the non-OECD countries currently included in the database. Low-skilled migration to both OECD and non-OECD countries still dominates in absolute terms. However, the emigration rate for highly skilled persons exceeds the total emigration rate in all regions, which reflects the selective nature of migration. The magnitude of the global emigration rate of highly skilled persons from Africa is striking: it is estimated at 10.6% (9.7% for migration to OECD countries), compared with other regions of origin and the world average of 5.4% (4.3% to OECD countries).<sup>20</sup>

Historically, the USA has been the destination of choice of many science and engineering (S&E) students and workers. This continues to be the case. The National Science Foundation's *Science and Engineering Indicators* provides interesting information on foreign-born scientists and engineers in the USA. For example, in 2011, foreign-born individuals accounted for 21% of workers employed in non-academic S&E occupations in the USA, which is higher than their representation in the overall population (13%).<sup>21</sup> Furthermore, in most S&E occupations, the higher the degree level, the greater the proportion of the workforce who are foreign born: workers from overseas range from between 13% and 23% at the bachelor's level to over 40% at the doctoral level. The leading countries

of origin among immigrants with a highest degree in S&E are China and India. Most foreign-born noncitizen recipients of US S&E doctorates report that they plan to stay in the USA after graduation (75%); this proportion has risen over time, with the highest proportions reported by S&E doctorate recipients from China and India (86% to 87%, a proportion that has been declining since the early 2000s).<sup>22</sup>

### Concluding remarks

The data analysed in this chapter broadly confirm preconceptions about the link between innovation and skills. UIS data show a correlation between educational attainment and level of development. Generally, the more developed the region, the higher the percentage of the population that have completed tertiary education, although the correlation is not perfect. And more and more students are enrolling in tertiary education, clearly showing the importance attached to education before entering the labour market. On tertiary enrolment, again the richer regions are far ahead of the poorer regions, in particular Sub-Saharan Africa. Furthermore, the regions with the highest numbers of people with tertiary education and with the highest enrolment ratios in higher education are also those with the most researchers as a proportion of the total population. This can be explained in part by the fact that economies that are catching up are more dependent on technology transfer than they are on original R&D. Moreover, R&D is generally unprofitable for firms with low levels of human capital.

Economies at the lowest levels of development may be trapped in a vicious circle. Low economic development does not offer a context

that provides enough incentives for young people to pursue higher education, and without a skilled population, economies will not grow. Furthermore, people vote with their feet and move to places that offer more opportunities. Internationally mobile students overwhelmingly move to North America and Western Europe, which is the only region with a net inflow of foreign students. The USA remains the most popular destination not just for students but also for highly skilled professionals, and an important part of that country's innovative prowess can be ascribed to these very talented foreigners.

However, correlation is not the same as causation. These data neither provide explanations nor do they indicate the direction of potential causation. Does a lack of skills lead to poor development, or does poor development lead to a less-skilled population? The data presented here are nationally aggregated data, further summed up to regional totals, which does not allow for such a detailed analysis. To properly answer the question of how skills relate to innovation, more information is needed about the demand for skills by employers and the supply of these skills by highly educated people. To that end, firm-level surveys should ask more questions about skills and how those skills relate to firm performance.

But surveys also need to be carried out at the level of the individual. The CDH survey is a prime example of the type of survey and data collection that warrants being taken up more widely. So far, there is also insufficient hard evidence about the extent of brain drain and its impact. More information is needed, but it is extraordinarily difficult to collect. Finally, to fully understand the link between innovation and human

resources, all information collected needs to be analysed at the microdata level using econometric methods (see Box 1, Annex 1 in Chapter 1).

## Notes

- 1 See OECD, 2012; UIS, 2014; and many others.
- 2 Crespi and Zuniga, 2012.
- 3 Bell and Pavitt, 1993; Katz, 1986.
- 4 Archibugi and Pietrobelli, 2003.
- 5 OECD, 2011.
- 6 Bruland, 2003.
- 7 Toner, 2011, p.59.
- 8 Nelson and Phelps, 1966; Griffith et al., 2004.
- 9 López Boo, 2009; Navarro et al, 2010.
- 10 Bilbao-Osorio and Rodríguez-Pose, 2004.
- 11 Audretsch and Feldman, 1996.
- 12 Goedhuys et al., 2008.
- 13 Sorensen, 1999.
- 14 See [http://epp.eurostat.ec.europa.eu/portal/page/portal/microdata/documents/CIS\\_Survey\\_form\\_2010.pdf](http://epp.eurostat.ec.europa.eu/portal/page/portal/microdata/documents/CIS_Survey_form_2010.pdf).
- 15 The 11 hampering factors are: Lack of qualified personnel; Lack of information on technology; Lack of information on markets; Difficulty in finding cooperation partners for innovation; Markets dominated by established enterprises; Uncertain demand for innovative goods or services; No need to innovate due to prior innovations; No need to innovate due to no demand for innovations; Lack of funds within the enterprise or group; Lack of finance from sources outside the enterprise; and Innovation costs too high.
- 16 Auriol et al., 2012.
- 17 'This is a low estimate since the data are based on the declarations of returnees and do not take into account those who are currently and may remain abroad. [Furthermore, most of the data are for] individuals in countries that host world-leading research organisations [who] may [therefore] perceive a lesser need to move abroad.' Auriol et al., 2013, p. 57. Other factors may play a role too.
- 18 Auriol et al., 2013, p. 57.
- 19 For further information about the DIOC-E database, see <http://www.oecd.org/migration/databaseimmigrantsinoecdandnon-oecdcountriesdioc-e.htm>. Results are written up in Dumont et al., 2010.
- 20 Dumont et al., 2010.
- 21 NSB, 2014.
- 22 NSB, 2014.

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## Composition of the regions

| ARAB STATES          | CENTRAL ASIA | LATIN AMERICA AND THE CARIBBEAN  | NORTH AMERICA AND WESTERN EUROPE | SUB-SAHARAN AFRICA      |
|----------------------|--------------|----------------------------------|----------------------------------|-------------------------|
| Algeria              | Armenia      | Anguilla                         | Andorra                          | Angola                  |
| Bahrain              | Azerbaijan   | Antigua and Barbuda              | Austria                          | Benin                   |
| Djibouti             | Georgia      | Argentina                        | Belgium                          | Botswana                |
| Egypt                | Kazakhstan   | Aruba                            | Canada                           | Burkina Faso            |
| Iraq                 | Kyrgyzstan   | Bahamas                          | Cyprus                           | Burundi                 |
| Jordan               | Mongolia     | Barbados                         | Denmark                          | Cameroon                |
| Kuwait               | Tajikistan   | Belize                           | Finland                          | Cape Verde              |
| Lebanon              | Turkmenistan | Bermuda                          | France                           | Central African Rep.    |
| Libya                | Uzbekistan   | Bolivia                          | Germany                          | Chad                    |
| Mauritania           |              | Brazil                           | Gibraltar                        | Comoros                 |
| Morocco              |              | British Virgin Islands           | Greece                           | Congo                   |
| Oman                 |              | Cayman Islands                   | Holy See                         | Côte d'Ivoire           |
| Palestine*           |              | Chile                            | Iceland                          | Dem. Rep. of the Congo  |
| Qatar                |              | Colombia                         | Israel                           | Equatorial Guinea       |
| Saudi Arabia         |              | Costa Rica                       | Italy                            | Eritrea                 |
| Sudan                |              | Cuba                             | Liechtenstein                    | Ethiopia                |
| Syrian Arab Republic |              | Curaçao                          | Luxembourg                       | Gabon                   |
| Tunisia              |              | Dominica                         | Malta                            | Gambia                  |
| United Arab Emirates |              | Dominican Republic               | Monaco                           | Ghana                   |
| Yemen                |              | Ecuador                          | Netherlands                      | Guinea                  |
|                      |              | El Salvador                      | Norway                           | Guinea-Bissau           |
|                      |              | Grenada                          | Portugal                         | Kenya                   |
|                      |              | Guatemala                        | San Marino                       | Lesotho                 |
|                      |              | Guyana                           | Spain                            | Liberia                 |
|                      |              | Haiti                            | Sweden                           | Madagascar              |
|                      |              | Honduras                         | Switzerland                      | Malawi                  |
|                      |              | Jamaica                          | United Kingdom                   | Mali                    |
|                      |              | Mexico                           | United States                    | Mauritius               |
|                      |              | Montserrat                       |                                  | Mozambique              |
|                      |              | Nicaragua                        |                                  | Namibia                 |
|                      |              | Panama                           |                                  | Niger                   |
|                      |              | Paraguay                         |                                  | Nigeria                 |
|                      |              | Peru                             |                                  | Rwanda                  |
|                      |              | Puerto Rico                      |                                  | Sao Tome and Principe   |
|                      |              | Saint Kitts and Nevis            |                                  | Senegal                 |
|                      |              | Saint Lucia                      |                                  | Seychelles              |
|                      |              | Saint Vincent and the Grenadines |                                  | Sierra Leone            |
|                      |              | Sint Maarten                     |                                  | Somalia                 |
|                      |              | Suriname                         |                                  | South Africa            |
|                      |              | Trinidad and Tobago              |                                  | South Sudan             |
|                      |              | Turks and Caicos Islands         |                                  | Swaziland               |
|                      |              | Uruguay                          |                                  | Togo                    |
|                      |              | Venezuela                        |                                  | Uganda                  |
|                      |              |                                  |                                  | United Rep. of Tanzania |
|                      |              |                                  |                                  | Zambia                  |
|                      |              |                                  |                                  | Zimbabwe                |

\* Palestine is a member of UNESCO and is included for that reason in this annex and in the aggregate data in Figures 1, 2, and 3.



## Educating Innovators and Entrepreneurs

RICHARD SCOTT and STÉPHAN VINCENT-LANCRIN, OECD Directorate for Education and Skills

Successful innovation rests on a foundation of education and skills. As the Global Innovation Index (GII) demonstrates, increasing the educational achievement of young people is crucial to a country's ability to generate new knowledge and to innovate. But we should not assume that existing education systems are necessarily aligned with the need to produce the next generation of innovators. Education systems that narrowly focus on test-based academic performance and numbers of students enrolled in science and technology subjects are not necessarily those that will produce young people with the creativity, critical thinking, and communication skills that innovative societies require. In particular, a narrow focus on the acquisition of academic knowledge risks encouraging a teaching model that threatens to dampen innovative and entrepreneurial spirit rather than foster it. Instead, school education should ensure that young people not only acquire excellent knowledge but are also able to apply knowledge in a variety of contexts, and should also ensure that they develop less easily measured skills such as creativity. Decision makers should avoid crowding out arts and non-technical subjects that have an important role to play in developing the skills conducive to innovation in

all its forms. The push for academic excellence needs to be combined with quality teaching and learning methods that stimulate a wide range of thinking and behavioural skills.

Aligning education and skills policies with the objective of increasing global innovation capacity is especially pressing in light of recent global economic trends. Over recent decades, rapid technological change has revolutionized many aspects of everyday life. But it has also changed the nature of work, especially in Organisation for Economic Co-operation and Development (OECD) countries. Higher-order thinking skills, such as the ability to process large quantities of information, have become more important in the workplace at the expense of routine skills that can now be undertaken by increasingly sophisticated machines. In this context, education systems need to equip young people with the skills to both participate in and respond to innovation in the workplace. Moreover, especially in light of the recent global economic crisis, improving skills is one of the most important ways to raise innovation, productivity, and economic growth, and to improve social welfare and equality.

This chapter explores the role of education, primarily at the school level, in fostering the dispositions

and skills conducive to innovation. It examines what skills are required for innovative societies, how different teaching methods may help foster these skills, what policies and initiatives economies are undertaking in this area, and some of the remaining challenges. Finally, implications for the GII are discussed.

### Context and background

Education policies to foster innovation have traditionally focused on increasing participation in science, technology, engineering, and mathematics (STEM) disciplines. Recently, however, a more comprehensive view of innovation, which recognizes the contribution of a wider set of skills and disciplines, has emerged. While STEM specialists are undoubtedly important for certain types of innovation, particularly technological innovation, government policy needs to take a broad view of the competencies used in the innovation process.

Surveys of tertiary-educated employees show that innovation requires a broad range of skills. The international REFLEX survey,<sup>1</sup> which interviews graduates five years after their graduation, shows that innovative employees (whom we define as those working in an organization that innovates

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and participating in the introduction of these innovations) report that they use more of all types of skills in their jobs than their non-innovative counterparts. Among the results from the self-reported use of skills that most distinguish innovative and non-innovative workers are ‘coming up with new ideas and solutions’ (creativity), ‘a willingness to question ideas’ (critical thinking), and ‘the ability to present new ideas or products to an audience’ (communication).

Reflecting this evidence from innovative workers, along with findings from the wider literature,<sup>2</sup> skills for innovation can be grouped into three broad categories:

- Subject-based skills, which represent knowledge and know-how in a particular field.
- Thinking and creativity, including both higher-order skills and creative cognitive habits. These competencies include critical faculties, imagination, and curiosity.
- Behavioural and social skills, including skills such as self-confidence, leadership and management, collaboration, and persuasion.

In terms of qualifications, it is not just graduates of tertiary education who contribute to innovation. Technical skills such as craft, design, and testing play an important role in innovation, especially in the incremental changes that make up a large proportion of innovation in practice.<sup>3</sup> Vocational education and training, in particular, help provide these essential capabilities. Moreover, non-technological innovation (such as new organizational methods and marketing innovations) requires a skill-set very different from that provided by traditional university-level

science and engineering training. Again, a mix of qualification levels appears to be important. Balanced innovation systems need doctorate-holding researchers with focused expertise, but also informed users and consumers who have the curiosity and imagination to adapt goods and services to their own needs. Developing a wide set of skills is important for all individuals, not just for the sub-set who will go on to innovate.

Together, these insights help define the role of education in innovation. Developing excellent subject-based knowledge is undoubtedly important for an innovative society, but it is not enough on its own. In addition to raising academic achievement across all levels of education, innovation policies need to pay more attention to what skills young people acquire. Fostering critical thinking, creativity, and behavioural and social skills should be viewed as a central element of the remit of schools, colleges, and universities.

#### How can different types of school education develop skills for innovation?

Work by the OECD Centre for Educational Research and Innovation (CERI) highlights several areas where school education can help develop skills for innovation. In general, there are good examples of how schooling may foster innovation, but the link between the two is still not fully understood.

Improving students’ knowledge and learning outcomes is an important indicator and target in many national education systems. But evidence suggests that performance in exams or standardized tests—the way these outcomes are usually measured—is not necessarily associated with the skills that

matter for innovation. Using data from the 2006 OECD Programme of International Student Assessment (PISA), Avvisati and Vincent-Lancrin (forthcoming) highlight a negative correlation between national-level student test scores in science and interest in science. In fact, few countries successfully manage to combine above-average levels of student interest in science with above-average performance in the PISA science test. Countries range from those with comparatively low test scores and high interest in science (e.g., Mexico) to those with comparatively high scores and low interest (e.g., Finland), but a few do have relatively high scores and high interest (e.g., Japan). Because scientific interest was measured by embedded questions in the PISA questionnaire, these international patterns are unlikely to be simply the result of cultural differences among countries.

Looking at the *within-country* pattern (i.e., among schools in a single country), there is substantial diversity across countries. The negative association between interest and PISA test scores in science holds for around half of OECD countries. In Brazil, Chile, and the United States of America, for example, schools with the best test scores in science tend to have lower levels of student interest in science, suggesting that the prevalent modes of teaching and learning may develop disciplinary knowledge at the expense of interest in the topic or curiosity. But schools with strong science test performance in some other countries, such as Japan or the Republic of Korea, seem to also have students with high levels of interest. (It is noteworthy that this within-country pattern can hold in countries such as the Republic of Korea, where overall student interest

in science topics is low by international standards.)

The apparent trade-off between performance on tests and curiosity of pupils is thus neither universal nor inevitable. Since engagement and motivation is a key aspect of the skills required for innovation, it is important that teaching and learning activities to improve proficiency on science tests do not undermine the development of other skills.

Which teaching practices can foster both competence in scientific knowledge while maintaining students' engagement and curiosity? Analysis of the same PISA data on science teaching points towards the importance of linking classroom topics to real-world applications. *Avvisati and Vincent-Lancrin* (forthcoming) examine how four different types of science pedagogy (application, hands-on activities, interaction, and investigation) relate to student attitudes and performance. Of the four teaching models, increasing the time dedicated to application-based pedagogies is estimated, controlling for other factors, to have the largest positive association with interest and enjoyment of science, although there is no clear association with performance in the PISA science test. The results indicate that developing positive attitudes among science students in school requires more than just aiming at good test results, and that linking classroom theory to everyday problems is a way of fostering motivation alongside efforts to improve subject knowledge.

The use of classroom technology is also often put forward as a way of helping enhance skills such as creative thinking, engagement, and collaboration. *Kärkkäinen and Vincent-Lancrin* (2013) outline how technology-enhanced teaching models in STEM education—such as online laboratories or educational

gaming—can expand the range of learning opportunities available to students and, in the right circumstances, help develop higher-order thinking. But technology—be it interactive whiteboards, tablet computers, or other tools—is best viewed as facilitating appropriate teaching and learning of these skills rather than replacing the traditional classroom.

In mathematics education, too, increasing attention is being paid to the teaching and learning models that best equip students with useful, long-lasting skills rather than providing them solely with the ability to pass tests and use mathematics within the confines of the classroom. In particular, the skills needed to solve unfamiliar, complex, and non-routine mathematical problems are likely to be important in an innovative society. A particular skill associated with the ability to tackle such problems is metacognition, or one's control of the thought process around learning. In contrast to commonly used techniques such as rote-learning or memorization, metacognitive teaching models guide students to consciously think about the process behind solving mathematical problems. Findings from a number of experimental studies show that metacognitive mathematics teaching can improve test performance in mathematics and, simultaneously, foster important skills such as maths reasoning and motivation, which may contribute to innovation.<sup>4</sup> Though such new instruction models need to be tested on a wider scale, there appears to be scope in many countries to focus on developing a wider set of mathematical skills.

Reflecting the breadth of competencies used in innovation, efforts to foster innovative skills among school students should also look

beyond science and mathematics. The link between arts education and innovation, especially, is often recognized. Indeed, graduates of tertiary arts programmes are among the most likely to contribute to product or service innovation.<sup>5</sup>

As summarized in *Winner et al.* (2013), arts education can influence the skills used in innovation in a number of ways. Different types of arts education help develop verbal or visual-spatial skills, which in turn play an important role in non-artistic fields such as verbal competence (speaking, reading, and understanding written text) and in some maths or science activities. Most notably, experimental studies show that one-to-one music lessons have a positive effect on IQ and academic achievement, and that music education enhances verbal skills. Theatre education leads to an improvement in verbal skills; visual arts education improves observational skills and probably visual-spatial skills and geometrical reasoning, while more tentative evidence suggests that dance education enhances visual-spatial skills. Experimental research also shows that theatre education has a positive impact on the development of some social and emotional skills such as empathy, perspective taking, and emotion regulation—skills that are key dimensions of communication.

Although there is as yet no clear evidence, good arts teaching probably also typically develops some of the habits of mind that are crucial for innovation. And although most studies that have examined the link between arts education and creativity (measured by paper-and-pencil tests such as the Torrance Tests of Creative Thinking)<sup>6</sup> find a positive association, it is too early for general conclusions to be drawn. But a recent ethnographic study of high-standard



visual arts teaching shows that good teachers explicitly try to develop not only technical artistic skills but also creativity, critical thinking, and persistence.<sup>7</sup> Moreover, the typical teaching methods are highly personalized and include class projects, individual consultations with teachers, mid-project critiques, peer review, and a presentation of one's work to other students or a wider audience. Teaching methods in visual arts (and many other art forms) thus seem closer to the teaching practices that can nurture skills for innovation than those generally used in academic subjects.

Another pillar in innovation and education policy is aimed at increasing the rate of entrepreneurship. Entrepreneurship education is a popular policy tool to develop entrepreneurial skills and encourage a more favourable culture and attitude towards innovation and the creation of new firms. The content of entrepreneurship education often varies. School-level entrepreneurship education often involves trying to foster entrepreneurial skills through problem-solving activities and contextual learning based on interactive projects and games. By contrast, entrepreneurship education for upper-secondary school pupils and young adults is more typically based on providing information and developing the practical knowledge and skills needed to run a business. For example, the INJAZ Junior Achievement programme in the Middle East aims to provide business skills and financial literacy to students in Egypt, Jordan, Lebanon, Morocco, Saudi Arabia, and the United Arab Emirates through a mixture of classroom and extracurricular activities.<sup>8</sup>

However, the relative importance of education compared to other underlying determinants of

entrepreneurship is still uncertain. The pervasive 'jack-of-all-trades' theory of entrepreneurship posits that successful entrepreneurs are generalists with skills in a variety of fields rather than specific expertise in one area.<sup>9</sup> This theory points to the importance of broad-based schooling. But many of the thinking and behavioural skills required for innovation are also central to entrepreneurship, in addition to characteristics such as the ability to adapt to change and to tolerate risk and uncertainty. Therefore, the lessons from the different teaching methods discussed above are also highly relevant for fostering entrepreneurial as well as innovative potential.

Evidence of the effectiveness of school-level entrepreneurship education programmes is mixed. Oosterbeek et al. (2010) showed that a 'mini-company' initiative in the Netherlands had no statistically significant effect on the entrepreneurial skills of students and a significant negative effect on their willingness to start a business. But other studies suggest that entrepreneurship education in school can develop non-cognitive entrepreneurial skills (including persistence, creativity, and proactivity), at least in the short term.<sup>10</sup> More work is needed to draw general conclusions and determine the successful elements of this type of intervention.

#### **What are countries doing to foster innovation skills in school education?**

By influencing what and how children learn, school curricula play a central role in developing skills from an early age. The role of skills for innovation in national curricula appears to have become more prominent in recent years in many countries. A survey of OECD countries in 2009 found that all responding countries

included at least some aspects of 21st-century skills in primary and lower-secondary curricula.<sup>11</sup> Most primary and secondary education curricula in developed countries refer to critical thinking, creativity, problem-solving, and social skills.

Different country efforts take many forms. Denmark's 2012 National Innovation Strategy,<sup>12</sup> for instance, promotes the integration of innovation and entrepreneurship into the mainstream curriculum and increases practice-based teaching in schools and innovation courses in teacher training programmes. In addition, some countries—including Finland, Portugal, and Sweden—have embedded entrepreneurship education into primary and secondary school curricula, while a number of OECD countries, including Australia and Ireland, encourage the integration of information and communication technologies into schools. However, although national curriculum efforts to boost entrepreneurship and innovation skills appear to be pervasive across OECD countries, it can be hard to identify their impacts. Despite national policies, implementation can vary significantly across countries, and teaching tends to vary widely on a school-by-school basis. Though national curricula are important, maintaining school diversity and a variety of different teaching approaches can have many advantages.

Even in many Asian economies, where education systems have typically been associated with traditional learning models and a narrow focus on STEM subjects, there are signs of new efforts to emphasize creativity and critical thinking in national curricula. Since 2009, the Republic of Korea (an OECD country) expects its schools to foster creativity as part of subject-based learning, but also to devote almost 10% of overall school



time to projects and other transversal activities that foster creativity. By the end of secondary school, students in Singapore are expected to have developed critical and inventive thinking skills as well as social and emotional abilities such as being ‘resilient in the face of adversity’. Singapore has also adopted a mathematics curriculum based around metacognitive approaches to complex problem solving. In China, since 2009, more emphasis has been placed on changing traditional teaching models. In Indonesia, the practice of ‘lesson study’ aims to promote professional learning among teachers and help them to reflect on their teaching methods and align those methods with the needs of students.<sup>13</sup>

In many other countries across the world, education systems start from different positions and face different challenges in curriculum reforms. In India, for example, the rote learning system (i.e., repetition as a technique for memorization) that still prevails in many Indian schools impedes the development of curricula focused on skills for innovation. But encouraging examples of curriculum reform and organizational innovation have started to appear in India—the Apeejay school network, for example, promotes educational programmes for creativity and innovation, with practices such as enquiry-based projects designed to develop creativity and original thinking.<sup>14</sup> Not all efforts need to take place in the classroom, however. In Costa Rica, for example, the Innovating at Home programme aims to teach parents how to develop their children’s creativity from an early age.<sup>15</sup> These examples show there is increasing emphasis and interest in developing wider skills in a variety of country contexts.

### Developing skills for innovation in school: Remaining challenges

Despite policy efforts in many countries to place more attention on the skills that school students acquire, a number of shared challenges remain. One potential barrier to developing skills for innovation is student assessment.

Assessment processes at the school level are typically poorly aligned with skills for innovation. Despite the fact that curricula in an increasing number of countries emphasize a wide range of skills, student assessment tends to focus heavily on content knowledge and cognitive skills.<sup>16</sup> This might reflect the fact that assessments focus on the competencies that are most understood or are easiest to measure, or that assessment is limited to formats that are easy for teachers to mark and those that allow different pupils, schools, and regions to be easily compared.

High-stakes examinations generally imply that teaching and learning activities become conditioned on preparing and passing tests. Often teaching becomes focused on the mechanical learning of what is tested rather than on developing student skills across the board. The potential benefits from, say, application-based or metacognitive teaching may become apparent only when assessments try to measure factors such as problem solving or reasoning. This has been shown in studies of problem-based learning in higher education, and may also be true in primary and secondary education. Although one might expect that ‘teaching to the test’ could foster positive outcomes if tests were appropriately designed to reflect different competencies, it is not possible to design (short) tests that reflect all the competencies that society values.<sup>17</sup> The inclusion of a broader

### Box 1: Assessing creativity in schools

A study commissioned by the OECD and the CCE (Creativity, Culture and Education) examines how creativity could be assessed by primary school teachers. Lucas et al. (2013) propose a prototype tool for assessing creativity in schools that maps the habits of mind or dispositions associated with creativity along five principal dimensions: inquisitive, persistent, imaginative, collaborative, and disciplined. Two field trials of the assessment tool in 17 primary schools in England showed that the tool allowed teachers to be more precise and confident in developing pupils’ creativity, while children showed signs of better understanding and being able to record their progress. Although the focus is on creativity, the tool is broad enough to capture other skills such as ‘collaborative’ competencies, which have a strong bearing on behavioural and social skills. For schools, the tool had the advantage of reminding teachers of the importance of a broad set of competencies and what they mean in the school setting. Further development of such formative assessment tools could increase teachers’ and students’ awareness of skills for innovation and help these skills be monitored in school learning.

range of competencies in new forms of assessment would, however, give all stakeholders greater incentives (see Box 1).

More progress is required across the world to ensure that educational assessment encourages schools to produce well-rounded students. This will require efforts not only from policy makers and school decision makers but also from teachers, who may need to be trained to assess a variety of student skills. Innovations such as formative assessment tools or curriculum-embedded assessments can help to ensure that teachers are

equipped to assess real student learning in a timely manner.<sup>18</sup> In addition, advances in software development have increased the potential for computer-based assessments (both formative and summative), increasing the capability for a wide range of skills to be assessed in a flexible manner. Finally, the development of longitudinal information systems that track students' progress over time represent a good vehicle that can be used to monitor progress in acquiring a variety of skills over time and to design appropriate and personalized interventions for that purpose.<sup>19</sup>

### Opportunities and challenges for the Global Innovation Index

The issues discussed in this chapter raise some interesting issues for the GII. At present the Index uses (if available) a number of school-level education indicators, including expenditure on education; school life expectancy; pupil-teacher ratios; and PISA results in reading, maths, and science. Given current data availability and measurement challenges, these indicators adequately capture the role of education in innovation, but there could be scope to broaden the range of indicators in the future.

The first point to note is that, in many countries, the first priority in widening the pool of individuals available to take part in innovation is to strengthen educational participation and the foundation skills of individuals. Changes in indicators that reflect these fundamental priorities remain relevant for the GII.

Second, the ongoing development of the OECD PISA assessment should, over time, allow the GII to draw from a wider set of indicators on pupil skills. Since 2003 PISA has included a paper-based measure of problem-solving skills, defined as an

individual's ability to use cognitive processes to confront and resolve real, cross-disciplinary questions. In PISA 2012 the definition of problem solving was revised and assessment moved to a computer-based test. The computer-based testing can assess how willing a student is to engage with a problem rather than just checking for a right answer. In 2015, PISA will include a computer-based assessment of collaborative problem-solving skills, measuring the capacity of an individual to a group's success in problem solving by sharing effort and understanding.

But other existing and yet-to-be-developed indicators could, in the future, help better capture how well countries' education systems support innovation. First, more international data are needed on student outcomes in the areas of creativity, critical thinking, and behavioural and social skills. Many of these skills can be measured but indicators on a wider scale are still lacking. Tests for creativity, for instance (such as the Torrance tests) already exist, but widespread and field-specific measures would help assess the different aspects of student creativity in diverse fields. Data on student attitudes towards entrepreneurship (which already exist in many countries) could also contribute to the GII, though caution is needed as attitudes can reflect a number of issues. The second main opportunity for new indicators is proxies of educational processes conducive to developing skills for innovation. The fact that school assessment processes tend to be poorly aligned to skills for innovation means that a wider range of information on how schools in different countries operate is needed. Indicators of national curricula, assessment mechanisms, the use of active teaching models, university entrance exams, and work

organization in the education sector could all shed light on the conditions for skills development.

### Concluding remarks

In the context of a globalized world where innovation is a main driver of long-term economic growth, one of the key challenges for education and training systems is to find effective ways to equip more people with the skills to contribute to innovation in all its forms. Evidence points to a range of skills that are required for innovation, with these requirements varying by innovation type. Education in many disciplines can contribute, but the way subjects are taught is as important as the subject matter—linking content to real-world applications and teaching students the skills to address new problems are important. Although many countries are addressing the kinds of skills needed for innovation in their curricula, school assessment methods may provide a barrier to their development. More metrics are needed for policy makers to gauge progress in fostering innovative and entrepreneurial competencies and to allow the GII to capture a broader range of student learning outcomes. Addressing these issues is one of the key ways education systems can produce young people able to adapt to and engage in the global knowledge economy.

### Notes

- 1 The REFLEX survey is a large-scale survey of higher education graduates in 14 European countries and Japan. It was conducted in 2005 and financed by the Sixth Framework Programme of the European Union. See <http://www.fdewb.unimaas.nl/roa/reflex/>.
- 2 See, for example, Tether et al., 2005.
- 3 Toner, 2011.
- 4 Mevarech et al., 2010.
- 5 Awisati et al., 2013.

- 6 Torrance, 1998.
- 7 Hetland et al., 2013.
- 8 Reimers et al., 2012.
- 9 Lazear, 2004.
- 10 For example, Rosendahl Huber et al., 2012.
- 11 Ananiadou and Claro, 2009.
- 12 See <http://ufm.dk/en/publications/2012/files-2012/innovation-strategy.pdf>.
- 13 OECD, 2013.
- 14 See OECD, 2012.
- 15 This example comes from the response from Costa Rica (unpublished) to the OECD Science, Technology and Industry Outlook 2014 survey.
- 16 Ananiadou and Claro, 2009.
- 17 Looney, 2009.
- 18 Schleicher, 2012; Kärrkainen and Vincent-Lancrin, 2013.
- 19 OECD, 2010.
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## Higher Education in India: Growth with Challenges

NAUSHAD FORBES, Confederation of Indian Industry and Forbes Marshall Ltd

The British economist Joan Robinson once said, ‘. . . whatever you can rightly say about India, the opposite is also true.’<sup>1</sup> Nowhere is this more true than in higher education. Excellence at a few institutes co-exists with mediocrity at many others. The opportunity for social mobility grasped by millions of Indians who obtain a college degree contrasts vividly with the waste of millions who remain excluded from a system in which they cannot afford to participate. And the dynamism presented by the creation of new private institutions throws into relief the stagnant governance structures of Indian public universities.

Higher education has grown very rapidly in India over the last 30 years, with the proportion of those who attend tertiary institutions to the relevant age group rising from 6% in 1983 to around 20% by 2011.<sup>2</sup> This growth has been greatly compressed into only a few areas. First, most of the growth has occurred primarily in professional fields, especially engineering and management. Second, the growth has occurred in teaching rather than in research, with public research in India highly concentrated in autonomous research institutes instead of universities.<sup>3</sup> Third, most of the growth has been in private institutes rather than public ones. And fourth, because the most dramatic growth has been in professional education such as engineering and management, the

humanities and social sciences have been neglected.

Such rapid growth, concentrated in private rather than public institutions and focused on only a few professional fields, has given rise to four crucial challenges. These are the need to ensure quality, to build graduate education and research universities, to provide equity of access, and to build excellent liberal arts universities. This chapter considers ways in which the growth of the higher education system has been compressed and the challenges that have followed, and provides suggestions for how these challenges can best be tackled.

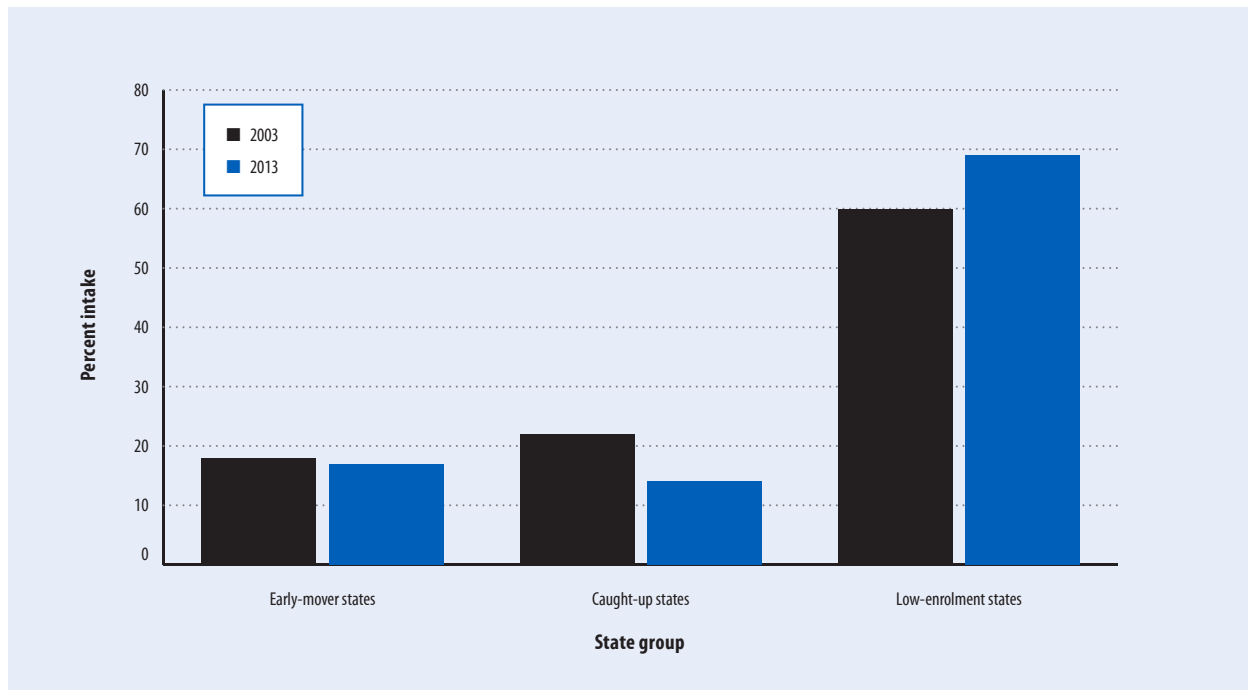
### The problem of quality

Engineering, pharmaceuticals, business, and computer applications have been the recipients of most of the growth in higher education in India. Both the number of engineering colleges and their enrolment have grown at a rate of 20% a year for 30 years. At the height of this boom—from 1995 to 2010—India opened the doors to approximately one new engineering college and one new management institute each day. In 2012–13, India had around 3,500 engineering colleges and 2,500 management institutes.<sup>4</sup> In 2013, out of the nearly 1.5 million approved engineering seats, almost 1.2 million new students were admitted to various engineering programs across

India (see Figure 1). This is a 30-fold increase over the 1983 annual enrolment of 40,000 engineers. This growth has contributed directly to India’s abundance of engineers, but raising their quality is a pressing concern and represents the first challenge.

To keep the quality of an engineering education level with the quality it had 30 years ago (hardly an ambitious goal), the number of faculty would need to have increased 30-fold.<sup>5</sup> Because PhDs in science and engineering have only doubled and those holding a Master’s degree in science and engineering have only tripled, the number of those who have achieved the credentials to teach at the tertiary level has not kept pace, so the number of faculty needed to ensure quality teaching falls very short. In fact, a severe faculty shortage affects almost every Indian institute.

Various attempts have been made to address the quality problem. Most of these have focused on regulation, which can dictate the physical infrastructure for institutes and the qualification requirements for faculty. More useful measures have taken the form of various schemes to entice Indians with PhDs who are working overseas to come back home (an example is the Ramalingaswami Re-entry Fellowship programme) and programmes to make a career in academics and research more attractive to recent graduates (such

**Figure 1: Percent total undergraduate engineering student intake by state groups, 2003 and 2013**

Source: Personal communication, Dr S. S. Mantha, Chairman, AICTE, 7 February 2014.

Note: 'Early-mover states' are those that expanded college enrolment early (these encompass 30% of the population); 'Caught-up states' are those that expanded college enrolment later, but have now caught up (these encompass 19% of the population); and 'low-enrolment states' are those where college enrolment is still disproportionately low (these encompass 51% of the population).

as the J.C. Bose National Fellowship programme).<sup>6</sup> Such programmes will have some impact, but it will be felt mainly at the top end of the institutional scale. Well over half the faculty at the great bulk of institutes in India are 'temporary' faculty who do not have to meet the requirements, and who have to date displayed little interest in graduate programmes or research. It seems that trying to regulate quality into institutes has largely failed. Instead, a combination of market and institutional mechanisms has much greater potential for providing an effective boost to quality in education.

For many years, when demand for professional course seats exceeded supply, tertiary institutions had little incentive to improve the quality of their faculty or their facilities. The supply of places at institutes of higher

learning has now exceeded demand in India for the last five years in the southern states of the country,<sup>7</sup> and institutes are finally being forced to compete with each other to attract enough students. Simply relying on the market to weed out those institutes that cannot perform at an improved level and thus provide a higher-quality education, therefore, will address much of the problem. The state can also play a useful role in ensuring that this happens, however, first by ignoring the cry of incumbent colleges to limit the number of new seats and new institutes. Second, introducing a strong compulsory accreditation and assessment programme that publishes college quality indicators would go a long way towards harnessing this market solution. And third, one could emulate the state university

system prevalent in the United States of America (USA) in the second half of the 20th century, where a few excellent (and relatively inexpensive) state universities provided an excellent 'quality control' pool for more expensive private universities that must either be better in some way than their public counterparts or admit less-qualified students.

What evidence is there that relying on the market to improve matters in higher education will work? As noted above, some improvement in the five states where supply exceeds demand is already in evidence. Moreover, consider the geographical concentration of India's higher education system. In 2003, the five southern states accounted for two-thirds of seats and less than one-third of the population.<sup>8</sup> This mismatch was entirely a supply-and-demand

**Table 1: Undergraduate engineering student intake by states**

| State categories  | Annual student intake (2003) | Percent of total | Annual student intake (2013) | Percent of total | Population (2011)    | Percent of total |
|---|------------------------------|------------------|------------------------------|------------------|----------------------|------------------|
| States that moved early in expanding college enrolment (Tamil Nadu, Andhra Pradesh, Maharashtra, Karnataka, Kerala)   | 248,700                      | 69               | 695,871                      | 60               | 363,603,498          | 30               |
| States that moved later but have caught up (Madhya Pradesh, Gujarat, Orissa, Haryana, Punjab)                         | 50,294                       | 14               | 260,215                      | 22               | 228,135,519          | 19               |
| States where college enrolment is still disproportionately low (Uttar Pradesh, West Bengal, Rajasthan, Bihar, others) | 62,302                       | 17               | 210,381                      | 18               | 618,830,556          | 51               |
| <b>Total</b>  | <b>361,296</b>               | <b>100</b>       | <b>11,66,467</b>             | <b>100</b>       | <b>1,210,569,573</b> | <b>100</b>       |

Source: Personal communication, Dr S. S. Mantha, Chairman, AICTE, 7 February 2014.

issue. The five southern states had been the first to permit private engineering colleges, and student demand followed. Recent work by Chandrashekhar and Sharma shows how, over the last 10 years, 5 million students migrated from states such as Bihar, Uttar Pradesh, West Bengal, and Rajasthan to prosperous states such as Karnataka, Maharashtra, and Delhi in search of an education.<sup>9</sup> That migration prompted other states to join in the private education boom to meet the demand of their own students. By 2013, many other states—such as Madhya Pradesh, Gujarat, and Punjab—had caught up, and their share of engineering students now reflects their share in the population (see Table 1).

#### The need to build graduate education and research universities<sup>10</sup>

The concentration by field has combined with a focus on teaching programmes. Graduate technical education has stagnated relative to undergraduate education. There are some signs of life now, with the better private engineering colleges starting Master's degree programmes and the Indian Institutes of Technology (IITs) growing their PhD programmes in a big way. But India will need 10

years of increased output to address the faculty shortages just at the top technical institutes, even before beginning to substantively address the shortages that are rife across the country's mainstream technical education system. Even at the very top, a recent article indicates that the 15 IITs have over 2,000 faculty vacancies—equivalent to more than one-third of its total faculty positions.<sup>11</sup>

Thus the second challenge is to raise the quantity and quality of graduate technical education, an issue linked to where public research is done. Although India was also an early investor in public scientific research, this investment went overwhelmingly into autonomous scientific research institutions. The result of doing scientific research in autonomous institutions has been that research has largely bypassed the university system.<sup>12</sup>

A few leading institutes, especially the IITs, are now focusing much more on research than they did in earlier years,<sup>13</sup> but most publicly funded research is still done in autonomous institutes. Although research in the higher education sector has grown (from 1% to 4% of national research and development, or R&D, funds) over the last 20 years, even its current level of 4% compares

poorly with an international norm of 15% to 25% of national R&D spending. Instead India continues to locate over 90% of its public research spending within autonomous institutes. Every other major economy concentrates public research within the university system.

Doing public research within the university system is a long-established international principle.<sup>14</sup> High-quality graduate education requires research, and combining research and teaching will benefit both. World-class graduate education requires teachers who do research. And the benefits to be had by combining research and teaching do not flow only one way, to teaching. Research too benefits, which is particularly important for India's innovation system.

The successful experience of the Republic of Korea and Taiwan, Province of China, for example, indicates that the flow of innovation runs sequentially from industrial development to industrial in-house R&D and then to public scientific research. An industrial sector competing with the best firms in the world in increasingly sophisticated industrial sectors is a requirement for sustaining investment in in-house R&D, and strong in-house R&D is



a requirement for sustaining investment in public scientific research of value to industry. It is only since 1991 that Indian industry has increasingly had to compete with the world's leading firms. This competition in turn has driven greater investment in in-house R&D by specific Indian firms and industries such as pharmaceuticals. The more advanced technological sectors in Indian industry are only now capable of utilizing, and therefore sustaining, public investment in scientific research. By combining this research with teaching, the Indian economy will get the primary benefit of doing research: availability of trained researchers.

The issue of the isolation of Indian public research has simply received no public attention and is not on the reform agenda. Indeed, at a minimum India should grandfather the problem and allocate increases in public research spending to the higher education sector. Instead, the problem is perpetuated. In the government's 11th Plan (2007–2012),<sup>15</sup> 14 new autonomous public research institutes were initiated; in the current 12th Plan (2012–2017), doors are opening on another seven public research institutes.<sup>16</sup> Opening new autonomous research institutes outside of the higher education system remains the number one long-term problem with the Indian higher education system. It is foolish to remain oblivious to something where contrary international evidence is so overwhelming, so well founded, and so well known.

#### Providing equity of access

The rapid growth of the Indian education system has overwhelmingly taken place in the private sector, leading to concern about equity and access. Engineering enrolment rose from 15% in private institutes in 1960

to over 90% by 2006–07.<sup>17</sup> Growth in public-sector higher education over the last 30 years has been small, with some renewed investment only in the last eight years.<sup>18</sup>

Obtaining clear data on just what proportion of spending on higher education is put towards public education and what is put towards private education is not easy in India. The official numbers indicate that India spends around 0.5% of GDP on higher education.<sup>19</sup> My—very rough—estimate indicates that private spending on higher education is about 2% of GDP.<sup>20</sup> Why does this not show in the official data? Many private engineering and medical colleges charge before the admission what are called 'capitation fees'—they collect a certain amount as a cash donation (sometimes with no receipt) and put this in a trust that is formed to receive the money. The amount charged for the capitation fee varies considerably, based on course and institute desirability. A good private engineering institute in Maharashtra, for example, would charge an official fee set by the state of US\$1,500 per year, but would add a capitation fee of US\$15,000 as an immediate, one time 'donation' to the trust before admission is granted. The fees for attending a medical college would be even more extreme.

Overall, Indian higher education is increasingly private and increasingly expensive, in spite of the growing state regulations regarding what can be charged and who can be admitted. The fact that spending on private education is evident in surveys of consumer spending but not in official education data means that capitation fees, long made illegal, are alive and well.<sup>21</sup> The conclusion is clear: as Kapur and Mehta put it in the title of their 2004 paper, Indian education has gone from 'half-baked socialism to half-baked capitalism'.<sup>22</sup>

So the fourth challenge is to provide equity of access for all Indians.

Only the very best performing poor (who get into some leading public institutions such as the IITs on merit) have access to high-quality education. They cannot afford the bulk of private education on offer, and they cannot access loans because the fees must be paid unofficially in cash. The result is that student loans cover less than 3% of students; this is in substantial contrast to the situation in the USA, the United Kingdom, and Australia, where more than 50% of students obtain student loans.<sup>23</sup> Reforms that free all institutes to charge the fees they wish would allow poor students to obtain loans for their education. The state could then guarantee all student loans, which could be made available through the banking system. These loans could be repaid in an equitable way. One of the most interesting approaches to student loan repayment is the Australian system, where education loans are repaid through a surcharge percent on income tax paid.<sup>24</sup> This has the merit of speeding up repayment for those earning more and reducing or eliminating it for those in low-paying occupations. Finally, there is no reason for the state to subsidize the tuition of professional courses at the IITs or Indian Institutes of Management (IIMs), where median earnings after graduation comfortably cover the cost of education. The money saved by not subsidizing professional education could be used to fund a loan or grant programme for poor students.

#### Building world-class, full-service research universities

A focus on professional fields has the corollary of neglect of the social sciences and humanities. India today



arguably does not have even a single world-class, full-service university.<sup>25</sup> The country requires several. The last 10 years have begun to see some private investment in liberal arts colleges and a few endowed universities. Much remains to be done, however, to build full-service universities that provide an excellent education in the humanities and social sciences. The abundance of political and intellectual freedom in India can help the liberal arts to thrive, and the country's education policy should make full use of this advantage.

The most elusive feature of a world-class institute is excellence. Excellence is hard to define—most university presidents who have it say it is 'in the water'. But in whatever way it is defined, excellence is sorely missing in Indian higher education. Only at the Indian Institute of Science (IISc) Bangalore, the country's IITs, and some IIMs can one find excellence in abundance. Creating a culture of excellence in an existing educational institution that is only mediocre is a much harder task than growing new fields in an institution that already has it. Because of this, India's best chance of creating a few world-class, full-service universities is to grow its IITs and its IISc into full-service universities, where graduate and undergraduate educations are combined and where science, engineering, and the liberal arts and humanities are all of equal merit. Establishing full-service universities from the IITs and IISCs should be the Indian government's project for the next 20 years.

### Conclusions

The relatively small reform of the early 1980s of allowing private colleges in some states triggered a massive expansion of professional education, almost all privately provided.

We should not underestimate just how impressive this expansion has been, but the quality problem India now faces is a direct consequence of its emphasis on quantity over quality. The solution is not to limit expansion but rather to improve quality. In typical Indian style, the state manages to simultaneously overplay and underplay its role. The state overregulates private institutes, limiting what can be started, how many students can be admitted, what fees can be charged (although it has been unsuccessful in eliminating the persistent capitation fees), and the curriculum that is taught. At the same time, it underplays the assessment of institute quality, which it should publish; continues to spend money on public research in the wrong place (autonomous institutes); and grossly underinvests in the liberal arts and social sciences. Meanwhile, the public agenda is dominated by debate on extending caste-based reservations in public and private institutions, a move focused nine parts on electioneering and one part on educating.<sup>26</sup>

India has a tremendous opportunity, an opportunity provided by a unique combination of the huge availability of talent in student numbers with an education system that—with all its problems—has demonstrated its ability to respond effectively to market demand, a strong social propensity to invest in education at great personal cost, and an abundance of the political and intellectual freedom in which academic enquiry can thrive. To produce 1.5 million engineers a year, of whatever quality, is no mean achievement. India must now move on four fronts: first, it must build true research universities by moving public research funding from autonomous institutes to the university system. That will grow

graduate programmes, which will simultaneously provide faculty for the education sector and trained researchers for industry. Second, it must use the market more and more to improve quality in the largely private professional education system, with the state ensuring public assessment so parents and students decide which institutes are of adequate quality to survive. Third, it must ensure equity of access on merit by permitting institutes to set their own fees and recover costs in a transparent manner, for which state guaranteed loans are easily available. The state will need to step in to provide adequate support for non-professional fields, but there is no reason to subsidize education in an IIT or IIM or to regulate what an engineering college can charge. And finally, it must focus higher education investment on building a few world-class, full-service universities that will produce the country's intellectuals of the future. India must not squander this opportunity.

### Notes

- 1 Sen, 2005.
- 2 Minglebox.com, 2013; World Bank Data, available at <http://data.worldbank.org/indicator/SE.TER.ENRR>.
- 3 Examples of autonomous labs across the country are the 39 labs within the Council for Scientific and Industrial Research (CSIR) labs.
- 4 Personal communication from Dr S.S. Mantha, Chairman, All India Council for Technical Education (AICTE), 7 February 2014.
- 5 Although subjective and difficult to quantify, a 'poor quality' engineering education means that students who receive such an engineering degree have low employability because of their poor skillset.
- 6 The Ramalingaswami Re-entry Fellowship programme was instituted by the Ministry of Science & Technology's Department of Biotechnology in 2006. See <http://dbtindia.nic.in/docs/Ramalingaswamiadvertisement%2013-14.pdf> for details. For information about the J. C. Bose Fellowships, see Government of India, Ministry of Science & Technology, 2005.

- 7 The southern states where places have exceeded demand are Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, and Kerala, which together accounted for two-thirds of all engineering seats until a decade ago.
- 8 Forbes, 2003.
- 9 Chandrashekhar and Sharma, 2014.
- 10 Much of the material in this section is taken from Forbes, 2013.
- 11 Srivastava, 2013.
- 12 Forbes, 2013, p. 261.
- 13 Ramya, 2013.
- 14 See in particular the work of Nathan Rosenberg and Richard Nelson, and especially Rosenberg and Nelson, 1994; Nelson, 1993; Pavitt, 1998; Mowrey, 1998; and OECD, 1998.
- 15 Government of India, Planning Commission, 2007.
- 16 Government of India, Planning Commission, 2013a.
- 17 Cheney et al. 2005, p. 17; Ernst & Young, 2011, p. 19.
- 18 The government has set up 8 new Indian Institutes of Technology, 7 new Indian Institutes of Management, and 74 new state universities in the last eight years (Government of India, Ministry of Human Resource Development, 2011a, b; UCG, 2012).
- 19 UGC, 2008.
- 20 My estimate combines the work of Agarwal (2006) with University Grants Commission data for public spending (University Grants Commission, 2008) and some investigating with National Sample Surveys (Government of India, Ministry of Statistics and Programme Implementation, no date) of consumer spending.
- 21 *The Times of India*, 2013.
- 22 Kapur and Mehta, 2004; see also Kapur and Mehta, 2007.
- 23 Agarwal, 2006.
- 24 In India, cess is collected by the government as a percent of all taxes (income tax, service tax, excise duty tax, etc.). This money is then used directly to subsidize the tuition fees of professional courses of government-sponsored academic institutions, some of which—such as the IITs and IIMs—have excellent reputations. Students who graduate from these high-status institutions generally get well-salaried jobs and ideally can repay the cost of their education. These students usually do not need the cess to cover their education cost, unlike students from lower-rank institutions, which are not funded through cess.
- 25 At a presentation on our higher education system that I made at the Planning Commission some years ago, I repeated this assertion. After much heated discussion a few held that we perhaps had one, in JNU (Jawaharlal Nehru University, in Delhi). For a country of our size to have arguably one world-class liberal arts institution surely proves the point!
- 26 Sharma, 2014.

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## Innovative Activities and Skills

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With the transition to a knowledge-based economy, innovation has become a driving force for economic and social change. It is already more than just a factor in the production of goods and services—it has become a form of mass awareness of both innovation and its implications.<sup>1</sup> In this central role, successful innovation requires the population to obtain a higher level of education, to be more creative, and to boost their ability to perceive essential achievements in science, technology, and innovation (STI) and implement those in daily practices. Progress today therefore depends not only on an economy's level of development in STI, but also on the depth of its penetration into society as well as the intellectual potential of the population, its competence in generating and applying new knowledge, and its ability to adapt to qualitatively new trends of STI development.

Population plays multiple roles in innovation.<sup>2</sup> It acts as the subject of production, a role that requires not only basic STI knowledge but also an ability to continuously perfect professional and technical skills. As consumers, people perceive and use new products and technologies. As citizens, they may engage in discussions of critical STI issues and of respective government policies. A lack of necessary skills in any particular part of the population

becomes an obstacle to the creation and distribution of new technologies and social practices throughout society. Because technological changes occur rather quickly and on a global scale, such a lack puts nations that have not carried out a timely transition to the new technological structure at risk of being left behind.<sup>3</sup>

For this reason, national governments seek to learn more about the types of skills needed for innovation and about efficient ways to engage the population in innovative activities, including, in a broad sense, the generation of innovation and its implementation, social recognition, and dissemination. This chapter provides some insights on human capital inputs into innovation on the basis of relevant surveys (see Box 1).

### Readiness to innovate

People perceive innovation at both macro- and micro-levels. While the former is associated with a nation's economic and social progress, the latter is connected to the quality of an individual's life. The balance of these interpretations indicates social legitimation of innovation in the 'lifeworld' where 'people both create social reality and are constrained by the preexisting social and cultural structures created by their predecessors'.<sup>4</sup> The case of the European Union (EU) is exemplar: the average ratio

between the two groups that clearly recognize the importance of innovation for both economic growth and personal lives is 1:1 (42% and 43%, respectively) (Figure 1). The picture for the Russian Federation is rather different: it demonstrates a substantial gap between the perception of innovation as a source of economic growth (39% of respondents in 2011) and its actual impact on daily life (17%). Even though the first group has nearly tripled during 2009–11, the second group remains stable.

Further to the work of Inglehart (1997), we suggest that such discrepancies between perception and impact assessments correlate with an economy's position on a transition curve towards a post-industrial, innovation-based economic model. The percentage of respondents who understand the economic value of innovation—that is, its effects on the competitiveness of companies and their products—in the Russian Federation is two- to threefold lower than the EU average. The gap with countries notable for the highest shares of innovating companies in industry, such as Germany, Luxembourg, Belgium, and Sweden, is even greater. In those EU countries with minimal scores of innovation activities in industry, such as Lithuania, Bulgaria, Latvia, and Romania, appreciation of the economic value of innovation is lower

### Box 1: Surveys of public attitudes towards, and understanding of, STI

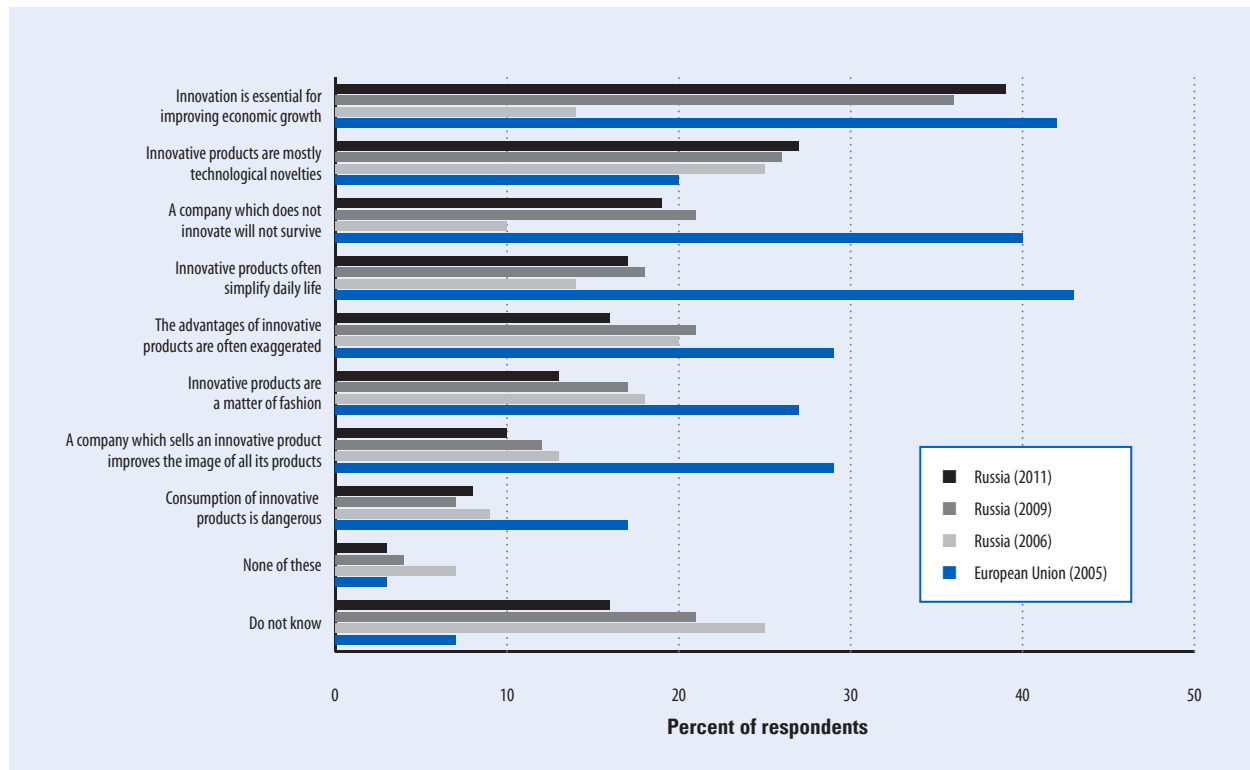
Public opinion polls on science-related issues began in the United States of America as early as 1970s. Since the 1990s, Member States of the European Union (EU), Brazil, Canada, China, Japan, the Republic of Korea, and the Russian Federation, along with some other countries, have been tracking public attitudes towards science, technology, and innovation (STI) as well as tracking public understanding of STI on a regular basis. Important motivations for tracking these attitudes with surveys have been the societal impact of tremendous successes in STI in addition to well-known technogenic disasters and their tragic aftermaths.

National surveys are usually based on representative adult population samples and cover a broad variety of issues, such as interest in STI and the use of respective sources of information (including various types of media, specialized literature, friends, etc.); test-based metrics of understanding of its major concepts (scientific literacy); assessments of its impact on the economy, society, and daily life; views on allied government policies; the social prestige of related occupations; measures of innovative skills (e.g., Internet and computer skills); the consumption of technologically novel goods and services; attitudes towards ethically

controversial or dangerous STI areas (nuclear power, stem cell research, genetically modified organisms or GMOs); and so on. Special indicators vary according to a policy agenda and national particularities.

Survey findings are taken into consideration by national governments in the elaboration of priority programmes (education, space, environment, nuclear energy, biotechnology) and in their methods of communicating STI to the general public. The findings are also considered by businesses in their strategy planning for the market promotion of innovative products or actions in societally sensitive STI areas.

Figure 1: Public perception of innovation (% of respondents)



Source: EU data are from Eurobarometer, 2005; data for Russia are from the Survey on Innovation Behaviour of the Population conducted by the Institute for Statistical Studies and Economics of Knowledge (ISSEK)/National Research University – Higher School of Economics (HSE), 2006, 2009, 2011.

**Table 1: The motivation for using innovations at households in the Russian Federation (% respondents)**

| User motivation   | 2003 | 2011 |
|---|------|------|
| I admire technological novelties and use them whenever possible             | 8    | 9    |
| It is necessary to use technological novelties to keep abreast of life      | 35   | 41   |
| I use certain technological novelties as far as I need them in my job       | 10   | 12   |
| My children encourage our family to use technological novelties             | 3    | 12   |
| I almost do not come across modern technological equipment in everyday life | 21   | 12   |
| Modern technological equipment frightens me                                 | 3    | 5    |
| None of these statements  | 10   | 4    |
| Do not know   | 10   | 5    |

Source: Survey on Innovation Behaviour of the Population conducted by the Institute for Statistical Studies and Economics of Knowledge (ISSEK)/National Research University – Higher School of Economics (HSE), 2011.

than the average by 10–20 percentage points. In other words, the larger the shares of innovating companies and allied employment, the more operational the abovementioned population's function as producers of innovation. Ireland and Portugal, which have high rankings for their industry innovation indicators, have been exceptions in this regard: their populations' disappointment, which is a result of the influence of the recent economic downturn despite the innovativeness of industry, has been translated into assessments similar to those of Eastern Europe.

For the Russian Federation, despite the yet-insufficient impact of innovation on daily life, the overall tendency of public opinion regarding innovative products looks rather favourable. During the last decade, the share of 'technological enthusiasts'—those who actively exploit novelties—reached 50%; another 12% were represented by the 'forced users,' who are motivated to use new technologies and methods by job requirements. Only a marginal stratum (5%) are still frightened by modern technological equipment (Table 1). Children have become a strong factor affecting technology diffusion, a fact explained by its deepening penetration into the contemporary lifestyle. However, nearly one out of eight respondents remains isolated from technological innovation—a warning signal

reflecting the quality of life in certain population groups.

Four types of respondents can be distinguished according to their attitude towards technological novelties: 'admirers' (9%), those who respond 'positively' (65%), those who respond 'indifferently' (16%), and those who respond 'negatively' (5%). The first group is rather narrow and is represented mostly by men (61% of all admirers), the younger generation between 18 and 35 years of age (67%); one-third belongs to a higher-income category (compared with 16% for the overall sample); and 28% of admirers are university graduates (vs. 21% among all respondents). Such an attitude is an attribute of a specific lifestyle that is not generally widespread. The polar opposite groups offer quite a contrast: those who are either indifferent to innovation (e.g., do not use modern technological equipment in daily life or are not able to identify themselves with any survey statements) or who are even negatively motivated (i.e., frightened by technological novelties) are most frequently women, older than 55 years, and of poor social strata. Low income and conservative attitudes obviously hamper dissemination of innovative products.

The middle group—the positive users of innovation—is the most common and comprises two-thirds of the Russian population. These

users are typical mainstream consumers;<sup>5</sup> their proportion can be interpreted as an important indicator of social demand for innovation, and is in fact a focal point of modern innovation policies.<sup>6</sup> The diffusion of positive attitudes reveals the increase of the population's receptivity to innovation. Subsequent changes in social behaviour caused by the recognition of the impact of innovation on economic growth and openness to novelties will stimulate the market supply of technologically advanced products and services as well as public engagement in new practices enabled by the latter.

### Innovative behaviour: Skills and activities

For analytical purposes, we divide participants in innovative activities into three basic categories: 'innovators', 'team members', and 'users'.<sup>7</sup> Each category is notable for a specific set of skills that plays a crucial role in each stage of the innovation cycle (see Box 2).

According to the Higher School of Economics (HSE) survey, innovators—those who have been engaged in initiating and/or implementing improvements at work (launching new or modifying existing products or services, technologies, business processes, etc.)—amounted to roughly a quarter of the sample population (27%). However, only



### Box 2: Skills for innovation: A measurement framework

Our analysis of skills for innovation is based upon findings of a 2010 Higher School of Economics (HSE) survey of the employed population with tertiary and vocational secondary education degrees in the Russian Federation.

A relevant methodological basis for this survey was provided by the European Qualification Framework, which defined skills as cognitive (involving the use of logical, intuitive, and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments) meaning the ability to apply knowledge and use know-how to complete tasks and solve problems.<sup>1</sup> The literature often concentrates on skills as social values and attitudes rather than abilities,<sup>2</sup> although some scholars focus on practical skills.<sup>3</sup> However, both aspects should be taken into consideration to ensure comprehensive measurement.<sup>4</sup>

For survey purposes, the following classification was proposed: technological

competencies (the level of engagement with advanced technologies); information skills (the ability to conceive and use information from different sources, including mass media and the Internet, and to use information technologies for communication and information search); management skills (project-management skills, managerial and organizational knowledge); marketing skills; entrepreneurial skills (the ability to start a new business, manage it, and assume responsibility and risk); communication skills; and personal qualities (creativity, proactive attitude, leadership, self-efficacy, tolerance, risk-propensity).

#### Notes

- 1 European Commission, 2010; Méhaut, 2012.
- 2 Florida, 2002; Batinic et al., 2008; Sojka and Deeter-Schmelz, 2008; Chell and Athayde, 2009; Zaytseva and Shulalova, 2011; Zaytseva et al., 2013.
- 3 Hanel, 2008; Smatko, 2012, 2013.
- 4 OECD, 2011a, p. 52.

60% of them (or 16% of the total sample) were identified as successful innovators who achieved their own desired goals. Their distinctive feature is that they exhibit the widest range of relevant skills among all the actors:

- Successful innovators are the most active in browsing professional information on the web (66% of respondents in this group); reading STI literature (68%); attending exhibitions and conferences (43%); and studying information about competitors, consumers, and/or suppliers (46%).
- They are technologically advanced because they are studying new professions (83%) and

learning new work techniques (86%) and equipment (69%).

- They are notable for achieving the highest scores in e-skills: 75% of successful innovators use search engines (compared with 60% for the whole sample); 67% send e-mails with attached files (vs. 50%); 58% are able to install new devices (vs. 41%); and 47% use specialized software (vs. 33%).
- In addition to strong cognitive skills, they are best equipped with the knowledge of business processes and are experienced in team building and steering, developing enterprise strategies, marketing, and external communications.

In terms of personal qualities, successful innovators, to a large degree, exhibit entrepreneurship, leadership, self-confidence, and creativity (Table 2). Interestingly, unsuccessful innovators have similar psychographic profiles, but their skill range is more restricted. This similarity implies that the innovative potential of an individual is not an instinctive feature, and essential skills for innovation can be learned. The same is true for personal qualities, or ‘soft’ skills.<sup>8</sup> National education systems are therefore motivated to transform formal curricula and teaching techniques and to promote life-long learning aimed at supporting the innovative patterns of a population’s behaviour and attitudes.

Successful innovators are accompanied by skilled employees (team members) who contribute to developing new ideas (15% of respondents). The percentage of efficient team members whose innovative projects have been implemented is even lower—7%. These workers are comparable to innovators in their skill profile, though it is narrower: their e-skills are less advanced and their professional duties are subjected to in-house operations. Even the efficient team members typically visit exhibitions or conferences (33%) or participate in strategy planning, fundraising, and communication activities less often than the successful innovators. Such team member employees are conscientious assistants rather than leaders: their core personal qualities include a proactive attitude and self-confidence, although they lack leadership, creativity, and risk propensity. Efficient team members are somewhat older than innovators (44 vs. 41 years on average) and less frequently have a university diploma (56% vs. 69%, respectively), but they are better skilled than their



**Table 2: Personal qualities of the innovative workforce**

| Quality          | All   | Innovators |              | Team members |             | Users  |         | Non-participants |
|------------------|-------|------------|--------------|--------------|-------------|--------|---------|------------------|
|                  |       | Successful | Unsuccessful | Efficient    | Inefficient | Active | Passive |                  |
| Entrepreneurship | 0.32  | 0.71       | 0.55         | 0.40         | 0.32        | 0.16   | 0.17    | 0.04             |
| Tolerance        | 0.57  | 0.61       | 0.56         | 0.62         | 0.54        | 0.57   | 0.55    | 0.53             |
| Self-confidence  | 0.42  | 0.60       | 0.51         | 0.46         | 0.44        | 0.37   | 0.36    | 0.19             |
| Leadership       | 0.09  | 0.53       | 0.38         | 0.13         | 0.10        | -0.13  | -0.08   | -0.15            |
| Creativity       | 0.10  | 0.51       | 0.40         | 0.17         | 0.08        | -0.01  | -0.12   | -0.19            |
| Activeness       | 0.09  | 0.37       | 0.35         | 0.18         | 0.05        | 0.04   | -0.12   | -0.17            |
| Risk propensity  | -0.01 | 0.15       | 0.10         | -0.04        | 0.05        | -0.05  | -0.11   | -0.13            |

Source: Survey on Innovation Behaviour of the Population, conducted by the Institute for Statistical Studies and Economics of Knowledge (ISSEK)/National Research University – Higher School of Economics (HSE), 2010.  
Note: Numbers in the table are on the scale of -2.00 (minimal expression) to +2.00 (maximum expression).

inefficient colleagues. This finding provides additional evidence of the impact of training on technological capabilities and the innovative potential of firms.

The third important group engaged in the implementation of innovation unites new knowledge and technology users. It covers almost half of employees (48%) and is divided into two subgroups: ‘active users’ (22%) and ‘passive users’ (26%). Active users include those who have upgraded competencies during the last five years. This is the youngest group among all respondents, while the passive users are the oldest. In terms of core competencies, active users stand far behind both the innovators and the team members: they are insufficiently motivated to use innovation and less ambitious, with weaker leadership, creativity, and risk propensity qualities, but they are hard-working and tolerant. Such characteristics allow younger members of this subgroup to advance their position (by, for example, moving into the group of team members or even to become successful innovators) in the course of improving their professional qualities and developing their careers.

Beyond the abovementioned categories, 10% of employees with tertiary and vocational secondary

degrees are not engaged in any innovative activities. This group is the least skilled and least well adapted for innovation, and its members usually occupy lower positions and perform the jobs that do not require special education. A large proportion of them have qualifications that do not meet the needs of the labour market. Their lack of self-confidence and creativity hampers learning and their ability to adapt to changing circumstances.

### Policy implications

Surveys of public attitudes towards STI and public understanding of it shed light on the linkages among social values, skills, and innovation. These linkages have to be taken into account by national governments when designing evidence-based policies aimed at building public trust to be shared among different parts of the society. No single approach to such a complex task can work in every instance, and a one-size-fits-all model is insufficient when applied to different countries. However, some successful practices are worth considering.

The Strategy for Innovative Development until 2020, adopted by the Russian government in December 2011, centres around

promoting innovation culture, improving allied competencies, creating a positive image of innovative entrepreneurship, increasing the societal prestige of STI activities, and developing an innovation-friendly environment. An earmarked President’s Decree of May 2012 urged all governmental agencies to ensure the coordination of sectoral policies and programmes with this document, which consequently allowed a comprehensive action plan as a whole-of-the-government policy to be established.

The primary component of this action plan is the reform of education, with the goal of supporting the development of innovative skills and personal qualities from early childhood. The plan is envisaged to upgrade education programmes by placing particular emphasis on modern information and communication technology (ICT)-enabled techniques and information resources, enlarging public support for kindergartens and schools, and establishing necessary outreach to parents and raising their awareness about the benefits of innovation. An infrastructure that helps to identify particular talents of students early and to promote those talents through individual advanced education services is being developed

in collaboration with leading universities. The training of qualified teachers is given particular attention, and certain measures are being taken to reconsider respective education standards for teacher training. Government-supported federal student Olympiads in mathematics, natural and social sciences, and information technology take place every year, and the winners are accepted by the best national universities. Tertiary education reforms include offering college-level applied baccalaureate degrees that combine fundamental knowledge with advanced technological skills in specific areas, stronger integration of courses in management and entrepreneurship into university programmes (especially for engineering), and strengthening universities' innovative infrastructures (with technoparks, business incubators, technology transfer centres, spin-off firms, etc.) and cooperation on research and development with companies.<sup>9</sup> Training in innovative entrepreneurship has also become a key priority for multiple life-long learning programmes and networks supported by universities, venture companies, industry, and regional authorities.

Large-scale inclusive innovation policy actions have been implemented at national and regional levels to broaden access to new technology and combat social exclusion. Several government programmes envisage funding to promote e-government public services, high-tech health aid and telemedicine, and Internet penetration to remote areas.

An important role in promoting innovative culture is played by innovation-development institutions—the Russian Venture Company, RUSNANO, the Agency for Strategic Initiatives, and a few others—which together have

created a joint task force for popularizing innovation. The task force provides subsidies to STI museums, exhibitions, and media; organizes contests for individual innovators; and supports the innovation projects of young inventors and start-up communities. Information centres in sensitive high-tech sectors (such as the 17 centres established by the nuclear energy corporation Rosatom in the areas of its enterprises' presence) contribute greatly to the communication of STI knowledge to the general public and the popularization of science education among children. Another successful example of promoting innovation is the national Science Festival initiated by the Moscow City Government in 2006. Since its inception, the Science Festival has spread to 70 regions and involved more than 500 organizations—universities, research centres, innovating companies, museums, and so on. The Festival enjoyed over a million visitors across the whole country in 2013.

### Conclusion

The population's engagement with innovation requires greater attention from policy makers and from society at large. The findings analysed in this chapter suggest that, in most cases, people recognize the importance of innovation for socio-economic development, although such an appreciation is not always coupled with intensive penetration of innovation into individual lifestyles. A large part of the population remains isolated from technological advancements and uninvolved with any innovative activities. This isolation is explained by social barriers and the lack of personal attitudes, skills, and abilities needed to master knowledge and technology. This mixture represents a societal

mindset,<sup>10</sup> reflecting the actual status of innovation-related values that embody people's active involvement with the social environment and its improvement by finding better solutions for specific situations at work or in everyday life. At the individual level, taken together with a composite of skills and personal qualities, it determines the role of a person in innovative processes and his or her intellectual and material progress that can result from seizing opportunities for life-long learning.

Groups of the population that do not participate in the implementation and consumption of innovation are at risk of being left behind by social exclusion and subsequent backwardness. This may occur because of a lack of means and adequate skills, but it may also be deliberate because of poor self-confidence and an inability to adjust to a changing environment. All these factors can significantly hamper innovation processes and, consequently, mark a space for inclusive policy actions. Popularizing innovation and allied novel practices aimed at upgrading competencies and developing an innovation-friendly environment are also important components of boosting competitiveness. Another critical element is the modernization of education systems so that they will ensure the development of knowledge, innovative skills, and personal qualities (such as entrepreneurship, tolerance, self-confidence, leadership, creativity, activeness, and risk propensity) from early childhood.

Given the changing nature of innovation and the long-term character of public awareness and trust building processes, the policies that address these areas have to be adaptive and continuous, and their efficiency will, to a great extent, determine the global competitiveness of nations.

## Notes

- 1 Gokhberg and Shuvalova, 2004, p. 8
- 2 Miller, 1996. Here and below, we follow the internationally harmonized definition of innovation: 'An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations' (OECD/Eurostat, 2005, p. 46). Although this definition was initially intended for companies, we apply it with certain modifications at the level of households and individuals and include, among other things, user innovation aimed at household improvements, entertainment, leisure, personal health and comfort, and so on, beyond technological and organizational novelties.
- 3 Miller, 1996; Gokhberg and Shuvalova, 1997
- 4 Ritzer, 2011, p. 219.
- 5 Rogers, 1962.
- 6 OECD, 2011b.
- 7 In some cases, people may simultaneously play different roles depending on their particular positions in specific innovation projects. For instance, an initiator can promote his or her own idea and at the same time implement a supporting function in a project run by another colleague. In order to produce more accurate analytical distinctions we consider pure, ideal types.
- 8 Chell and Athayde, 2009.
- 9 For details, see Gokhberg and Roud, 2012.
- 10 Gokhberg and Meissner, 2013.

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# The United Arab Emirates: Fostering a Unique Innovation Ecosystem for a Knowledge-Based Economy

AHMAD BIN BYAT and OSMAN SULTAN, *du*

The United Arab Emirates (UAE) is quickly transforming itself from an oil-based economy to an innovative, knowledge-based economy. In fact, knowledge-based industries and services now make up a greater part of the UAE's GDP than oil revenues, having grown from 32.1% in 2001 to 37.5% in 2012.<sup>1</sup> By moving towards a knowledge-based economy, the UAE has diversified its economy and positioned itself as a key player in real estate, renewable energy, and aviation; it has also become a global hub for trade and logistics, financial services, and tourism. It has done this by innovating and aspiring to game-changing developments: the UAE is home to the world's tallest tower and its most sustainable eco-city, one of the world's largest airlines, and state-of-the-art infrastructure and smart government services—all helping it to move away from simply localizing external innovation to developing its own intellectual property and creative outputs.

The country's leadership aspires to create a knowledge-based economy fueled by innovation. This is evident in the UAE's *Vision 2021*, which aims to build a nation where 'knowledgeable and innovative Emiratis will confidently build a competitive and resilient economy.'<sup>2</sup> Towards this end, the UAE has invested significantly in education and capacity development, setting the foundation for long-term competitiveness.

The telecommunications sector in the UAE also has a key role to play in promoting innovation and in supporting the country's evolution towards a knowledge-based economy. Telecommunications infrastructure and services are the backbone of a knowledge-based economy. The sector's players are particularly well positioned to champion the UAE's national innovation ecosystem development goals by using their experience in commercializing innovation, their technical talent, and their institutionalized diversification into the digital space.

## The UAE's innovation ecosystem

The three pillars of the innovation ecosystem are human capital, financial capital, and technological capital (Figure 1). The UAE is actively working to promote innovation through policies and targeted initiatives aimed at developing the human element of the ecosystem while also addressing the key enablers of the human factor: the requirements of financial and technological capital.

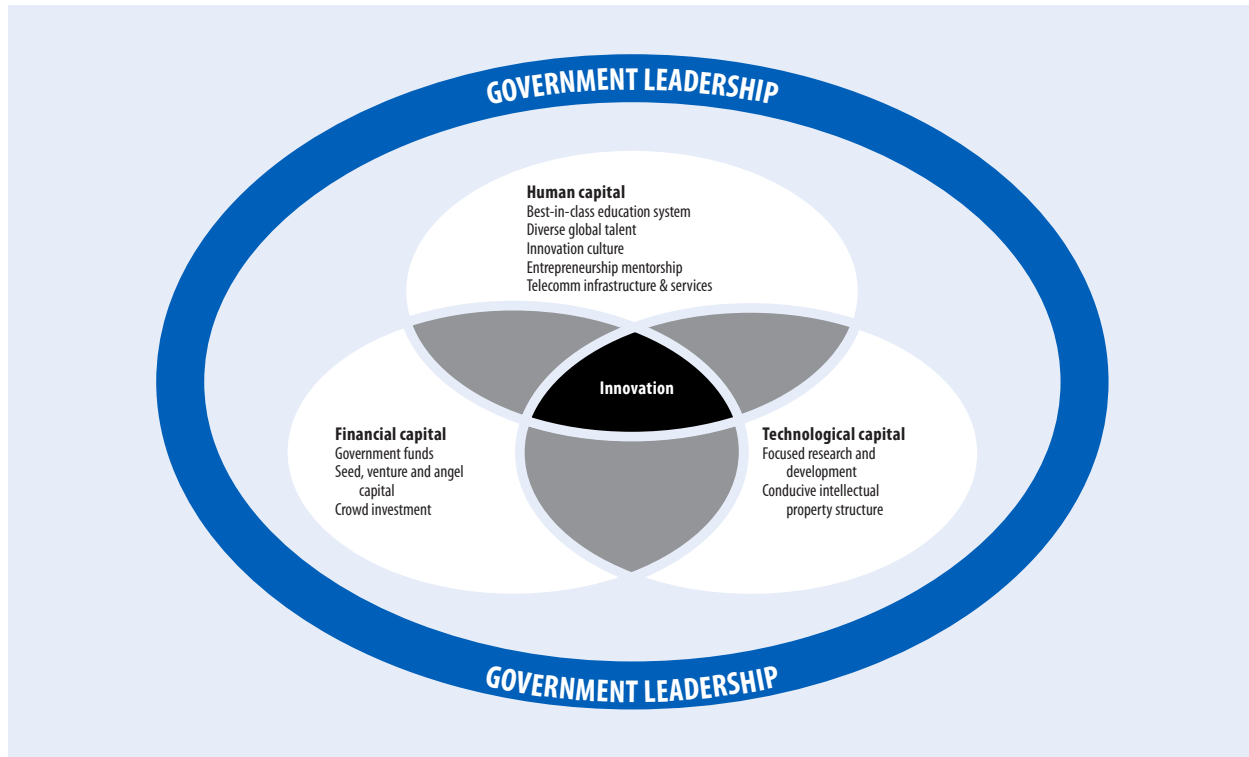
### Human capital

Human capital is fundamental to all innovative change: a well-educated and highly skilled population and workforce are a necessary condition for the potential of innovation to be realized. To this end, the UAE has advanced its human capital on several fronts. The country has evolved

into a melting pot that taps into the experiences and perspectives of people from more than 200 different nations, and its population has grown enormously from 1975 to 2012—much more than the global average growth rate. It currently boasts one of the most advanced education systems in the Middle East and North Africa (MENA) region, thanks to continuous investments across all education levels. Moreover, advancing women's education and economic participation has resulted in women assuming leadership roles throughout the nation. A burgeoning culture of innovation—fostered by the collaborative efforts of government, educational institutions, entrepreneurial organizations, corporations, and the media—is bridging cultural barriers. Finally, support systems for innovation in the form of mentors, incubators, and accelerators are starting to emerge.

### Education system

The UAE's budget allocation to education represents more than 20% of its total government budget, higher than the benchmark average of 13% (see Figure 2). The country is investing in building local talent by overhauling primary, secondary, and higher education systems and offering various opportunities for vocational training. As a result, the country's rank on the Education sub-pillar of the Global Innovation

**Figure 1: The pillars of innovation in the UAE**

Source: Strategy&analysis.

Index has improved in two years, from 65th in 2011 to 15th in 2013.

Keeping its national education strategy first rate is a continual effort. The UAE is constantly improving its educational strategy to ensure that the programmes developed in its schools comply with international standards. The Abu Dhabi Educational Council, for example, has developed a new curriculum to build the 21st-century skills needed to foster innovation; these skills include critical thinking, creativity, communication, and collaboration. This curriculum is beginning to teach these skills when students are young.

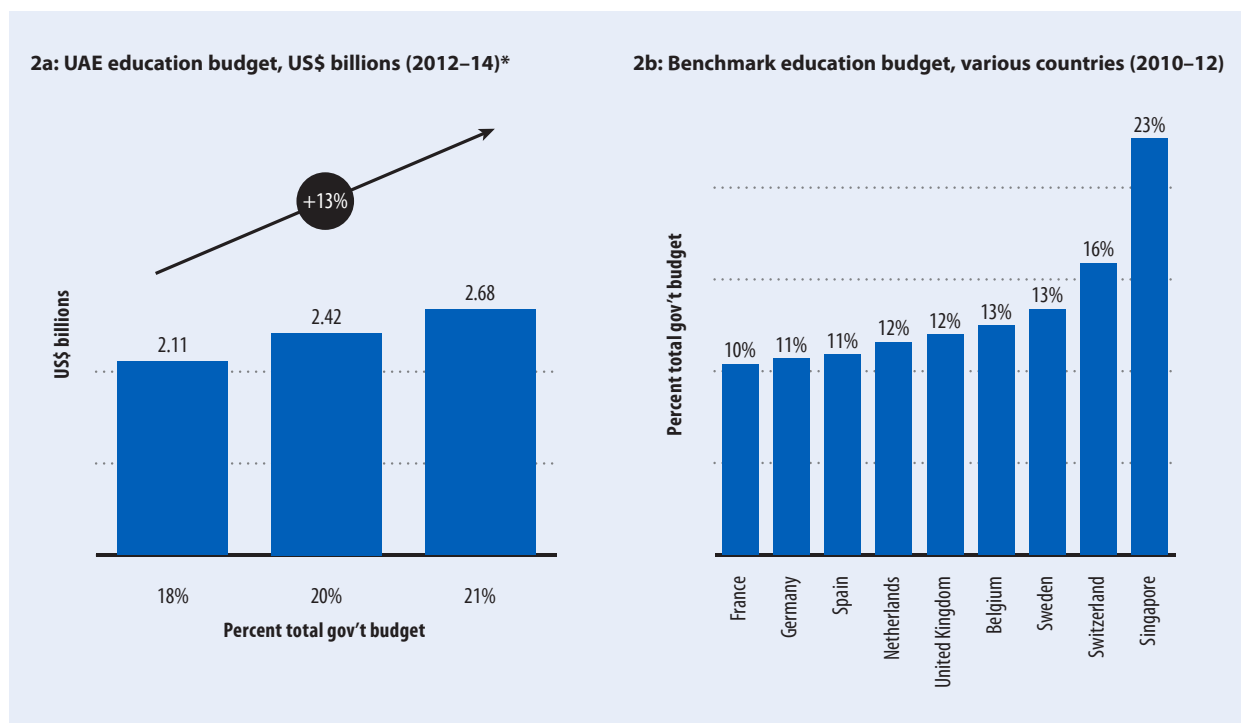
In the UAE, higher education institutes are expanding by establishing world-class local universities, attracting top universities to open branches in the UAE, and striking international partnerships. This

effort has been driven by national policies to develop adequate higher education and research facilities targeted at different sectors. A few recent successes include:

- The Khalifa University of Science, Technology, and Research has begun to offer various engineering degrees (including aerospace, biomedical and industrial engineering) in its aim to become an internationally recognized research university. Several international universities with a focus on post-graduate degrees (which also attract practiced professionals to the country)—including INSEAD, Paris-Sorbonne, and the London Business School—have opened branches in the UAE in the past few years. Dubai alone has attracted 26 international universities from over 10 countries.
- The Masdar Institute, established in 2007 in close cooperation with the Massachusetts Institute of Technology (MIT), is the world's first graduate-level research institute dedicated to alternative energy and sustainability.
- NYUAD, a joint venture between New York University and the Emirate of Abu Dhabi launched in 2010, offers liberal arts and science programmes and hosts a centre for advanced research.

The development of UAE nationals' capabilities is a top priority for the government. This place in the government's agenda is evidenced by its investment in continuing education and career guidance for its nationals through multiple initiatives. The government's key

**Figure 2: Budget allocation for education as percent of total government budget**



Source: World Bank, 2013; UAE Ministry of Finance.  
\* Note: Data are the latest available.

imperative going forward is to develop the deep technical skills that are required for disruptive innovations, as opposed to generalist skills. Almost 30% of students in higher education institutions in the UAE are studying business and economics; 14% are studying engineering and 8% are in the sciences.

The National Human Resource and Development Authority (Tanmia) was established in 1999 to support UAE nationals by linking them with potential employers and providing them with career guidance. In another example, Advanced Technology Investment Company (ATIC)—a wholly owned subsidiary of the Mubadala Development Company focused on the semiconductor industry—is actively developing Emirati talent in the technology space. For example, Tech Quest is an ATIC programme for middle and

high school students aimed at creating future leaders in mathematics, science, technology, and engineering. AlNokhba, another ATIC programme, provides internships and scholarships for bright Emirati graduates across a broad range of advanced technology-driven industries.

The private sector also contributes to the talent development of UAE nationals. In the UAE, telecommunications operators contribute 1% of their revenues to the ICT Fund of the TRA (a government entity); one of the ICT Fund's mandates is to grant scholarships to UAE nationals to study engineering within the UAE or abroad. The ICT Fund also promotes educational institutes within the ICT space by equipping them with laboratories.

### *Diverse talent*

The representation of more than 200 nationalities within the country has made the UAE a melting pot that is fertile ground for innovation. Immigrants constituted 96% of the total UAE workforce in 2013 and 99.5% of the nation's 4 million private-sector employees. Traditionally, the local population has been more drawn towards working in the public sector but this is now beginning to change; the UAE government is encouraging the local population to join the private sector to develop their skill sets. This is a boon for the UAE: multicultural teams help fuel innovation by addressing issues in creative ways, drawing on members' unique experiences from their countries of origin.

Attracting foreign talent is an important aspect of establishing



and maintaining an innovative environment. In the UAE, several factors have played a role in attracting immigrants. The overall good quality of life in the country, which includes a safe and welcoming environment, state-of-the-art infrastructure, ease of doing business, and absence of income tax have been key drivers. Free zones have been set up where businesses can enjoy 100% foreign ownership and special tax and administrative incentives: there are 36 such zones in total across the seven emirates, including twofour54 media and production in Abu Dhabi, dedicated to media and entertainment organizations; Dubai Knowledge Village, dedicated to Human Resource Management and learning excellence; Ras Al-Khaimah Industrial and Technology Park, a world-class business hub facilitating industrial growth and development; and Fujairah Creative City, which benefits smaller media companies and freelancers.

Women are another key contributor to UAE's diverse talent pool. The World Economic Forum's *Global Gender Gap Report 2013* ranked the UAE number one for female educational attainment.<sup>3</sup> Although cultural nuances restrict their labour participation (27.5% participate in the workforce, compared with 62.5% of men), women have taken up entrepreneurial roles. The UAE is committed to advancing female leadership and increasing female participation in the economy through various initiatives. For example, every government agency is required to have at least one board member who is a woman. The Abu Dhabi Hub of the Global Shapers Community, launched by the World Economic Forum in 2013, seeks to support women through Fikrati, a competition aimed at fostering an entrepreneurial culture among

Emirati women. The Emirates Business Women Council builds awareness, educates, promotes opportunities, and effects positive change in the community.

#### *Innovation culture*

Establishing a culture that encourages innovation and individual characteristics conducive to the ability to look beyond an established norm is essential to an environment that enhances innovative ability. Cultural barriers to innovation—such as fear of failure and an aversion to taking risks—can present serious difficulties. Such barriers are starting to diminish in the UAE.

Although government jobs have historically been the preferred employment for UAE nationals, 71% of UAE millennials (those who are 35 years old or younger) currently have entrepreneurial aspirations.<sup>4</sup> Women, in particular, may prefer entrepreneurship because of the flexible working hours and the ability to work from home. In fact, more tech entrepreneurs in the UAE are female than in many other parts of the world: women account for 35% of tech entrepreneurs in the region, compared with a global average of 10%.<sup>5</sup>

A collaborative effort among government authorities, private corporations, media, and entrepreneurial organizations is driving this cultural shift through regular innovation- and entrepreneurship-themed events, dedicated media content, and awards that celebrate innovation successes. Start-up Weekends at which aspiring entrepreneurs can pitch and develop ideas have been organized in Dubai, Abu Dhabi, and Sharjah. Top-quality talent is visibly recognized in the UAE through various awards such as the Young Emirati Innovators Prize (YEIP), the Patent Filing Award,

and the Manchester Innovation Award. Wamda, a regional platform for empowering entrepreneurs, has a media site dedicated to entrepreneurship. Other media organizations—such as TechView.me and TechStars, which provide seed funding, mentorship, and a network of alumni and mentors—focus exclusively on tech entrepreneurship within the region. For instance, du encourages its employees to innovate and has started an 'ideation platform' through which employees can share their innovative ideas.

An interesting example of innovative entrepreneurship is that of Sougha, a social enterprise initiative launched by the Khalifa Fund that is proving to be instrumental in reducing innovation barriers. Sougha's model is interesting for many nuances, including being a reliable platform for skilled Emirati artisans to become entrepreneurs and providing them with essential business know-how and consumer insights. This allows the artisans to use their skills to create non-traditional products, such as iPad cases made of traditional weaves, thus extending the market and consumer scope. Truly, this is an example of a model that is bridging the gap between traditional culture and contemporary needs. Most importantly, it is helping Emiratis embrace innovation.

#### *Entrepreneurial mentorship*

One other essential element of a successful ecosystem of innovation is the encouraging and fostering of young entrepreneurs. One of the most effective ways to do this is through mentoring. In the UAE, this is taking shape—more than 10 incubators/accelerators are operational in the country—a substantial increase from the three that were active in 2008. These include in5 (in Dubai Internet City), Turn8 (by DP World), i360



accelerator, Silicon Oasis Founders, SeedStartup, Endeavor, twofour54's Ibtikar, afkar.me, the First Steps Business Center, and the Dubai SME Business Incubation Center.

These incubators and accelerators offer a variety of mentorship and business support services for UAE nationals and immigrants alike. SeedStartup, for example, brings international start-ups to a three-month acceleration programme held in Dubai. The programme provides value-added services and events (e.g., a demo day that connects start-ups with investors) and seed investment up to US\$25,000 for a 10% flat stake. Start-ups from Bahrain, India, Italy, Jordan, Malaysia, Tanzania, the United Kingdom, and the United States of America (USA) have already participated in SeedStartup's programme. In another example, Dubai SME provides a variety of advisory and incubation services to small and medium-size enterprises (SMEs) in Dubai, including the Intilaq programme focused on UAE nationals, the Business Incubation Center, and the Dubai Entrepreneurship Academy. Dubai SME also issues best practice recommendations, launches competitions (e.g., the Young Entrepreneur Competition, or YEC), and ranks the top 100 SMEs in Dubai each year. Furthermore, the TRA's ICT Fund supports government-sponsored incubators within the country by financing entrepreneurs in the ICT space within these incubation centres.

The UAE private sector too is establishing and supporting platforms for collaboration, innovation, and new entrepreneurial ventures. One of the foremost examples of this was *The Entrepreneur* reality show, presented by du and aired regionally. This show provided a platform for aspiring entrepreneurs to

realize their dreams, network, and exchange ideas with the goal of nurturing talent. Along with a platform from which to launch the business, the winner also received mentorship by experts over the course of a year.

#### *Telecommunications infrastructure and services*

Connectivity creates access to information and connects people, enabling them to learn online, build their skills, and collaborate in real time. In a world where physical boundaries are steadily diminishing, good telecommunications can be a catalyst to fulfilling dreams. Beyond basic connectivity, telecommunications infrastructure and services play a critical role in supporting innovation. For example, du offers a user-friendly platform called 'du Developer Cloud' that enables innovators to develop mobile applications at no cost. du has also launched a series of initiatives in line with Dubai's vision of becoming a Smart City and in line also with the UAE's overall Smart Government programme. These initiatives include the provision of WiFi access across all public areas in the UAE, the introduction of smart telecommunications building infrastructure guidelines, and the development of a smart application for the General Directorate of Residency and Foreigners Affairs.

#### **Financial capital**

Even highly skilled human capital cannot perform to its full potential without sufficient financial capital. Ensuring that funds are made available can usefully be an object of government policy, but private sources of capital also have a role to play. Within the UAE, several sources of funding are available, including government funds, equity investing, and crowd funding or crowd investment.

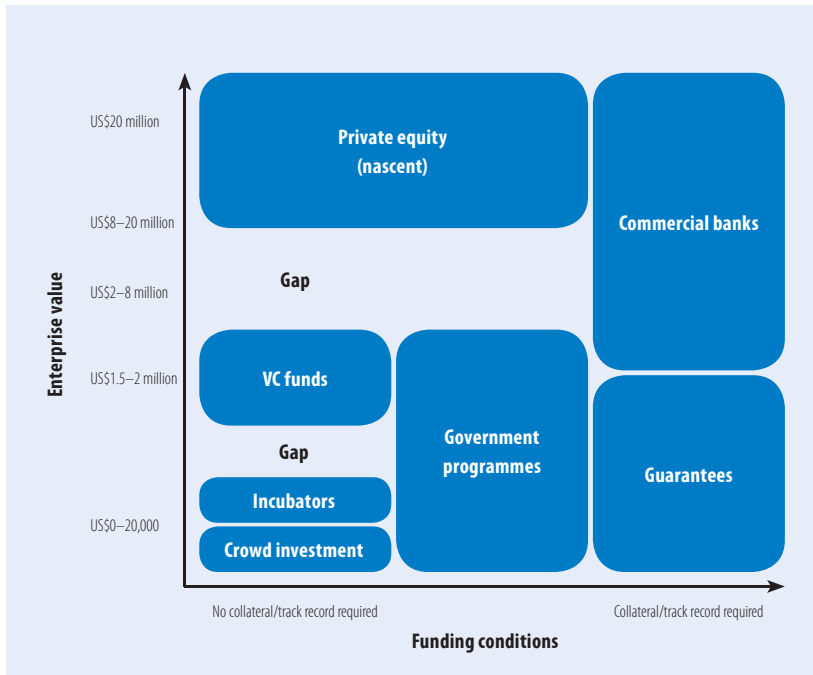
Government funds typically provide early-stage funding and include the TRA's ICT Fund, the Khalifa Fund, the Expo 2020 fund, and others. In terms of equity investment in the UAE, venture capital (VC) is the most accessible, despite the low risk tolerance of VC funds. Seed capital and angel investment are still scarce and are not yet institutionalized. Crowd-based funding and investment is a nascent form of funding within the UAE, and provides early-stage funding for start-ups.

#### *Government funds*

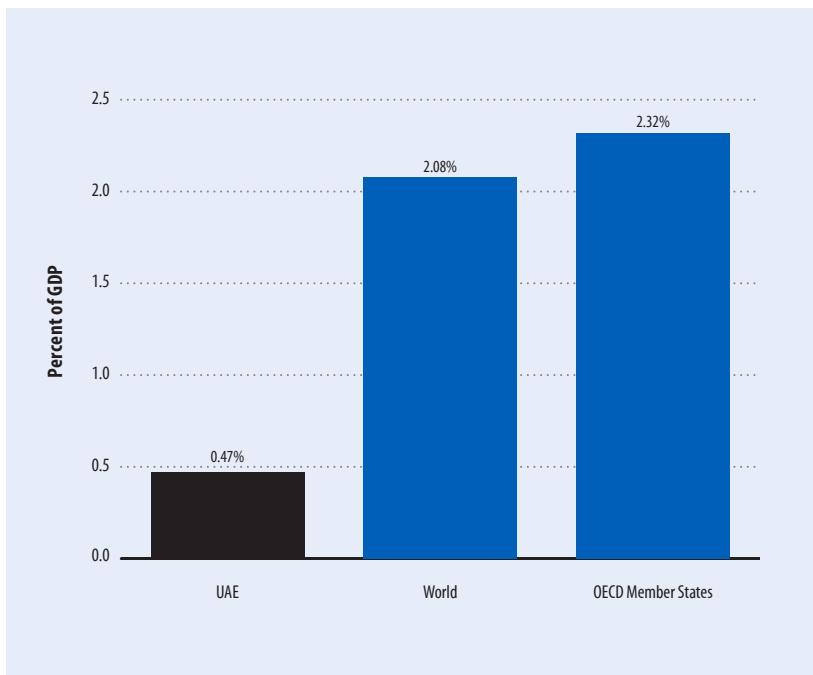
The government has undertaken many initiatives to support the funding of innovation. The TRA's ICT Fund aims to drive the country's ICT sector by providing R&D funding, scholarships for students of ICT engineering programmes, and support for incubators. Additionally, the Khalifa Fund for Enterprise Development (with approximately US\$550 million in capital) aims to develop local enterprises in Abu Dhabi by funding programmes, including microfinance and start-up loans, and by supporting entrepreneurs. The Expo 2020 Partnership Fund (€100 million) supports innovation and entrepreneurship ideas of varying size, scale, and stages of development with a focus on mobility, sustainability, and the creation of opportunities.<sup>6</sup>

#### *Seed, angel, and venture capital*

As noted earlier, government funding alone requires supplementation with private funding to meet the growing demand. In the UAE, seed capital is also available through incubators and, more recently, through crowd investment. This capital is still scarce, however, and institutionalized angel investment networks that provide smart capital are absent. This gap prevents innovators from

**Figure 3: The funding gap in the UAE innovation ecosystem**

Source: Strategy& analysis; interviews with key stakeholders in the UAE innovation system.

**Figure 4: R&D expenditure as a % of GDP (2011)**

Source: World and OECD average data: World Bank, 2013; UAE data: Strategy& analysis.

growing from the idea stage to the product stage and becoming eligible for VC funding (see Figure 3).

The number of regional VC funds actively investing in the UAE is growing.<sup>7</sup> The number of VC deals in the region has grown by 50% between 2010 and 2012, with much of it (47%) focused on technology. Based on available data, the UAE captured 7% of the total deals in the MENA region over that time period.<sup>8</sup> This trend has made Series A funding relatively accessible, although VC firms are still risk-averse and prefer to invest in established start-ups. Nonetheless, a wide range of UAE-based start-ups—such as Careem, the online chauffeur-driven car service; Glambox, the beauty products enterprise; and Souqalmal, the enterprise that enables UAE residents to compare financial services, schools, and other large purchases—have recently raised VC funding.

Beyond Series A funding, obtaining follow-on funding has been challenging, given the few private equity funds in the region focused on growth equity investments, especially within the technology sector.

#### *Crowd investment*

Crowd investment is an innovative approach that is becoming a viable source of early-stage funding for start-ups. Although crowd investment is still at a nascent stage globally, it is encouraging to see it being slowly accepted in the UAE. However, there is a need to boost it further, as new crowd-investment organizations may help address the scarcity of seed capital in the region.

Examples of crowd-investment organizations that are operating in the UAE include Zoomal, which follows the model pioneered by Kickstarter in the USA to support projects that require US\$5,000 or less; Aflannah, a source of

project-based crowd funding in the region focused on films; PiSlice, an online platform to facilitate micro-finance; and Eureka, a platform providing funding in exchange for equity.

### Technological capital

Along with human capital and financial capital, technology is critical for unlocking ground-zero innovation. Although the UAE's spending on R&D as a percentage of its GDP is still below international benchmarks, in an attempt to address the need for this essential element of innovation, the country is kick-starting several targeted and industry-focused initiatives to develop its R&D efforts, as mentioned in the following section. Furthermore, the UAE government has reviewed its laws on intellectual property and copyright to align them with international standards.

### Targeted research and development

In line with UAE's vision of a knowledge-based economy, the government's R&D efforts are targeted at specific sectors to solve its market needs and key socio-economic challenges. However, the UAE's R&D expenditure as a percentage of its GDP was 0.47% in 2011 (0.74% of non-oil GDP), below the global average of 2.08% and the OECD average of 2.32% (see Figure 4). Several players are implementing programmes and initiatives to solve this issue, including government, universities, and government-backed companies. As for the rest of the MENA region—and quite different from global trends—it is the public sector, rather than the private sector, driving efforts to encourage R&D in the UAE.

One example of a public scheme to enhance R&D is the Abu Dhabi Education Council, which pledged

US\$1.3 billion for university R&D between 2009 and 2018. In addition, the Abu Dhabi government will launch a research funding mechanism to institutionalize research activities in higher education institutions and secure sustainable funding. Abu Dhabi's plans are already resulting in the development of new R&D centres. For example, Khalifa University and Mubadala Aerospace are planning to establish an aerospace research and innovation centre at Khalifa University.

Beyond driving R&D in universities, the UAE government is keen on establishing scientific hubs to address socioeconomic issues relevant to the region. For example, TechnoPark was established as a science and technology park whose scientific activities are managed by the Dubai Institute of Technology (DIT). DIT is focused on enhancing research in five sectors: water, health, energy, engineering, and logistics and mobility. The International Center for Biosaline Agriculture is another example of an R&D centre focused on innovation specific to regional issues. It is a centre of excellence that aims to deliver agricultural and water scarcity solutions in marginal environments.

Investment in R&D has seen some success, even though most of the proposals are from the public sector. For example, Emirati companies, including Masdar Capital (a division of Masdar Institute) and ATIC, are investing in international companies with advanced technologies with the aim of potentially bringing these technologies to the region in the future.

The telecommunications sector in the UAE, through the TRA's ICT Fund, is actively sponsoring R&D projects and centres in various universities, including Khalifa University and UAE University.

The ICT Fund has dedicated AED 25 million to support the Arabic Digital Content initiative, which will develop tools and programmes to enhance Arabic content. The ICT Fund also finances Ankabout, the UAE's Advanced National Research and Education Network (NREN), offering academic institutions connectivity to other education networks around the world.

As a result of this recent R&D activity, innovative technologies are emerging in the country (see Box 1). Examples include:

- A Khalifa University professor who benefited from the university's internal research fund was granted a US patent for the world's smallest semiconductor transistor.<sup>9</sup>
- Emirati students were granted a US patent for inventing a foot-based vehicle navigation system to allow disabled people to drive cars without using their hands.<sup>10</sup>
- The Masdar Institute and Abu Dhabi National Oil Corporation (ADNOC) are developing a technology that enables commercial-scale projects for carbon capture, usage, and storage, thus minimizing carbon footprint.<sup>11</sup>
- The Masdar Institute is developing a technology to desalinate sea water using renewable energy sources, and is building the London Array, the world's largest offshore wind farm.<sup>12</sup>

### Conducive intellectual property structure

As the UAE evolves in its innovation journey, it will need to build a robust and enforceable intellectual property rights system. Recently, the government has reviewed its laws on intellectual property and copyright and harmonized them with international standards (e.g., the US Patent Office

### Box 1: UAE start-ups

The UAE's budding innovation ecosystem has inspired Emiratis and immigrants alike to become entrepreneurs, spawning several entrepreneurship success stories (see

Table 1.1). For example, UAE-based technology start-up launches are forecasted to rise at a faster rate than the MENA average between 2012 and 2015. By 2015, the UAE

is expected to witness 185 new tech-based start-ups (see Figure 1.1).

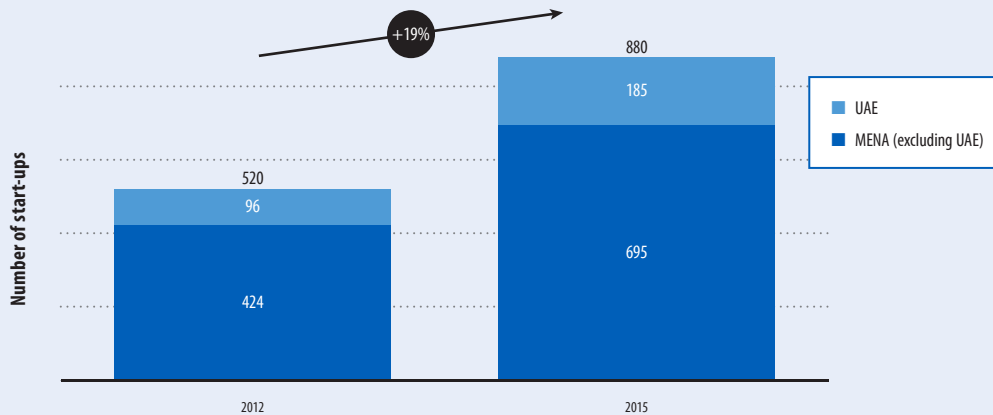
**Table 1.1: Some UAE start-ups**

| Start-up name            | Business type   |
|--------------------------|---|
| <b>Zawya</b>             | Online business intelligence platform focused on MENA; acquired by Thomson Reuters  |
| <b>cobone</b>            | Daily deals website; launched in 2010; acquired by New York-based investment firm Tiger Management for an undisclosed amount (rumored to be between US\$20 million and US\$40 million)  |
| <b>Just Falafel</b>      | Vegetarian fast-food chain incorporating worldwide tastes in the falafel recipe with a focus on health; franchise business model, going global, currently planning IPO  |
| <b>Careem</b>            | Online car-booking service; raised US\$1.7 million in a round led by STC Ventures and including angel investors   |
| <b>Glambox.me</b>        | Online beauty sampling shop and community; received US\$1.4 million from STC Ventures, R&R Ventures, and MBC Ventures to expand regionally  |
| <b>Souqalmal.com</b>     | Financial comparison website for products and services in financial services, education, and healthcare; raised US\$1.2 million from Hummingbird Ventures in its second round of funding  |
| <b>Qordoba</b>           | Language software and service solutions, including content development and website, social media application, and business document localization while integrating local customs and cultural references  |
| <b>nabbesh.com</b>       | Skill exchange platform connecting businesses with project-based and contract talent; winner of The Entrepreneur, a reality TV competition presented by du; prizes, provided by du, of AED 1 million with a further AED 500,000 in professional services. |
| <b>JadoPado</b>          | E-commerce portal with innovative approach to user experience and supply chain management   |
| <b>Bayt.com</b>          | Online job site linking job seekers with employers; Bayt.com has more than 12.5 million registered job seekers  |
| <b>The Luxury Closet</b> | Platform for buying and selling luxury items  |
| <b>propertyfinder.ae</b> | Real estate listing service   |
| <b>mumzworld.com</b>     | E-commerce platform for mothers   |
| <b>Wally</b>             | Personal finance application with more than 100,000 users   |
| <b>Eureeca.com</b>       | A crowd-investment platform where businesses can raise capital from the crowd   |

Source: Strategy& analysis.

Note: The list in this table is not exhaustive

**Figure 1.1: Number of tech start-ups in MENA (2012–15)**



Source: DIC in collaboration with Frost & Sullivan, 2012; Strategy& analysis.

Note: Of the MENA start-ups that emerged in 2005–2012, 17% were launched in the UAE.

and Patent Cooperation Treaty).<sup>13</sup> In addition, the Abu Dhabi Technology Development Committee developed the Takamul programme, which offers advisory and financial support for international patent applications. The total number of patent applications underwritten by Takamul has now risen to 66, of which 33 were underwritten in 2013 alone.<sup>14</sup>

### Lessons learned

In the UAE's innovation ecosystem, the pieces of the puzzle are falling into place. The nation now offers a number of unique advantages, including a strong education system, a diverse pool of multinational and local talent, a growing innovation culture, and a series of targeted R&D initiatives. The collaborative efforts and leadership of the government is capitalizing on these strengths while addressing the challenges that remain. The private sector is playing a critical role in supporting the government's agenda and promoting the national innovation ecosystem.

The UAE has had to overcome several challenges in its journey towards becoming a knowledge-based society. These include wide dependence on oil revenues, a small population, and a cultural aversion to taking risks. Through its own example, the UAE can offer several recommendations to countries looking at commencing on their own innovation journey:

- **Institutionalize top-down aspirations.** A clear government vision that visibly communicates the importance of innovation on the government agenda creates a top-down push for innovation and prioritizes key focus areas.
- **Unlock telecommunications operators' potential role in the innovation ecosystem.** Telecommunications operators are in a position to champion the development of national innovation ecosystems and can play a key role in catalyzing the human, financial, and technological factors in innovation.
- **Attract and promote talent.** Talent is critical for the development of a sustainable innovation ecosystem. Although it is important to fill capability gaps in the short term by attracting and supporting immigrant talent, fundamental improvements through longer-term initiatives to the system for training domestic talent are essential. The UAE is doing this by overhauling its education system and making some fundamental changes to the culture so that the population will embrace innovation.
- **Provide and promote smart capital at all funding levels.** Different types and amounts of funding are required at various stages of innovation evolution depending on its risk/return profile, whether this innovation is taking place in a start-up or a larger enterprise. Fostering an innovation ecosystem requires ensuring adequate early-stage funding, venture capital, and growth equity. Any gaps in these funding sources can break the overall system.
- **Partnerships, partnerships, partnerships.** Various stakeholders are required to work simultaneously and in concert for innovation to happen. This includes entrepreneurs, government entities, educational institutions, funds, the media, entrepreneurial organizations, and others. Unlocking innovation requires getting these disparate parties with distinct agendas to work together to drive the same objective.
- **Limited technical talent.** The number of students going into STEM fields (science, technology, engineering, and mathematics) in the UAE is still low compared with international standards. As a result, there are limited specialists with deep technical skills (e.g., developers, user experience experts) who can contribute to ground-zero innovation.
- **Restricted R&D budgets in the private sector.** Although the UAE government has put several initiatives in place to stimulate R&D activities, the overall spending in the country still lags behind because of limited spending by the private sector.
- **Environmental sustainability.** The UAE needs to ensure that its rapid pace of economic development is sustainable. This entails lowering the country's ecological footprint and effectively addressing climate change to sustain a natural environment conducive to innovation that will continue attracting foreign talent. The development of Masdar City and investment in solar parks, by both the government and the private sector, are steps in the right direction.
- **Increased prevalence of health issues.** High incidence of diabetes, early onset heart conditions, and widespread obesity are three serious health issues currently facing UAE nationals. A healthy mind goes hand in hand with a



healthy body, and thus addressing these issues and promoting healthy lifestyles is critical for supporting the development of a progressive, knowledge-based economy. This shift has already started through government pledges and movements by the private sector such as du's Every Step Counts initiative.

Although the UAE's innovation ecosystem is still evolving, policies that address these issues—issues of clear vision, talent, funding, and cooperation among stakeholders—are an essential part of what has worked for the UAE. Such policies will repay the effort needed to implement them with an environment that is more conducive to innovating, and thus to reaping the associated benefits for a nation's people.

## Notes

- 1 The data in the chapter are all from the UAE *Yearbook 2013* unless specified otherwise. The yearbook is available at <http://www.uaeyearbook.com/yearbook2013.php?lang=ENG>; see National Media Council, 2013. Knowledge-based industries include financial services, manufacturing, restaurants and hotels, transport, storage and communication, and real estate and business services.
- 2 *Vision 2021*, p. 1; see <http://www.vision2021.ae/downloads/UAE-Vision2021-Brochure-English.pdf> UAE-Vision2021-Brochure-English.pdf.
- 3 World Economic Forum, 2013.
- 4 Bayt.com, 2014.
- 5 The Economist, 2013.
- 6 Wam, 2013.
- 7 Examples of these funds are Middle East Venture Partners, MBC Ventures, STC Ventures, and Wamda Capital.
- 8 MENA Private Equity Association, 2013.
- 9 Khalifa University, News Details, 2014.
- 10 Kazmi, 2013.
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- 14 Abu Dhabi Technology Development Committee, 2013.

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## Retaining Top Innovators: An Essential Element of Competitiveness for Developing Countries

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The inclusion of indicators for human capital development as a core feature of innovation measurement is an acknowledgement of the importance of highly skilled innovators to successful innovation, especially to high-technology innovation. However, such indicators tend to focus on the conventional supply channels of secondary and tertiary education, overlooking the significant influence of migration.

Openness and permeability are fundamental and essential properties of a functional national system of innovation (NSI). In particular, the mobility of talented people is critical to a system's capacity for learning, adapting, and innovating. Paradoxically, policy support for migration in developing countries presents a difficult balancing act. Although facilitating a developing economy's human capital growth through immigration and international training opportunities, policy support for migration can lead to the net emigration of scarce skills. Further complicating this issue, the most productive innovators are also the most mobile. In this chapter, we argue that the retention of this cohort of innovators is a neglected but important policy objective for developing countries.

The first section of the chapter outlines the disproportionate contribution that exceptional innovators and researchers make to the

NSI, and notes that these unusual individuals also tend to cluster geographically. The importance of policies that focus on the retention of high-performance innovators and their clustering within specific locations is underlined.

In the chapter's second section, the principles of innovation-led growth and its centrality to the economic development of middle-income countries are discussed. In particular, we refute the argument that innovation—especially radical innovation—should not be a priority and that developing countries should instead focus on the acquisition and absorption of readily available existing technology. Using South Africa as an example, we argue that the loss of highly productive researchers and innovators is a critical issue, and that achieving innovation-led growth will require a full spectrum of researchers and innovators.

### The scarce 'human factor' in innovation

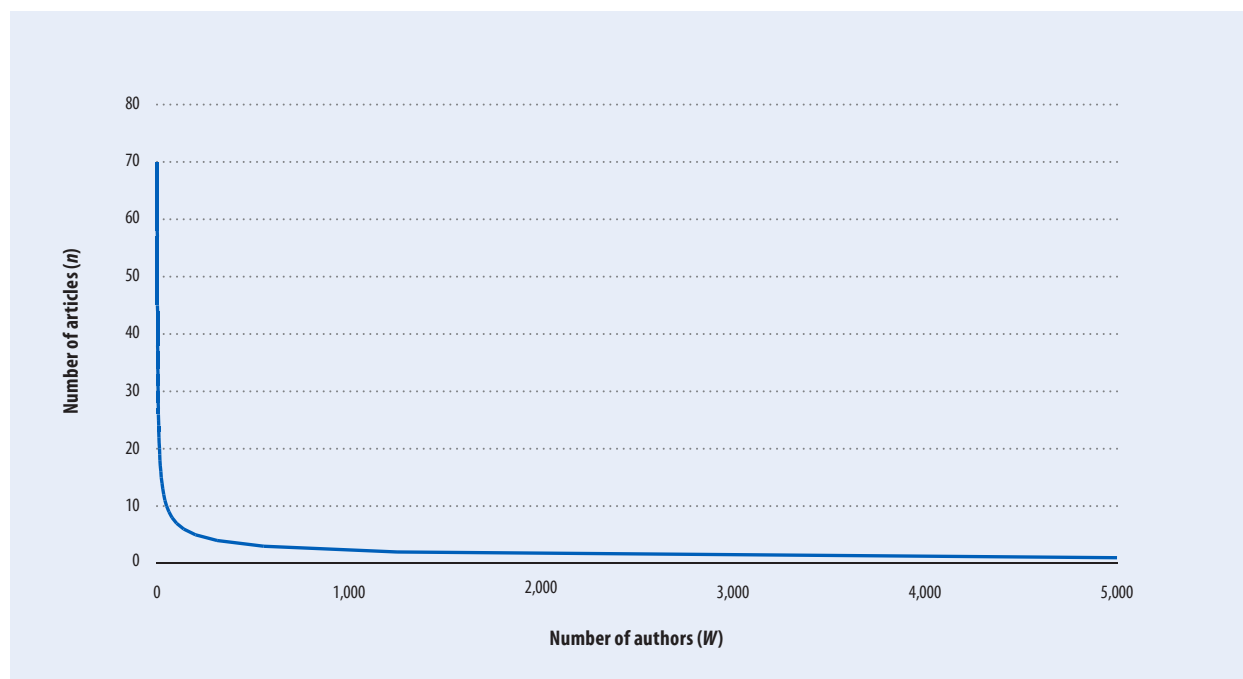
In order to study the impact of policies that affect an economy's innovative capacity, we look first at the people who actually perform the tasks associated with innovation.

### Research and innovation outputs per individual vary widely

Patterns of research and innovation productivity at the level of the individual are highly unequal. As a

consequence, research and innovation productivity is skewed, with a relatively small number of contributors accounting for a major portion of the outputs. This empirical observation has been studied over a long period and by a number of authors, including Lotka (1926) and Pao (1985), who have concluded that only a small number of researchers account for a major proportion of the overall output. It is these individuals who change the rules of the game, who create new technology paradigms, and who provide the necessary science that leads to technological revolutions.

This inequality exists across a wide range of fields and output indicators; we consider here three examples in more detail. In the first example, we look at the frequency of scientific publications by author. These data follow a skewed distribution, as originally noted and described mathematically by Lotka (see Figure 1). This mathematical formulation, which became known as *Lotka's Law*, states that the number of authors,  $W$ , making  $n$  contributions is about  $1/n^2$  of those making a single contribution.<sup>1</sup> In other words, 10% of authors produce 50% of the total publications, and the top 5% of authors account for 39% of publications. Subsequent studies have shown that Lotka's Law overestimates the productivity of high-output researchers and that the distribution

**Figure 1: Lotka's Law on publication frequency per author**

Source: Curve developed from Lotka's Law (Lotka, 1926).

is more accurately modelled using a standard Pareto distribution with a Gini coefficient of about 0.5.<sup>2</sup> Even under the more conservative estimates, however, it is still apparent that 20% of researchers produce 50% of the total output, and 8% produce 25% of the contributions.<sup>3</sup>

In a second example, also from the research literature, it is noted that the citation rates of scientific articles follow an exponential distribution, as shown in Figure 2. The graph shows that only a small proportion of total articles (less than 0.001%) achieve a citation rate of more than 400 cites per article. On the basis that citation rates reflect the outcome of a specific publication on the research community, it is apparent that only a small number of articles—and, by implication, a small number of authors—significantly influence the global research community.

In the final example, we consider the unequal distribution of university licensing income in the United States of America (USA) (see Figure 3). This is an indicator of university-based innovation rather than research performance. It is clear that a handful of US institutions excel in this area, a feat that is considered to be the consequence of the clustering of top inventors working within well-resourced institutions and supported by top administrators, technology transfer staff, and research students. The graph also reinforces the notion that innovation output at an institutional and national level can be influenced by adopting specific policies aimed at attracting and retaining an active group of highly productive inventors. Unfortunately, these data are not available for developing countries, although it is suspected that the results are likely to be even more pronounced in this group, with even

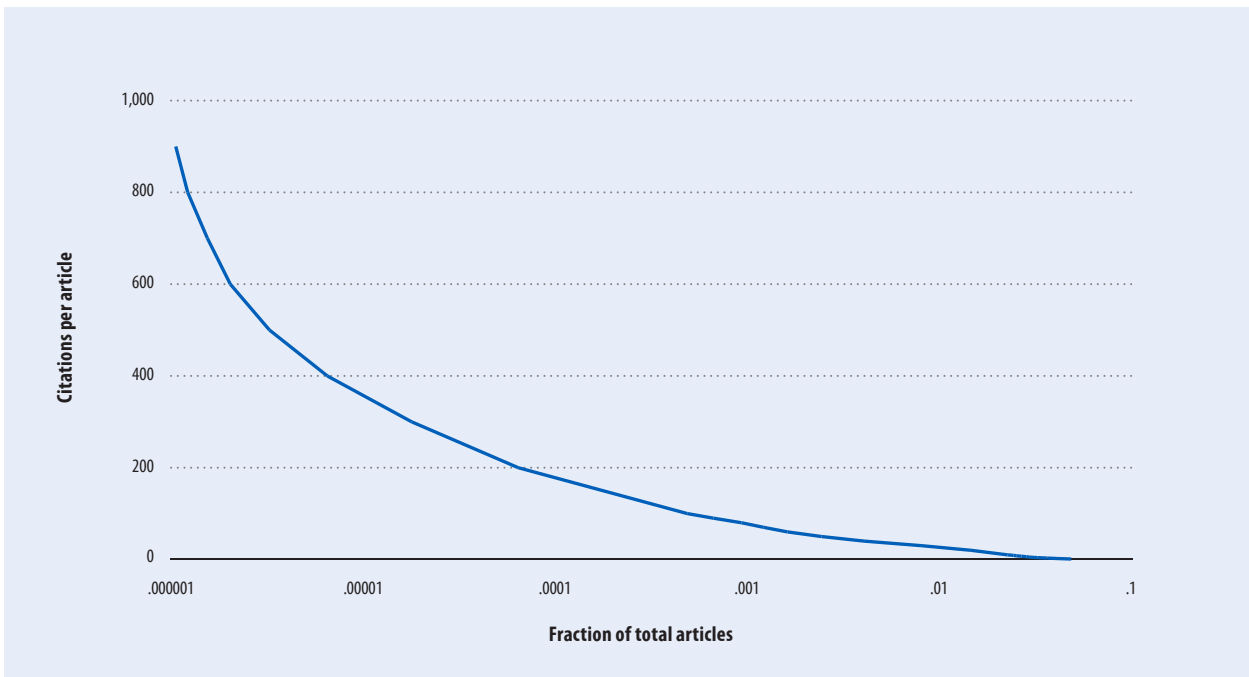
fewer universities generating the total licensing income than is the case in developed countries.

The above examples have been chosen to cover output, outcome, and impact indicators. All three examples illustrate clearly the initial proposition: high-impact innovators are a small and elite cohort.

#### **The elite cohort clusters in narrow geographic locations**

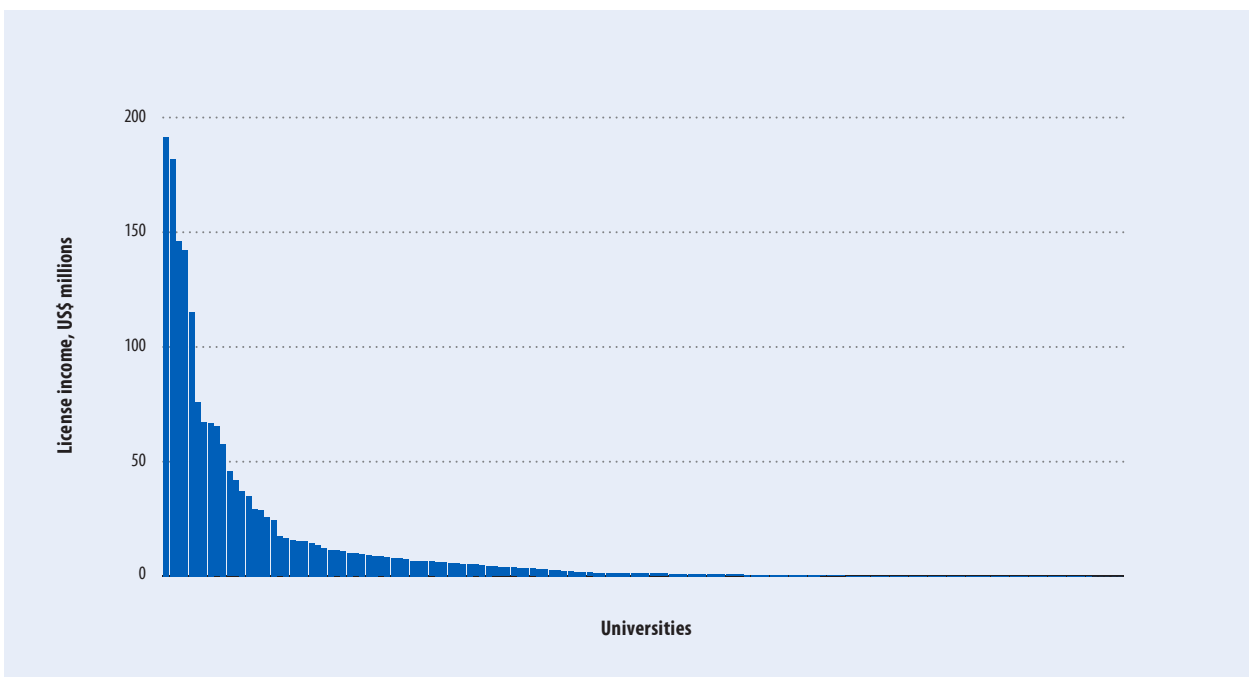
A second characteristic of research and innovation performance is that, in addition to unequal distribution at the level of the individual, performance is also geographically unequal. Talented innovators tend to cluster in the same places, even at the same institutions. This pattern has occurred throughout history and around the world, as can be found in the chronicles of China, Egypt, Greece, India, and Italy, and more recently Vienna. Eric Kandel is well known as the neuropsychiatrist who

Figure 2: Distribution of citations per article



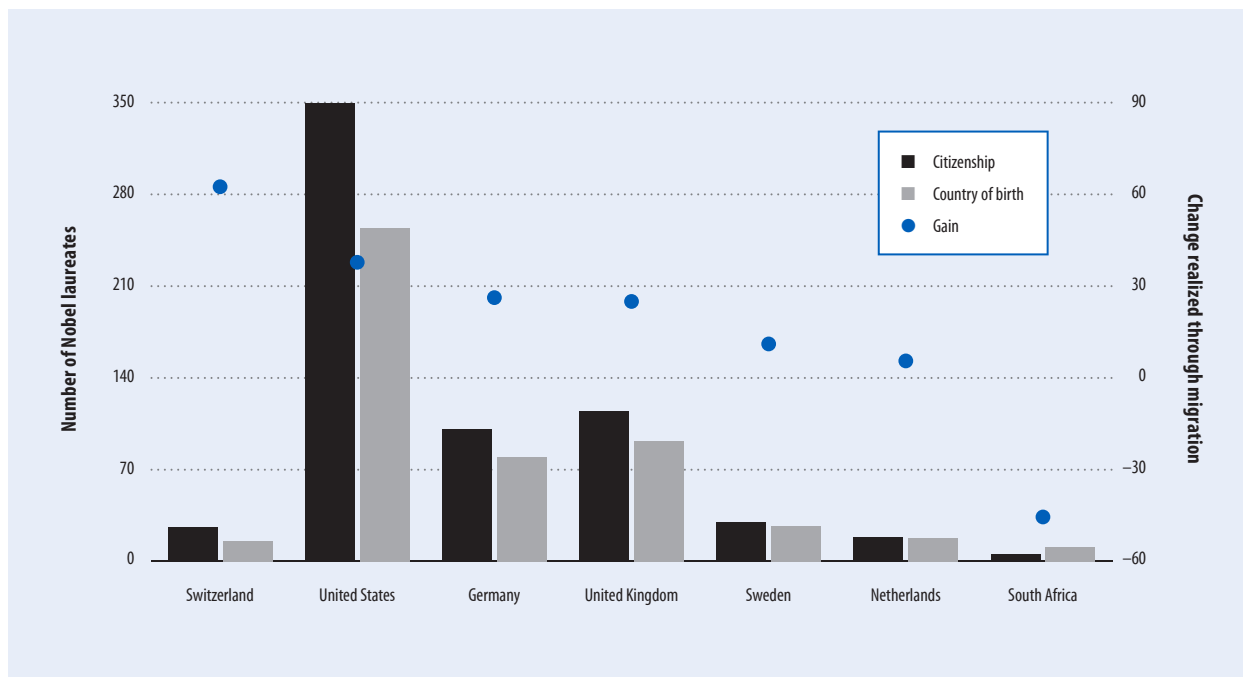
Source: Radicchi et al., 2008.

Figure 3: Distribution of licensing income of US universities (FY 2011)



Source: AUTM, 2013.

Figure 4: The impact of mobility on the citizenship of all Nobel laureates, 1901–2013



Source: [http://en.wikipedia.org/wiki/List\\_of\\_countries\\_by\\_Nobel\\_laureates\\_per\\_capita](http://en.wikipedia.org/wiki/List_of_countries_by_Nobel_laureates_per_capita); Schmidhuber, 2010.

unravelling the physiological basis of memory storage, for which he received the Nobel Prize in 2000. He is also an expert on Viennese history of the end of the 19th century and the beginning of the 20th, a period of remarkable intellectual progress referred to as the 'Age of Insight'.<sup>4</sup> Bringing together a diverse range of people, Vienna supported the blossoming of science and culture, including the work of the physicians Sigmund Freud, Carl von Rokitansky, and Johann Schnitzler; the artists Gustav Klimt, Oskar Kokoschka, and Egon Schiele; the philosopher Ludwig Wittgenstein; and the architects Adolf Loos and Otto Wagner.

Many cities and indeed countries may strive to repeat Vienna's extraordinary output, and Kandel is not the only scholar to have sought an explanation for its distinction. Interestingly, one of the important contributors to this phase of extraordinary insight and progress

is considered to be migration, as the city drew intellectuals from all over Central Europe during this period. The combination of a multi-disciplinary and multi-ethnic population with an active cosmopolitan life within the social spaces of the Viennese coffee houses facilitated a powerful cross-fertilization of ideas, the outcomes of which have continued to influence the practice of medicine, psychiatry, music, and other disciplines.

Clusters of high output and performance repeat themselves across time and place as these factors of education, multi-disciplinary discourse, quality of life, human migration, and resources are aligned to the required extent. Although the appearance of these clusters may seem random with respect to time and geography, countries and institutions can and do intervene to influence the likelihood of research and innovation excellence. For instance, many countries have specific policy

instruments that appoint internationally ranked researchers to secure, tenured, university-based positions. In South Africa, the Research Chairs Initiative was established in 2006 by the Department of Science and Technology as a strategic intervention aimed at reversing the attrition of research and innovation capacity in the country's higher education institutions and increasing the number of world-class researchers in the country. The initiative has sought to provide well-structured employment packages that include making research grants, facilities, and post-graduate students available to top researchers. By March 2012, 152 chairs had been awarded, of which 89 had been operationalized.<sup>5</sup>

This initiative, together with the Department of Education's performance management framework for South African universities, can be said to have been instrumental in successfully addressing the stagnation in scientific publications by

**Table 1: Well-known South African entrepreneurs, in chronological order of innovation (1960s onwards)**

| Entrepreneur        | Industry sector          | Company                         | Date of innovation | Birth         | Residence               |
|---------------------|--------------------------|---------------------------------|--------------------|---------------|-------------------------|
| George Pratley      | Adhesives                | Pratley (Pty) Ltd               | 1960s              | South Africa  | South Africa (deceased) |
| Ferdinand Chauvier  | Leisure and hospitality  | Kreepy Krawly                   | 1974               | Belgian Congo | USA                     |
| Herbert Sheffel     | Rail transport           | South African Railways          | 1970s              | South Africa  | Unknown                 |
| Sol Kerzner         | Hotel and tourism        | Sun International               | 1980s              | South Africa  | USA                     |
| Patrick Soon-Shiong | Biotechnology and health | Abraxis BioScience              | 1991               | South Africa  | USA                     |
| Mark Shuttleworth   | Information technology   | Thawte                          | 1995               | South Africa  | United Kingdom          |
| Elon Musk           | Space and automobiles    | PayPal, Zip2, SpaceX, and Tesla | 1999               | South Africa  | USA                     |
| Pieter de Villiers  | Information technology   | Clickatell                      | 2000               | South Africa  | USA                     |
| Roelof Botha        | Information technology   | PayPal and Sequoia Capital      | 2001               | South Africa  | USA                     |
| Percy Amoils        | Medical (ophthalmic)     | Cryoprobe                       | 2002               | South Africa  | South Africa            |
| Gavin Hood          | Film (Tsotsi)            | Not applicable                  | 2005               | South Africa  | USA                     |
| Paul Maritz         | Information technology   | VMware (CEO)                    | 2008               | Zimbabwe      | USA                     |
| Sindiso Khumalo     | Textiles and design      | Sindiso Khumalo                 | 2009               | South Africa  | United Kingdom          |
| Chris Pinkham       | Information technology   | Amazon EC2 and Nimbula          | 2010               | South Africa  | USA                     |
| Willem van Biljon   | Information technology   | Amazon EC2 and Nimbula          | 2010               | South Africa  | USA                     |

Source: Survey on Innovation Behaviour of the Population conducted by the Institute for Statistical Studies and Economics of Knowledge (ISSEK)/National Research University – Higher School of Economics (HSE), 2011.

South African researchers over the period 1986 to 2004; certainly the output was relatively unchanged over the period 1994 to 2004 (from 3,500 to 4,000 publications), but it then rose steeply to over 9,750 publications by 2012.<sup>6</sup> Local institutions have now adopted strategies that focus on attracting the best academics, leading to a more robust employment market.

Even such proactive policies, however, have been insufficient to retain South Africa's top talent. Historical patterns of mobility have shown that leading researchers and entrepreneurs are more likely to pursue their careers in the USA or the United Kingdom (UK) (see Table 1 and Figure 4). For instance, of the five South African Nobel laureates who have received their prize for chemistry or medicine, all now live in other countries, and South Africa is the only major Nobel country (with more laureates than any other developing countries, and indeed more than many developed ones) that has seen a net emigration of prize winners (see Figure 4).

According to the table of top South African entrepreneurs (see Table 1), only one is still resident in the country. Although South Africa has an impressive reputation for Nobel recipients and entrepreneurs—including the 2013 laureate Michael Levitt and the USA-based space entrepreneur Elon Musk—it has not been successful in retaining this talent and providing longer-term career opportunities. The general pattern is that such talented individuals have migrated to other countries, especially the USA and the UK.

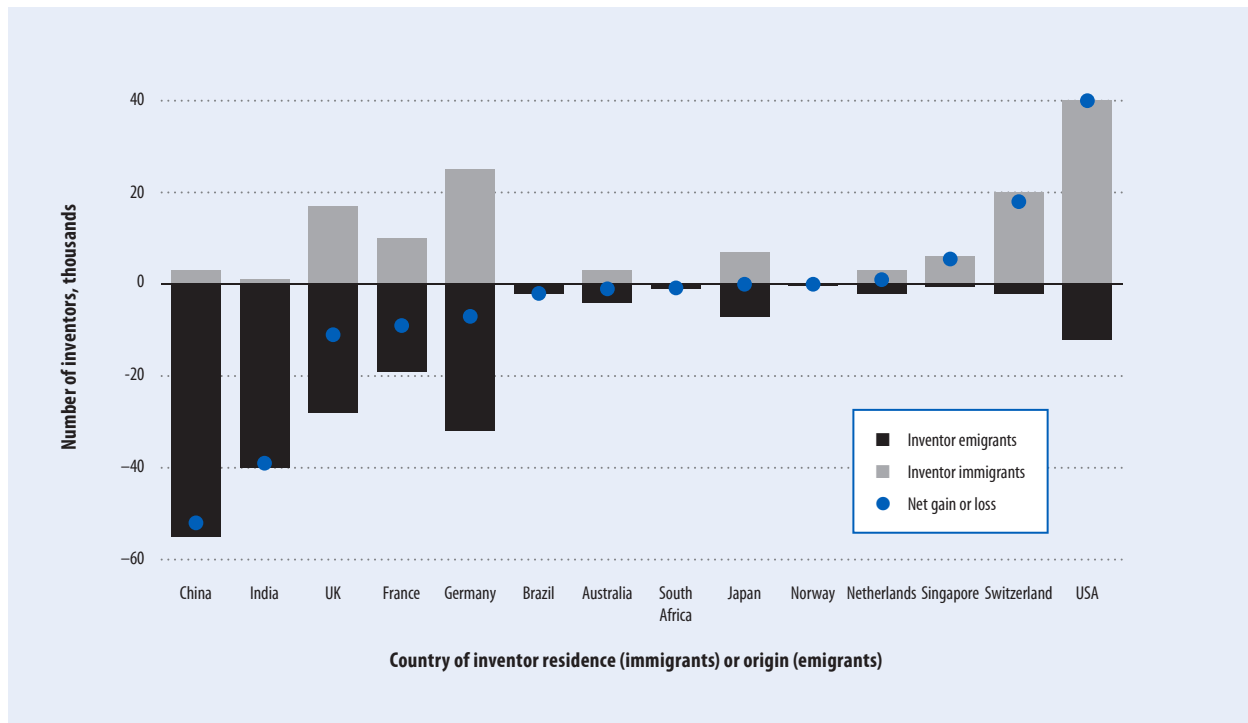
The migration of innovators from developing to developed countries is also evident in statistics on inventions, where it has been shown that inventors in developed countries such as the USA and Switzerland are more likely to be immigrants than natives (see Figure 5), and these inventors are more frequently cited in the patent literature. The ratio of immigrant to total inventors is especially high in Swiss and US universities, where up to 50% of all university inventors are immigrants.<sup>7</sup>

The capacity of some countries to attract and support higher levels of extraordinary talent, allowing it to develop and flourish, is a consequence of many factors that include funding, facilities, international migration, strong local networks and clustering, and the 'Sanger factor' (see Box 1). The probability that the exact circumstances of education, funding, creative thinking, and other framework conditions will occur simultaneously at a specific location and point in time is low despite the efforts of governments to provide such conditions, and countries vulnerable to skills emigration should incentivize this cohort to remain in their countries of birth.

#### **Implications for developing countries: How to train and retain the best human capital**

Although it may seem surprising, the relevance to innovation policy of the two characteristics of research and innovation, as described in the previous section and broadly named

Figure 5: Immigrant vs. emigrant inventors, 2001–2010



Source: CDIP, 2013.

Note: In the USA there are 194,000 immigrant inventors, for a net gain of 183,000 inventors.

as the disproportionate productivity of human capital, is often overlooked or ignored in developing countries. Although the need to attract and retain top talent in developed countries has been known and practiced over a long period, it is frequently argued that developing countries should pursue priorities other than the provision of research and innovation infrastructure necessary to retain the elite cohort. In this section, we provide a limited overview of technology policy for developing countries and the two sides of this debate. This is followed by a more detailed discussion of the conditions in South Africa, which illustrates why the loss of human capital is a major problem and hinders efforts to improve innovation output.

There are many views on the optimal economic growth strategy for developing countries, and for

every theory there is an exception or even a counterargument. One of the key debates concerns the proper balance between research and development (R&D) and technology transfer/adaptation. Innovation is both an inventive (creation of new knowledge) activity and an imitative (reworking of the existing stock of knowledge) one, with the latter being the dominant mode of innovation within firms. These two aspects have also been referred to as the ‘learning face’ (which acquires and absorbs technology) and the ‘innovative face’ (which seeks and applies new knowledge). Some studies argue that, in developing countries, the knowledge-using or learning face is quantitatively more important because it draws on the huge stock of existing knowledge that can be exploited for productive activity.<sup>8</sup>

The importance of imitative innovation can be extended to the point that public R&D and radical innovation is no longer a policy focus of developing countries.<sup>9</sup> But this approach does not allow developing countries to take full advantage of their own potential—imitative innovation alone is not sufficient. Instead, such countries should seek to adapt global knowledge to local conditions in order to solve local problems and in pursuit of international markets. They should develop the capability to enable the adoption of newer and better technologies than are currently in use, especially through experiential training for recent graduates, providing a type of experience that is often not available elsewhere. They should develop the necessary human capital to undertake incremental innovation in market-facing enterprises



### Box 1: Framework conditions for elite innovators

The following factors are considered essential framework conditions for the emergence of elite innovators:

- **The human factor.** Innovation is undertaken by people who are empowered with the necessary education, training, and skills that facilitate the development of innovative products and services.<sup>1</sup>
- **Public research and development (R&D).** The role of the public sector and the state in supporting innovation is not restricted to providing the necessary policies and incentives for innovation to prosper. The public sector also plays an important role in making the type of innovative breakthroughs from which the private sector is itself able to innovate, thereby driving economic growth and development.<sup>2</sup>
- **Culture.** The openness of societies to new technologies and the pace of innovation itself can be significantly influenced by social culture. Societies that are resistant to innovation, have low levels of trust, impede mobility or migration, and are opposed to collaboration are less likely to be entrepreneurial and produce top innovators.
- **Intellectual property regulation.** A suitable intellectual property regime, which can achieve a balance between the protection of intellectual property rights and support for open innovation, is essential for productive innovation.<sup>3</sup>
- **Advanced information technology ecosystem.** Rapid and reliable communication has become essential for developing and sustaining innovation networks.
- **Support for new firms.** Small and micro-enterprises, particularly new firms, are important for the commercialization of new ideas that can transform these ideas into jobs and wealth. Governments should implement a wide range of measures to support entrepreneurs. These measures include imposing a favourable tax climate, making bankruptcy measures more lenient, and providing incentives for research.<sup>4</sup>

- **The Sanger factor.** This condition refers to the comment made by Fred Sanger on the award of his second Nobel prize, who commented that “It’s much more difficult to get the first prize than to get the second one . . . because if you’ve already got a prize, then you can get facilities for work, and you can get collaborators, and everything is much easier.”<sup>5</sup> In other words, success breeds success: talented individuals who receive recognition for an initial achievement are soon rewarded with offers of money, facilities, and prestigious, tenured posts in the expectation of equivalent outputs in the future.

#### Notes

1. OECD, 2010.
2. Mazzucato, 2013.
3. OECD, 2010.
4. OECD, 2010.
5. Gellene, 2013.

(both state-owned and private). And, finally, they should identify, in-license, and adapt technology while paying special attention to supporting the innovation activities of domestic private companies and state-owned entities.<sup>10</sup>

This perspective has been strengthened by the discussion of innovation-led growth, particularly the strategy that has become known as the ‘Beijing Consensus’.<sup>11</sup> China’s commitment to a policy of innovation-led growth and the consequent substantial investment in R&D, as a route to economic development and a means of exiting poverty, has been evident since the early 1990s when China began to invest at a level at least three times higher than

that of countries with a similar GDP per capita, such as Argentina and South Africa.<sup>12</sup> Since 1995, R&D spending in China has increased at a stunning annual rate of nearly 19% and in 2010 reached a huge US\$178 billion PPP<sup>13</sup>—the second largest R&D spending rate worldwide and almost double the rate of a basket of comparator countries. The success of this investment supports the arguments of the Beijing Consensus and the notion that innovation and technology has supported ‘super-fast change in some sectors’.<sup>14</sup>

The rapid growth as a consequence of China’s approach has prompted South Africa to adopt a similar innovation-led growth strategy.<sup>15</sup> Although it may be premature

to assess the outcome of this strategy, it is clear that South Africa is, so far, failing to grow its high-technology industries and remains locked in a resource-based economy. The limited response to several public-sector innovation initiatives, including the Ten Year Innovation Plan and the National R&D Strategy,<sup>16</sup> raises questions about the factors missing in South Africa’s innovation strategy. Using the success factors mentioned earlier (see Box 1) as an analytical checklist, it is apparent that South Africa has made progress in the following areas:

- overcoming extremely poor framework conditions of the 1990s;<sup>17</sup>

- providing strong government support for basic science projects, such the Square Kilometre Array project,<sup>18</sup> and public-sector R&D in general; and
- facilitating a high proportion of business enterprise expenditure on R&D relative to the gross expenditure on R&D.

However, South Africa has weaknesses in the following important areas:

- human capital development falls short; this is the most significant weakness of the country's NSI;<sup>19</sup>
- trust among business, labour, and government is lacking; as a result, business is insufficiently involved in the development of the NSI and there is not a strong culture of innovation;<sup>20</sup>
- system-level monitoring is inadequate to inform necessary strategic interventions;<sup>21</sup> and
- the retention of top innovators is inadequate, thereby limiting the impact from this elite cohort (as demonstrated in this chapter). On the assumption that their contribution to the overall innovation output follows a pattern similar to the Pareto distributions mentioned earlier, it is estimated that South Africa's failure to retain the top 5% of researchers and entrepreneurs slices 20% from its potential innovation output.

These weaknesses suggest a number of interventions South Africa could make to address the retention issue. A key starting point is the shortfall in human and social capital. The country needs to actively improve the overall skills level in the economy and build trust between business and government. Policy makers must understand the factors

that drive entrepreneurs abroad in more detail, and must address these issues with directed policies that secure better retention. They must improve partnerships among the universities, the public research institutions, and the business sector in order to improve the spillovers from publicly funded R&D. The latter intervention is particularly important given the increasing levels of support for R&D and the relative stagnation in innovation output.

### Conclusion

South Africa, alongside other middle-income countries, faces major challenges as it attempts to diversify its economy from a traditional reliance on mineral extraction and primary industry. In charting the way forward, it has adopted the National Development Plan 2030, which has set a clear policy agenda together with many ambitious targets.<sup>22</sup> The Plan is based on the principles of innovation-led growth and clearly identifies the need to improve the quality of education, to support skills development in the population, and to encourage innovation as key enablers for economic development.

Although the country could address the general standard of education and skills development for the population as a whole, this intervention may not succeed in raising the level of innovation, which appears to respond in a non-linear manner to the standard inputs of public expenditure on R&D and education. The skewed distribution of innovation performance, as outlined in this chapter, may be an important consideration for the new policy agenda. It is not only the number of scientists and engineers per 10 million population that could stimulate higher rates of innovation and increase the contribution of

high technology goods and services. The support and retention of elite innovators, high-output academics, and productive entrepreneurs should also be ensured. A failure to address the ongoing emigration of this cohort could slice 20% from its potential innovation output and strip the country of essential skills to meet its transformative needs.

### Notes

- 1 Lotka, 1926.
- 2 Kyvik, 1989.
- 3 Kyvik, 1989.
- 4 Kandel, 2012.
- 5 National Research Foundation, 2012.
- 6 Pouris and Pouris, 2012.
- 7 CDIP, 2013.
- 8 Arnold and Bell, 2001; Cohen and Levinthal, 1989.
- 9 Arnold and Bell, 2001.
- 10 Arnold and Bell, 2001.
- 11 Ramo, 2004.
- 12 Walwyn, 2008.
- 13 OECD, 2012.
- 14 Ramo, 2004.
- 15 National Planning Commission, 2011.
- 16 For the Ten Year Innovation Plan, see Department of Science and Technology, 2007; for the National R&D Strategy, see Department of Science and Technology, 2001.
- 17 OECD, 2007.
- 18 Hanekom, 2013; Sapa Reporter, *Times Live*, 2013; Sapa Reporter, *TechCentral*, 2014.
- 19 Department of Science and Technology, 2012.
- 20 OECD, 2007.
- 21 Department of Science and Technology, 2012.
- 22 National Planning Commission, 2011.

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## The Moroccan Diaspora and its Contribution to the Development of Innovation in Morocco

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Morocco has always been a cross-roads, a place where people are mobile and aware of other cultures. Its location on the borders of three distinctive worlds—the Arab world, North Africa, and Europe—and alongside both the Atlantic Ocean and the Mediterranean Sea has meant that its people can embrace international contact and cultural, economic, and scientific exchange.

Today the mobilization of a highly educated workforce is an important part of international migration strategies. However, the lack of qualified human resources in a globalized and competitive marketplace that requires knowledge and know-how generates new reasons for Morocco's population to be mobile. Indeed, the expertise of Moroccans living abroad can answer specific needs of the nation's emerging sectors.

This chapter aims to describe some of the programmes that have been put in place to assist Moroccans Living Abroad (MLAs) in order to enhance the development of innovation in Morocco. The chapter examines the production of intellectual property, with a focus on patents by the MLA population as a proxy for the development of innovation, and draws some lessons about what

has worked in Morocco that can be applied to other countries at a similar level of development.

The examples given here are presented to demonstrate some approaches that have been successful for Morocco in the hopes that they will prove useful for other developing countries confronting the same issues. These examples are offered in the same spirit of exchange that is found to be so useful and necessary to the successful implementation of innovation strategies.

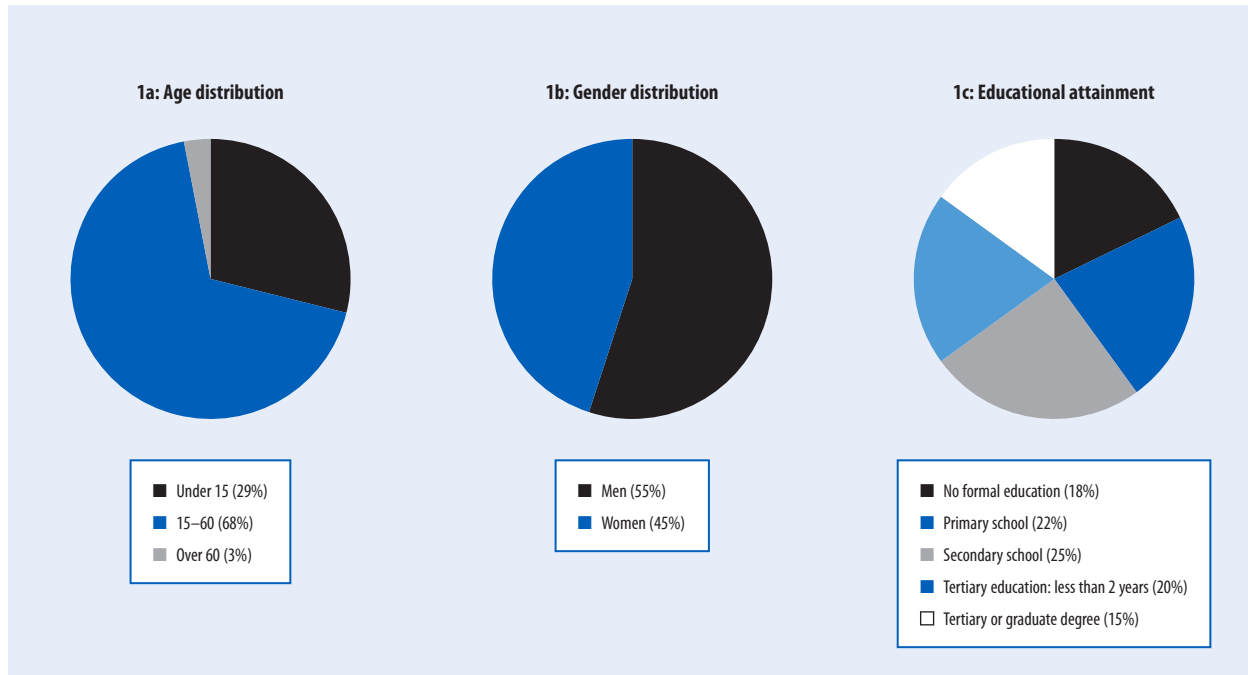
### Moroccans throughout the world

In 2012, about 4.5 million Moroccans—15% of its total population—were living abroad. Although this group was originally comprised of men who migrated on their own after World War II, when Europe needed manpower for reconstruction, a recent move towards family reunification has meant that wives have now joined their husbands. The feminization of the group of MLAs has continued, with the migration of single women reflecting the evolving emancipation of women in Moroccan society.

According to a survey conducted in 2005 by the High Commissioner for the Plan, the age pyramid among

MLAs shows a strong predominance of young and working-age people.<sup>1</sup> Men comprise 55% of this group, with women making up 45% (see Figure 1a, 1b). This gender distribution represents the feminization of migration over time. Although these data are from 2005 (no newer data are available), nevertheless they indicate a trend.

Highly skilled Moroccans (those with a tertiary or graduate degree) make up 15% of the Moroccan Diaspora (Figure 1c). This comes to more than 400,000 Moroccans living abroad who have either a bachelor's or graduate degree. The trans-generational socioeconomic ascent of the immigrant population, especially considering the flow of graduates of Moroccan higher education out of the country, is poised to create a high concentration of highly skilled workers among those living abroad. It should be noted that these people consist not only of MLAs who had already received their bachelor's degrees in Morocco when they emigrated, but also includes a generation of their children who were educated in the new country of residence. It is especially noteworthy that the share of persons with a university diploma is twice as high among the MLAs as it is among the domestic Moroccan

**Figure 1: Characteristics of Moroccans living abroad, 2005**

Source: High Commissioner for the Plan, 2005.

population. It is important to point out here that all programmes put in place in Morocco aim to involve highly educated MLAs in contributing to the development of Moroccan innovation.

More than 32,000 MLAs are senior executives or professionals in the private sector. They are mainly researchers, research and development (R&D) managers, university professors, and business people.

The Moroccan Diaspora is mainly located in France (32%), Spain (20%), Italy (12%), and other European countries, Arab countries (6%), the United States of America (USA) and Canada (together 3%), and some African and Asian countries (Figure 2). It would be useful to look at data about the skill level of the MLAs for each country, but these data are unfortunately not available.

### Professionals and the innovative output of the Moroccan Diaspora

Identifying the skilled members of the Diaspora who contribute actively to innovation is extremely difficult because the data are often simply not available. For example, scientific publications do not mention the nationality of the authors, and some authors have more than one nationality.

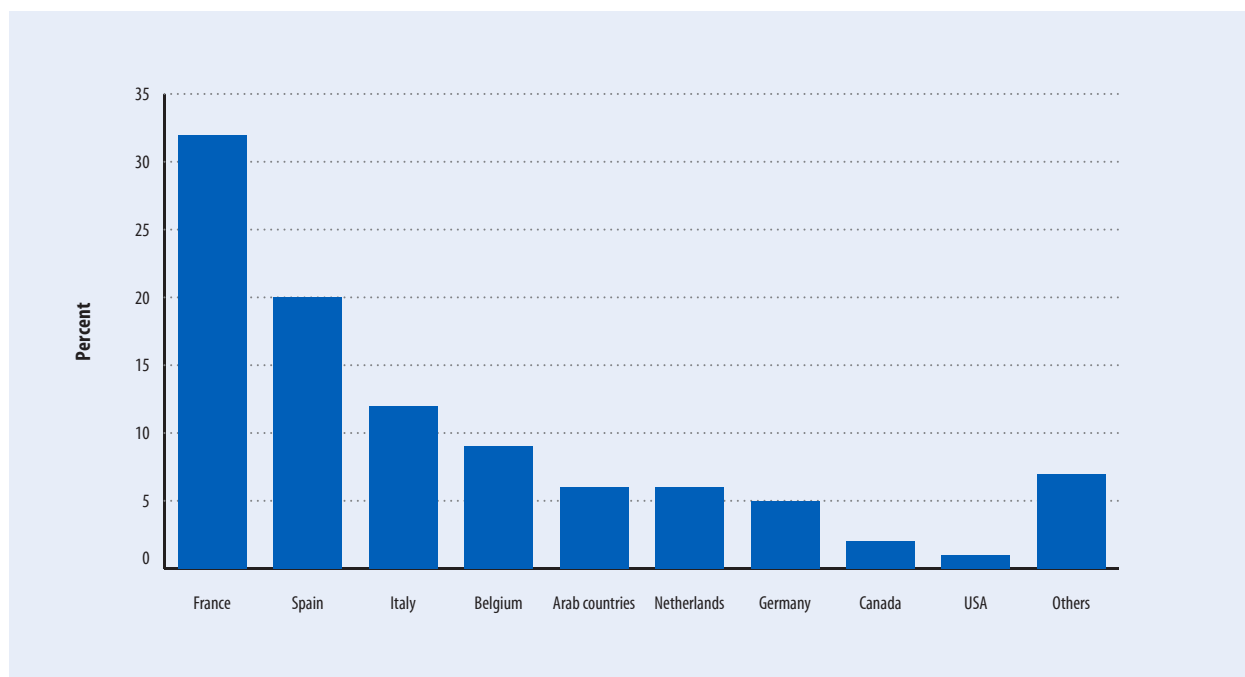
However, Patent Cooperation Treaty (PCT) patent applications present a unique feature: they specify the place of residence and nationality of applicants. Thus an analysis of patents issued under the PCT enables the identification of patents by inventors who belong to the Moroccan Diaspora, which can serve as a proxy for determining MLA inventors. An analysis of the change to PCT patent applications

over the years, when considered in conjunction with the change in the numbers of highly skilled MLAs, reveals that the MLAs file more patents, especially in recent years.

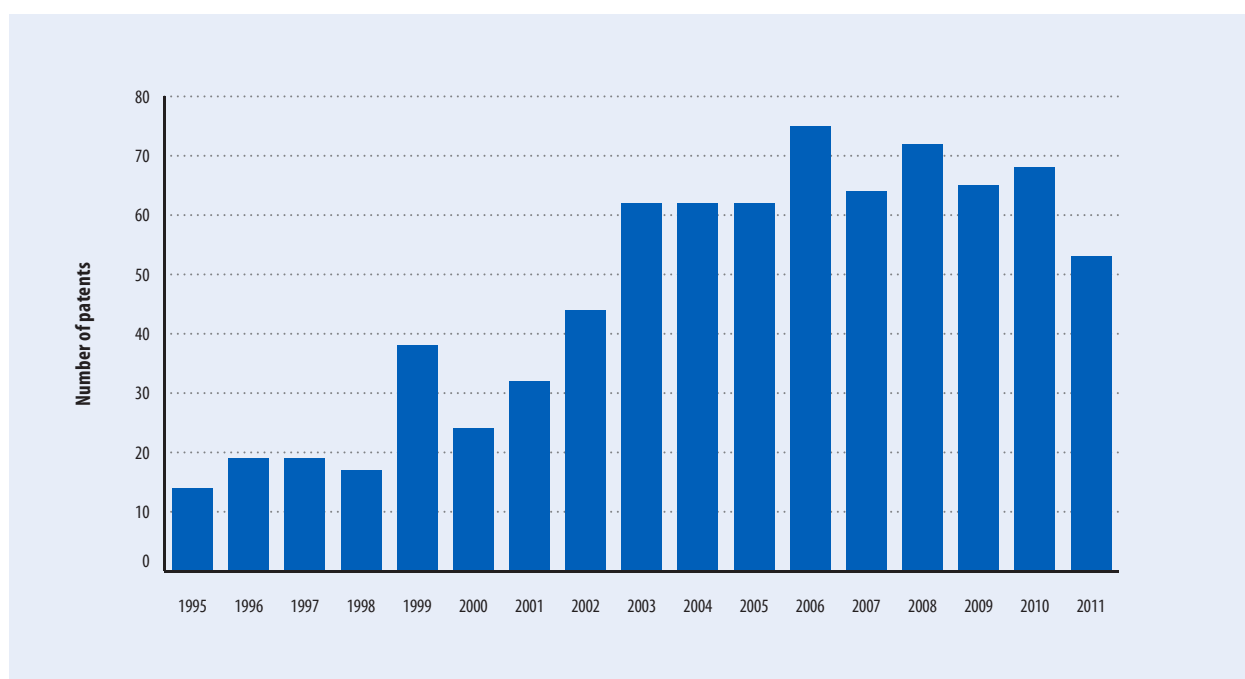
According to this analysis, 876 patent applications published under the PCT have been filed by MLA inventors at international locations in the 16 years from 1995 through 2011 (Figure 3).

This large number of Moroccans filing for patents abroad illustrates the important role that research laboratories in developed countries play in stimulating creativity and invention among Moroccan scientists abroad.

The geographical distribution of the patents of the Moroccan Diaspora shows that they are concentrated in the three countries: France, the USA, and Spain. This finding illustrates the correlation between

**Figure 2: Geographic distribution of Moroccans living abroad, 2013**

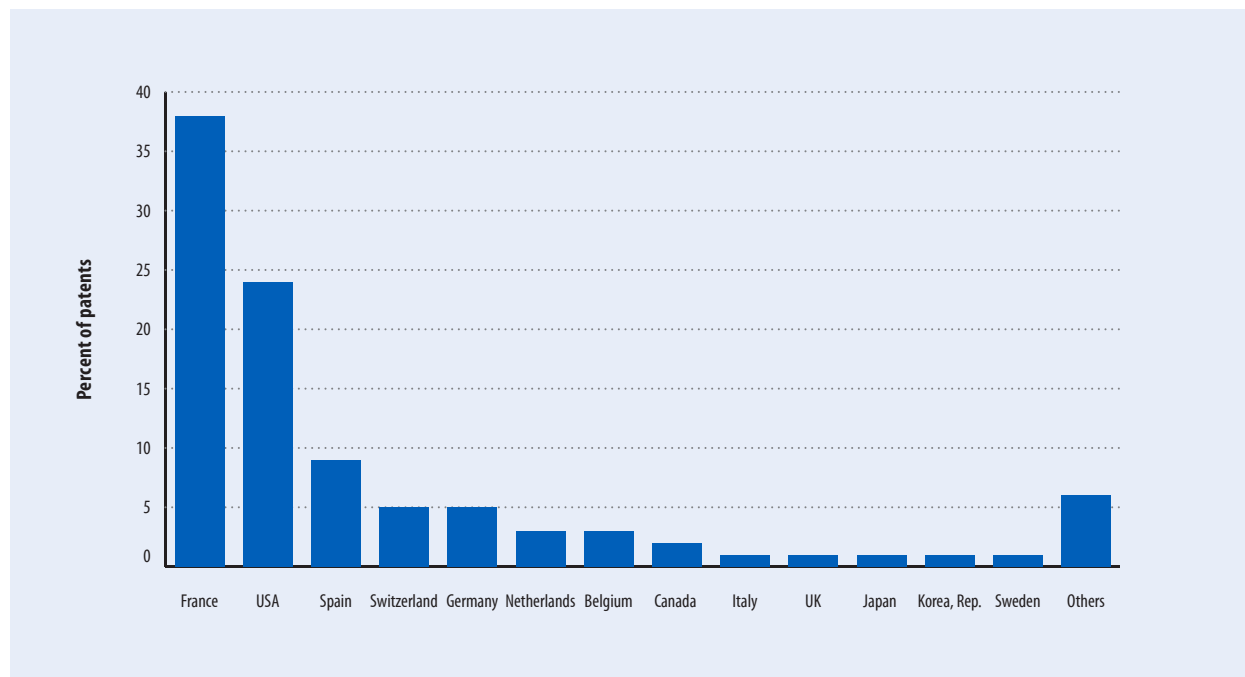
Source: Ministry in Charge of Moroccans Living Abroad and Migration Affairs, 2013a.

**Figure 3: PCT patents of inventors of the Moroccan Diaspora, 1995–2011**

Source: Patent Scope Database available at <http://www.wipo.int/patentscope/en/>.

Note: It should be noted that, starting in 2012, information on the nationality of the inventors of PCT patents is no longer available through the Patents Scope Database.



**Figure 4: Regional mapping of patents of the Moroccan Diaspora**

Source: The patent database of the European Patent Office, available at <http://ep.espacenet.com/>

the number of Moroccan students in these countries who became researchers and the number of patent applications they file. Indeed, most Moroccan migrant students settle in the country of their studies.

From Figures 2 and 4, we can conclude that the geographic distribution of MLAs and the geographic distribution of Moroccan patent applications are correlated—see, for example, the data for France and Spain. Note, however, that very few MLAs are living in the USA, but that country has a very high percent of MLA inventors. This is because the innovation ecosystem in the USA is more efficient and flexible.

Data from the Espacenet database of the European Patent Office, which includes patents published in more than 90 countries, shows 778 patents for which one of the inventors is originally from Morocco.<sup>2</sup>

This research looks only at Moroccan inventors living abroad, not all Moroccan inventors (Figure 4).

A breakdown of the PCT patents of inventors from the Moroccan Diaspora by technical field shows that 20% of the patents belong to medical sciences, followed by organic chemistry with a share of 10% and then biochemistry with 8%.

Moroccan inventors operate in research centres that range from university research laboratories and those of private companies to national scientific research centres. Inventors from the Moroccan Diaspora operate primarily in companies such as France Telecom, Procter & Gamble Company, PHILIPS, Institut Pasteur, and NOVARTIS, among others.<sup>3</sup>

New research on return migration by the World Intellectual Property Organization shows that

few Moroccan emigrant inventors—only 2.39%—return to their home country to file patents at home.<sup>4</sup>

Two conclusions can be drawn from these data:

1. Moroccan competencies—professional workers, organizations, and academic institutions—abroad contribute to innovation at a global level.
2. MLAs constitute a scientific potential of creativity and innovation for Morocco through mobilization programmes of the Moroccan Diaspora skills.

#### **Mobilizing the Moroccan Diaspora: Strategy and programmes**

Aware of the Moroccan Diaspora's role in the development of innovation in Morocco, since the 1990s the government of Morocco has made

major efforts to involve the MLAs directly. These efforts have been focused on both national political strategy and strategy targeted towards MLAs.

#### Elements of the national strategy

In addition to political measures undertaken to enhance the involvement of MLAs, particularly through specific elements that aim to foster such involvement in the Moroccan Constitution of 2011, actions targeting the Moroccan Diaspora and that aimed to facilitate their mobilization and contribute to the development of Morocco were carried out.

#### Mobilization strategies

One example of a successful strategy is the programme for the mobilization of highly skilled MLAs called 'Mobilization Program Skills'.<sup>5</sup> This programme calls upon Moroccan professionals who are ready to contribute with their expertise, experience, and know-how to the development of Morocco. It aims to provide a framework for these professionals that will inform them of opportunities in Morocco and allow them to develop partnerships with Moroccan public and private actors and support professionals abroad who establish projects in Morocco. This strategy is based on the compilation of networks of MLA competencies, the organization of preparatory meetings to inform MLAs about the needs for competencies in sectors that attract them in Morocco, the encouragement of proposals for entrepreneurship and partnership projects by the network that meet the needs of Morocco, the organization of a forum with Moroccan counterparts interested in these projects, and the establishment of partnerships for their implementation.

A second example is a programme called 'MDM invest'. This provides

a mechanism to encourage investors in Moroccan enterprises. It is built around providing three basic possibilities for funding. MDM invest can provide:

- equity (in foreign currency) of at least 25% of the projected amount of the project,
- a state subsidy of 10% of the start-up costs (with a ceiling of 5 million dirhams), and/or
- a bank loan (if necessary) that can reach 65% of the start-up costs.

A third example is the United Nations programme entitled TOKTEN (Transfer of Knowledge through Expatriate Nationals).<sup>6</sup> Since 1993, Morocco has organized several meetings of the Moroccan Diaspora as part of the TOKTEN programme. TOKTEN aims primarily at mobilizing national professionals living abroad to contribute, through missions and scientific support, for the development of Morocco.

These TOKTEN meetings brought together Moroccan professionals from all backgrounds to discuss the possibilities of mobilization without, however, leading to real programmes and without choosing to move to the institutionalization of a sustainable mechanism in the framework of a national strategy of mobilization of Moroccan professionals living abroad.

#### Innovation strategy

In June 2009, Morocco created a national innovation strategy entitled 'Innovation Morocco' to build a favourable ecosystem for the development of innovation within Moroccan companies and research organizations. Innovation Morocco was made operational in March 2011.

This strategy consists of four strategic areas:

- Governance and Regulatory Framework,
- Infrastructure and Clusters,
- Funding and Support, and
- Mobilizing Talents.

The first three of these are out of the scope of this chapter, but we consider here the mobilization of talent, which includes members of the worldwide Moroccan community of innovation. In this context, the Moroccan Office for Industrial and Commercial Property, in partnership with the Ministry of Industry, established the Moroccan Innovation club—a virtual platform dedicated to innovation—to network Moroccan innovation actors both in Morocco and abroad. The web platform (available at <http://www.marocinnovation.ma>) was launched during the country's 2nd National Innovation Summit in March 2011. Although the formal evaluation of this programme has not yet taken place, the platform is likely to prove useful to Moroccan innovation worldwide.

#### *The Moroccan Association for Scientific Innovation and Research (MAScIR)*

The Ministry of Industry, Trade, Investment and the Digital Economy established the Moroccan Association for Scientific Innovation and Research (MAScIR) Foundation in 2007. The foundation's mission is to promote and develop a centre of innovation and competitiveness based on the needs of the market. MAScIR leads projects that are positioned on technological and application niches with a high added value in the areas of advanced technology such as nanotechnology, biotechnology, and microelectronics.

So far, 17 former MLAs are working in MAScIR in all specialties. They are researchers, PhD students, and experts in other specialties, working as platform directors, centre directors, project managers, researchers, and engineers in a wide range of sectors, including medical and green biotechnology, automotive, chemical industry, electronics, and basic research. The Diaspora comes from many countries to participate in MAScIR, including Belgium, Canada, France, Germany, Saudi Arabia, Spain and the USA. Former MLAs have provided, since its inception, a new dynamic to the expansion of the R&D activities conducted by MAScIR. MLAs have participated in 50% of the 44 patents filed by MAScIR to date. Furthermore, 176 scientific papers have been published by MAScIR since its creation.

#### **The Maghribcom platform**

The web platform Maghribcom was inaugurated on 31 January 2013. It provides a place for MLAs to encounter the initiatives and policies of the Ministry in Charge of Moroccans Living Abroad. It offers Moroccan professionals an appropriate information framework in terms of business opportunities, ad hoc collaboration, investment, and employment. Its objective is to serve as a springboard to establish win-win partnerships between economic operators, universities, and research institutions in Morocco on one hand, and Moroccan professionals abroad on the other hand, on a temporary or permanent basis. This platform is accessible at <http://www.maghribcom.gov.ma/>.

By 20 January 2014, almost exactly a year after its launch, the Maghribcom platform had 73 professionals who put their curriculum vitae online to participate

in Moroccan projects and listed 860 competencies offered by MLAs.

The success of this programme depends on all stakeholders committing to total involvement, which includes continued updating and maintaining transparency by so that the suitability of demand and offer can be determined by all parties to these partnerships.

The success enjoyed by Maghribcom in just one year is evidence of Morocco's desire to appoint Moroccan professionals who are currently based abroad to posts within Morocco. To this end, Maghribcom called for the mobilization of efforts and means for the identification and segmentation of skill needs in research, training, expertise, and investment for each sector plans to guide the supply of competencies to satisfy the demands of Moroccan economy's priority sectors.

#### **The FINCOME programme**

The FINCOME (Moroccan Forum of International Competences Abroad) programme aims to involve Moroccan professionals residing abroad in supporting the economic, social, and cultural development of Morocco in terms of training, research, expertise, consultancy, or investment initiatives of their own.

FINCOME was implemented by the country's National Centre for Scientific Research (CNRST) and the Association R&D Maroc—a private-sector association of business enterprises established to boost innovation—via open tenders on the platform <http://www.fincome.cnrst.ma/>.

Since FINCOME began, an annual call for proposals for specific activities to be carried on in Morocco for developing innovation is launched by CNRST, thus creating a mechanism and the promise of partial funding to support expert

activities carried on by Moroccan professionals residing abroad, especially in the field of education and research. In 2010, the scope of activities for this programme was enlarged to include the development of new business; this resulted in more activities in this year.

The results of this programme, since its launch in December 2006, are shown in Figure 5.

Since its inception, the FINCOM programme has supported 330 accomplishments (expert consultations, meetings, projects, and new businesses) by mobilizing 384 experts from the Moroccan Diaspora.

#### **Innovative entrepreneurship for Moroccan professionals living abroad**

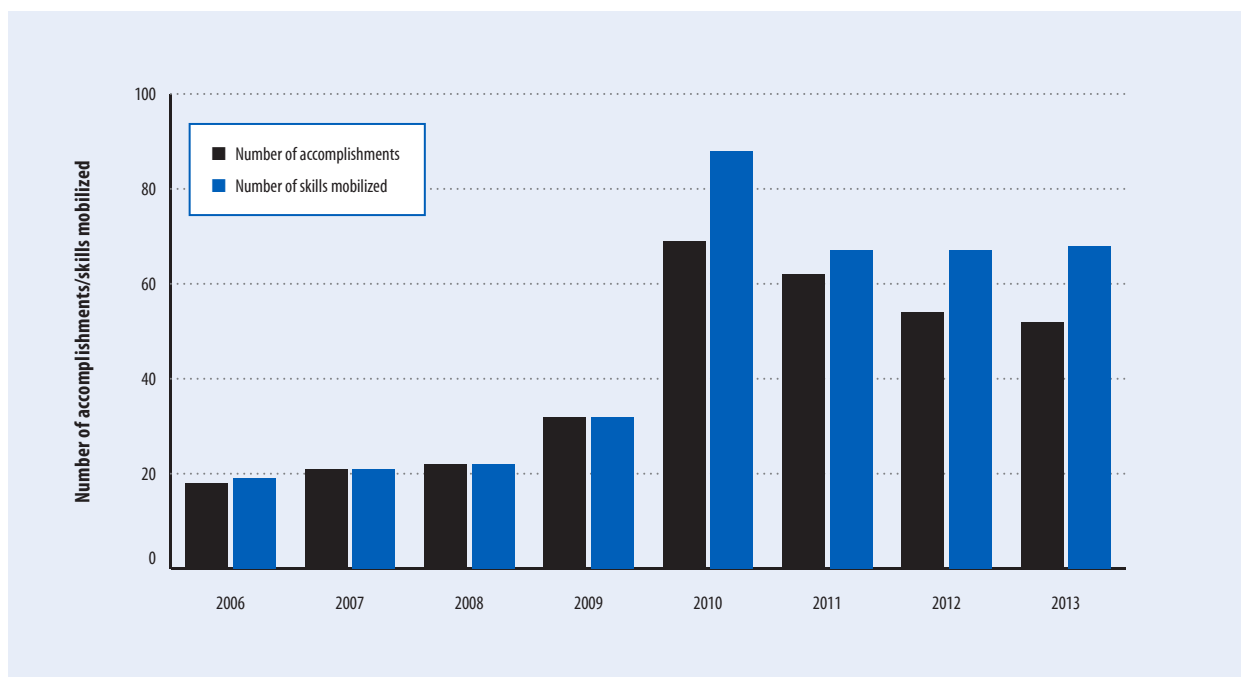
In 2011, the CNRST adopted an innovative business incubator called 'Morocco Incubation' that hosts project developers to create innovative companies from the Moroccan professionals living abroad. The experiment is still in its infancy, and the flow of projects has not yet reached its goal. Cumbersome administrative and financial procedures to which this centre is subject does not make it attractive to the MLAs. Only three projects were accepted in 2011: two of these led to the creation of companies in Morocco, but only one is still active. The other two enterprises have returned to their home countries.

This finding is related to the fact that, despite the considerable efforts of the government and all socio-economic stakeholders, the chain of innovation in Morocco still has missing links that hinder the successful implementation of such projects.

#### **Competencies networks of Moroccans living abroad**

The competencies of the Moroccan Diaspora—professionals, organizations, and academic institutions—are

Figure 5: Results of the FINKOM programme



Source: National Centre for Scientific and Technical Research (CNRST), 2013.

organized into networks to coordinate efforts and create synergies in relation to their contributions to the development of Morocco. The following sections provide details about some of these networks.

#### *The Moroccan Competencies Forum (MCF)*

Among these networks, the Moroccan Competencies Forum (MCF) aims to increase the involvement of the Moroccan Diaspora in the socioeconomic development of Morocco. These networks exist in Europe, Canada (<http://www.fmcrc.net>), and the USA (<http://www.amc-usa.org>). The stated mission of the American Moroccan Competencies Network, for example, is to 'mobilize and catalyse the engagement of US-based Moroccan professionals, organizations, and academic institutions in the advancement of the

socio-economic development of Morocco and the Moroccan community in the US.<sup>7</sup> It advances this mission in several ways, including holding conferences for members, among other activities.<sup>8</sup>

#### *DMK Network*

Established in 2009, the German-Moroccan network of competencies DMK (Deutsch-Marokkanisches Kompetenznetzwerk) now includes more than 700 German and Moroccan experts working in different disciplines.

The main objectives of this network are to improve relations between the two countries in terms of technology transfer and to facilitate the integration of Moroccans living in Germany.

The DMK network has been involved with several projects. Among them are:

- the establishment of a double degree programme that confers a master in Computer Science from the Technical University of Munich (TUM) and Al Akhawayn University in Ifrane (AUI);
- the establishment of a counselling centre in Frankfurt run by Moroccans living in Germany;<sup>9</sup> and
- the promotion of the transfer of knowledge in medicine: the network has arranged for medical devices provided by the University of Göttingen to be received by the Faculty of Medicine in Marrakech, and organized a training course on new techniques in the field.

### Public-private partnership: The creation of the International University of Rabat

In 2006, after working for more than 20 years in a science career in France, Professor Noureddine Mouaddib mobilized teachers and researchers from the academic and scientific Moroccan Diaspora to create the International University of Rabat (UIR). This project is the first public-private partnership in the field of higher education in Morocco.

The strategic orientation of the UIR—research, development, and innovation (RDI)—consists of the establishment of applied research with a strong, innovative market-oriented component in order to meet the socioeconomic needs of the country. The majority of UIR researchers—30 of them—are derived from the academic and scientific Moroccan Diaspora; they are deeply involved in promoting RDI in the Moroccan scientific environment. Since its creation in 2010, the UIR has recorded more than 100 scientific publications, books, and book chapters and 70 patents applications by its faculty teachers-researchers. In 2013 alone, the UIR filed 47 patent applications, a net increase in that year.<sup>10</sup>

### Conclusion

The migration of Moroccan professionals to countries abroad began in the late 1990s. MLAs have seen educational achievement and have been elevated to highly qualified competencies, and the more than 400,000 MLAs have seen their contribution to creativity and innovation gain momentum during the last decade.

The efforts on the part of the Moroccan government have fostered a rapprochement with those living abroad. The public opinions of their leaders have strongly encouraged highly qualified individuals to

create projects in Morocco. A study conducted by the European Training Foundation in 2012 revealed a steady return of migrants of working age in the last decade.<sup>11</sup> Of those who returned to Morocco, 81% are under 54 years old, and more than two-thirds have their own businesses. The projects of those who have returned to Morocco are in different sectors of the economy, and are often innovative projects that were designed and built out of their experience abroad before being undertaken in Morocco.

Although action has been taken by the government to encourage this development, policies and actions are not yet fully adequate to the needs of the Moroccan economy, which requires a serious boost to its pool of skilled human resources.

The operations carried out and the tools put in place so far are failing because of the relative weakness of their efficiency. A general communication campaign inviting professionals and other competencies to return to their home country may have only a limited effect. It is clear that, apart from the direct action of the FINCOME programme, the different programmes noted above were not much more than announcements.

Because of the lack of monitoring tools, it is difficult to provide updated data and specific indicators regarding the highly skilled Moroccans living abroad. More information about their research and the innovations they have contributed from other countries, as well as more data about the impact of the different actions taken in Morocco towards mobilizing innovative migrants of the Moroccan Diaspora, would provide an opportunity to tailor policy towards specific ends.

In order to compete successfully in the world marketplace for highly

qualified professionals, and to provide for the globalization of markets and business, it is increasingly urgent to make the home country attractive to those who now contribute abroad. This means:

- considering specific return campaigns centred around major technology projects,
- mobilizing these human resources in a targeted manner and earmarking these projects, and
- creating the conditions and environment favourable to the contribution of professionals who are now abroad to further the development of innovation in Morocco.

Morocco has been successful in some ways, but needs to do more to realize the innovative potential of its highly educated workers. As for other developing countries, ensuring that the home country becomes more attractive to these migrants is an important early step. But to do that, more and better data are needed. There is a great need for further research in this area.

### Notes

- 1 See the 2005 survey at the High Commission for the Plan, 2005, available at [http://www.hcp.ma/Enquete-de-2005-sur-l-insertion-socio-economique-dans-les-pays-d-accueil-des-Marocains-residant-a-l-etranger\\_a102.html](http://www.hcp.ma/Enquete-de-2005-sur-l-insertion-socio-economique-dans-les-pays-d-accueil-des-Marocains-residant-a-l-etranger_a102.html).
- 2 This research was carried out on the patent search engine Espacenet of the European Patent Office, available at [http://worldwide.espacenet.com/searchResults?compact=false&ST=advanced&IN=\[MA\]&locale=en\\_EP&DB=EPODOC](http://worldwide.espacenet.com/searchResults?compact=false&ST=advanced&IN=[MA]&locale=en_EP&DB=EPODOC).
- 3 Data on organizations that employ MLAs can be found in the Patent Scope Database at [http://patentscope.wipo.int/search/fr/result.jsf?query=ana:ma%20-an:%28pct/ma\\*%29](http://patentscope.wipo.int/search/fr/result.jsf?query=ana:ma%20-an:%28pct/ma*%29).
- 4 Breschi et al., 2014.

- 5 Details of the programme are available at <http://www.marocainsdumonde.gov.ma/le-minist%C3%A8re/programmes-du-minist%C3%A8re/programme-de-mobilisation-des-comp%C3%A9tences.aspx>.
- 6 Belguendouz, 2010.
- 7 AMCN, no date.
- 8 For an announcement of such a conference, see Lemag: English, 2013.
- 9 For details about the counselling centre, see <http://www.dmk-online.org/>.
- 10 See 'Patents' on the UIR website at <http://www.uir.ac.ma/en/recherche/les-brevets/patents>.
- 11 This study was carried out from a field survey by the European Training Foundation (ETF) with the assistance of AMERM (Moroccan Association for Studies and Research on Migration), and published in March 2013 (EFT, 2013).
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# Appendices



# Appendix I

Country/Economy Profiles



## Country/Economy Profiles

The following tables provide detailed profiles for each of the 143 economies in the Global Innovation Index 2014. They are constructed around three sections.

**1** Five key indicators at the beginning of each profile are intended to put the economy into context. They present the population in millions,<sup>1</sup> GDP in US\$ billions, and GDP per capita in PPP current international dollars.<sup>2</sup> The fourth indicator categorizes the economy into income group and the fifth indicates its geographical region.<sup>3</sup>

**2** The next section provides the economy's scores and rankings on the Global Innovation Index (GII), the Innovation Output Sub-Index, the Innovation Input Sub-Index, and the Innovation Efficiency Ratio.

The GII ranking for the 2013 edition comes next. Four economies were added in 2014, and three were excluded. For that reason, and because of adjustments made to the GII framework every year and other technical factors not directly related to actual performance (missing data, updates of data, etc.), the GII rankings are not directly comparable from one year to the next. Please refer to Annex 2 of Chapter 1 for details.

Scores are normalized in the 0–100 range except for the Innovation Efficiency Ratio, for which scores

revolve around the number 1 (this index is calculated as the ratio between the Output and Input Sub-Indices).

The Innovation Input Sub-Index score is calculated as the simple average of the scores in the first five pillars, while the Innovation Output

The 2014 GII includes 81 indicators and three types of data. Composite indicators are identified with an asterisk (\*), survey questions from the World Economic Forum's Executive Opinion Survey are identified with a dagger (†), and the remaining indicators are all hard data series.

For hard data, the original value is provided (except for indicators 7.3.1, 7.3.2, and 7.3.4, for which the raw data were provided under the condition that only the normalized scores be published). Normalized scores in the 0–100 range are provided for everything else (index and survey data, sub-pillars, pillars, and indices).

When data are either not available or out of date (the cutoff year is 2004), 'n/a' is used (please refer to Annex 2 of Chapter 1 for more information regarding the use of 'n/a' and zero in particular indicators). The year of each data point is indicated in the Data Tables shown in Appendix II.

For further details, see Appendix III, Sources and Definitions, and Appendix IV, Technical Notes.

**4** To the far right of each column, a solid circle indicates that an indicator is one of the strengths of the country/economy in question, and a hollow circle indicates that it is a weakness.

| Albania  |   |  |            |   |  |      |     |
|----------|---|--|------------|---|--|------|-----|
| <b>1</b> | <b>Key indicators</b>                       | 4.1  | Population | 2.73                                      | 4  |      |     |
|          | Population (millions)                       | 3.2  | 4.2        | Ease of starting a business*              | 73.3   | 14   |     |
|          | GDP (US\$ billion)                          | 12.9                                       | 4.3        | Market capitalization % GDP               | 106  | 104  |     |
|          | GDP per capita PPP                          | 4,983                                      | 4.4        | High-tech exports % exports               | 106  | 104  |     |
|          | Region                                      | Upper middle income                        | 4.5        | Venture capital deals/PPP GDP             | 106  | 104  |     |
|          |   |  |            | 4.6                                       | Applied R&D % GDP                                    | 114  |     |
|          |   |  |            | 4.7                                       | Applied R&D % sales                                  | 117  |     |
|          |   |  |            | 4.8                                       | High-tech exports % exports                          | 118  |     |
|          |   |  |            | 4.9                                       | Intensity of local competition*                      | 132  |     |
| <b>2</b> | <b>Global Innovation Index (out of 143)</b> | 34.5                                       | <b>5</b>   | <b>Business sophistication</b>            | 24.9   | 115  |     |
|          | Innovation Input Sub-Index                  | 46.1                                       | 5.1        | Knowledge-intensive employment %          | 161  | 86   |     |
|          | Innovation Output Sub-Index                 | 22.9                                       | 5.2        | Private R&D % GDP                         | 109  | 91   |     |
|          | Innovation Efficiency Ratio                 | 18.3                                       | 5.3        | GDP performed by business % GDP           | 106  | 104  |     |
| <b>3</b> | <b>1</b>                                    | <b>Institutions</b>                        | 58.8       | 5.4                                       | GDP performed by services % GDP                      | 106  | 104 |
|          | 1.1   | Political stability                        | 71.8       | 5.5                                       | GAAP net sales per emp. 20–24                        | 1479 | 27  |
|          | 1.2   | Government effectiveness                   | 75.4       | 5.6                                       | Innovation strategy                                  | 114  | 134 |
|          | 1.3   | Private credit                             | 101        | 5.7                                       | University/industry research collaboration†          | 263  | 129 |
|          | 1.4   | Regulatory quality                         | 81         | 5.8                                       | State & federal development % GDP                    | 248  | 113 |
|          | 1.5   | Trade openness                             | 102        | 5.9                                       | GDIC (per capita by abroad)                          | 74   | 52  |
|          | 1.6   | Cost of redundancy dismissal, salary weeks | 208        | 6.0                                       | Patent filings/100 employees                         | 106  | 104 |
|          | 1.7   | Business environment                       | 107        | 6.1                                       | Patent filings/100 employees (in 1st office/PPP GDP) | 101  | 52  |
|          | 1.8   | Ease of starting a business*               | 73.3       | 6.2                                       | Regulatory & former fees payments % total trade      | 104  | 58  |
|          | 1.9   | Ease of trading securities†                | 61         | 6.3                                       | High-tech exports % exports                          | 106  | 104 |
|          | 2.0   | Ease of paying taxes†                      | 105        | 6.4                                       | Control, corruption & anti-union emp. % total trade  | 112  | 51  |
|          |   |  |            | 6.5                                       | FDI net inflows % GDP                                | 106  | 104 |
| <b>2</b> | <b>Human capital &amp; research</b>         | 22.8                                       | <b>6</b>   | <b>Knowledge &amp; technology outputs</b> | 20.2   | 111  |     |
|          | 2.1   | Expenditure on education % GDP             | 106        | 6.1                                       | Knowledge intensity                                  | 24   | 130 |
|          | 2.2   | Gov't expenditure/total R&D % GDP          | 106        | 6.2                                       | Domestic venture capital eq. % PPP GDP               | 101  | 100 |
|          | 2.3   | Gov't R&D % GDP                            | 106        | 6.3                                       | ICT hardware patent apps/PPP GDP                     | 101  | 99  |
|          | 2.4   | FDI net inflows in scientific R&D % GDP    | 106        | 6.4                                       | Domestic venture capital eq. % PPP GDP               | 101  | 100 |
|          | 2.5   | FDI net inflows in scientific R&D % GDP    | 106        | 6.5                                       | Software & technical articles/PPP GDP                | 52   | 107 |
|          | 2.6   | FDI net inflows in scientific R&D % GDP    | 106        | 6.6                                       | Quality of government                                | 106  | 104 |
|          | 2.7   | FDI net inflows in scientific R&D % GDP    | 106        | 6.7                                       | Knowledge inputs                                     | 207  | 115 |
|          | 2.8   | FDI net inflows in scientific R&D % GDP    | 106        | 6.8                                       | Gov't R&D % GDP                                      | 106  | 104 |
|          | 2.9   | FDI net inflows in scientific R&D % GDP    | 106        | 6.9                                       | New businesses/100 pop. 15–64                        | 109  | 65  |
|          | 3.0   | FDI net inflows in scientific R&D % GDP    | 106        | 7.0                                       | Computer software operating % GDP                    | 106  | 104 |
|          | 3.1   | FDI net inflows in scientific R&D % GDP    | 106        | 7.1                                       | ISO 9001 quality certified/PPP GDP                   | 106  | 104 |
|          | 3.2   | FDI net inflows in scientific R&D % GDP    | 106        | 7.2                                       | High-tech exports % exports                          | 106  | 104 |
|          | 3.3   | FDI net inflows in scientific R&D % GDP    | 106        | 7.3                                       | High-tech exports % exports                          | 106  | 104 |
|          | 3.4   | FDI net inflows in scientific R&D % GDP    | 106        | 7.4                                       | Control, corruption & anti-union emp. % total trade  | 112  | 51  |
|          | 3.5   | FDI net inflows in scientific R&D % GDP    | 106        | 7.5                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 3.6   | FDI net inflows in scientific R&D % GDP    | 106        | 7.6                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 3.7   | FDI net inflows in scientific R&D % GDP    | 106        | 7.7                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 3.8   | FDI net inflows in scientific R&D % GDP    | 106        | 7.8                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 3.9   | FDI net inflows in scientific R&D % GDP    | 106        | 7.9                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 4.0   | FDI net inflows in scientific R&D % GDP    | 106        | 8.0                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 4.1   | FDI net inflows in scientific R&D % GDP    | 106        | 8.1                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 4.2   | FDI net inflows in scientific R&D % GDP    | 106        | 8.2                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 4.3   | FDI net inflows in scientific R&D % GDP    | 106        | 8.3                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 4.4   | FDI net inflows in scientific R&D % GDP    | 106        | 8.4                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 4.5   | FDI net inflows in scientific R&D % GDP    | 106        | 8.5                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 4.6   | FDI net inflows in scientific R&D % GDP    | 106        | 8.6                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 4.7   | FDI net inflows in scientific R&D % GDP    | 106        | 8.7                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 4.8   | FDI net inflows in scientific R&D % GDP    | 106        | 8.8                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 4.9   | FDI net inflows in scientific R&D % GDP    | 106        | 8.9                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 5.0   | FDI net inflows in scientific R&D % GDP    | 106        | 9.0                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 5.1   | FDI net inflows in scientific R&D % GDP    | 106        | 9.1                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 5.2   | FDI net inflows in scientific R&D % GDP    | 106        | 9.2                                       | FDI net inflows % GDP                                | 106  | 104 |
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|          | 5.4   | FDI net inflows in scientific R&D % GDP    | 106        | 9.4                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 5.5   | FDI net inflows in scientific R&D % GDP    | 106        | 9.5                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 5.6   | FDI net inflows in scientific R&D % GDP    | 106        | 9.6                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 5.7   | FDI net inflows in scientific R&D % GDP    | 106        | 9.7                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 5.8   | FDI net inflows in scientific R&D % GDP    | 106        | 9.8                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 5.9   | FDI net inflows in scientific R&D % GDP    | 106        | 9.9                                       | FDI net inflows % GDP                                | 106  | 104 |
|          | 6.0   | FDI net inflows in scientific R&D % GDP    | 106        | 10.0                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 6.1   | FDI net inflows in scientific R&D % GDP    | 106        | 10.1                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 6.2   | FDI net inflows in scientific R&D % GDP    | 106        | 10.2                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 6.3   | FDI net inflows in scientific R&D % GDP    | 106        | 10.3                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 6.4   | FDI net inflows in scientific R&D % GDP    | 106        | 10.4                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 6.5   | FDI net inflows in scientific R&D % GDP    | 106        | 10.5                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 6.6   | FDI net inflows in scientific R&D % GDP    | 106        | 10.6                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 6.7   | FDI net inflows in scientific R&D % GDP    | 106        | 10.7                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 6.8   | FDI net inflows in scientific R&D % GDP    | 106        | 10.8                                      | FDI net inflows % GDP                                | 106  | 104 |
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|          | 7.1   | FDI net inflows in scientific R&D % GDP    | 106        | 11.1                                      | FDI net inflows % GDP                                | 106  | 104 |
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|          | 7.3   | FDI net inflows in scientific R&D % GDP    | 106        | 11.3                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 7.4   | FDI net inflows in scientific R&D % GDP    | 106        | 11.4                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 7.5   | FDI net inflows in scientific R&D % GDP    | 106        | 11.5                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 7.6   | FDI net inflows in scientific R&D % GDP    | 106        | 11.6                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 7.7   | FDI net inflows in scientific R&D % GDP    | 106        | 11.7                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 7.8   | FDI net inflows in scientific R&D % GDP    | 106        | 11.8                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 7.9   | FDI net inflows in scientific R&D % GDP    | 106        | 11.9                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 8.0   | FDI net inflows in scientific R&D % GDP    | 106        | 12.0                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 8.1   | FDI net inflows in scientific R&D % GDP    | 106        | 12.1                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 8.2   | FDI net inflows in scientific R&D % GDP    | 106        | 12.2                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 8.3   | FDI net inflows in scientific R&D % GDP    | 106        | 12.3                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 8.4   | FDI net inflows in scientific R&D % GDP    | 106        | 12.4                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 8.5   | FDI net inflows in scientific R&D % GDP    | 106        | 12.5                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 8.6   | FDI net inflows in scientific R&D % GDP    | 106        | 12.6                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 8.7   | FDI net inflows in scientific R&D % GDP    | 106        | 12.7                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 8.8   | FDI net inflows in scientific R&D % GDP    | 106        | 12.8                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 8.9   | FDI net inflows in scientific R&D % GDP    | 106        | 12.9                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 9.0   | FDI net inflows in scientific R&D % GDP    | 106        | 13.0                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 9.1   | FDI net inflows in scientific R&D % GDP    | 106        | 13.1                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 9.2   | FDI net inflows in scientific R&D % GDP    | 106        | 13.2                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 9.3   | FDI net inflows in scientific R&D % GDP    | 106        | 13.3                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 9.4   | FDI net inflows in scientific R&D % GDP    | 106        | 13.4                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 9.5   | FDI net inflows in scientific R&D % GDP    | 106        | 13.5                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 9.6   | FDI net inflows in scientific R&D % GDP    | 106        | 13.6                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 9.7   | FDI net inflows in scientific R&D % GDP    | 106        | 13.7                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 9.8   | FDI net inflows in scientific R&D % GDP    | 106        | 13.8                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 9.9   | FDI net inflows in scientific R&D % GDP    | 106        | 13.9                                      | FDI net inflows % GDP                                | 106  | 104 |
|          | 10.0  | FDI net inflows in scientific R&D % GDP    | 106        | 14.0                                      | FDI net inflows % GDP                                | 106  | 104 |

100 = Index in strength, 0 = weakness, n/a = not available, † = survey question.

All top ranks (of 1) are highlighted as strengths; for the remaining indicators, strengths and weaknesses of a particular economy are based on the percentage of economies with scores that fall below its score (i.e., percent ranks).

- For a given economy, strengths (●) are those scores with percent ranks greater than the 10th largest percent rank among the 81 indicators in that economy.
- Similarly, for that economy, weaknesses (○) are those scores with percent ranks lower than the 10th smallest percent rank among the 81 indicators in that economy.

Percent ranks embed more information than ranks and allow for comparisons of ranks of series with missing data and ties in ranks. Examples from Sweden illustrate this point:

1. Strengths for Sweden are all indicators with percent ranks above 0.97 (10th largest percent rank for Sweden); weaknesses are all indicators with percent ranks below 0.62 (Sweden's 10th smallest percent rank).
2. Sweden ranks 5th out of 143 in 3.2.1 *Electricity output, kWh/cap* with a percent rank of 0.97; this indicator is a strength for Sweden.
3. Sweden also ranks 5th in 5.1.3 *GERD performed by business, % GDP*, but with a percent rank of 0.95 (because only 87 countries are covered by that indicator), this indicator is not a strength for Sweden.
4. The rank of 52 (percent rank of 0.59) in 3.3.1 *GDP/unit of energy use, 2005 PPP\$/kg oil eq* is a weakness for Sweden. By contrast, the rank of 76 for Sudan for that same indicator is a strength

for Sudan (with a percent rank of 0.39, this is above the cutoff for strengths for Sudan, which is 0.37).

Percent ranks are not reported in the Country/Economy Profiles but they are presented in the Data Tables (Appendix II).

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## Notes

- 1 Data are from the United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2012 Revision*.
- 2 Data for GDP and GDP per capita are from the International Monetary Fund *World Economic Outlook 2014* database.
- 3 Income group is according to the World Bank Income Group Classification (July 2013): LI = low income; LM = lower-middle income; UM = upper-middle income; and HI = high income. Geographical regions are based on the United Nations Classification: EUR = Europe; NAC = Northern America; LCN = Latin America and the Caribbean; CSA = Central and Southern Asia; SEAO = South East Asia and Oceania; NAWA = Northern Africa and Western Asia; and SSF = Sub-Saharan Africa.

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## Albania

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 3.2                 |
| GDP (US\$ billions) .....   | 12.9                |
| GDP per capita, PPP\$ ..... | 9,506.1             |
| Income group .....          | Upper-middle income |
| Region .....                | Europe              |

|   | Score (0–100)<br>or value (hard data) | Rank        |
|---|---------------------------------------|-------------|
| <b>Global Innovation Index (out of 143)</b> .....             | <b>30.5</b>                           | <b>94</b>   |
| Innovation Output Sub-Index .....                             | 20.4                                  | 117         |
| Innovation Input Sub-Index .....                              | 40.5                                  | 71          |
| Innovation Efficiency Ratio .....                             | 0.5                                   | 131 ○       |
| Global Innovation Index 2013 (out of 142) .....               | 30.9                                  | 93          |
| <b>1 Institutions</b> .....                                   | <b>58.8</b>                           | <b>79</b>   |
| 1.1 Political environment.....                                | 54.8                                  | 78          |
| 1.1.1 Political stability*.....                               | 61.8                                  | 81          |
| 1.1.2 Government effectiveness*.....                          | 33.4                                  | 85          |
| 1.1.3 Press freedom*.....                                     | 69.1                                  | 82          |
| 1.2 Regulatory environment .....                              | 58.1                                  | 94          |
| 1.2.1 Regulatory quality* .....                               | 53.2                                  | 67          |
| 1.2.2 Rule of law*.....                                       | 30.7                                  | 96          |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 20.8                                  | 98          |
| 1.3 Business environment.....                                 | 63.7                                  | 75          |
| 1.3.1 Ease of starting a business*.....                       | 89.4                                  | 40          |
| 1.3.2 Ease of resolving insolvency*.....                      | 43.1                                  | 54          |
| 1.3.3 Ease of paying taxes*.....                              | 58.5                                  | 105         |
| <b>2 Human capital &amp; research</b> .....                   | <b>22.8</b>                           | <b>93</b>   |
| 2.1 Education .....   | 35.6                                  | 96          |
| 2.1.1 Expenditure on education, % GDP .....                   | 3.3                                   | 106         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a         |
| 2.1.3 School life expectancy, years.....                      | n/a                                   | n/a         |
| 2.1.4 PISA scales in reading, maths, & science.....           | 395.2                                 | 57 ○        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 14.9                                  | 60          |
| 2.2 Tertiary education.....                                   | 30.1                                  | 80          |
| 2.2.1 Tertiary enrolment, % gross.....                        | 55.5                                  | 45          |
| 2.2.2 Graduates in science & engineering, % .....             | 17.2                                  | 67          |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.3                                   | 77          |
| 2.3 Research & development (R&D).....                         | 2.7                                   | 96          |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 545.2                                 | 70          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.2                                   | 95          |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○        |
| <b>3 Infrastructure</b> .....                                 | <b>34.1</b>                           | <b>79</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 29.4                                  | 93          |
| 3.1.1 ICT access*.....  | 37.3                                  | 89          |
| 3.1.2 ICT use* .....  | 27.1                                  | 63          |
| 3.1.3 Government's online service*.....                       | 42.5                                  | 90          |
| 3.1.4 E-participation*.....                                   | 10.5                                  | 94          |
| 3.2 General infrastructure.....                               | 28.4                                  | 95          |
| 3.2.1 Electricity output, kWh/cap.....                        | 1,291.6                               | 89          |
| 3.2.2 Logistics performance* .....                            | 46.0                                  | 78          |
| 3.2.3 Gross capital formation, % GDP.....                     | 23.4                                  | 67          |
| 3.3 Ecological sustainability .....                           | 44.5                                  | 44          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 11.6                                  | 9 ●         |
| 3.3.2 Environmental performance*.....                         | 54.7                                  | 62          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.7                                   | 70          |
| <b>4 Market sophistication</b> .....                          | <b>61.9</b>                           | <b>21 ●</b> |
| 4.1 Credit.....   | 43.6                                  | 48          |
| 4.1.1 Ease of getting credit* .....                           | 87.5                                  | 13 ●        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 38.3                                  | 84          |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 2.5                                   | 21 ●        |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 73.3        | 6 ●        |
| 4.2.1 Ease of protecting investors*.....                        | 73.3        | 14 ●       |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 68.9        | 114        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.3         | 37 ●       |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.0         | 19 ●       |
| 4.3.3 Intensity of local competition†.....                      | 40.3        | 132 ○      |
| <b>5 Business sophistication</b> .....                          | <b>24.9</b> | <b>115</b> |
| 5.1 Knowledge workers.....                                      | 30.3        | 95         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 16.1        | 86         |
| 5.1.2 Firms offering formal training, % firms.....              | 19.9        | 93         |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a        |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a        |
| 5.1.5 GMAT test takers/mn pop. 20-34.....                       | 147.9       | 37 ●       |
| 5.2 Innovation linkages .....                                   | 17.8        | 134 ○      |
| 5.2.1 University/industry research collaboration†.....          | 26.3        | 129 ○      |
| 5.2.2 State of cluster development† .....                       | 24.8        | 133 ○      |
| 5.2.3 GERD financed by abroad, %.....                           | 7.4         | 52         |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.1         | 52         |
| 5.3 Knowledge absorption.....                                   | 26.5        | 61         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.4         | 58         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 3.4         | 120 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.2         | 51         |
| 5.3.4 FDI net inflows, % GDP.....                               | 9.6         | 14 ●       |
| <b>6 Knowledge &amp; technology outputs</b> .....               | <b>20.2</b> | <b>111</b> |
| 6.1 Knowledge creation.....                                     | 2.4         | 136 ○      |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.1         | 100 ○      |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 69         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.0         | 61 ○       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 5.2         | 107        |
| 6.1.5 Citable documents H index.....                            | 36.0        | 128 ○      |
| 6.2 Knowledge impact.....                                       | 25.7        | 115        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -0.7        | 101        |
| 6.2.2 New businesses/th pop. 15-64.....                         | 0.9         | 65         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 5.9         | 61         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 1.2         | 96 ○       |
| 6.3 Knowledge diffusion.....                                    | 32.7        | 64         |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 75         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.2         | 96         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 3.3         | 17 ●       |
| 6.3.4 FDI net outflows, % GDP .....                             | 2.6         | 27 ●       |
| <b>7 Creative outputs</b> .....                                 | <b>20.6</b> | <b>123</b> |
| 7.1 Intangible assets.....                                      | 26.1        | 133 ○      |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 17.0        | 86         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.1         | 59         |
| 7.1.3 ICTs & business model creation†.....                      | 44.0        | 116        |
| 7.1.4 ICTs & organizational model creation†.....                | 39.8        | 118        |
| 7.2 Creative goods & services.....                              | 18.2        | 69         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.7         | 15 ●       |
| 7.2.2 National feature films/mn pop. 15-69.....                 | n/a         | n/a        |
| 7.2.3 Global ent. & media output/th pop. 15-69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.1         | 95         |
| 7.3 Online creativity .....                                     | 12.0        | 86         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15-69.....       | 6.8         | 53         |
| 7.3.2 Country-code TLDs/th pop. 15-69.....                      | 19.6        | 82         |
| 7.3.3 Wikipedia edits/pop. 15-69.....                           | 5,681.0     | 53         |
| 7.3.4 Video uploads on YouTube/pop. 15-69.....                  | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 38.5                             |
| GDP (US\$ billions) .....   | 206.1                            |
| GDP per capita, PPP\$ ..... | 7,534.1                          |
| Income group .....          | Upper-middle income              |
| Region .....                | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>24.2</b>                           | <b>133</b> |
| Innovation Output Sub-Index .....                | 16.7                                  | 132        |
| Innovation Input Sub-Index .....                 | 31.7                                  | 122        |
| Innovation Efficiency Ratio .....                | 0.5                                   | 130        |
| Global Innovation Index 2013 (out of 142) .....  | 23.1                                  | 138        |

|          |  |             |              |
|----------|--|-------------|--------------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>47.2</b> | <b>118</b>   |
| 1.1      | Political environment.....                             | 40.8        | 123          |
| 1.1.1    | Political stability*.....                              | 32.8        | 131          |
| 1.1.2    | Government effectiveness*.....                         | 26.1        | 106          |
| 1.1.3    | Press freedom*.....                                    | 63.5        | 102          |
| 1.2      | Regulatory environment.....                            | 50.5        | 113          |
| 1.2.1    | Regulatory quality*.....                               | 15.1        | 137 ○        |
| 1.2.2    | Rule of law*.....                                      | 24.5        | 113          |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 17.3        | 81 ●         |
| 1.3      | Business environment.....                              | 50.2        | 117          |
| 1.3.1    | Ease of starting a business*.....                      | 68.5        | 120          |
| 1.3.2    | Ease of resolving insolvency*.....                     | 44.1        | 52 ●         |
| 1.3.3    | Ease of paying taxes*.....                             | 38.1        | 133          |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>25.5</b> | <b>82 ●</b>  |
| 2.1      | Education.....   | 44.1        | 66 ●         |
| 2.1.1    | Expenditure on education, % GDP.....                   | 4.3         | 79           |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | n/a         | n/a          |
| 2.1.3    | School life expectancy, years.....                     | 14.0        | 56 ●         |
| 2.1.4    | PISA scales in reading, maths, & science.....          | n/a         | n/a          |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | n/a         | n/a          |
| 2.2      | Tertiary education.....                                | 30.6        | 77 ●         |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 31.5        | 74 ●         |
| 2.2.2    | Graduates in science & engineering, %.....             | 25.0        | 27 ●         |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 0.5         | 90           |
| 2.3      | Research & development (R&D).....                      | 1.6         | 111          |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 406.5       | 73           |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 0.1         | 109          |
| 2.3.3    | QS university ranking, average score top 3*.....       | 0.0         | 70 ○         |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>32.2</b> | <b>86</b>    |
| 3.1      | Information & communication technologies (ICTs).....   | 18.4        | 116          |
| 3.1.1    | ICT access*.....                                       | 36.0        | 91           |
| 3.1.2    | ICT use*.....  | 6.8         | 111          |
| 3.1.3    | Government's online service*.....                      | 25.5        | 128          |
| 3.1.4    | E-participation*.....                                  | 5.3         | 111          |
| 3.2      | General infrastructure.....                            | 45.9        | 23 ●         |
| 3.2.1    | Electricity output, kWh/cap.....                       | 1,423.7     | 84           |
| 3.2.2    | Logistics performance*.....                            | 31.7        | 120          |
| 3.2.3    | Gross capital formation, % GDP.....                    | 43.3        | 5 ●          |
| 3.3      | Ecological sustainability.....                         | 32.4        | 82 ●         |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 6.6         | 54 ●         |
| 3.3.2    | Environmental performance*.....                        | 50.1        | 83 ●         |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.4         | 89           |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>36.2</b> | <b>138 ○</b> |
| 4.1      | Credit.....  | 23.5        | 115          |
| 4.1.1    | Ease of getting credit*.....                           | 43.8        | 112          |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 14.3        | 134          |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | n/a         | n/a          |

|          |   |             |              |
|----------|---|-------------|--------------|
| 4.2      | Investment.....   | 33.4        | 75 ●         |
| 4.2.1    | Ease of protecting investors*.....                        | 50.0        | 81           |
| 4.2.2    | Market capitalization, % GDP.....                         | n/a         | n/a          |
| 4.2.3    | Total value of stocks traded, % GDP.....                  | n/a         | n/a          |
| 4.2.4    | Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 70 ○         |
| 4.3      | Trade & competition.....                                  | 51.6        | 140 ○        |
| 4.3.1    | Applied tariff rate, weighted mean, %.....                | 8.6         | 118          |
| 4.3.2    | Non-agricultural mkt access weighted tariff, %.....       | n/a         | n/a          |
| 4.3.3    | Intensity of local competition†.....                      | 42.7        | 131 ○        |
| <b>5</b> | <b>Business sophistication.....</b>                       | <b>17.2</b> | <b>137 ○</b> |
| 5.1      | Knowledge workers.....                                    | 20.5        | 122          |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 19.1        | 75           |
| 5.1.2    | Firms offering formal training, % firms.....              | 17.3        | 96           |
| 5.1.3    | GERD performed by business, % GDP.....                    | n/a         | n/a          |
| 5.1.4    | GERD performed by business, %.....                        | n/a         | n/a          |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 2.8         | 137 ○        |
| 5.2      | Innovation linkages.....                                  | 19.0        | 131          |
| 5.2.1    | University/industry research collaboration†.....          | 18.5        | 135 ○        |
| 5.2.2    | State of cluster development†.....                        | 36.5        | 112          |
| 5.2.3    | GERD financed by abroad, %.....                           | n/a         | n/a          |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 93           |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 100          |
| 5.3      | Knowledge absorption.....                                 | 12.1        | 135          |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | 0.1         | 93           |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 5.7         | 91           |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 0.2         | 124          |
| 5.3.4    | FDI net inflows, % GDP.....                               | 1.4         | 106          |
| <b>6</b> | <b>Knowledge &amp; technology outputs.....</b>            | <b>19.5</b> | <b>114</b>   |
| 6.1      | Knowledge creation.....                                   | 5.5         | 108          |
| 6.1.1    | Domestic resident patent app./tr PPP\$ GDP.....           | 0.4         | 79           |
| 6.1.2    | PCT resident patent app./tr PPP\$ GDP.....                | 0.0         | 107          |
| 6.1.3    | Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a          |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 7.1         | 89           |
| 6.1.5    | Citable documents H index.....                            | 78.0        | 82 ●         |
| 6.2      | Knowledge impact.....                                     | 32.4        | 93           |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | 1.0         | 69           |
| 6.2.2    | New businesses/th pop. 15–64.....                         | 0.5         | 74           |
| 6.2.3    | Computer software spending, % GDP.....                    | n/a         | n/a          |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.6         | 112          |
| 6.2.5    | High- & medium-high-tech manufactures, %.....             | n/a         | n/a          |
| 6.3      | Knowledge diffusion.....                                  | 20.5        | 129          |
| 6.3.1    | Royalty & license fees receipts, % total trade.....       | 0.0         | 103          |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.0         | 124 ○        |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 0.3         | 118          |
| 6.3.4    | FDI net outflows, % GDP.....                              | 0.0         | 98           |
| <b>7</b> | <b>Creative outputs.....</b>                              | <b>14.0</b> | <b>138 ○</b> |
| 7.1      | Intangible assets.....                                    | 19.7        | 137 ○        |
| 7.1.1    | Domestic res trademark app./bn PPP\$ GDP.....             | 12.8        | 91           |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.1         | 61           |
| 7.1.3    | ICTs & business model creation†.....                      | 31.5        | 135 ○        |
| 7.1.4    | ICTs & organizational model creation†.....                | 31.8        | 132 ○        |
| 7.2      | Creative goods & services.....                            | 4.0         | 114          |
| 7.2.1    | Cultural & creative services exports, % total trade.....  | 0.2         | 43 ●         |
| 7.2.2    | National feature films/mn pop. 15–69.....                 | n/a         | n/a          |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....             | 0.1         | 48           |
| 7.2.4    | Printing & publishing manufactures, %.....                | n/a         | n/a          |
| 7.2.5    | Creative goods exports, % total trade.....                | 0.0         | 124 ○        |
| 7.3      | Online creativity.....                                    | 12.5        | 84 ●         |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.5         | 123          |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                      | 2.5         | 121          |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                           | 700.5       | 103          |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                  | 46.0        | 56           |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 20.8                |
| GDP (US\$ billions) .....   | 121.7               |
| GDP per capita, PPP\$ ..... | 6,247.3             |
| Income group .....          | Upper-middle income |
| Region .....                | Sub-Saharan Africa  |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>23.8</b>                           | <b>135</b> |
| Innovation Output Sub-Index .....                            | 21.4                                  | 112        |
| Innovation Input Sub-Index .....                             | 26.2                                  | 138        |
| Innovation Efficiency Ratio .....                            | 0.8                                   | 33 ●       |
| Global Innovation Index 2013 (out of 142) .....              | 23.5                                  | 135        |
| <b>1 Institutions.....</b>                                   | <b>39.1</b>                           | <b>136</b> |
| 1.1 Political environment.....                               | 44.1                                  | 116        |
| 1.1.1 Political stability*.....                              | 56.4                                  | 87 ●       |
| 1.1.2 Government effectiveness*.....                         | 13.5                                  | 133        |
| 1.1.3 Press freedom*.....                                    | 62.2                                  | 106        |
| 1.2 Regulatory environment .....                             | 35.5                                  | 135        |
| 1.2.1 Regulatory quality* .....                              | 23.3                                  | 130        |
| 1.2.2 Rule of law*.....                                      | 11.3                                  | 139 ○      |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 31.0                                  | 132        |
| 1.3 Business environment.....                                | 37.8                                  | 138        |
| 1.3.1 Ease of starting a business*.....                      | 56.5                                  | 134        |
| 1.3.2 Ease of resolving insolvency*.....                     | 0.0                                   | 140 ○      |
| 1.3.3 Ease of paying taxes*.....                             | 56.9                                  | 112        |
| <b>2 Human capital &amp; research.....</b>                   | <b>13.8</b>                           | <b>129</b> |
| 2.1 Education .....  | 33.5                                  | 102 ●      |
| 2.1.1 Expenditure on education, % GDP .....                  | 3.5                                   | 100        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | n/a                                   | n/a        |
| 2.1.3 School life expectancy, years.....                     | 11.3                                  | 100        |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 27.4                                  | 98         |
| 2.2 Tertiary education.....                                  | 6.8                                   | 132        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 7.5                                   | 118        |
| 2.2.2 Graduates in science & engineering, % .....            | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                      | n/a                                   | n/a        |
| 2.3 Research & development (R&D).....                        | 0.9                                   | 120        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 148.4                                 | 93         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.1                                   | 106        |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                 | <b>17.5</b>                           | <b>137</b> |
| 3.1 Information & communication technologies (ICTs).....     | 15.1                                  | 126        |
| 3.1.1 ICT access*.....                                       | 18.3                                  | 128        |
| 3.1.2 ICT use* .....   | 6.2                                   | 113        |
| 3.1.3 Government's online service*.....                      | 33.3                                  | 110        |
| 3.1.4 E-participation*.....                                  | 2.6                                   | 116        |
| 3.2 General infrastructure.....                              | 12.2                                  | 141 ○      |
| 3.2.1 Electricity output, kWh/cap.....                       | 288.0                                 | 111        |
| 3.2.2 Logistics performance*.....                            | 26.6                                  | 127        |
| 3.2.3 Gross capital formation, % GDP.....                    | 13.8                                  | 135        |
| 3.3 Ecological sustainability.....                           | 25.3                                  | 116        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 7.6                                   | 42 ●       |
| 3.3.2 Environmental performance*.....                        | 28.7                                  | 132        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.0                                   | 127 ○      |
| <b>4 Market sophistication .....</b>                         | <b>42.9</b>                           | <b>107</b> |
| 4.1 Credit.....  | 16.8                                  | 133        |
| 4.1.1 Ease of getting credit*.....                           | 43.8                                  | 112        |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 23.5                                  | 112        |
| 4.1.3 Microfinance gross loans, % GDP .....                  | 0.0                                   | 85         |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 53.3        | 23 ●        |
| 4.2.1 Ease of protecting investors*.....                        | 53.3        | 66 ●        |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a         |
| 4.3 Trade & competition .....                                   | 58.6        | 133         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 7.4         | 108         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.0         | 11 ●        |
| 4.3.3 Intensity of local competition†.....                      | 30.3        | 136 ○       |
| <b>5 Business sophistication .....</b>                          | <b>17.8</b> | <b>135</b>  |
| 5.1 Knowledge workers.....                                      | 22.2        | 116         |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a         |
| 5.1.2 Firms offering formal training, % firms.....              | 26.9        | 72 ●        |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a         |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 5.1         | 131         |
| 5.2 Innovation linkages .....                                   | 25.1        | 101 ●       |
| 5.2.1 University/industry research collaboration†.....          | 19.7        | 133 ○       |
| 5.2.2 State of cluster development† .....                       | 34.8        | 116         |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 56 ●        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a         | n/a         |
| 5.3 Knowledge absorption.....                                   | 6.0         | 141 ○       |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.0         | 123         |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a         | n/a         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.7         | 72 ●        |
| 5.3.4 FDI net inflows, % GDP.....                               | -2.9        | 142 ○       |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>24.8</b> | <b>83 ●</b> |
| 6.1 Knowledge creation.....                                     | 0.7         | 143 ○       |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 112 ○       |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 0.3         | 142 ○       |
| 6.1.5 Citable documents H index.....                            | 25.0        | 137         |
| 6.2 Knowledge impact.....                                       | 47.1        | 37 ●        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.1         | 35 ●        |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.3         | 137         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a         |
| 6.3 Knowledge diffusion.....                                    | 26.6        | 98 ●        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 84 ●        |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a         | n/a         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.1         | 134 ○       |
| 6.3.4 FDI net outflows, % GDP .....                             | 2.4         | 30 ●        |
| <b>7 Creative outputs .....</b>                                 | <b>18.1</b> | <b>127</b>  |
| 7.1 Intangible assets.....                                      | 35.1        | 115         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a         |
| 7.1.3 ICTs & business model creation†.....                      | 37.8        | 130         |
| 7.1.4 ICTs & organizational model creation†.....                | 32.3        | 130         |
| 7.2 Creative goods & services.....                              | 1.9         | 125         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 79          |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a         |
| 7.2.5 Creative goods exports, % total trade.....                | n/a         | n/a         |
| 7.3 Online creativity .....                                     | 0.3         | 135         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.1         | 135         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 0.4         | 133         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 292.0       | 112         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 41.1                            |
| GDP (US\$ billions) .....   | 488.2                           |
| GDP per capita, PPP\$ ..... | 18,749.3                        |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>35.1</b>                           | <b>70</b>    |
| Innovation Output Sub-Index .....                            | 31.1                                  | 61           |
| Innovation Input Sub-Index.....                              | 39.2                                  | 83           |
| Innovation Efficiency Ratio.....                             | 0.8                                   | 43           |
| Global Innovation Index 2013 (out of 142) .....              | 37.7                                  | 56           |
| <b>1 Institutions.....</b>                                   | <b>49.1</b>                           | <b>111</b>   |
| 1.1 Political environment.....                               | 58.6                                  | 66           |
| 1.1.1 Political stability*.....                              | 67.3                                  | 66           |
| 1.1.2 Government effectiveness*.....                         | 34.1                                  | 84           |
| 1.1.3 Press freedom*.....                                    | 74.3                                  | 45           |
| 1.2 Regulatory environment .....                             | 40.2                                  | 129 ○        |
| 1.2.1 Regulatory quality* .....                              | 23.6                                  | 129 ○        |
| 1.2.2 Rule of law*.....                                      | 26.7                                  | 106          |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 30.3                                  | 129 ○        |
| 1.3 Business environment.....                                | 48.5                                  | 124 ○        |
| 1.3.1 Ease of starting a business*.....                      | 68.8                                  | 119          |
| 1.3.2 Ease of resolving insolvency*.....                     | 32.6                                  | 86           |
| 1.3.3 Ease of paying taxes*.....                             | 44.0                                  | 127 ○        |
| <b>2 Human capital &amp; research.....</b>                   | <b>38.3</b>                           | <b>41</b>    |
| 2.1 Education .....  | 50.0                                  | 47           |
| 2.1.1 Expenditure on education, % GDP.....                   | 5.8                                   | 36           |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 25.1                                  | 38           |
| 2.1.3 School life expectancy, years.....                     | 16.4                                  | 16 ●         |
| 2.1.4 PISA scales in reading, maths, & science.....          | 396.7                                 | 55 ○         |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 10.9                                  | 29           |
| 2.2 Tertiary education.....                                  | 39.6                                  | 49           |
| 2.2.1 Tertiary enrolment, % gross.....                       | 74.8                                  | 16 ●         |
| 2.2.2 Graduates in science & engineering, % .....            | 13.5                                  | 90 ○         |
| 2.2.3 Tertiary inbound mobility, %.....                      | n/a                                   | n/a          |
| 2.3 Research & development (R&D).....                        | 25.1                                  | 39           |
| 2.3.1 Researchers, headcounts/mn pop. ....                   | 1,941.9                               | 40           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.6                                   | 53           |
| 2.3.3 QS university ranking, average score top 3*.....       | 42.7                                  | 32 ●         |
| <b>3 Infrastructure.....</b>                                 | <b>38.0</b>                           | <b>65</b>    |
| 3.1 Information & communication technologies (ICTs).....     | 43.1                                  | 57           |
| 3.1.1 ICT access*.....                                       | 58.8                                  | 53           |
| 3.1.2 ICT use* .....   | 31.6                                  | 58           |
| 3.1.3 Government's online service*.....                      | 52.9                                  | 60           |
| 3.1.4 E-participation*.....                                  | 29.0                                  | 53           |
| 3.2 General infrastructure.....                              | 34.3                                  | 64           |
| 3.2.1 Electricity output, kWh/cap.....                       | 3,177.7                               | 62           |
| 3.2.2 Logistics performance*.....                            | 57.1                                  | 48           |
| 3.2.3 Gross capital formation, % GDP.....                    | 24.2                                  | 58           |
| 3.3 Ecological sustainability.....                           | 36.5                                  | 64           |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 7.9                                   | 39           |
| 3.3.2 Environmental performance*.....                        | 49.6                                  | 84           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 1.7                                   | 49           |
| <b>4 Market sophistication .....</b>                         | <b>37.7</b>                           | <b>132 ○</b> |
| 4.1 Credit.....  | 22.4                                  | 120          |
| 4.1.1 Ease of getting credit*.....                           | 62.5                                  | 69           |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 18.5                                  | 122 ○        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.0                                   | 87 ○         |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 21.2        | 136 ○     |
| 4.2.1 Ease of protecting investors*.....                        | 50.0        | 81        |
| 4.2.2 Market capitalization, % GDP.....                         | 7.2         | 94 ○      |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.3         | 86        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 53        |
| 4.3 Trade & competition .....                                   | 69.6        | 113       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 5.6         | 88        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.2         | 37        |
| 4.3.3 Intensity of local competition†.....                      | 50.2        | 126 ○     |
| <b>5 Business sophistication .....</b>                          | <b>32.9</b> | <b>66</b> |
| 5.1 Knowledge workers.....                                      | 42.0        | 60        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 25.0        | 54        |
| 5.1.2 Firms offering formal training, % firms.....              | 58.1        | 10 ●      |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.2         | 52        |
| 5.1.4 GERD performed by business, %.....                        | 24.6        | 59        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 37.0        | 85        |
| 5.2 Innovation linkages .....                                   | 18.7        | 133 ○     |
| 5.2.1 University/industry research collaboration†.....          | 45.0        | 59        |
| 5.2.2 State of cluster development† .....                       | 37.0        | 110       |
| 5.2.3 GERD financed by abroad, %.....                           | 0.5         | 87 ○      |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 88        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 65        |
| 5.3 Knowledge absorption.....                                   | 38.0        | 22 ●      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 2.4         | 5 ●       |
| 5.3.2 High-tech imports less re-imports, %.....                 | 10.6        | 26 ●      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.3         | 48        |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.7         | 70        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>25.2</b> | <b>81</b> |
| 6.1 Knowledge creation.....                                     | 10.8        | 75        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 1.0         | 68        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a         | n/a       |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.2         | 49        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 10.3        | 72        |
| 6.1.5 Citable documents H index.....                            | 222.0       | 35        |
| 6.2 Knowledge impact.....                                       | 31.0        | 102       |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.5         | 78        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.5         | 79        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.2         | 63        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 9.0         | 52        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a       |
| 6.3 Knowledge diffusion.....                                    | 33.9        | 50        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.2         | 38        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 2.2         | 51        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.3         | 31 ●      |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.2         | 78        |
| <b>7 Creative outputs .....</b>                                 | <b>36.9</b> | <b>49</b> |
| 7.1 Intangible assets.....                                      | 42.1        | 82        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 83.2        | 25 ●      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a       |
| 7.1.3 ICTs & business model creation†.....                      | 45.7        | 113       |
| 7.1.4 ICTs & organizational model creation†.....                | 48.5        | 85        |
| 7.2 Creative goods & services.....                              | 24.4        | 51        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 1.0         | 7 ●       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 3.6         | 37        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.5         | 30        |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a       |
| 7.2.5 Creative goods exports, % total trade.....                | 0.2         | 82        |
| 7.3 Online creativity.....                                      | 39.0        | 36        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 3.7         | 67        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 62.9        | 16 ●      |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 7,140.9     | 51        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 77.4        | 34        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Armenia

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 3.0                              |
| GDP (US\$ billions) .....   | 10.5                             |
| GDP per capita, PPP\$ ..... | 6,190.7                          |
| Income group .....          | Lower-middle income              |
| Region .....                | Northern Africa and Western Asia |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>36.1</b>                           | <b>65</b> |
| Innovation Output Sub-Index .....                             | 32.7                                  | 55        |
| Innovation Input Sub-Index .....                              | 39.4                                  | 81        |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 28 ●      |
| Global Innovation Index 2013 (out of 142) .....               | 37.6                                  | 59        |
| <b>1 Institutions.....</b>                                    | <b>66.4</b>                           | <b>58</b> |
| 1.1 Political environment.....                                | 60.1                                  | 63        |
| 1.1.1 Political stability*.....                               | 68.3                                  | 62        |
| 1.1.2 Government effectiveness*.....                          | 39.9                                  | 70        |
| 1.1.3 Press freedom*.....                                     | 72.0                                  | 61        |
| 1.2 Regulatory environment .....                              | 70.2                                  | 53        |
| 1.2.1 Regulatory quality* .....                               | 57.4                                  | 61        |
| 1.2.2 Rule of law*.....                                       | 35.4                                  | 84        |
| 1.2.3 Cost of redundancy dismissal, salary weeks .....        | 11.0                                  | 45        |
| 1.3 Business environment.....                                 | 68.9                                  | 54        |
| 1.3.1 Ease of starting a business* .....                      | 97.3                                  | 6 ●       |
| 1.3.2 Ease of resolving insolvency*.....                      | 38.6                                  | 68        |
| 1.3.3 Ease of paying taxes*.....                              | 70.8                                  | 62        |
| <b>2 Human capital &amp; research.....</b>                    | <b>21.4</b>                           | <b>99</b> |
| 2.1 Education .....   | 28.4                                  | 123 ○     |
| 2.1.1 Expenditure on education, % GDP .....                   | 3.3                                   | 105 ○     |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 17.7                                  | 67        |
| 2.1.3 School life expectancy, years.....                      | 12.3                                  | 84        |
| 2.1.4 PISA scales in reading, maths, & science .....          | n/a                                   | n/a       |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a       |
| 2.2 Tertiary education.....                                   | 29.0                                  | 82        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 46.0                                  | 56        |
| 2.2.2 Graduates in science & engineering, % .....             | 15.9                                  | 78        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 3.4                                   | 48        |
| 2.3 Research & development (R&D).....                         | 6.6                                   | 78        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 1,504.0                               | 47        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.3                                   | 79        |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                  | <b>30.0</b>                           | <b>93</b> |
| 3.1 Information & communication technologies (ICTs).....      | 26.0                                  | 98        |
| 3.1.1 ICT access*.....  | 45.2                                  | 73        |
| 3.1.2 ICT use* .....  | 26.0                                  | 67        |
| 3.1.3 Government's online service*.....                       | 32.7                                  | 113 ○     |
| 3.1.4 E-participation*.....                                   | 0.0                                   | 129 ○     |
| 3.2 General infrastructure.....                               | 28.7                                  | 91        |
| 3.2.1 Electricity output, kWh/cap.....                        | 2,397.7                               | 70        |
| 3.2.2 Logistics performance* .....                            | 37.7                                  | 97        |
| 3.2.3 Gross capital formation, % GDP .....                    | 24.5                                  | 56        |
| 3.3 Ecological sustainability .....                           | 35.4                                  | 69        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 5.8                                   | 72        |
| 3.3.2 Environmental performance*.....                         | 61.7                                  | 46        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.2                                   | 111 ○     |
| <b>4 Market sophistication .....</b>                          | <b>50.4</b>                           | <b>56</b> |
| 4.1 Credit.....   | 46.2                                  | 42        |
| 4.1.1 Ease of getting credit* .....                           | 75.0                                  | 40        |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 42.9                                  | 78        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 4.0                                   | 13 ●      |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 28.9        | 104       |
| 4.2.1 Ease of protecting investors*.....                        | 66.7        | 21 ●      |
| 4.2.2 Market capitalization, % GDP.....                         | 1.3         | 107 ○     |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.0         | 106 ○     |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 30        |
| 4.3 Trade & competition .....                                   | 76.1        | 60        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 2.3         | 49        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.7         | 59        |
| 4.3.3 Intensity of local competition†.....                      | 59.7        | 97        |
| <b>5 Business sophistication .....</b>                          | <b>28.8</b> | <b>90</b> |
| 5.1 Knowledge workers.....                                      | 38.3        | 75        |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a       |
| 5.1.2 Firms offering formal training, % firms.....              | 30.4        | 65        |
| 5.1.3 GERD performed by business, % GDP .....                   | n/a         | n/a       |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 85.5        | 55        |
| 5.2 Innovation linkages .....                                   | 24.0        | 111 ○     |
| 5.2.1 University/industry research collaboration† .....         | 36.0        | 102 ○     |
| 5.2.2 State of cluster development† .....                       | 43.8        | 80        |
| 5.2.3 GERD financed by abroad, %.....                           | 3.4         | 71        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 38        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.1         | 53        |
| 5.3 Knowledge absorption.....                                   | 24.2        | 77        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | n/a         | n/a       |
| 5.3.2 High-tech imports less re-imports, % .....                | 6.9         | 68        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.7         | 73        |
| 5.3.4 FDI net inflows, % GDP .....                              | 4.9         | 40        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>31.8</b> | <b>51</b> |
| 6.1 Knowledge creation.....                                     | 27.7        | 37        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....           | 7.0         | 16 ●      |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.4         | 42        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 2.0         | 16 ●      |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 33.8        | 26 ●      |
| 6.1.5 Citable documents H index.....                            | 105.0       | 62        |
| 6.2 Knowledge impact.....                                       | 32.2        | 95        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                  | 3.3         | 33        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.5         | 48        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....          | 1.3         | 117 ○     |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 4.9         | 87 ○      |
| 6.3 Knowledge diffusion.....                                    | 35.7        | 44        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a       |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.2         | 94        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.7         | 23 ●      |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.2         | 83        |
| <b>7 Creative outputs .....</b>                                 | <b>33.6</b> | <b>63</b> |
| 7.1 Intangible assets .....                                     | 49.9        | 43        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....             | 102.1       | 15 ●      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....          | 1.3         | 26        |
| 7.1.3 ICTs & business model creation†.....                      | 62.2        | 44        |
| 7.1.4 ICTs & organizational model creation†.....                | 61.3        | 34 ●      |
| 7.2 Creative goods & services.....                              | 14.6        | 81        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 52        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 2.4         | 53        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 45        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.3         | 72        |
| 7.3 Online creativity .....                                     | 20.2        | 65        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.5         | 83        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 32.6        | 53        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 14,960.1    | 33 ●      |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 22.7                        |
| GDP (US\$ billions) .....   | 1,505.3                     |
| GDP per capita, PPP\$ ..... | 43,073.1                    |
| Income group .....          | High income                 |
| Region .....                | South East Asia and Oceania |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>55.0</b>                           | <b>17</b>  |
| Innovation Output Sub-Index .....                            | 45.5                                  | 22         |
| Innovation Input Sub-Index.....                              | 64.6                                  | 10         |
| Innovation Efficiency Ratio.....                             | 0.7                                   | 81 ○       |
| Global Innovation Index 2013 (out of 142) .....              | 53.1                                  | 19         |
| <b>1 Institutions.....</b>                                   | <b>88.9</b>                           | <b>11</b>  |
| 1.1 Political environment.....                               | 86.3                                  | 14         |
| 1.1.1 Political stability*.....                              | 90.1                                  | 19         |
| 1.1.2 Government effectiveness*.....                         | 83.9                                  | 12         |
| 1.1.3 Press freedom*.....                                    | 84.8                                  | 24         |
| 1.2 Regulatory environment.....                              | 93.7                                  | 12         |
| 1.2.1 Regulatory quality*.....                               | 95.0                                  | 7 ●        |
| 1.2.2 Rule of law*.....                                      | 94.4                                  | 12         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 11.7                                  | 49         |
| 1.3 Business environment.....                                | 86.9                                  | 12         |
| 1.3.1 Ease of starting a business*.....                      | 95.9                                  | 9 ●        |
| 1.3.2 Ease of resolving insolvency*.....                     | 86.1                                  | 17         |
| 1.3.3 Ease of paying taxes*.....                             | 78.7                                  | 38         |
| <b>2 Human capital &amp; research.....</b>                   | <b>61.8</b>                           | <b>7 ●</b> |
| 2.1 Education.....   | 55.5                                  | 24         |
| 2.1.1 Expenditure on education, % GDP.....                   | 5.6                                   | 43         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 19.9                                  | 59 ○       |
| 2.1.3 School life expectancy, years.....                     | 19.9                                  | 1 ●        |
| 2.1.4 PISA scales in reading, maths, & science.....          | 512.5                                 | 14         |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | n/a                                   | n/a        |
| 2.2 Tertiary education.....                                  | 59.9                                  | 7 ●        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 83.2                                  | 7 ●        |
| 2.2.2 Graduates in science & engineering, %.....             | 16.6                                  | 73 ○       |
| 2.2.3 Tertiary inbound mobility, %.....                      | 19.8                                  | 1 ●        |
| 2.3 Research & development (R&D).....                        | 70.2                                  | 8 ●        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | n/a                                   | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 2.4                                   | 13         |
| 2.3.3 QS university ranking, average score top 3*.....       | 85.8                                  | 5 ●        |
| <b>3 Infrastructure.....</b>                                 | <b>60.1</b>                           | <b>7 ●</b> |
| 3.1 Information & communication technologies (ICTs).....     | 78.4                                  | 9 ●        |
| 3.1.1 ICT access*.....                                       | 76.4                                  | 21         |
| 3.1.2 ICT use*.....  | 74.6                                  | 8 ●        |
| 3.1.3 Government's online service*.....                      | 86.3                                  | 9          |
| 3.1.4 E-participation*.....                                  | 76.3                                  | 8          |
| 3.2 General infrastructure.....                              | 55.0                                  | 9 ●        |
| 3.2.1 Electricity output, kWh/cap.....                       | 10,929.8                              | 10         |
| 3.2.2 Logistics performance*.....                            | 84.1                                  | 18         |
| 3.2.3 Gross capital formation, % GDP.....                    | 28.5                                  | 26         |
| 3.3 Ecological sustainability.....                           | 46.8                                  | 37         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 6.1                                   | 66 ○       |
| 3.3.2 Environmental performance*.....                        | 82.4                                  | 3 ●        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 2.1                                   | 47         |
| <b>4 Market sophistication.....</b>                          | <b>68.1</b>                           | <b>10</b>  |
| 4.1 Credit.....  | 66.8                                  | 11         |
| 4.1.1 Ease of getting credit*.....                           | 93.8                                  | 3          |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 123.3                                 | 22         |
| 4.1.3 Microfinance gross loans, % GDP.....                   | n/a                                   | n/a        |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment.....   | 50.4        | 29        |
| 4.2.1 Ease of protecting investors*.....                        | 56.7        | 55 ○      |
| 4.2.2 Market capitalization, % GDP.....                         | 84.6        | 20        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 69.2        | 10        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.1         | 23        |
| 4.3 Trade & competition.....                                    | 86.9        | 1 ●       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.8         | 45        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.6         | 56        |
| 4.3.3 Intensity of local competition†.....                      | 80.3        | 11        |
| <b>5 Business sophistication.....</b>                           | <b>43.9</b> | <b>26</b> |
| 5.1 Knowledge workers.....                                      | 63.0        | 22        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 42.9        | 16        |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a       |
| 5.1.3 GERD performed by business, % GDP.....                    | 1.3         | 16        |
| 5.1.4 GERD performed by business, %.....                        | 58.4        | 23        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 159.6       | 31        |
| 5.2 Innovation linkages.....                                    | 38.4        | 48        |
| 5.2.1 University/industry research collaboration†.....          | 67.7        | 14        |
| 5.2.2 State of cluster development†.....                        | 54.5        | 34        |
| 5.2.3 GERD financed by abroad, %.....                           | 1.6         | 76 ○      |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.1         | 27        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 1.0         | 20        |
| 5.3 Knowledge absorption.....                                   | 30.3        | 42        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.3         | 14        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 10.1        | 28        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.6         | 86 ○      |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.8         | 42        |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>38.5</b> | <b>31</b> |
| 6.1 Knowledge creation.....                                     | 36.6        | 26        |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 2.7         | 40        |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 1.8         | 26        |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | 1.3         | 26        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 48.0        | 12        |
| 6.1.5 Citable documents H index.....                            | 514.0       | 10        |
| 6.2 Knowledge impact.....                                       | 48.4        | 34        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.6         | 41        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 12.2        | 8         |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 31        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 9.6         | 49        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 20.2        | 54 ○      |
| 6.3 Knowledge diffusion.....                                    | 30.4        | 78 ○      |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.3         | 32        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.7         | 56        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.9         | 87 ○      |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.9         | 49        |
| <b>7 Creative outputs.....</b>                                  | <b>52.5</b> | <b>12</b> |
| 7.1 Intangible assets.....                                      | 49.4        | 45        |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | 73.4        | 32        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 1.1         | 28        |
| 7.1.3 ICTs & business model creation†.....                      | 69.2        | 21        |
| 7.1.4 ICTs & organizational model creation†.....                | 65.7        | 20        |
| 7.2 Creative goods & services.....                              | 42.4        | 12        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 64 ○      |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 2.6         | 49 ○      |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 2.3         | 3 ●       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.1         | 5 ●       |
| 7.2.5 Creative goods exports, % total trade.....                | 0.6         | 52        |
| 7.3 Online creativity.....                                      | 68.6        | 10        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 83.6        | 10        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 68.9        | 14        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 20,276.2    | 25        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 87.6        | 13        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 8.5         |
| GDP (US\$ billions) .....   | 415.4       |
| GDP per capita, PPP\$ ..... | 42,596.6    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>53.4</b>                           | <b>20</b>  |
| Innovation Output Sub-Index .....                             | 45.5                                  | 21         |
| Innovation Input Sub-Index .....                              | 61.3                                  | 18         |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 69 ○       |
| Global Innovation Index 2013 (out of 142) .....               | 51.9                                  | 23         |
| <b>1 Institutions.....</b>                                    | <b>88.8</b>                           | <b>12</b>  |
| 1.1 Political environment.....                                | 90.4                                  | 9 ●        |
| 1.1.1 Political stability*.....                               | 98.2                                  | 6 ●        |
| 1.1.2 Government effectiveness*.....                          | 82.4                                  | 15         |
| 1.1.3 Press freedom*.....                                     | 90.6                                  | 10 ●       |
| 1.2 Regulatory environment .....                              | 96.4                                  | 8 ●        |
| 1.2.1 Regulatory quality* .....                               | 88.3                                  | 17         |
| 1.2.2 Rule of law*.....                                       | 97.1                                  | 6 ●        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.0                                   | 1 ●        |
| 1.3 Business environment.....                                 | 79.5                                  | 23         |
| 1.3.1 Ease of starting a business*.....                       | 79.2                                  | 93 ○       |
| 1.3.2 Ease of resolving insolvency*.....                      | 87.2                                  | 14         |
| 1.3.3 Ease of paying taxes*.....                              | 72.2                                  | 56         |
| <b>2 Human capital &amp; research.....</b>                    | <b>61.5</b>                           | <b>8 ●</b> |
| 2.1 Education .....   | 55.9                                  | 20         |
| 2.1.1 Expenditure on education, % GDP.....                    | 5.9                                   | 31         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 29.6                                  | 23         |
| 2.1.3 School life expectancy, years.....                      | 15.6                                  | 30         |
| 2.1.4 PISA scales in reading, maths, & science.....           | 500.3                                 | 18         |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 9.5                                   | 20         |
| 2.2 Tertiary education.....                                   | 66.7                                  | 4 ●        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 71.0                                  | 24         |
| 2.2.2 Graduates in science & engineering, % .....             | 27.1                                  | 18         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 19.5                                  | 7 ●        |
| 2.3 Research & development (R&D).....                         | 61.9                                  | 13         |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 7,780.1                               | 7 ●        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 2.9                                   | 9 ●        |
| 2.3.3 QS university ranking, average score top 3*.....        | 47.4                                  | 26         |
| <b>3 Infrastructure.....</b>                                  | <b>53.7</b>                           | <b>21</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 62.7                                  | 26         |
| 3.1.1 ICT access*.....  | 79.6                                  | 13         |
| 3.1.2 ICT use* .....  | 59.7                                  | 23         |
| 3.1.3 Government's online service*.....                       | 74.5                                  | 26         |
| 3.1.4 E-participation*.....                                   | 36.8                                  | 42         |
| 3.2 General infrastructure.....                               | 45.7                                  | 24         |
| 3.2.1 Electricity output, kWh/cap.....                        | 7,665.8                               | 25         |
| 3.2.2 Logistics performance*.....                             | 90.5                                  | 11 ●       |
| 3.2.3 Gross capital formation, % GDP.....                     | 21.9                                  | 74 ○       |
| 3.3 Ecological sustainability.....                            | 52.6                                  | 19         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 9.3                                   | 19         |
| 3.3.2 Environmental performance*.....                         | 78.3                                  | 8 ●        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 3.1                                   | 32         |
| <b>4 Market sophistication .....</b>                          | <b>57.2</b>                           | <b>32</b>  |
| 4.1 Credit.....   | 59.5                                  | 19         |
| 4.1.1 Ease of getting credit*.....                            | 81.3                                  | 27         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 117.0                                 | 26         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 31.7        | 87 ○      |
| 4.2.1 Ease of protecting investors*.....                        | 50.0        | 81 ○      |
| 4.2.2 Market capitalization, % GDP.....                         | 26.5        | 61 ○      |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 11.8        | 38        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.1         | 19        |
| 4.3 Trade & competition .....                                   | 80.5        | 27        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 80.5        | 9 ●       |
| <b>5 Business sophistication .....</b>                          | <b>45.5</b> | <b>24</b> |
| 5.1 Knowledge workers.....                                      | 67.1        | 14        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 38.5        | 25        |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a       |
| 5.1.3 GERD performed by business, % GDP.....                    | 2.0         | 10        |
| 5.1.4 GERD performed by business, %.....                        | 68.8        | 10        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 198.3       | 25        |
| 5.2 Innovation linkages .....                                   | 44.3        | 32        |
| 5.2.1 University/industry research collaboration†.....          | 63.2        | 22        |
| 5.2.2 State of cluster development† .....                       | 64.2        | 16        |
| 5.2.3 GERD financed by abroad, %.....                           | 15.2        | 30        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 63 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 1.5         | 13        |
| 5.3 Knowledge absorption.....                                   | 25.1        | 72 ○      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.8         | 36        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 8.3         | 53        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.4         | 44        |
| 5.3.4 FDI net inflows, % GDP.....                               | 0.5         | 125 ○     |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>41.1</b> | <b>25</b> |
| 6.1 Knowledge creation.....                                     | 37.8        | 24        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 6.4         | 21        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 3.7         | 13        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.5         | 22        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 35.7        | 23        |
| 6.1.5 Citable documents H index.....                            | 378.0       | 17        |
| 6.2 Knowledge impact.....                                       | 44.3        | 46        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.4         | 82 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.5         | 77 ○      |
| 6.2.3 Computer software spending, % GDP.....                    | 0.6         | 13        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 14.9        | 31        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 38.1        | 22        |
| 6.3 Knowledge diffusion.....                                    | 41.2        | 29        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.4         | 27        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 8.3         | 24        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.1         | 38        |
| 6.3.4 FDI net outflows, % GDP .....                             | 4.5         | 17        |
| <b>7 Creative outputs .....</b>                                 | <b>49.9</b> | <b>15</b> |
| 7.1 Intangible assets.....                                      | 51.5        | 34        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 75.4        | 31        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 3.2         | 7         |
| 7.1.3 ICTs & business model creation†.....                      | 64.7        | 34        |
| 7.1.4 ICTs & organizational model creation†.....                | 58.2        | 46        |
| 7.2 Creative goods & services.....                              | 37.6        | 22        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.6         | 19        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 8.8         | 15        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 1.8         | 9         |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 40 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 1.3         | 37        |
| 7.3 Online creativity .....                                     | 58.8        | 19        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 49.4        | 18        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 71.3        | 10 ●      |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 19,348.1    | 27        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 81.7        | 25        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 9.3                              |
| GDP (US\$ billions) .....   | 73.5                             |
| GDP per capita, PPP\$ ..... | 11,044.2                         |
| Income group .....          | Upper-middle income              |
| Region .....                | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>29.6</b>                           | <b>101</b> |
| Innovation Output Sub-Index .....                | 21.8                                  | 109        |
| Innovation Input Sub-Index.....                  | 37.4                                  | 91         |
| Innovation Efficiency Ratio.....                 | 0.6                                   | 120        |
| Global Innovation Index 2013 (out of 142) .....  | 29.0                                  | 105        |

|          |  |             |             |
|----------|--|-------------|-------------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>53.4</b> | <b>100</b>  |
| 1.1      | Political environment.....                             | 40.4        | 124 ○       |
| 1.1.1    | Political stability*.....                              | 48.9        | 108         |
| 1.1.2    | Government effectiveness*.....                         | 20.1        | 119         |
| 1.1.3    | Press freedom*.....                                    | 52.3        | 128 ○       |
| 1.2      | Regulatory environment.....                            | 51.5        | 111         |
| 1.2.1    | Regulatory quality*.....                               | 36.6        | 107         |
| 1.2.2    | Rule of law*.....                                      | 24.2        | 115         |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 21.7        | 100         |
| 1.3      | Business environment.....                              | 68.2        | 57          |
| 1.3.1    | Ease of starting a business*.....                      | 94.9        | 13 ●        |
| 1.3.2    | Ease of resolving insolvency*.....                     | 36.0        | 76          |
| 1.3.3    | Ease of paying taxes*.....                             | 73.7        | 52          |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>20.9</b> | <b>100</b>  |
| 2.1      | Education.....   | 29.3        | 121 ○       |
| 2.1.1    | Expenditure on education, % GDP.....                   | 2.4         | 123 ○       |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | n/a         | n/a         |
| 2.1.3    | School life expectancy, years.....                     | 11.9        | 88          |
| 2.1.4    | PISA scales in reading, maths, & science.....          | n/a         | n/a         |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | n/a         | n/a         |
| 2.2      | Tertiary education.....                                | 21.6        | 99          |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 20.4        | 90          |
| 2.2.2    | Graduates in science & engineering, %.....             | 16.2        | 76          |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 2.5         | 55          |
| 2.3      | Research & development (R&D).....                      | 11.9        | 63          |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 1,292.2     | 51          |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 0.2         | 86          |
| 2.3.3    | QS university ranking, average score top 3*.....       | 19.2        | 53          |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>32.4</b> | <b>85</b>   |
| 3.1      | Information & communication technologies (ICTs).....   | 34.7        | 78          |
| 3.1.1    | ICT access*.....                                       | 51.7        | 65          |
| 3.1.2    | ICT use*.....  | 37.2        | 48 ●        |
| 3.1.3    | Government's online service*.....                      | 36.6        | 101         |
| 3.1.4    | E-participation*.....                                  | 13.2        | 84          |
| 3.2      | General infrastructure.....                            | 27.9        | 98          |
| 3.2.1    | Electricity output, kWh/cap.....                       | 2,213.1     | 75          |
| 3.2.2    | Logistics performance*.....                            | 34.5        | 110         |
| 3.2.3    | Gross capital formation, % GDP.....                    | 24.7        | 52          |
| 3.3      | Ecological sustainability.....                         | 34.7        | 75          |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 6.5         | 57          |
| 3.3.2    | Environmental performance*.....                        | 55.5        | 59          |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.6         | 78          |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>59.9</b> | <b>26 ●</b> |
| 4.1      | Credit.....  | 40.1        | 56          |
| 4.1.1    | Ease of getting credit*.....                           | 68.8        | 53          |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 20.1        | 119         |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | 3.7         | 15 ●        |

|       |   |      |       |
|-------|---|------|-------|
| 4.2   | Investment.....                                     | 66.7 | 10 ●  |
| 4.2.1 | Ease of protecting investors*.....                  | 66.7 | 21 ●  |
| 4.2.2 | Market capitalization, % GDP.....                   | n/a  | n/a   |
| 4.2.3 | Total value of stocks traded, % GDP.....            | n/a  | n/a   |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3   | Trade & competition.....                            | 73.0 | 92    |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 3.9  | 70    |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 0.0  | 9 ●   |
| 4.3.3 | Intensity of local competition†.....                | 52.8 | 122 ○ |

|          |   |             |              |
|----------|---|-------------|--------------|
| <b>5</b> | <b>Business sophistication.....</b>                       | <b>20.1</b> | <b>131 ○</b> |
| 5.1      | Knowledge workers.....                                    | 21.6        | 119          |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 24.2        | 57           |
| 5.1.2    | Firms offering formal training, % firms.....              | 10.5        | 101 ○        |
| 5.1.3    | GERD performed by business, % GDP.....                    | 0.0         | 72           |
| 5.1.4    | GERD performed by business, %.....                        | 17.8        | 66           |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 34.7        | 88           |
| 5.2      | Innovation linkages.....                                  | 19.9        | 130 ○        |
| 5.2.1    | University/industry research collaboration†.....          | 39.3        | 81           |
| 5.2.2    | State of cluster development†.....                        | 46.3        | 72           |
| 5.2.3    | GERD financed by abroad, %.....                           | 0.0         | 93 ○         |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 81           |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 89           |
| 5.3      | Knowledge absorption.....                                 | 18.9        | 111          |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | 0.1         | 105          |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 4.0         | 115 ○        |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 0.5         | 99           |
| 5.3.4    | FDI net inflows, % GDP.....                               | 7.7         | 21 ●         |

|          |   |             |            |
|----------|---|-------------|------------|
| <b>6</b> | <b>Knowledge &amp; technology outputs.....</b>            | <b>19.1</b> | <b>115</b> |
| 6.1      | Knowledge creation.....                                   | 3.9         | 126 ○      |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP.....            | 1.5         | 59         |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 90         |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP.....          | 0.1         | 54 ○       |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 4.2         | 115        |
| 6.1.5    | Citable documents H index.....                            | 45.0        | 116        |
| 6.2      | Knowledge impact.....                                     | 31.2        | 98         |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | 2.6         | 40 ●       |
| 6.2.2    | New businesses/th pop. 15–64.....                         | 0.7         | 70         |
| 6.2.3    | Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.9         | 101        |
| 6.2.5    | High- & medium-high-tech manufactures, %.....             | 8.4         | 79         |
| 6.3      | Knowledge diffusion.....                                  | 22.2        | 121 ○      |
| 6.3.1    | Royalty & license fees receipts, % total trade.....       | 0.0         | 112 ○      |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.2         | 102        |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 0.4         | 110        |
| 6.3.4    | FDI net outflows, % GDP.....                              | 6.7         | 8 ●        |

|          |  |             |            |
|----------|--|-------------|------------|
| <b>7</b> | <b>Creative outputs.....</b>                             | <b>24.6</b> | <b>104</b> |
| 7.1      | Intangible assets.....                                   | 40.9        | 86         |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP.....             | 37.7        | 66         |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....          | 0.1         | 63         |
| 7.1.3    | ICTs & business model creation†.....                     | 63.3        | 41 ●       |
| 7.1.4    | ICTs & organizational model creation†.....               | 64.8        | 23 ●       |
| 7.2      | Creative goods & services.....                           | 6.2         | 108        |
| 7.2.1    | Cultural & creative services exports, % total trade..... | 0.0         | 86         |
| 7.2.2    | National feature films/mn pop. 15–69.....                | 3.0         | 45         |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....            | n/a         | n/a        |
| 7.2.4    | Printing & publishing manufactures, %.....               | 0.0         | 79 ○       |
| 7.2.5    | Creative goods exports, % total trade.....               | 0.0         | 121 ○      |
| 7.3      | Online creativity.....                                   | 10.3        | 91         |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....      | 1.7         | 99         |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                     | 18.6        | 83         |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                          | 6,203.3     | 52         |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 1.3                              |
| GDP (US\$ billions) .....   | 32.2                             |
| GDP per capita, PPP\$ ..... | 34,584.4                         |
| Income group .....          | High income                      |
| Region .....                | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>36.3</b>                           | <b>62</b> |
| Innovation Output Sub-Index .....                | 27.1                                  | 80        |
| Innovation Input Sub-Index .....                 | 45.5                                  | 48        |
| Innovation Efficiency Ratio .....                | 0.6                                   | 117       |
| Global Innovation Index 2013 (out of 142) .....  | 36.1                                  | 67        |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>1</b> | <b>Institutions.....</b>                                | <b>67.9</b> | <b>52</b> |
| 1.1      | Political environment.....                              | 43.5        | 118       |
| 1.1.1    | Political stability*.....                               | 38.0        | 120       |
| 1.1.2    | Government effectiveness*.....                          | 55.3        | 45        |
| 1.1.3    | Press freedom*.....                                     | 37.3        | 137 ○     |
| 1.2      | Regulatory environment .....                            | 80.2        | 32        |
| 1.2.1    | Regulatory quality* .....                               | 66.8        | 41        |
| 1.2.2    | Rule of law*.....                                       | 54.0        | 52        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....         | 8.0         | 1 ●       |
| 1.3      | Business environment.....                               | 80.1        | 22 ●      |
| 1.3.1    | Ease of starting a business*.....                       | 76.2        | 103       |
| 1.3.2    | Ease of resolving insolvency*.....                      | 71.4        | 25        |
| 1.3.3    | Ease of paying taxes*.....                              | 92.8        | 7 ●       |
| <b>2</b> | <b>Human capital &amp; research.....</b>                | <b>27.0</b> | <b>78</b> |
| 2.1      | Education .....   | 40.7        | 82        |
| 2.1.1    | Expenditure on education, % GDP .....                   | 2.6         | 119 ○     |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a         | n/a       |
| 2.1.3    | School life expectancy, years.....                      | n/a         | n/a       |
| 2.1.4    | PISA scales in reading, maths, & science.....           | n/a         | n/a       |
| 2.1.5    | Pupil-teacher ratio, secondary .....                    | 9.8         | 25        |
| 2.2      | Tertiary education.....                                 | 34.1        | 66        |
| 2.2.1    | Tertiary enrolment, % gross.....                        | 33.5        | 73        |
| 2.2.2    | Graduates in science & engineering, % .....             | 17.9        | 65        |
| 2.2.3    | Tertiary inbound mobility, %.....                       | 8.5         | 19 ●      |
| 2.3      | Research & development (R&D).....                       | 6.0         | 79        |
| 2.3.1    | Researchers, headcounts/mn pop.....                     | n/a         | n/a       |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                    | n/a         | n/a       |
| 2.3.3    | QS university ranking, average score top 3*.....        | 6.0         | 65        |
| <b>3</b> | <b>Infrastructure.....</b>                              | <b>48.1</b> | <b>29</b> |
| 3.1      | Information & communication technologies (ICTs).....    | 68.0        | 21 ●      |
| 3.1.1    | ICT access*.....  | 72.5        | 27        |
| 3.1.2    | ICT use* .....  | 47.5        | 37        |
| 3.1.3    | Government's online service*.....                       | 86.3        | 9 ●       |
| 3.1.4    | E-participation*.....                                   | 65.8        | 19 ●      |
| 3.2      | General infrastructure.....                             | 45.1        | 27        |
| 3.2.1    | Electricity output, kWh/cap.....                        | 10,474.2    | 12 ●      |
| 3.2.2    | Logistics performance*.....                             | 57.1        | 48        |
| 3.2.3    | Gross capital formation, % GDP.....                     | 25.9        | 42        |
| 3.3      | Ecological sustainability.....                          | 31.2        | 88        |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 2.9         | 111 ○     |
| 3.3.2    | Environmental performance*.....                         | 51.8        | 74        |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 4.3         | 27        |
| <b>4</b> | <b>Market sophistication .....</b>                      | <b>48.5</b> | <b>68</b> |
| 4.1      | Credit.....   | 32.9        | 82        |
| 4.1.1    | Ease of getting credit*.....                            | 43.8        | 112 ○     |
| 4.1.2    | Domestic credit to private sector, % GDP .....          | 70.0        | 47        |
| 4.1.3    | Microfinance gross loans, % GDP .....                   | n/a         | n/a       |

|          |   |             |            |
|----------|---|-------------|------------|
| 4.2      | Investment .....  | 36.7        | 62         |
| 4.2.1    | Ease of protecting investors*.....                        | 46.7        | 97         |
| 4.2.2    | Market capitalization, % GDP.....                         | 89.0        | 18 ●       |
| 4.2.3    | Total value of stocks traded, % GDP.....                  | 1.3         | 65         |
| 4.2.4    | Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3      | Trade & competition .....                                 | 76.0        | 63         |
| 4.3.1    | Applied tariff rate, weighted mean, %.....                | 5.7         | 91         |
| 4.3.2    | Non-agricultural mkt access weighted tariff, %.....       | 1.9         | 90         |
| 4.3.3    | Intensity of local competition†.....                      | 72.2        | 38         |
| <b>5</b> | <b>Business sophistication .....</b>                      | <b>35.7</b> | <b>49</b>  |
| 5.1      | Knowledge workers.....                                    | 43.4        | 54         |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 20.7        | 69         |
| 5.1.2    | Firms offering formal training, % firms.....              | n/a         | n/a        |
| 5.1.3    | GERD performed by business, % GDP.....                    | n/a         | n/a        |
| 5.1.4    | GERD performed by business, %.....                        | n/a         | n/a        |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 177.3       | 27         |
| 5.2      | Innovation linkages .....                                 | 50.3        | 14 ●       |
| 5.2.1    | University/industry research collaboration†.....          | 32.2        | 117        |
| 5.2.2    | State of cluster development† .....                       | 55.8        | 30         |
| 5.2.3    | GERD financed by abroad, %.....                           | n/a         | n/a        |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.4         | 1 ●        |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 60         |
| 5.3      | Knowledge absorption.....                                 | 13.5        | 128 ○      |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | n/a         | n/a        |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 4.2         | 111 ○      |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 0.3         | 118        |
| 5.3.4    | FDI net inflows, % GDP.....                               | 2.7         | 68         |
| <b>6</b> | <b>Knowledge &amp; technology outputs .....</b>           | <b>28.4</b> | <b>63</b>  |
| 6.1      | Knowledge creation.....                                   | 3.0         | 131 ○      |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP.....            | 0.1         | 102 ○      |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 86         |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 4.3         | 112        |
| 6.1.5    | Citable documents H index.....                            | 39.0        | 124        |
| 6.2      | Knowledge impact.....                                     | 42.8        | 53         |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | -1.0        | 104 ○      |
| 6.2.2    | New businesses/th pop. 15–64.....                         | n/a         | n/a        |
| 6.2.3    | Computer software spending, % GDP.....                    | 0.4         | 27         |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 17.4        | 27         |
| 6.2.5    | High- & medium-high-tech manufactures, % .....            | n/a         | n/a        |
| 6.3      | Knowledge diffusion.....                                  | 39.4        | 34         |
| 6.3.1    | Royalty & license fees receipts, % total trade .....      | n/a         | n/a        |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.0         | 120 ○      |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 3.4         | 16 ●       |
| 6.3.4    | FDI net outflows, % GDP .....                             | 3.1         | 22 ●       |
| <b>7</b> | <b>Creative outputs .....</b>                             | <b>25.8</b> | <b>100</b> |
| 7.1      | Intangible assets.....                                    | 36.4        | 108        |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP.....              | 9.4         | 96 ○       |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.3         | 48         |
| 7.1.3    | ICTs & business model creation†.....                      | 62.2        | 44         |
| 7.1.4    | ICTs & organizational model creation†.....                | 58.7        | 44         |
| 7.2      | Creative goods & services.....                            | 2.2         | 123        |
| 7.2.1    | Cultural & creative services exports, % total trade.....  | n/a         | n/a        |
| 7.2.2    | National feature films/mn pop. 15–69.....                 | n/a         | n/a        |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....             | 0.2         | 41         |
| 7.2.4    | Printing & publishing manufactures, %.....                | n/a         | n/a        |
| 7.2.5    | Creative goods exports, % total trade.....                | 0.0         | 123 ○      |
| 7.3      | Online creativity.....                                    | 28.0        | 54         |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....       | 9.2         | 50         |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                      | 22.6        | 73         |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                           | 3,226.2     | 66         |
| 7.3.4    | Video uploads on YouTube/pop. 15–69 .....                 | 74.9        | 38         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 154.7                     |
| GDP (US\$ billions) .....   | 141.3                     |
| GDP per capita, PPP\$ ..... | 2,079.8                   |
| Income group .....          | Low income                |
| Region .....                | Central and Southern Asia |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>24.4</b>                           | <b>129</b> |
| Innovation Output Sub-Index .....                             | 19.7                                  | 120        |
| Innovation Input Sub-Index.....                               | 29.0                                  | 130        |
| Innovation Efficiency Ratio.....                              | 0.7                                   | 91         |
| Global Innovation Index 2013 (out of 142) .....               | 24.5                                  | 130        |
| <b>1 Institutions.....</b>                                    | <b>45.2</b>                           | <b>128</b> |
| 1.1 Political environment.....                                | 36.5                                  | 133 ○      |
| 1.1.1 Political stability*.....                               | 32.6                                  | 132        |
| 1.1.2 Government effectiveness*.....                          | 18.8                                  | 121        |
| 1.1.3 Press freedom*.....                                     | 58.0                                  | 118        |
| 1.2 Regulatory environment .....                              | 38.2                                  | 132        |
| 1.2.1 Regulatory quality* .....                               | 23.7                                  | 128        |
| 1.2.2 Rule of law*.....                                       | 21.4                                  | 121        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 31.0                                  | 131        |
| 1.3 Business environment.....                                 | 61.1                                  | 82         |
| 1.3.1 Ease of starting a business*.....                       | 84.7                                  | 69         |
| 1.3.2 Ease of resolving insolvency*.....                      | 27.3                                  | 104        |
| 1.3.3 Ease of paying taxes*.....                              | 71.2                                  | 61 ●       |
| <b>2 Human capital &amp; research.....</b>                    | <b>14.1</b>                           | <b>126</b> |
| 2.1 Education .....   | 20.6                                  | 134 ○      |
| 2.1.1 Expenditure on education, % GDP .....                   | 2.2                                   | 124 ○      |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 13.9                                  | 88         |
| 2.1.3 School life expectancy, years.....                      | 10.0                                  | 115        |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 30.6                                  | 105        |
| 2.2 Tertiary education.....                                   | 16.0                                  | 108        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 13.2                                  | 99         |
| 2.2.2 Graduates in science & engineering, % .....             | 15.6                                  | 83         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.1                                   | 109 ○      |
| 2.3 Research & development (R&D).....                         | 5.7                                   | 82         |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | n/a                                   | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a        |
| 2.3.3 QS university ranking, average score top 3*.....        | 5.7                                   | 66 ●       |
| <b>3 Infrastructure.....</b>                                  | <b>26.7</b>                           | <b>110</b> |
| 3.1 Information & communication technologies (ICTs).....      | 18.8                                  | 114        |
| 3.1.1 ICT access*.....  | 20.3                                  | 121        |
| 3.1.2 ICT use* .....  | 2.4                                   | 124        |
| 3.1.3 Government's online service*.....                       | 44.4                                  | 86         |
| 3.1.4 E-participation*.....                                   | 7.9                                   | 98         |
| 3.2 General infrastructure.....                               | 31.3                                  | 77         |
| 3.2.1 Electricity output, kWh/cap.....                        | 292.8                                 | 110        |
| 3.2.2 Logistics performance* .....                            | 44.8                                  | 83         |
| 3.2.3 Gross capital formation, % GDP.....                     | 27.6                                  | 31 ●       |
| 3.3 Ecological sustainability.....                            | 30.0                                  | 94         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 7.5                                   | 43 ●       |
| 3.3.2 Environmental performance*.....                         | 25.6                                  | 138 ○      |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a                                   | n/a        |
| <b>4 Market sophistication .....</b>                          | <b>44.1</b>                           | <b>99</b>  |
| 4.1 Credit.....   | 32.9                                  | 81         |
| 4.1.1 Ease of getting credit*.....                            | 56.3                                  | 81         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 49.6                                  | 67         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 2.2                                   | 24 ●       |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment .....  | 38.2        | 56 ●         |
| 4.2.1 Ease of protecting investors*.....                        | 66.7        | 21 ●         |
| 4.2.2 Market capitalization, % GDP.....                         | 15.1        | 80           |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 10.9        | 39 ●         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a          |
| 4.3 Trade & competition .....                                   | 61.3        | 129          |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 13.0        | 135 ○        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.8         | 127          |
| 4.3.3 Intensity of local competition†.....                      | 65.5        | 71           |
| <b>5 Business sophistication .....</b>                          | <b>14.9</b> | <b>138</b> ○ |
| 5.1 Knowledge workers.....                                      | 11.8        | 138 ○        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 7.3         | 102 ○        |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a          |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a          |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a          |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 9.4         | 123          |
| 5.2 Innovation linkages .....                                   | 25.5        | 100          |
| 5.2.1 University/industry research collaboration†.....          | 27.0        | 128 ○        |
| 5.2.2 State of cluster development† .....                       | 48.2        | 63 ●         |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a          |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 82           |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 106 ○        |
| 5.3 Knowledge absorption.....                                   | 7.3         | 140 ○        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.0         | 115          |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a         | n/a          |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.1         | 133 ○        |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.0         | 114          |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>22.2</b> | <b>99</b>    |
| 6.1 Knowledge creation.....                                     | 6.1         | 103          |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.2         | 86           |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a         | n/a          |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 4.0         | 117          |
| 6.1.5 Citable documents H index.....                            | 97.0        | 67           |
| 6.2 Knowledge impact.....                                       | 29.9        | 104          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.5         | 26 ●         |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.1         | 89           |
| 6.2.3 Computer software spending, % GDP.....                    | 0.2         | 73 ○         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.9         | 124          |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a          |
| 6.3 Knowledge diffusion.....                                    | 30.5        | 77           |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 101          |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a         | n/a          |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.4         | 62 ●         |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.0         | 105          |
| <b>7 Creative outputs .....</b>                                 | <b>17.2</b> | <b>130</b>   |
| 7.1 Intangible assets.....                                      | 33.0        | 121          |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 27.4        | 78           |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a          |
| 7.1.3 ICTs & business model creation†.....                      | 47.0        | 109          |
| 7.1.4 ICTs & organizational model creation†.....                | 41.5        | 115          |
| 7.2 Creative goods & services.....                              | 2.3         | 122          |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 100 ○        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.7         | 83           |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a          |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a          |
| 7.2.5 Creative goods exports, % total trade.....                | n/a         | n/a          |
| 7.3 Online creativity .....                                     | 0.5         | 134 ○        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.5         | 119          |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 0.6         | 132          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 238.3       | 115          |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Barbados

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 0.3                             |
| GDP (US\$ billions) .....   | 4.3                             |
| GDP per capita, PPP\$ ..... | 25,180.9                        |
| Income group .....          | High income                     |
| Region .....                | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>40.8</b>                           | <b>41</b>  |
| Innovation Output Sub-Index .....                            | 33.2                                  | 53         |
| Innovation Input Sub-Index.....                              | 48.3                                  | 38         |
| Innovation Efficiency Ratio.....                             | 0.7                                   | 87         |
| Global Innovation Index 2013 (out of 142) .....              | 40.5                                  | 47         |
| <b>1 Institutions.....</b>                                   | <b>78.5</b>                           | <b>26</b>  |
| 1.1 Political environment.....                               | 87.3                                  | 12 ●       |
| 1.1.1 Political stability*.....                              | 95.0                                  | 10 ●       |
| 1.1.2 Government effectiveness*.....                         | 79.6                                  | 20         |
| 1.1.3 Press freedom*.....                                    | n/a                                   | n/a        |
| 1.2 Regulatory environment .....                             | 75.3                                  | 41         |
| 1.2.1 Regulatory quality*.....                               | 59.8                                  | 54         |
| 1.2.2 Rule of law*.....                                      | 73.7                                  | 30         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 16.0                                  | 76         |
| 1.3 Business environment.....                                | 72.8                                  | 38         |
| 1.3.1 Ease of starting a business*.....                      | 82.8                                  | 73         |
| 1.3.2 Ease of resolving insolvency*.....                     | 68.9                                  | 26         |
| 1.3.3 Ease of paying taxes*.....                             | 66.7                                  | 81         |
| <b>2 Human capital &amp; research.....</b>                   | <b>31.6</b>                           | <b>58</b>  |
| 2.1 Education .....  | 49.7                                  | 50         |
| 2.1.1 Expenditure on education, % GDP.....                   | 5.6                                   | 41         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 25.0                                  | 39         |
| 2.1.3 School life expectancy, years.....                     | 15.4                                  | 36         |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 14.6                                  | 56         |
| 2.2 Tertiary education.....                                  | 45.0                                  | 35         |
| 2.2.1 Tertiary enrolment, % gross.....                       | 60.8                                  | 35         |
| 2.2.2 Graduates in science & engineering, % .....            | 15.0                                  | 86 ○       |
| 2.2.3 Tertiary inbound mobility, %.....                      | 13.8                                  | 12 ●       |
| 2.3 Research & development (R&D).....                        | 0.0                                   | 131 ○      |
| 2.3.1 Researchers, headcounts/mn pop.....                    | n/a                                   | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | n/a                                   | n/a        |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                 | <b>27.9</b>                           | <b>103</b> |
| 3.1 Information & communication technologies (ICTs).....     | 40.7                                  | 63         |
| 3.1.1 ICT access*.....                                       | 72.9                                  | 25         |
| 3.1.2 ICT use*.....  | 50.0                                  | 31         |
| 3.1.3 Government's online service*.....                      | 37.3                                  | 99         |
| 3.1.4 E-participation*.....                                  | 2.6                                   | 116 ○      |
| 3.2 General infrastructure.....                              | 11.3                                  | 142 ○      |
| 3.2.1 Electricity output, kWh/cap.....                       | n/a                                   | n/a        |
| 3.2.2 Logistics performance*.....                            | n/a                                   | n/a        |
| 3.2.3 Gross capital formation, % GDP.....                    | 14.3                                  | 130 ○      |
| 3.3 Ecological sustainability.....                           | 31.6                                  | 87         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | n/a                                   | n/a        |
| 3.3.2 Environmental performance*.....                        | 45.5                                  | 94         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.6                                   | 81         |
| <b>4 Market sophistication.....</b>                          | <b>48.7</b>                           | <b>66</b>  |
| 4.1 Credit.....  | 40.9                                  | 54         |
| 4.1.1 Ease of getting credit*.....                           | 56.3                                  | 81         |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 80.6                                  | 39         |
| 4.1.3 Microfinance gross loans, % GDP.....                   | n/a                                   | n/a        |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 33.3        | 81         |
| 4.2.1 Ease of protecting investors*.....                        | 30.0        | 133 ○      |
| 4.2.2 Market capitalization, % GDP.....                         | 124.1       | 6 ●        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.5         | 79         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 72.0        | 97         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 14.8        | 137 ○      |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.0         | 17 ●       |
| 4.3.3 Intensity of local competition†.....                      | 70.2        | 48         |
| <b>5 Business sophistication.....</b>                           | <b>55.0</b> | <b>5 ●</b> |
| 5.1 Knowledge workers.....                                      | 61.9        | 24         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 30.3        | 46         |
| 5.1.2 Firms offering formal training, % firms.....              | 53.1        | 19         |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a        |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 390.1       | 11 ●       |
| 5.2 Innovation linkages .....                                   | 63.1        | 3 ●        |
| 5.2.1 University/industry research collaboration†.....          | 54.7        | 37         |
| 5.2.2 State of cluster development†.....                        | 46.2        | 73         |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.1         | 7 ●        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 4.8         | 3 ●        |
| 5.3 Knowledge absorption.....                                   | 39.9        | 17 ●       |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.9         | 32         |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a         | n/a        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.9         | 12 ●       |
| 5.3.4 FDI net inflows, % GDP.....                               | 7.6         | 23         |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>38.0</b> | <b>33</b>  |
| 6.1 Knowledge creation.....                                     | 30.0        | 33         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.1         | 98 ○       |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 23.7        | 1 ●        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 9.7         | 75         |
| 6.1.5 Citable documents H index.....                            | 50.0        | 111 ○      |
| 6.2 Knowledge impact.....                                       | 44.0        | 49         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.3         | 85 ○       |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 6.3         | 57         |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | n/a         | n/a        |
| 6.3 Knowledge diffusion.....                                    | 40.0        | 32         |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.2         | 40         |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a         | n/a        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.8         | 48         |
| 6.3.4 FDI net outflows, % GDP.....                              | 7.7         | 7 ●        |
| <b>7 Creative outputs.....</b>                                  | <b>28.5</b> | <b>85</b>  |
| 7.1 Intangible assets.....                                      | 39.5        | 93         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 28.0        | 77 ○       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                      | 55.5        | 71         |
| 7.1.4 ICTs & organizational model creation†.....                | 52.0        | 73         |
| 7.2 Creative goods & services.....                              | 22.0        | 56         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.3         | 28         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade.....                | n/a         | n/a        |
| 7.3 Online creativity.....                                      | 13.0        | 81         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 12.9        | 42         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 20.7        | 76         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 3,174.5     | 69         |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 9.5                 |
| GDP (US\$ billions) .....   | 71.7                |
| GDP per capita, PPP\$ ..... | 15,753.2            |
| Income group .....          | Upper-middle income |
| Region .....                | Europe              |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>37.1</b>                           | <b>58</b>  |
| Innovation Output Sub-Index .....                             | 33.7                                  | 50         |
| Innovation Input Sub-Index.....                               | 40.5                                  | 70         |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 27 ●       |
| Global Innovation Index 2013 (out of 142) .....               | 34.6                                  | 77         |
| <b>1 Institutions.....</b>                                    | <b>52.1</b>                           | <b>105</b> |
| 1.1 Political environment.....                                | 44.6                                  | 110        |
| 1.1.1 Political stability*.....                               | 66.3                                  | 69         |
| 1.1.2 Government effectiveness*.....                          | 15.8                                  | 128 ○      |
| 1.1.3 Press freedom*.....                                     | 51.7                                  | 129 ○      |
| 1.2 Regulatory environment .....                              | 46.6                                  | 120 ○      |
| 1.2.1 Regulatory quality* .....                               | 20.2                                  | 135 ○      |
| 1.2.2 Rule of law*.....                                       | 21.0                                  | 124 ○      |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 21.7                                  | 100        |
| 1.3 Business environment.....                                 | 65.0                                  | 69         |
| 1.3.1 Ease of starting a business*.....                       | 90.9                                  | 31         |
| 1.3.2 Ease of resolving insolvency*.....                      | 39.1                                  | 66         |
| 1.3.3 Ease of paying taxes*.....                              | 65.0                                  | 86         |
| <b>2 Human capital &amp; research.....</b>                    | <b>39.8</b>                           | <b>38</b>  |
| 2.1 Education .....   | 53.6                                  | 35         |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.1                                   | 55         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a        |
| 2.1.3 School life expectancy, years.....                      | 15.7                                  | 25 ●       |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a        |
| 2.2 Tertiary education.....                                   | 50.0                                  | 24 ●       |
| 2.2.1 Tertiary enrolment, % gross.....                        | 91.5                                  | 4 ●        |
| 2.2.2 Graduates in science & engineering, % .....             | 27.2                                  | 17 ●       |
| 2.2.3 Tertiary inbound mobility, %.....                       | 2.1                                   | 59         |
| 2.3 Research & development (R&D).....                         | 15.7                                  | 53         |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 2,081.2                               | 38         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.7                                   | 49         |
| 2.3.3 QS university ranking, average score top 3*.....        | 11.8                                  | 58         |
| <b>3 Infrastructure.....</b>                                  | <b>39.9</b>                           | <b>56</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 38.6                                  | 68         |
| 3.1.1 ICT access*.....  | 64.1                                  | 45         |
| 3.1.2 ICT use* .....  | 41.3                                  | 44         |
| 3.1.3 Government's online service*.....                       | 41.2                                  | 94         |
| 3.1.4 E-participation*.....                                   | 7.9                                   | 98         |
| 3.2 General infrastructure.....                               | 46.3                                  | 22 ●       |
| 3.2.1 Electricity output, kWh/cap.....                        | 3,399.4                               | 58         |
| 3.2.2 Logistics performance* .....                            | 39.7                                  | 91         |
| 3.2.3 Gross capital formation, % GDP.....                     | 39.5                                  | 6 ●        |
| 3.3 Ecological sustainability .....                           | 34.7                                  | 74         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 4.2                                   | 95         |
| 3.3.2 Environmental performance*.....                         | 67.7                                  | 32         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.2                                   | 113 ○      |
| <b>4 Market sophistication .....</b>                          | <b>46.0</b>                           | <b>86</b>  |
| 4.1 Credit.....   | 28.0                                  | 100        |
| 4.1.1 Ease of getting credit* .....                           | 50.0                                  | 96         |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 22.6                                  | 114        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 50.0        | 30         |
| 4.2.1 Ease of protecting investors*.....                        | 50.0        | 81         |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 59.9        | 130 ○      |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.8         | 44         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 7.0         | 137 ○      |
| 4.3.3 Intensity of local competition†.....                      | n/a         | n/a        |
| <b>5 Business sophistication .....</b>                          | <b>24.9</b> | <b>114</b> |
| 5.1 Knowledge workers.....                                      | 53.4        | 35         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 35.9        | 31         |
| 5.1.2 Firms offering formal training, % firms.....              | 47.7        | 31         |
| 5.1.3 GERD performed by business, % GDP .....                   | 0.5         | 34         |
| 5.1.4 GERD performed by business, %.....                        | 69.9        | 7 ●        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 50.5        | 75         |
| 5.2 Innovation linkages .....                                   | 8.8         | 140 ○      |
| 5.2.1 University/industry research collaboration†.....          | n/a         | n/a        |
| 5.2.2 State of cluster development† .....                       | n/a         | n/a        |
| 5.2.3 GERD financed by abroad, %.....                           | 8.7         | 47         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 55         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 95 ○       |
| 5.3 Knowledge absorption.....                                   | 12.5        | 133 ○      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 78         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.2         | 112 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.4         | 110        |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.3         | 81         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>38.8</b> | <b>30</b>  |
| 6.1 Knowledge creation.....                                     | 49.2        | 13 ●       |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 11.6        | 6 ●        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 74         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 7.6         | 1 ●        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 6.8         | 92         |
| 6.1.5 Citable documents H index.....                            | 106.0       | 60         |
| 6.2 Knowledge impact.....                                       | 41.0        | 61         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 4.8         | 9 ●        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.1         | 55         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.2         | 120 ○      |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 28.7        | 36         |
| 6.3 Knowledge diffusion.....                                    | 26.2        | 100        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 70         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.3         | 63         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.2         | 78         |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.2         | 77         |
| <b>7 Creative outputs .....</b>                                 | <b>28.6</b> | <b>84</b>  |
| 7.1 Intangible assets .....                                     | 43.1        | 74         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 121.7       | 9 ●        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 2.0         | 16 ●       |
| 7.1.3 ICTs & business model creation†.....                      | n/a         | n/a        |
| 7.1.4 ICTs & organizational model creation†.....                | n/a         | n/a        |
| 7.2 Creative goods & services.....                              | 10.6        | 92         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.2         | 41         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.1         | 97 ○       |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.5         | 61         |
| 7.3 Online creativity .....                                     | 17.5        | 70         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.9         | 76         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 36.4        | 49         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 7,714.7     | 49         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Belgium

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 11.1        |
| GDP (US\$ billions) .....   | 506.6       |
| GDP per capita, PPP\$ ..... | 37,880.5    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>51.7</b>                           | <b>23</b> |
| Innovation Output Sub-Index .....                             | 45.2                                  | 23        |
| Innovation Input Sub-Index .....                              | 58.2                                  | 22        |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 55        |
| Global Innovation Index 2013 (out of 142) .....               | 52.5                                  | 21        |
| <b>1 Institutions.....</b>                                    | <b>87.9</b>                           | <b>15</b> |
| 1.1 Political environment.....                                | 86.0                                  | 15        |
| 1.1.1 Political stability*.....                               | 87.7                                  | 28        |
| 1.1.2 Government effectiveness*.....                          | 83.3                                  | 13 ●      |
| 1.1.3 Press freedom*.....                                     | 87.1                                  | 19        |
| 1.2 Regulatory environment .....                              | 91.4                                  | 17        |
| 1.2.1 Regulatory quality* .....                               | 80.7                                  | 21        |
| 1.2.2 Rule of law*.....                                       | 84.8                                  | 20        |
| 1.2.3 Cost of redundancy dismissal, salary weeks .....        | 8.0                                   | 1 ●       |
| 1.3 Business environment.....                                 | 86.2                                  | 14        |
| 1.3.1 Ease of starting a business* .....                      | 94.2                                  | 16        |
| 1.3.2 Ease of resolving insolvency*.....                      | 94.2                                  | 6 ●       |
| 1.3.3 Ease of paying taxes*.....                              | 70.1                                  | 66        |
| <b>2 Human capital &amp; research.....</b>                    | <b>51.7</b>                           | <b>20</b> |
| 2.1 Education .....   | 56.7                                  | 19        |
| 2.1.1 Expenditure on education, % GDP .....                   | 6.6                                   | 19        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 37.8                                  | 7 ●       |
| 2.1.3 School life expectancy, years.....                      | 16.2                                  | 21        |
| 2.1.4 PISA scales in reading, maths, & science .....          | 509.8                                 | 15        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a       |
| 2.2 Tertiary education.....                                   | 41.6                                  | 40        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 69.3                                  | 25        |
| 2.2.2 Graduates in science & engineering, % .....             | 16.5                                  | 74 ○      |
| 2.2.3 Tertiary inbound mobility, %.....                       | 8.2                                   | 20        |
| 2.3 Research & development (R&D).....                         | 57.0                                  | 17        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 5,742.6                               | 18        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 2.2                                   | 15        |
| 2.3.3 QS university ranking, average score top 3*.....        | 66.0                                  | 15        |
| <b>3 Infrastructure.....</b>                                  | <b>46.5</b>                           | <b>33</b> |
| 3.1 Information & communication technologies (ICTs).....      | 53.0                                  | 37        |
| 3.1.1 ICT access*.....  | 76.7                                  | 18        |
| 3.1.2 ICT use* .....  | 57.5                                  | 26        |
| 3.1.3 Government's online service*.....                       | 64.7                                  | 39        |
| 3.1.4 E-participation*.....                                   | 13.2                                  | 84 ○      |
| 3.2 General infrastructure.....                               | 45.1                                  | 26        |
| 3.2.1 Electricity output, kWh/cap.....                        | 6,999.3                               | 29        |
| 3.2.2 Logistics performance* .....                            | 94.0                                  | 7 ●       |
| 3.2.3 Gross capital formation, % GDP .....                    | 21.3                                  | 77 ○      |
| 3.3 Ecological sustainability .....                           | 41.4                                  | 53        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 6.4                                   | 58        |
| 3.3.2 Environmental performance*.....                         | 66.6                                  | 36        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 2.5                                   | 39        |
| <b>4 Market sophistication .....</b>                          | <b>58.5</b>                           | <b>30</b> |
| 4.1 Credit.....   | 46.0                                  | 43        |
| 4.1.1 Ease of getting credit* .....                           | 62.5                                  | 69 ○      |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 92.2                                  | 34        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 47.9        | 35        |
| 4.2.1 Ease of protecting investors*.....                        | 70.0        | 16        |
| 4.2.2 Market capitalization, % GDP.....                         | 62.0        | 31        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 21.3        | 29        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP .....                  | 0.2         | 15        |
| 4.3 Trade & competition .....                                   | 81.7        | 21        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition† .....                     | 82.8        | 5 ●       |
| <b>5 Business sophistication .....</b>                          | <b>46.5</b> | <b>18</b> |
| 5.1 Knowledge workers.....                                      | 68.0        | 13 ●      |
| 5.1.1 Knowledge-intensive employment, %.....                    | 44.6        | 11        |
| 5.1.2 Firms offering formal training, % firms .....             | n/a         | n/a       |
| 5.1.3 GERD performed by business, % GDP .....                   | 1.5         | 12        |
| 5.1.4 GERD performed by business, %.....                        | 67.8        | 13        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 172.3       | 28        |
| 5.2 Innovation linkages .....                                   | 43.9        | 33        |
| 5.2.1 University/industry research collaboration† .....         | 75.5        | 6 ●       |
| 5.2.2 State of cluster development† .....                       | 63.5        | 19        |
| 5.2.3 GERD financed by abroad, %.....                           | 13.0        | 36        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 64 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 1.1         | 17        |
| 5.3 Knowledge absorption.....                                   | 27.6        | 55        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.7         | 45        |
| 5.3.2 High-tech imports less re-imports, % .....                | 9.2         | 41        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.8         | 14        |
| 5.3.4 FDI net inflows, % GDP .....                              | -0.4        | 139 ○     |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>44.6</b> | <b>19</b> |
| 6.1 Knowledge creation.....                                     | 44.8        | 22        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....           | 1.8         | 53        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP .....                | 2.9         | 17        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....         | n/a         | n/a       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP .....        | 44.0        | 14        |
| 6.1.5 Citable documents H index.....                            | 454.0       | 13 ●      |
| 6.2 Knowledge impact.....                                       | 44.1        | 48        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                  | -0.2        | 92 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 2.5         | 38        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.7         | 7 ●       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....          | 9.4         | 51        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 34.2        | 29        |
| 6.3 Knowledge diffusion.....                                    | 44.8        | 21        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.7         | 19        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 9.3         | 23        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.3         | 30        |
| 6.3.4 FDI net outflows, % GDP .....                             | 3.0         | 24        |
| <b>7 Creative outputs .....</b>                                 | <b>45.7</b> | <b>22</b> |
| 7.1 Intangible assets .....                                     | 46.9        | 55        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....             | 47.4        | 57 ○      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....          | 1.7         | 20        |
| 7.1.3 ICTs & business model creation†.....                      | 66.8        | 29        |
| 7.1.4 ICTs & organizational model creation†.....                | 63.5        | 28        |
| 7.2 Creative goods & services.....                              | 31.7        | 37        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 50        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 6.2         | 21        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 1.5         | 15        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 46 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 2.0         | 27        |
| 7.3 Online creativity .....                                     | 57.6        | 22        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 22.7        | 29        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 70.4        | 11 ●      |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 29,735.8    | 9 ●       |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 86.7        | 17        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 10.1               |
| GDP (US\$ billions) .....   | 8.3                |
| GDP per capita, PPP\$ ..... | 1,622.6            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>24.2</b>                           | <b>132</b> |
| Innovation Output Sub-Index .....                | 18.1                                  | 129        |
| Innovation Input Sub-Index.....                  | 30.3                                  | 129        |
| Innovation Efficiency Ratio.....                 | 0.6                                   | 115        |
| Global Innovation Index 2013 (out of 142) .....  | 25.1                                  | 127        |

|          |  |             |              |
|----------|--|-------------|--------------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>53.4</b> | <b>101</b>   |
| 1.1      | Political environment.....                             | 57.2        | 70 ●         |
| 1.1.1    | Political stability*.....                              | 73.3        | 54 ●         |
| 1.1.2    | Government effectiveness*.....                         | 26.6        | 101          |
| 1.1.3    | Press freedom*.....                                    | 71.7        | 65 ●         |
| 1.2      | Regulatory environment.....                            | 63.2        | 80           |
| 1.2.1    | Regulatory quality*.....                               | 38.5        | 102          |
| 1.2.2    | Rule of law*.....                                      | 28.8        | 101          |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 11.6        | 48 ●         |
| 1.3      | Business environment.....                              | 39.7        | 136 ○        |
| 1.3.1    | Ease of starting a business*.....                      | 63.8        | 127          |
| 1.3.2    | Ease of resolving insolvency*.....                     | 19.2        | 120          |
| 1.3.3    | Ease of paying taxes*.....                             | 36.0        | 135 ○        |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>18.1</b> | <b>108</b>   |
| 2.1      | Education.....   | 36.5        | 91           |
| 2.1.1    | Expenditure on education, % GDP.....                   | 5.3         | 50 ●         |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 24.7        | 42 ●         |
| 2.1.3    | School life expectancy, years.....                     | 11.0        | 104          |
| 2.1.4    | PISA scales in reading, maths, & science.....          | n/a         | n/a          |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 23.9        | 85           |
| 2.2      | Tertiary education.....                                | 17.2        | 107          |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 12.4        | 101          |
| 2.2.2    | Graduates in science & engineering, %.....             | 12.7        | 93           |
| 2.2.3    | Tertiary inbound mobility, %.....                      | n/a         | n/a          |
| 2.3      | Research & development (R&D).....                      | 0.5         | 124          |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 114.8       | 100          |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | n/a         | n/a          |
| 2.3.3    | QS university ranking, average score top 3*.....       | 0.0         | 70 ○         |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>18.3</b> | <b>134</b>   |
| 3.1      | Information & communication technologies (ICTs).....   | 13.1        | 134          |
| 3.1.1    | ICT access*.....                                       | 23.6        | 117          |
| 3.1.2    | ICT use*.....  | 1.4         | 127          |
| 3.1.3    | Government's online service*.....                      | 19.6        | 134 ○        |
| 3.1.4    | E-participation*.....                                  | 7.9         | 98           |
| 3.2      | General infrastructure.....                            | 22.9        | 122          |
| 3.2.1    | Electricity output, kWh/cap.....                       | 16.9        | 124 ○        |
| 3.2.2    | Logistics performance*.....                            | 49.2        | 66 ●         |
| 3.2.3    | Gross capital formation, % GDP.....                    | 19.0        | 103          |
| 3.3      | Ecological sustainability.....                         | 19.0        | 138 ○        |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 3.5         | 103          |
| 3.3.2    | Environmental performance*.....                        | 32.4        | 125          |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.1         | 120          |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>36.5</b> | <b>137</b> ○ |
| 4.1      | Credit.....  | 26.4        | 107          |
| 4.1.1    | Ease of getting credit*.....                           | 43.8        | 112          |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 24.0        | 111          |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | 2.3         | 23 ●         |

|       |   |      |       |
|-------|---|------|-------|
| 4.2   | Investment.....                                     | 33.3 | 76    |
| 4.2.1 | Ease of protecting investors*.....                  | 33.3 | 125   |
| 4.2.2 | Market capitalization, % GDP.....                   | n/a  | n/a   |
| 4.2.3 | Total value of stocks traded, % GDP.....            | n/a  | n/a   |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3   | Trade & competition.....                            | 49.7 | 142 ○ |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 15.0 | 138 ○ |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 6.9  | 136 ○ |
| 4.3.3 | Intensity of local competition†.....                | 62.3 | 85    |

**5 Business sophistication.....25.2 111**

|       |   |      |       |
|-------|---|------|-------|
| 5.1   | Knowledge workers.....                                    | 24.7 | 112   |
| 5.1.1 | Knowledge-intensive employment, %.....                    | n/a  | n/a   |
| 5.1.2 | Firms offering formal training, % firms.....              | 26.8 | 73    |
| 5.1.3 | GERD performed by business, % GDP.....                    | n/a  | n/a   |
| 5.1.4 | GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 | GMAT test takers/mn pop. 20–34.....                       | 11.6 | 117   |
| 5.2   | Innovation linkages.....                                  | 22.7 | 118   |
| 5.2.1 | University/industry research collaboration†.....          | 28.0 | 123   |
| 5.2.2 | State of cluster development†.....                        | 31.3 | 125   |
| 5.2.3 | GERD financed by abroad, %.....                           | n/a  | n/a   |
| 5.2.4 | JV–strategic alliance deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 5.2.5 | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0  | 106 ○ |
| 5.3   | Knowledge absorption.....                                 | 28.1 | 50 ●  |
| 5.3.1 | Royalty & license fees payments, % total trade.....       | 0.1  | 88    |
| 5.3.2 | High-tech imports less re-imports, %.....                 | n/a  | n/a   |
| 5.3.3 | Comm., computer & info. services imp., % total trade..... | 2.2  | 9 ●   |
| 5.3.4 | FDI net inflows, % GDP.....                               | 1.6  | 94    |

**6 Knowledge & technology outputs.....15.0 127**

|       |   |      |       |
|-------|---|------|-------|
| 6.1   | Knowledge creation.....                                   | 9.9  | 81    |
| 6.1.1 | Domestic resident patent app./tr PPP\$ GDP.....           | n/a  | n/a   |
| 6.1.2 | PCT resident patent app./tr PPP\$ GDP.....                | 0.1  | 80    |
| 6.1.3 | Domestic res utility model app./tr PPP\$ GDP.....         | n/a  | n/a   |
| 6.1.4 | Scientific & technical articles/bn PPP\$ GDP.....         | 15.3 | 58 ●  |
| 6.1.5 | Citable documents H index.....                            | 49.0 | 113   |
| 6.2   | Knowledge impact.....                                     | 4.7  | 133   |
| 6.2.1 | Growth rate of PPP\$ GDP/worker, %.....                   | n/a  | n/a   |
| 6.2.2 | New businesses/th pop. 15–64.....                         | n/a  | n/a   |
| 6.2.3 | Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 2.1  | 96    |
| 6.2.5 | High- & medium-high-tech manufactures, %.....             | n/a  | n/a   |
| 6.3   | Knowledge diffusion.....                                  | 30.6 | 76    |
| 6.3.1 | Royalty & license fees receipts, % total trade.....       | 0.0  | 114 ○ |
| 6.3.2 | High-tech exports less re-exports, %.....                 | n/a  | n/a   |
| 6.3.3 | Comm., computer & info. services exp., % total trade..... | 1.7  | 51 ●  |
| 6.3.4 | FDI net outflows, % GDP.....                              | -2.2 | 122 ○ |

**7 Creative outputs.....21.2 119**

|       |  |      |       |
|-------|--|------|-------|
| 7.1   | Intangible assets.....                                   | 42.2 | 81    |
| 7.1.1 | Domestic res trademark app./bn PPP\$ GDP.....            | n/a  | n/a   |
| 7.1.2 | Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a  | n/a   |
| 7.1.3 | ICTs & business model creation†.....                     | 49.2 | 96    |
| 7.1.4 | ICTs & organizational model creation†.....               | 35.2 | 126   |
| 7.2   | Creative goods & services.....                           | 0.0  | 140 ○ |
| 7.2.1 | Cultural & creative services exports, % total trade..... | 0.0  | 103 ○ |
| 7.2.2 | National feature films/mn pop. 15–69.....                | n/a  | n/a   |
| 7.2.3 | Global ent. & media output/th pop. 15–69.....            | n/a  | n/a   |
| 7.2.4 | Printing & publishing manufactures, %.....               | n/a  | n/a   |
| 7.2.5 | Creative goods exports, % total trade.....               | n/a  | n/a   |
| 7.3   | Online creativity.....                                   | 0.5  | 133   |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.7  | 110   |
| 7.3.2 | Country-code TLDs/th pop. 15–69.....                     | 0.9  | 131   |
| 7.3.3 | Wikipedia edits/pop. 15–69.....                          | 31.7 | 135 ○ |
| 7.3.4 | Video uploads on YouTube/pop. 15–69.....                 | n/a  | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Bhutan

## Key indicators

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 0.7                       |
| GDP (US\$ billions) .....   | 2.0                       |
| GDP per capita, PPP\$ ..... | 6,369.7                   |
| Income group .....          | Lower-middle income       |
| Region .....                | Central and Southern Asia |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>31.8</b>                           | <b>86</b> |
| Innovation Output Sub-Index .....                 | 23.9                                  | 102       |
| Innovation Input Sub-Index .....                  | 39.8                                  | 76        |
| Innovation Efficiency Ratio .....                 | 0.6                                   | 112       |
| Global Innovation Index 2013 (out of 142) .....   | n/a                                   | n/a       |

**1 Institutions ..... 62.6 62**

|  |      |     |   |
|--|------|-----|---|
| 1.1 Political environment .....                        | 70.3 | 47  | ● |
| 1.1.1 Political stability* .....                       | 85.6 | 30  | ● |
| 1.1.2 Government effectiveness* .....                  | 53.6 | 47  | ● |
| 1.1.3 Press freedom* .....                             | 71.6 | 68  |   |
| 1.2 Regulatory environment .....                       | 67.5 | 63  |   |
| 1.2.1 Regulatory quality* .....                        | 19.6 | 136 | ○ |
| 1.2.2 Rule of law* .....                               | 51.6 | 56  | ● |
| 1.2.3 Cost of redundancy dismissal, salary weeks ..... | 8.3  | 23  | ● |
| 1.3 Business environment .....                         | 49.9 | 118 |   |
| 1.3.1 Ease of starting a business* .....               | 80.0 | 91  |   |
| 1.3.2 Ease of resolving insolvency* .....              | 0.0  | 140 | ○ |
| 1.3.3 Ease of paying taxes* .....                      | 69.8 | 69  |   |

**2 Human capital & research ..... 17.0 116**

|   |      |     |   |
|---|------|-----|---|
| 2.1 Education .....                                       | 42.3 | 71  |   |
| 2.1.1 Expenditure on education, % GDP .....               | 4.7  | 70  |   |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap ..... | 31.5 | 19  | ● |
| 2.1.3 School life expectancy, years .....                 | 12.7 | 77  |   |
| 2.1.4 PISA scales in reading, maths, & science .....      | n/a  | n/a |   |
| 2.1.5 Pupil-teacher ratio, secondary .....                | 19.9 | 79  |   |
| 2.2 Tertiary education .....                              | 8.8  | 125 |   |
| 2.2.1 Tertiary enrolment, % gross .....                   | 9.4  | 112 |   |
| 2.2.2 Graduates in science & engineering, % .....         | n/a  | n/a |   |
| 2.2.3 Tertiary inbound mobility, % .....                  | n/a  | n/a |   |
| 2.3 Research & development (R&D) .....                    | 0.0  | 131 | ○ |
| 2.3.1 Researchers, headcounts/mn pop. ....                | n/a  | n/a |   |
| 2.3.2 Gross expenditure on R&D, % GDP .....               | n/a  | n/a |   |
| 2.3.3 QS university ranking, average score top 3* .....   | 0.0  | 70  | ○ |

**3 Infrastructure ..... 44.0 43 ●**

|   |      |     |   |
|---|------|-----|---|
| 3.1 Information & communication technologies (ICTs) .....     | 18.8 | 113 |   |
| 3.1.1 ICT access* .....                                       | 26.8 | 105 |   |
| 3.1.2 ICT use* .....  | 10.5 | 105 |   |
| 3.1.3 Government's online service* .....                      | 35.3 | 106 |   |
| 3.1.4 E-participation* .....                                  | 2.6  | 116 |   |
| 3.2 General infrastructure .....                              | 66.4 | 1   | ● |
| 3.2.1 Electricity output, kWh/cap .....                       | n/a  | n/a |   |
| 3.2.2 Logistics performance* .....                            | 36.1 | 105 |   |
| 3.2.3 Gross capital formation, % GDP .....                    | 47.7 | 4   | ● |
| 3.3 Ecological sustainability .....                           | 46.9 | 36  | ● |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | n/a  | n/a |   |
| 3.3.2 Environmental performance* .....                        | 46.9 | 92  |   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a  | n/a |   |

**4 Market sophistication ..... 45.9 87**

|  |      |    |   |
|--|------|----|---|
| 4.1 Credit .....                                     | 47.6 | 38 | ● |
| 4.1.1 Ease of getting credit* .....                  | 50.0 | 96 |   |
| 4.1.2 Domestic credit to private sector, % GDP ..... | 47.5 | 73 |   |
| 4.1.3 Microfinance gross loans, % GDP .....          | 6.3  | 6  | ● |

|  |      |     |   |
|--|------|-----|---|
| 4.2 Investment .....                                       | 36.7 | 59  |   |
| 4.2.1 Ease of protecting investors* .....                  | 36.7 | 119 |   |
| 4.2.2 Market capitalization, % GDP .....                   | n/a  | n/a |   |
| 4.2.3 Total value of stocks traded, % GDP .....            | n/a  | n/a |   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP .....             | n/a  | n/a |   |
| 4.3 Trade & competition .....                              | 53.4 | 137 | ○ |
| 4.3.1 Applied tariff rate, weighted mean, % .....          | 17.8 | 140 | ○ |
| 4.3.2 Non-agricultural mkt access weighted tariff, % ..... | n/a  | n/a |   |
| 4.3.3 Intensity of local competition <sup>†</sup> .....    | 61.5 | 91  |   |

**5 Business sophistication ..... 29.3 85**

|   |      |     |   |
|---|------|-----|---|
| 5.1 Knowledge workers .....   | 31.1 | 91  |   |
| 5.1.1 Knowledge-intensive employment, % .....                       | 16.5 | 85  |   |
| 5.1.2 Firms offering formal training, % firms .....                 | 29.9 | 66  |   |
| 5.1.3 GERD performed by business, % GDP .....                       | n/a  | n/a |   |
| 5.1.4 GERD performed by business, % .....                           | n/a  | n/a |   |
| 5.1.5 GMAT test takers/mn pop. 20–34 .....                          | 39.0 | 81  |   |
| 5.2 Innovation linkages .....                                       | 43.4 | 35  | ● |
| 5.2.1 University/industry research collaboration <sup>†</sup> ..... | 28.0 | 123 | ○ |
| 5.2.2 State of cluster development <sup>†</sup> .....               | 41.2 | 93  |   |
| 5.2.3 GERD financed by abroad, % .....                              | n/a  | n/a |   |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....                | 0.1  | 10  | ● |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....        | n/a  | n/a |   |
| 5.3 Knowledge absorption .....                                      | 13.3 | 129 |   |
| 5.3.1 Royalty & license fees payments, % total trade .....          | 0.0  | 122 | ○ |
| 5.3.2 High-tech imports less re-imports, % .....                    | 6.0  | 84  |   |
| 5.3.3 Comm., computer & info. services imp., % total trade .....    | 0.5  | 95  |   |
| 5.3.4 FDI net inflows, % GDP .....                                  | 0.9  | 117 |   |

**6 Knowledge & technology outputs ..... 2.8 142 ○**

|  |      |     |   |
|--|------|-----|---|
| 6.1 Knowledge creation .....                                     | 5.1  | 113 |   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....            | n/a  | n/a |   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP .....                 | n/a  | n/a |   |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....          | n/a  | n/a |   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP .....         | 6.7  | 94  |   |
| 6.1.5 Citable documents H index .....                            | 18.0 | 141 | ○ |
| 6.2 Knowledge impact .....                                       | 2.5  | 140 | ○ |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                   | n/a  | n/a |   |
| 6.2.2 New businesses/th pop. 15–64 .....                         | 0.2  | 85  |   |
| 6.2.3 Computer software spending, % GDP .....                    | n/a  | n/a |   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....           | 1.6  | 109 |   |
| 6.2.5 High- & medium-high-tech manufactures, % .....             | n/a  | n/a |   |
| 6.3 Knowledge diffusion .....                                    | 0.7  | 140 | ○ |
| 6.3.1 Royalty & license fees receipts, % total trade .....       | 0.0  | 107 | ○ |
| 6.3.2 High-tech exports less re-exports, % .....                 | 0.0  | 127 | ○ |
| 6.3.3 Comm., computer & info. services exp., % total trade ..... | 0.1  | 129 | ○ |
| 6.3.4 FDI net outflows, % GDP .....                              | n/a  | n/a |   |

**7 Creative outputs ..... 45.0 25 ●**

|   |       |     |   |
|---|-------|-----|---|
| 7.1 Intangible assets .....                                     | 45.4  | 66  |   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....             | n/a   | n/a |   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....          | n/a   | n/a |   |
| 7.1.3 ICTs & business model creation <sup>†</sup> .....         | 47.8  | 105 |   |
| 7.1.4 ICTs & organizational model creation <sup>†</sup> .....   | 43.0  | 111 |   |
| 7.2 Creative goods & services .....                             | 83.3  | 1   | ● |
| 7.2.1 Cultural & creative services exports, % total trade ..... | n/a   | n/a |   |
| 7.2.2 National feature films/mn pop. 15–69 .....                | 58.5  | 1   | ● |
| 7.2.3 Global ent. & media output/th pop. 15–69 .....            | n/a   | n/a |   |
| 7.2.4 Printing & publishing manufactures, % .....               | n/a   | n/a |   |
| 7.2.5 Creative goods exports, % total trade .....               | 7.1   | 7   | ● |
| 7.3 Online creativity .....                                     | 6.0   | 106 |   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69 .....      | 2.1   | 89  |   |
| 7.3.2 Country-code TLDs/th pop. 15–69 .....                     | 15.2  | 86  |   |
| 7.3.3 Wikipedia edits/pop. 15–69 .....                          | 371.4 | 108 |   |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a   | n/a |   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 10.5                            |
| GDP (US\$ billions) .....   | 29.8                            |
| GDP per capita, PPP\$ ..... | 5,363.5                         |
| Income group.....           | Lower-middle income             |
| Region.....                 | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>27.8</b>                           | <b>111</b>   |
| Innovation Output Sub-Index .....                             | 22.8                                  | 106          |
| Innovation Input Sub-Index.....                               | 32.7                                  | 115          |
| Innovation Efficiency Ratio.....                              | 0.7                                   | 84           |
| Global Innovation Index 2013 (out of 142) .....               | 30.5                                  | 95           |
| <b>1 Institutions.....</b>                                    | <b>32.7</b>                           | <b>141</b> ○ |
| 1.1 Political environment.....                                | 50.5                                  | 87           |
| 1.1.1 Political stability*.....                               | 53.4                                  | 95           |
| 1.1.2 Government effectiveness*.....                          | 30.9                                  | 90           |
| 1.1.3 Press freedom*.....                                     | 67.2                                  | 88           |
| 1.2 Regulatory environment .....                              | 11.2                                  | 141 ○        |
| 1.2.1 Regulatory quality* .....                               | 27.0                                  | 124 ○        |
| 1.2.2 Rule of law*.....                                       | 17.7                                  | 127 ○        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 82.3                                  | 139 ○        |
| 1.3 Business environment.....                                 | 36.5                                  | 140 ○        |
| 1.3.1 Ease of starting a business*.....                       | 55.7                                  | 135 ○        |
| 1.3.2 Ease of resolving insolvency*.....                      | 41.2                                  | 59 ●         |
| 1.3.3 Ease of paying taxes*.....                              | 12.7                                  | 142 ○        |
| <b>2 Human capital &amp; research.....</b>                    | <b>28.1</b>                           | <b>74</b>    |
| 2.1 Education .....   | 44.9                                  | 63 ●         |
| 2.1.1 Expenditure on education, % GDP .....                   | 6.9                                   | 13 ●         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 19.5                                  | 63           |
| 2.1.3 School life expectancy, years.....                      | 13.2                                  | 70           |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 18.2                                  | 76           |
| 2.2 Tertiary education.....                                   | 37.8                                  | 55 ●         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 37.7                                  | 69           |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a          |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a          |
| 2.3 Research & development (R&D).....                         | 1.7                                   | 110          |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 212.0                                 | 84           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.2                                   | 92           |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○         |
| <b>3 Infrastructure.....</b>                                  | <b>26.9</b>                           | <b>108</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 27.3                                  | 97           |
| 3.1.1 ICT access*.....  | 32.7                                  | 98           |
| 3.1.2 ICT use*.....   | 14.2                                  | 96           |
| 3.1.3 Government's online service*.....                       | 41.2                                  | 94           |
| 3.1.4 E-participation*.....                                   | 21.1                                  | 65           |
| 3.2 General infrastructure.....                               | 21.7                                  | 126 ○        |
| 3.2.1 Electricity output, kWh/cap.....                        | 715.8                                 | 99           |
| 3.2.2 Logistics performance*.....                             | 39.7                                  | 91           |
| 3.2.3 Gross capital formation, % GDP.....                     | 19.3                                  | 98           |
| 3.3 Ecological sustainability.....                            | 31.8                                  | 86           |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 5.9                                   | 69           |
| 3.3.2 Environmental performance*.....                         | 50.5                                  | 79           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.8                                   | 68           |
| <b>4 Market sophistication .....</b>                          | <b>48.2</b>                           | <b>71</b>    |
| 4.1 Credit.....   | 52.4                                  | 30 ●         |
| 4.1.1 Ease of getting credit*.....                            | 43.8                                  | 112 ○        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 44.2                                  | 77           |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 13.7                                  | 1 ●          |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 22.4        | 130 ○      |
| 4.2.1 Ease of protecting investors*.....                            | 40.0        | 113        |
| 4.2.2 Market capitalization, % GDP.....                             | 16.4        | 79         |
| 4.2.3 Total value of stocks traded, % GDP.....                      | 0.1         | 102 ○      |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                       | n/a         | n/a        |
| 4.3 Trade & competition .....                                       | 69.8        | 112        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                    | 3.7         | 64 ●       |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....           | 0.2         | 35 ●       |
| 4.3.3 Intensity of local competition <sup>†</sup> .....             | 47.2        | 129 ○      |
| <b>5 Business sophistication .....</b>                              | <b>27.7</b> | <b>96</b>  |
| 5.1 Knowledge workers.....  | 40.1        | 66         |
| 5.1.1 Knowledge-intensive employment, %.....                        | 15.3        | 91         |
| 5.1.2 Firms offering formal training, % firms.....                  | 54.1        | 17 ●       |
| 5.1.3 GERD performed by business, % GDP.....                        | n/a         | n/a        |
| 5.1.4 GERD performed by business, %.....                            | n/a         | n/a        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                           | 13.3        | 115        |
| 5.2 Innovation linkages .....                                       | 23.0        | 117        |
| 5.2.1 University/industry research collaboration <sup>†</sup> ..... | 42.5        | 68         |
| 5.2.2 State of cluster development <sup>†</sup> .....               | 42.5        | 85         |
| 5.2.3 GERD financed by abroad, %.....                               | 1.9         | 73         |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....                | n/a         | n/a        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....        | 0.0         | 72         |
| 5.3 Knowledge absorption.....                                       | 20.1        | 101        |
| 5.3.1 Royalty & license fees payments, % total trade.....           | 0.2         | 76         |
| 5.3.2 High-tech imports less re-imports, %.....                     | 6.9         | 66         |
| 5.3.3 Comm., computer & info. services imp., % total trade.....     | 0.7         | 76         |
| 5.3.4 FDI net inflows, % GDP.....                                   | 3.6         | 60 ●       |
| <b>6 Knowledge &amp; technology outputs .....</b>                   | <b>21.4</b> | <b>104</b> |
| 6.1 Knowledge creation.....   | 5.9         | 105        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....                | n/a         | n/a        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                     | n/a         | n/a        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....              | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....             | 3.8         | 118        |
| 6.1.5 Citable documents H index.....                                | 61.0        | 96         |
| 6.2 Knowledge impact.....   | 32.3        | 94         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                       | 2.7         | 38 ●       |
| 6.2.2 New businesses/th pop. 15–64.....                             | 0.6         | 73         |
| 6.2.3 Computer software spending, % GDP.....                        | 0.3         | 62 ○       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....               | 3.4         | 81         |
| 6.2.5 High- & medium-high-tech manufactures, % .....                | n/a         | n/a        |
| 6.3 Knowledge diffusion.....  | 26.0        | 102        |
| 6.3.1 Royalty & license fees receipts, % total trade .....          | 0.1         | 60         |
| 6.3.2 High-tech exports less re-exports, %.....                     | 0.5         | 80         |
| 6.3.3 Comm., computer & info. services exp., % total trade.....     | 1.0         | 83         |
| 6.3.4 FDI net outflows, % GDP .....                                 | 0.0         | 104        |
| <b>7 Creative outputs .....</b>                                     | <b>24.1</b> | <b>105</b> |
| 7.1 Intangible assets.....  | 37.2        | 104        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....                  | 46.8        | 58         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....               | n/a         | n/a        |
| 7.1.3 ICTs & business model creation <sup>†</sup> .....             | 48.0        | 104        |
| 7.1.4 ICTs & organizational model creation <sup>†</sup> .....       | 45.5        | 95         |
| 7.2 Creative goods & services.....                                  | 16.9        | 73         |
| 7.2.1 Cultural & creative services exports, % total trade.....      | 0.1         | 66         |
| 7.2.2 National feature films/mn pop. 15–69.....                     | 4.1         | 31 ●       |
| 7.2.3 Global ent. & media output/th pop. 15–69.....                 | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                    | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade.....                    | 0.7         | 50 ●       |
| 7.3 Online creativity.....  | 5.2         | 108        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....           | 1.9         | 95         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                          | 12.1        | 96         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                               | 995.1       | 97         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                     | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

# Bosnia and Herzegovina

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 3.8                 |
| GDP (US\$ billions) .....   | 17.8                |
| GDP per capita, PPP\$ ..... | 8,280.4             |
| Income group .....          | Upper-middle income |
| Region .....                | Europe              |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>32.4</b>                           | <b>81</b>  |
| Innovation Output Sub-Index .....                            | 25.5                                  | 92         |
| Innovation Input Sub-Index.....                              | 39.4                                  | 82         |
| Innovation Efficiency Ratio.....                             | 0.6                                   | 101        |
| Global Innovation Index 2013 (out of 142) .....              | 36.2                                  | 65         |
| <b>1 Institutions.....</b>                                   | <b>59.5</b>                           | <b>78</b>  |
| 1.1 Political environment.....                               | 51.4                                  | 84         |
| 1.1.1 Political stability*.....                              | 52.6                                  | 98         |
| 1.1.2 Government effectiveness*.....                         | 28.4                                  | 96         |
| 1.1.3 Press freedom*.....                                    | 73.1                                  | 55         |
| 1.2 Regulatory environment .....                             | 70.6                                  | 52         |
| 1.2.1 Regulatory quality* .....                              | 47.1                                  | 76         |
| 1.2.2 Rule of law*.....                                      | 40.0                                  | 73         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 9.2                                   | 31 ●       |
| 1.3 Business environment.....                                | 56.5                                  | 94         |
| 1.3.1 Ease of starting a business*.....                      | 71.0                                  | 114        |
| 1.3.2 Ease of resolving insolvency*.....                     | 38.2                                  | 69         |
| 1.3.3 Ease of paying taxes*.....                             | 60.3                                  | 102        |
| <b>2 Human capital &amp; research.....</b>                   | <b>18.1</b>                           | <b>107</b> |
| 2.1 Education .....  | n/a                                   | n/a        |
| 2.1.1 Expenditure on education, % GDP.....                   | n/a                                   | n/a        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | n/a                                   | n/a        |
| 2.1.3 School life expectancy, years.....                     | n/a                                   | n/a        |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | n/a                                   | n/a        |
| 2.2 Tertiary education.....                                  | 33.7                                  | 68         |
| 2.2.1 Tertiary enrolment, % gross.....                       | 37.7                                  | 68         |
| 2.2.2 Graduates in science & engineering, % .....            | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                      | 5.9                                   | 29 ●       |
| 2.3 Research & development (R&D).....                        | 2.4                                   | 101        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 763.3                                 | 60         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.0                                   | 116 ○      |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                 | <b>29.4</b>                           | <b>95</b>  |
| 3.1 Information & communication technologies (ICTs).....     | 29.4                                  | 92         |
| 3.1.1 ICT access*.....                                       | 48.3                                  | 70         |
| 3.1.2 ICT use* .....   | 31.9                                  | 57         |
| 3.1.3 Government's online service*.....                      | 37.3                                  | 99         |
| 3.1.4 E-participation*.....                                  | 0.0                                   | 129 ○      |
| 3.2 General infrastructure.....                              | 26.3                                  | 104        |
| 3.2.1 Electricity output, kWh/cap.....                       | 4,074.7                               | 53         |
| 3.2.2 Logistics performance*.....                            | 54.8                                  | 55         |
| 3.2.3 Gross capital formation, % GDP.....                    | 16.1                                  | 123 ○      |
| 3.3 Ecological sustainability.....                           | 32.7                                  | 81         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 4.0                                   | 97         |
| 3.3.2 Environmental performance*.....                        | 45.8                                  | 93         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 5.5                                   | 23 ●       |
| <b>4 Market sophistication .....</b>                         | <b>51.9</b>                           | <b>47</b>  |
| 4.1 Credit.....  | 40.2                                  | 55         |
| 4.1.1 Ease of getting credit*.....                           | 62.5                                  | 69         |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 62.3                                  | 51         |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 3.1                                   | 17 ●       |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 46.7        | 36 ●        |
| 4.2.1 Ease of protecting investors*.....                        | 46.7        | 97          |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a         |
| 4.3 Trade & competition .....                                   | 68.7        | 115         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.5         | 41 ●        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.0         | 14 ●        |
| 4.3.3 Intensity of local competition†.....                      | 40.3        | 132 ○       |
| <b>5 Business sophistication .....</b>                          | <b>37.9</b> | <b>40 ●</b> |
| 5.1 Knowledge workers.....                                      | 65.5        | 19 ●        |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a         |
| 5.1.2 Firms offering formal training, % firms.....              | 67.5        | 6 ●         |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a         |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 30.6        | 97          |
| 5.2 Innovation linkages .....                                   | 29.1        | 82          |
| 5.2.1 University/industry research collaboration†.....          | 55.3        | 36 ●        |
| 5.2.2 State of cluster development† .....                       | 16.0        | 136 ○       |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | n/a         | n/a         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a         | n/a         |
| 5.3 Knowledge absorption.....                                   | 19.3        | 107         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 102         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 5.7         | 90          |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.9         | 65          |
| 5.3.4 FDI net inflows, % GDP.....                               | 3.7         | 58          |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>29.2</b> | <b>61</b>   |
| 6.1 Knowledge creation.....                                     | 6.5         | 99          |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.1         | 105 ○       |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 56          |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 9.5         | 76          |
| 6.1.5 Citable documents H index.....                            | 44.0        | 119         |
| 6.2 Knowledge impact.....                                       | 52.3        | 21 ●        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | –0.2        | 93          |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.7         | 69          |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 39.3        | 7 ●         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a         |
| 6.3 Knowledge diffusion.....                                    | 28.9        | 84          |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.2         | 41          |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.0         | 69          |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.2         | 76          |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.0         | 107 ○       |
| <b>7 Creative outputs .....</b>                                 | <b>21.8</b> | <b>116</b>  |
| 7.1 Intangible assets.....                                      | 32.0        | 125 ○       |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 16.9        | 87 ○        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.4         | 43          |
| 7.1.3 ICTs & business model creation†.....                      | 51.5        | 88          |
| 7.1.4 ICTs & organizational model creation†.....                | 50.5        | 77          |
| 7.2 Creative goods & services.....                              | 7.3         | 106         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 91 ○        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 2.5         | 51          |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a         |
| 7.2.5 Creative goods exports, % total trade.....                | 0.2         | 81          |
| 7.3 Online creativity.....                                      | 15.9        | 76          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.7         | 81          |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 25.1        | 69          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 11,760.9    | 42 ●        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | n/a         | n/a         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 2.0                 |
| GDP (US\$ billions) .....   | 14.8                |
| GDP per capita, PPP\$ ..... | 16,376.7            |
| Income group .....          | Upper-middle income |
| Region .....                | Sub-Saharan Africa  |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>30.9</b>                           | <b>92</b> |
| Innovation Output Sub-Index .....                            | 20.5                                  | 116       |
| Innovation Input Sub-Index.....                              | 41.2                                  | 67        |
| Innovation Efficiency Ratio.....                             | 0.5                                   | 133 ○     |
| Global Innovation Index 2013 (out of 142) .....              | 31.1                                  | 91        |
| <b>1 Institutions.....</b>                                   | <b>71.5</b>                           | <b>42</b> |
| 1.1 Political environment.....                               | 74.1                                  | 36 ●      |
| 1.1.1 Political stability*.....                              | 92.8                                  | 13 ●      |
| 1.1.2 Government effectiveness*.....                         | 52.6                                  | 49        |
| 1.1.3 Press freedom*.....                                    | 77.1                                  | 36 ●      |
| 1.2 Regulatory environment .....                             | 69.1                                  | 59        |
| 1.2.1 Regulatory quality* .....                              | 66.9                                  | 40        |
| 1.2.2 Rule of law*.....                                      | 64.5                                  | 39        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 21.7                                  | 103       |
| 1.3 Business environment.....                                | 71.3                                  | 41        |
| 1.3.1 Ease of starting a business*.....                      | 72.6                                  | 110       |
| 1.3.2 Ease of resolving insolvency*.....                     | 65.6                                  | 30 ●      |
| 1.3.3 Ease of paying taxes*.....                             | 75.8                                  | 45        |
| <b>2 Human capital &amp; research.....</b>                   | <b>25.1</b>                           | <b>85</b> |
| 2.1 Education .....  | 54.5                                  | 29 ●      |
| 2.1.1 Expenditure on education, % GDP.....                   | 9.5                                   | 2 ●       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 33.0                                  | 15 ●      |
| 2.1.3 School life expectancy, years.....                     | 11.7                                  | 92        |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a       |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 13.9                                  | 48        |
| 2.2 Tertiary education.....                                  | 13.9                                  | 116       |
| 2.2.1 Tertiary enrolment, % gross.....                       | 7.4                                   | 120 ○     |
| 2.2.2 Graduates in science & engineering, % .....            | n/a                                   | n/a       |
| 2.2.3 Tertiary inbound mobility, %.....                      | 4.2                                   | 40        |
| 2.3 Research & development (R&D).....                        | 6.8                                   | 77        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 923.3                                 | 58        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.5                                   | 57        |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                 | <b>35.4</b>                           | <b>76</b> |
| 3.1 Information & communication technologies (ICTs).....     | 21.1                                  | 107       |
| 3.1.1 ICT access*.....                                       | 35.8                                  | 93        |
| 3.1.2 ICT use* .....   | 10.0                                  | 106       |
| 3.1.3 Government's online service*.....                      | 36.0                                  | 104       |
| 3.1.4 E-participation*.....                                  | 2.6                                   | 116 ○     |
| 3.2 General infrastructure.....                              | 43.3                                  | 32 ●      |
| 3.2.1 Electricity output, kWh/cap.....                       | 183.3                                 | 116 ○     |
| 3.2.2 Logistics performance*.....                            | 48.8                                  | 68        |
| 3.2.3 Gross capital formation, % GDP.....                    | 38.3                                  | 8 ●       |
| 3.3 Ecological sustainability.....                           | 41.6                                  | 52        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 11.9                                  | 7 ●       |
| 3.3.2 Environmental performance*.....                        | 47.6                                  | 90        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.3                                   | 96        |
| <b>4 Market sophistication .....</b>                         | <b>49.5</b>                           | <b>60</b> |
| 4.1 Credit.....  | 35.8                                  | 68        |
| 4.1.1 Ease of getting credit*.....                           | 62.5                                  | 69        |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 32.0                                  | 93        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | n/a                                   | n/a       |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 34.8        | 70         |
| 4.2.1 Ease of protecting investors*.....                        | 60.0        | 42         |
| 4.2.2 Market capitalization, % GDP.....                         | 31.8        | 56         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.8         | 72         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 77.9        | 43         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 3.6         | 63         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.0         | 1 ●        |
| 4.3.3 Intensity of local competition†.....                      | 62.2        | 88         |
| <b>5 Business sophistication .....</b>                          | <b>24.5</b> | <b>117</b> |
| 5.1 Knowledge workers.....                                      | 33.7        | 86         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 17.1        | 81         |
| 5.1.2 Firms offering formal training, % firms.....              | 51.8        | 23 ●       |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.1         | 59         |
| 5.1.4 GERD performed by business, %.....                        | 15.6        | 68         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 35.6        | 86         |
| 5.2 Innovation linkages .....                                   | 27.5        | 89         |
| 5.2.1 University/industry research collaboration†.....          | 37.2        | 97         |
| 5.2.2 State of cluster development† .....                       | 43.0        | 84         |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 48         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 106 ○      |
| 5.3 Knowledge absorption.....                                   | 12.5        | 134 ○      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 83         |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a         | n/a        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.4         | 112        |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.0         | 86         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>23.7</b> | <b>92</b>  |
| 6.1 Knowledge creation.....                                     | 5.2         | 112        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 99         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 5.9         | 101        |
| 6.1.5 Citable documents H index.....                            | 57.0        | 100        |
| 6.2 Knowledge impact.....                                       | 41.2        | 60         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 12.3        | 7 ●        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.5         | 130 ○      |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a        |
| 6.3 Knowledge diffusion.....                                    | 24.8        | 110        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.0         | 102 ○      |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a         | n/a        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.1         | 133 ○      |
| 6.3.4 FDI net outflows, % GDP.....                              | -0.1        | 111        |
| <b>7 Creative outputs .....</b>                                 | <b>17.3</b> | <b>129</b> |
| 7.1 Intangible assets.....                                      | 33.9        | 119        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.2         | 56         |
| 7.1.3 ICTs & business model creation†.....                      | 44.0        | 116        |
| 7.1.4 ICTs & organizational model creation†.....                | 39.3        | 121 ○      |
| 7.2 Creative goods & services.....                              | 0.0         | 141 ○      |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 105 ○      |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade.....                | n/a         | n/a        |
| 7.3 Online creativity .....                                     | 1.6         | 122        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 1.2         | 103        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 3.3         | 118        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 245.0       | 114        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 198.7                           |
| GDP (US\$ billions) .....   | 2,242.9                         |
| GDP per capita, PPP\$ ..... | 12,220.9                        |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>36.3</b>                           | <b>61</b> |
| Innovation Output Sub-Index .....                             | 30.8                                  | 64        |
| Innovation Input Sub-Index.....                               | 41.7                                  | 63        |
| Innovation Efficiency Ratio.....                              | 0.7                                   | 71        |
| Global Innovation Index 2013 (out of 142) .....               | 36.3                                  | 64        |
| <b>1 Institutions.....</b>                                    | <b>53.9</b>                           | <b>96</b> |
| 1.1 Political environment.....                                | 57.4                                  | 69        |
| 1.1.1 Political stability*.....                               | 67.3                                  | 67        |
| 1.1.2 Government effectiveness*.....                          | 37.5                                  | 78        |
| 1.1.3 Press freedom*.....                                     | 67.3                                  | 87        |
| 1.2 Regulatory environment .....                              | 66.2                                  | 70        |
| 1.2.1 Regulatory quality* .....                               | 51.2                                  | 70        |
| 1.2.2 Rule of law*.....                                       | 43.3                                  | 66        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 15.4                                  | 71        |
| 1.3 Business environment.....                                 | 38.2                                  | 137 ○     |
| 1.3.1 Ease of starting a business*.....                       | 54.7                                  | 136 ○     |
| 1.3.2 Ease of resolving insolvency*.....                      | 20.7                                  | 117 ○     |
| 1.3.3 Ease of paying taxes*.....                              | 39.3                                  | 131 ○     |
| <b>2 Human capital &amp; research.....</b>                    | <b>31.1</b>                           | <b>62</b> |
| 2.1 Education .....   | 50.6                                  | 43        |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.8                                   | 33        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a       |
| 2.1.3 School life expectancy, years.....                      | 14.2                                  | 52        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 402.1                                 | 53 ○      |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 16.7                                  | 68        |
| 2.2 Tertiary education.....                                   | 12.6                                  | 120 ○     |
| 2.2.1 Tertiary enrolment, % gross.....                        | n/a                                   | n/a       |
| 2.2.2 Graduates in science & engineering, % .....             | 12.0                                  | 96 ○      |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.2                                   | 101 ○     |
| 2.3 Research & development (R&D).....                         | 30.1                                  | 34        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 1,202.8                               | 52        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 1.2                                   | 31        |
| 2.3.3 QS university ranking, average score top 3*.....        | 51.5                                  | 23 ●      |
| <b>3 Infrastructure.....</b>                                  | <b>39.2</b>                           | <b>60</b> |
| 3.1 Information & communication technologies (ICTs).....      | 51.6                                  | 41        |
| 3.1.1 ICT access*.....  | 54.9                                  | 63        |
| 3.1.2 ICT use* .....  | 34.1                                  | 55        |
| 3.1.3 Government's online service*.....                       | 67.3                                  | 32        |
| 3.1.4 E-participation*.....                                   | 50.0                                  | 31 ●      |
| 3.2 General infrastructure.....                               | 29.2                                  | 90        |
| 3.2.1 Electricity output, kWh/cap.....                        | 2,703.9                               | 67        |
| 3.2.2 Logistics performance* .....                            | 60.3                                  | 45        |
| 3.2.3 Gross capital formation, % GDP.....                     | 19.2                                  | 101       |
| 3.3 Ecological sustainability.....                            | 36.7                                  | 62        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 7.5                                   | 44        |
| 3.3.2 Environmental performance*.....                         | 53.0                                  | 70        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 1.4                                   | 53        |
| <b>4 Market sophistication .....</b>                          | <b>45.2</b>                           | <b>89</b> |
| 4.1 Credit.....   | 24.1                                  | 112       |
| 4.1.1 Ease of getting credit* .....                           | 50.0                                  | 96        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 68.4                                  | 48        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.1                                   | 74        |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 36.1        | 63        |
| 4.2.1 Ease of protecting investors*.....                        | 53.3        | 66        |
| 4.2.2 Market capitalization, % GDP.....                         | 54.6        | 36        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 37.0        | 23 ●      |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 44        |
| 4.3 Trade & competition .....                                   | 75.3        | 74        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 7.9         | 111       |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.3         | 45        |
| 4.3.3 Intensity of local competition†.....                      | 66.3        | 67        |
| <b>5 Business sophistication .....</b>                          | <b>39.3</b> | <b>37</b> |
| 5.1 Knowledge workers.....                                      | 45.5        | 52        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 20.5        | 70        |
| 5.1.2 Firms offering formal training, % firms.....              | 52.7        | 20 ●      |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a       |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 31.6        | 96        |
| 5.2 Innovation linkages .....                                   | 35.7        | 57        |
| 5.2.1 University/industry research collaboration†.....          | 49.7        | 46        |
| 5.2.2 State of cluster development† .....                       | 58.8        | 24 ●      |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 92 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 59        |
| 5.3 Knowledge absorption.....                                   | 36.8        | 25 ●      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.3         | 18 ●      |
| 5.3.2 High-tech imports less re-imports, %.....                 | 11.3        | 24 ●      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.6         | 29 ●      |
| 5.3.4 FDI net inflows, % GDP.....                               | 3.4         | 61        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>28.1</b> | <b>65</b> |
| 6.1 Knowledge creation.....                                     | 18.8        | 54        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.1         | 51        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 61        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.2         | 27        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 14.9        | 59        |
| 6.1.5 Citable documents H index.....                            | 305.0       | 22 ●      |
| 6.2 Knowledge impact.....                                       | 37.4        | 72        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | –0.3        | 96 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 2.2         | 41        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 52        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 11.1        | 45        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 39.6        | 21 ●      |
| 6.3 Knowledge diffusion.....                                    | 28.0        | 89        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.2         | 39        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 3.3         | 41        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.3         | 114 ○     |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.4         | 74        |
| <b>7 Creative outputs .....</b>                                 | <b>33.6</b> | <b>64</b> |
| 7.1 Intangible assets.....                                      | 46.8        | 56        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 51.7        | 54        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a       |
| 7.1.3 ICTs & business model creation†.....                      | 61.3        | 49        |
| 7.1.4 ICTs & organizational model creation†.....                | 59.0        | 41        |
| 7.2 Creative goods & services.....                              | 9.3         | 100       |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.3         | 35        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.7         | 81        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.3         | 36        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 77 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 0.2         | 78        |
| 7.3 Online creativity .....                                     | 31.6        | 47        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.0         | 92        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 43.0        | 44        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 3,464.7     | 65        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 75.4        | 37        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 0.4                         |
| GDP (US\$ billions) .....   | 16.2                        |
| GDP per capita, PPP\$ ..... | 53,430.9                    |
| Income group .....          | High income                 |
| Region .....                | South East Asia and Oceania |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>31.7</b>                           | <b>88</b> |
| Innovation Output Sub-Index .....                | 19.0                                  | 124 ○     |
| Innovation Input Sub-Index .....                 | 44.3                                  | 55        |
| Innovation Efficiency Ratio .....                | 0.4                                   | 139 ○     |
| Global Innovation Index 2013 (out of 142) .....  | 31.2                                  | 74        |

|          |  |             |             |
|----------|--|-------------|-------------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>73.4</b> | <b>37 ●</b> |
| 1.1      | Political environment.....                             | 72.0        | 42          |
| 1.1.1    | Political stability*.....                              | 88.2        | 25 ●        |
| 1.1.2    | Government effectiveness*.....                         | 63.1        | 37 ●        |
| 1.1.3    | Press freedom*.....                                    | 64.6        | 100         |
| 1.2      | Regulatory environment.....                            | 86.9        | 22 ●        |
| 1.2.1    | Regulatory quality*.....                               | 79.0        | 23 ●        |
| 1.2.2    | Rule of law*.....                                      | 68.6        | 35 ●        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 8.0         | 1 ●         |
| 1.3      | Business environment.....                              | 61.4        | 77          |
| 1.3.1    | Ease of starting a business*.....                      | 51.9        | 138 ○       |
| 1.3.2    | Ease of resolving insolvency*.....                     | 50.0        | 43          |
| 1.3.3    | Ease of paying taxes*.....                             | 82.3        | 29 ●        |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>22.7</b> | <b>95</b>   |
| 2.1      | Education.....   | 38.9        | 87          |
| 2.1.1    | Expenditure on education, % GDP.....                   | 3.5         | 101         |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 8.1         | 104 ○       |
| 2.1.3    | School life expectancy, years.....                     | 14.5        | 49          |
| 2.1.4    | PISA scales in reading, maths, & science.....          | n/a         | n/a         |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 10.1        | 27 ●        |
| 2.2      | Tertiary education.....                                | 26.8        | 85          |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 24.3        | 85          |
| 2.2.2    | Graduates in science & engineering, %.....             | 18.3        | 63          |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 4.2         | 38          |
| 2.3      | Research & development (R&D).....                      | 2.3         | 103         |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 676.3       | 65          |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 0.0         | 114 ○       |
| 2.3.3    | QS university ranking, average score top 3*.....       | 0.0         | 70 ○        |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>36.6</b> | <b>70</b>   |
| 3.1      | Information & communication technologies (ICTs).....   | 49.4        | 46          |
| 3.1.1    | ICT access*.....                                       | 65.5        | 40          |
| 3.1.2    | ICT use*.....  | 25.3        | 68          |
| 3.1.3    | Government's online service*.....                      | 59.5        | 44          |
| 3.1.4    | E-participation*.....                                  | 47.4        | 34 ●        |
| 3.2      | General infrastructure.....                            | 23.7        | 117         |
| 3.2.1    | Electricity output, kWh/cap.....                       | 9,085.4     | 14 ●        |
| 3.2.2    | Logistics performance*.....                            | n/a         | n/a         |
| 3.2.3    | Gross capital formation, % GDP.....                    | 15.2        | 127 ○       |
| 3.3      | Ecological sustainability.....                         | 36.6        | 63          |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 4.8         | 85          |
| 3.3.2    | Environmental performance*.....                        | 66.5        | 37          |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 1.1         | 62          |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>54.7</b> | <b>38</b>   |
| 4.1      | Credit.....  | 38.9        | 61          |
| 4.1.1    | Ease of getting credit*.....                           | 68.8        | 53          |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 31.5        | 95          |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | n/a         | n/a         |

|            |   |             |              |
|------------|---|-------------|--------------|
| 4.2        | Investment.....   | 46.7        | 36 ●         |
| 4.2.1      | Ease of protecting investors*.....                            | 46.7        | 97           |
| 4.2.2      | Market capitalization, % GDP.....                             | n/a         | n/a          |
| 4.2.3      | Total value of stocks traded, % GDP.....                      | n/a         | n/a          |
| 4.2.4      | Venture capital deals/tr PPP\$ GDP.....                       | n/a         | n/a          |
| <b>4.3</b> | <b>Trade &amp; competition.....</b>                           | <b>78.5</b> | <b>37 ●</b>  |
| 4.3.1      | Applied tariff rate, weighted mean, %.....                    | 4.1         | 75           |
| 4.3.2      | Non-agricultural mkt access weighted tariff, %.....           | 0.7         | 61           |
| 4.3.3      | Intensity of local competition <sup>†</sup> .....             | 68.0        | 59           |
| <b>5</b>   | <b>Business sophistication.....</b>                           | <b>34.1</b> | <b>62</b>    |
| 5.1        | Knowledge workers.....  | 50.9        | 39           |
| 5.1.1      | Knowledge-intensive employment, %.....                        | n/a         | n/a          |
| 5.1.2      | Firms offering formal training, % firms.....                  | n/a         | n/a          |
| 5.1.3      | GERD performed by business, % GDP.....                        | n/a         | n/a          |
| 5.1.4      | GERD performed by business, %.....                            | n/a         | n/a          |
| 5.1.5      | GMAT test takers/mn pop. 20–34.....                           | 114.5       | 45           |
| 5.2        | Innovation linkages.....                                      | 34.1        | 61           |
| 5.2.1      | University/industry research collaboration <sup>†</sup> ..... | 43.5        | 63           |
| 5.2.2      | State of cluster development <sup>†</sup> .....               | 53.0        | 36           |
| 5.2.3      | GERD financed by abroad, %.....                               | n/a         | n/a          |
| 5.2.4      | JV–strategic alliance deals/tr PPP\$ GDP.....                 | 0.0         | 57           |
| 5.2.5      | Patent families filed in 3+ offices/bn PPP\$ GDP.....         | 0.1         | 55           |
| 5.3        | Knowledge absorption.....                                     | 17.5        | 117          |
| 5.3.1      | Royalty & license fees payments, % total trade.....           | 0.1         | 94           |
| 5.3.2      | High-tech imports less re-imports, %.....                     | 4.1         | 113 ○        |
| 5.3.3      | Comm., computer & info. services imp., % total trade.....     | 0.3         | 121 ○        |
| 5.3.4      | FDI net inflows, % GDP.....                                   | 7.4         | 25 ●         |
| <b>6</b>   | <b>Knowledge &amp; technology outputs.....</b>                | <b>12.8</b> | <b>136 ○</b> |
| 6.1        | Knowledge creation.....                                       | 4.2         | 121          |
| 6.1.1      | Domestic resident patent app./tr PPP\$ GDP.....               | n/a         | n/a          |
| 6.1.2      | PCT resident patent app./tr PPP\$ GDP.....                    | 0.1         | 68           |
| 6.1.3      | Domestic res utility model app./tr PPP\$ GDP.....             | n/a         | n/a          |
| 6.1.4      | Scientific & technical articles/bn PPP\$ GDP.....             | 3.6         | 121 ○        |
| 6.1.5      | Citable documents H index.....                                | 40.0        | 122 ○        |
| 6.2        | Knowledge impact.....   | 7.3         | 129 ○        |
| 6.2.1      | Growth rate of PPP\$ GDP/worker, %.....                       | n/a         | n/a          |
| 6.2.2      | New businesses/th pop. 15–64.....                             | n/a         | n/a          |
| 6.2.3      | Computer software spending, % GDP.....                        | n/a         | n/a          |
| 6.2.4      | ISO 9001 quality certificates/bn PPP\$ GDP.....               | 3.2         | 84           |
| 6.2.5      | High- & medium-high-tech manufactures, %.....                 | n/a         | n/a          |
| 6.3        | Knowledge diffusion.....                                      | 27.0        | 95           |
| 6.3.1      | Royalty & license fees receipts, % total trade.....           | n/a         | n/a          |
| 6.3.2      | High-tech exports less re-exports, %.....                     | 1.2         | 64           |
| 6.3.3      | Comm., computer & info. services exp., % total trade.....     | 0.4         | 109          |
| 6.3.4      | FDI net outflows, % GDP.....                                  | 0.2         | 85           |
| <b>7</b>   | <b>Creative outputs.....</b>                                  | <b>25.3</b> | <b>102</b>   |
| 7.1        | Intangible assets.....  | 38.8        | 100          |
| 7.1.1      | Domestic res trademark app./bn PPP\$ GDP.....                 | 3.9         | 99 ○         |
| 7.1.2      | Madrid trademark app. holders/bn PPP\$ GDP.....               | n/a         | n/a          |
| 7.1.3      | ICTs & business model creation <sup>†</sup> .....             | 57.8        | 64           |
| 7.1.4      | ICTs & organizational model creation <sup>†</sup> .....       | 57.0        | 52           |
| 7.2        | Creative goods & services.....                                | 10.8        | 91           |
| 7.2.1      | Cultural & creative services exports, % total trade.....      | n/a         | n/a          |
| 7.2.2      | National feature films/mn pop. 15–69.....                     | n/a         | n/a          |
| 7.2.3      | Global ent. & media output/th pop. 15–69.....                 | n/a         | n/a          |
| 7.2.4      | Printing & publishing manufactures, %.....                    | n/a         | n/a          |
| 7.2.5      | Creative goods exports, % total trade.....                    | 0.4         | 65           |
| 7.3        | Online creativity.....  | 12.7        | 83           |
| 7.3.1      | Generic top-level domains (TLDs)/th pop. 15–69.....           | 13.5        | 41           |
| 7.3.2      | Country-code TLDs/th pop. 15–69.....                          | 21.3        | 74           |
| 7.3.3      | Wikipedia edits/pop. 15–69.....                               | 1,852.6     | 83           |
| 7.3.4      | Video uploads on YouTube/pop. 15–69.....                      | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Bulgaria

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 7.3                 |
| GDP (US\$ billions) .....   | 53.0                |
| GDP per capita, PPP\$ ..... | 14,499.1            |
| Income group .....          | Upper-middle income |
| Region .....                | Europe              |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>40.7</b>                           | <b>44</b> |
| Innovation Output Sub-Index .....                             | 37.1                                  | 37        |
| Innovation Input Sub-Index .....                              | 44.3                                  | 54        |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 25 ●      |
| Global Innovation Index 2013 (out of 142) .....               | 41.3                                  | 41        |
| <b>1 Institutions.....</b>                                    | <b>68.5</b>                           | <b>48</b> |
| 1.1 Political environment.....                                | 63.2                                  | 56        |
| 1.1.1 Political stability*.....                               | 73.8                                  | 53        |
| 1.1.2 Government effectiveness*.....                          | 44.5                                  | 60        |
| 1.1.3 Press freedom*.....                                     | 71.4                                  | 72        |
| 1.2 Regulatory environment .....                              | 76.5                                  | 38        |
| 1.2.1 Regulatory quality* .....                               | 63.0                                  | 47        |
| 1.2.2 Rule of law*.....                                       | 43.0                                  | 67        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.0                                   | 1 ●       |
| 1.3 Business environment.....                                 | 65.7                                  | 66        |
| 1.3.1 Ease of starting a business*.....                       | 90.7                                  | 35        |
| 1.3.2 Ease of resolving insolvency*.....                      | 34.5                                  | 82        |
| 1.3.3 Ease of paying taxes*.....                              | 72.0                                  | 58        |
| <b>2 Human capital &amp; research.....</b>                    | <b>31.2</b>                           | <b>61</b> |
| 2.1 Education .....   | 44.5                                  | 65        |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.1                                   | 88        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 24.9                                  | 40        |
| 2.1.3 School life expectancy, years.....                      | 14.3                                  | 51        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 440.4                                 | 42        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 12.3                                  | 40        |
| 2.2 Tertiary education.....                                   | 35.9                                  | 61        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 59.6                                  | 39        |
| 2.2.2 Graduates in science & engineering, % .....             | 19.1                                  | 61        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 3.6                                   | 47        |
| 2.3 Research & development (R&D).....                         | 13.3                                  | 61        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 2,017.4                               | 39        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.6                                   | 54        |
| 2.3.3 QS university ranking, average score top 3*.....        | 6.7                                   | 64        |
| <b>3 Infrastructure.....</b>                                  | <b>42.7</b>                           | <b>47</b> |
| 3.1 Information & communication technologies (ICTs).....      | 39.2                                  | 67        |
| 3.1.1 ICT access*.....  | 63.3                                  | 47        |
| 3.1.2 ICT use* .....  | 42.0                                  | 43        |
| 3.1.3 Government's online service*.....                       | 49.0                                  | 72        |
| 3.1.4 E-participation*.....                                   | 2.6                                   | 116 ○     |
| 3.2 General infrastructure.....                               | 37.0                                  | 54        |
| 3.2.1 Electricity output, kWh/cap.....                        | 6,687.6                               | 30        |
| 3.2.2 Logistics performance* .....                            | 63.5                                  | 36        |
| 3.2.3 Gross capital formation, % GDP.....                     | 21.2                                  | 79        |
| 3.3 Ecological sustainability.....                            | 51.9                                  | 23 ●      |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 4.6                                   | 89        |
| 3.3.2 Environmental performance*.....                         | 64.0                                  | 41        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 13.6                                  | 4 ●       |
| <b>4 Market sophistication .....</b>                          | <b>44.2</b>                           | <b>97</b> |
| 4.1 Credit.....   | 34.7                                  | 72        |
| 4.1.1 Ease of getting credit*.....                            | 81.3                                  | 27        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 71.9                                  | 46        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.0                                   | 79 ○      |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 27.7        | 111 ○     |
| 4.2.1 Ease of protecting investors*.....                        | 60.0        | 42        |
| 4.2.2 Market capitalization, % GDP.....                         | 13.1        | 83 ○      |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.7         | 74        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 32        |
| 4.3 Trade & competition .....                                   | 70.1        | 111 ○     |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 59.7        | 97 ○      |
| <b>5 Business sophistication .....</b>                          | <b>35.1</b> | <b>53</b> |
| 5.1 Knowledge workers.....                                      | 46.6        | 49        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 29.6        | 48        |
| 5.1.2 Firms offering formal training, % firms.....              | 30.8        | 64        |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.4         | 36        |
| 5.1.4 GERD performed by business, %.....                        | 60.5        | 21        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 318.7       | 15 ●      |
| 5.2 Innovation linkages .....                                   | 33.6        | 64        |
| 5.2.1 University/industry research collaboration†.....          | 34.0        | 111 ○     |
| 5.2.2 State of cluster development† .....                       | 38.8        | 104 ○     |
| 5.2.3 GERD financed by abroad, %.....                           | 43.9        | 9 ●       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 77 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 77        |
| 5.3 Knowledge absorption.....                                   | 25.0        | 73        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.5         | 54        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 8.5         | 47        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.9         | 67        |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.0         | 53        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>36.2</b> | <b>38</b> |
| 6.1 Knowledge creation.....                                     | 19.5        | 53        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.4         | 47        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 50        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.9         | 17        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 19.9        | 46        |
| 6.1.5 Citable documents H index.....                            | 138.0       | 44        |
| 6.2 Knowledge impact.....                                       | 57.0        | 10 ●      |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.7         | 37        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 9.0         | 11 ●      |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 40        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 59.3        | 1 ●       |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 18.4        | 58        |
| 6.3 Knowledge diffusion.....                                    | 32.1        | 67        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 54        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 2.9         | 43        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.0         | 40        |
| 6.3.4 FDI net outflows, % GDP .....                             | 1.1         | 47        |
| <b>7 Creative outputs .....</b>                                 | <b>38.1</b> | <b>45</b> |
| 7.1 Intangible assets.....                                      | 49.9        | 42        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 146.0       | 5 ●       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 2.7         | 9 ●       |
| 7.1.3 ICTs & business model creation†.....                      | 48.5        | 101 ○     |
| 7.1.4 ICTs & organizational model creation†.....                | 45.3        | 99 ○      |
| 7.2 Creative goods & services.....                              | 25.1        | 49        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.8         | 14 ●      |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 2.8         | 48        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 59        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.9         | 42        |
| 7.3 Online creativity .....                                     | 27.4        | 56        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 23.3        | 28 ●      |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 27.4        | 66        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 18,504.0    | 29        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 16.5               |
| GDP (US\$ billions) .....   | 12.2               |
| GDP per capita, PPP\$ ..... | 1,585.0            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>28.2</b>                           | <b>109</b> |
| Innovation Output Sub-Index .....                            | 23.5                                  | 104        |
| Innovation Input Sub-Index .....                             | 32.9                                  | 112        |
| Innovation Efficiency Ratio .....                            | 0.7                                   | 78         |
| Global Innovation Index 2013 (out of 142) .....              | 27.0                                  | 116        |
| <b>1 Institutions.....</b>                                   | <b>56.5</b>                           | <b>87</b>  |
| 1.1 Political environment.....                               | 50.3                                  | 88         |
| 1.1.1 Political stability*.....                              | 50.6                                  | 104        |
| 1.1.2 Government effectiveness*.....                         | 24.0                                  | 111        |
| 1.1.3 Press freedom*.....                                    | 76.3                                  | 41 ●       |
| 1.2 Regulatory environment .....                             | 67.6                                  | 62 ●       |
| 1.2.1 Regulatory quality* .....                              | 45.7                                  | 83         |
| 1.2.2 Rule of law*.....                                      | 34.5                                  | 87         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 10.5                                  | 42 ●       |
| 1.3 Business environment.....                                | 51.6                                  | 114        |
| 1.3.1 Ease of starting a business*.....                      | 73.3                                  | 109        |
| 1.3.2 Ease of resolving insolvency*.....                     | 27.6                                  | 103        |
| 1.3.3 Ease of paying taxes*.....                             | 54.0                                  | 116        |
| <b>2 Human capital &amp; research.....</b>                   | <b>14.9</b>                           | <b>122</b> |
| 2.1 Education .....  | 21.4                                  | 130        |
| 2.1.1 Expenditure on education, % GDP .....                  | 3.4                                   | 102        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 17.1                                  | 71         |
| 2.1.3 School life expectancy, years.....                     | 7.5                                   | 126 ○      |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 26.3                                  | 94         |
| 2.2 Tertiary education.....                                  | 21.8                                  | 98         |
| 2.2.1 Tertiary enrolment, % gross.....                       | 4.6                                   | 125        |
| 2.2.2 Graduates in science & engineering, % .....            | 19.9                                  | 58         |
| 2.2.3 Tertiary inbound mobility, %.....                      | 3.0                                   | 52 ●       |
| 2.3 Research & development (R&D).....                        | 1.6                                   | 112        |
| 2.3.1 Researchers, headcounts/mn pop. ....                   | 73.6                                  | 107        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.2                                   | 87         |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                 | <b>21.5</b>                           | <b>126</b> |
| 3.1 Information & communication technologies (ICTs).....     | 16.3                                  | 122        |
| 3.1.1 ICT access*.....                                       | 18.7                                  | 125 ○      |
| 3.1.2 ICT use* .....   | 1.3                                   | 128 ○      |
| 3.1.3 Government's online service*.....                      | 29.4                                  | 125        |
| 3.1.4 E-participation*.....                                  | 15.8                                  | 79         |
| 3.2 General infrastructure.....                              | 21.0                                  | 129        |
| 3.2.1 Electricity output, kWh/cap.....                       | n/a                                   | n/a        |
| 3.2.2 Logistics performance*.....                            | 28.2                                  | 125        |
| 3.2.3 Gross capital formation, % GDP.....                    | 17.1                                  | 116        |
| 3.3 Ecological sustainability.....                           | 27.3                                  | 107        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | n/a                                   | n/a        |
| 3.3.2 Environmental performance*.....                        | 40.5                                  | 107        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.1                                   | 121 ○      |
| <b>4 Market sophistication .....</b>                         | <b>40.4</b>                           | <b>122</b> |
| 4.1 Credit.....  | 23.7                                  | 113        |
| 4.1.1 Ease of getting credit*.....                           | 43.8                                  | 112        |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 22.1                                  | 115        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 1.7                                   | 29 ●       |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 27.1        | 113        |
| 4.2.1 Ease of protecting investors*.....                            | 36.7        | 119        |
| 4.2.2 Market capitalization, % GDP.....                             | n/a         | n/a        |
| 4.2.3 Total value of stocks traded, % GDP.....                      | n/a         | n/a        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                       | 0.0         | 37 ●       |
| 4.3 Trade & competition .....                                       | 70.5        | 107        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                    | 8.6         | 117        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....           | 0.0         | 18 ●       |
| 4.3.3 Intensity of local competition <sup>†</sup> .....             | 56.5        | 110        |
| <b>5 Business sophistication .....</b>                              | <b>31.0</b> | <b>75</b>  |
| 5.1 Knowledge workers.....  | 21.5        | 120        |
| 5.1.1 Knowledge-intensive employment, %.....                        | n/a         | n/a        |
| 5.1.2 Firms offering formal training, % firms.....                  | 24.9        | 79         |
| 5.1.3 GERD performed by business, % GDP.....                        | n/a         | n/a        |
| 5.1.4 GERD performed by business, %.....                            | n/a         | n/a        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                           | 7.4         | 126        |
| 5.2 Innovation linkages .....                                       | 50.3        | 15 ●       |
| 5.2.1 University/industry research collaboration <sup>†</sup> ..... | 37.3        | 96         |
| 5.2.2 State of cluster development <sup>†</sup> .....               | 30.8        | 127        |
| 5.2.3 GERD financed by abroad, %.....                               | 59.6        | 2 ●        |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP.....                 | n/a         | n/a        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....         | n/a         | n/a        |
| 5.3 Knowledge absorption.....                                       | 21.2        | 94         |
| 5.3.1 Royalty & license fees payments, % total trade.....           | 0.0         | 125 ○      |
| 5.3.2 High-tech imports less re-imports, %.....                     | 4.8         | 103        |
| 5.3.3 Comm., computer & info. services imp., % total trade.....     | 2.2         | 10 ●       |
| 5.3.4 FDI net inflows, % GDP.....                                   | 0.1         | 134 ○      |
| <b>6 Knowledge &amp; technology outputs .....</b>                   | <b>23.1</b> | <b>94</b>  |
| 6.1 Knowledge creation.....   | 4.2         | 120        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....                | 0.1         | 101        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                     | 0.1         | 88         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....              | 0.1         | 52         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....             | 9.5         | 77         |
| 6.1.5 Citable documents H index.....                                | 62.0        | 94         |
| 6.2 Knowledge impact.....   | 36.7        | 75         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                       | 3.4         | 29 ●       |
| 6.2.2 New businesses/th pop. 15–64.....                             | 0.1         | 86         |
| 6.2.3 Computer software spending, % GDP.....                        | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....               | 1.3         | 118        |
| 6.2.5 High- & medium-high-tech manufactures, %.....                 | n/a         | n/a        |
| 6.3 Knowledge diffusion.....  | 28.4        | 86         |
| 6.3.1 Royalty & license fees receipts, % total trade.....           | 0.0         | 86         |
| 6.3.2 High-tech exports less re-exports, %.....                     | 0.1         | 107        |
| 6.3.3 Comm., computer & info. services exp., % total trade.....     | 2.4         | 27 ●       |
| 6.3.4 FDI net outflows, % GDP.....                                  | 0.0         | 102        |
| <b>7 Creative outputs .....</b>                                     | <b>23.9</b> | <b>107</b> |
| 7.1 Intangible assets.....  | 46.3        | 58 ●       |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....                  | n/a         | n/a        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....               | n/a         | n/a        |
| 7.1.3 ICTs & business model creation <sup>†</sup> .....             | 51.8        | 85         |
| 7.1.4 ICTs & organizational model creation <sup>†</sup> .....       | 40.8        | 116        |
| 7.2 Creative goods & services.....                                  | 2.7         | 118        |
| 7.2.1 Cultural & creative services exports, % total trade.....      | 0.1         | 58         |
| 7.2.2 National feature films/mn pop. 15–69.....                     | 0.5         | 89         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....                 | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                    | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade.....                    | 0.0         | 110        |
| 7.3 Online creativity .....   | 0.1         | 143 ○      |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....           | 0.0         | 142 ○      |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                          | 0.1         | 139 ○      |
| 7.3.3 Wikipedia edits/pop. 15–69.....                               | 17.8        | 139 ○      |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                      | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Burundi

## Key indicators

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 9.8                |
| GDP (US\$ billions) .....   | 2.7                |
| GDP per capita, PPP\$ ..... | 641.7              |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>22.4</b>                           | <b>138</b> |
| Innovation Output Sub-Index .....                 | 14.2                                  | 141 ○      |
| Innovation Input Sub-Index .....                  | 30.6                                  | 126        |
| Innovation Efficiency Ratio .....                 | 0.5                                   | 135        |
| Global Innovation Index 2013 (out of 142) .....   | n/a                                   | n/a        |

|          |   |             |            |
|----------|---|-------------|------------|
| <b>1</b> | <b>Institutions</b> .....                       | <b>45.5</b> | <b>127</b> |
| 1.1      | Political environment.....                      | 30.6        | 139        |
| 1.1.1    | Political stability*.....                       | 24.5        | 138        |
| 1.1.2    | Government effectiveness*.....                  | 5.3         | 141 ○      |
| 1.1.3    | Press freedom*.....                             | 62.0        | 107        |
| 1.2      | Regulatory environment .....                    | 52.1        | 109        |
| 1.2.1    | Regulatory quality*.....                        | 23.8        | 127        |
| 1.2.2    | Rule of law*.....                               | 16.4        | 128        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks..... | 15.9        | 74         |
| 1.3      | Business environment.....                       | 53.9        | 106        |
| 1.3.1    | Ease of starting a business*.....               | 93.3        | 17 ●       |
| 1.3.2    | Ease of resolving insolvency*.....              | 8.1         | 138        |
| 1.3.3    | Ease of paying taxes*.....                      | 60.4        | 101        |

|          |  |             |            |
|----------|--|-------------|------------|
| <b>2</b> | <b>Human capital &amp; research</b> .....          | <b>17.5</b> | <b>111</b> |
| 2.1      | Education .....                                    | 36.4        | 92         |
| 2.1.1    | Expenditure on education, % GDP.....               | 5.8         | 34 ●       |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap..... | 33.5        | 13 ●       |
| 2.1.3    | School life expectancy, years.....                 | 10.1        | 114        |
| 2.1.4    | PISA scales in reading, maths, & science.....      | n/a         | n/a        |
| 2.1.5    | Pupil-teacher ratio, secondary .....               | 29.7        | 104        |
| 2.2      | Tertiary education.....                            | 15.3        | 111        |
| 2.2.1    | Tertiary enrolment, % gross.....                   | 3.2         | 130        |
| 2.2.2    | Graduates in science & engineering, % .....        | 9.6         | 99         |
| 2.2.3    | Tertiary inbound mobility, %.....                  | 6.2         | 27 ●       |
| 2.3      | Research & development (R&D).....                  | 0.9         | 118        |
| 2.3.1    | Researchers, headcounts/mn pop.....                | 39.7        | 116        |
| 2.3.2    | Gross expenditure on R&D, % GDP.....               | 0.1         | 101        |
| 2.3.3    | QS university ranking, average score top 3*.....   | 0.0         | 70 ○       |

|          |   |             |              |
|----------|---|-------------|--------------|
| <b>3</b> | <b>Infrastructure</b> .....                             | <b>16.1</b> | <b>141</b> ○ |
| 3.1      | Information & communication technologies (ICTs).....    | 7.5         | 141 ○        |
| 3.1.1    | ICT access*.....  | n/a         | n/a          |
| 3.1.2    | ICT use*.....   | n/a         | n/a          |
| 3.1.3    | Government's online service*.....                       | 15.0        | 138          |
| 3.1.4    | E-participation*.....                                   | 0.0         | 129 ○        |
| 3.2      | General infrastructure.....                             | 15.0        | 139          |
| 3.2.1    | Electricity output, kWh/cap.....                        | n/a         | n/a          |
| 3.2.2    | Logistics performance*.....                             | 0.0         | 137 ○        |
| 3.2.3    | Gross capital formation, % GDP.....                     | 19.6        | 95           |
| 3.3      | Ecological sustainability.....                          | 25.8        | 113          |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a         | n/a          |
| 3.3.2    | Environmental performance*.....                         | 25.8        | 137          |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a         | n/a          |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>4</b> | <b>Market sophistication</b> .....            | <b>47.3</b> | <b>76</b> |
| 4.1      | Credit.....                                   | 15.2        | 137       |
| 4.1.1    | Ease of getting credit*.....                  | 25.0        | 134 ○     |
| 4.1.2    | Domestic credit to private sector, % GDP..... | 19.5        | 120       |
| 4.1.3    | Microfinance gross loans, % GDP.....          | 1.3         | 32        |

|       |   |      |       |
|-------|---|------|-------|
| 4.2   | Investment .....                                    | 63.3 | 14 ●  |
| 4.2.1 | Ease of protecting investors*.....                  | 63.3 | 32 ●  |
| 4.2.2 | Market capitalization, % GDP.....                   | n/a  | n/a   |
| 4.2.3 | Total value of stocks traded, % GDP.....            | n/a  | n/a   |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3   | Trade & competition .....                           | 63.3 | 127   |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 6.6  | 102   |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 0.0  | 1 ●   |
| 4.3.3 | Intensity of local competition†.....                | 38.2 | 134 ○ |

|          |   |             |            |
|----------|---|-------------|------------|
| <b>5</b> | <b>Business sophistication</b> .....                      | <b>26.7</b> | <b>104</b> |
| 5.1      | Knowledge workers.....                                    | 18.5        | 127        |
| 5.1.1    | Knowledge-intensive employment, %.....                    | n/a         | n/a        |
| 5.1.2    | Firms offering formal training, % firms.....              | 22.1        | 86         |
| 5.1.3    | GERD performed by business, % GDP.....                    | n/a         | n/a        |
| 5.1.4    | GERD performed by business, %.....                        | n/a         | n/a        |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 6.3         | 127        |
| 5.2      | Innovation linkages .....                                 | 36.7        | 52         |
| 5.2.1    | University/industry research collaboration†.....          | 25.3        | 130        |
| 5.2.2    | State of cluster development†.....                        | 29.2        | 130        |
| 5.2.3    | GERD financed by abroad, %.....                           | 39.9        | 12 ●       |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | n/a         | n/a        |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.3         | 29 ●       |
| 5.3      | Knowledge absorption.....                                 | 24.9        | 75         |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | 0.1         | 91         |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 9.8         | 31 ●       |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 1.5         | 34 ●       |
| 5.3.4    | FDI net inflows, % GDP.....                               | 0.1         | 133        |

|          |   |             |            |
|----------|---|-------------|------------|
| <b>6</b> | <b>Knowledge &amp; technology outputs</b> .....           | <b>12.3</b> | <b>139</b> |
| 6.1      | Knowledge creation.....                                   | 2.8         | 133        |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a        |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP.....                 | n/a         | n/a        |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 3.0         | 124        |
| 6.1.5    | Citable documents H index.....                            | 24.0        | 138        |
| 6.2      | Knowledge impact.....                                     | n/a         | n/a        |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a        |
| 6.2.2    | New businesses/th pop. 15–64.....                         | n/a         | n/a        |
| 6.2.3    | Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | n/a         | n/a        |
| 6.2.5    | High- & medium-high-tech manufactures, % .....            | n/a         | n/a        |
| 6.3      | Knowledge diffusion.....                                  | 21.8        | 124        |
| 6.3.1    | Royalty & license fees receipts, % total trade .....      | 0.0         | 109        |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.2         | 103        |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 0.7         | 94         |
| 6.3.4    | FDI net outflows, % GDP.....                              | 0.0         | 99         |

|          |  |             |            |
|----------|--|-------------|------------|
| <b>7</b> | <b>Creative outputs</b> .....                            | <b>16.2</b> | <b>132</b> |
| 7.1      | Intangible assets.....                                   | 29.7        | 128        |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP.....             | n/a         | n/a        |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a         | n/a        |
| 7.1.3    | ICTs & business model creation†.....                     | 31.8        | 134 ○      |
| 7.1.4    | ICTs & organizational model creation†.....               | 27.5        | 136 ○      |
| 7.2      | Creative goods & services.....                           | 4.2         | 113        |
| 7.2.1    | Cultural & creative services exports, % total trade..... | 0.1         | 60         |
| 7.2.2    | National feature films/mn pop. 15–69.....                | n/a         | n/a        |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....            | n/a         | n/a        |
| 7.2.4    | Printing & publishing manufactures, %.....               | n/a         | n/a        |
| 7.2.5    | Creative goods exports, % total trade.....               | 0.1         | 86         |
| 7.3      | Online creativity.....                                   | 1.1         | 125        |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.0         | 141 ○      |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                     | 3.3         | 119        |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                          | 13.5        | 140 ○      |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 0.5                 |
| GDP (US\$ billions) .....   | 1.9                 |
| GDP per capita, PPP\$ ..... | 4,337.7             |
| Income group .....          | Lower-middle income |
| Region .....                | Sub-Saharan Africa  |

|   | Score (0–100)<br>or value (hard data) | Rank        |
|---|---------------------------------------|-------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>30.1</b>                           | <b>97</b>   |
| Innovation Output Sub-Index .....                             | 21.3                                  | 114         |
| Innovation Input Sub-Index.....                               | 38.9                                  | 85          |
| Innovation Efficiency Ratio.....                              | 0.5                                   | 126 ○       |
| Global Innovation Index 2013 (out of 142) .....               | 29.7                                  | 103         |
| <b>1 Institutions.....</b>                                    | <b>59.6</b>                           | <b>76</b>   |
| 1.1 Political environment.....                                | 71.3                                  | 44 ●        |
| 1.1.1 Political stability*.....                               | 84.9                                  | 31 ●        |
| 1.1.2 Government effectiveness*.....                          | 43.5                                  | 63 ●        |
| 1.1.3 Press freedom*.....                                     | 85.7                                  | 23 ●        |
| 1.2 Regulatory environment .....                              | 55.7                                  | 103         |
| 1.2.1 Regulatory quality* .....                               | 49.9                                  | 72          |
| 1.2.2 Rule of law*.....                                       | 59.6                                  | 45 ●        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 29.5                                  | 127 ○       |
| 1.3 Business environment.....                                 | 51.9                                  | 112         |
| 1.3.1 Ease of starting a business*.....                       | 85.6                                  | 68          |
| 1.3.2 Ease of resolving insolvency*.....                      | 0.0                                   | 140 ○       |
| 1.3.3 Ease of paying taxes*.....                              | 70.0                                  | 68          |
| <b>2 Human capital &amp; research.....</b>                    | <b>17.9</b>                           | <b>109</b>  |
| 2.1 Education .....   | 39.6                                  | 85          |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.0                                   | 60          |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 14.8                                  | 85          |
| 2.1.3 School life expectancy, years.....                      | 13.2                                  | 66          |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a         |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 16.8                                  | 70          |
| 2.2 Tertiary education.....                                   | 13.0                                  | 119 ○       |
| 2.2.1 Tertiary enrolment, % gross.....                        | 20.6                                  | 89          |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.1                                   | 81          |
| 2.3 Research & development (R&D).....                         | 1.2                                   | 114         |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 260.9                                 | 81          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.1                                   | 108 ○       |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○        |
| <b>3 Infrastructure.....</b>                                  | <b>39.3</b>                           | <b>59 ●</b> |
| 3.1 Information & communication technologies (ICTs).....      | 30.8                                  | 89          |
| 3.1.1 ICT access*.....  | 34.6                                  | 94          |
| 3.1.2 ICT use* .....  | 21.2                                  | 80          |
| 3.1.3 Government's online service*.....                       | 43.8                                  | 87          |
| 3.1.4 E-participation*.....                                   | 23.7                                  | 60          |
| 3.2 General infrastructure.....                               | 56.5                                  | 8 ●         |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a                                   | n/a         |
| 3.2.2 Logistics performance* .....                            | n/a                                   | n/a         |
| 3.2.3 Gross capital formation, % GDP.....                     | 35.8                                  | 13 ●        |
| 3.3 Ecological sustainability.....                            | 30.4                                  | 92          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a                                   | n/a         |
| 3.3.2 Environmental performance*.....                         | 44.1                                  | 98          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.5                                   | 84          |
| <b>4 Market sophistication .....</b>                          | <b>47.3</b>                           | <b>77</b>   |
| 4.1 Credit.....   | 34.2                                  | 76          |
| 4.1.1 Ease of getting credit*.....                            | 50.0                                  | 96          |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 59.4                                  | 54 ●        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a         |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment .....  | 40.0        | 51 ●         |
| 4.2.1 Ease of protecting investors*.....                        | 40.0        | 113          |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a          |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a          |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a          |
| 4.3 Trade & competition .....                                   | 67.6        | 117          |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 10.2        | 126 ○        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.4         | 47 ●         |
| 4.3.3 Intensity of local competition†.....                      | 55.3        | 116 ○        |
| <b>5 Business sophistication .....</b>                          | <b>30.3</b> | <b>79</b>    |
| 5.1 Knowledge workers.....                                      | 26.3        | 105          |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a          |
| 5.1.2 Firms offering formal training, % firms.....              | 24.1        | 83           |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a          |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a          |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 28.2        | 98           |
| 5.2 Innovation linkages .....                                   | 37.4        | 51 ●         |
| 5.2.1 University/industry research collaboration†.....          | 36.8        | 100          |
| 5.2.2 State of cluster development† .....                       | 37.7        | 107          |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a          |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a          |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a         | n/a          |
| 5.3 Knowledge absorption.....                                   | 27.4        | 57 ●         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.0         | 121 ○        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 10.0        | 30 ●         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.5         | 35 ●         |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.8         | 66           |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>14.6</b> | <b>128 ○</b> |
| 6.1 Knowledge creation.....                                     | 6.8         | 96           |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | n/a         | n/a          |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | n/a         | n/a          |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 9.5         | 78           |
| 6.1.5 Citable documents H index.....                            | 12.0        | 143 ○        |
| 6.2 Knowledge impact.....                                       | 9.5         | 125 ○        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a          |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a          |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 4.2         | 72           |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a          |
| 6.3 Knowledge diffusion.....                                    | 27.7        | 90           |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 113 ○        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.0         | 121 ○        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.5         | 26 ●         |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.2         | 80           |
| <b>7 Creative outputs .....</b>                                 | <b>27.9</b> | <b>88</b>    |
| 7.1 Intangible assets.....                                      | 52.3        | 31 ●         |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | n/a         | n/a          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a          |
| 7.1.3 ICTs & business model creation†.....                      | 54.5        | 76           |
| 7.1.4 ICTs & organizational model creation†.....                | 50.0        | 81           |
| 7.2 Creative goods & services.....                              | 0.9         | 135 ○        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 83           |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a          |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a          |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a          |
| 7.2.5 Creative goods exports, % total trade.....                | n/a         | n/a          |
| 7.3 Online creativity .....                                     | 6.3         | 104          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.7         | 111          |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 16.9        | 85           |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 675.6       | 104          |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Cambodia

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 14.9                        |
| GDP (US\$ billions) .....   | 15.7                        |
| GDP per capita, PPP\$ ..... | 2,576.2                     |
| Income group .....          | Low income                  |
| Region .....                | South East Asia and Oceania |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>28.7</b>                           | <b>106</b> |
| Innovation Output Sub-Index .....                | 24.5                                  | 99         |
| Innovation Input Sub-Index .....                 | 32.9                                  | 113        |
| Innovation Efficiency Ratio .....                | 0.7                                   | 67         |
| Global Innovation Index 2013 (out of 142) .....  | n/a                                   | 110        |

|          |  |             |             |
|----------|--|-------------|-------------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>46.6</b> | <b>120</b>  |
| 1.1      | Political environment.....                             | 46.4        | 101         |
| 1.1.1    | Political stability*.....                              | 62.4        | 79          |
| 1.1.2    | Government effectiveness*.....                         | 18.7        | 122         |
| 1.1.3    | Press freedom*.....                                    | 58.2        | 117         |
| 1.2      | Regulatory environment.....                            | 53.5        | 106         |
| 1.2.1    | Regulatory quality*.....                               | 39.7        | 99          |
| 1.2.2    | Rule of law*.....                                      | 19.8        | 125         |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 19.4        | 91          |
| 1.3      | Business environment.....                              | 40.1        | 135         |
| 1.3.1    | Ease of starting a business*.....                      | 40.1        | 142 ○       |
| 1.3.2    | Ease of resolving insolvency*.....                     | 8.7         | 137         |
| 1.3.3    | Ease of paying taxes*.....                             | 71.5        | 59 ●        |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>14.1</b> | <b>127</b>  |
| 2.1      | Education.....   | 28.6        | 122         |
| 2.1.1    | Expenditure on education, % GDP.....                   | 2.6         | 118         |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | n/a         | n/a         |
| 2.1.3    | School life expectancy, years.....                     | 10.9        | 106         |
| 2.1.4    | PISA scales in reading, maths, & science.....          | n/a         | n/a         |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 28.9        | 100         |
| 2.2      | Tertiary education.....                                | 13.7        | 117         |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 15.8        | 96          |
| 2.2.2    | Graduates in science & engineering, %.....             | 12.5        | 95          |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 0.1         | 111 ○       |
| 2.3      | Research & development (R&D).....                      | 0.0         | 131 ○       |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | n/a         | n/a         |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | n/a         | n/a         |
| 2.3.3    | QS university ranking, average score top 3*.....       | 0.0         | 70 ○        |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>21.0</b> | <b>128</b>  |
| 3.1      | Information & communication technologies (ICTs).....   | 13.6        | 132         |
| 3.1.1    | ICT access*.....                                       | 31.4        | 100         |
| 3.1.2    | ICT use*.....  | 4.1         | 120         |
| 3.1.3    | Government's online service*.....                      | 19.0        | 136         |
| 3.1.4    | E-participation*.....                                  | 0.0         | 129 ○       |
| 3.2      | General infrastructure.....                            | 24.9        | 114         |
| 3.2.1    | Electricity output, kWh/cap.....                       | 73.6        | 121 ○       |
| 3.2.2    | Logistics performance*.....                            | 37.7        | 97          |
| 3.2.3    | Gross capital formation, % GDP.....                    | 23.5        | 66 ●        |
| 3.3      | Ecological sustainability.....                         | 24.5        | 121         |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 5.6         | 75          |
| 3.3.2    | Environmental performance*.....                        | 35.4        | 122         |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.3         | 102         |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>55.8</b> | <b>35 ●</b> |
| 4.1      | Credit.....  | 62.2        | 15 ●        |
| 4.1.1    | Ease of getting credit*.....                           | 75.0        | 40 ●        |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 38.7        | 83          |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | 15.3        | 1 ●         |

|       |   |      |       |
|-------|---|------|-------|
| 4.2   | Investment.....                                     | 53.3 | 23 ●  |
| 4.2.1 | Ease of protecting investors*.....                  | 53.3 | 66    |
| 4.2.2 | Market capitalization, % GDP.....                   | n/a  | n/a   |
| 4.2.3 | Total value of stocks traded, % GDP.....            | n/a  | n/a   |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3   | Trade & competition.....                            | 52.0 | 139 ○ |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 9.9  | 124   |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 8.3  | 139 ○ |
| 4.3.3 | Intensity of local competition†.....                | 65.0 | 74    |

**5 Business sophistication.....26.7 105**

|       |   |      |       |
|-------|---|------|-------|
| 5.1   | Knowledge workers.....                                    | 25.3 | 108   |
| 5.1.1 | Knowledge-intensive employment, %.....                    | 2.5  | 109 ○ |
| 5.1.2 | Firms offering formal training, % firms.....              | 48.4 | 30 ●  |
| 5.1.3 | GERD performed by business, % GDP.....                    | n/a  | n/a   |
| 5.1.4 | GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 | GMAT test takers/mn pop. 20–34.....                       | 2.5  | 138 ○ |
| 5.2   | Innovation linkages.....                                  | 38.7 | 47 ●  |
| 5.2.1 | University/industry research collaboration†.....          | 36.0 | 102   |
| 5.2.2 | State of cluster development†.....                        | 52.3 | 41 ●  |
| 5.2.3 | GERD financed by abroad, %.....                           | n/a  | n/a   |
| 5.2.4 | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0  | 47 ●  |
| 5.2.5 | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a  | n/a   |
| 5.3   | Knowledge absorption.....                                 | 16.0 | 121   |
| 5.3.1 | Royalty & license fees payments, % total trade.....       | 0.1  | 96    |
| 5.3.2 | High-tech imports less re-imports, %.....                 | 2.3  | 125 ○ |
| 5.3.3 | Comm., computer & info. services imp., % total trade..... | 0.5  | 94    |
| 5.3.4 | FDI net inflows, % GDP.....                               | 7.0  | 27 ●  |

**6 Knowledge & technology outputs.....26.4 76**

|       |   |      |       |
|-------|---|------|-------|
| 6.1   | Knowledge creation.....                                   | 4.0  | 124   |
| 6.1.1 | Domestic resident patent app/tr PPP\$ GDP.....            | 0.0  | 109 ○ |
| 6.1.2 | PCT resident patent app/tr PPP\$ GDP.....                 | n/a  | n/a   |
| 6.1.3 | Domestic res utility model app/tr PPP\$ GDP.....          | n/a  | n/a   |
| 6.1.4 | Scientific & technical articles/bn PPP\$ GDP.....         | 4.9  | 110   |
| 6.1.5 | Citable documents H index.....                            | 49.0 | 113   |
| 6.2   | Knowledge impact.....                                     | 50.4 | 26 ●  |
| 6.2.1 | Growth rate of PPP\$ GDP/worker, %.....                   | 4.3  | 15 ●  |
| 6.2.2 | New businesses/th pop. 15–64.....                         | n/a  | n/a   |
| 6.2.3 | Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.4  | 135   |
| 6.2.5 | High- & medium-high-tech manufactures, %.....             | n/a  | n/a   |
| 6.3   | Knowledge diffusion.....                                  | 24.7 | 113   |
| 6.3.1 | Royalty & license fees receipts, % total trade.....       | 0.0  | 72    |
| 6.3.2 | High-tech exports less re-exports, %.....                 | 0.2  | 97    |
| 6.3.3 | Comm., computer & info. services exp., % total trade..... | 1.0  | 82    |
| 6.3.4 | FDI net outflows, % GDP.....                              | 0.2  | 79    |

**7 Creative outputs.....22.6 113**

|       |  |       |      |
|-------|--|-------|------|
| 7.1   | Intangible assets.....                                   | 39.9  | 91   |
| 7.1.1 | Domestic res trademark app/bn PPP\$ GDP.....             | 24.8  | 81   |
| 7.1.2 | Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a   | n/a  |
| 7.1.3 | ICTs & business model creation†.....                     | 54.7  | 74   |
| 7.1.4 | ICTs & organizational model creation†.....               | 55.3  | 60 ● |
| 7.2   | Creative goods & services.....                           | 9.4   | 99   |
| 7.2.1 | Cultural & creative services exports, % total trade..... | n/a   | n/a  |
| 7.2.2 | National feature films/mn pop. 15–69.....                | 1.4   | 62   |
| 7.2.3 | Global ent. & media output/th pop. 15–69.....            | n/a   | n/a  |
| 7.2.4 | Printing & publishing manufactures, %.....               | n/a   | n/a  |
| 7.2.5 | Creative goods exports, % total trade.....               | 0.3   | 68   |
| 7.3   | Online creativity.....                                   | 1.1   | 126  |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.7   | 112  |
| 7.3.2 | Country-code TLDs/th pop. 15–69.....                     | 2.0   | 123  |
| 7.3.3 | Wikipedia edits/pop. 15–69.....                          | 337.4 | 109  |
| 7.3.4 | Video uploads on YouTube/pop. 15–69.....                 | n/a   | n/a  |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 21.7                |
| GDP (US\$ billions) .....   | 28.0                |
| GDP per capita, PPP\$ ..... | 2,422.8             |
| Income group .....          | Lower-middle income |
| Region .....                | Sub-Saharan Africa  |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>27.5</b>                           | <b>114</b>   |
| Innovation Output Sub-Index .....                            | 24.5                                  | 100          |
| Innovation Input Sub-Index .....                             | 30.6                                  | 127          |
| Innovation Efficiency Ratio .....                            | 0.8                                   | 39 ●         |
| Global Innovation Index 2013 (out of 142) .....              | 25.7                                  | 125          |
| <b>1 Institutions.....</b>                                   | <b>46.8</b>                           | <b>119</b>   |
| 1.1 Political environment.....                               | 44.5                                  | 111          |
| 1.1.1 Political stability*.....                              | 51.6                                  | 102          |
| 1.1.2 Government effectiveness*.....                         | 16.8                                  | 126          |
| 1.1.3 Press freedom*.....                                    | 65.2                                  | 99           |
| 1.2 Regulatory environment.....                              | 53.3                                  | 107          |
| 1.2.1 Regulatory quality*.....                               | 24.4                                  | 126          |
| 1.2.2 Rule of law*.....                                      | 18.3                                  | 126          |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 15.3                                  | 70 ●         |
| 1.3 Business environment.....                                | 42.6                                  | 132 ○        |
| 1.3.1 Ease of starting a business*.....                      | 76.9                                  | 99           |
| 1.3.2 Ease of resolving insolvency*.....                     | 16.3                                  | 129 ○        |
| 1.3.3 Ease of paying taxes*.....                             | 34.5                                  | 136 ○        |
| <b>2 Human capital &amp; research.....</b>                   | <b>17.9</b>                           | <b>110</b>   |
| 2.1 Education.....   | 29.9                                  | 118          |
| 2.1.1 Expenditure on education, % GDP.....                   | 3.2                                   | 108          |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 20.9                                  | 56 ●         |
| 2.1.3 School life expectancy, years.....                     | 10.4                                  | 110          |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | 21.4                                  | 83           |
| 2.2 Tertiary education.....                                  | 22.7                                  | 93           |
| 2.2.1 Tertiary enrolment, % gross.....                       | 11.9                                  | 105          |
| 2.2.2 Graduates in science & engineering, %.....             | 21.0                                  | 47 ●         |
| 2.2.3 Tertiary inbound mobility, %.....                      | 1.4                                   | 75           |
| 2.3 Research & development (R&D).....                        | 1.0                                   | 115          |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 232.8                                 | 83           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | n/a                                   | n/a          |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○         |
| <b>3 Infrastructure.....</b>                                 | <b>20.0</b>                           | <b>132</b> ○ |
| 3.1 Information & communication technologies (ICTs).....     | 13.3                                  | 133 ○        |
| 3.1.1 ICT access*.....                                       | 18.7                                  | 125 ○        |
| 3.1.2 ICT use*.....  | 1.9                                   | 126 ○        |
| 3.1.3 Government's online service*.....                      | 30.1                                  | 120          |
| 3.1.4 E-participation*.....                                  | 2.6                                   | 116          |
| 3.2 General infrastructure.....                              | 20.5                                  | 131 ○        |
| 3.2.1 Electricity output, kWh/cap.....                       | 299.4                                 | 109          |
| 3.2.2 Logistics performance*.....                            | 36.5                                  | 103          |
| 3.2.3 Gross capital formation, % GDP.....                    | 19.3                                  | 97           |
| 3.3 Ecological sustainability.....                           | 26.1                                  | 111          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 6.2                                   | 63 ●         |
| 3.3.2 Environmental performance*.....                        | 36.7                                  | 119          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.2                                   | 109          |
| <b>4 Market sophistication.....</b>                          | <b>45.0</b>                           | <b>91</b>    |
| 4.1 Credit.....  | 21.4                                  | 125          |
| 4.1.1 Ease of getting credit*.....                           | 50.0                                  | 96           |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 15.0                                  | 131 ○        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.9                                   | 41 ●         |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment.....   | 43.3        | 43 ●       |
| 4.2.1 Ease of protecting investors*.....                        | 43.3        | 105        |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition.....                                    | 70.3        | 109        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 11.9        | 132 ○      |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.1         | 29 ●       |
| 4.3.3 Intensity of local competition†.....                      | 62.2        | 88         |
| <b>5 Business sophistication.....</b>                           | <b>23.3</b> | <b>123</b> |
| 5.1 Knowledge workers.....                                      | 28.1        | 102        |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a        |
| 5.1.2 Firms offering formal training, % firms.....              | 24.5        | 82         |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a        |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 37.2        | 84 ●       |
| 5.2 Innovation linkages.....                                    | 30.9        | 72 ●       |
| 5.2.1 University/industry research collaboration†.....          | 34.0        | 111        |
| 5.2.2 State of cluster development†.....                        | 41.8        | 89         |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | n/a         | n/a        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 71         |
| 5.3 Knowledge absorption.....                                   | 10.7        | 137 ○      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 79         |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a         | n/a        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.3         | 120        |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.4         | 104        |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>21.8</b> | <b>103</b> |
| 6.1 Knowledge creation.....                                     | 9.3         | 87 ●       |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | n/a         | n/a        |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.1         | 85         |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 12.2        | 69 ●       |
| 6.1.5 Citable documents H index.....                            | 72.0        | 87 ●       |
| 6.2 Knowledge impact.....                                       | 29.1        | 110        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.2         | 52 ●       |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.2         | 72 ○       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.8         | 125        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 5.1         | 86         |
| 6.3 Knowledge diffusion.....                                    | 27.1        | 93         |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.0         | 98         |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a         | n/a        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.7         | 92         |
| 6.3.4 FDI net outflows, % GDP.....                              | -1.1        | 119 ○      |
| <b>7 Creative outputs.....</b>                                  | <b>27.1</b> | <b>96</b>  |
| 7.1 Intangible assets.....                                      | 47.0        | 54 ●       |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | n/a         | n/a        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                      | 50.3        | 94         |
| 7.1.4 ICTs & organizational model creation†.....                | 43.7        | 104        |
| 7.2 Creative goods & services.....                              | 10.9        | 90         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.0         | 101 ○      |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 60         |
| 7.2.5 Creative goods exports, % total trade.....                | n/a         | n/a        |
| 7.3 Online creativity.....                                      | 3.3         | 116        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.4         | 124        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 9.5         | 104        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 74.3        | 127        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                  |
|-----------------------------|------------------|
| Population (millions) ..... | 34.9             |
| GDP (US\$ billions) .....   | 1,825.1          |
| GDP per capita, PPP\$ ..... | 43,471.7         |
| Income group .....          | High income      |
| Region .....                | Northern America |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>56.1</b>                           | <b>12</b>  |
| Innovation Output Sub-Index .....                             | 46.0                                  | 20         |
| Innovation Input Sub-Index .....                              | 66.3                                  | 8          |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 86 ○       |
| Global Innovation Index 2013 (out of 142) .....               | 57.6                                  | 11         |
| <b>1 Institutions.....</b>                                    | <b>92.7</b>                           | <b>7 ●</b> |
| 1.1 Political environment.....                                | 89.1                                  | 11         |
| 1.1.1 Political stability*.....                               | 92.4                                  | 14         |
| 1.1.2 Government effectiveness*.....                          | 87.7                                  | 10         |
| 1.1.3 Press freedom*.....                                     | 87.3                                  | 18         |
| 1.2 Regulatory environment .....                              | 94.9                                  | 11         |
| 1.2.1 Regulatory quality* .....                               | 93.0                                  | 10         |
| 1.2.2 Rule of law*.....                                       | 94.6                                  | 11         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 10.0                                  | 37         |
| 1.3 Business environment.....                                 | 94.1                                  | 2 ●        |
| 1.3.1 Ease of starting a business*.....                       | 99.0                                  | 2 ●        |
| 1.3.2 Ease of resolving insolvency*.....                      | 92.5                                  | 9          |
| 1.3.3 Ease of paying taxes*.....                              | 91.0                                  | 8          |
| <b>2 Human capital &amp; research.....</b>                    | <b>56.4</b>                           | <b>13</b>  |
| 2.1 Education .....   | 49.9                                  | 48         |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.4                                   | 47         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a        |
| 2.1.3 School life expectancy, years.....                      | n/a                                   | n/a        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 522.2                                 | 8          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a        |
| 2.2 Tertiary education.....                                   | n/a                                   | n/a        |
| 2.2.1 Tertiary enrolment, % gross.....                        | n/a                                   | n/a        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a        |
| 2.3 Research & development (R&D).....                         | 62.8                                  | 12         |
| 2.3.1 Researchers, headcounts/mn pop.....                     | n/a                                   | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 1.7                                   | 23         |
| 2.3.3 QS university ranking, average score top 3*.....        | 87.1                                  | 3 ●        |
| <b>3 Infrastructure.....</b>                                  | <b>58.4</b>                           | <b>13</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 74.4                                  | 14         |
| 3.1.1 ICT access*.....  | 76.5                                  | 20         |
| 3.1.2 ICT use* .....  | 63.8                                  | 19         |
| 3.1.3 Government's online service*.....                       | 88.9                                  | 6 ●        |
| 3.1.4 E-participation*.....                                   | 68.4                                  | 15         |
| 3.2 General infrastructure.....                               | 61.2                                  | 5 ●        |
| 3.2.1 Electricity output, kWh/cap.....                        | 18,547.9                              | 4 ●        |
| 3.2.2 Logistics performance* .....                            | 88.9                                  | 12         |
| 3.2.3 Gross capital formation, % GDP.....                     | 24.3                                  | 57         |
| 3.3 Ecological sustainability.....                            | 39.7                                  | 57         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 5.0                                   | 84 ○       |
| 3.3.2 Environmental performance*.....                         | 73.1                                  | 24         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 1.2                                   | 59 ○       |
| <b>4 Market sophistication .....</b>                          | <b>75.9</b>                           | <b>5 ●</b> |
| 4.1 Credit.....   | 61.4                                  | 17         |
| 4.1.1 Ease of getting credit*.....                            | 81.3                                  | 27         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 128.2                                 | 19         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 80.6        | 4 ●       |
| 4.2.1 Ease of protecting investors*.....                        | 86.7        | 4 ●       |
| 4.2.2 Market capitalization, % GDP.....                         | 110.7       | 11        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 66.3        | 11        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.7         | 1 ●       |
| 4.3 Trade & competition .....                                   | 85.6        | 5 ●       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 0.9         | 7 ●       |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.2         | 34        |
| 4.3.3 Intensity of local competition†.....                      | 73.8        | 31        |
| <b>5 Business sophistication .....</b>                          | <b>48.0</b> | <b>15</b> |
| 5.1 Knowledge workers.....                                      | 66.5        | 17        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 43.8        | 13        |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a       |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.9         | 24        |
| 5.1.4 GERD performed by business, %.....                        | 52.3        | 35        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 893.1       | 4 ●       |
| 5.2 Innovation linkages .....                                   | 44.7        | 31        |
| 5.2.1 University/industry research collaboration†.....          | 65.5        | 17        |
| 5.2.2 State of cluster development† .....                       | 64.0        | 17        |
| 5.2.3 GERD financed by abroad, %.....                           | 5.8         | 60 ○      |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.1         | 18        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 1.0         | 18        |
| 5.3 Knowledge absorption.....                                   | 32.8        | 34        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.9         | 8         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 10.0        | 29        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.0         | 63 ○      |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.5         | 74 ○      |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>43.7</b> | <b>21</b> |
| 6.1 Knowledge creation.....                                     | 48.9        | 14        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 3.2         | 36        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 1.9         | 25        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 37.4        | 19        |
| 6.1.5 Citable documents H index.....                            | 658.0       | 5 ●       |
| 6.2 Knowledge impact.....                                       | 42.2        | 57        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 1.0         | 67 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.1         | 58 ○      |
| 6.2.3 Computer software spending, % GDP.....                    | 0.7         | 4 ●       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 4.7         | 66 ○      |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 28.7        | 37        |
| 6.3 Knowledge diffusion.....                                    | 39.9        | 33        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.6         | 20        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 4.8         | 32        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.8         | 46        |
| 6.3.4 FDI net outflows, % GDP .....                             | 3.1         | 23        |
| <b>7 Creative outputs .....</b>                                 | <b>48.3</b> | <b>16</b> |
| 7.1 Intangible assets.....                                      | 52.3        | 30        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 52.3        | 53 ○      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a       |
| 7.1.3 ICTs & business model creation†.....                      | 67.7        | 27        |
| 7.1.4 ICTs & organizational model creation†.....                | 69.0        | 12        |
| 7.2 Creative goods & services.....                              | 18.4        | 66 ○      |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.2         | 47        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 3.4         | 42        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 1.6         | 13        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 85 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 0.7         | 49        |
| 7.3 Online creativity.....                                      | 70.1        | 6 ●       |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 92.9        | 6 ●       |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 59.9        | 20        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 20,636.0    | 24        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 92.6        | 7         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 17.5                            |
| GDP (US\$ billions) .....   | 277.0                           |
| GDP per capita, PPP\$ ..... | 19,067.3                        |
| Income group .....          | High income                     |
| Region .....                | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>40.6</b>                           | <b>46</b> |
| Innovation Output Sub-Index .....                            | 32.8                                  | 54        |
| Innovation Input Sub-Index.....                              | 48.4                                  | 37        |
| Innovation Efficiency Ratio.....                             | 0.7                                   | 92 ○      |
| Global Innovation Index 2013 (out of 142) .....              | 40.6                                  | 46        |
| <b>1 Institutions.....</b>                                   | <b>71.7</b>                           | <b>41</b> |
| 1.1 Political environment.....                               | 74.1                                  | 37        |
| 1.1.1 Political stability*.....                              | 74.2                                  | 51        |
| 1.1.2 Government effectiveness*.....                         | 74.3                                  | 24 ●      |
| 1.1.3 Press freedom*.....                                    | 73.8                                  | 51        |
| 1.2 Regulatory environment.....                              | 73.8                                  | 44        |
| 1.2.1 Regulatory quality*.....                               | 89.0                                  | 14 ●      |
| 1.2.2 Rule of law*.....                                      | 84.0                                  | 21 ●      |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 27.4                                  | 120 ○     |
| 1.3 Business environment.....                                | 67.3                                  | 62        |
| 1.3.1 Ease of starting a business*.....                      | 88.1                                  | 53        |
| 1.3.2 Ease of resolving insolvency*.....                     | 30.8                                  | 91 ○      |
| 1.3.3 Ease of paying taxes*.....                             | 83.0                                  | 26        |
| <b>2 Human capital &amp; research.....</b>                   | <b>32.4</b>                           | <b>57</b> |
| 2.1 Education.....   | 41.9                                  | 74        |
| 2.1.1 Expenditure on education, % GDP.....                   | 4.5                                   | 74        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 17.9                                  | 66        |
| 2.1.3 School life expectancy, years.....                     | 15.2                                  | 39        |
| 2.1.4 PISA scales in reading, maths, & science.....          | 436.3                                 | 45 ○      |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | 20.0                                  | 81 ○      |
| 2.2 Tertiary education.....                                  | 35.6                                  | 63        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 74.4                                  | 17 ●      |
| 2.2.2 Graduates in science & engineering, %.....             | 19.2                                  | 60        |
| 2.2.3 Tertiary inbound mobility, %.....                      | 0.3                                   | 99 ○      |
| 2.3 Research & development (R&D).....                        | 19.9                                  | 45        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 551.2                                 | 69        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.4                                   | 68        |
| 2.3.3 QS university ranking, average score top 3*.....       | 45.2                                  | 28        |
| <b>3 Infrastructure.....</b>                                 | <b>48.2</b>                           | <b>28</b> |
| 3.1 Information & communication technologies (ICTs).....     | 58.5                                  | 29        |
| 3.1.1 ICT access*.....                                       | 56.5                                  | 59        |
| 3.1.2 ICT use*.....  | 36.7                                  | 50        |
| 3.1.3 Government's online service*.....                      | 75.2                                  | 24        |
| 3.1.4 E-participation*.....                                  | 65.8                                  | 19 ●      |
| 3.2 General infrastructure.....                              | 37.9                                  | 51        |
| 3.2.1 Electricity output, kWh/cap.....                       | 3,921.2                               | 54        |
| 3.2.2 Logistics performance*.....                            | 61.9                                  | 39        |
| 3.2.3 Gross capital formation, % GDP.....                    | 25.7                                  | 46        |
| 3.3 Ecological sustainability.....                           | 48.1                                  | 33        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 8.5                                   | 33        |
| 3.3.2 Environmental performance*.....                        | 69.9                                  | 29        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 3.4                                   | 31        |
| <b>4 Market sophistication.....</b>                          | <b>53.3</b>                           | <b>44</b> |
| 4.1 Credit.....  | 33.5                                  | 78        |
| 4.1.1 Ease of getting credit*.....                           | 68.8                                  | 53        |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 73.3                                  | 44        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.7                                   | 44        |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment.....   | 44.0        | 42        |
| 4.2.1 Ease of protecting investors*.....                        | 63.3        | 32        |
| 4.2.2 Market capitalization, % GDP.....                         | 116.8       | 10 ●      |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 17.4        | 30        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 36        |
| 4.3 Trade & competition.....                                    | 82.3        | 15 ●      |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 4.0         | 72        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.3         | 38        |
| 4.3.3 Intensity of local competition†.....                      | 73.0        | 34        |
| <b>5 Business sophistication.....</b>                           | <b>36.6</b> | <b>46</b> |
| 5.1 Knowledge workers.....                                      | 42.1        | 59        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 24.1        | 59        |
| 5.1.2 Firms offering formal training, % firms.....              | 45.9        | 34        |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.2         | 51        |
| 5.1.4 GERD performed by business, %.....                        | 38.7        | 48        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 114.1       | 47        |
| 5.2 Innovation linkages.....                                    | 30.1        | 77        |
| 5.2.1 University/industry research collaboration†.....          | 54.5        | 39        |
| 5.2.2 State of cluster development†.....                        | 51.3        | 47        |
| 5.2.3 GERD financed by abroad, %.....                           | 15.7        | 27        |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 61        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 92 ○      |
| 5.3 Knowledge absorption.....                                   | 37.5        | 23 ●      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.9         | 31        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 9.7         | 34        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.8         | 68        |
| 5.3.4 FDI net inflows, % GDP.....                               | 11.3        | 11 ●      |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>27.3</b> | <b>66</b> |
| 6.1 Knowledge creation.....                                     | 12.3        | 69        |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 1.1         | 65        |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.4         | 44        |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | 0.4         | 42 ○      |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 17.1        | 52        |
| 6.1.5 Citable documents H index.....                            | 194.0       | 37        |
| 6.2 Knowledge impact.....                                       | 43.8        | 51        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 4.2         | 17 ●      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 5.7         | 18 ●      |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 51 ○      |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 12.6        | 41        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 21.7        | 49        |
| 6.3 Knowledge diffusion.....                                    | 26.0        | 104 ○     |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.1         | 58        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.6         | 75        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.4         | 107 ○     |
| 6.3.4 FDI net outflows, % GDP.....                              | 7.8         | 6 ●       |
| <b>7 Creative outputs.....</b>                                  | <b>38.3</b> | <b>44</b> |
| 7.1 Intangible assets.....                                      | 54.2        | 23 ●      |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | 88.9        | 21        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a       |
| 7.1.3 ICTs & business model creation†.....                      | 67.0        | 28        |
| 7.1.4 ICTs & organizational model creation†.....                | 61.0        | 36        |
| 7.2 Creative goods & services.....                              | 8.0         | 103 ○     |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.8         | 54        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.3         | 37        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 81 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 0.2         | 77        |
| 7.3 Online creativity.....                                      | 37.0        | 39        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 3.2         | 70        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 48.7        | 38        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 10,125.8    | 45        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 78.8        | 31        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 1,350.7                     |
| GDP (US\$ billions) .....   | 9,181.4                     |
| GDP per capita, PPP\$ ..... | 9,844.0                     |
| Income group .....          | Upper-middle income         |
| Region .....                | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>46.6</b>                           | <b>29</b> |
| Innovation Output Sub-Index .....                 | 47.3                                  | 16        |
| Innovation Input Sub-Index .....                  | 45.8                                  | 45        |
| Innovation Efficiency Ratio .....                 | 1.0                                   | 2 ●       |
| Global Innovation Index 2013 (out of 142) .....   | 52.2                                  | 35        |

**1 Institutions** ..... **48.3 114**

|  |      |       |
|--|------|-------|
| 1.1 Political environment .....                        | 40.1 | 125 ○ |
| 1.1.1 Political stability* .....                       | 52.3 | 99    |
| 1.1.2 Government effectiveness* .....                  | 41.0 | 67    |
| 1.1.3 Press freedom* .....                             | 26.9 | 141 ○ |
| 1.2 Regulatory environment .....                       | 49.3 | 117   |
| 1.2.1 Regulatory quality* .....                        | 42.1 | 92    |
| 1.2.2 Rule of law* .....                               | 32.9 | 90    |
| 1.2.3 Cost of redundancy dismissal, salary weeks ..... | 27.4 | 120 ○ |
| 1.3 Business environment .....                         | 55.5 | 98    |
| 1.3.1 Ease of starting a business* .....               | 67.4 | 122 ○ |
| 1.3.2 Ease of resolving insolvency* .....              | 38.1 | 70    |
| 1.3.3 Ease of paying taxes* .....                      | 61.1 | 100   |

**2 Human capital & research** ..... **43.4 32**

|   |         |       |
|---|---------|-------|
| 2.1 Education .....                                       | 71.3    | 1 ●   |
| 2.1.1 Expenditure on education, % GDP .....               | n/a     | n/a   |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap ..... | n/a     | n/a   |
| 2.1.3 School life expectancy, years .....                 | 13.1    | 74    |
| 2.1.4 PISA scales in reading, maths, & science .....      | 587.5   | 1 ●   |
| 2.1.5 Pupil-teacher ratio, secondary .....                | 14.5    | 55    |
| 2.2 Tertiary education .....                              | 13.9    | 115 ○ |
| 2.2.1 Tertiary enrolment, % gross .....                   | 26.7    | 82    |
| 2.2.2 Graduates in science & engineering, % .....         | n/a     | n/a   |
| 2.2.3 Tertiary inbound mobility, % .....                  | 0.3     | 100 ○ |
| 2.3 Research & development (R&D) .....                    | 45.0    | 23    |
| 2.3.1 Researchers, headcounts/mn pop. ....                | 1,392.8 | 50    |
| 2.3.2 Gross expenditure on R&D, % GDP .....               | 2.0     | 19    |
| 2.3.3 QS university ranking, average score top 3* .....   | 76.8    | 10 ●  |

**3 Infrastructure** ..... **45.0 39**

|   |         |     |
|---|---------|-----|
| 3.1 Information & communication technologies (ICTs) .....     | 36.1    | 73  |
| 3.1.1 ICT access* .....                                       | 43.6    | 74  |
| 3.1.2 ICT use* .....  | 27.0    | 64  |
| 3.1.3 Government's online service* .....                      | 52.9    | 60  |
| 3.1.4 E-participation* .....                                  | 21.1    | 65  |
| 3.2 General infrastructure .....                              | 65.3    | 2 ● |
| 3.2.1 Electricity output, kWh/cap .....                       | 3,508.4 | 56  |
| 3.2.2 Logistics performance* .....                            | 75.8    | 24  |
| 3.2.3 Gross capital formation, % GDP .....                    | 48.9    | 2 ● |
| 3.3 Ecological sustainability .....                           | 33.5    | 80  |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 3.7     | 101 |
| 3.3.2 Environmental performance* .....                        | 43.0    | 103 |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 7.5     | 16  |

**4 Market sophistication** ..... **50.5 54**

|  |       |    |
|--|-------|----|
| 4.1 Credit .....                                     | 35.8  | 69 |
| 4.1.1 Ease of getting credit* .....                  | 62.5  | 69 |
| 4.1.2 Domestic credit to private sector, % GDP ..... | 131.6 | 18 |
| 4.1.3 Microfinance gross loans, % GDP .....          | 0.2   | 62 |

|   |      |    |
|---|------|----|
| 4.2 Investment .....                            | 40.5 | 50 |
| 4.2.1 Ease of protecting investors* .....       | 50.0 | 81 |
| 4.2.2 Market capitalization, % GDP .....        | 44.9 | 44 |
| 4.2.3 Total value of stocks traded, % GDP ..... | 70.8 | 9  |
| 4.2.4 Venture capital deals/tr PPP\$ GDP .....  | 0.0  | 42 |

**4.3 Trade & competition** ..... **75.1 75**

|  |      |    |
|--|------|----|
| 4.3.1 Applied tariff rate, weighted mean, % .....          | 4.1  | 73 |
| 4.3.2 Non-agricultural mkt access weighted tariff, % ..... | 2.6  | 94 |
| 4.3.3 Intensity of local competition† .....                | 71.0 | 43 |

**5 Business sophistication** ..... **41.8 32**

|  |       |       |
|--|-------|-------|
| 5.1 Knowledge workers .....                                      | 59.4  | 29    |
| 5.1.1 Knowledge-intensive employment, % .....                    | 7.4   | 101 ○ |
| 5.1.2 Firms offering formal training, % firms .....              | 79.2  | 1 ●   |
| 5.1.3 GERD performed by business, % GDP .....                    | 1.5   | 13    |
| 5.1.4 GERD performed by business, % .....                        | 76.2  | 5 ●   |
| 5.1.5 GMAT test takers/mn pop. 20–34 .....                       | 154.2 | 33    |
| 5.2 Innovation linkages .....                                    | 30.5  | 74    |
| 5.2.1 University/industry research collaboration† .....          | 56.8  | 32    |
| 5.2.2 State of cluster development† .....                        | 60.2  | 23    |
| 5.2.3 GERD financed by abroad, % .....                           | 1.0   | 81 ○  |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....             | 0.0   | 67    |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....     | 0.2   | 36    |
| 5.3 Knowledge absorption .....                                   | 35.5  | 28    |
| 5.3.1 Royalty & license fees payments, % total trade .....       | 0.8   | 34    |
| 5.3.2 High-tech imports less re-imports, % .....                 | 18.3  | 8 ●   |
| 5.3.3 Comm., computer & info. services imp., % total trade ..... | 0.3   | 123 ○ |
| 5.3.4 FDI net inflows, % GDP .....                               | 3.0   | 65    |

**6 Knowledge & technology outputs** ..... **59.0 2 ●**

|  |       |     |
|--|-------|-----|
| 6.1 Knowledge creation .....                                     | 67.1  | 4 ● |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....            | 43.7  | 1 ● |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP .....                 | 1.5   | 29  |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....          | 59.9  | 1 ● |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP .....         | 15.8  | 56  |
| 6.1.5 Citable documents H index .....                            | 385.0 | 16  |
| 6.2 Knowledge impact .....                                       | 65.7  | 3 ● |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                   | 7.4   | 2 ● |
| 6.2.2 New businesses/th pop. 15–64 .....                         | n/a   | n/a |
| 6.2.3 Computer software spending, % GDP .....                    | 0.4   | 24  |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....           | 27.2  | 16  |
| 6.2.5 High- & medium-high-tech manufactures, % .....             | 43.6  | 16  |
| 6.3 Knowledge diffusion .....                                    | 44.3  | 23  |
| 6.3.1 Royalty & license fees receipts, % total trade .....       | 0.0   | 68  |
| 6.3.2 High-tech exports less re-exports, % .....                 | 27.8  | 1 ● |
| 6.3.3 Comm., computer & info. services exp., % total trade ..... | 0.8   | 89  |
| 6.3.4 FDI net outflows, % GDP .....                              | 1.4   | 41  |

**7 Creative outputs** ..... **35.7 59**

|   |       |      |
|---|-------|------|
| 7.1 Intangible assets .....                                     | 48.9  | 47   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....             | 122.5 | 8    |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....          | 0.2   | 55   |
| 7.1.3 ICTs & business model creation† .....                     | 60.7  | 50   |
| 7.1.4 ICTs & organizational model creation† .....               | 61.5  | 31   |
| 7.2 Creative goods & services .....                             | 33.6  | 33   |
| 7.2.1 Cultural & creative services exports, % total trade ..... | 0.2   | 39   |
| 7.2.2 National feature films/mn pop. 15–69 .....                | 0.6   | 86 ○ |
| 7.2.3 Global ent. & media output/th pop. 15–69 .....            | 0.1   | 49 ○ |
| 7.2.4 Printing & publishing manufactures, % .....               | 0.0   | 83 ○ |
| 7.2.5 Creative goods exports, % total trade .....               | 14.9  | 1 ●  |
| 7.3 Online creativity .....                                     | 11.2  | 87   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69 .....      | 2.2   | 86   |
| 7.3.2 Country-code TLDs/th pop. 15–69 .....                     | 31.2  | 55   |
| 7.3.3 Wikipedia edits/pop. 15–69 .....                          | 190.1 | 117  |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a   | n/a  |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 47.7                            |
| GDP (US\$ billions) .....   | 381.8                           |
| GDP per capita, PPP\$ ..... | 11,188.8                        |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>35.5</b>                           | <b>68</b> |
| Innovation Output Sub-Index .....                 | 27.6                                  | 77        |
| Innovation Input Sub-Index .....                  | 43.4                                  | 58        |
| Innovation Efficiency Ratio .....                 | 0.6                                   | 102       |
| Global Innovation Index 2013 (out of 142) .....   | 37.4                                  | 60        |

|          |  |             |           |
|----------|--|-------------|-----------|
| <b>1</b> | <b>Institutions</b> .....                              | <b>60.4</b> | <b>71</b> |
| 1.1      | Political environment.....                             | 45.0        | 107       |
| 1.1.1    | Political stability*.....                              | 31.3        | 134 ○     |
| 1.1.2    | Government effectiveness*.....                         | 41.2        | 66        |
| 1.1.3    | Press freedom*.....                                    | 62.5        | 105       |
| 1.2      | Regulatory environment.....                            | 64.9        | 76        |
| 1.2.1    | Regulatory quality*.....                               | 58.9        | 58        |
| 1.2.2    | Rule of law*.....                                      | 35.6        | 83        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 16.7        | 78        |
| 1.3      | Business environment.....                              | 71.4        | 40        |
| 1.3.1    | Ease of starting a business*.....                      | 81.6        | 81        |
| 1.3.2    | Ease of resolving insolvency*.....                     | 74.5        | 23 ●      |
| 1.3.3    | Ease of paying taxes*.....                             | 58.0        | 107       |
| <b>2</b> | <b>Human capital &amp; research</b> .....              | <b>29.4</b> | <b>65</b> |
| 2.1      | Education.....   | 33.1        | 104       |
| 2.1.1    | Expenditure on education, % GDP.....                   | 4.4         | 77        |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 15.2        | 84        |
| 2.1.3    | School life expectancy, years.....                     | 13.2        | 68        |
| 2.1.4    | PISA scales in reading, maths, & science.....          | 392.9       | 58 ○      |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 25.4        | 91 ○      |
| 2.2      | Tertiary education.....                                | 39.9        | 46        |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 45.0        | 57        |
| 2.2.2    | Graduates in science & engineering, %.....             | 21.5        | 44        |
| 2.2.3    | Tertiary inbound mobility, %.....                      | n/a         | n/a       |
| 2.3      | Research & development (R&D).....                      | 15.3        | 56        |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 346.4       | 76        |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 0.2         | 90        |
| 2.3.3    | QS university ranking, average score top 3*.....       | 39.1        | 34        |
| <b>3</b> | <b>Infrastructure</b> .....                            | <b>44.8</b> | <b>40</b> |
| 3.1      | Information & communication technologies (ICTs).....   | 56.0        | 33        |
| 3.1.1    | ICT access*.....                                       | 43.5        | 75        |
| 3.1.2    | ICT use*.....  | 22.6        | 76        |
| 3.1.3    | Government's online service*.....                      | 84.3        | 16 ●      |
| 3.1.4    | E-participation*.....                                  | 73.7        | 11 ●      |
| 3.2      | General infrastructure.....                            | 29.7        | 87        |
| 3.2.1    | Electricity output, kWh/cap.....                       | 1,317.3     | 88        |
| 3.2.2    | Logistics performance*.....                            | 50.0        | 64        |
| 3.2.3    | Gross capital formation, % GDP.....                    | 23.7        | 64        |
| 3.3      | Ecological sustainability.....                         | 48.7        | 31 ●      |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 13.2        | 2 ●       |
| 3.3.2    | Environmental performance*.....                        | 50.8        | 77        |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 2.9         | 36        |
| <b>4</b> | <b>Market sophistication</b> .....                     | <b>51.8</b> | <b>48</b> |
| 4.1      | Credit.....  | 33.4        | 79        |
| 4.1.1    | Ease of getting credit*.....                           | 62.5        | 69        |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 48.9        | 69        |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | 1.8         | 26        |

|       |   |      |      |
|-------|---|------|------|
| 4.2   | Investment.....                                     | 43.2 | 44   |
| 4.2.1 | Ease of protecting investors*.....                  | 83.3 | 6 ●  |
| 4.2.2 | Market capitalization, % GDP.....                   | 70.9 | 25 ● |
| 4.2.3 | Total value of stocks traded, % GDP.....            | 7.0  | 45   |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | 0.0  | 59 ○ |
| 4.3   | Trade & competition.....                            | 78.6 | 33   |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 5.6  | 89   |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 0.1  | 28 ● |
| 4.3.3 | Intensity of local competition†.....                | 67.7 | 61   |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>5</b> | <b>Business sophistication</b> .....                      | <b>30.8</b> | <b>76</b> |
| 5.1      | Knowledge workers.....                                    | 38.5        | 71        |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 16.8        | 84        |
| 5.1.2    | Firms offering formal training, % firms.....              | 56.7        | 13 ●      |
| 5.1.3    | GERD performed by business, % GDP.....                    | 0.0         | 69 ○      |
| 5.1.4    | GERD performed by business, %.....                        | 26.2        | 58        |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 65.6        | 66        |
| 5.2      | Innovation linkages.....                                  | 21.7        | 122 ○     |
| 5.2.1    | University/industry research collaboration†.....          | 47.5        | 51        |
| 5.2.2    | State of cluster development†.....                        | 46.5        | 71        |
| 5.2.3    | GERD financed by abroad, %.....                           | 3.5         | 69        |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 107 ○     |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 90        |
| 5.3      | Knowledge absorption.....                                 | 32.1        | 36        |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | 0.8         | 39        |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 13.0        | 18 ●      |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 0.7         | 74        |
| 5.3.4    | FDI net inflows, % GDP.....                               | 4.3         | 50        |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>6</b> | <b>Knowledge &amp; technology outputs</b> .....           | <b>24.4</b> | <b>85</b> |
| 6.1      | Knowledge creation.....                                   | 7.4         | 93        |
| 6.1.1    | Domestic resident patent app./tr PPP\$ GDP.....           | 0.4         | 80        |
| 6.1.2    | PCT resident patent app./tr PPP\$ GDP.....                | 0.1         | 67        |
| 6.1.3    | Domestic res utility model app./tr PPP\$ GDP.....         | 0.5         | 39        |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 6.1         | 97        |
| 6.1.5    | Citable documents H index.....                            | 133.0       | 47        |
| 6.2      | Knowledge impact.....                                     | 39.7        | 66        |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | 2.6         | 43        |
| 6.2.2    | New businesses/th pop. 15–64.....                         | 2.0         | 43        |
| 6.2.3    | Computer software spending, % GDP.....                    | 0.2         | 65 ○      |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 19.9        | 21 ●      |
| 6.2.5    | High- & medium-high-tech manufactures, %.....             | 22.1        | 47        |
| 6.3      | Knowledge diffusion.....                                  | 26.1        | 101       |
| 6.3.1    | Royalty & license fees receipts, % total trade.....       | 0.1         | 43        |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.9         | 72        |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 0.5         | 102       |
| 6.3.4    | FDI net outflows, % GDP.....                              | -0.1        | 112 ○     |

|          |  |             |           |
|----------|--|-------------|-----------|
| <b>7</b> | <b>Creative outputs</b> .....                            | <b>30.7</b> | <b>76</b> |
| 7.1      | Intangible assets.....                                   | 37.2        | 105       |
| 7.1.1    | Domestic res trademark app./bn PPP\$ GDP.....            | 37.4        | 68        |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....          | 0.0         | 73 ○      |
| 7.1.3    | ICTs & business model creation†.....                     | 59.2        | 59        |
| 7.1.4    | ICTs & organizational model creation†.....               | 56.5        | 54        |
| 7.2      | Creative goods & services.....                           | 16.4        | 76        |
| 7.2.1    | Cultural & creative services exports, % total trade..... | 0.2         | 42        |
| 7.2.2    | National feature films/mn pop. 15–69.....                | 0.6         | 85 ○      |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....            | 0.2         | 44        |
| 7.2.4    | Printing & publishing manufactures, %.....               | 0.0         | 23        |
| 7.2.5    | Creative goods exports, % total trade.....               | 0.3         | 70        |
| 7.3      | Online creativity.....                                   | 32.2        | 45        |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....      | 3.8         | 66        |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                     | 51.8        | 35        |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                          | 3,505.2     | 64        |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                 | 67.3        | 46        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 4.8                             |
| GDP (US\$ billions) .....   | 49.6                            |
| GDP per capita, PPP\$ ..... | 12,942.1                        |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>37.3</b>                           | <b>57</b> |
| Innovation Output Sub-Index .....                 | 33.3                                  | 51        |
| Innovation Input Sub-Index .....                  | 41.3                                  | 66        |
| Innovation Efficiency Ratio .....                 | 0.8                                   | 38        |
| Global Innovation Index 2013 (out of 142) .....   | 41.5                                  | 39        |

|          |   |             |              |
|----------|---|-------------|--------------|
| <b>1</b> | <b>Institutions</b> .....                               | <b>66.7</b> | <b>56</b>    |
| 1.1      | Political environment .....                             | 74.3        | 35 ●         |
| 1.1.1    | Political stability* .....                              | 81.1        | 40           |
| 1.1.2    | Government effectiveness* .....                         | 53.9        | 46           |
| 1.1.3    | Press freedom* .....                                    | 87.9        | 16 ●         |
| 1.2      | Regulatory environment .....                            | 70.0        | 54           |
| 1.2.1    | Regulatory quality* .....                               | 63.6        | 45           |
| 1.2.2    | Rule of law* .....                                      | 59.4        | 46           |
| 1.2.3    | Cost of redundancy dismissal, salary weeks .....        | 18.7        | 87           |
| 1.3      | Business environment .....                              | 55.9        | 95           |
| 1.3.1    | Ease of starting a business* .....                      | 79.4        | 92           |
| 1.3.2    | Ease of resolving insolvency* .....                     | 26.0        | 108          |
| 1.3.3    | Ease of paying taxes* .....                             | 62.2        | 96           |
| <b>2</b> | <b>Human capital &amp; research</b> .....               | <b>25.0</b> | <b>87</b>    |
| 2.1      | Education .....   | 43.0        | 68           |
| 2.1.1    | Expenditure on education, % GDP .....                   | 6.3         | 22 ●         |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap .....     | 14.4        | 86           |
| 2.1.3    | School life expectancy, years .....                     | 13.7        | 61           |
| 2.1.4    | PISA scales in reading, maths, & science .....          | 425.6       | 46           |
| 2.1.5    | Pupil-teacher ratio, secondary .....                    | 14.9        | 62           |
| 2.2      | Tertiary education .....                                | 22.7        | 94           |
| 2.2.1    | Tertiary enrolment, % gross .....                       | 46.7        | 53           |
| 2.2.2    | Graduates in science & engineering, % .....             | 11.9        | 97 ○         |
| 2.2.3    | Tertiary inbound mobility, % .....                      | 1.4         | 72           |
| 2.3      | Research & development (R&D) .....                      | 9.4         | 69           |
| 2.3.1    | Researchers, headcounts/mn pop. .....                   | 1,867.6     | 43           |
| 2.3.2    | Gross expenditure on R&D, % GDP .....                   | 0.5         | 61           |
| 2.3.3    | QS university ranking, average score top 3* .....       | 0.0         | 70 ○         |
| <b>3</b> | <b>Infrastructure</b> .....                             | <b>38.1</b> | <b>64</b>    |
| 3.1      | Information & communication technologies (ICTs) .....   | 41.8        | 60           |
| 3.1.1    | ICT access* .....                                       | 55.3        | 61           |
| 3.1.2    | ICT use* .....  | 30.6        | 60           |
| 3.1.3    | Government's online service* .....                      | 49.7        | 68           |
| 3.1.4    | E-participation* .....                                  | 31.6        | 48           |
| 3.2      | General infrastructure .....                            | 26.9        | 102          |
| 3.2.1    | Electricity output, kWh/cap .....                       | 2,078.9     | 77           |
| 3.2.2    | Logistics performance* .....                            | 45.2        | 81           |
| 3.2.3    | Gross capital formation, % GDP .....                    | 21.3        | 76           |
| 3.3      | Ecological sustainability .....                         | 45.5        | 40           |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 10.9        | 11 ●         |
| 3.3.2    | Environmental performance* .....                        | 58.5        | 52           |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 1.4         | 55           |
| <b>4</b> | <b>Market sophistication</b> .....                      | <b>40.7</b> | <b>121</b> ○ |
| 4.1      | Credit .....  | 24.3        | 110          |
| 4.1.1    | Ease of getting credit* .....                           | 56.3        | 81           |
| 4.1.2    | Domestic credit to private sector, % GDP .....          | 49.1        | 68           |
| 4.1.3    | Microfinance gross loans, % GDP .....                   | 0.1         | 64           |

|       |   |      |       |
|-------|---|------|-------|
| 4.2   | Investment .....                          | 15.6 | 142 ○ |
| 4.2.1 | Ease of protecting investors* .....       | 30.0 | 133 ○ |
| 4.2.2 | Market capitalization, % GDP .....        | 4.5  | 102 ○ |
| 4.2.3 | Total value of stocks traded, % GDP ..... | 0.1  | 101 ○ |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP .....  | n/a  | n/a   |

|            |  |             |             |
|------------|--|-------------|-------------|
| <b>4.3</b> | <b>Trade &amp; competition</b> .....                 | <b>82.2</b> | <b>17</b> ● |
| 4.3.1      | Applied tariff rate, weighted mean, % .....          | 3.1         | 57          |
| 4.3.2      | Non-agricultural mkt access weighted tariff, % ..... | 0.0         | 13 ●        |
| 4.3.3      | Intensity of local competition† .....                | 70.0        | 50          |

**5 Business sophistication** ..... **35.9** **47**

|       |   |      |      |
|-------|---|------|------|
| 5.1   | Knowledge workers .....                       | 37.2 | 79   |
| 5.1.1 | Knowledge-intensive employment, % .....       | 23.9 | 61   |
| 5.1.2 | Firms offering formal training, % firms ..... | 48.9 | 28   |
| 5.1.3 | GERD performed by business, % GDP .....       | 0.1  | 63   |
| 5.1.4 | GERD performed by business, % .....           | 15.9 | 67 ○ |
| 5.1.5 | GMAT test takers/mn pop. 20–34 .....          | 59.3 | 69   |

|            |  |             |           |
|------------|--|-------------|-----------|
| <b>5.2</b> | <b>Innovation linkages</b> .....                       | <b>26.5</b> | <b>93</b> |
| 5.2.1      | University/industry research collaboration† .....      | 56.8        | 32 ●      |
| 5.2.2      | State of cluster development† .....                    | 52.0        | 43        |
| 5.2.3      | GERD financed by abroad, % .....                       | 6.5         | 55        |
| 5.2.4      | JV–strategic alliance deals/tr PPP\$ GDP .....         | 0.0         | 90 ○      |
| 5.2.5      | Patent families filed in 3+ offices/bn PPP\$ GDP ..... | 0.0         | 78        |

|            |  |             |            |
|------------|--|-------------|------------|
| <b>5.3</b> | <b>Knowledge absorption</b> .....                          | <b>44.0</b> | <b>8</b> ● |
| 5.3.1      | Royalty & license fees payments, % total trade .....       | 0.5         | 55         |
| 5.3.2      | High-tech imports less re-imports, % .....                 | 21.8        | 3 ●        |
| 5.3.3      | Comm., computer & info. services imp., % total trade ..... | 0.7         | 80         |
| 5.3.4      | FDI net inflows, % GDP .....                               | 5.3         | 36         |

**6 Knowledge & technology outputs** ..... **30.3** **57**

|       |  |       |       |
|-------|--|-------|-------|
| 6.1   | Knowledge creation .....                           | 4.4   | 118 ○ |
| 6.1.1 | Domestic resident patent app/tr PPP\$ GDP .....    | 0.2   | 94 ○  |
| 6.1.2 | PCT resident patent app/tr PPP\$ GDP .....         | 0.1   | 79    |
| 6.1.3 | Domestic res utility model app/tr PPP\$ GDP .....  | 0.1   | 56 ○  |
| 6.1.4 | Scientific & technical articles/bn PPP\$ GDP ..... | 6.5   | 95    |
| 6.1.5 | Citable documents H index .....                    | 103.0 | 64    |

|            |  |             |           |
|------------|--|-------------|-----------|
| <b>6.2</b> | <b>Knowledge impact</b> .....                    | <b>34.4</b> | <b>86</b> |
| 6.2.1      | Growth rate of PPP\$ GDP/worker, % .....         | 3.1         | 36        |
| 6.2.2      | New businesses/th pop. 15–64 .....               | 3.5         | 30        |
| 6.2.3      | Computer software spending, % GDP .....          | 0.3         | 44        |
| 6.2.4      | ISO 9001 quality certificates/bn PPP\$ GDP ..... | 4.0         | 74        |
| 6.2.5      | High- & medium-high-tech manufactures, % .....   | 11.6        | 72        |

|            |  |             |            |
|------------|--|-------------|------------|
| <b>6.3</b> | <b>Knowledge diffusion</b> .....                           | <b>52.0</b> | <b>8</b> ● |
| 6.3.1      | Royalty & license fees receipts, % total trade .....       | 0.0         | 81         |
| 6.3.2      | High-tech exports less re-exports, % .....                 | 15.3        | 9 ●        |
| 6.3.3      | Comm., computer & info. services exp., % total trade ..... | 10.5        | 1 ●        |
| 6.3.4      | FDI net outflows, % GDP .....                              | 1.7         | 39         |

**7 Creative outputs** ..... **36.3** **55**

|       |  |       |      |
|-------|--|-------|------|
| 7.1   | Intangible assets .....                          | 55.4  | 17 ● |
| 7.1.1 | Domestic res trademark app/bn PPP\$ GDP .....    | 111.1 | 12 ● |
| 7.1.2 | Madrid trademark app. holders/bn PPP\$ GDP ..... | n/a   | n/a  |
| 7.1.3 | ICTs & business model creation† .....            | 62.5  | 43   |
| 7.1.4 | ICTs & organizational model creation† .....      | 60.5  | 37   |

|            |   |             |           |
|------------|---|-------------|-----------|
| <b>7.2</b> | <b>Creative goods &amp; services</b> .....                | <b>19.4</b> | <b>62</b> |
| 7.2.1      | Cultural & creative services exports, % total trade ..... | 0.0         | 85 ○      |
| 7.2.2      | National feature films/mn pop. 15–69 .....                | 0.9         | 75        |
| 7.2.3      | Global ent. & media output/th pop. 15–69 .....            | n/a         | n/a       |
| 7.2.4      | Printing & publishing manufactures, % .....               | 0.0         | 24        |
| 7.2.5      | Creative goods exports, % total trade .....               | 0.7         | 48        |

|            |  |             |           |
|------------|--|-------------|-----------|
| <b>7.3</b> | <b>Online creativity</b> .....                       | <b>15.2</b> | <b>77</b> |
| 7.3.1      | Generic top-level domains (TLDs)/th pop. 15–69 ..... | 15.7        | 33 ●      |
| 7.3.2      | Country-code TLDs/th pop. 15–69 .....                | 22.6        | 72        |
| 7.3.3      | Wikipedia edits/pop. 15–69 .....                     | 4,284.2     | 59        |
| 7.3.4      | Video uploads on YouTube/pop. 15–69 .....            | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 19.8                |
| GDP (US\$ billions) .....   | 28.3                |
| GDP per capita, PPP\$ ..... | 1,818.1             |
| Income group .....          | Lower-middle income |
| Region .....                | Sub-Saharan Africa  |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>27.0</b>                           | <b>116</b>   |
| Innovation Output Sub-Index .....                             | 26.0                                  | 88           |
| Innovation Input Sub-Index.....                               | 28.0                                  | 135 ○        |
| Innovation Efficiency Ratio.....                              | 0.9                                   | 10 ●         |
| Global Innovation Index 2013 (out of 142) .....               | 23.4                                  | 136          |
| <b>1 Institutions.....</b>                                    | <b>48.8</b>                           | <b>112</b>   |
| 1.1 Political environment.....                                | 38.8                                  | 130 ○        |
| 1.1.1 Political stability*.....                               | 34.8                                  | 127          |
| 1.1.2 Government effectiveness*.....                          | 11.3                                  | 135 ○        |
| 1.1.3 Press freedom*.....                                     | 70.2                                  | 77 ●         |
| 1.2 Regulatory environment .....                              | 56.1                                  | 99           |
| 1.2.1 Regulatory quality* .....                               | 28.7                                  | 122          |
| 1.2.2 Rule of law*.....                                       | 15.9                                  | 130 ○        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 13.1                                  | 58 ●         |
| 1.3 Business environment.....                                 | 51.6                                  | 115          |
| 1.3.1 Ease of starting a business*.....                       | 77.8                                  | 98           |
| 1.3.2 Ease of resolving insolvency*.....                      | 33.7                                  | 85 ●         |
| 1.3.3 Ease of paying taxes*.....                              | 43.3                                  | 130 ○        |
| <b>2 Human capital &amp; research.....</b>                    | <b>13.0</b>                           | <b>131</b> ○ |
| 2.1 Education .....   | 31.3                                  | 111          |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.6                                   | 71 ●         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a          |
| 2.1.3 School life expectancy, years.....                      | n/a                                   | n/a          |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a          |
| 2.2 Tertiary education.....                                   | 7.0                                   | 129 ○        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 8.4                                   | 116          |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a          |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.3                                   | 78           |
| 2.3 Research & development (R&D).....                         | 0.6                                   | 122          |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 137.8                                 | 94           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a          |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○         |
| <b>3 Infrastructure.....</b>                                  | <b>20.1</b>                           | <b>131</b> ○ |
| 3.1 Information & communication technologies (ICTs).....      | 18.3                                  | 117          |
| 3.1.1 ICT access*.....  | 25.8                                  | 108          |
| 3.1.2 ICT use*.....   | 0.9                                   | 130 ○        |
| 3.1.3 Government's online service*.....                       | 33.3                                  | 110          |
| 3.1.4 E-participation*.....                                   | 13.2                                  | 84           |
| 3.2 General infrastructure.....                               | 20.9                                  | 130 ○        |
| 3.2.1 Electricity output, kWh/cap.....                        | 302.7                                 | 108          |
| 3.2.2 Logistics performance*.....                             | 44.4                                  | 84           |
| 3.2.3 Gross capital formation, % GDP.....                     | 17.9                                  | 111          |
| 3.3 Ecological sustainability.....                            | 21.1                                  | 127          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 2.8                                   | 114 ○        |
| 3.3.2 Environmental performance*.....                         | 39.7                                  | 109          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.4                                   | 92           |
| <b>4 Market sophistication .....</b>                          | <b>37.7</b>                           | <b>133</b> ○ |
| 4.1 Credit.....   | 16.9                                  | 132 ○        |
| 4.1.1 Ease of getting credit*.....                            | 43.8                                  | 112          |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 18.3                                  | 123          |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.2                                   | 61           |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment .....  | 21.4        | 135 ○        |
| 4.2.1 Ease of protecting investors*.....                        | 33.3        | 125 ○        |
| 4.2.2 Market capitalization, % GDP.....                         | 31.7        | 57 ●         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.7         | 76           |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a          |
| 4.3 Trade & competition .....                                   | 74.8        | 78 ●         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 6.8         | 104          |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.9         | 69 ●         |
| 4.3.3 Intensity of local competition†.....                      | 66.2        | 68 ●         |
| <b>5 Business sophistication .....</b>                          | <b>20.5</b> | <b>130</b> ○ |
| 5.1 Knowledge workers.....                                      | 23.3        | 114          |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a          |
| 5.1.2 Firms offering formal training, % firms.....              | 21.3        | 89           |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a          |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a          |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 25.3        | 106          |
| 5.2 Innovation linkages .....                                   | 23.6        | 112          |
| 5.2.1 University/industry research collaboration†.....          | 30.2        | 119          |
| 5.2.2 State of cluster development† .....                       | 32.2        | 124 ○        |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a          |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a          |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 106 ○        |
| 5.3 Knowledge absorption.....                                   | 14.5        | 126          |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 86           |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.7         | 104          |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.8         | 71 ●         |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.4         | 103          |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>27.2</b> | <b>67</b> ●  |
| 6.1 Knowledge creation.....                                     | 4.5         | 116          |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 0.7         | 74           |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.0         | 102          |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 4.3         | 113          |
| 6.1.5 Citable documents H index.....                            | 68.0        | 90           |
| 6.2 Knowledge impact.....                                       | 54.0        | 16 ●         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 5.3         | 7 ●          |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a          |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.6         | 114          |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a          |
| 6.3 Knowledge diffusion.....                                    | 23.2        | 117          |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 106 ○        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.9         | 71 ●         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.9         | 86           |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.2         | 81           |
| <b>7 Creative outputs .....</b>                                 | <b>24.8</b> | <b>103</b>   |
| 7.1 Intangible assets.....                                      | 47.9        | 50 ●         |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | n/a         | n/a          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a          |
| 7.1.3 ICTs & business model creation†.....                      | 50.7        | 92           |
| 7.1.4 ICTs & organizational model creation†.....                | 45.2        | 100          |
| 7.2 Creative goods & services.....                              | 1.6         | 129 ○        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 69           |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a          |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a          |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a          |
| 7.2.5 Creative goods exports, % total trade.....                | 0.0         | 112          |
| 7.3 Online creativity .....                                     | 1.9         | 120          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.5         | 122          |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 3.3         | 117          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | n/a         | n/a          |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 4.3         |
| GDP (US\$ billions) .....   | 58.1        |
| GDP per capita, PPP\$ ..... | 18,190.9    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>40.7</b>                           | <b>42</b>    |
| Innovation Output Sub-Index .....                             | 36.4                                  | 40           |
| Innovation Input Sub-Index .....                              | 45.1                                  | 50           |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 36           |
| Global Innovation Index 2013 (out of 142) .....               | 41.9                                  | 37           |
| <b>1 Institutions.....</b>                                    | <b>69.8</b>                           | <b>45</b>    |
| 1.1 Political environment.....                                | 70.9                                  | 46           |
| 1.1.1 Political stability*.....                               | 79.8                                  | 43           |
| 1.1.2 Government effectiveness*.....                          | 59.4                                  | 41           |
| 1.1.3 Press freedom*.....                                     | 73.4                                  | 54           |
| 1.2 Regulatory environment .....                              | 71.0                                  | 48           |
| 1.2.1 Regulatory quality* .....                               | 60.2                                  | 53           |
| 1.2.2 Rule of law*.....                                       | 52.2                                  | 55           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 15.1                                  | 69           |
| 1.3 Business environment.....                                 | 67.4                                  | 61           |
| 1.3.1 Ease of starting a business*.....                       | 88.3                                  | 51           |
| 1.3.2 Ease of resolving insolvency*.....                      | 32.1                                  | 87           |
| 1.3.3 Ease of paying taxes*.....                              | 81.9                                  | 30 ●         |
| <b>2 Human capital &amp; research.....</b>                    | <b>35.3</b>                           | <b>48</b>    |
| 2.1 Education .....   | 56.7                                  | 17 ●         |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.3                                   | 81           |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a          |
| 2.1.3 School life expectancy, years.....                      | 14.5                                  | 47           |
| 2.1.4 PISA scales in reading, maths, & science.....           | 482.4                                 | 33           |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 8.0                                   | 5 ●          |
| 2.2 Tertiary education.....                                   | 32.7                                  | 69           |
| 2.2.1 Tertiary enrolment, % gross.....                        | 58.8                                  | 41           |
| 2.2.2 Graduates in science & engineering, % .....             | 20.1                                  | 56           |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.4                                   | 94 ○         |
| 2.3 Research & development (R&D).....                         | 16.5                                  | 49           |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 2,649.0                               | 32           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.8                                   | 44           |
| 2.3.3 QS university ranking, average score top 3*.....        | 7.7                                   | 62           |
| <b>3 Infrastructure.....</b>                                  | <b>45.4</b>                           | <b>37</b>    |
| 3.1 Information & communication technologies (ICTs).....      | 52.4                                  | 39           |
| 3.1.1 ICT access*.....  | 66.6                                  | 37           |
| 3.1.2 ICT use*.....   | 49.9                                  | 32 ●         |
| 3.1.3 Government's online service*.....                       | 64.1                                  | 40           |
| 3.1.4 E-participation*.....                                   | 29.0                                  | 53           |
| 3.2 General infrastructure.....                               | 30.6                                  | 81           |
| 3.2.1 Electricity output, kWh/cap.....                        | 2,426.8                               | 69           |
| 3.2.2 Logistics performance*.....                             | 61.5                                  | 42           |
| 3.2.3 Gross capital formation, % GDP.....                     | 20.5                                  | 85           |
| 3.3 Ecological sustainability.....                            | 53.3                                  | 16 ●         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 8.3                                   | 34           |
| 3.3.2 Environmental performance*.....                         | 62.2                                  | 45           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 9.8                                   | 11 ●         |
| <b>4 Market sophistication .....</b>                          | <b>42.5</b>                           | <b>113</b> ○ |
| 4.1 Credit.....   | 32.1                                  | 85           |
| 4.1.1 Ease of getting credit*.....                            | 75.0                                  | 40           |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 68.0                                  | 49           |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.0                                   | 89 ○         |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 18.4        | 139 ○     |
| 4.2.1 Ease of protecting investors*.....                        | 33.3        | 125 ○     |
| 4.2.2 Market capitalization, % GDP.....                         | 38.2        | 52        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.9         | 70 ○      |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 51 ○      |
| 4.3 Trade & competition .....                                   | 77.0        | 53        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.3         | 38        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.5         | 50        |
| 4.3.3 Intensity of local competition†.....                      | 58.7        | 102 ○     |
| <b>5 Business sophistication .....</b>                          | <b>32.5</b> | <b>69</b> |
| 5.1 Knowledge workers.....                                      | 41.3        | 62        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 32.2        | 40        |
| 5.1.2 Firms offering formal training, % firms.....              | 28.9        | 69 ○      |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.3         | 39        |
| 5.1.4 GERD performed by business, %.....                        | 45.8        | 39        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 97.0        | 53        |
| 5.2 Innovation linkages .....                                   | 26.6        | 92 ○      |
| 5.2.1 University/industry research collaboration†.....          | 41.0        | 74        |
| 5.2.2 State of cluster development†.....                        | 37.2        | 108 ○     |
| 5.2.3 GERD financed by abroad, %.....                           | 14.4        | 33        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 43        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.1         | 47        |
| 5.3 Knowledge absorption.....                                   | 29.7        | 44        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.2         | 22 ●      |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.8         | 69        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.8         | 15 ●      |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.3         | 84        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>34.9</b> | <b>40</b> |
| 6.1 Knowledge creation.....                                     | 22.0        | 45        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.8         | 39        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.4         | 43        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.1         | 32        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 40.6        | 17 ●      |
| 6.1.5 Citable documents H index.....                            | 143.0       | 42        |
| 6.2 Knowledge impact.....                                       | 49.3        | 29 ●      |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -1.8        | 110 ○     |
| 6.2.2 New businesses/th pop. 15–64.....                         | 2.8         | 35        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 33.7        | 10 ●      |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a       |
| 6.3 Knowledge diffusion.....                                    | 33.5        | 54        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 49        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 3.8         | 38        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.2         | 35        |
| 6.3.4 FDI net outflows, % GDP.....                              | -0.2        | 115 ○     |
| <b>7 Creative outputs .....</b>                                 | <b>37.9</b> | <b>47</b> |
| 7.1 Intangible assets.....                                      | 43.0        | 75        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 56.6        | 46        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 1.8         | 19        |
| 7.1.3 ICTs & business model creation†.....                      | 58.7        | 62        |
| 7.1.4 ICTs & organizational model creation†.....                | 54.0        | 64        |
| 7.2 Creative goods & services.....                              | 35.9        | 26 ●      |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 1.4         | 3 ●       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 2.9         | 46        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a       |
| 7.2.5 Creative goods exports, % total trade.....                | 0.4         | 62        |
| 7.3 Online creativity.....                                      | 29.6        | 50        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 14.9        | 36        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 44.7        | 41        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 17,144.1    | 30 ●      |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 1.1                              |
| GDP (US\$ billions) .....   | 21.8                             |
| GDP per capita, PPP\$ ..... | 25,265.4                         |
| Income group .....          | High income                      |
| Region .....                | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank        |
|--|---------------------------------------|-------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>45.8</b>                           | <b>30</b>   |
| Innovation Output Sub-Index .....                            | 39.9                                  | 34          |
| Innovation Input Sub-Index.....                              | 51.7                                  | 31          |
| Innovation Efficiency Ratio.....                             | 0.8                                   | 56          |
| Global Innovation Index 2013 (out of 142) .....              | 49.3                                  | 27          |
| <b>1 Institutions.....</b>                                   | <b>83.5</b>                           | <b>19 ●</b> |
| 1.1 Political environment.....                               | 81.7                                  | 20 ●        |
| 1.1.1 Political stability*.....                              | 81.1                                  | 39          |
| 1.1.2 Government effectiveness*.....                         | 77.7                                  | 22          |
| 1.1.3 Press freedom*.....                                    | 86.2                                  | 22          |
| 1.2 Regulatory environment.....                              | 88.5                                  | 20 ●        |
| 1.2.1 Regulatory quality*.....                               | 78.1                                  | 24          |
| 1.2.2 Rule of law*.....                                      | 75.8                                  | 25          |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 8.0                                   | 1 ●         |
| 1.3 Business environment.....                                | 80.3                                  | 21 ●        |
| 1.3.1 Ease of starting a business*.....                      | 88.0                                  | 54          |
| 1.3.2 Ease of resolving insolvency*.....                     | 74.6                                  | 22          |
| 1.3.3 Ease of paying taxes*.....                             | 78.2                                  | 40          |
| <b>2 Human capital &amp; research.....</b>                   | <b>39.4</b>                           | <b>39</b>   |
| 2.1 Education.....   | 58.2                                  | 10 ●        |
| 2.1.1 Expenditure on education, % GDP.....                   | 7.3                                   | 10 ●        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 40.7                                  | 5 ●         |
| 2.1.3 School life expectancy, years.....                     | 14.0                                  | 57          |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a         |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | 9.7                                   | 22          |
| 2.2 Tertiary education.....                                  | 51.1                                  | 22          |
| 2.2.1 Tertiary enrolment, % gross.....                       | 46.5                                  | 54          |
| 2.2.2 Graduates in science & engineering, %.....             | 17.2                                  | 68          |
| 2.2.3 Tertiary inbound mobility, %.....                      | 28.0                                  | 1 ●         |
| 2.3 Research & development (R&D).....                        | 8.9                                   | 71          |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 1,734.9                               | 45          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.5                                   | 62          |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○        |
| <b>3 Infrastructure.....</b>                                 | <b>37.6</b>                           | <b>66</b>   |
| 3.1 Information & communication technologies (ICTs).....     | 42.7                                  | 59          |
| 3.1.1 ICT access*.....                                       | 64.5                                  | 44          |
| 3.1.2 ICT use*.....  | 42.3                                  | 42          |
| 3.1.3 Government's online service*.....                      | 56.2                                  | 51          |
| 3.1.4 E-participation*.....                                  | 7.9                                   | 98          |
| 3.2 General infrastructure.....                              | 25.4                                  | 108         |
| 3.2.1 Electricity output, kWh/cap.....                       | 6,161.3                               | 33          |
| 3.2.2 Logistics performance*.....                            | 64.7                                  | 35          |
| 3.2.3 Gross capital formation, % GDP.....                    | 10.5                                  | 140 ○       |
| 3.3 Ecological sustainability.....                           | 44.6                                  | 42          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 8.9                                   | 25          |
| 3.3.2 Environmental performance*.....                        | 66.2                                  | 38          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 1.4                                   | 56          |
| <b>4 Market sophistication.....</b>                          | <b>64.4</b>                           | <b>16 ●</b> |
| 4.1 Credit.....  | 84.4                                  | 1 ●         |
| 4.1.1 Ease of getting credit*.....                           | 68.8                                  | 53          |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 302.2                                 | 1 ●         |
| 4.1.3 Microfinance gross loans, % GDP.....                   | n/a                                   | n/a         |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment.....   | 33.2        | 83        |
| 4.2.1 Ease of protecting investors*.....                        | 63.3        | 32        |
| 4.2.2 Market capitalization, % GDP.....                         | 8.7         | 92 ○      |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 1.3         | 63        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a       |
| 4.3 Trade & competition.....                                    | 75.7        | 70        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 70.8        | 45        |
| <b>5 Business sophistication.....</b>                           | <b>33.8</b> | <b>63</b> |
| 5.1 Knowledge workers.....                                      | 39.6        | 68        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 35.0        | 34        |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a       |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.1         | 66        |
| 5.1.4 GERD performed by business, %.....                        | 13.9        | 71 ○      |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 170.6       | 29        |
| 5.2 Innovation linkages.....                                    | 39.2        | 45        |
| 5.2.1 University/industry research collaboration†.....          | 46.5        | 52        |
| 5.2.2 State of cluster development†.....                        | 51.0        | 49        |
| 5.2.3 GERD financed by abroad, %.....                           | 14.1        | 34        |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP.....             | 0.1         | 16 ●      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.5         | 26        |
| 5.3 Knowledge absorption.....                                   | 22.6        | 88        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.3         | 69        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.6         | 106 ○     |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.4         | 39        |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.3         | 48        |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>34.6</b> | <b>42</b> |
| 6.1 Knowledge creation.....                                     | 28.1        | 36        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.2         | 92 ○      |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 2.1         | 22        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 44.9        | 13 ●      |
| 6.1.5 Citable documents H index.....                            | 86.0        | 72        |
| 6.2 Knowledge impact.....                                       | 51.2        | 23        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -0.8        | 103 ○     |
| 6.2.2 New businesses/th pop. 15–64.....                         | 22.5        | 1 ●       |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 12.7        | 38        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 13.8        | 67        |
| 6.3 Knowledge diffusion.....                                    | 24.4        | 115       |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.0         | 80        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.6         | 78        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.2         | 79        |
| 6.3.4 FDI net outflows, % GDP.....                              | -1.5        | 120 ○     |
| <b>7 Creative outputs.....</b>                                  | <b>45.3</b> | <b>24</b> |
| 7.1 Intangible assets.....                                      | 53.3        | 27        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 81.1        | 26        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 8.6         | 1 ●       |
| 7.1.3 ICTs & business model creation†.....                      | 54.8        | 73        |
| 7.1.4 ICTs & organizational model creation†.....                | 50.3        | 79        |
| 7.2 Creative goods & services.....                              | 25.8        | 48        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.7         | 16 ●      |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 3.6         | 39        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 15        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.0         | 111 ○     |
| 7.3 Online creativity.....                                      | 48.6        | 28        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 90.6        | 7 ●       |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 37.4        | 48        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 10,397.0    | 44        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Czech Republic

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 10.5        |
| GDP (US\$ billions) .....   | 198.3       |
| GDP per capita, PPP\$ ..... | 27,200.1    |
| Income group .....          | High income |
| Region .....                | Europe      |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>50.2</b>                           | <b>26</b> |
| Innovation Output Sub-Index .....                | 46.8                                  | 17        |
| Innovation Input Sub-Index.....                  | 53.6                                  | 27        |
| Innovation Efficiency Ratio.....                 | 0.9                                   | 18        |
| Global Innovation Index 2013 (out of 142) .....  | 48.4                                  | 28        |

|          |  |             |           |
|----------|--|-------------|-----------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>76.2</b> | <b>31</b> |
| 1.1      | Political environment.....                             | 82.1        | 19        |
| 1.1.1    | Political stability*.....                              | 91.2        | 16        |
| 1.1.2    | Government effectiveness*.....                         | 65.4        | 36        |
| 1.1.3    | Press freedom*.....                                    | 89.8        | 14 ●      |
| 1.2      | Regulatory environment.....                            | 75.4        | 40        |
| 1.2.1    | Regulatory quality*.....                               | 76.5        | 29        |
| 1.2.2    | Rule of law*.....                                      | 74.1        | 29        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 20.2        | 94 ○      |
| 1.3      | Business environment.....                              | 71.0        | 43        |
| 1.3.1    | Ease of starting a business*.....                      | 79.1        | 94 ○      |
| 1.3.2    | Ease of resolving insolvency*.....                     | 68.9        | 27        |
| 1.3.3    | Ease of paying taxes*.....                             | 65.0        | 87 ○      |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>45.7</b> | <b>29</b> |
| 2.1      | Education.....   | 51.6        | 41        |
| 2.1.1    | Expenditure on education, % GDP.....                   | 4.2         | 82 ○      |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 24.4        | 44        |
| 2.1.3    | School life expectancy, years.....                     | 16.4        | 17        |
| 2.1.4    | PISA scales in reading, maths, & science.....          | 500.0       | 19        |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 11.2        | 30        |
| 2.2      | Tertiary education.....                                | 46.0        | 31        |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 64.6        | 28        |
| 2.2.2    | Graduates in science & engineering, %.....             | 21.8        | 40        |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 8.5         | 18        |
| 2.3      | Research & development (R&D).....                      | 39.5        | 28        |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 4,442.5     | 25        |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 1.9         | 20        |
| 2.3.3    | QS university ranking, average score top 3*.....       | 34.0        | 37        |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>50.8</b> | <b>25</b> |
| 3.1      | Information & communication technologies (ICTs).....   | 49.6        | 45        |
| 3.1.1    | ICT access*.....                                       | 66.0        | 38        |
| 3.1.2    | ICT use*.....  | 51.7        | 30        |
| 3.1.3    | Government's online service*.....                      | 54.3        | 53        |
| 3.1.4    | E-participation*.....                                  | 26.3        | 56        |
| 3.2      | General infrastructure.....                            | 39.8        | 44        |
| 3.2.1    | Electricity output, kWh/cap.....                       | 8,264.0     | 21        |
| 3.2.2    | Logistics performance*.....                            | 60.7        | 44        |
| 3.2.3    | Gross capital formation, % GDP.....                    | 22.7        | 71        |
| 3.3      | Ecological sustainability.....                         | 63.0        | 5 ●       |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 5.8         | 73        |
| 3.3.2    | Environmental performance*.....                        | 81.5        | 5 ●       |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 14.9        | 1 ●       |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>49.1</b> | <b>62</b> |
| 4.1      | Credit.....  | 43.2        | 50        |
| 4.1.1    | Ease of getting credit*.....                           | 68.8        | 53        |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 56.9        | 56        |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | n/a         | n/a       |

|       |   |      |       |
|-------|---|------|-------|
| 4.2   | Investment.....                                     | 23.6 | 126 ○ |
| 4.2.1 | Ease of protecting investors*.....                  | 50.0 | 81 ○  |
| 4.2.2 | Market capitalization, % GDP.....                   | 19.0 | 74 ○  |
| 4.2.3 | Total value of stocks traded, % GDP.....            | 5.2  | 48    |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | 0.0  | 52 ○  |
| 4.3   | Trade & competition.....                            | 80.5 | 27    |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 1.1  | 10    |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 3.3  | 97 ○  |
| 4.3.3 | Intensity of local competition†.....                | 80.5 | 9 ●   |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>5</b> | <b>Business sophistication.....</b>                       | <b>46.2</b> | <b>20</b> |
| 5.1      | Knowledge workers.....                                    | 61.2        | 26        |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 37.3        | 26        |
| 5.1.2    | Firms offering formal training, % firms.....              | 69.6        | 4 ●       |
| 5.1.3    | GERD performed by business, % GDP.....                    | 1.0         | 22        |
| 5.1.4    | GERD performed by business, %.....                        | 53.6        | 31        |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 37.3        | 83        |
| 5.2      | Innovation linkages.....                                  | 35.8        | 56        |
| 5.2.1    | University/industry research collaboration†.....          | 56.8        | 32        |
| 5.2.2    | State of cluster development†.....                        | 52.3        | 41        |
| 5.2.3    | GERD financed by abroad, %.....                           | 25.9        | 16        |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 104 ○     |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.1         | 37        |
| 5.3      | Knowledge absorption.....                                 | 41.5        | 11 ●      |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | 0.5         | 49        |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 16.2        | 10 ●      |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 1.4         | 37        |
| 5.3.4    | FDI net inflows, % GDP.....                               | 5.4         | 34        |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>6</b> | <b>Knowledge &amp; technology outputs.....</b>            | <b>46.4</b> | <b>15</b> |
| 6.1      | Knowledge creation.....                                   | 46.7        | 19        |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP.....            | 3.1         | 37        |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP.....                 | 0.6         | 36        |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP.....          | 6.3         | 7         |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 34.8        | 25        |
| 6.1.5    | Citable documents H index.....                            | 239.0       | 31        |
| 6.2      | Knowledge impact.....                                     | 50.6        | 25        |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | -1.1        | 105 ○     |
| 6.2.2    | New businesses/th pop. 15–64.....                         | 3.0         | 32        |
| 6.2.3    | Computer software spending, % GDP.....                    | 0.3         | 34        |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 37.7        | 8 ●       |
| 6.2.5    | High- & medium-high-tech manufactures, %.....             | 48.8        | 10 ●      |
| 6.3      | Knowledge diffusion.....                                  | 41.8        | 27        |
| 6.3.1    | Royalty & license fees receipts, % total trade.....       | 0.1         | 42        |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 17.1        | 7 ●       |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 1.7         | 52        |
| 6.3.4    | FDI net outflows, % GDP.....                              | 0.7         | 56        |

|          |  |             |           |
|----------|--|-------------|-----------|
| <b>7</b> | <b>Creative outputs.....</b>                             | <b>47.3</b> | <b>18</b> |
| 7.1      | Intangible assets.....                                   | 47.3        | 53        |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP.....             | 115.2       | 11        |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....          | 1.5         | 23        |
| 7.1.3    | ICTs & business model creation†.....                     | 54.7        | 74        |
| 7.1.4    | ICTs & organizational model creation†.....               | 52.5        | 70        |
| 7.2      | Creative goods & services.....                           | 43.5        | 11 ●      |
| 7.2.1    | Cultural & creative services exports, % total trade..... | 0.1         | 48        |
| 7.2.2    | National feature films/mn pop. 15–69.....                | 5.6         | 25        |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....            | 0.6         | 26        |
| 7.2.4    | Printing & publishing manufactures, %.....               | 0.0         | 31        |
| 7.2.5    | Creative goods exports, % total trade.....               | 11.3        | 2 ●       |
| 7.3      | Online creativity.....                                   | 51.2        | 24        |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....      | 15.1        | 35        |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                     | 66.5        | 15        |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                          | 21,838.6    | 19        |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                 | 86.2        | 18        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 5.6         |
| GDP (US\$ billions) .....   | 331.0       |
| GDP per capita, PPP\$ ..... | 37,900.5    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>57.5</b>                           | <b>8</b>   |
| Innovation Output Sub-Index .....                             | 49.5                                  | 12         |
| Innovation Input Sub-Index.....                               | 65.5                                  | 9          |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 61         |
| Global Innovation Index 2013 (out of 142) .....               | 58.3                                  | 9          |
| <b>1 Institutions.....</b>                                    | <b>93.6</b>                           | <b>4 ●</b> |
| 1.1 Political environment.....                                | 91.4                                  | 8          |
| 1.1.1 Political stability*.....                               | 87.8                                  | 27         |
| 1.1.2 Government effectiveness*.....                          | 93.3                                  | 3 ●        |
| 1.1.3 Press freedom*.....                                     | 92.9                                  | 5 ●        |
| 1.2 Regulatory environment .....                              | 98.2                                  | 3 ●        |
| 1.2.1 Regulatory quality* .....                               | 95.7                                  | 6 ●        |
| 1.2.2 Rule of law*.....                                       | 97.3                                  | 5 ●        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.0                                   | 1 ●        |
| 1.3 Business environment.....                                 | 91.3                                  | 6 ●        |
| 1.3.1 Ease of starting a business*.....                       | 92.4                                  | 23         |
| 1.3.2 Ease of resolving insolvency*.....                      | 92.1                                  | 10         |
| 1.3.3 Ease of paying taxes*.....                              | 89.5                                  | 11         |
| <b>2 Human capital &amp; research.....</b>                    | <b>61.5</b>                           | <b>9</b>   |
| 2.1 Education .....   | 60.8                                  | 7          |
| 2.1.1 Expenditure on education, % GDP.....                    | 8.7                                   | 3 ●        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 33.0                                  | 16         |
| 2.1.3 School life expectancy, years.....                      | 16.9                                  | 10         |
| 2.1.4 PISA scales in reading, maths, & science.....           | 498.2                                 | 22         |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a        |
| 2.2 Tertiary education.....                                   | 45.4                                  | 33         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 73.6                                  | 19         |
| 2.2.2 Graduates in science & engineering, % .....             | 20.2                                  | 55 ○       |
| 2.2.3 Tertiary inbound mobility, %.....                       | 7.5                                   | 23         |
| 2.3 Research & development (R&D).....                         | 78.2                                  | 4 ●        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 10,182.8                              | 3 ●        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 3.0                                   | 6          |
| 2.3.3 QS university ranking, average score top 3*.....        | 70.9                                  | 13         |
| <b>3 Infrastructure.....</b>                                  | <b>59.1</b>                           | <b>9</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 76.0                                  | 13         |
| 3.1.1 ICT access*.....  | 81.8                                  | 12         |
| 3.1.2 ICT use*.....   | 81.5                                  | 3 ●        |
| 3.1.3 Government's online service*.....                       | 85.6                                  | 13         |
| 3.1.4 E-participation*.....                                   | 55.3                                  | 28         |
| 3.2 General infrastructure.....                               | 39.5                                  | 46         |
| 3.2.1 Electricity output, kWh/cap.....                        | 5,438.8                               | 38         |
| 3.2.2 Logistics performance*.....                             | 95.6                                  | 5          |
| 3.2.3 Gross capital formation, % GDP.....                     | 17.4                                  | 114 ○      |
| 3.3 Ecological sustainability.....                            | 61.7                                  | 6 ●        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 10.6                                  | 13         |
| 3.3.2 Environmental performance*.....                         | 76.9                                  | 13         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 8.4                                   | 14         |
| <b>4 Market sophistication .....</b>                          | <b>67.8</b>                           | <b>11</b>  |
| 4.1 Credit.....   | 74.4                                  | 5 ●        |
| 4.1.1 Ease of getting credit*.....                            | 81.3                                  | 27         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 205.8                                 | 2 ●        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |      |      |
|---|------|------|
| 4.2 Investment .....                                      | 51.3 | 27   |
| 4.2.1 Ease of protecting investors*.....                  | 63.3 | 32   |
| 4.2.2 Market capitalization, % GDP.....                   | 71.6 | 24   |
| 4.2.3 Total value of stocks traded, % GDP.....            | 33.6 | 27   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | 0.2  | 13   |
| 4.3 Trade & competition .....                             | 77.6 | 45   |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 1.1  | 10   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 3.3  | 97 ○ |
| 4.3.3 Intensity of local competition†.....                | 74.7 | 25   |

|   |             |           |
|---|-------------|-----------|
| <b>5 Business sophistication .....</b>                          | <b>45.6</b> | <b>22</b> |
| 5.1 Knowledge workers.....                                      | 68.8        | 11        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 45.2        | 9         |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a       |
| 5.1.3 GERD performed by business, % GDP.....                    | 2.0         | 8         |
| 5.1.4 GERD performed by business, %.....                        | 65.7        | 16        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 106.3       | 50        |
| 5.2 Innovation linkages .....                                   | 41.6        | 38        |
| 5.2.1 University/industry research collaboration†.....          | 63.5        | 21        |
| 5.2.2 State of cluster development† .....                       | 55.0        | 32        |
| 5.2.3 GERD financed by abroad, %.....                           | 7.2         | 53 ○      |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.1         | 23        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 1.2         | 15        |
| 5.3 Knowledge absorption.....                                   | 26.5        | 62        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.1         | 23        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.8         | 70 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.7         | 21        |
| 5.3.4 FDI net inflows, % GDP.....                               | 0.4         | 128 ○     |

|   |             |           |
|---|-------------|-----------|
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>46.6</b> | <b>14</b> |
| 6.1 Knowledge creation.....                                     | 46.7        | 20        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 6.8         | 17        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 6.8         | 7         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.8         | 36 ○      |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 67.1        | 3 ●       |
| 6.1.5 Citable documents H index.....                            | 427.0       | 14        |
| 6.2 Knowledge impact.....                                       | 49.7        | 28        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.4         | 79 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 4.4         | 26        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.6         | 14        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 13.3        | 36        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 44.8        | 14        |
| 6.3 Knowledge diffusion.....                                    | 43.6        | 25        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 1.5         | 13        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 6.1         | 27        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.6         | 58        |
| 6.3.4 FDI net outflows, % GDP .....                             | 1.7         | 38        |

|  |             |           |
|--|-------------|-----------|
| <b>7 Creative outputs .....</b>                                | <b>52.4</b> | <b>13</b> |
| 7.1 Intangible assets.....                                     | 50.6        | 38        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 55.9        | 49 ○      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | 2.9         | 8         |
| 7.1.3 ICTs & business model creation†.....                     | 65.8        | 32        |
| 7.1.4 ICTs & organizational model creation†.....               | 63.7        | 26        |
| 7.2 Creative goods & services.....                             | 42.2        | 13        |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.6         | 18        |
| 7.2.2 National feature films/mn pop. 15–69.....                | 10.9        | 11        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | 2.0         | 7         |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0         | 44 ○      |
| 7.2.5 Creative goods exports, % total trade.....               | 1.7         | 32        |
| 7.3 Online creativity.....                                     | 66.1        | 12        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 58.7        | 17        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 77.6        | 3 ●       |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 21,687.3    | 21        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | 91.1        | 9         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



# Dominican Republic

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 10.3                            |
| GDP (US\$ billions) .....   | 60.8                            |
| GDP per capita, PPP\$ ..... | 9,910.5                         |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>32.3</b>                           | <b>83</b>    |
| Innovation Output Sub-Index .....                             | 29.6                                  | 71           |
| Innovation Input Sub-Index .....                              | 34.9                                  | 101          |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 21 ●         |
| Global Innovation Index 2013 (out of 142) .....               | 33.3                                  | 79           |
| <b>1 Institutions.....</b>                                    | <b>53.4</b>                           | <b>99</b>    |
| 1.1 Political environment.....                                | 56.4                                  | 74           |
| 1.1.1 Political stability*.....                               | 71.4                                  | 57 ●         |
| 1.1.2 Government effectiveness*.....                          | 26.2                                  | 104          |
| 1.1.3 Press freedom*.....                                     | 71.7                                  | 66           |
| 1.2 Regulatory environment .....                              | 49.8                                  | 116          |
| 1.2.1 Regulatory quality* .....                               | 45.1                                  | 85           |
| 1.2.2 Rule of law*.....                                       | 27.0                                  | 105          |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 26.2                                  | 116          |
| 1.3 Business environment.....                                 | 53.9                                  | 107          |
| 1.3.1 Ease of starting a business*.....                       | 81.0                                  | 85           |
| 1.3.2 Ease of resolving insolvency*.....                      | 9.3                                   | 135 ○        |
| 1.3.3 Ease of paying taxes*.....                              | 71.3                                  | 60           |
| <b>2 Human capital &amp; research.....</b>                    | <b>7.1</b>                            | <b>142</b> ○ |
| 2.1 Education .....   | 14.2                                  | 137 ○        |
| 2.1.1 Expenditure on education, % GDP .....                   | 2.2                                   | 127 ○        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 8.5                                   | 102 ○        |
| 2.1.3 School life expectancy, years.....                      | n/a                                   | n/a          |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 29.2                                  | 101 ○        |
| 2.2 Tertiary education.....                                   | n/a                                   | n/a          |
| 2.2.1 Tertiary enrolment, % gross.....                        | n/a                                   | n/a          |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a          |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a          |
| 2.3 Research & development (R&D).....                         | 0.0                                   | 131 ○        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | n/a                                   | n/a          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a          |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○         |
| <b>3 Infrastructure.....</b>                                  | <b>34.0</b>                           | <b>80</b>    |
| 3.1 Information & communication technologies (ICTs).....      | 39.3                                  | 66           |
| 3.1.1 ICT access*.....  | 33.5                                  | 97           |
| 3.1.2 ICT use*.....   | 22.7                                  | 74           |
| 3.1.3 Government's online service*.....                       | 53.6                                  | 56           |
| 3.1.4 E-participation*.....                                   | 47.4                                  | 34 ●         |
| 3.2 General infrastructure.....                               | 19.1                                  | 132 ○        |
| 3.2.1 Electricity output, kWh/cap.....                        | 1,289.8                               | 90           |
| 3.2.2 Logistics performance*.....                             | 43.3                                  | 86           |
| 3.2.3 Gross capital formation, % GDP.....                     | 15.3                                  | 126 ○        |
| 3.3 Ecological sustainability.....                            | 43.6                                  | 47 ●         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 11.8                                  | 8 ●          |
| 3.3.2 Environmental performance*.....                         | 53.2                                  | 68           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.3                                   | 95           |
| <b>4 Market sophistication .....</b>                          | <b>50.4</b>                           | <b>55</b> ●  |
| 4.1 Credit.....   | 25.6                                  | 108          |
| 4.1.1 Ease of getting credit*.....                            | 56.3                                  | 81           |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 23.1                                  | 113          |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 1.1                                   | 35 ●         |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 50.0        | 30 ●        |
| 4.2.1 Ease of protecting investors*.....                        | 50.0        | 81          |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a         |
| 4.3 Trade & competition .....                                   | 75.6        | 71          |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 6.1         | 96          |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.6         | 57 ●        |
| 4.3.3 Intensity of local competition†.....                      | 65.3        | 72          |
| <b>5 Business sophistication .....</b>                          | <b>29.9</b> | <b>82</b>   |
| 5.1 Knowledge workers.....                                      | 44.4        | 53 ●        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 17.3        | 80          |
| 5.1.2 Firms offering formal training, % firms.....              | 55.9        | 15 ●        |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a         |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 26.6        | 101         |
| 5.2 Innovation linkages .....                                   | 26.2        | 96          |
| 5.2.1 University/industry research collaboration†.....          | 38.5        | 88          |
| 5.2.2 State of cluster development†.....                        | 43.5        | 82          |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 99 ○        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 83          |
| 5.3 Knowledge absorption.....                                   | 19.0        | 109         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.4         | 61          |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.0         | 85          |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.5         | 97          |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.1         | 52 ●        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>22.8</b> | <b>95</b>   |
| 6.1 Knowledge creation.....                                     | 1.7         | 141 ○       |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.2         | 90          |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 95 ○        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 0.7         | 140 ○       |
| 6.1.5 Citable documents H index.....                            | 41.0        | 120 ○       |
| 6.2 Knowledge impact.....                                       | 35.9        | 77          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.1         | 53          |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.0         | 59          |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.9         | 100         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a         |
| 6.3 Knowledge diffusion.....                                    | 30.8        | 74          |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.8         | 74          |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.4         | 67          |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.5         | 65          |
| <b>7 Creative outputs .....</b>                                 | <b>36.4</b> | <b>53</b> ● |
| 7.1 Intangible assets.....                                      | 59.3        | 10 ●        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a         |
| 7.1.3 ICTs & business model creation†.....                      | 59.7        | 55 ●        |
| 7.1.4 ICTs & organizational model creation†.....                | 59.0        | 41 ●        |
| 7.2 Creative goods & services.....                              | 18.2        | 67          |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.9         | 72          |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a         |
| 7.2.5 Creative goods exports, % total trade.....                | 1.0         | 39 ●        |
| 7.3 Online creativity.....                                      | 8.9         | 96          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 3.1         | 73          |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 20.6        | 77          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 1,760.0     | 84          |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 15.5                            |
| GDP (US\$ billions) .....   | 94.1                            |
| GDP per capita, PPP\$ ..... | 10,080.2                        |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>27.5</b>                           | <b>115</b> |
| Innovation Output Sub-Index .....                | 21.3                                  | 113        |
| Innovation Input Sub-Index.....                  | 33.7                                  | 105        |
| Innovation Efficiency Ratio.....                 | 0.6                                   | 104        |
| Global Innovation Index 2013 (out of 142) .....  | 32.8                                  | 83         |

|          |  |             |            |   |
|----------|--|-------------|------------|---|
| <b>1</b> | <b>Institutions.....</b>                               | <b>43.6</b> | <b>130</b> | ○ |
| 1.1      | Political environment.....                             | 47.8        | 97         |   |
| 1.1.1    | Political stability*.....                              | 50.9        | 103        |   |
| 1.1.2    | Government effectiveness*.....                         | 27.2        | 99         |   |
| 1.1.3    | Press freedom*.....                                    | 65.3        | 98         |   |
| 1.2      | Regulatory environment.....                            | 35.2        | 136        | ○ |
| 1.2.1    | Regulatory quality*.....                               | 21.7        | 133        | ○ |
| 1.2.2    | Rule of law*.....                                      | 14.5        | 132        | ○ |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 31.8        | 133        | ○ |
| 1.3      | Business environment.....                              | 47.9        | 125        |   |
| 1.3.1    | Ease of starting a business*.....                      | 63.3        | 128        | ○ |
| 1.3.2    | Ease of resolving insolvency*.....                     | 18.9        | 122        |   |
| 1.3.3    | Ease of paying taxes*.....                             | 61.6        | 98         |   |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>21.6</b> | <b>98</b>  |   |
| 2.1      | Education.....   | 36.1        | 93         |   |
| 2.1.1    | Expenditure on education, % GDP.....                   | 4.4         | 78         |   |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 17.6        | 68         |   |
| 2.1.3    | School life expectancy, years.....                     | n/a         | n/a        |   |
| 2.1.4    | PISA scales in reading, maths, & science.....          | n/a         | n/a        |   |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 11.5        | 35         | ● |
| 2.2      | Tertiary education.....                                | 26.4        | 87         |   |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 38.9        | 67         |   |
| 2.2.2    | Graduates in science & engineering, %.....             | 12.8        | 92         |   |
| 2.2.3    | Tertiary inbound mobility, %.....                      | n/a         | n/a        |   |
| 2.3      | Research & development (R&D).....                      | 2.2         | 104        |   |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 180.7       | 90         |   |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 0.2         | 83         |   |
| 2.3.3    | QS university ranking, average score top 3*.....       | 0.0         | 70         | ○ |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>35.9</b> | <b>74</b>  |   |
| 3.1      | Information & communication technologies (ICTs).....   | 33.8        | 80         |   |
| 3.1.1    | ICT access*.....                                       | 43.4        | 76         |   |
| 3.1.2    | ICT use*.....  | 22.2        | 78         |   |
| 3.1.3    | Government's online service*.....                      | 45.8        | 82         |   |
| 3.1.4    | E-participation*.....                                  | 23.7        | 60         |   |
| 3.2      | General infrastructure.....                            | 33.4        | 70         |   |
| 3.2.1    | Electricity output, kWh/cap.....                       | 1,381.5     | 85         |   |
| 3.2.2    | Logistics performance*.....                            | 45.6        | 80         |   |
| 3.2.3    | Gross capital formation, % GDP.....                    | 28.2        | 28         | ● |
| 3.3      | Ecological sustainability.....                         | 40.7        | 54         |   |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 8.7         | 30         | ● |
| 3.3.2    | Environmental performance*.....                        | 58.5        | 51         |   |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 1.0         | 64         |   |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>43.7</b> | <b>103</b> |   |
| 4.1      | Credit.....  | 35.2        | 70         |   |
| 4.1.1    | Ease of getting credit*.....                           | 56.3        | 81         |   |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 28.3        | 102        |   |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | 3.3         | 16         | ● |

|       |   |      |     |   |
|-------|---|------|-----|---|
| 4.2   | Investment.....                                     | 21.0 | 137 | ○ |
| 4.2.1 | Ease of protecting investors*.....                  | 40.0 | 113 |   |
| 4.2.2 | Market capitalization, % GDP.....                   | 7.0  | 95  |   |
| 4.2.3 | Total value of stocks traded, % GDP.....            | 0.2  | 96  |   |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a |   |
| 4.3   | Trade & competition.....                            | 74.7 | 80  |   |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 4.1  | 73  |   |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 0.3  | 40  | ● |
| 4.3.3 | Intensity of local competition <sup>†</sup> .....   | 58.2 | 106 |   |

**5 Business sophistication.....23.8 120**

|       |   |      |     |   |
|-------|---|------|-----|---|
| 5.1   | Knowledge workers.....  | 33.1 | 88  |   |
| 5.1.1 | Knowledge-intensive employment, %.....                        | 14.7 | 94  |   |
| 5.1.2 | Firms offering formal training, % firms.....                  | 56.4 | 14  | ● |
| 5.1.3 | GERD performed by business, % GDP.....                        | 0.0  | 76  |   |
| 5.1.4 | GERD performed by business, %.....                            | 8.5  | 77  | ○ |
| 5.1.5 | GMAT test takers/mn pop. 20–34.....                           | 41.4 | 79  |   |
| 5.2   | Innovation linkages.....                                      | 22.0 | 120 |   |
| 5.2.1 | University/industry research collaboration <sup>†</sup> ..... | 49.0 | 48  | ● |
| 5.2.2 | State of cluster development <sup>†</sup> .....               | 47.5 | 66  |   |
| 5.2.3 | GERD financed by abroad, %.....                               | 0.5  | 88  | ○ |
| 5.2.4 | JV–strategic alliance deals/tr PPP\$ GDP.....                 | 0.0  | 86  |   |
| 5.2.5 | Patent families filed in 3+ offices/bn PPP\$ GDP.....         | 0.0  | 75  |   |
| 5.3   | Knowledge absorption.....                                     | 16.3 | 120 |   |
| 5.3.1 | Royalty & license fees payments, % total trade.....           | 0.3  | 66  |   |
| 5.3.2 | High-tech imports less re-imports, %.....                     | 9.1  | 42  | ● |
| 5.3.3 | Comm., computer & info. services imp., % total trade.....     | 0.1  | 135 | ○ |
| 5.3.4 | FDI net inflows, % GDP.....                                   | 0.8  | 118 |   |

**6 Knowledge & technology outputs.....14.4 130**

|       |   |      |     |   |
|-------|---|------|-----|---|
| 6.1   | Knowledge creation.....                                   | 4.0  | 125 |   |
| 6.1.1 | Domestic resident patent app/tr PPP\$ GDP.....            | 0.0  | 108 | ○ |
| 6.1.2 | PCT resident patent app/tr PPP\$ GDP.....                 | 0.3  | 54  |   |
| 6.1.3 | Domestic res utility model app/tr PPP\$ GDP.....          | 0.1  | 53  |   |
| 6.1.4 | Scientific & technical articles/bn PPP\$ GDP.....         | 2.7  | 128 | ○ |
| 6.1.5 | Citable documents H index.....                            | 83.0 | 76  |   |
| 6.2   | Knowledge impact.....                                     | 34.8 | 84  |   |
| 6.2.1 | Growth rate of PPP\$ GDP/worker, %.....                   | 1.9  | 56  |   |
| 6.2.2 | New businesses/th pop. 15–64.....                         | n/a  | n/a |   |
| 6.2.3 | Computer software spending, % GDP.....                    | 0.2  | 70  | ○ |
| 6.2.4 | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 6.3  | 58  |   |
| 6.2.5 | High- & medium-high-tech manufactures, %.....             | 14.0 | 66  |   |
| 6.3   | Knowledge diffusion.....                                  | 4.6  | 136 | ○ |
| 6.3.1 | Royalty & license fees receipts, % total trade.....       | n/a  | n/a |   |
| 6.3.2 | High-tech exports less re-exports, %.....                 | 0.2  | 95  |   |
| 6.3.3 | Comm., computer & info. services exp., % total trade..... | 0.5  | 101 |   |
| 6.3.4 | FDI net outflows, % GDP.....                              | n/a  | n/a |   |

**7 Creative outputs.....28.1 86**

|       |  |         |     |   |
|-------|--|---------|-----|---|
| 7.1   | Intangible assets.....                                   | 44.8    | 70  |   |
| 7.1.1 | Domestic res trademark app/bn PPP\$ GDP.....             | 68.8    | 36  | ● |
| 7.1.2 | Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a     | n/a |   |
| 7.1.3 | ICTs & business model creation <sup>†</sup> .....        | 53.7    | 80  |   |
| 7.1.4 | ICTs & organizational model creation <sup>†</sup> .....  | 54.0    | 64  |   |
| 7.2   | Creative goods & services.....                           | 14.1    | 83  |   |
| 7.2.1 | Cultural & creative services exports, % total trade..... | 0.4     | 27  | ● |
| 7.2.2 | National feature films/mn pop. 15–69.....                | n/a     | n/a |   |
| 7.2.3 | Global ent. & media output/th pop. 15–69.....            | n/a     | n/a |   |
| 7.2.4 | Printing & publishing manufactures, %.....               | 0.0     | 55  |   |
| 7.2.5 | Creative goods exports, % total trade.....               | 0.1     | 99  |   |
| 7.3   | Online creativity.....                                   | 8.7     | 97  |   |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69.....      | 1.9     | 94  |   |
| 7.3.2 | Country-code TLDs/th pop. 15–69.....                     | 19.9    | 81  |   |
| 7.3.3 | Wikipedia edits/pop. 15–69.....                          | 2,516.4 | 72  |   |
| 7.3.4 | Video uploads on YouTube/pop. 15–69.....                 | n/a     | n/a |   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 80.7                             |
| GDP (US\$ billions) .....   | 271.4                            |
| GDP per capita, PPP\$ ..... | 6,578.5                          |
| Income group .....          | Lower-middle income              |
| Region .....                | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>30.0</b>                           | <b>99</b>    |
| Innovation Output Sub-Index .....                            | 26.0                                  | 89           |
| Innovation Input Sub-Index.....                              | 34.1                                  | 104          |
| Innovation Efficiency Ratio.....                             | 0.8                                   | 59           |
| Global Innovation Index 2013 (out of 142) .....              | 28.5                                  | 108          |
| <b>1 Institutions.....</b>                                   | <b>42.1</b>                           | <b>133</b> ○ |
| 1.1 Political environment.....                               | 33.7                                  | 136 ○        |
| 1.1.1 Political stability*.....                              | 29.4                                  | 135 ○        |
| 1.1.2 Government effectiveness*.....                         | 20.3                                  | 118          |
| 1.1.3 Press freedom*.....                                    | 51.3                                  | 130 ○        |
| 1.2 Regulatory environment .....                             | 38.5                                  | 131 ○        |
| 1.2.1 Regulatory quality* .....                              | 36.0                                  | 109          |
| 1.2.2 Rule of law*.....                                      | 33.9                                  | 88           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 36.8                                  | 135 ○        |
| 1.3 Business environment.....                                | 54.0                                  | 105          |
| 1.3.1 Ease of starting a business*.....                      | 86.5                                  | 61           |
| 1.3.2 Ease of resolving insolvency*.....                     | 17.9                                  | 125 ○        |
| 1.3.3 Ease of paying taxes*.....                             | 57.6                                  | 110          |
| <b>2 Human capital &amp; research.....</b>                   | <b>27.8</b>                           | <b>75</b>    |
| 2.1 Education .....  | 48.3                                  | 53           |
| 2.1.1 Expenditure on education, % GDP.....                   | 3.8                                   | 93           |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | n/a                                   | n/a          |
| 2.1.3 School life expectancy, years.....                     | 13.1                                  | 71           |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 12.1                                  | 39 ●         |
| 2.2 Tertiary education.....                                  | 19.0                                  | 102          |
| 2.2.1 Tertiary enrolment, % gross.....                       | 28.8                                  | 76           |
| 2.2.2 Graduates in science & engineering, % .....            | n/a                                   | n/a          |
| 2.2.3 Tertiary inbound mobility, %.....                      | 1.9                                   | 62           |
| 2.3 Research & development (R&D).....                        | 16.2                                  | 50           |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 1,146.1                               | 54           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.4                                   | 67           |
| 2.3.3 QS university ranking, average score top 3*.....       | 28.2                                  | 44 ●         |
| <b>3 Infrastructure.....</b>                                 | <b>36.1</b>                           | <b>73</b>    |
| 3.1 Information & communication technologies (ICTs).....     | 48.9                                  | 48 ●         |
| 3.1.1 ICT access*.....                                       | 42.0                                  | 77           |
| 3.1.2 ICT use*.....  | 25.1                                  | 70           |
| 3.1.3 Government's online service*.....                      | 60.1                                  | 42 ●         |
| 3.1.4 E-participation*.....                                  | 68.4                                  | 15 ●         |
| 3.2 General infrastructure.....                              | 23.0                                  | 121          |
| 3.2.1 Electricity output, kWh/cap.....                       | 1,897.1                               | 78           |
| 3.2.2 Logistics performance*.....                            | 54.4                                  | 56           |
| 3.2.3 Gross capital formation, % GDP.....                    | 15.6                                  | 125 ○        |
| 3.3 Ecological sustainability.....                           | 36.5                                  | 65           |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 5.9                                   | 69           |
| 3.3.2 Environmental performance*.....                        | 61.1                                  | 48           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 1.1                                   | 61           |
| <b>4 Market sophistication .....</b>                         | <b>35.4</b>                           | <b>141</b> ○ |
| 4.1 Credit.....  | 21.8                                  | 123          |
| 4.1.1 Ease of getting credit*.....                           | 56.3                                  | 81           |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 29.7                                  | 99           |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.0                                   | 77           |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 18.9        | 138 ○     |
| 4.2.1 Ease of protecting investors*.....                        | 36.7        | 119       |
| 4.2.2 Market capitalization, % GDP.....                         | 22.5        | 65        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 7.8         | 44        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 64 ○      |
| 4.3 Trade & competition .....                                   | 65.4        | 124       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 8.1         | 112       |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 1.1         | 78        |
| 4.3.3 Intensity of local competition†.....                      | 51.0        | 123 ○     |
| <b>5 Business sophistication .....</b>                          | <b>28.9</b> | <b>89</b> |
| 5.1 Knowledge workers.....                                      | 38.8        | 69        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 34.0        | 36 ●      |
| 5.1.2 Firms offering formal training, % firms.....              | 21.7        | 88        |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a       |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 35.2        | 87        |
| 5.2 Innovation linkages .....                                   | 31.3        | 70        |
| 5.2.1 University/industry research collaboration†.....          | 27.5        | 127 ○     |
| 5.2.2 State of cluster development†.....                        | 51.5        | 45 ●      |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.1         | 35 ●      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 99        |
| 5.3 Knowledge absorption.....                                   | 16.6        | 119       |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.4         | 59        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.5         | 77        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.8         | 69        |
| 5.3.4 FDI net inflows, % GDP.....                               | –0.2        | 138 ○     |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>25.4</b> | <b>80</b> |
| 6.1 Knowledge creation.....                                     | 11.5        | 71        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 1.3         | 61        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 81        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 13.6        | 64        |
| 6.1.5 Citable documents H index.....                            | 132.0       | 48 ●      |
| 6.2 Knowledge impact.....                                       | 33.2        | 89        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.0         | 90        |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a       |
| 6.2.3 Computer software spending, % GDP.....                    | 0.2         | 64        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 4.5         | 69        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 21.4        | 52        |
| 6.3 Knowledge diffusion.....                                    | 31.4        | 69        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.3         | 34 ●      |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.1         | 105       |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.7         | 53        |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.1         | 92        |
| <b>7 Creative outputs .....</b>                                 | <b>26.6</b> | <b>97</b> |
| 7.1 Intangible assets.....                                      | 40.1        | 89        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.1         | 62        |
| 7.1.3 ICTs & business model creation†.....                      | 49.0        | 98        |
| 7.1.4 ICTs & organizational model creation†.....                | 50.8        | 75        |
| 7.2 Creative goods & services.....                              | 9.7         | 98        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.3         | 31 ●      |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.5         | 87        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.1         | 52 ○      |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 80        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.5         | 58        |
| 7.3 Online creativity.....                                      | 16.6        | 74        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 1.7         | 98        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 1.4         | 129 ○     |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 1,006.2     | 96        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 61.7        | 50        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 6.3                             |
| GDP (US\$ billions) .....   | 24.5                            |
| GDP per capita, PPP\$ ..... | 7,515.1                         |
| Income group .....          | Lower-middle income             |
| Region .....                | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>29.1</b>                           | <b>103</b> |
| Innovation Output Sub-Index .....                             | 21.7                                  | 110        |
| Innovation Input Sub-Index.....                               | 36.4                                  | 97         |
| Innovation Efficiency Ratio.....                              | 0.6                                   | 116        |
| Global Innovation Index 2013 (out of 142) .....               | 31.3                                  | 88         |
| <b>1 Institutions.....</b>                                    | <b>57.4</b>                           | <b>84</b>  |
| 1.1 Political environment.....                                | 61.7                                  | 57         |
| 1.1.1 Political stability*.....                               | 70.8                                  | 58         |
| 1.1.2 Government effectiveness*.....                          | 37.0                                  | 80         |
| 1.1.3 Press freedom*.....                                     | 77.1                                  | 34 ●       |
| 1.2 Regulatory environment .....                              | 55.8                                  | 102        |
| 1.2.1 Regulatory quality* .....                               | 57.2                                  | 62         |
| 1.2.2 Rule of law*.....                                       | 25.9                                  | 109        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 22.9                                  | 106        |
| 1.3 Business environment.....                                 | 54.6                                  | 102        |
| 1.3.1 Ease of starting a business*.....                       | 78.4                                  | 95         |
| 1.3.2 Ease of resolving insolvency*.....                      | 34.8                                  | 80         |
| 1.3.3 Ease of paying taxes*.....                              | 50.6                                  | 121        |
| <b>2 Human capital &amp; research.....</b>                    | <b>18.5</b>                           | <b>105</b> |
| 2.1 Education .....   | 29.6                                  | 120        |
| 2.1.1 Expenditure on education, % GDP .....                   | 3.4                                   | 103        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 11.3                                  | 92         |
| 2.1.3 School life expectancy, years.....                      | 12.3                                  | 86         |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 24.3                                  | 86         |
| 2.2 Tertiary education.....                                   | 25.5                                  | 89         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 25.5                                  | 83         |
| 2.2.2 Graduates in science & engineering, % .....             | 21.5                                  | 42         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.4                                   | 95         |
| 2.3 Research & development (R&D).....                         | 0.4                                   | 125        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 96.1                                  | 103        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.0                                   | 115 ○      |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>31.3</b>                           | <b>89</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 43.6                                  | 55         |
| 3.1.1 ICT access*.....  | 39.5                                  | 84         |
| 3.1.2 ICT use* .....  | 12.5                                  | 99         |
| 3.1.3 Government's online service*.....                       | 67.3                                  | 32 ●       |
| 3.1.4 E-participation*.....                                   | 55.3                                  | 28 ●       |
| 3.2 General infrastructure.....                               | 16.4                                  | 138 ○      |
| 3.2.1 Electricity output, kWh/cap.....                        | 931.8                                 | 92         |
| 3.2.2 Logistics performance* .....                            | 39.3                                  | 93         |
| 3.2.3 Gross capital formation, % GDP.....                     | 14.0                                  | 133 ○      |
| 3.3 Ecological sustainability.....                            | 33.9                                  | 78         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 8.7                                   | 29 ●       |
| 3.3.2 Environmental performance*.....                         | 43.8                                  | 100        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.3                                   | 98         |
| <b>4 Market sophistication .....</b>                          | <b>43.1</b>                           | <b>106</b> |
| 4.1 Credit.....   | 34.4                                  | 74         |
| 4.1.1 Ease of getting credit* .....                           | 68.8                                  | 53         |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 40.1                                  | 82         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 1.8                                   | 28 ●       |

|   |      |       |
|---|------|-------|
| 4.2 Investment .....                                      | 21.6 | 134 ○ |
| 4.2.1 Ease of protecting investors*.....                  | 30.0 | 133 ○ |
| 4.2.2 Market capitalization, % GDP.....                   | 45.2 | 43    |
| 4.2.3 Total value of stocks traded, % GDP.....            | 0.2  | 89    |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3 Trade & competition .....                             | 73.3 | 88    |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 5.5  | 87    |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.5  | 54    |
| 4.3.3 Intensity of local competition†.....                | 59.2 | 100   |

**5 Business sophistication .....** **31.8** **71**

|   |      |      |
|---|------|------|
| 5.1 Knowledge workers.....                                      | 42.9 | 57   |
| 5.1.1 Knowledge-intensive employment, %.....                    | 11.9 | 96   |
| 5.1.2 Firms offering formal training, % firms.....              | 60.4 | 9 ●  |
| 5.1.3 GERD performed by business, % GDP .....                   | n/a  | n/a  |
| 5.1.4 GERD performed by business, %.....                        | n/a  | n/a  |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 25.7 | 103  |
| 5.2 Innovation linkages .....                                   | 31.9 | 69   |
| 5.2.1 University/industry research collaboration†.....          | 37.5 | 94   |
| 5.2.2 State of cluster development† .....                       | 51.2 | 48 ● |
| 5.2.3 GERD financed by abroad, %.....                           | 18.1 | 22 ● |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | n/a  | n/a  |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0  | 74   |
| 5.3 Knowledge absorption.....                                   | 20.8 | 97   |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.5  | 51   |
| 5.3.2 High-tech imports less re-imports, %.....                 | 8.9  | 45 ● |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.6  | 83   |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.1  | 113  |

**6 Knowledge & technology outputs .....** **13.6** **134** ○

|   |      |       |
|---|------|-------|
| 6.1 Knowledge creation.....                                     | 1.3  | 142 ○ |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a  | n/a   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0  | 105 ○ |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a  | n/a   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 0.7  | 139 ○ |
| 6.1.5 Citable documents H index.....                            | 31.0 | 132 ○ |
| 6.2 Knowledge impact.....                                       | 6.2  | 130 ○ |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a  | n/a   |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.5  | 78    |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 4.1  | 73    |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a  | n/a   |
| 6.3 Knowledge diffusion.....                                    | 33.4 | 56    |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1  | 46    |
| 6.3.2 High-tech exports less re-exports, %.....                 | 2.5  | 48    |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.4  | 29 ●  |
| 6.3.4 FDI net outflows, % GDP .....                             | -0.2 | 114 ○ |

**7 Creative outputs .....** **29.8** **78**

|  |         |       |
|--|---------|-------|
| 7.1 Intangible assets.....                                     | 51.3    | 36 ●  |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | n/a     | n/a   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a     | n/a   |
| 7.1.3 ICTs & business model creation†.....                     | 51.8    | 85    |
| 7.1.4 ICTs & organizational model creation†.....               | 50.7    | 76    |
| 7.2 Creative goods & services.....                             | 10.3    | 94    |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.0     | 102 ○ |
| 7.2.2 National feature films/mn pop. 15–69.....                | 0.3     | 94 ○  |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a     | n/a   |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a     | n/a   |
| 7.2.5 Creative goods exports, % total trade.....               | 0.7     | 46    |
| 7.3 Online creativity .....                                    | 6.5     | 102   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 2.6     | 82    |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 13.6    | 91    |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 2,044.0 | 81    |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | n/a     | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 1.3         |
| GDP (US\$ billions) .....   | 24.5        |
| GDP per capita, PPP\$ ..... | 23,144.0    |
| Income group .....          | High income |
| Region .....                | Europe      |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>51.5</b>                           | <b>24</b> |
| Innovation Output Sub-Index .....                | 46.3                                  | 19        |
| Innovation Input Sub-Index .....                 | 56.8                                  | 23        |
| Innovation Efficiency Ratio .....                | 0.8                                   | 34        |
| Global Innovation Index 2013 (out of 142) .....  | 50.6                                  | 25        |

## 1 Institutions.....78.6 24

|   |      |     |
|---|------|-----|
| 1.1 Political environment.....                        | 79.2 | 26  |
| 1.1.1 Political stability*.....                       | 80.4 | 42  |
| 1.1.2 Government effectiveness*.....                  | 66.5 | 33  |
| 1.1.3 Press freedom*.....                             | 90.7 | 9 ● |
| 1.2 Regulatory environment .....                      | 85.8 | 23  |
| 1.2.1 Regulatory quality* .....                       | 85.5 | 18  |
| 1.2.2 Rule of law*.....                               | 77.4 | 24  |
| 1.2.3 Cost of redundancy dismissal, salary weeks..... | 12.9 | 54  |
| 1.3 Business environment.....                         | 70.7 | 46  |
| 1.3.1 Ease of starting a business*.....               | 90.4 | 37  |
| 1.3.2 Ease of resolving insolvency*.....              | 41.2 | 58  |
| 1.3.3 Ease of paying taxes*.....                      | 80.7 | 31  |

## 2 Human capital & research.....46.3 28

|  |         |      |
|--|---------|------|
| 2.1 Education .....                                      | 59.2    | 8 ●  |
| 2.1.1 Expenditure on education, % GDP .....              | 5.7     | 38   |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap..... | 31.9    | 17   |
| 2.1.3 School life expectancy, years.....                 | 16.5    | 15   |
| 2.1.4 PISA scales in reading, maths, & science.....      | 526.1   | 7    |
| 2.1.5 Pupil-teacher ratio, secondary .....               | 8.8     | 13   |
| 2.2 Tertiary education.....                              | 38.1    | 54   |
| 2.2.1 Tertiary enrolment, % gross.....                   | 71.7    | 23   |
| 2.2.2 Graduates in science & engineering, % .....        | 20.6    | 50   |
| 2.2.3 Tertiary inbound mobility, %.....                  | 1.8     | 65 ○ |
| 2.3 Research & development (R&D).....                    | 41.7    | 27   |
| 2.3.1 Researchers, headcounts/mn pop.....                | 5,906.5 | 17   |
| 2.3.2 Gross expenditure on R&D, % GDP.....               | 2.2     | 17   |
| 2.3.3 QS university ranking, average score top 3*.....   | 20.0    | 51   |

## 3 Infrastructure.....57.4 15

|   |         |      |
|---|---------|------|
| 3.1 Information & communication technologies (ICTs).....      | 74.1    | 16   |
| 3.1.1 ICT access*.....  | 72.7    | 26   |
| 3.1.2 ICT use*.....   | 65.2    | 18   |
| 3.1.3 Government's online service*.....                       | 82.4    | 18   |
| 3.1.4 E-participation*.....                                   | 76.3    | 8 ●  |
| 3.2 General infrastructure.....                               | 42.4    | 34   |
| 3.2.1 Electricity output, kWh/cap.....                        | 8,929.9 | 15   |
| 3.2.2 Logistics performance*.....                             | 49.6    | 65   |
| 3.2.3 Gross capital formation, % GDP.....                     | 27.0    | 35   |
| 3.3 Ecological sustainability.....                            | 55.7    | 11 ● |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 4.4     | 92 ○ |
| 3.3.2 Environmental performance*.....                         | 74.7    | 20   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 13.5    | 5 ●  |

## 4 Market sophistication.....55.4 36

|   |      |     |
|---|------|-----|
| 4.1 Credit.....                                     | 50.0 | 34  |
| 4.1.1 Ease of getting credit*.....                  | 75.0 | 40  |
| 4.1.2 Domestic credit to private sector, % GDP..... | 79.3 | 40  |
| 4.1.3 Microfinance gross loans, % GDP .....         | n/a  | n/a |

|  |      |      |
|--|------|------|
| 4.2 Investment .....                           | 37.6 | 58   |
| 4.2.1 Ease of protecting investors*.....       | 56.7 | 55   |
| 4.2.2 Market capitalization, % GDP.....        | 10.7 | 88 ○ |
| 4.2.3 Total value of stocks traded, % GDP..... | 0.8  | 71 ○ |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....  | 0.3  | 12   |

|   |      |      |
|---|------|------|
| 4.3 Trade & competition .....                             | 78.5 | 36   |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 1.1  | 10   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 3.3  | 97 ○ |
| 4.3.3 Intensity of local competition†.....                | 76.5 | 20   |

## 5 Business sophistication.....46.3 19

|  |       |      |
|--|-------|------|
| 5.1 Knowledge workers.....                         | 68.6  | 12 ● |
| 5.1.1 Knowledge-intensive employment, %.....       | 41.8  | 20   |
| 5.1.2 Firms offering formal training, % firms..... | 69.3  | 5 ●  |
| 5.1.3 GERD performed by business, % GDP.....       | 1.3   | 18   |
| 5.1.4 GERD performed by business, %.....           | 57.4  | 25   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....          | 144.7 | 38   |

## 5.2 Innovation linkages.....31.9 68

|  |      |      |
|--|------|------|
| 5.2.1 University/industry research collaboration†.....       | 56.5 | 35   |
| 5.2.2 State of cluster development†.....                     | 44.7 | 76 ○ |
| 5.2.3 GERD financed by abroad, %.....                        | 10.0 | 42   |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....         | 0.0  | 69 ○ |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP ..... | 0.5  | 25   |

## 5.3 Knowledge absorption.....38.5 20

|   |      |      |
|---|------|------|
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.3  | 71 ○ |
| 5.3.2 High-tech imports less re-imports, %.....                 | 12.0 | 22   |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.7  | 23   |
| 5.3.4 FDI net inflows, % GDP.....                               | 7.4  | 24   |

## 6 Knowledge & technology outputs.....39.1 29

|   |       |      |
|---|-------|------|
| 6.1 Knowledge creation.....                             | 29.8  | 34   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....    | 0.7   | 73 ○ |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....         | 1.2   | 31   |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....  | 2.2   | 15   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP..... | 53.1  | 9 ●  |
| 6.1.5 Citable documents H index.....                    | 130.0 | 50   |

## 6.2 Knowledge impact.....49.1 30

|   |      |      |
|---|------|------|
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....         | 2.0  | 55   |
| 6.2.2 New businesses/th pop. 15–64.....               | 0.0  | 92 ○ |
| 6.2.3 Computer software spending, % GDP.....          | n/a  | n/a  |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP..... | 30.3 | 14 ● |
| 6.2.5 High- & medium-high-tech manufactures, %.....   | 31.4 | 34   |

## 6.3 Knowledge diffusion.....38.5 36

|   |      |    |
|---|------|----|
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1  | 62 |
| 6.3.2 High-tech exports less re-exports, %.....                 | 11.1 | 20 |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.3  | 32 |
| 6.3.4 FDI net outflows, % GDP.....                              | 4.9  | 14 |

## 7 Creative outputs.....53.4 11 ●

|   |      |      |
|---|------|------|
| 7.1 Intangible assets.....                            | 58.5 | 12 ● |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....    | 81.1 | 27   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP..... | 2.7  | 10   |
| 7.1.3 ICTs & business model creation†.....            | 74.8 | 9 ●  |
| 7.1.4 ICTs & organizational model creation†.....      | 74.3 | 3 ●  |

## 7.2 Creative goods & services.....38.8 21

|  |      |      |
|--|------|------|
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.1  | 59 ○ |
| 7.2.2 National feature films/mn pop. 15–69.....                | 14.0 | 7 ●  |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a  | n/a  |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0  | 22   |
| 7.2.5 Creative goods exports, % total trade.....               | 1.3  | 36   |

## 7.3 Online creativity.....57.9 21

|   |          |     |
|---|----------|-----|
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69..... | 14.3     | 37  |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                | 59.2     | 21  |
| 7.3.3 Wikipedia edits/pop. 15–69.....                     | 58,894.5 | 1 ● |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....           | n/a      | n/a |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 91.7               |
| GDP (US\$ billions) .....   | 48.1               |
| GDP per capita, PPP\$ ..... | 1,366.0            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>25.4</b>                           | <b>126</b> |
| Innovation Output Sub-Index .....                             | 20.4                                  | 118        |
| Innovation Input Sub-Index.....                               | 30.4                                  | 128        |
| Innovation Efficiency Ratio.....                              | 0.7                                   | 97         |
| Global Innovation Index 2013 (out of 142) .....               | 24.8                                  | 129        |
| <b>1 Institutions.....</b>                                    | <b>48.7</b>                           | <b>113</b> |
| 1.1 Political environment.....                                | 39.2                                  | 126        |
| 1.1.1 Political stability*.....                               | 28.1                                  | 136        |
| 1.1.2 Government effectiveness*.....                          | 29.2                                  | 93         |
| 1.1.3 Press freedom*.....                                     | 60.4                                  | 112        |
| 1.2 Regulatory environment .....                              | 51.1                                  | 112        |
| 1.2.1 Regulatory quality* .....                               | 21.0                                  | 134        |
| 1.2.2 Rule of law*.....                                       | 28.3                                  | 102        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 19.1                                  | 90         |
| 1.3 Business environment.....                                 | 55.7                                  | 97         |
| 1.3.1 Ease of starting a business*.....                       | 61.4                                  | 130        |
| 1.3.2 Ease of resolving insolvency*.....                      | 39.1                                  | 67 ●       |
| 1.3.3 Ease of paying taxes*.....                              | 66.5                                  | 84         |
| <b>2 Human capital &amp; research.....</b>                    | <b>11.4</b>                           | <b>137</b> |
| 2.1 Education .....   | 14.8                                  | 136        |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.7                                   | 68         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 10.4                                  | 95         |
| 2.1.3 School life expectancy, years.....                      | 6.6                                   | 127 ○      |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 39.7                                  | 113 ○      |
| 2.2 Tertiary education.....                                   | 17.3                                  | 106        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 2.8                                   | 131 ○      |
| 2.2.2 Graduates in science & engineering, % .....             | 15.2                                  | 85         |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a        |
| 2.3 Research & development (R&D).....                         | 2.0                                   | 107        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 83.6                                  | 105        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.2                                   | 82         |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>25.2</b>                           | <b>117</b> |
| 3.1 Information & communication technologies (ICTs).....      | 24.6                                  | 101        |
| 3.1.1 ICT access*.....  | 16.4                                  | 133 ○      |
| 3.1.2 ICT use* .....  | 0.7                                   | 131 ○      |
| 3.1.3 Government's online service*.....                       | 47.1                                  | 78         |
| 3.1.4 E-participation*.....                                   | 34.2                                  | 45 ●       |
| 3.2 General infrastructure.....                               | 31.2                                  | 78         |
| 3.2.1 Electricity output, kWh/cap.....                        | 60.9                                  | 122 ○      |
| 3.2.2 Logistics performance*.....                             | 25.0                                  | 133 ○      |
| 3.2.3 Gross capital formation, % GDP.....                     | 32.6                                  | 18 ●       |
| 3.3 Ecological sustainability.....                            | 19.7                                  | 136        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 2.4                                   | 116        |
| 3.3.2 Environmental performance*.....                         | 39.4                                  | 110        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.0                                   | 129 ○      |
| <b>4 Market sophistication .....</b>                          | <b>41.0</b>                           | <b>119</b> |
| 4.1 Credit.....   | 23.6                                  | 114        |
| 4.1.1 Ease of getting credit*.....                            | 50.0                                  | 96         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 17.8                                  | 125        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 1.3                                   | 31 ●       |

|   |      |      |
|---|------|------|
| 4.2 Investment .....                                      | 33.3 | 76   |
| 4.2.1 Ease of protecting investors*.....                  | 33.3 | 125  |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a  |
| 4.2.3 Total value of stocks traded, % GDP.....            | n/a  | n/a  |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a  |
| 4.3 Trade & competition .....                             | 65.9 | 123  |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 10.4 | 127  |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.0  | 22 ● |
| 4.3.3 Intensity of local competition†.....                | 50.5 | 125  |

**5 Business sophistication.....25.6 109**

|   |      |      |
|---|------|------|
| 5.1 Knowledge workers.....                                      | 18.0 | 128  |
| 5.1.1 Knowledge-intensive employment, %.....                    | 15.9 | 87   |
| 5.1.2 Firms offering formal training, % firms.....              | 23.0 | 85   |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.0  | 71   |
| 5.1.4 GERD performed by business, %.....                        | 15.5 | 69   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 3.0  | 136  |
| 5.2 Innovation linkages .....                                   | 32.4 | 67 ● |
| 5.2.1 University/industry research collaboration†.....          | 41.5 | 73   |
| 5.2.2 State of cluster development† .....                       | 34.3 | 117  |
| 5.2.3 GERD financed by abroad, %.....                           | 30.0 | 75 ● |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0  | 73   |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a  | n/a  |
| 5.3 Knowledge absorption.....                                   | 26.6 | 60 ● |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.0  | 116  |
| 5.3.2 High-tech imports less re-imports, %.....                 | 5.9  | 87   |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 2.4  | 8 ●  |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.0  | 88   |

**6 Knowledge & technology outputs.....17.5 120**

|   |      |      |
|---|------|------|
| 6.1 Knowledge creation.....                                     | 9.8  | 82   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.2  | 88   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a  | n/a  |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.2  | 31   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 7.0  | 90   |
| 6.1.5 Citable documents H index.....                            | 73.0 | 85   |
| 6.2 Knowledge impact.....                                       | 32.1 | 96   |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.7  | 23 ● |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.0  | 92 ○ |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a  |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.6  | 128  |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 10.9 | 73   |
| 6.3 Knowledge diffusion.....                                    | 10.5 | 134  |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0  | 100  |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.1  | 113  |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.9  | 44 ● |
| 6.3.4 FDI net outflows, % GDP .....                             | n/a  | n/a  |

**7 Creative outputs.....23.2 111**

|  |      |       |
|--|------|-------|
| 7.1 Intangible assets.....                                     | 38.8 | 98    |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | n/a  | n/a   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a  | n/a   |
| 7.1.3 ICTs & business model creation†.....                     | 40.2 | 126   |
| 7.1.4 ICTs & organizational model creation†.....               | 37.5 | 124   |
| 7.2 Creative goods & services.....                             | 15.1 | 80    |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.0  | 98    |
| 7.2.2 National feature films/mn pop. 15–69.....                | n/a  | n/a   |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a  | n/a   |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0  | 20 ●  |
| 7.2.5 Creative goods exports, % total trade.....               | 0.0  | 113   |
| 7.3 Online creativity.....                                     | 0.1  | 141 ○ |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.0  | 143 ○ |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 0.3  | 134   |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 28.6 | 136   |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | n/a  | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 0.9                         |
| GDP (US\$ billions) .....   | 4.0                         |
| GDP per capita, PPP\$ ..... | 5,084.6                     |
| Income group .....          | Upper-middle income         |
| Region .....                | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank        |
|---|---------------------------------------|-------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>30.4</b>                           | <b>95</b>   |
| Innovation Output Sub-Index .....                             | 15.6                                  | 136 ○       |
| Innovation Input Sub-Index .....                              | 45.2                                  | 49          |
| Innovation Efficiency Ratio .....                             | 0.3                                   | 141 ○       |
| Global Innovation Index 2013 (out of 142) .....               | 28.1                                  | 97          |
| <b>1 Institutions.....</b>                                    | <b>57.9</b>                           | <b>82</b>   |
| 1.1 Political environment.....                                | 49.6                                  | 90          |
| 1.1.1 Political stability*.....                               | 64.7                                  | 76          |
| 1.1.2 Government effectiveness*.....                          | 16.8                                  | 124 ○       |
| 1.1.3 Press freedom*.....                                     | 67.3                                  | 86          |
| 1.2 Regulatory environment .....                              | 62.7                                  | 81          |
| 1.2.1 Regulatory quality* .....                               | 33.1                                  | 113         |
| 1.2.2 Rule of law*.....                                       | 24.3                                  | 114         |
| 1.2.3 Cost of redundancy dismissal, salary weeks .....        | 9.7                                   | 34 ●        |
| 1.3 Business environment.....                                 | 61.3                                  | 78          |
| 1.3.1 Ease of starting a business* .....                      | 66.6                                  | 124 ○       |
| 1.3.2 Ease of resolving insolvency*.....                      | 48.2                                  | 44 ●        |
| 1.3.3 Ease of paying taxes*.....                              | 69.2                                  | 74          |
| <b>2 Human capital &amp; research.....</b>                    | <b>38.9</b>                           | <b>40 ●</b> |
| 2.1 Education .....   | 35.4                                  | 98          |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.2                                   | 86          |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 5.8                                   | 109 ○       |
| 2.1.3 School life expectancy, years.....                      | 15.7                                  | 26 ●        |
| 2.1.4 PISA scales in reading, maths, & science .....          | n/a                                   | n/a         |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 26.5                                  | 96          |
| 2.2 Tertiary education.....                                   | 81.3                                  | 3 ●         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 61.9                                  | 32 ●        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 32.9                                  | 1 ●         |
| 2.3 Research & development (R&D).....                         | 0.0                                   | 131 ○       |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | n/a                                   | n/a         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a         |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○        |
| <b>3 Infrastructure.....</b>                                  | <b>31.2</b>                           | <b>91</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 25.6                                  | 100         |
| 3.1.1 ICT access*.....  | 38.6                                  | 87          |
| 3.1.2 ICT use*.....   | 19.9                                  | 82          |
| 3.1.3 Government's online service*.....                       | 36.0                                  | 104         |
| 3.1.4 E-participation*.....                                   | 7.9                                   | 98          |
| 3.2 General infrastructure.....                               | 31.0                                  | 80          |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a                                   | n/a         |
| 3.2.2 Logistics performance*.....                             | 32.1                                  | 118 ○       |
| 3.2.3 Gross capital formation, % GDP.....                     | 23.4                                  | 68          |
| 3.3 Ecological sustainability.....                            | 36.9                                  | 61          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | n/a                                   | n/a         |
| 3.3.2 Environmental performance*.....                         | 53.1                                  | 69          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.7                                   | 72          |
| <b>4 Market sophistication .....</b>                          | <b>46.8</b>                           | <b>82</b>   |
| 4.1 Credit.....   | 31.3                                  | 88          |
| 4.1.1 Ease of getting credit* .....                           | 68.8                                  | 53          |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 78.4                                  | 41 ●        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.0                                   | 82 ○        |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment .....  | 31.7        | 86           |
| 4.2.1 Ease of protecting investors*.....                        | 60.0        | 42           |
| 4.2.2 Market capitalization, % GDP.....                         | 11.7        | 86           |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.2         | 94 ○         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a          |
| 4.3 Trade & competition .....                                   | 77.5        | 50           |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 9.9         | 123 ○        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 1.0         | 74           |
| 4.3.3 Intensity of local competition†.....                      | n/a         | n/a          |
| <b>5 Business sophistication .....</b>                          | <b>51.3</b> | <b>12 ●</b>  |
| 5.1 Knowledge workers.....                                      | 54.5        | 34 ●         |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a          |
| 5.1.2 Firms offering formal training, % firms.....              | 58.1        | 10 ●         |
| 5.1.3 GERD performed by business, % GDP .....                   | n/a         | n/a          |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a          |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 18.1        | 111          |
| 5.2 Innovation linkages .....                                   | n/a         | n/a          |
| 5.2.1 University/industry research collaboration† .....         | n/a         | n/a          |
| 5.2.2 State of cluster development† .....                       | n/a         | n/a          |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a          |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a          |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a         | n/a          |
| 5.3 Knowledge absorption.....                                   | 48.1        | 5 ●          |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.0         | 112 ○        |
| 5.3.2 High-tech imports less re-imports, % .....                | 8.5         | 48           |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 4.5         | 1 ●          |
| 5.3.4 FDI net inflows, % GDP.....                               | 5.4         | 35 ●         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>16.8</b> | <b>123</b>   |
| 6.1 Knowledge creation.....                                     | 19.9        | 50           |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a          |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a         | n/a          |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 24.5        | 40 ●         |
| 6.1.5 Citable documents H index.....                            | 40.0        | 122          |
| 6.2 Knowledge impact.....                                       | 7.6         | 127 ○        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                  | n/a         | n/a          |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a          |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 3.1         | 86           |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 6.9         | 83 ○         |
| 6.3 Knowledge diffusion.....                                    | 22.9        | 118          |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 77           |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.2         | 99           |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.6         | 97           |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.2         | 82           |
| <b>7 Creative outputs .....</b>                                 | <b>14.3</b> | <b>135 ○</b> |
| 7.1 Intangible assets .....                                     | n/a         | n/a          |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a          |
| 7.1.3 ICTs & business model creation†.....                      | n/a         | n/a          |
| 7.1.4 ICTs & organizational model creation†.....                | n/a         | n/a          |
| 7.2 Creative goods & services.....                              | 17.7        | 71           |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a          |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.7         | 57           |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a          |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 30           |
| 7.2.5 Creative goods exports, % total trade.....                | 0.3         | 75           |
| 7.3 Online creativity .....                                     | 10.9        | 88           |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.9         | 78           |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 27.2        | 67           |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 1,651.0     | 85           |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 5.4         |
| GDP (US\$ billions) .....   | 256.9       |
| GDP per capita, PPP\$ ..... | 35,616.6    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>60.7</b>                           | <b>4</b>   |
| Innovation Output Sub-Index .....                             | 53.8                                  | 6          |
| Innovation Input Sub-Index.....                               | 67.5                                  | 5          |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 41         |
| Global Innovation Index 2013 (out of 142) .....               | 59.5                                  | 6          |
| <b>1 Institutions.....</b>                                    | <b>95.3</b>                           | <b>1</b> ● |
| 1.1 Political environment.....                                | 97.7                                  | 1 ●        |
| 1.1.1 Political stability*.....                               | 99.5                                  | 2 ●        |
| 1.1.2 Government effectiveness*.....                          | 100.0                                 | 1 ●        |
| 1.1.3 Press freedom*.....                                     | 93.6                                  | 1 ●        |
| 1.2 Regulatory environment .....                              | 96.9                                  | 6          |
| 1.2.1 Regulatory quality* .....                               | 96.3                                  | 5          |
| 1.2.2 Rule of law*.....                                       | 99.8                                  | 2 ●        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 10.1                                  | 38         |
| 1.3 Business environment.....                                 | 91.2                                  | 7          |
| 1.3.1 Ease of starting a business*.....                       | 93.0                                  | 20         |
| 1.3.2 Ease of resolving insolvency*.....                      | 95.6                                  | 3          |
| 1.3.3 Ease of paying taxes*.....                              | 85.0                                  | 22         |
| <b>2 Human capital &amp; research.....</b>                    | <b>66.5</b>                           | <b>1</b> ● |
| 2.1 Education .....   | 63.8                                  | 4          |
| 2.1.1 Expenditure on education, % GDP .....                   | 6.8                                   | 16         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 36.5                                  | 9          |
| 2.1.3 School life expectancy, years.....                      | 17.0                                  | 8          |
| 2.1.4 PISA scales in reading, maths, & science.....           | 529.4                                 | 6          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 9.5                                   | 18         |
| 2.2 Tertiary education.....                                   | 55.5                                  | 15         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 95.5                                  | 2 ●        |
| 2.2.2 Graduates in science & engineering, % .....             | 27.7                                  | 15         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 5.1                                   | 34         |
| 2.3 Research & development (R&D).....                         | 80.2                                  | 3          |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 10,678.8                              | 1 ●        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 3.5                                   | 3          |
| 2.3.3 QS university ranking, average score top 3*.....        | 59.4                                  | 17         |
| <b>3 Infrastructure.....</b>                                  | <b>59.7</b>                           | <b>8</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 79.8                                  | 6          |
| 3.1.1 ICT access*.....  | 76.6                                  | 19         |
| 3.1.2 ICT use*.....   | 80.5                                  | 4          |
| 3.1.3 Government's online service*.....                       | 88.2                                  | 7          |
| 3.1.4 E-participation*.....                                   | 73.7                                  | 11         |
| 3.2 General infrastructure.....                               | 50.8                                  | 15         |
| 3.2.1 Electricity output, kWh/cap.....                        | 13,007.8                              | 8          |
| 3.2.2 Logistics performance*.....                             | 96.8                                  | 3          |
| 3.2.3 Gross capital formation, % GDP.....                     | 19.0                                  | 102 ○      |
| 3.3 Ecological sustainability.....                            | 48.5                                  | 32         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 5.1                                   | 81 ○       |
| 3.3.2 Environmental performance*.....                         | 75.7                                  | 18         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 6.7                                   | 20         |
| <b>4 Market sophistication .....</b>                          | <b>61.4</b>                           | <b>22</b>  |
| 4.1 Credit.....   | 53.2                                  | 27         |
| 4.1.1 Ease of getting credit*.....                            | 75.0                                  | 40         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 98.2                                  | 31         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |      |      |
|---|------|------|
| 4.2 Investment .....                                      | 59.1 | 18   |
| 4.2.1 Ease of protecting investors*.....                  | 56.7 | 55 ○ |
| 4.2.2 Market capitalization, % GDP.....                   | 63.5 | 29   |
| 4.2.3 Total value of stocks traded, % GDP.....            | 50.4 | 17   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | 0.4  | 6    |
| 4.3 Trade & competition .....                             | 71.8 | 99 ○ |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 1.1  | 10   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 3.3  | 97 ○ |
| 4.3.3 Intensity of local competition†.....                | 63.0 | 83 ○ |

|   |             |          |
|---|-------------|----------|
| <b>5 Business sophistication .....</b>                          | <b>54.8</b> | <b>7</b> |
| 5.1 Knowledge workers.....                                      | 75.9        | 5        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 43.9        | 12       |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a      |
| 5.1.3 GERD performed by business, % GDP.....                    | 2.4         | 4        |
| 5.1.4 GERD performed by business, %.....                        | 68.7        | 11       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 338.0       | 13       |
| 5.2 Innovation linkages .....                                   | 50.3        | 16       |
| 5.2.1 University/industry research collaboration†.....          | 80.3        | 2 ●      |
| 5.2.2 State of cluster development† .....                       | 68.0        | 11       |
| 5.2.3 GERD financed by abroad, %.....                           | 8.8         | 46 ○     |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.1         | 36       |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 3.3         | 5        |
| 5.3 Knowledge absorption.....                                   | 38.1        | 21       |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.4         | 13       |
| 5.3.2 High-tech imports less re-imports, %.....                 | 7.4         | 61 ○     |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 3.2         | 3        |
| 5.3.4 FDI net inflows, % GDP.....                               | 0.7         | 121 ○    |

|   |             |          |
|---|-------------|----------|
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>54.2</b> | <b>8</b> |
| 6.1 Knowledge creation.....                                     | 53.9        | 10       |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 8.7         | 10       |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 12.0        | 2 ●      |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 2.3         | 12       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 55.5        | 8        |
| 6.1.5 Citable documents H index.....                            | 372.0       | 18       |
| 6.2 Knowledge impact.....                                       | 46.5        | 41       |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.2         | 87 ○     |
| 6.2.2 New businesses/th pop. 15–64.....                         | 2.3         | 39       |
| 6.2.3 Computer software spending, % GDP.....                    | 0.6         | 17       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 12.4        | 43       |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 45.0        | 13       |
| 6.3 Knowledge diffusion.....                                    | 62.3        | 4        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 3.5         | 4        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 5.3         | 28       |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 6.0         | 1        |
| 6.3.4 FDI net outflows, % GDP .....                             | 3.4         | 21       |

|  |             |           |
|--|-------------|-----------|
| <b>7 Creative outputs .....</b>                                | <b>53.4</b> | <b>10</b> |
| 7.1 Intangible assets.....                                     | 58.7        | 11        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 69.3        | 35        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | 2.1         | 14        |
| 7.1.3 ICTs & business model creation†.....                     | 80.5        | 1 ●       |
| 7.1.4 ICTs & organizational model creation†.....               | 79.0        | 1 ●       |
| 7.2 Creative goods & services.....                             | 32.2        | 35        |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.2         | 40        |
| 7.2.2 National feature films/mn pop. 15–69.....                | 11.0        | 10        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | 1.8         | 10        |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0         | 54 ○      |
| 7.2.5 Creative goods exports, % total trade.....               | 0.7         | 47        |
| 7.3 Online creativity .....                                    | 64.2        | 14        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 28.8        | 26        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 60.4        | 18        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 42,876.2    | 3         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | 94.7        | 5         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## France

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 65.7        |
| GDP (US\$ billions) .....   | 2,737.4     |
| GDP per capita, PPP\$ ..... | 35,784.0    |
| Income group .....          | High income |
| Region .....                | Europe      |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>52.2</b>                           | <b>22</b> |
| Innovation Output Sub-Index .....                            | 44.8                                  | 26        |
| Innovation Input Sub-Index.....                              | 59.5                                  | 20        |
| Innovation Efficiency Ratio.....                             | 0.8                                   | 64        |
| Global Innovation Index 2013 (out of 142) .....              | 52.8                                  | 20        |
| <b>1 Institutions.....</b>                                   | <b>78.6</b>                           | <b>25</b> |
| 1.1 Political environment.....                               | 78.0                                  | 30        |
| 1.1.1 Political stability*.....                              | 79.2                                  | 45        |
| 1.1.2 Government effectiveness*.....                         | 76.4                                  | 23        |
| 1.1.3 Press freedom*.....                                    | 78.4                                  | 33        |
| 1.2 Regulatory environment .....                             | 87.0                                  | 21        |
| 1.2.1 Regulatory quality* .....                              | 77.8                                  | 26        |
| 1.2.2 Rule of law*.....                                      | 85.7                                  | 19        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 11.8                                  | 50        |
| 1.3 Business environment.....                                | 70.7                                  | 47        |
| 1.3.1 Ease of starting a business*.....                      | 91.4                                  | 27        |
| 1.3.2 Ease of resolving insolvency*.....                     | 51.2                                  | 41        |
| 1.3.3 Ease of paying taxes*.....                             | 69.5                                  | 71        |
| <b>2 Human capital &amp; research.....</b>                   | <b>55.9</b>                           | <b>15</b> |
| 2.1 Education .....  | 55.1                                  | 26        |
| 2.1.1 Expenditure on education, % GDP.....                   | 5.9                                   | 32        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 29.2                                  | 25        |
| 2.1.3 School life expectancy, years.....                     | 16.0                                  | 23        |
| 2.1.4 PISA scales in reading, maths, & science.....          | 499.8                                 | 20        |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 12.8                                  | 41        |
| 2.2 Tertiary education.....                                  | 52.5                                  | 18        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 57.1                                  | 42        |
| 2.2.2 Graduates in science & engineering, % .....            | 26.1                                  | 21        |
| 2.2.3 Tertiary inbound mobility, %.....                      | 11.9                                  | 14        |
| 2.3 Research & development (R&D).....                        | 60.0                                  | 15        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 5,327.9                               | 20        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 2.3                                   | 14        |
| 2.3.3 QS university ranking, average score top 3*.....       | 78.3                                  | 8 ●       |
| <b>3 Infrastructure.....</b>                                 | <b>54.7</b>                           | <b>19</b> |
| 3.1 Information & communication technologies (ICTs).....     | 72.7                                  | 17        |
| 3.1.1 ICT access*.....                                       | 79.5                                  | 14 ●      |
| 3.1.2 ICT use*.....  | 66.0                                  | 16        |
| 3.1.3 Government's online service*.....                      | 87.6                                  | 8 ●       |
| 3.1.4 E-participation*.....                                  | 57.9                                  | 25        |
| 3.2 General infrastructure.....                              | 43.9                                  | 30        |
| 3.2.1 Electricity output, kWh/cap.....                       | 8,506.4                               | 20        |
| 3.2.2 Logistics performance*.....                            | 88.9                                  | 12 ●      |
| 3.2.3 Gross capital formation, % GDP.....                    | 19.6                                  | 94 ○      |
| 3.3 Ecological sustainability.....                           | 47.4                                  | 34        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 7.8                                   | 41        |
| 3.3.2 Environmental performance*.....                        | 71.1                                  | 27        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 3.6                                   | 29        |
| <b>4 Market sophistication .....</b>                         | <b>61.0</b>                           | <b>24</b> |
| 4.1 Credit.....  | 53.1                                  | 28        |
| 4.1.1 Ease of getting credit*.....                           | 68.8                                  | 53        |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 116.0                                 | 27        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | n/a                                   | n/a       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 52.0        | 25        |
| 4.2.1 Ease of protecting investors*.....                        | 53.3        | 66 ○      |
| 4.2.2 Market capitalization, % GDP.....                         | 69.8        | 26        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 43.1        | 20        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.3         | 10        |
| 4.3 Trade & competition .....                                   | 77.9        | 42        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 75.3        | 24        |
| <b>5 Business sophistication .....</b>                          | <b>47.4</b> | <b>16</b> |
| 5.1 Knowledge workers.....                                      | 69.1        | 10 ●      |
| 5.1.1 Knowledge-intensive employment, %.....                    | 44.8        | 10 ●      |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a       |
| 5.1.3 GERD performed by business, % GDP.....                    | 1.5         | 14        |
| 5.1.4 GERD performed by business, %.....                        | 64.2        | 18        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 300.6       | 17        |
| 5.2 Innovation linkages .....                                   | 39.5        | 43        |
| 5.2.1 University/industry research collaboration†.....          | 57.7        | 31        |
| 5.2.2 State of cluster development†.....                        | 56.8        | 29        |
| 5.2.3 GERD financed by abroad, %.....                           | 7.7         | 51 ○      |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 46        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 1.6         | 10 ●      |
| 5.3 Knowledge absorption.....                                   | 33.7        | 31        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.1         | 25        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 11.9        | 23        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.3         | 46        |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.5         | 73 ○      |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>44.2</b> | <b>20</b> |
| 6.1 Knowledge creation.....                                     | 36.7        | 25        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 6.5         | 20        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 3.5         | 14        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.1         | 59 ○      |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 28.5        | 33        |
| 6.1.5 Citable documents H index.....                            | 681.0       | 4 ●       |
| 6.2 Knowledge impact.....                                       | 47.2        | 36        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | –0.3        | 95 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 2.9         | 34        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.6         | 11        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 14.1        | 32        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 42.6        | 18        |
| 6.3 Knowledge diffusion.....                                    | 48.7        | 16        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 1.6         | 12 ●      |
| 6.3.2 High-tech exports less re-exports, %.....                 | 14.3        | 12 ●      |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.3         | 72 ○      |
| 6.3.4 FDI net outflows, % GDP.....                              | 1.5         | 40        |
| <b>7 Creative outputs .....</b>                                 | <b>45.5</b> | <b>23</b> |
| 7.1 Intangible assets.....                                      | 42.9        | 76 ○      |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 10.9        | 94 ○      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 1.8         | 17        |
| 7.1.3 ICTs & business model creation†.....                      | 70.2        | 20        |
| 7.1.4 ICTs & organizational model creation†.....                | 59.5        | 40        |
| 7.2 Creative goods & services.....                              | 36.7        | 23        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.8         | 12        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 6.2         | 20        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 1.6         | 14        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 53 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 1.7         | 34        |
| 7.3 Online creativity.....                                      | 59.5        | 18        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 48.6        | 20        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 55.7        | 29        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 27,124.1    | 13 ●      |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 87.6        | 13        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 1.8                |
| GDP (US\$ billions) .....   | 0.9                |
| GDP per capita, PPP\$ ..... | 1,962.2            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>29.0</b>                           | <b>104</b> |
| Innovation Output Sub-Index .....                             | 25.1                                  | 93         |
| Innovation Input Sub-Index.....                               | 32.9                                  | 111        |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 58 ●       |
| Global Innovation Index 2013 (out of 142) .....               | 26.4                                  | 122        |
| <b>1 Institutions.....</b>                                    | <b>45.8</b>                           | <b>126</b> |
| 1.1 Political environment.....                                | 49.3                                  | 92         |
| 1.1.1 Political stability*.....                               | 65.8                                  | 71         |
| 1.1.2 Government effectiveness*.....                          | 27.2                                  | 100        |
| 1.1.3 Press freedom*.....                                     | 54.9                                  | 124        |
| 1.2 Regulatory environment .....                              | 50.5                                  | 114        |
| 1.2.1 Regulatory quality* .....                               | 42.8                                  | 90         |
| 1.2.2 Rule of law*.....                                       | 31.4                                  | 93         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 26.0                                  | 113        |
| 1.3 Business environment.....                                 | 37.7                                  | 139 ○      |
| 1.3.1 Ease of starting a business*.....                       | 60.8                                  | 132        |
| 1.3.2 Ease of resolving insolvency*.....                      | 29.4                                  | 96         |
| 1.3.3 Ease of paying taxes*.....                              | 23.0                                  | 138 ○      |
| <b>2 Human capital &amp; research.....</b>                    | <b>15.5</b>                           | <b>118</b> |
| 2.1 Education .....   | 21.4                                  | 131        |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.1                                   | 90         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 13.1                                  | 89         |
| 2.1.3 School life expectancy, years.....                      | 9.1                                   | 119 ○      |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a        |
| 2.2 Tertiary education.....                                   | 24.1                                  | 91         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 4.5                                   | 126 ○      |
| 2.2.2 Graduates in science & engineering, % .....             | 20.0                                  | 57         |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a        |
| 2.3 Research & development (R&D).....                         | 1.0                                   | 117        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 34.6                                  | 117 ○      |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.1                                   | 98         |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>22.5</b>                           | <b>122</b> |
| 3.1 Information & communication technologies (ICTs).....      | 15.2                                  | 125        |
| 3.1.1 ICT access*.....  | 24.2                                  | 114        |
| 3.1.2 ICT use* .....  | 4.6                                   | 119        |
| 3.1.3 Government's online service*.....                       | 32.0                                  | 114        |
| 3.1.4 E-participation*.....                                   | 0.0                                   | 129 ○      |
| 3.2 General infrastructure.....                               | 23.0                                  | 120        |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a                                   | n/a        |
| 3.2.2 Logistics performance*.....                             | 33.7                                  | 113        |
| 3.2.3 Gross capital formation, % GDP.....                     | 17.3                                  | 115        |
| 3.3 Ecological sustainability.....                            | 29.3                                  | 96         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a                                   | n/a        |
| 3.3.2 Environmental performance*.....                         | 29.3                                  | 131        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a                                   | n/a        |
| <b>4 Market sophistication .....</b>                          | <b>47.4</b>                           | <b>75</b>  |
| 4.1 Credit.....   | 45.0                                  | 45 ●       |
| 4.1.1 Ease of getting credit*.....                            | 31.3                                  | 133 ○      |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 15.5                                  | 129        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 14.3                                  | 1 ●        |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 26.7        | 115         |
| 4.2.1 Ease of protecting investors*.....                        | 26.7        | 140 ○       |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a         |
| 4.3 Trade & competition .....                                   | 70.7        | 106         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 12.5        | 134 ○       |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.0         | 10 ●        |
| 4.3.3 Intensity of local competition†.....                      | 63.5        | 81          |
| <b>5 Business sophistication .....</b>                          | <b>33.3</b> | <b>65 ●</b> |
| 5.1 Knowledge workers.....                                      | 27.2        | 104         |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a         |
| 5.1.2 Firms offering formal training, % firms.....              | 25.6        | 77          |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a         |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 25.6        | 104         |
| 5.2 Innovation linkages .....                                   | 35.8        | 55 ●        |
| 5.2.1 University/industry research collaboration†.....          | 44.2        | 61 ●        |
| 5.2.2 State of cluster development† .....                       | 47.2        | 69          |
| 5.2.3 GERD financed by abroad, %.....                           | 15.9        | 25 ●        |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a         | n/a         |
| 5.3 Knowledge absorption.....                                   | 36.9        | 24 ●        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | n/a         | n/a         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.0         | 114         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 3.2         | 2 ●         |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.0         | 55 ●        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>29.4</b> | <b>60 ●</b> |
| 6.1 Knowledge creation.....                                     | 26.1        | 38 ●        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a         | n/a         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 29.1        | 32 ●        |
| 6.1.5 Citable documents H index.....                            | 80.0        | 79          |
| 6.2 Knowledge impact.....                                       | 12.3        | 124         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a         |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.9         | 123         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 16.8        | 59          |
| 6.3 Knowledge diffusion.....                                    | 49.8        | 12 ●        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.0         | 119 ○       |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 6.0         | 6 ●         |
| 6.3.4 FDI net outflows, % GDP .....                             | n/a         | n/a         |
| <b>7 Creative outputs .....</b>                                 | <b>20.9</b> | <b>121</b>  |
| 7.1 Intangible assets .....                                     | 40.0        | 90          |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 16.1        | 88          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a         |
| 7.1.3 ICTs & business model creation†.....                      | 59.2        | 59 ●        |
| 7.1.4 ICTs & organizational model creation†.....                | 54.5        | 62 ●        |
| 7.2 Creative goods & services.....                              | 0.2         | 139 ○       |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 93 ○        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.0         | 117         |
| 7.3 Online creativity .....                                     | 3.6         | 115         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.2         | 128         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 10.5        | 102         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 61.6        | 130         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Georgia

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 4.5                              |
| GDP (US\$ billions) .....   | 16.2                             |
| GDP per capita, PPP\$ ..... | 6,144.8                          |
| Income group .....          | Lower-middle income              |
| Region .....                | Northern Africa and Western Asia |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>34.5</b>                           | <b>74</b> |
| Innovation Output Sub-Index .....                             | 28.0                                  | 75        |
| Innovation Input Sub-Index .....                              | 41.1                                  | 68        |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 90        |
| Global Innovation Index 2013 (out of 142) .....               | 35.6                                  | 73        |
| <b>1 Institutions.....</b>                                    | <b>69.7</b>                           | <b>46</b> |
| 1.1 Political environment.....                                | 58.4                                  | 67        |
| 1.1.1 Political stability*.....                               | 49.2                                  | 106       |
| 1.1.2 Government effectiveness*.....                          | 56.0                                  | 44        |
| 1.1.3 Press freedom*.....                                     | 69.9                                  | 80        |
| 1.2 Regulatory environment .....                              | 78.0                                  | 34        |
| 1.2.1 Regulatory quality* .....                               | 66.5                                  | 42        |
| 1.2.2 Rule of law*.....                                       | 45.6                                  | 61        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.0                                   | 1 ●       |
| 1.3 Business environment.....                                 | 72.8                                  | 37        |
| 1.3.1 Ease of starting a business*.....                       | 97.5                                  | 4 ●       |
| 1.3.2 Ease of resolving insolvency*.....                      | 35.5                                  | 78        |
| 1.3.3 Ease of paying taxes*.....                              | 85.5                                  | 20 ●      |
| <b>2 Human capital &amp; research.....</b>                    | <b>23.5</b>                           | <b>90</b> |
| 2.1 Education .....   | 36.5                                  | 90        |
| 2.1.1 Expenditure on education, % GDP .....                   | 2.0                                   | 129 ○     |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 15.5                                  | 82        |
| 2.1.3 School life expectancy, years.....                      | 13.2                                  | 67        |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a       |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 7.6                                   | 2 ●       |
| 2.2 Tertiary education.....                                   | 26.9                                  | 84        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 27.9                                  | 79        |
| 2.2.2 Graduates in science & engineering, % .....             | 20.7                                  | 48        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.7                                   | 68        |
| 2.3 Research & development (R&D).....                         | 6.9                                   | 76        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 1,812.6                               | 44        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.2                                   | 89        |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                  | <b>33.3</b>                           | <b>82</b> |
| 3.1 Information & communication technologies (ICTs).....      | 40.0                                  | 64        |
| 3.1.1 ICT access*.....  | 50.6                                  | 68        |
| 3.1.2 ICT use* .....  | 28.2                                  | 62        |
| 3.1.3 Government's online service*.....                       | 60.1                                  | 42        |
| 3.1.4 E-participation*.....                                   | 21.1                                  | 65        |
| 3.2 General infrastructure.....                               | 29.7                                  | 88        |
| 3.2.1 Electricity output, kWh/cap.....                        | 2,270.4                               | 73        |
| 3.2.2 Logistics performance* .....                            | 46.0                                  | 78        |
| 3.2.3 Gross capital formation, % GDP.....                     | 23.6                                  | 65        |
| 3.3 Ecological sustainability.....                            | 30.1                                  | 93        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 6.1                                   | 67        |
| 3.3.2 Environmental performance*.....                         | 47.2                                  | 91        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.2                                   | 117 ○     |
| <b>4 Market sophistication .....</b>                          | <b>55.2</b>                           | <b>37</b> |
| 4.1 Credit.....   | 54.3                                  | 25        |
| 4.1.1 Ease of getting credit*.....                            | 93.8                                  | 3 ●       |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 34.5                                  | 91        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 4.7                                   | 11 ●      |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 35.8        | 65         |
| 4.2.1 Ease of protecting investors*.....                        | 70.0        | 16 ●       |
| 4.2.2 Market capitalization, % GDP.....                         | 6.0         | 99 ○       |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.0         | 105 ○      |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 75.4        | 73         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 0.7         | 6 ●        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.6         | 55         |
| 4.3.3 Intensity of local competition†.....                      | 55.3        | 116 ○      |
| <b>5 Business sophistication .....</b>                          | <b>23.9</b> | <b>119</b> |
| 5.1 Knowledge workers.....                                      | 29.4        | 97         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 22.2        | 65         |
| 5.1.2 Firms offering formal training, % firms.....              | 14.9        | 98 ○       |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a        |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 74.4        | 58         |
| 5.2 Innovation linkages .....                                   | 23.2        | 115        |
| 5.2.1 University/industry research collaboration†.....          | 27.8        | 126 ○      |
| 5.2.2 State of cluster development† .....                       | 37.2        | 108        |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 83         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 56         |
| 5.3 Knowledge absorption.....                                   | 19.1        | 108        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 106 ○      |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.6         | 76         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.4         | 102        |
| 5.3.4 FDI net inflows, % GDP.....                               | 5.0         | 39         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>30.0</b> | <b>58</b>  |
| 6.1 Knowledge creation.....                                     | 20.4        | 49         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 5.3         | 24         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.2         | 64         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.8         | 18         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 19.3        | 47         |
| 6.1.5 Citable documents H index.....                            | 78.0        | 82         |
| 6.2 Knowledge impact.....                                       | 45.4        | 44         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 6.7         | 3 ●        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 4.9         | 20         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 3.0         | 87         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 13.2        | 69         |
| 6.3 Knowledge diffusion.....                                    | 24.1        | 116        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 69         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.3         | 91         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.7         | 91         |
| 6.3.4 FDI net outflows, % GDP .....                             | 1.4         | 42         |
| <b>7 Creative outputs .....</b>                                 | <b>25.9</b> | <b>99</b>  |
| 7.1 Intangible assets.....                                      | 32.5        | 122 ○      |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 46.2        | 59         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.5         | 38         |
| 7.1.3 ICTs & business model creation†.....                      | 48.8        | 99         |
| 7.1.4 ICTs & organizational model creation†.....                | 42.3        | 114 ○      |
| 7.2 Creative goods & services.....                              | 22.1        | 55         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 63         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 4.5         | 29         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 13 ●       |
| 7.2.5 Creative goods exports, % total trade.....                | 0.1         | 100        |
| 7.3 Online creativity .....                                     | 16.5        | 75         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.0         | 93         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 27.4        | 64         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 11,912.3    | 41         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 81.9        |
| GDP (US\$ billions) .....   | 3,636.0     |
| GDP per capita, PPP\$ ..... | 40,006.7    |
| Income group .....          | High income |
| Region .....                | Europe      |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>56.0</b>                           | <b>13</b> |
| Innovation Output Sub-Index .....                            | 51.7                                  | 8 ●       |
| Innovation Input Sub-Index.....                              | 60.3                                  | 19        |
| Innovation Efficiency Ratio.....                             | 0.9                                   | 19        |
| Global Innovation Index 2013 (out of 142) .....              | 55.8                                  | 15        |
| <b>1 Institutions.....</b>                                   | <b>82.7</b>                           | <b>21</b> |
| 1.1 Political environment.....                               | 85.8                                  | 16        |
| 1.1.1 Political stability*.....                              | 84.6                                  | 32        |
| 1.1.2 Government effectiveness*.....                         | 82.9                                  | 14        |
| 1.1.3 Press freedom*.....                                    | 89.8                                  | 15        |
| 1.2 Regulatory environment.....                              | 81.5                                  | 29        |
| 1.2.1 Regulatory quality*.....                               | 88.8                                  | 15        |
| 1.2.2 Rule of law*.....                                      | 91.4                                  | 16        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 21.6                                  | 99 ○      |
| 1.3 Business environment.....                                | 81.0                                  | 19        |
| 1.3.1 Ease of starting a business*.....                      | 82.1                                  | 76        |
| 1.3.2 Ease of resolving insolvency*.....                     | 87.8                                  | 13        |
| 1.3.3 Ease of paying taxes*.....                             | 73.1                                  | 54        |
| <b>2 Human capital &amp; research.....</b>                   | <b>56.3</b>                           | <b>14</b> |
| 2.1 Education.....   | 53.4                                  | 36        |
| 2.1.1 Expenditure on education, % GDP.....                   | 5.1                                   | 58        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 24.7                                  | 41        |
| 2.1.3 School life expectancy, years.....                     | 16.3                                  | 19        |
| 2.1.4 PISA scales in reading, maths, & science.....          | 515.1                                 | 13        |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | 12.9                                  | 42        |
| 2.2 Tertiary education.....                                  | 47.7                                  | 27        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 56.5                                  | 43        |
| 2.2.2 Graduates in science & engineering, %.....             | 26.9                                  | 19        |
| 2.2.3 Tertiary inbound mobility, %.....                      | 7.5                                   | 24        |
| 2.3 Research & development (R&D).....                        | 67.7                                  | 10        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 6,279.9                               | 13        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 2.9                                   | 7 ●       |
| 2.3.3 QS university ranking, average score top 3*.....       | 77.4                                  | 9         |
| <b>3 Infrastructure.....</b>                                 | <b>56.3</b>                           | <b>17</b> |
| 3.1 Information & communication technologies (ICTs).....     | 74.3                                  | 15        |
| 3.1.1 ICT access*.....                                       | 85.1                                  | 5 ●       |
| 3.1.2 ICT use*.....  | 60.5                                  | 21        |
| 3.1.3 Government's online service*.....                      | 75.2                                  | 24        |
| 3.1.4 E-participation*.....                                  | 76.3                                  | 8         |
| 3.2 General infrastructure.....                              | 42.3                                  | 35        |
| 3.2.1 Electricity output, kWh/cap.....                       | 7,483.4                               | 27        |
| 3.2.2 Logistics performance*.....                            | 96.0                                  | 4 ●       |
| 3.2.3 Gross capital formation, % GDP.....                    | 17.6                                  | 112 ○     |
| 3.3 Ecological sustainability.....                           | 52.2                                  | 21        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 9.3                                   | 21        |
| 3.3.2 Environmental performance*.....                        | 80.5                                  | 6 ●       |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 2.2                                   | 44        |
| <b>4 Market sophistication.....</b>                          | <b>60.1</b>                           | <b>25</b> |
| 4.1 Credit.....  | 57.0                                  | 22        |
| 4.1.1 Ease of getting credit*.....                           | 81.3                                  | 27        |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 101.9                                 | 29        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | n/a                                   | n/a       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment.....   | 42.7        | 47        |
| 4.2.1 Ease of protecting investors*.....                        | 50.0        | 81 ○      |
| 4.2.2 Market capitalization, % GDP.....                         | 43.7        | 46        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 36.0        | 25        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.2         | 14        |
| 4.3 Trade & competition.....                                    | 80.8        | 26        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 81.0        | 8 ●       |
| <b>5 Business sophistication.....</b>                           | <b>46.1</b> | <b>21</b> |
| 5.1 Knowledge workers.....                                      | 62.8        | 23        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 43.5        | 14        |
| 5.1.2 Firms offering formal training, % firms.....              | 35.4        | 49        |
| 5.1.3 GERD performed by business, % GDP.....                    | 2.0         | 9         |
| 5.1.4 GERD performed by business, %.....                        | 66.9        | 15        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 270.0       | 21        |
| 5.2 Innovation linkages.....                                    | 46.4        | 24        |
| 5.2.1 University/industry research collaboration†.....          | 73.2        | 9         |
| 5.2.2 State of cluster development†.....                        | 73.0        | 3 ●       |
| 5.2.3 GERD financed by abroad, %.....                           | 4.2         | 64 ○      |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 59 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 2.8         | 7 ●       |
| 5.3 Knowledge absorption.....                                   | 29.2        | 46        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.7         | 41        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 9.6         | 36        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.7         | 20        |
| 5.3.4 FDI net inflows, % GDP.....                               | 0.8         | 120 ○     |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>53.1</b> | <b>11</b> |
| 6.1 Knowledge creation.....                                     | 65.0        | 6 ●       |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 14.7        | 5 ●       |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 5.9         | 9         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 3.8         | 10        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 29.1        | 31        |
| 6.1.5 Citable documents H index.....                            | 740.0       | 1 ●       |
| 6.2 Knowledge impact.....                                       | 48.4        | 35        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -0.3        | 97 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.3         | 52        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.6         | 16        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 16.4        | 29        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 53.6        | 6 ●       |
| 6.3 Knowledge diffusion.....                                    | 45.9        | 20        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.8         | 18        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 11.9        | 19        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.9         | 43        |
| 6.3.4 FDI net outflows, % GDP.....                              | 2.6         | 28        |
| <b>7 Creative outputs.....</b>                                  | <b>50.4</b> | <b>14</b> |
| 7.1 Intangible assets.....                                      | 53.6        | 25        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 75.5        | 30        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 2.1         | 15        |
| 7.1.3 ICTs & business model creation†.....                      | 72.2        | 14        |
| 7.1.4 ICTs & organizational model creation†.....                | 67.8        | 16        |
| 7.2 Creative goods & services.....                              | 27.6        | 42        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 68 ○      |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 3.6         | 40        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 1.7         | 11        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 56 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 1.9         | 29        |
| 7.3 Online creativity.....                                      | 66.7        | 11        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 65.7        | 15        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 75.3        | 5 ●       |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 24,636.9    | 15        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 83.9        | 20        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Ghana

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 25.4                |
| GDP (US\$ billions) .....   | 44.2                |
| GDP per capita, PPP\$ ..... | 3,461.1             |
| Income group .....          | Lower-middle income |
| Region .....                | Sub-Saharan Africa  |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>30.3</b>                           | <b>96</b>  |
| Innovation Output Sub-Index .....                            | 27.0                                  | 82         |
| Innovation Input Sub-Index.....                              | 33.5                                  | 106        |
| Innovation Efficiency Ratio.....                             | 0.8                                   | 37 ●       |
| Global Innovation Index 2013 (out of 142) .....              | 30.6                                  | 94         |
| <b>1 Institutions.....</b>                                   | <b>52.3</b>                           | <b>104</b> |
| 1.1 Political environment.....                               | 63.3                                  | 55 ●       |
| 1.1.1 Political stability*.....                              | 68.1                                  | 64         |
| 1.1.2 Government effectiveness*.....                         | 38.9                                  | 74         |
| 1.1.3 Press freedom*.....                                    | 82.7                                  | 28 ●       |
| 1.2 Regulatory environment .....                             | 32.4                                  | 137 ○      |
| 1.2.1 Regulatory quality* .....                              | 51.9                                  | 68         |
| 1.2.2 Rule of law*.....                                      | 45.5                                  | 62 ●       |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 49.8                                  | 137 ○      |
| 1.3 Business environment.....                                | 61.2                                  | 80         |
| 1.3.1 Ease of starting a business*.....                      | 82.5                                  | 75         |
| 1.3.2 Ease of resolving insolvency*.....                     | 27.7                                  | 102        |
| 1.3.3 Ease of paying taxes*.....                             | 73.4                                  | 53 ●       |
| <b>2 Human capital &amp; research.....</b>                   | <b>22.8</b>                           | <b>94</b>  |
| 2.1 Education .....  | 47.1                                  | 56 ●       |
| 2.1.1 Expenditure on education, % GDP.....                   | 8.1                                   | 7 ●        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 26.1                                  | 32 ●       |
| 2.1.3 School life expectancy, years.....                     | 11.5                                  | 96         |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 17.5                                  | 73         |
| 2.2 Tertiary education.....                                  | 18.2                                  | 103        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 12.2                                  | 102        |
| 2.2.2 Graduates in science & engineering, % .....            | 14.2                                  | 87         |
| 2.2.3 Tertiary inbound mobility, %.....                      | 3.1                                   | 51         |
| 2.3 Research & development (R&D).....                        | 3.1                                   | 94         |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 104.8                                 | 102        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.4                                   | 71         |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                 | <b>20.6</b>                           | <b>129</b> |
| 3.1 Information & communication technologies (ICTs).....     | 20.4                                  | 108        |
| 3.1.1 ICT access*.....                                       | 24.0                                  | 115        |
| 3.1.2 ICT use* .....   | 17.1                                  | 89         |
| 3.1.3 Government's online service*.....                      | 30.1                                  | 120        |
| 3.1.4 E-participation*.....                                  | 10.5                                  | 94         |
| 3.2 General infrastructure.....                              | 21.5                                  | 127        |
| 3.2.1 Electricity output, kWh/cap.....                       | 448.5                                 | 107        |
| 3.2.2 Logistics performance*.....                            | 35.7                                  | 106        |
| 3.2.3 Gross capital formation, % GDP.....                    | 20.3                                  | 88         |
| 3.3 Ecological sustainability.....                           | 19.8                                  | 133 ○      |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 3.9                                   | 98         |
| 3.3.2 Environmental performance*.....                        | 32.1                                  | 126        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.2                                   | 112        |
| <b>4 Market sophistication .....</b>                         | <b>42.5</b>                           | <b>112</b> |
| 4.1 Credit.....  | 28.9                                  | 97         |
| 4.1.1 Ease of getting credit*.....                           | 81.3                                  | 27 ●       |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 16.1                                  | 128        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.1                                   | 65         |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 27.7        | 110         |
| 4.2.1 Ease of protecting investors*.....                        | 63.3        | 32 ●        |
| 4.2.2 Market capitalization, % GDP.....                         | 8.5         | 93          |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.1         | 97          |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 41          |
| 4.3 Trade & competition .....                                   | 70.8        | 104         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 8.6         | 116         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 1.9         | 91          |
| 4.3.3 Intensity of local competition†.....                      | 67.0        | 64          |
| <b>5 Business sophistication .....</b>                          | <b>29.3</b> | <b>84</b>   |
| 5.1 Knowledge workers.....                                      | 22.1        | 117         |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a         |
| 5.1.2 Firms offering formal training, % firms.....              | 31.1        | 61          |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.0         | 84 ○        |
| 5.1.4 GERD performed by business, %.....                        | 0.2         | 86 ○        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 61.4        | 68          |
| 5.2 Innovation linkages .....                                   | 30.1        | 76          |
| 5.2.1 University/industry research collaboration†.....          | 40.5        | 76          |
| 5.2.2 State of cluster development†.....                        | 44.2        | 78          |
| 5.2.3 GERD financed by abroad, %.....                           | 31.2        | 14 ●        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 94          |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 106 ○       |
| 5.3 Knowledge absorption.....                                   | 35.7        | 27 ●        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | n/a         | n/a         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.9         | 67          |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | n/a         | n/a         |
| 5.3.4 FDI net inflows, % GDP.....                               | 8.1         | 19 ●        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>31.1</b> | <b>54 ●</b> |
| 6.1 Knowledge creation.....                                     | 6.2         | 102         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 109 ○       |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 6.9         | 91          |
| 6.1.5 Citable documents H index.....                            | 73.0        | 85          |
| 6.2 Knowledge impact.....                                       | 54.2        | 14 ●        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 5.6         | 5 ●         |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.5         | 129 ○       |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | n/a         | n/a         |
| 6.3 Knowledge diffusion.....                                    | 33.0        | 61 ●        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | n/a         | n/a         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.4         | 84          |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | n/a         | n/a         |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.0         | 103         |
| <b>7 Creative outputs .....</b>                                 | <b>22.9</b> | <b>112</b>  |
| 7.1 Intangible assets.....                                      | 42.6        | 78          |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.3         | 51          |
| 7.1.3 ICTs & business model creation†.....                      | 55.3        | 72          |
| 7.1.4 ICTs & organizational model creation†.....                | 48.5        | 85          |
| 7.2 Creative goods & services.....                              | 0.6         | 136 ○       |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a         |
| 7.2.5 Creative goods exports, % total trade.....                | 0.0         | 114 ○       |
| 7.3 Online creativity.....                                      | 6.0         | 105         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.8         | 107         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 0.0         | 141 ○       |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 278.4       | 113         |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 22.6        | 62 ○        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 11.3        |
| GDP (US\$ billions) .....   | 241.8       |
| GDP per capita, PPP\$ ..... | 24,012.0    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>38.9</b>                           | <b>50</b> |
| Innovation Output Sub-Index .....                             | 32.0                                  | 58        |
| Innovation Input Sub-Index.....                               | 45.9                                  | 44        |
| Innovation Efficiency Ratio.....                              | 0.7                                   | 85        |
| Global Innovation Index 2013 (out of 142) .....               | 37.7                                  | 55        |
| <b>1 Institutions.....</b>                                    | <b>66.6</b>                           | <b>57</b> |
| 1.1 Political environment.....                                | 60.2                                  | 60        |
| 1.1.1 Political stability*.....                               | 60.1                                  | 84        |
| 1.1.2 Government effectiveness*.....                          | 49.1                                  | 57        |
| 1.1.3 Press freedom*.....                                     | 71.5                                  | 70        |
| 1.2 Regulatory environment .....                              | 71.8                                  | 46        |
| 1.2.1 Regulatory quality* .....                               | 61.8                                  | 49        |
| 1.2.2 Rule of law*.....                                       | 57.2                                  | 48        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 15.9                                  | 74        |
| 1.3 Business environment.....                                 | 67.7                                  | 59        |
| 1.3.1 Ease of starting a business*.....                       | 89.4                                  | 43        |
| 1.3.2 Ease of resolving insolvency*.....                      | 36.0                                  | 77        |
| 1.3.3 Ease of paying taxes*.....                              | 77.9                                  | 41        |
| <b>2 Human capital &amp; research.....</b>                    | <b>43.5</b>                           | <b>31</b> |
| 2.1 Education .....   | 50.1                                  | 46        |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.1                                   | 89        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 21.5                                  | 52        |
| 2.1.3 School life expectancy, years.....                      | 16.5                                  | 14 ●      |
| 2.1.4 PISA scales in reading, maths, & science.....           | 465.6                                 | 39        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 7.9                                   | 3 ●       |
| 2.2 Tertiary education.....                                   | 53.1                                  | 17 ●      |
| 2.2.1 Tertiary enrolment, % gross.....                        | 91.4                                  | 5 ●       |
| 2.2.2 Graduates in science & engineering, % .....             | 27.5                                  | 16 ●      |
| 2.2.3 Tertiary inbound mobility, %.....                       | 4.2                                   | 39        |
| 2.3 Research & development (R&D).....                         | 27.3                                  | 37        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 4,068.8                               | 26        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.7                                   | 50        |
| 2.3.3 QS university ranking, average score top 3*.....        | 28.3                                  | 43        |
| <b>3 Infrastructure.....</b>                                  | <b>41.1</b>                           | <b>52</b> |
| 3.1 Information & communication technologies (ICTs).....      | 51.3                                  | 42        |
| 3.1.1 ICT access*.....  | 66.9                                  | 36        |
| 3.1.2 ICT use*.....   | 46.5                                  | 38        |
| 3.1.3 Government's online service*.....                       | 57.5                                  | 48        |
| 3.1.4 E-participation*.....                                   | 34.2                                  | 45        |
| 3.2 General infrastructure.....                               | 22.9                                  | 124 ○     |
| 3.2.1 Electricity output, kWh/cap.....                        | 5,080.8                               | 45        |
| 3.2.2 Logistics performance*.....                             | 48.4                                  | 69        |
| 3.2.3 Gross capital formation, % GDP.....                     | 13.2                                  | 137 ○     |
| 3.3 Ecological sustainability.....                            | 49.2                                  | 30        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 9.1                                   | 22        |
| 3.3.2 Environmental performance*.....                         | 73.3                                  | 23 ●      |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 2.4                                   | 40        |
| <b>4 Market sophistication .....</b>                          | <b>47.9</b>                           | <b>73</b> |
| 4.1 Credit.....   | 47.6                                  | 37        |
| 4.1.1 Ease of getting credit*.....                            | 56.3                                  | 81        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 120.7                                 | 23 ●      |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 24.6        | 122       |
| 4.2.1 Ease of protecting investors*.....                        | 53.3        | 66        |
| 4.2.2 Market capitalization, % GDP.....                         | 17.9        | 76        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 6.0         | 46        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 69 ○      |
| 4.3 Trade & competition .....                                   | 71.5        | 101       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 62.5        | 84        |
| <b>5 Business sophistication .....</b>                          | <b>30.6</b> | <b>78</b> |
| 5.1 Knowledge workers.....                                      | 39.7        | 67        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 31.1        | 43        |
| 5.1.2 Firms offering formal training, % firms.....              | 20.0        | 92 ○      |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.2         | 45        |
| 5.1.4 GERD performed by business, %.....                        | 34.3        | 52        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 534.2       | 8 ●       |
| 5.2 Innovation linkages .....                                   | 29.0        | 83        |
| 5.2.1 University/industry research collaboration†.....          | 33.5        | 115       |
| 5.2.2 State of cluster development† .....                       | 33.0        | 121 ○     |
| 5.2.3 GERD financed by abroad, %.....                           | 15.8        | 26        |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.1         | 13 ●      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 61        |
| 5.3 Knowledge absorption.....                                   | 23.0        | 84        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.6         | 48        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.8         | 71        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.4         | 40        |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.2         | 109       |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>30.6</b> | <b>55</b> |
| 6.1 Knowledge creation.....                                     | 18.6        | 55        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.3         | 49        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 46        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.1         | 60 ○      |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 36.2        | 21 ●      |
| 6.1.5 Citable documents H index.....                            | 266.0       | 29        |
| 6.2 Knowledge impact.....                                       | 44.0        | 50        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -1.3        | 106 ○     |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a       |
| 6.2.3 Computer software spending, % GDP.....                    | 0.6         | 15        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 17.8        | 26        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 14.1        | 65        |
| 6.3 Knowledge diffusion.....                                    | 29.3        | 82        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 50        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.8         | 55        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.4         | 66        |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.3         | 76        |
| <b>7 Creative outputs .....</b>                                 | <b>33.3</b> | <b>65</b> |
| 7.1 Intangible assets.....                                      | 24.1        | 135 ○     |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 5.0         | 98 ○      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.3         | 45        |
| 7.1.3 ICTs & business model creation†.....                      | 41.7        | 123 ○     |
| 7.1.4 ICTs & organizational model creation†.....                | 37.8        | 123 ○     |
| 7.2 Creative goods & services.....                              | 40.9        | 17 ●      |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 77        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 5.5         | 26        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.6         | 28        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.1         | 1 ●       |
| 7.2.5 Creative goods exports, % total trade.....                | 0.5         | 55        |
| 7.3 Online creativity .....                                     | 43.9        | 33        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 14.0        | 38        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 53.8        | 31        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 14,207.3    | 35        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 83.7        | 21        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Guatemala

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 15.1                            |
| GDP (US\$ billions) .....   | 54.4                            |
| GDP per capita, PPP\$ ..... | 5,282.4                         |
| Income group.....           | Lower-middle income             |
| Region.....                 | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>30.8</b>                           | <b>93</b> |
| Innovation Output Sub-Index .....                | 24.8                                  | 97        |
| Innovation Input Sub-Index.....                  | 36.7                                  | 94        |
| Innovation Efficiency Ratio.....                 | 0.7                                   | 95        |
| Global Innovation Index 2013 (out of 142) .....  | 31.5                                  | 87        |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>1</b> | <b>Institutions.....</b>                        | <b>57.8</b> | <b>83</b> |
| 1.1      | Political environment.....                      | 46.9        | 99        |
| 1.1.1    | Political stability*.....                       | 49.7        | 105       |
| 1.1.2    | Government effectiveness*.....                  | 20.5        | 117       |
| 1.1.3    | Press freedom*.....                             | 70.6        | 76        |
| 1.2      | Regulatory environment.....                     | 46.0        | 121       |
| 1.2.1    | Regulatory quality*.....                        | 44.2        | 87        |
| 1.2.2    | Rule of law*.....                               | 16.2        | 129       |
| 1.2.3    | Cost of redundancy dismissal, salary weeks..... | 27.0        | 117       |
| 1.3      | Business environment.....                       | 80.4        | 20 ●      |
| 1.3.1    | Ease of starting a business*.....               | 80.4        | 89        |
| 1.3.2    | Ease of resolving insolvency*.....              | n/a         | n/a       |
| 1.3.3    | Ease of paying taxes*.....                      | n/a         | n/a       |

|          |  |             |            |
|----------|--|-------------|------------|
| <b>2</b> | <b>Human capital &amp; research.....</b>           | <b>17.3</b> | <b>113</b> |
| 2.1      | Education.....                                     | 27.1        | 124        |
| 2.1.1    | Expenditure on education, % GDP.....               | 3.0         | 112        |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap..... | 4.8         | 110 ○      |
| 2.1.3    | School life expectancy, years.....                 | 10.6        | 109        |
| 2.1.4    | PISA scales in reading, maths, & science.....      | n/a         | n/a        |
| 2.1.5    | Pupil-teacher ratio, secondary.....                | 14.5        | 54         |
| 2.2      | Tertiary education.....                            | 24.4        | 90         |
| 2.2.1    | Tertiary enrolment, % gross.....                   | 17.9        | 93         |
| 2.2.2    | Graduates in science & engineering, %.....         | 16.8        | 71         |
| 2.2.3    | Tertiary inbound mobility, %.....                  | n/a         | n/a        |
| 2.3      | Research & development (R&D).....                  | 0.4         | 126        |
| 2.3.1    | Researchers, headcounts/mn pop.....                | 40.9        | 115 ○      |
| 2.3.2    | Gross expenditure on R&D, % GDP.....               | 0.0         | 111 ○      |
| 2.3.3    | QS university ranking, average score top 3*.....   | 0.0         | 70 ○       |

|          |  |             |            |
|----------|--|-------------|------------|
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>28.1</b> | <b>100</b> |
| 3.1      | Information & communication technologies (ICTs).....   | 35.0        | 77         |
| 3.1.1    | ICT access*.....                                       | n/a         | n/a        |
| 3.1.2    | ICT use*.....  | n/a         | n/a        |
| 3.1.3    | Government's online service*.....                      | 46.4        | 79         |
| 3.1.4    | E-participation*.....                                  | 23.7        | 60         |
| 3.2      | General infrastructure.....                            | 18.4        | 133 ○      |
| 3.2.1    | Electricity output, kWh/cap.....                       | 551.9       | 105        |
| 3.2.2    | Logistics performance*.....                            | 47.2        | 75         |
| 3.2.3    | Gross capital formation, % GDP.....                    | 14.6        | 129        |
| 3.3      | Ecological sustainability.....                         | 30.8        | 89         |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 6.3         | 60         |
| 3.3.2    | Environmental performance*.....                        | 48.1        | 88         |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.2         | 114        |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>4</b> | <b>Market sophistication.....</b>             | <b>49.5</b> | <b>61</b> |
| 4.1      | Credit.....                                   | 34.0        | 77        |
| 4.1.1    | Ease of getting credit*.....                  | 87.5        | 13 ●      |
| 4.1.2    | Domestic credit to private sector, % GDP..... | 31.8        | 94        |
| 4.1.3    | Microfinance gross loans, % GDP.....          | 0.4         | 50        |

|       |  |      |       |
|-------|--|------|-------|
| 4.2   | Investment.....                          | 33.3 | 76    |
| 4.2.1 | Ease of protecting investors*.....       | 33.3 | 125 ○ |
| 4.2.2 | Market capitalization, % GDP.....        | n/a  | n/a   |
| 4.2.3 | Total value of stocks traded, % GDP..... | n/a  | n/a   |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....  | n/a  | n/a   |

|            |   |             |             |
|------------|---|-------------|-------------|
| <b>4.3</b> | <b>Trade &amp; competition.....</b>                 | <b>81.2</b> | <b>24 ●</b> |
| 4.3.1      | Applied tariff rate, weighted mean, %.....          | 2.3         | 50 ●        |
| 4.3.2      | Non-agricultural mkt access weighted tariff, %..... | 0.7         | 58          |
| 4.3.3      | Intensity of local competition <sup>†</sup> .....   | 70.0        | 50          |

|          |  |             |           |
|----------|--|-------------|-----------|
| <b>5</b> | <b>Business sophistication.....</b>          | <b>30.7</b> | <b>77</b> |
| 5.1      | Knowledge workers.....                       | 22.8        | 115       |
| 5.1.1    | Knowledge-intensive employment, %.....       | 9.4         | 98        |
| 5.1.2    | Firms offering formal training, % firms..... | 43.6        | 38 ●      |
| 5.1.3    | GERD performed by business, % GDP.....       | 0.0         | 87 ○      |
| 5.1.4    | GERD performed by business, %.....           | 0.3         | 84 ○      |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....          | 23.5        | 108       |

|            |   |             |             |
|------------|---|-------------|-------------|
| <b>5.2</b> | <b>Innovation linkages.....</b>                               | <b>47.9</b> | <b>20 ●</b> |
| 5.2.1      | University/industry research collaboration <sup>†</sup> ..... | 45.8        | 55          |
| 5.2.2      | State of cluster development <sup>†</sup> .....               | 52.0        | 43 ●        |
| 5.2.3      | GERD financed by abroad, %.....                               | 52.4        | 4 ●         |
| 5.2.4      | JV–strategic alliance deals/tr PPP\$ GDP.....                 | n/a         | n/a         |
| 5.2.5      | Patent families filed in 3+ offices/bn PPP\$ GDP.....         | 0.0         | 82          |
| <b>5.3</b> | <b>Knowledge absorption.....</b>                              | <b>21.5</b> | <b>92</b>   |
| 5.3.1      | Royalty & license fees payments, % total trade.....           | 0.7         | 40 ●        |
| 5.3.2      | High-tech imports less re-imports, %.....                     | 8.6         | 46 ●        |
| 5.3.3      | Comm., computer & info. services imp., % total trade.....     | 0.4         | 103         |
| 5.3.4      | FDI net inflows, % GDP.....                                   | 2.3         | 82          |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>6</b> | <b>Knowledge &amp; technology outputs.....</b>    | <b>22.3</b> | <b>98</b> |
| 6.1      | Knowledge creation.....                           | 2.1         | 139 ○     |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP.....    | 0.1         | 103 ○     |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP.....         | 0.0         | 108 ○     |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP.....  | 0.2         | 50        |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP..... | 1.6         | 135 ○     |
| 6.1.5    | Citable documents H index.....                    | 53.0        | 106       |

|            |   |             |             |
|------------|---|-------------|-------------|
| <b>6.2</b> | <b>Knowledge impact.....</b>                              | <b>31.1</b> | <b>100</b>  |
| 6.2.1      | Growth rate of PPP\$ GDP/worker, %.....                   | 0.1         | 88          |
| 6.2.2      | New businesses/th pop. 15–64.....                         | 0.5         | 75          |
| 6.2.3      | Computer software spending, % GDP.....                    | n/a         | n/a         |
| 6.2.4      | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 2.3         | 94          |
| 6.2.5      | High- & medium-high-tech manufactures, %.....             | n/a         | n/a         |
| <b>6.3</b> | <b>Knowledge diffusion.....</b>                           | <b>33.9</b> | <b>51 ●</b> |
| 6.3.1      | Royalty & license fees receipts, % total trade.....       | 0.1         | 45          |
| 6.3.2      | High-tech exports less re-exports, %.....                 | 1.3         | 62          |
| 6.3.3      | Comm., computer & info. services exp., % total trade..... | 2.8         | 22 ●        |
| 6.3.4      | FDI net outflows, % GDP.....                              | 0.0         | 109         |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>7</b> | <b>Creative outputs.....</b>                            | <b>27.3</b> | <b>94</b> |
| 7.1      | Intangible assets.....                                  | 46.2        | 60        |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP.....            | 54.0        | 50        |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....         | n/a         | n/a       |
| 7.1.3    | ICTs & business model creation <sup>†</sup> .....       | 59.5        | 56        |
| 7.1.4    | ICTs & organizational model creation <sup>†</sup> ..... | 58.0        | 48 ●      |

|            |  |            |           |
|------------|--|------------|-----------|
| <b>7.2</b> | <b>Creative goods &amp; services.....</b>                | <b>9.8</b> | <b>97</b> |
| 7.2.1      | Cultural & creative services exports, % total trade..... | 0.0        | 75        |
| 7.2.2      | National feature films/mn pop. 15–69.....                | 1.3        | 65        |
| 7.2.3      | Global ent. & media output/th pop. 15–69.....            | n/a        | n/a       |
| 7.2.4      | Printing & publishing manufactures, %.....               | n/a        | n/a       |
| 7.2.5      | Creative goods exports, % total trade.....               | 0.5        | 57        |

|            |   |            |            |
|------------|---|------------|------------|
| <b>7.3</b> | <b>Online creativity.....</b>                       | <b>7.1</b> | <b>101</b> |
| 7.3.1      | Generic top-level domains (TLDs)/th pop. 15–69..... | 6.7        | 55 ●       |
| 7.3.2      | Country-code TLDs/th pop. 15–69.....                | 12.4       | 94         |
| 7.3.3      | Wikipedia edits/pop. 15–69.....                     | 1,239.7    | 92         |
| 7.3.4      | Video uploads on YouTube/pop. 15–69.....            | n/a        | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 11.5               |
| GDP (US\$ billions) .....   | 6.3                |
| GDP per capita, PPP\$ ..... | 1,125.1            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>20.2</b>                           | <b>139</b> |
| Innovation Output Sub-Index .....                | 15.4                                  | 138        |
| Innovation Input Sub-Index.....                  | 25.1                                  | 140        |
| Innovation Efficiency Ratio.....                 | 0.6                                   | 109        |
| Global Innovation Index 2013 (out of 142) .....  | 25.7                                  | 126        |

|          |  |             |              |
|----------|--|-------------|--------------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>42.6</b> | <b>132</b>   |
| 1.1      | Political environment.....                             | 37.6        | 131          |
| 1.1.1    | Political stability*.....                              | 34.3        | 128          |
| 1.1.2    | Government effectiveness*.....                         | 6.9         | 138          |
| 1.1.3    | Press freedom*.....                                    | 71.5        | 71 ●         |
| 1.2      | Regulatory environment.....                            | 57.3        | 96 ●         |
| 1.2.1    | Regulatory quality*.....                               | 22.2        | 132          |
| 1.2.2    | Rule of law*.....                                      | 6.8         | 141 ○        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 8.0         | 1 ●          |
| 1.3      | Business environment.....                              | 33.0        | 142 ○        |
| 1.3.1    | Ease of starting a business*.....                      | 64.3        | 126          |
| 1.3.2    | Ease of resolving insolvency*.....                     | 18.7        | 124          |
| 1.3.3    | Ease of paying taxes*.....                             | 16.1        | 140 ○        |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>7.7</b>  | <b>140</b>   |
| 2.1      | Education.....   | 16.2        | 135          |
| 2.1.1    | Expenditure on education, % GDP.....                   | 2.5         | 121          |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 9.9         | 99           |
| 2.1.3    | School life expectancy, years.....                     | 8.7         | 121          |
| 2.1.4    | PISA scales in reading, maths, & science.....          | n/a         | n/a          |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 33.1        | 109          |
| 2.2      | Tertiary education.....                                | 7.0         | 131          |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 9.9         | 110          |
| 2.2.2    | Graduates in science & engineering, %.....             | n/a         | n/a          |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 0.9         | 82           |
| 2.3      | Research & development (R&D).....                      | 0.0         | 131 ○        |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | n/a         | n/a          |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | n/a         | n/a          |
| 2.3.3    | QS university ranking, average score top 3*.....       | 0.0         | 70 ○         |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>16.5</b> | <b>139</b>   |
| 3.1      | Information & communication technologies (ICTs).....   | 4.4         | 143 ○        |
| 3.1.1    | ICT access*.....                                       | 17.1        | 130          |
| 3.1.2    | ICT use*.....  | 0.5         | 134 ○        |
| 3.1.3    | Government's online service*.....                      | 0.0         | 142 ○        |
| 3.1.4    | E-participation*.....                                  | 0.0         | 129 ○        |
| 3.2      | General infrastructure.....                            | 26.0        | 106          |
| 3.2.1    | Electricity output, kWh/cap.....                       | n/a         | n/a          |
| 3.2.2    | Logistics performance*.....                            | 34.5        | 110          |
| 3.2.3    | Gross capital formation, % GDP.....                    | 19.2        | 100          |
| 3.3      | Ecological sustainability.....                         | 19.2        | 137          |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | n/a         | n/a          |
| 3.3.2    | Environmental performance*.....                        | 28.0        | 133          |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.2         | 105          |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>32.5</b> | <b>142</b> ○ |
| 4.1      | Credit.....  | 13.9        | 139          |
| 4.1.1    | Ease of getting credit*.....                           | 37.5        | 130          |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 9.1         | 140 ○        |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | 0.2         | 57 ●         |

|       |   |      |       |
|-------|---|------|-------|
| 4.2   | Investment.....                                     | 26.7 | 115   |
| 4.2.1 | Ease of protecting investors*.....                  | 26.7 | 140 ○ |
| 4.2.2 | Market capitalization, % GDP.....                   | n/a  | n/a   |
| 4.2.3 | Total value of stocks traded, % GDP.....            | n/a  | n/a   |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3   | Trade & competition.....                            | 56.9 | 134   |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 11.9 | 131   |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 3.1  | 95 ●  |
| 4.3.3 | Intensity of local competition†.....                | 51.0 | 123   |

**5 Business sophistication.....26.3 107**

|       |   |      |       |
|-------|---|------|-------|
| 5.1   | Knowledge workers.....                                    | 9.9  | 140   |
| 5.1.1 | Knowledge-intensive employment, %.....                    | 0.7  | 110 ○ |
| 5.1.2 | Firms offering formal training, % firms.....              | 21.1 | 91    |
| 5.1.3 | GERD performed by business, % GDP.....                    | n/a  | n/a   |
| 5.1.4 | GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 | GMAT test takers/mn pop. 20–34.....                       | 4.0  | 134   |
| 5.2   | Innovation linkages.....                                  | 27.2 | 91 ●  |
| 5.2.1 | University/industry research collaboration†.....          | 19.8 | 132   |
| 5.2.2 | State of cluster development†.....                        | 36.2 | 113   |
| 5.2.3 | GERD financed by abroad, %.....                           | n/a  | n/a   |
| 5.2.4 | JV–strategic alliance deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 5.2.5 | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.1  | 44 ●  |
| 5.3   | Knowledge absorption.....                                 | 41.9 | 10 ●  |
| 5.3.1 | Royalty & license fees payments, % total trade.....       | 0.0  | 114   |
| 5.3.2 | High-tech imports less re-imports, %.....                 | n/a  | n/a   |
| 5.3.3 | Comm., computer & info. services imp., % total trade..... | 0.6  | 88 ●  |
| 5.3.4 | FDI net inflows, % GDP.....                               | 18.8 | 5 ●   |

**6 Knowledge & technology outputs.....12.5 138**

|       |   |      |      |
|-------|---|------|------|
| 6.1   | Knowledge creation.....                                   | 3.2  | 130  |
| 6.1.1 | Domestic resident patent app./tr PPP\$ GDP.....           | n/a  | n/a  |
| 6.1.2 | PCT resident patent app./tr PPP\$ GDP.....                | 0.1  | 75 ● |
| 6.1.3 | Domestic res utility model app./tr PPP\$ GDP.....         | n/a  | n/a  |
| 6.1.4 | Scientific & technical articles/bn PPP\$ GDP.....         | 2.9  | 125  |
| 6.1.5 | Citable documents H index.....                            | 34.0 | 130  |
| 6.2   | Knowledge impact.....                                     | 3.0  | 137  |
| 6.2.1 | Growth rate of PPP\$ GDP/worker, %.....                   | n/a  | n/a  |
| 6.2.2 | New businesses/th pop. 15–64.....                         | 0.2  | 84   |
| 6.2.3 | Computer software spending, % GDP.....                    | n/a  | n/a  |
| 6.2.4 | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 2.1  | 97 ● |
| 6.2.5 | High- & medium-high-tech manufactures, %.....             | n/a  | n/a  |
| 6.3   | Knowledge diffusion.....                                  | 31.2 | 70 ● |
| 6.3.1 | Royalty & license fees receipts, % total trade.....       | 0.0  | 96   |
| 6.3.2 | High-tech exports less re-exports, %.....                 | n/a  | n/a  |
| 6.3.3 | Comm., computer & info. services exp., % total trade..... | 1.6  | 57 ● |
| 6.3.4 | FDI net outflows, % GDP.....                              | 0.0  | 100  |

**7 Creative outputs.....18.2 126**

|       |  |      |       |
|-------|--|------|-------|
| 7.1   | Intangible assets.....                                   | 34.7 | 117   |
| 7.1.1 | Domestic res trademark app./bn PPP\$ GDP.....            | n/a  | n/a   |
| 7.1.2 | Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a  | n/a   |
| 7.1.3 | ICTs & business model creation†.....                     | 38.0 | 129   |
| 7.1.4 | ICTs & organizational model creation†.....               | 31.3 | 134 ○ |
| 7.2   | Creative goods & services.....                           | 3.4  | 116   |
| 7.2.1 | Cultural & creative services exports, % total trade..... | 0.0  | 82    |
| 7.2.2 | National feature films/mn pop. 15–69.....                | 0.8  | 77    |
| 7.2.3 | Global ent. & media output/th pop. 15–69.....            | n/a  | n/a   |
| 7.2.4 | Printing & publishing manufactures, %.....               | n/a  | n/a   |
| 7.2.5 | Creative goods exports, % total trade.....               | n/a  | n/a   |
| 7.3   | Online creativity.....                                   | 0.1  | 139   |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.1  | 137   |
| 7.3.2 | Country-code TLDs/th pop. 15–69.....                     | 0.3  | 135   |
| 7.3.3 | Wikipedia edits/pop. 15–69.....                          | 5.3  | 142 ○ |
| 7.3.4 | Video uploads on YouTube/pop. 15–69.....                 | n/a  | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 0.8                             |
| GDP (US\$ billions) .....   | 3.0                             |
| GDP per capita, PPP\$ ..... | 8,250.2                         |
| Income group .....          | Lower-middle income             |
| Region .....                | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>32.5</b>                           | <b>80</b>    |
| Innovation Output Sub-Index .....                             | 27.7                                  | 76           |
| Innovation Input Sub-Index .....                              | 37.3                                  | 92           |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 68           |
| Global Innovation Index 2013 (out of 142) .....               | 34.4                                  | 78           |
| <b>1 Institutions.....</b>                                    | <b>55.9</b>                           | <b>89</b>    |
| 1.1 Political environment.....                                | 54.6                                  | 79           |
| 1.1.1 Political stability*.....                               | 53.9                                  | 94           |
| 1.1.2 Government effectiveness*.....                          | 37.1                                  | 79           |
| 1.1.3 Press freedom*.....                                     | 72.9                                  | 56           |
| 1.2 Regulatory environment .....                              | 57.4                                  | 95           |
| 1.2.1 Regulatory quality* .....                               | 32.3                                  | 116          |
| 1.2.2 Rule of law*.....                                       | 32.1                                  | 92           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 16.7                                  | 78           |
| 1.3 Business environment.....                                 | 55.8                                  | 96           |
| 1.3.1 Ease of starting a business*.....                       | 81.8                                  | 79           |
| 1.3.2 Ease of resolving insolvency*.....                      | 19.0                                  | 121          |
| 1.3.3 Ease of paying taxes*.....                              | 66.7                                  | 81           |
| <b>2 Human capital &amp; research.....</b>                    | <b>13.5</b>                           | <b>130</b> ○ |
| 2.1 Education .....   | 26.3                                  | 126          |
| 2.1.1 Expenditure on education, % GDP .....                   | 3.2                                   | 107          |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 9.8                                   | 100          |
| 2.1.3 School life expectancy, years.....                      | 10.3                                  | 112          |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 20.3                                  | 82           |
| 2.2 Tertiary education.....                                   | 14.2                                  | 114          |
| 2.2.1 Tertiary enrolment, % gross.....                        | 12.9                                  | 100          |
| 2.2.2 Graduates in science & engineering, % .....             | 13.4                                  | 91           |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.4                                   | 96           |
| 2.3 Research & development (R&D).....                         | 0.0                                   | 131          |
| 2.3.1 Researchers, headcounts/mn pop.....                     | n/a                                   | n/a          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a          |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70           |
| <b>3 Infrastructure.....</b>                                  | <b>25.3</b>                           | <b>116</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 17.7                                  | 119          |
| 3.1.1 ICT access*.....  | 31.8                                  | 99           |
| 3.1.2 ICT use* .....  | 13.6                                  | 97           |
| 3.1.3 Government's online service*.....                       | 25.5                                  | 128          |
| 3.1.4 E-participation*.....                                   | 0.0                                   | 129          |
| 3.2 General infrastructure.....                               | 32.6                                  | 72           |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a                                   | n/a          |
| 3.2.2 Logistics performance* .....                            | 28.6                                  | 123          |
| 3.2.3 Gross capital formation, % GDP.....                     | 25.3                                  | 48           |
| 3.3 Ecological sustainability .....                           | 25.7                                  | 114          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a                                   | n/a          |
| 3.3.2 Environmental performance*.....                         | 38.1                                  | 115          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.2                                   | 115          |
| <b>4 Market sophistication .....</b>                          | <b>40.4</b>                           | <b>123</b>   |
| 4.1 Credit.....   | 14.0                                  | 138          |
| 4.1.1 Ease of getting credit* .....                           | 25.0                                  | 134          |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 41.0                                  | 81           |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.4                                   | 52           |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 29.8        | 99          |
| 4.2.1 Ease of protecting investors*.....                            | 53.3        | 66          |
| 4.2.2 Market capitalization, % GDP.....                             | 21.4        | 67          |
| 4.2.3 Total value of stocks traded, % GDP.....                      | 0.0         | 104         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                       | n/a         | n/a         |
| 4.3 Trade & competition .....                                       | 77.5        | 49          |
| 4.3.1 Applied tariff rate, weighted mean, %.....                    | 6.5         | 101         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....           | 0.0         | 8           |
| 4.3.3 Intensity of local competition <sup>†</sup> .....             | 66.5        | 66          |
| <b>5 Business sophistication .....</b>                              | <b>51.2</b> | <b>13</b> ● |
| 5.1 Knowledge workers.....  | 59.7        | 28          |
| 5.1.1 Knowledge-intensive employment, %.....                        | n/a         | n/a         |
| 5.1.2 Firms offering formal training, % firms.....                  | 53.4        | 18          |
| 5.1.3 GERD performed by business, % GDP .....                       | n/a         | n/a         |
| 5.1.4 GERD performed by business, %.....                            | n/a         | n/a         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                           | 99.1        | 52          |
| 5.2 Innovation linkages .....                                       | 47.9        | 21          |
| 5.2.1 University/industry research collaboration <sup>†</sup> ..... | 44.3        | 60          |
| 5.2.2 State of cluster development <sup>†</sup> .....               | 49.7        | 56          |
| 5.2.3 GERD financed by abroad, %.....                               | n/a         | n/a         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....                | n/a         | n/a         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....        | n/a         | n/a         |
| 5.3 Knowledge absorption.....                                       | 46.0        | 7           |
| 5.3.1 Royalty & license fees payments, % total trade.....           | 2.0         | 7           |
| 5.3.2 High-tech imports less re-imports, %.....                     | 8.4         | 50          |
| 5.3.3 Comm., computer & info. services imp., % total trade.....     | 2.6         | 5           |
| 5.3.4 FDI net inflows, % GDP.....                                   | 6.4         | 30          |
| <b>6 Knowledge &amp; technology outputs .....</b>                   | <b>18.6</b> | <b>117</b>  |
| 6.1 Knowledge creation.....   | 2.4         | 137         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....                | n/a         | n/a         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                     | n/a         | n/a         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....              | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....             | 2.1         | 132         |
| 6.1.5 Citable documents H index.....                                | 27.0        | 136         |
| 6.2 Knowledge impact.....   | 3.1         | 136         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                       | n/a         | n/a         |
| 6.2.2 New businesses/th pop. 15–64.....                             | n/a         | n/a         |
| 6.2.3 Computer software spending, % GDP.....                        | n/a         | n/a         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....               | 1.5         | 115         |
| 6.2.5 High- & medium-high-tech manufactures, % .....                | n/a         | n/a         |
| 6.3 Knowledge diffusion.....  | 50.3        | 11          |
| 6.3.1 Royalty & license fees receipts, % total trade .....          | 3.4         | 5           |
| 6.3.2 High-tech exports less re-exports, %.....                     | 0.0         | 123         |
| 6.3.3 Comm., computer & info. services exp., % total trade.....     | 3.7         | 14          |
| 6.3.4 FDI net outflows, % GDP .....                                 | n/a         | n/a         |
| <b>7 Creative outputs .....</b>                                     | <b>36.7</b> | <b>52</b> ● |
| 7.1 Intangible assets .....   | 51.7        | 33          |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....                  | n/a         | n/a         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....               | n/a         | n/a         |
| 7.1.3 ICTs & business model creation <sup>†</sup> .....             | 51.2        | 90          |
| 7.1.4 ICTs & organizational model creation <sup>†</sup> .....       | 52.2        | 71          |
| 7.2 Creative goods & services.....                                  | 33.6        | 34          |
| 7.2.1 Cultural & creative services exports, % total trade.....      | n/a         | n/a         |
| 7.2.2 National feature films/mn pop. 15–69.....                     | 22.9        | 1           |
| 7.2.3 Global ent. & media output/th pop. 15–69.....                 | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                    | n/a         | n/a         |
| 7.2.5 Creative goods exports, % total trade.....                    | 0.0         | 120         |
| 7.3 Online creativity .....   | 10.0        | 92          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....           | 3.2         | 69          |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                          | 25.8        | 68          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                               | 541.4       | 105         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                     | n/a         | n/a         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 7.9                             |
| GDP (US\$ billions) .....   | 18.8                            |
| GDP per capita, PPP\$ ..... | 4,839.4                         |
| Income group .....          | Lower-middle income             |
| Region .....                | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>26.7</b>                           | <b>118</b> |
| Innovation Output Sub-Index .....                | 18.6                                  | 126 ○      |
| Innovation Input Sub-Index.....                  | 34.8                                  | 102        |
| Innovation Efficiency Ratio.....                 | 0.5                                   | 128 ○      |
| Global Innovation Index 2013 (out of 142) .....  | 28.8                                  | 107        |

|  |             |            |   |
|--|-------------|------------|---|
| <b>1 Institutions.....</b>                                   | <b>46.1</b> | <b>125</b> | ○ |
| 1.1 Political environment.....                               | 46.9        | 100        |   |
| 1.1.1 Political stability*.....                              | 55.9        | 88         |   |
| 1.1.2 Government effectiveness*.....                         | 21.7        | 116        |   |
| 1.1.3 Press freedom*.....                                    | 63.1        | 104        |   |
| 1.2 Regulatory environment.....                              | 42.0        | 127        | ○ |
| 1.2.1 Regulatory quality*.....                               | 43.6        | 88         |   |
| 1.2.2 Rule of law*.....                                      | 14.2        | 133        | ○ |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 30.3        | 129        | ○ |
| 1.3 Business environment.....                                | 49.3        | 119        |   |
| 1.3.1 Ease of starting a business*.....                      | 69.4        | 116        |   |
| 1.3.2 Ease of resolving insolvency*.....                     | 20.6        | 118        |   |
| 1.3.3 Ease of paying taxes*.....                             | 57.8        | 109        |   |
| <b>2 Human capital &amp; research.....</b>                   | <b>19.7</b> | <b>103</b> |   |
| 2.1 Education.....   | 41.4        | 80         |   |
| 2.1.1 Expenditure on education, % GDP.....                   | n/a         | n/a        |   |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | n/a         | n/a        |   |
| 2.1.3 School life expectancy, years.....                     | 11.4        | 97         |   |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a         | n/a        |   |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | n/a         | n/a        |   |
| 2.2 Tertiary education.....                                  | 17.5        | 105        |   |
| 2.2.1 Tertiary enrolment, % gross.....                       | 20.4        | 91         |   |
| 2.2.2 Graduates in science & engineering, %.....             | 14.1        | 88         |   |
| 2.2.3 Tertiary inbound mobility, %.....                      | 0.9         | 83         |   |
| 2.3 Research & development (R&D).....                        | 0.3         | 127        | ○ |
| 2.3.1 Researchers, headcounts/mn pop.....                    | n/a         | n/a        |   |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.0         | 113        | ○ |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0         | 70         | ○ |
| <b>3 Infrastructure.....</b>                                 | <b>26.6</b> | <b>111</b> |   |
| 3.1 Information & communication technologies (ICTs).....     | 22.4        | 102        |   |
| 3.1.1 ICT access*.....                                       | 30.5        | 102        |   |
| 3.1.2 ICT use*.....  | 8.1         | 108        |   |
| 3.1.3 Government's online service*.....                      | 37.9        | 97         |   |
| 3.1.4 E-participation*.....                                  | 13.2        | 84         |   |
| 3.2 General infrastructure.....                              | 26.9        | 103        |   |
| 3.2.1 Electricity output, kWh/cap.....                       | 918.3       | 93         |   |
| 3.2.2 Logistics performance*.....                            | 36.5        | 103        |   |
| 3.2.3 Gross capital formation, % GDP.....                    | 24.7        | 51         | ● |
| 3.3 Ecological sustainability.....                           | 30.6        | 90         |   |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 5.8         | 71         |   |
| 3.3.2 Environmental performance*.....                        | 48.9        | 87         |   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.5         | 85         |   |
| <b>4 Market sophistication.....</b>                          | <b>48.9</b> | <b>64</b>  | ● |
| 4.1 Credit.....  | 42.8        | 52         | ● |
| 4.1.1 Ease of getting credit*.....                           | 87.5        | 13         | ● |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 51.8        | 64         | ● |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 2.0         | 25         | ● |

|   |      |     |   |
|---|------|-----|---|
| 4.2 Investment.....                                       | 30.0 | 95  |   |
| 4.2.1 Ease of protecting investors*.....                  | 30.0 | 133 | ○ |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a |   |
| 4.2.3 Total value of stocks traded, % GDP.....            | n/a  | n/a |   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a |   |
| 4.3 Trade & competition.....                              | 73.9 | 85  |   |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 6.5  | 100 |   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.0  | 15  | ● |
| 4.3.3 Intensity of local competition <sup>†</sup> .....   | 59.3 | 99  |   |

|   |             |           |   |
|---|-------------|-----------|---|
| <b>5 Business sophistication.....</b>                               | <b>32.9</b> | <b>67</b> | ● |
| 5.1 Knowledge workers.....  | 30.5        | 93        |   |
| 5.1.1 Knowledge-intensive employment, %.....                        | 12.8        | 95        | ○ |
| 5.1.2 Firms offering formal training, % firms.....                  | 33.8        | 52        | ● |
| 5.1.3 GERD performed by business, % GDP.....                        | n/a         | n/a       |   |
| 5.1.4 GERD performed by business, %.....                            | n/a         | n/a       |   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                           | 38.0        | 82        |   |
| 5.2 Innovation linkages.....  | 45.7        | 29        | ● |
| 5.2.1 University/industry research collaboration <sup>†</sup> ..... | 39.0        | 83        |   |
| 5.2.2 State of cluster development <sup>†</sup> .....               | 49.0        | 60        | ● |
| 5.2.3 GERD financed by abroad, %.....                               | n/a         | n/a       |   |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP.....                 | n/a         | n/a       |   |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....         | n/a         | n/a       |   |
| 5.3 Knowledge absorption.....                                       | 22.4        | 89        |   |
| 5.3.1 Royalty & license fees payments, % total trade.....           | 0.4         | 64        | ● |
| 5.3.2 High-tech imports less re-imports, %.....                     | 6.4         | 80        |   |
| 5.3.3 Comm., computer & info. services imp., % total trade.....     | 0.7         | 81        |   |
| 5.3.4 FDI net inflows, % GDP.....                                   | 5.9         | 33        | ● |

|   |             |            |   |
|---|-------------|------------|---|
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>16.2</b> | <b>125</b> | ○ |
| 6.1 Knowledge creation.....                                     | 2.1         | 138        | ○ |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.2         | 87         |   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 101        | ○ |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.2         | 45         |   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 1.4         | 137        | ○ |
| 6.1.5 Citable documents H index.....                            | 39.0        | 124        | ○ |
| 6.2 Knowledge impact.....                                       | 12.8        | 123        | ○ |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a        |   |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a        |   |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 46         |   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 3.7         | 79         |   |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | n/a         | n/a        |   |
| 6.3 Knowledge diffusion.....                                    | 33.6        | 53         | ● |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | n/a         | n/a        |   |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.4         | 86         |   |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.1         | 37         | ● |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.1         | 91         |   |

|  |             |            |   |
|--|-------------|------------|---|
| <b>7 Creative outputs.....</b>                                 | <b>21.1</b> | <b>120</b> |   |
| 7.1 Intangible assets.....                                     | 38.4        | 101        |   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 51.3        | 55         |   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a         | n/a        |   |
| 7.1.3 ICTs & business model creation <sup>†</sup> .....        | 47.8        | 105        |   |
| 7.1.4 ICTs & organizational model creation <sup>†</sup> .....  | 47.3        | 91         |   |
| 7.2 Creative goods & services.....                             | 2.7         | 119        |   |
| 7.2.1 Cultural & creative services exports, % total trade..... | n/a         | n/a        |   |
| 7.2.2 National feature films/mn pop. 15–69.....                | 0.2         | 96         | ○ |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a         | n/a        |   |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a         | n/a        |   |
| 7.2.5 Creative goods exports, % total trade.....               | 0.1         | 91         |   |
| 7.3 Online creativity.....                                     | 4.9         | 110        |   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.8         | 109        |   |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 11.6        | 98         |   |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 1,398.7     | 87         |   |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | n/a         | n/a        |   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

# Hong Kong (China)

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 7.2                         |
| GDP (US\$ billions) .....   | 273.7                       |
| GDP per capita, PPP\$ ..... | 52,722.0                    |
| Income group .....          | High income                 |
| Region .....                | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143)</b> .....             | <b>56.8</b>                           | <b>10</b>  |
| Innovation Output Sub-Index .....                             | 45.1                                  | 24         |
| Innovation Input Sub-Index .....                              | 68.6                                  | 2 ●        |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 99 ○       |
| Global Innovation Index 2013 (out of 142) .....               | 44.7                                  | 7          |
| <b>1 Institutions</b> .....                                   | <b>91.4</b>                           | <b>8</b>   |
| 1.1 Political environment .....                               | 84.3                                  | 18         |
| 1.1.1 Political stability* .....                              | 89.6                                  | 20         |
| 1.1.2 Government effectiveness* .....                         | 89.6                                  | 7          |
| 1.1.3 Press freedom* .....                                    | 73.8                                  | 49         |
| 1.2 Regulatory environment .....                              | 97.2                                  | 5          |
| 1.2.1 Regulatory quality* .....                               | 99.5                                  | 2 ●        |
| 1.2.2 Rule of law* .....                                      | 89.2                                  | 18         |
| 1.2.3 Cost of redundancy dismissal, salary weeks .....        | 8.0                                   | 1 ●        |
| 1.3 Business environment .....                                | 92.7                                  | 4          |
| 1.3.1 Ease of starting a business* .....                      | 95.9                                  | 10         |
| 1.3.2 Ease of resolving insolvency* .....                     | 86.0                                  | 18         |
| 1.3.3 Ease of paying taxes* .....                             | 96.3                                  | 4          |
| <b>2 Human capital &amp; research</b> .....                   | <b>49.5</b>                           | <b>23</b>  |
| 2.1 Education .....   | 46.9                                  | 57         |
| 2.1.1 Expenditure on education, % GDP .....                   | 3.5                                   | 97 ○       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap .....     | 17.3                                  | 70 ○       |
| 2.1.3 School life expectancy, years .....                     | 15.6                                  | 31         |
| 2.1.4 PISA scales in reading, maths, & science .....          | 553.6                                 | 3          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 17.8                                  | 75 ○       |
| 2.2 Tertiary education .....                                  | 56.7                                  | 11         |
| 2.2.1 Tertiary enrolment, % gross .....                       | 60.1                                  | 37         |
| 2.2.2 Graduates in science & engineering, % .....             | 34.7                                  | 8          |
| 2.2.3 Tertiary inbound mobility, % .....                      | 7.8                                   | 22         |
| 2.3 Research & development (R&D) .....                        | 44.8                                  | 24         |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 3,471.2                               | 29         |
| 2.3.2 Gross expenditure on R&D, % GDP .....                   | 0.7                                   | 45         |
| 2.3.3 QS university ranking, average score top 3* .....       | 85.1                                  | 6          |
| <b>3 Infrastructure</b> .....                                 | <b>67.4</b>                           | <b>1 ●</b> |
| 3.1 Information & communication technologies (ICTs) .....     | 79.0                                  | 8          |
| 3.1.1 ICT access* .....                                       | 91.8                                  | 1 ●        |
| 3.1.2 ICT use* .....  | 66.2                                  | 15         |
| 3.1.3 Government's online service* .....                      | n/a                                   | n/a        |
| 3.1.4 E-participation* .....                                  | n/a                                   | n/a        |
| 3.2 General infrastructure .....                              | 50.0                                  | 18         |
| 3.2.1 Electricity output, kWh/cap .....                       | 5,520.5                               | 37         |
| 3.2.2 Logistics performance* .....                            | 99.6                                  | 2 ●        |
| 3.2.3 Gross capital formation, % GDP .....                    | 26.3                                  | 40         |
| 3.3 Ecological sustainability .....                           | 73.2                                  | 1 ●        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 21.2                                  | 1 ●        |
| 3.3.2 Environmental performance* .....                        | n/a                                   | n/a        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 2.9                                   | 35         |
| <b>4 Market sophistication</b> .....                          | <b>79.7</b>                           | <b>3 ●</b> |
| 4.1 Credit .....  | 79.4                                  | 2 ●        |
| 4.1.1 Ease of getting credit* .....                           | 93.8                                  | 3          |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 198.1                                 | 4          |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|  |             |           |
|--|-------------|-----------|
| 4.2 Investment .....   | 77.4        | 5         |
| 4.2.1 Ease of protecting investors* .....                        | 90.0        | 3 ●       |
| 4.2.2 Market capitalization, % GDP .....                         | 420.9       | 1 ●       |
| 4.2.3 Total value of stocks traded, % GDP .....                  | 467.0       | 1 ●       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP .....                   | 0.0         | 40        |
| 4.3 Trade & competition .....                                    | 82.3        | 14        |
| 4.3.1 Applied tariff rate, weighted mean, % .....                | 0.0         | 1 ●       |
| 4.3.2 Non-agricultural mkt access weighted tariff, % .....       | 3.3         | 96 ○      |
| 4.3.3 Intensity of local competition† .....                      | 82.0        | 6         |
| <b>5 Business sophistication</b> .....                           | <b>54.9</b> | <b>6</b>  |
| 5.1 Knowledge workers .....                                      | 57.2        | 30        |
| 5.1.1 Knowledge-intensive employment, % .....                    | 36.2        | 29        |
| 5.1.2 Firms offering formal training, % firms .....              | n/a         | n/a       |
| 5.1.3 GERD performed by business, % GDP .....                    | 0.3         | 42        |
| 5.1.4 GERD performed by business, % .....                        | 43.3        | 42        |
| 5.1.5 GMAT test takers/mn pop. 20–34 .....                       | 1,326.1     | 2 ●       |
| 5.2 Innovation linkages .....                                    | 45.7        | 28        |
| 5.2.1 University/industry research collaboration† .....          | 64.3        | 20        |
| 5.2.2 State of cluster development† .....                        | 68.8        | 10        |
| 5.2.3 GERD financed by abroad, % .....                           | 4.9         | 63 ○      |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....             | 0.1         | 8         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....     | 0.3         | 28        |
| 5.3 Knowledge absorption .....                                   | 61.7        | 2 ●       |
| 5.3.1 Royalty & license fees payments, % total trade .....       | 0.4         | 63        |
| 5.3.2 High-tech imports less re-imports, % .....                 | 41.8        | 1 ●       |
| 5.3.3 Comm., computer & info. services imp., % total trade ..... | 0.5         | 98 ○      |
| 5.3.4 FDI net inflows, % GDP .....                               | 38.7        | 1 ●       |
| <b>6 Knowledge &amp; technology outputs</b> .....                | <b>33.3</b> | <b>45</b> |
| 6.1 Knowledge creation .....                                     | 18.0        | 60        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....            | 0.5         | 78 ○      |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP .....                 | n/a         | n/a       |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....          | 1.2         | 28        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP .....         | n/a         | n/a       |
| 6.1.5 Citable documents H index .....                            | 292.0       | 25        |
| 6.2 Knowledge impact .....                                       | 52.5        | 20        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                   | 1.7         | 58        |
| 6.2.2 New businesses/th pop. 15–64 .....                         | 28.1        | 1 ●       |
| 6.2.3 Computer software spending, % GDP .....                    | 0.4         | 22        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....           | 10.1        | 48        |
| 6.2.5 High- & medium-high-tech manufactures, % .....             | 23.5        | 46        |
| 6.3 Knowledge diffusion .....                                    | 29.4        | 80        |
| 6.3.1 Royalty & license fees receipts, % total trade .....       | 0.1         | 57        |
| 6.3.2 High-tech exports less re-exports, % .....                 | 0.2         | 101 ○     |
| 6.3.3 Comm., computer & info. services exp., % total trade ..... | 0.5         | 103 ○     |
| 6.3.4 FDI net outflows, % GDP .....                              | 31.9        | 3         |
| <b>7 Creative outputs</b> .....                                  | <b>56.8</b> | <b>6</b>  |
| 7.1 Intangible assets .....                                      | 55.1        | 21        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....              | 68.8        | 37        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....           | n/a         | n/a       |
| 7.1.3 ICTs & business model creation† .....                      | 71.0        | 17        |
| 7.1.4 ICTs & organizational model creation† .....                | 67.7        | 17        |
| 7.2 Creative goods & services .....                              | 48.0        | 8         |
| 7.2.1 Cultural & creative services exports, % total trade .....  | 0.2         | 45        |
| 7.2.2 National feature films/mn pop. 15–69 .....                 | 9.5         | 14        |
| 7.2.3 Global ent. & media output/th pop. 15–69 .....             | 1.4         | 18        |
| 7.2.4 Printing & publishing manufactures, % .....                | 0.2         | 1 ●       |
| 7.2.5 Creative goods exports, % total trade .....                | 0.3         | 73 ○      |
| 7.3 Online creativity .....                                      | 69.1        | 9         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69 .....       | 84.6        | 9         |
| 7.3.2 Country-code TLDs/th pop. 15–69 .....                      | 44.5        | 42        |
| 7.3.3 Wikipedia edits/pop. 15–69 .....                           | 30,069.0    | 8         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                  | 96.2        | 2         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                            |                     |
|----------------------------|---------------------|
| Population (millions)..... | 9.9                 |
| GDP (US\$ billions).....   | 132.4               |
| GDP per capita, PPP\$..... | 20,065.1            |
| Income group.....          | Upper-middle income |
| Region.....                | Europe              |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>44.6</b>                           | <b>35</b>    |
| Innovation Output Sub-Index.....                             | 42.2                                  | 29           |
| Innovation Input Sub-Index.....                              | 47.0                                  | 41           |
| Innovation Efficiency Ratio.....                             | 0.9                                   | 15 ●         |
| Global Innovation Index 2013 (out of 142).....               | 46.9                                  | 31           |
| <b>1 Institutions.....</b>                                   | <b>72.3</b>                           | <b>40</b>    |
| 1.1 Political environment.....                               | 71.1                                  | 45           |
| 1.1.1 Political stability*.....                              | 82.0                                  | 37           |
| 1.1.2 Government effectiveness*.....                         | 57.4                                  | 43           |
| 1.1.3 Press freedom*.....                                    | 73.9                                  | 47           |
| 1.2 Regulatory environment.....                              | 78.8                                  | 33           |
| 1.2.1 Regulatory quality*.....                               | 74.1                                  | 33           |
| 1.2.2 Rule of law*.....                                      | 62.7                                  | 40           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 13.4                                  | 60           |
| 1.3 Business environment.....                                | 67.0                                  | 63           |
| 1.3.1 Ease of starting a business*.....                      | 92.2                                  | 25           |
| 1.3.2 Ease of resolving insolvency*.....                     | 40.6                                  | 62           |
| 1.3.3 Ease of paying taxes*.....                             | 68.4                                  | 78           |
| <b>2 Human capital &amp; research.....</b>                   | <b>37.9</b>                           | <b>42</b>    |
| 2.1 Education.....   | 50.1                                  | 45           |
| 2.1.1 Expenditure on education, % GDP.....                   | 4.9                                   | 64           |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 21.8                                  | 51           |
| 2.1.3 School life expectancy, years.....                     | 15.4                                  | 37           |
| 2.1.4 PISA scales in reading, maths, & science.....          | 486.6                                 | 30           |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | 10.0                                  | 26           |
| 2.2 Tertiary education.....                                  | 34.2                                  | 65           |
| 2.2.1 Tertiary enrolment, % gross.....                       | 59.5                                  | 40           |
| 2.2.2 Graduates in science & engineering, %.....             | 16.5                                  | 75           |
| 2.2.3 Tertiary inbound mobility, %.....                      | 4.3                                   | 36           |
| 2.3 Research & development (R&D).....                        | 29.4                                  | 36           |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 3,695.9                               | 27           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 1.3                                   | 28           |
| 2.3.3 QS university ranking, average score top 3*.....       | 24.1                                  | 46           |
| <b>3 Infrastructure.....</b>                                 | <b>45.6</b>                           | <b>36</b>    |
| 3.1 Information & communication technologies (ICTs).....     | 55.7                                  | 34           |
| 3.1.1 ICT access*.....                                       | 64.6                                  | 42           |
| 3.1.2 ICT use*.....  | 44.8                                  | 39           |
| 3.1.3 Government's online service*.....                      | 68.6                                  | 31           |
| 3.1.4 E-participation*.....                                  | 44.7                                  | 36           |
| 3.2 General infrastructure.....                              | 28.0                                  | 97           |
| 3.2.1 Electricity output, kWh/cap.....                       | 3,461.6                               | 57           |
| 3.2.2 Logistics performance*.....                            | 61.9                                  | 39           |
| 3.2.3 Gross capital formation, % GDP.....                    | 16.7                                  | 117 ○        |
| 3.3 Ecological sustainability.....                           | 53.2                                  | 18 ●         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 7.2                                   | 47           |
| 3.3.2 Environmental performance*.....                        | 70.3                                  | 28           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 8.9                                   | 13 ●         |
| <b>4 Market sophistication.....</b>                          | <b>42.1</b>                           | <b>115</b> ○ |
| 4.1 Credit.....  | 28.7                                  | 98           |
| 4.1.1 Ease of getting credit*.....                           | 68.8                                  | 53           |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 56.4                                  | 57           |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.0                                   | 90 ○         |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment.....   | 21.8        | 132 ○     |
| 4.2.1 Ease of protecting investors*.....                        | 43.3        | 105 ○     |
| 4.2.2 Market capitalization, % GDP.....                         | 16.8        | 78 ○      |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 8.7         | 43        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 47        |
| 4.3 Trade & competition.....                                    | 75.9        | 64        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 71.3        | 41        |
| <b>5 Business sophistication.....</b>                           | <b>37.2</b> | <b>45</b> |
| 5.1 Knowledge workers.....                                      | 43.2        | 55        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 35.4        | 32        |
| 5.1.2 Firms offering formal training, % firms.....              | 14.6        | 99 ○      |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.9         | 26        |
| 5.1.4 GERD performed by business, %.....                        | 65.6        | 17        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 105.0       | 51        |
| 5.2 Innovation linkages.....                                    | 28.0        | 85        |
| 5.2.1 University/industry research collaboration†.....          | 54.3        | 40        |
| 5.2.2 State of cluster development†.....                        | 37.8        | 106 ○     |
| 5.2.3 GERD financed by abroad, %.....                           | 15.4        | 28        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 98 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.2         | 34        |
| 5.3 Knowledge absorption.....                                   | 40.5        | 15 ●      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.1         | 24        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 14.1        | 14 ●      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.1         | 59        |
| 5.3.4 FDI net inflows, % GDP.....                               | 6.8         | 28        |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>41.9</b> | <b>24</b> |
| 6.1 Knowledge creation.....                                     | 24.8        | 42        |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 3.6         | 33        |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.8         | 34        |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | 1.2         | 29        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 30.7        | 29        |
| 6.1.5 Citable documents H index.....                            | 254.0       | 30        |
| 6.2 Knowledge impact.....                                       | 52.7        | 18 ●      |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -2.1        | 112 ○     |
| 6.2.2 New businesses/th pop. 15–64.....                         | 4.8         | 21        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 38        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 37.5        | 9 ●       |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 56.4        | 4 ●       |
| 6.3 Knowledge diffusion.....                                    | 48.2        | 18 ●      |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 1.0         | 16 ●      |
| 6.3.2 High-tech exports less re-exports, %.....                 | 15.4        | 8 ●       |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.4         | 64        |
| 6.3.4 FDI net outflows, % GDP.....                              | 4.7         | 15 ●      |
| <b>7 Creative outputs.....</b>                                  | <b>42.5</b> | <b>35</b> |
| 7.1 Intangible assets.....                                      | 40.8        | 87        |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | 53.5        | 51        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 1.3         | 25        |
| 7.1.3 ICTs & business model creation†.....                      | 58.3        | 63        |
| 7.1.4 ICTs & organizational model creation†.....                | 52.2        | 71        |
| 7.2 Creative goods & services.....                              | 39.6        | 19 ●      |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 1.0         | 8 ●       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 3.2         | 43        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.4         | 31        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 71 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 6.9         | 8 ●       |
| 7.3 Online creativity.....                                      | 48.6        | 27        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 12.5        | 44        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 60.4        | 17 ●      |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 21,090.5    | 23        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 85.7        | 19        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Iceland

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 0.3         |
| GDP (US\$ billions) .....   | 14.7        |
| GDP per capita, PPP\$ ..... | 40,999.6    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>54.1</b>                           | <b>19</b> |
| Innovation Output Sub-Index .....                             | 51.3                                  | 9         |
| Innovation Input Sub-Index .....                              | 56.8                                  | 24        |
| Innovation Efficiency Ratio .....                             | 0.9                                   | 13        |
| Global Innovation Index 2013 (out of 142) .....               | 56.4                                  | 13        |
| <b>1 Institutions.....</b>                                    | <b>88.6</b>                           | <b>14</b> |
| 1.1 Political environment.....                                | 89.2                                  | 10        |
| 1.1.1 Political stability*.....                               | 95.5                                  | 8         |
| 1.1.2 Government effectiveness*.....                          | 80.5                                  | 19        |
| 1.1.3 Press freedom*.....                                     | 91.5                                  | 7 ●       |
| 1.2 Regulatory environment .....                              | 90.1                                  | 19        |
| 1.2.1 Regulatory quality* .....                               | 76.6                                  | 28        |
| 1.2.2 Rule of law*.....                                       | 92.4                                  | 15        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 10.1                                  | 38        |
| 1.3 Business environment.....                                 | 86.4                                  | 13        |
| 1.3.1 Ease of starting a business*.....                       | 91.1                                  | 29        |
| 1.3.2 Ease of resolving insolvency*.....                      | 89.5                                  | 11        |
| 1.3.3 Ease of paying taxes*.....                              | 78.6                                  | 39        |
| <b>2 Human capital &amp; research.....</b>                    | <b>49.4</b>                           | <b>24</b> |
| 2.1 Education .....   | 56.7                                  | 18        |
| 2.1.1 Expenditure on education, % GDP.....                    | 7.6                                   | 8         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 21.1                                  | 54        |
| 2.1.3 School life expectancy, years.....                      | 18.7                                  | 3 ●       |
| 2.1.4 PISA scales in reading, maths, & science.....           | 484.5                                 | 31        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a       |
| 2.2 Tertiary education.....                                   | 40.7                                  | 43        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 80.9                                  | 9         |
| 2.2.2 Graduates in science & engineering, % .....             | 15.6                                  | 81 ○      |
| 2.2.3 Tertiary inbound mobility, %.....                       | 5.8                                   | 30        |
| 2.3 Research & development (R&D).....                         | 50.8                                  | 20        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 10,402.0                              | 2 ●       |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 2.4                                   | 12        |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                  | <b>47.4</b>                           | <b>30</b> |
| 3.1 Information & communication technologies (ICTs).....      | 58.2                                  | 30        |
| 3.1.1 ICT access*.....  | 87.7                                  | 3 ●       |
| 3.1.2 ICT use* .....  | 75.0                                  | 7         |
| 3.1.3 Government's online service*.....                       | 54.3                                  | 53        |
| 3.1.4 E-participation*.....                                   | 15.8                                  | 79        |
| 3.2 General infrastructure.....                               | 47.6                                  | 20        |
| 3.2.1 Electricity output, kWh/cap.....                        | 54,840.6                              | 1 ●       |
| 3.2.2 Logistics performance*.....                             | 70.6                                  | 32        |
| 3.2.3 Gross capital formation, % GDP.....                     | 13.6                                  | 136 ○     |
| 3.3 Ecological sustainability.....                            | 36.4                                  | 66        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 1.8                                   | 121 ○     |
| 3.3.2 Environmental performance*.....                         | 76.5                                  | 14        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 2.3                                   | 42        |
| <b>4 Market sophistication .....</b>                          | <b>54.1</b>                           | <b>41</b> |
| 4.1 Credit.....   | 53.0                                  | 29        |
| 4.1.1 Ease of getting credit*.....                            | 75.0                                  | 40        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 96.8                                  | 32        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a       |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 30.7        | 92 ○       |
| 4.2.1 Ease of protecting investors*.....                        | 60.0        | 42         |
| 4.2.2 Market capitalization, % GDP.....                         | 20.7        | 70 ○       |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 5.0         | 50         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.1         | 27         |
| 4.3 Trade & competition .....                                   | 78.6        | 34         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.0         | 8          |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 1.0         | 72         |
| 4.3.3 Intensity of local competition†.....                      | 64.0        | 80 ○       |
| <b>5 Business sophistication .....</b>                          | <b>44.4</b> | <b>25</b>  |
| 5.1 Knowledge workers.....                                      | 69.3        | 9          |
| 5.1.1 Knowledge-intensive employment, %.....                    | 46.9        | 6          |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a        |
| 5.1.3 GERD performed by business, % GDP.....                    | 1.3         | 17         |
| 5.1.4 GERD performed by business, %.....                        | 52.6        | 33         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 586.6       | 7 ●        |
| 5.2 Innovation linkages .....                                   | 35.0        | 59         |
| 5.2.1 University/industry research collaboration†.....          | 62.8        | 24         |
| 5.2.2 State of cluster development† .....                       | 50.5        | 52         |
| 5.2.3 GERD financed by abroad, %.....                           | 8.4         | 49         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.2         | 35         |
| 5.3 Knowledge absorption.....                                   | 28.9        | 48         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.3         | 17         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 5.8         | 88 ○       |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.6         | 32         |
| 5.3.4 FDI net inflows, % GDP.....                               | 3.8         | 57         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>36.6</b> | <b>36</b>  |
| 6.1 Knowledge creation.....                                     | 45.9        | 21         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.9         | 38         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 3.4         | 15         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 67.5        | 1 ●        |
| 6.1.5 Citable documents H index.....                            | 160.0       | 39         |
| 6.2 Knowledge impact.....                                       | 41.6        | 59         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.5         | 46         |
| 6.2.2 New businesses/th pop. 15–64.....                         | 8.2         | 12         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 4.3         | 70         |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 7.1         | 82 ○       |
| 6.3 Knowledge diffusion.....                                    | 22.3        | 120 ○      |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 2.8         | 8          |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.5         | 60         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.3         | 74         |
| 6.3.4 FDI net outflows, % GDP .....                             | -23.5       | 125 ○      |
| <b>7 Creative outputs .....</b>                                 | <b>66.1</b> | <b>1 ●</b> |
| 7.1 Intangible assets .....                                     | 66.0        | 6 ●        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 124.6       | 7          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 9.5         | 1 ●        |
| 7.1.3 ICTs & business model creation†.....                      | 66.8        | 29         |
| 7.1.4 ICTs & organizational model creation†.....                | 65.7        | 20         |
| 7.2 Creative goods & services.....                              | 50.9        | 6 ●        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.3         | 36         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 57.2        | 1 ●        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.1         | 4 ●        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.2         | 83 ○       |
| 7.3 Online creativity .....                                     | 81.4        | 1 ●        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 100.0       | 1 ●        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 71.6        | 8          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 42,761.2    | 4 ●        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 1,236.7                   |
| GDP (US\$ billions) .....   | 1,870.7                   |
| GDP per capita, PPP\$ ..... | 4,077.1                   |
| Income group .....          | Lower-middle income       |
| Region .....                | Central and Southern Asia |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>33.7</b>                           | <b>76</b>  |
| Innovation Output Sub-Index .....                             | 30.4                                  | 65         |
| Innovation Input Sub-Index.....                               | 37.0                                  | 93         |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 31 ●       |
| Global Innovation Index 2013 (out of 142) .....               | 36.2                                  | 66         |
| <b>1 Institutions.....</b>                                    | <b>50.8</b>                           | <b>106</b> |
| 1.1 Political environment.....                                | 43.3                                  | 120        |
| 1.1.1 Political stability*.....                               | 35.2                                  | 126 ○      |
| 1.1.2 Government effectiveness*.....                          | 36.0                                  | 82         |
| 1.1.3 Press freedom*.....                                     | 58.8                                  | 115        |
| 1.2 Regulatory environment .....                              | 62.2                                  | 83         |
| 1.2.1 Regulatory quality* .....                               | 36.5                                  | 108        |
| 1.2.2 Rule of law*.....                                       | 43.5                                  | 64         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 15.8                                  | 73         |
| 1.3 Business environment.....                                 | 47.0                                  | 128 ○      |
| 1.3.1 Ease of starting a business*.....                       | 62.7                                  | 129 ○      |
| 1.3.2 Ease of resolving insolvency*.....                      | 27.1                                  | 105        |
| 1.3.3 Ease of paying taxes*.....                              | 51.0                                  | 120        |
| <b>2 Human capital &amp; research.....</b>                    | <b>22.7</b>                           | <b>96</b>  |
| 2.1 Education .....   | 24.2                                  | 128 ○      |
| 2.1.1 Expenditure on education, % GDP.....                    | 3.2                                   | 109        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 12.6                                  | 90         |
| 2.1.3 School life expectancy, years.....                      | 11.7                                  | 91         |
| 2.1.4 PISA scales in reading, maths, & science.....           | 336.0                                 | 62 ○       |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 25.9                                  | 92         |
| 2.2 Tertiary education.....                                   | 11.7                                  | 122 ○      |
| 2.2.1 Tertiary enrolment, % gross.....                        | 23.3                                  | 86         |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.1                                   | 106 ○      |
| 2.3 Research & development (R&D).....                         | 32.0                                  | 31 ●       |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | n/a                                   | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.8                                   | 41         |
| 2.3.3 QS university ranking, average score top 3*.....        | 45.7                                  | 27 ●       |
| <b>3 Infrastructure.....</b>                                  | <b>32.1</b>                           | <b>87</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 25.9                                  | 99         |
| 3.1.1 ICT access*.....  | 25.0                                  | 111        |
| 3.1.2 ICT use* .....  | 6.5                                   | 112        |
| 3.1.3 Government's online service*.....                       | 53.6                                  | 56         |
| 3.1.4 E-participation*.....                                   | 18.4                                  | 73         |
| 3.2 General infrastructure.....                               | 43.1                                  | 33 ●       |
| 3.2.1 Electricity output, kWh/cap.....                        | 847.6                                 | 95         |
| 3.2.2 Logistics performance*.....                             | 58.3                                  | 46         |
| 3.2.3 Gross capital formation, % GDP.....                     | 35.0                                  | 14 ●       |
| 3.3 Ecological sustainability.....                            | 27.4                                  | 106        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 5.3                                   | 80         |
| 3.3.2 Environmental performance*.....                         | 31.2                                  | 128 ○      |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a                                   | n/a        |
| <b>4 Market sophistication .....</b>                          | <b>51.2</b>                           | <b>50</b>  |
| 4.1 Credit.....   | 33.3                                  | 80         |
| 4.1.1 Ease of getting credit*.....                            | 81.3                                  | 27         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 51.5                                  | 65         |
| 4.1.3 Microfinance gross loans, % GDP.....                    | 0.2                                   | 55         |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 44.2        | 41        |
| 4.2.1 Ease of protecting investors*.....                        | 63.3        | 32        |
| 4.2.2 Market capitalization, % GDP.....                         | 68.6        | 27 ●      |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 33.8        | 26 ●      |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.1         | 24        |
| 4.3 Trade & competition .....                                   | 76.1        | 59        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 8.2         | 113       |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 1.8         | 89        |
| 4.3.3 Intensity of local competition†.....                      | 75.8        | 22 ●      |
| <b>5 Business sophistication .....</b>                          | <b>28.0</b> | <b>93</b> |
| 5.1 Knowledge workers.....                                      | 25.0        | 110       |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a       |
| 5.1.2 Firms offering formal training, % firms.....              | 15.9        | 97 ○      |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.3         | 43        |
| 5.1.4 GERD performed by business, %.....                        | 35.5        | 50        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 78.7        | 57        |
| 5.2 Innovation linkages .....                                   | 38.9        | 46        |
| 5.2.1 University/industry research collaboration†.....          | 50.0        | 43        |
| 5.2.2 State of cluster development† .....                       | 64.7        | 15 ●      |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 54        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 84        |
| 5.3 Knowledge absorption.....                                   | 20.2        | 100       |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.8         | 35        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.7         | 73        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.7         | 75        |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.7         | 89        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>32.2</b> | <b>50</b> |
| 6.1 Knowledge creation.....                                     | 18.4        | 57        |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 2.0         | 52        |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.3         | 59        |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 9.8         | 74        |
| 6.1.5 Citable documents H index.....                            | 301.0       | 24 ●      |
| 6.2 Knowledge impact.....                                       | 34.1        | 87        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.7         | 24 ●      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.1         | 87        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.1         | 74 ○      |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 6.2         | 59        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 31.8        | 33        |
| 6.3 Knowledge diffusion.....                                    | 44.1        | 24 ●      |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 61        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 2.8         | 45        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 9.8         | 1 ●       |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.5         | 64        |
| <b>7 Creative outputs .....</b>                                 | <b>28.6</b> | <b>82</b> |
| 7.1 Intangible assets.....                                      | 39.4        | 94        |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | 37.3        | 69        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.0         | 72 ○      |
| 7.1.3 ICTs & business model creation†.....                      | 63.5        | 39        |
| 7.1.4 ICTs & organizational model creation†.....                | 60.0        | 38        |
| 7.2 Creative goods & services.....                              | 21.1        | 58        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 65        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.5         | 58        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.0         | 58 ○      |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 82 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 4.3         | 13 ●      |
| 7.3 Online creativity .....                                     | 14.7        | 78        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 1.2         | 102       |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 14.9        | 88        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 536.9       | 106       |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 41.6        | 58 ○      |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Indonesia

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 246.9                       |
| GDP (US\$ billions) .....   | 870.3                       |
| GDP per capita, PPP\$ ..... | 5,214.1                     |
| Income group.....           | Lower-middle income         |
| Region.....                 | South East Asia and Oceania |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>31.8</b>                           | <b>87</b>    |
| Innovation Output Sub-Index .....                            | 31.2                                  | 60           |
| Innovation Input Sub-Index.....                              | 32.4                                  | 117          |
| Innovation Efficiency Ratio.....                             | 1.0                                   | 4 ●          |
| Global Innovation Index 2013 (out of 142) .....              | 35.8                                  | 85           |
| <b>1 Institutions.....</b>                                   | <b>38.1</b>                           | <b>137</b> ○ |
| 1.1 Political environment.....                               | 47.9                                  | 96           |
| 1.1.1 Political stability*.....                              | 51.6                                  | 101          |
| 1.1.2 Government effectiveness*.....                         | 33.1                                  | 87           |
| 1.1.3 Press freedom*.....                                    | 59.0                                  | 114          |
| 1.2 Regulatory environment .....                             | 17.9                                  | 140 ○        |
| 1.2.1 Regulatory quality* .....                              | 41.6                                  | 93           |
| 1.2.2 Rule of law*.....                                      | 29.9                                  | 98           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 57.8                                  | 139 ○        |
| 1.3 Business environment.....                                | 48.5                                  | 123          |
| 1.3.1 Ease of starting a business*.....                      | 69.2                                  | 117          |
| 1.3.2 Ease of resolving insolvency*.....                     | 18.9                                  | 123          |
| 1.3.3 Ease of paying taxes*.....                             | 57.4                                  | 111          |
| <b>2 Human capital &amp; research.....</b>                   | <b>22.8</b>                           | <b>92</b>    |
| 2.1 Education .....  | 30.1                                  | 117          |
| 2.1.1 Expenditure on education, % GDP.....                   | 2.8                                   | 114          |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 7.7                                   | 105 ○        |
| 2.1.3 School life expectancy, years.....                     | 12.7                                  | 78           |
| 2.1.4 PISA scales in reading, maths, & science.....          | 384.4                                 | 59 ○         |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 14.8                                  | 59           |
| 2.2 Tertiary education.....                                  | 26.8                                  | 86           |
| 2.2.1 Tertiary enrolment, % gross.....                       | 27.2                                  | 81           |
| 2.2.2 Graduates in science & engineering, % .....            | 22.8                                  | 35           |
| 2.2.3 Tertiary inbound mobility, %.....                      | 0.1                                   | 105 ○        |
| 2.3 Research & development (R&D).....                        | 11.6                                  | 65           |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 173.2                                 | 91           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.1                                   | 105          |
| 2.3.3 QS university ranking, average score top 3*.....       | 31.6                                  | 40 ●         |
| <b>3 Infrastructure.....</b>                                 | <b>33.1</b>                           | <b>83</b>    |
| 3.1 Information & communication technologies (ICTs).....     | 30.8                                  | 88           |
| 3.1.1 ICT access*.....                                       | 36.2                                  | 90           |
| 3.1.2 ICT use*.....  | 16.4                                  | 90           |
| 3.1.3 Government's online service*.....                      | 49.7                                  | 68           |
| 3.1.4 E-participation*.....                                  | 21.1                                  | 65           |
| 3.2 General infrastructure.....                              | 41.1                                  | 42           |
| 3.2.1 Electricity output, kWh/cap.....                       | 752.6                                 | 97           |
| 3.2.2 Logistics performance*.....                            | 52.8                                  | 59           |
| 3.2.3 Gross capital formation, % GDP.....                    | 34.6                                  | 15 ●         |
| 3.3 Ecological sustainability.....                           | 27.2                                  | 108          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 4.7                                   | 86           |
| 3.3.2 Environmental performance*.....                        | 44.4                                  | 97           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.9                                   | 66           |
| <b>4 Market sophistication .....</b>                         | <b>45.3</b>                           | <b>88</b>    |
| 4.1 Credit.....  | 27.3                                  | 102          |
| 4.1.1 Ease of getting credit*.....                           | 56.3                                  | 81           |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 34.9                                  | 90           |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 1.2                                   | 34           |

|   |      |      |
|---|------|------|
| 4.2 Investment .....                                      | 31.4 | 89   |
| 4.2.1 Ease of protecting investors*.....                  | 60.0 | 42   |
| 4.2.2 Market capitalization, % GDP.....                   | 45.2 | 42   |
| 4.2.3 Total value of stocks traded, % GDP.....            | 10.4 | 40   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | 0.0  | 67 ○ |
| 4.3 Trade & competition .....                             | 77.1 | 51   |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 2.6  | 54   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 1.6  | 87   |
| 4.3.3 Intensity of local competition†.....                | 67.2 | 63   |

**5 Business sophistication .....** **22.8** **124**

|   |      |       |
|---|------|-------|
| 5.1 Knowledge workers.....                                      | 7.6  | 142 ○ |
| 5.1.1 Knowledge-intensive employment, %.....                    | 8.6  | 99    |
| 5.1.2 Firms offering formal training, % firms.....              | 4.8  | 105 ○ |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.0  | 81 ○  |
| 5.1.4 GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 14.3 | 113   |
| 5.2 Innovation linkages .....                                   | 36.1 | 53    |
| 5.2.1 University/industry research collaboration†.....          | 58.2 | 29 ●  |
| 5.2.2 State of cluster development†.....                        | 57.2 | 27 ●  |
| 5.2.3 GERD financed by abroad, %.....                           | n/a  | n/a   |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0  | 71    |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0  | 105 ○ |
| 5.3 Knowledge absorption.....                                   | 24.7 | 76    |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.8  | 33 ●  |
| 5.3.2 High-tech imports less re-imports, %.....                 | 9.4  | 38    |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.7  | 78    |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.3  | 83    |

**6 Knowledge & technology outputs .....** **23.2** **93**

|   |       |       |
|---|-------|-------|
| 6.1 Knowledge creation.....                                     | 3.8   | 127   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.5   | 76    |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0   | 110 ○ |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.2   | 47    |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 1.1   | 138 ○ |
| 6.1.5 Citable documents H index.....                            | 112.0 | 55    |
| 6.2 Knowledge impact.....                                       | 40.5  | 63    |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 4.2   | 19 ●  |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.3   | 80    |
| 6.2.3 Computer software spending, % GDP.....                    | 0.4   | 21 ●  |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 4.5   | 68    |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 32.0  | 32    |
| 6.3 Knowledge diffusion.....                                    | 25.3  | 108   |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.0   | 78    |
| 6.3.2 High-tech exports less re-exports, %.....                 | 3.4   | 39    |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.6   | 98    |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.6   | 60    |

**7 Creative outputs .....** **39.2** **43**

|  |       |      |
|--|-------|------|
| 7.1 Intangible assets.....                                     | 61.9  | 8 ●  |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | n/a   | n/a  |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a   | n/a  |
| 7.1.3 ICTs & business model creation†.....                     | 64.2  | 37 ● |
| 7.1.4 ICTs & organizational model creation†.....               | 59.7  | 39 ● |
| 7.2 Creative goods & services.....                             | 18.5  | 65   |
| 7.2.1 Cultural & creative services exports, % total trade..... | n/a   | n/a  |
| 7.2.2 National feature films/mn pop. 15–69.....                | 0.5   | 88   |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | 0.1   | 53   |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0   | 69   |
| 7.2.5 Creative goods exports, % total trade.....               | 2.1   | 25 ● |
| 7.3 Online creativity.....                                     | 14.6  | 79   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 1.9   | 96   |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 6.4   | 109  |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 836.9 | 101  |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | 48.7  | 55   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 76.4                      |
| GDP (US\$ billions) .....   | 366.3                     |
| GDP per capita, PPP\$ ..... | 12,264.1                  |
| Income group .....          | Upper-middle income       |
| Region .....                | Central and Southern Asia |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>26.1</b>                           | <b>120</b> |
| Innovation Output Sub-Index .....                 | 19.0                                  | 125        |
| Innovation Input Sub-Index .....                  | 33.2                                  | 107        |
| Innovation Efficiency Ratio .....                 | 0.6                                   | 122        |
| Global Innovation Index 2013 (out of 142) .....   | 27.3                                  | 113        |

|          |   |             |              |
|----------|---|-------------|--------------|
| <b>1</b> | <b>Institutions</b> .....                               | <b>43.0</b> | <b>131</b>   |
| 1.1      | Political environment.....                              | 28.8        | 140 ○        |
| 1.1.1    | Political stability*.....                               | 33.3        | 130          |
| 1.1.2    | Government effectiveness*.....                          | 26.4        | 102          |
| 1.1.3    | Press freedom*.....                                     | 26.6        | 142 ○        |
| 1.2      | Regulatory environment .....                            | 43.1        | 126          |
| 1.2.1    | Regulatory quality* .....                               | 11.6        | 138 ○        |
| 1.2.2    | Rule of law*.....                                       | 21.6        | 120          |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....         | 23.1        | 108          |
| 1.3      | Business environment.....                               | 57.2        | 91           |
| 1.3.1    | Ease of starting a business*.....                       | 83.7        | 72           |
| 1.3.2    | Ease of resolving insolvency*.....                      | 23.7        | 111          |
| 1.3.3    | Ease of paying taxes*.....                              | 64.0        | 92           |
| <b>2</b> | <b>Human capital &amp; research</b> .....               | <b>36.4</b> | <b>46 ●</b>  |
| 2.1      | Education .....   | 35.6        | 95           |
| 2.1.1    | Expenditure on education, % GDP .....                   | 3.7         | 95           |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....      | 16.3        | 76           |
| 2.1.3    | School life expectancy, years.....                      | 15.2        | 41 ●         |
| 2.1.4    | PISA scales in reading, maths, & science.....           | n/a         | n/a          |
| 2.1.5    | Pupil-teacher ratio, secondary .....                    | n/a         | n/a          |
| 2.2      | Tertiary education.....                                 | 58.1        | 10 ●         |
| 2.2.1    | Tertiary enrolment, % gross.....                        | 55.2        | 46 ●         |
| 2.2.2    | Graduates in science & engineering, % .....             | 47.2        | 2 ●          |
| 2.2.3    | Tertiary inbound mobility, %.....                       | 0.1         | 107 ○        |
| 2.3      | Research & development (R&D).....                       | 15.4        | 55 ●         |
| 2.3.1    | Researchers, headcounts/mn pop. ....                    | 1,483.7     | 48           |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                    | 0.7         | 46 ●         |
| 2.3.3    | QS university ranking, average score top 3*.....        | 15.4        | 56 ●         |
| <b>3</b> | <b>Infrastructure</b> .....                             | <b>33.6</b> | <b>81</b>    |
| 3.1      | Information & communication technologies (ICTs).....    | 31.4        | 87           |
| 3.1.1    | ICT access*.....  | 46.8        | 71           |
| 3.1.2    | ICT use* .....  | 11.4        | 103          |
| 3.1.3    | Government's online service*.....                       | 49.0        | 72           |
| 3.1.4    | E-participation*.....                                   | 18.4        | 73           |
| 3.2      | General infrastructure.....                             | 41.3        | 41 ●         |
| 3.2.1    | Electricity output, kWh/cap.....                        | 3,204.6     | 60           |
| 3.2.2    | Logistics performance* .....                            | 34.9        | 107          |
| 3.2.3    | Gross capital formation, % GDP.....                     | 36.2        | 11 ●         |
| 3.3      | Ecological sustainability .....                         | 28.0        | 101          |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 3.9         | 99           |
| 3.3.2    | Environmental performance*.....                         | 51.1        | 75           |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.6         | 76           |
| <b>4</b> | <b>Market sophistication</b> .....                      | <b>35.9</b> | <b>139 ○</b> |
| 4.1      | Credit.....   | 29.5        | 95           |
| 4.1.1    | Ease of getting credit* .....                           | 56.3        | 81           |
| 4.1.2    | Domestic credit to private sector, % GDP .....          | 12.9        | 136 ○        |
| 4.1.3    | Microfinance gross loans, % GDP .....                   | n/a         | n/a          |

|          |   |             |              |
|----------|---|-------------|--------------|
| 4.2      | Investment .....  | 22.3        | 131          |
| 4.2.1    | Ease of protecting investors*.....                        | 36.7        | 119          |
| 4.2.2    | Market capitalization, % GDP.....                         | 20.9        | 69           |
| 4.2.3    | Total value of stocks traded, % GDP.....                  | 3.9         | 52           |
| 4.2.4    | Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a          |
| 4.3      | Trade & competition .....                                 | 56.0        | 136 ○        |
| 4.3.1    | Applied tariff rate, weighted mean, %.....                | 21.8        | 141 ○        |
| 4.3.2    | Non-agricultural mkt access weighted tariff, %.....       | 1.0         | 76           |
| 4.3.3    | Intensity of local competition†.....                      | 55.7        | 115          |
| <b>5</b> | <b>Business sophistication</b> .....                      | <b>17.3</b> | <b>136 ○</b> |
| 5.1      | Knowledge workers.....                                    | 16.6        | 131          |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 15.3        | 89           |
| 5.1.2    | Firms offering formal training, % firms.....              | n/a         | n/a          |
| 5.1.3    | GERD performed by business, % GDP .....                   | 0.1         | 61           |
| 5.1.4    | GERD performed by business, %.....                        | 10.6        | 74           |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | n/a         | n/a          |
| 5.2      | Innovation linkages .....                                 | 24.1        | 109          |
| 5.2.1    | University/industry research collaboration†.....          | 38.7        | 86           |
| 5.2.2    | State of cluster development† .....                       | 40.7        | 95           |
| 5.2.3    | GERD financed by abroad, %.....                           | n/a         | n/a          |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 106 ○        |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 104          |
| 5.3      | Knowledge absorption.....                                 | 11.2        | 136 ○        |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | 0.2         | 82           |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 3.6         | 117          |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 0.6         | 84           |
| 5.3.4    | FDI net inflows, % GDP.....                               | 0.8         | 119          |
| <b>6</b> | <b>Knowledge &amp; technology outputs</b> .....           | <b>20.0</b> | <b>113</b>   |
| 6.1      | Knowledge creation.....                                   | 25.3        | 40 ●         |
| 6.1.1    | Domestic resident patent app./tr PPP\$ GDP .....          | 8.0         | 13 ●         |
| 6.1.2    | PCT resident patent app./tr PPP\$ GDP.....                | 0.0         | 113 ○        |
| 6.1.3    | Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a          |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 24.7        | 39 ●         |
| 6.1.5    | Citable documents H index.....                            | 135.0       | 45 ●         |
| 6.2      | Knowledge impact.....                                     | 32.8        | 91           |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, % .....                  | -2.4        | 113 ○        |
| 6.2.2    | New businesses/th pop. 15–64.....                         | n/a         | n/a          |
| 6.2.3    | Computer software spending, % GDP.....                    | 0.2         | 66           |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP .....          | 2.8         | 89           |
| 6.2.5    | High- & medium-high-tech manufactures, % .....            | 36.3        | 25 ●         |
| 6.3      | Knowledge diffusion.....                                  | 1.9         | 139 ○        |
| 6.3.1    | Royalty & license fees receipts, % total trade .....      | 0.0         | 94           |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.5         | 81           |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 0.2         | 128          |
| 6.3.4    | FDI net outflows, % GDP .....                             | n/a         | n/a          |
| <b>7</b> | <b>Creative outputs</b> .....                             | <b>18.1</b> | <b>128</b>   |
| 7.1      | Intangible assets .....                                   | 26.3        | 132          |
| 7.1.1    | Domestic res trademark app./bn PPP\$ GDP.....             | 0.0         | 102 ○        |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.0         | 67           |
| 7.1.3    | ICTs & business model creation†.....                      | 48.3        | 102          |
| 7.1.4    | ICTs & organizational model creation†.....                | 43.7        | 104          |
| 7.2      | Creative goods & services.....                            | 7.3         | 105          |
| 7.2.1    | Cultural & creative services exports, % total trade.....  | 0.0         | 71           |
| 7.2.2    | National feature films/mn pop. 15–69.....                 | 1.4         | 61           |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....             | n/a         | n/a          |
| 7.2.4    | Printing & publishing manufactures, %.....                | 0.0         | 92 ○         |
| 7.2.5    | Creative goods exports, % total trade.....                | 0.5         | 59           |
| 7.3      | Online creativity .....                                   | 12.3        | 85           |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.3         | 84           |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                      | 30.0        | 60           |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                           | 2,736.4     | 70           |
| 7.3.4    | Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Ireland

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 4.6         |
| GDP (US\$ billions) .....   | 217.9       |
| GDP per capita, PPP\$ ..... | 39,547.4    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>56.7</b>                           | <b>11</b>  |
| Innovation Output Sub-Index .....                             | 50.0                                  | 11         |
| Innovation Input Sub-Index.....                               | 63.3                                  | 12         |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 47         |
| Global Innovation Index 2013 (out of 142) .....               | 57.9                                  | 10         |
| <b>1 Institutions.....</b>                                    | <b>90.4</b>                           | <b>9</b>   |
| 1.1 Political environment.....                                | 86.7                                  | 13         |
| 1.1.1 Political stability*.....                               | 88.4                                  | 24         |
| 1.1.2 Government effectiveness*.....                          | 81.7                                  | 16         |
| 1.1.3 Press freedom*.....                                     | 89.9                                  | 13         |
| 1.2 Regulatory environment .....                              | 91.7                                  | 15         |
| 1.2.1 Regulatory quality* .....                               | 89.5                                  | 13         |
| 1.2.2 Rule of law*.....                                       | 94.0                                  | 13         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 12.2                                  | 52         |
| 1.3 Business environment.....                                 | 92.8                                  | 3 ●        |
| 1.3.1 Ease of starting a business*.....                       | 92.5                                  | 21         |
| 1.3.2 Ease of resolving insolvency*.....                      | 92.8                                  | 8          |
| 1.3.3 Ease of paying taxes*.....                              | 92.9                                  | 6 ●        |
| <b>2 Human capital &amp; research.....</b>                    | <b>53.2</b>                           | <b>18</b>  |
| 2.1 Education .....   | 58.1                                  | 14         |
| 2.1.1 Expenditure on education, % GDP .....                   | 6.4                                   | 20         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 28.8                                  | 27         |
| 2.1.3 School life expectancy, years.....                      | 18.6                                  | 4 ●        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 515.6                                 | 12         |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a        |
| 2.2 Tertiary education.....                                   | 52.4                                  | 19         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 73.5                                  | 20         |
| 2.2.2 Graduates in science & engineering, % .....             | 23.2                                  | 34         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 10.7                                  | 15         |
| 2.3 Research & development (R&D).....                         | 49.2                                  | 21         |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 4,893.2                               | 22         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 1.7                                   | 22         |
| 2.3.3 QS university ranking, average score top 3*.....        | 62.3                                  | 16         |
| <b>3 Infrastructure.....</b>                                  | <b>45.3</b>                           | <b>38</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 50.9                                  | 44         |
| 3.1.1 ICT access*.....  | 75.9                                  | 22         |
| 3.1.2 ICT use*.....   | 60.8                                  | 20         |
| 3.1.3 Government's online service*.....                       | 53.6                                  | 56         |
| 3.1.4 E-participation*.....                                   | 13.2                                  | 84 ○       |
| 3.2 General infrastructure.....                               | 28.5                                  | 93 ○       |
| 3.2.1 Electricity output, kWh/cap.....                        | 5,992.2                               | 35         |
| 3.2.2 Logistics performance*.....                             | 75.8                                  | 24         |
| 3.2.3 Gross capital formation, % GDP.....                     | 11.0                                  | 139 ○      |
| 3.3 Ecological sustainability.....                            | 56.4                                  | 10         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 12.6                                  | 4 ●        |
| 3.3.2 Environmental performance*.....                         | 74.7                                  | 19         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 2.2                                   | 43         |
| <b>4 Market sophistication .....</b>                          | <b>70.3</b>                           | <b>7 ●</b> |
| 4.1 Credit.....   | 74.2                                  | 6 ●        |
| 4.1.1 Ease of getting credit*.....                            | 87.5                                  | 13         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 186.1                                 | 7 ●        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 60.5        | 16         |
| 4.2.1 Ease of protecting investors*.....                        | 83.3        | 6          |
| 4.2.2 Market capitalization, % GDP.....                         | 51.8        | 38         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 5.8         | 47 ○       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.7         | 1 ●        |
| 4.3 Trade & competition .....                                   | 76.0        | 62 ○       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○       |
| 4.3.3 Intensity of local competition†.....                      | 71.5        | 40         |
| <b>5 Business sophistication .....</b>                          | <b>57.4</b> | <b>4 ●</b> |
| 5.1 Knowledge workers.....                                      | 73.1        | 8          |
| 5.1.1 Knowledge-intensive employment, %.....                    | 41.2        | 22         |
| 5.1.2 Firms offering formal training, % firms.....              | 73.2        | 3 ●        |
| 5.1.3 GERD performed by business, % GDP .....                   | 1.2         | 20         |
| 5.1.4 GERD performed by business, %.....                        | 69.4        | 9          |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 253.9       | 22         |
| 5.2 Innovation linkages .....                                   | 50.0        | 17         |
| 5.2.1 University/industry research collaboration† .....         | 70.0        | 12         |
| 5.2.2 State of cluster development† .....                       | 63.3        | 20         |
| 5.2.3 GERD financed by abroad, %.....                           | 20.4        | 19         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.1         | 14         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.8         | 23         |
| 5.3 Knowledge absorption.....                                   | 49.3        | 4 ●        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 20.4        | 1 ●        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.0         | 82 ○       |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.1         | 58         |
| 5.3.4 FDI net inflows, % GDP.....                               | 15.7        | 8          |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>53.2</b> | <b>10</b>  |
| 6.1 Knowledge creation.....                                     | 34.9        | 28         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....           | 2.6         | 42         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 2.1         | 23         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 36.2        | 22         |
| 6.1.5 Citable documents H index.....                            | 271.0       | 27         |
| 6.2 Knowledge impact.....                                       | 58.1        | 7 ●        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 1.1         | 65 ○       |
| 6.2.2 New businesses/th pop. 15–64.....                         | 4.5         | 23         |
| 6.2.3 Computer software spending, % GDP.....                    | 0.8         | 2 ●        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 12.5        | 42         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 62.3        | 3 ●        |
| 6.3 Knowledge diffusion.....                                    | 66.7        | 1 ●        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 2.4         | 9          |
| 6.3.2 High-tech exports less re-exports, %.....                 | 12.2        | 18         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 23.7        | 1 ●        |
| 6.3.4 FDI net outflows, % GDP .....                             | 10.1        | 4 ●        |
| <b>7 Creative outputs .....</b>                                 | <b>46.9</b> | <b>19</b>  |
| 7.1 Intangible assets .....                                     | 43.4        | 73 ○       |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 13.8        | 90 ○       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.6         | 37 ○       |
| 7.1.3 ICTs & business model creation†.....                      | 72.5        | 13         |
| 7.1.4 ICTs & organizational model creation†.....                | 68.2        | 14         |
| 7.2 Creative goods & services.....                              | 35.3        | 28         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 51 ○       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 10.0        | 13         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 1.4         | 17         |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 49 ○       |
| 7.2.5 Creative goods exports, % total trade.....                | 2.2         | 23         |
| 7.3 Online creativity .....                                     | 65.4        | 13         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 74.1        | 13         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 55.0        | 30         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 24,573.8    | 16         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 90.7        | 10         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 7.9                              |
| GDP (US\$ billions) .....   | 291.5                            |
| GDP per capita, PPP\$ ..... | 34,770.1                         |
| Income group .....          | High income                      |
| Region .....                | Northern Africa and Western Asia |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>55.5</b>                           | <b>15</b>  |
| Innovation Output Sub-Index .....                             | 49.1                                  | 13         |
| Innovation Input Sub-Index.....                               | 61.8                                  | 17         |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 42         |
| Global Innovation Index 2013 (out of 142) .....               | 56.0                                  | 14         |
| <b>1 Institutions.....</b>                                    | <b>67.7</b>                           | <b>54</b>  |
| 1.1 Political environment.....                                | 60.3                                  | 59         |
| 1.1.1 Political stability*.....                               | 39.6                                  | 119 ○      |
| 1.1.2 Government effectiveness*.....                          | 74.3                                  | 25         |
| 1.1.3 Press freedom*.....                                     | 67.0                                  | 91 ○       |
| 1.2 Regulatory environment .....                              | 68.1                                  | 61         |
| 1.2.1 Regulatory quality* .....                               | 79.1                                  | 22         |
| 1.2.2 Rule of law*.....                                       | 71.6                                  | 34         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 27.4                                  | 124 ○      |
| 1.3 Business environment.....                                 | 74.6                                  | 30         |
| 1.3.1 Ease of starting a business*.....                       | 89.4                                  | 41         |
| 1.3.2 Ease of resolving insolvency*.....                      | 64.2                                  | 31         |
| 1.3.3 Ease of paying taxes*.....                              | 70.3                                  | 65         |
| <b>2 Human capital &amp; research.....</b>                    | <b>61.9</b>                           | <b>5</b> ● |
| 2.1 Education .....   | 49.7                                  | 51         |
| 2.1.1 Expenditure on education, % GDP.....                    | 5.6                                   | 39         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 15.4                                  | 83 ○       |
| 2.1.3 School life expectancy, years.....                      | 15.7                                  | 28         |
| 2.1.4 PISA scales in reading, maths, & science.....           | 474.1                                 | 36 ○       |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 9.8                                   | 24         |
| 2.2 Tertiary education.....                                   | 63.0                                  | 6 ●        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 62.4                                  | 31         |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a        |
| 2.3 Research & development (R&D).....                         | 73.1                                  | 7 ●        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | n/a                                   | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 3.9                                   | 2 ●        |
| 2.3.3 QS university ranking, average score top 3*.....        | 56.0                                  | 21         |
| <b>3 Infrastructure.....</b>                                  | <b>53.7</b>                           | <b>20</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 77.2                                  | 12         |
| 3.1.1 ICT access*.....  | 75.7                                  | 23         |
| 3.1.2 ICT use* .....  | 58.6                                  | 24         |
| 3.1.3 Government's online service*.....                       | 85.0                                  | 15         |
| 3.1.4 E-participation*.....                                   | 89.5                                  | 7 ●        |
| 3.2 General infrastructure.....                               | 37.5                                  | 53         |
| 3.2.1 Electricity output, kWh/cap.....                        | 7,675.6                               | 23         |
| 3.2.2 Logistics performance* .....                            | 71.4                                  | 31         |
| 3.2.3 Gross capital formation, % GDP.....                     | 18.6                                  | 106 ○      |
| 3.3 Ecological sustainability.....                            | 46.4                                  | 38         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 9.0                                   | 23         |
| 3.3.2 Environmental performance*.....                         | 65.8                                  | 39         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 2.7                                   | 37         |
| <b>4 Market sophistication .....</b>                          | <b>67.5</b>                           | <b>12</b>  |
| 4.1 Credit.....   | 58.0                                  | 20         |
| 4.1.1 Ease of getting credit*.....                            | 87.5                                  | 13         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 89.5                                  | 36         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 68.8        | 8 ●        |
| 4.2.1 Ease of protecting investors*.....                            | 83.3        | 6 ●        |
| 4.2.2 Market capitalization, % GDP.....                             | 59.7        | 33         |
| 4.2.3 Total value of stocks traded, % GDP.....                      | 43.4        | 19         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                       | 1.0         | 1 ●        |
| 4.3 Trade & competition .....                                       | 75.7        | 69         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                    | 3.5         | 62         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....           | 0.7         | 62         |
| 4.3.3 Intensity of local competition <sup>†</sup> .....             | 61.5        | 91 ○       |
| <b>5 Business sophistication .....</b>                              | <b>58.2</b> | <b>3</b> ● |
| 5.1 Knowledge workers.....  | 88.7        | 1 ●        |
| 5.1.1 Knowledge-intensive employment, %.....                        | 42.4        | 19         |
| 5.1.2 Firms offering formal training, % firms.....                  | n/a         | n/a        |
| 5.1.3 GERD performed by business, % GDP.....                        | 3.3         | 1 ●        |
| 5.1.4 GERD performed by business, %.....                            | 84.4        | 1 ●        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                           | 1,112.8     | 3 ●        |
| 5.2 Innovation linkages .....                                       | 59.4        | 4 ●        |
| 5.2.1 University/industry research collaboration <sup>†</sup> ..... | 73.3        | 8 ●        |
| 5.2.2 State of cluster development <sup>†</sup> .....               | 52.8        | 37         |
| 5.2.3 GERD financed by abroad, %.....                               | 47.3        | 7          |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....                | 0.1         | 25         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....        | 2.9         | 6 ●        |
| 5.3 Knowledge absorption.....                                       | 26.4        | 63         |
| 5.3.1 Royalty & license fees payments, % total trade.....           | 1.2         | 21         |
| 5.3.2 High-tech imports less re-imports, %.....                     | 9.5         | 37         |
| 5.3.3 Comm., computer & info. services imp., % total trade.....     | 0.3         | 115 ○      |
| 5.3.4 FDI net inflows, % GDP.....                                   | 4.3         | 49         |
| <b>6 Knowledge &amp; technology outputs .....</b>                   | <b>54.3</b> | <b>7</b> ● |
| 6.1 Knowledge creation.....   | 51.5        | 12         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....                | 5.1         | 27         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                     | 5.3         | 11         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....              | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....             | 42.9        | 16         |
| 6.1.5 Citable documents H index.....                                | 414.0       | 15         |
| 6.2 Knowledge impact.....   | 48.7        | 32         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                       | 1.6         | 60 ○       |
| 6.2.2 New businesses/th pop. 15–64.....                             | 3.0         | 33         |
| 6.2.3 Computer software spending, % GDP.....                        | 0.3         | 29         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....               | 32.0        | 13         |
| 6.2.5 High- & medium-high-tech manufactures, % .....                | 32.9        | 31         |
| 6.3 Knowledge diffusion.....  | 62.6        | 3 ●        |
| 6.3.1 Royalty & license fees receipts, % total trade .....          | 1.3         | 15         |
| 6.3.2 High-tech exports less re-exports, %.....                     | 13.1        | 16         |
| 6.3.3 Comm., computer & info. services exp., % total trade.....     | 12.7        | 1 ●        |
| 6.3.4 FDI net outflows, % GDP .....                                 | 2.1         | 35         |
| <b>7 Creative outputs .....</b>                                     | <b>43.9</b> | <b>30</b>  |
| 7.1 Intangible assets.....  | 41.7        | 84 ○       |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....                  | 12.4        | 92 ○       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....               | 0.7         | 36         |
| 7.1.3 ICTs & business model creation <sup>†</sup> .....             | 68.7        | 25         |
| 7.1.4 ICTs & organizational model creation <sup>†</sup> .....       | 66.5        | 18         |
| 7.2 Creative goods & services.....                                  | 31.4        | 38         |
| 7.2.1 Cultural & creative services exports, % total trade.....      | 0.1         | 53         |
| 7.2.2 National feature films/mn pop. 15–69.....                     | 5.3         | 27         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....                 | 0.9         | 22         |
| 7.2.4 Printing & publishing manufactures, %.....                    | 0.0         | 18         |
| 7.2.5 Creative goods exports, % total trade.....                    | 1.8         | 31         |
| 7.3 Online creativity .....   | 61.0        | 17         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....           | 32.1        | 23         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                          | 51.9        | 34         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                               | 38,503.3    | 6 ●        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                     | 94.7        | 5          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 60.9        |
| GDP (US\$ billions) .....   | 2,072.0     |
| GDP per capita, PPP\$ ..... | 30,289.4    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>45.7</b>                           | <b>31</b> |
| Innovation Output Sub-Index .....                             | 40.1                                  | 33        |
| Innovation Input Sub-Index .....                              | 51.2                                  | 32        |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 52        |
| Global Innovation Index 2013 (out of 142) .....               | 47.8                                  | 29        |
| <b>1 Institutions.....</b>                                    | <b>73.2</b>                           | <b>39</b> |
| 1.1 Political environment.....                                | 67.9                                  | 49        |
| 1.1.1 Political stability*.....                               | 78.0                                  | 46        |
| 1.1.2 Government effectiveness*.....                          | 51.8                                  | 50        |
| 1.1.3 Press freedom*.....                                     | 73.9                                  | 48        |
| 1.2 Regulatory environment .....                              | 81.1                                  | 30        |
| 1.2.1 Regulatory quality* .....                               | 67.9                                  | 39        |
| 1.2.2 Rule of law*.....                                       | 56.3                                  | 51        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.0                                   | 1 ●       |
| 1.3 Business environment.....                                 | 70.7                                  | 48        |
| 1.3.1 Ease of starting a business*.....                       | 87.7                                  | 58        |
| 1.3.2 Ease of resolving insolvency*.....                      | 66.4                                  | 29        |
| 1.3.3 Ease of paying taxes*.....                              | 57.9                                  | 108 ○     |
| <b>2 Human capital &amp; research.....</b>                    | <b>42.1</b>                           | <b>33</b> |
| 2.1 Education .....   | 52.1                                  | 40        |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.5                                   | 75        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 25.3                                  | 37        |
| 2.1.3 School life expectancy, years.....                      | 16.3                                  | 18 ●      |
| 2.1.4 PISA scales in reading, maths, & science.....           | 489.5                                 | 28        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 10.1                                  | 28        |
| 2.2 Tertiary education.....                                   | 39.7                                  | 48        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 63.9                                  | 29        |
| 2.2.2 Graduates in science & engineering, % .....             | 21.7                                  | 41        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 3.7                                   | 46        |
| 2.3 Research & development (R&D).....                         | 34.5                                  | 29        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 2,496.3                               | 36        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 1.3                                   | 30        |
| 2.3.3 QS university ranking, average score top 3*.....        | 51.3                                  | 24        |
| <b>3 Infrastructure.....</b>                                  | <b>49.8</b>                           | <b>26</b> |
| 3.1 Information & communication technologies (ICTs).....      | 51.1                                  | 43        |
| 3.1.1 ICT access*.....  | 71.5                                  | 30        |
| 3.1.2 ICT use*.....   | 48.9                                  | 34        |
| 3.1.3 Government's online service*.....                       | 57.5                                  | 48        |
| 3.1.4 E-participation*.....                                   | 26.3                                  | 56        |
| 3.2 General infrastructure.....                               | 35.4                                  | 59        |
| 3.2.1 Electricity output, kWh/cap.....                        | 4,871.2                               | 46        |
| 3.2.2 Logistics performance*.....                             | 81.7                                  | 22        |
| 3.2.3 Gross capital formation, % GDP.....                     | 17.4                                  | 113 ○     |
| 3.3 Ecological sustainability.....                            | 63.0                                  | 4 ●       |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 10.1                                  | 15 ●      |
| 3.3.2 Environmental performance*.....                         | 74.4                                  | 22        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 10.9                                  | 7 ●       |
| <b>4 Market sophistication .....</b>                          | <b>51.0</b>                           | <b>52</b> |
| 4.1 Credit.....   | 45.1                                  | 44        |
| 4.1.1 Ease of getting credit*.....                            | 50.0                                  | 96 ○      |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 124.5                                 | 21 ●      |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 34.7        | 71        |
| 4.2.1 Ease of protecting investors*.....                        | 60.0        | 42        |
| 4.2.2 Market capitalization, % GDP.....                         | 23.9        | 63        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 37.7        | 22        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 50 ○      |
| 4.3 Trade & competition .....                                   | 73.2        | 89        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 65.8        | 70        |
| <b>5 Business sophistication .....</b>                          | <b>40.0</b> | <b>35</b> |
| 5.1 Knowledge workers.....                                      | 53.1        | 37        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 34.5        | 35        |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a       |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.7         | 28        |
| 5.1.4 GERD performed by business, %.....                        | 54.5        | 30        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 187.4       | 26        |
| 5.2 Innovation linkages .....                                   | 39.4        | 44        |
| 5.2.1 University/industry research collaboration†.....          | 45.2        | 57        |
| 5.2.2 State of cluster development†.....                        | 74.8        | 1 ●       |
| 5.2.3 GERD financed by abroad, %.....                           | 9.1         | 44        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 70 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.7         | 24        |
| 5.3 Knowledge absorption.....                                   | 27.4        | 56        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.0         | 26        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 7.5         | 60        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.7         | 19 ●      |
| 5.3.4 FDI net inflows, % GDP.....                               | 0.4         | 129 ○     |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>42.7</b> | <b>23</b> |
| 6.1 Knowledge creation.....                                     | 36.4        | 27        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 4.7         | 28        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 1.6         | 28        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.4         | 23        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 31.0        | 28        |
| 6.1.5 Citable documents H index.....                            | 588.0       | 7 ●       |
| 6.2 Knowledge impact.....                                       | 53.8        | 17 ●      |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -1.5        | 108 ○     |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.9         | 44        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.6         | 12        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 75.8        | 1 ●       |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 36.2        | 26        |
| 6.3 Knowledge diffusion.....                                    | 37.8        | 38        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.6         | 21        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 5.0         | 30        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.4         | 65        |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.7         | 54        |
| <b>7 Creative outputs .....</b>                                 | <b>37.5</b> | <b>48</b> |
| 7.1 Intangible assets.....                                      | 35.3        | 113 ○     |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 56.0        | 48        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 1.5         | 24        |
| 7.1.3 ICTs & business model creation†.....                      | 47.3        | 108 ○     |
| 7.1.4 ICTs & organizational model creation†.....                | 40.8        | 116 ○     |
| 7.2 Creative goods & services.....                              | 28.6        | 41        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.3         | 29        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 3.6         | 38        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 1.0         | 21        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 51        |
| 7.2.5 Creative goods exports, % total trade.....                | 2.1         | 24        |
| 7.3 Online creativity.....                                      | 51.0        | 25        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 25.1        | 27        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 55.7        | 28        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 24,558.7    | 17 ●      |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 81.5        | 26        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 2.7                             |
| GDP (US\$ billions) .....   | 14.3                            |
| GDP per capita, PPP\$ ..... | 9,048.1                         |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>32.4</b>                           | <b>82</b>  |
| Innovation Output Sub-Index .....                             | 25.7                                  | 91         |
| Innovation Input Sub-Index.....                               | 39.2                                  | 84         |
| Innovation Efficiency Ratio.....                              | 0.7                                   | 100        |
| Global Innovation Index 2013 (out of 142) .....               | 32.9                                  | 82         |
| <b>1 Institutions.....</b>                                    | <b>67.9</b>                           | <b>53</b>  |
| 1.1 Political environment.....                                | 66.2                                  | 50         |
| 1.1.1 Political stability*.....                               | 68.2                                  | 63         |
| 1.1.2 Government effectiveness*.....                          | 40.3                                  | 69         |
| 1.1.3 Press freedom*.....                                     | 90.1                                  | 11 ●       |
| 1.2 Regulatory environment .....                              | 66.4                                  | 68         |
| 1.2.1 Regulatory quality* .....                               | 54.9                                  | 63         |
| 1.2.2 Rule of law*.....                                       | 35.0                                  | 86         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 14.0                                  | 64         |
| 1.3 Business environment.....                                 | 71.0                                  | 44 ●       |
| 1.3.1 Ease of starting a business*.....                       | 90.9                                  | 32 ●       |
| 1.3.2 Ease of resolving insolvency*.....                      | 68.0                                  | 28 ●       |
| 1.3.3 Ease of paying taxes*.....                              | 54.0                                  | 117        |
| <b>2 Human capital &amp; research.....</b>                    | <b>25.1</b>                           | <b>84</b>  |
| 2.1 Education .....   | 44.5                                  | 64         |
| 2.1.1 Expenditure on education, % GDP .....                   | 6.1                                   | 27 ●       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 25.8                                  | 35 ●       |
| 2.1.3 School life expectancy, years.....                      | 12.5                                  | 80         |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 16.8                                  | 71         |
| 2.2 Tertiary education.....                                   | 30.7                                  | 75         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 30.8                                  | 75         |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a        |
| 2.3 Research & development (R&D).....                         | 0.0                                   | 131 ○      |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | n/a                                   | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a        |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>26.8</b>                           | <b>109</b> |
| 3.1 Information & communication technologies (ICTs).....      | 22.1                                  | 104        |
| 3.1.1 ICT access*.....  | 39.3                                  | 86         |
| 3.1.2 ICT use* .....  | 18.4                                  | 85         |
| 3.1.3 Government's online service*.....                       | 30.7                                  | 119        |
| 3.1.4 E-participation*.....                                   | 0.0                                   | 129 ○      |
| 3.2 General infrastructure.....                               | 23.3                                  | 119        |
| 3.2.1 Electricity output, kWh/cap.....                        | 1,897.0                               | 79         |
| 3.2.2 Logistics performance* .....                            | 32.1                                  | 118 ○      |
| 3.2.3 Gross capital formation, % GDP.....                     | 21.2                                  | 78         |
| 3.3 Ecological sustainability.....                            | 34.9                                  | 73         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 6.2                                   | 64         |
| 3.3.2 Environmental performance*.....                         | 58.3                                  | 53         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.4                                   | 91         |
| <b>4 Market sophistication .....</b>                          | <b>44.6</b>                           | <b>94</b>  |
| 4.1 Credit.....   | 22.2                                  | 121        |
| 4.1.1 Ease of getting credit*.....                            | 50.0                                  | 96         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 28.8                                  | 101        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.7                                   | 46         |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 33.3        | 82          |
| 4.2.1 Ease of protecting investors*.....                        | 53.3        | 66          |
| 4.2.2 Market capitalization, % GDP.....                         | 43.1        | 48          |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 1.4         | 62          |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a         |
| <b>4.3 Trade &amp; competition .....</b>                        | <b>78.4</b> | <b>38 ●</b> |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 7.5         | 109         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.0         | 1 ●         |
| 4.3.3 Intensity of local competition†.....                      | 70.0        | 50          |
| <b>5 Business sophistication .....</b>                          | <b>31.5</b> | <b>72</b>   |
| 5.1 Knowledge workers.....                                      | 37.8        | 77          |
| 5.1.1 Knowledge-intensive employment, %.....                    | 20.1        | 73          |
| 5.1.2 Firms offering formal training, % firms.....              | 26.1        | 74          |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a         |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 210.4       | 24 ●        |
| 5.2 Innovation linkages .....                                   | 36.0        | 54          |
| 5.2.1 University/industry research collaboration†.....          | 43.3        | 64          |
| 5.2.2 State of cluster development† .....                       | 50.3        | 54          |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 106 ○       |
| 5.3 Knowledge absorption.....                                   | 20.8        | 96          |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.8         | 37 ●        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 3.4         | 118 ○       |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.7         | 28 ●        |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.2         | 108         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>21.9</b> | <b>100</b>  |
| 6.1 Knowledge creation.....                                     | 6.2         | 101         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.8         | 71          |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a         | n/a         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 5.4         | 105         |
| 6.1.5 Citable documents H index.....                            | 57.0        | 100         |
| 6.2 Knowledge impact.....                                       | 28.7        | 111         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -0.6        | 100 ○       |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.1         | 56          |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 28          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.1         | 121 ○       |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a         |
| 6.3 Knowledge diffusion.....                                    | 30.9        | 72          |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 59          |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.1         | 112 ○       |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.5         | 25 ●        |
| 6.3.4 FDI net outflows, % GDP .....                             | -0.2        | 113 ○       |
| <b>7 Creative outputs .....</b>                                 | <b>29.4</b> | <b>80</b>   |
| 7.1 Intangible assets .....                                     | 53.8        | 24 ●        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a         |
| 7.1.3 ICTs & business model creation†.....                      | 53.0        | 82          |
| 7.1.4 ICTs & organizational model creation†.....                | 54.7        | 61          |
| 7.2 Creative goods & services.....                              | 1.3         | 132 ○       |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 97 ○        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a         |
| 7.2.5 Creative goods exports, % total trade.....                | 0.1         | 104         |
| 7.3 Online creativity .....                                     | 8.6         | 99          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 3.2         | 71          |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 20.0        | 80          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 1,541.4     | 86          |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Japan

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 127.6                       |
| GDP (US\$ billions) .....   | 4,901.5                     |
| GDP per capita, PPP\$ ..... | 36,899.4                    |
| Income group .....          | High income                 |
| Region .....                | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>52.4</b>                           | <b>21</b> |
| Innovation Output Sub-Index .....                 | 42.6                                  | 27        |
| Innovation Input Sub-Index .....                  | 62.2                                  | 15        |
| Innovation Efficiency Ratio .....                 | 0.7                                   | 88        |
| Global Innovation Index 2013 (out of 142) .....   | 59.4                                  | 22        |

|          |  |             |           |
|----------|--|-------------|-----------|
| <b>1</b> | <b>Institutions</b> .....                              | <b>84.1</b> | <b>18</b> |
| 1.1      | Political environment.....                             | 80.5        | 23        |
| 1.1.1    | Political stability*.....                              | 88.6        | 23        |
| 1.1.2    | Government effectiveness*.....                         | 78.2        | 21        |
| 1.1.3    | Press freedom*.....                                    | 74.8        | 44        |
| 1.2      | Regulatory environment .....                           | 90.2        | 18        |
| 1.2.1    | Regulatory quality* .....                              | 78.1        | 25        |
| 1.2.2    | Rule of law*.....                                      | 82.8        | 23        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 8.0         | 1 ●       |
| 1.3      | Business environment.....                              | 81.7        | 18        |
| 1.3.1    | Ease of starting a business*.....                      | 81.9        | 78        |
| 1.3.2    | Ease of resolving insolvency*.....                     | 98.3        | 1 ●       |
| 1.3.3    | Ease of paying taxes*.....                             | 64.8        | 88        |
| <b>2</b> | <b>Human capital &amp; research</b> .....              | <b>54.4</b> | <b>17</b> |
| 2.1      | Education .....  | 50.8        | 42        |
| 2.1.1    | Expenditure on education, % GDP.....                   | 3.8         | 92 ○      |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 25.3        | 36        |
| 2.1.3    | School life expectancy, years.....                     | 15.3        | 38        |
| 2.1.4    | PISA scales in reading, maths, & science.....          | 540.4       | 5         |
| 2.1.5    | Pupil-teacher ratio, secondary .....                   | 11.8        | 37        |
| 2.2      | Tertiary education.....                                | 37.5        | 57        |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 59.9        | 38        |
| 2.2.2    | Graduates in science & engineering, % .....            | 20.3        | 53        |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 3.9         | 42        |
| 2.3      | Research & development (R&D).....                      | 74.8        | 6 ●       |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 7,011.4     | 10        |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 3.3         | 5 ●       |
| 2.3.3    | QS university ranking, average score top 3*.....       | 82.2        | 7         |
| <b>3</b> | <b>Infrastructure</b> .....                            | <b>58.9</b> | <b>11</b> |
| 3.1      | Information & communication technologies (ICTs).....   | 78.1        | 10        |
| 3.1.1    | ICT access*.....                                       | 77.3        | 15        |
| 3.1.2    | ICT use*.....  | 75.1        | 6 ●       |
| 3.1.3    | Government's online service*.....                      | 86.3        | 9         |
| 3.1.4    | E-participation*.....                                  | 73.7        | 11        |
| 3.2      | General infrastructure.....                            | 45.3        | 25        |
| 3.2.1    | Electricity output, kWh/cap.....                       | 8,060.6     | 22        |
| 3.2.2    | Logistics performance*.....                            | 92.1        | 8         |
| 3.2.3    | Gross capital formation, % GDP.....                    | 20.7        | 84        |
| 3.3      | Ecological sustainability.....                         | 53.4        | 15        |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 8.9         | 24        |
| 3.3.2    | Environmental performance*.....                        | 72.4        | 26        |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 6.1         | 22        |
| <b>4</b> | <b>Market sophistication</b> .....                     | <b>66.8</b> | <b>13</b> |
| 4.1      | Credit.....  | 69.5        | 8         |
| 4.1.1    | Ease of getting credit*.....                           | 81.3        | 27        |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 176.7       | 10        |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | n/a         | n/a       |

|          |   |             |           |
|----------|---|-------------|-----------|
| 4.2      | Investment .....  | 48.9        | 34        |
| 4.2.1    | Ease of protecting investors*.....                        | 70.0        | 16        |
| 4.2.2    | Market capitalization, % GDP.....                         | 61.8        | 32        |
| 4.2.3    | Total value of stocks traded, % GDP.....                  | 60.5        | 13        |
| 4.2.4    | Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 34        |
| 4.3      | Trade & competition .....                                 | 82.1        | 18        |
| 4.3.1    | Applied tariff rate, weighted mean, %.....                | 1.3         | 38        |
| 4.3.2    | Non-agricultural mkt access weighted tariff, %.....       | 4.0         | 129 ○     |
| 4.3.3    | Intensity of local competition†.....                      | 87.3        | 1 ●       |
| <b>5</b> | <b>Business sophistication</b> .....                      | <b>46.8</b> | <b>17</b> |
| 5.1      | Knowledge workers.....                                    | 61.7        | 25        |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 24.9        | 55        |
| 5.1.2    | Firms offering formal training, % firms.....              | n/a         | n/a       |
| 5.1.3    | GERD performed by business, % GDP.....                    | 2.6         | 3 ●       |
| 5.1.4    | GERD performed by business, %.....                        | 77.0        | 3 ●       |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 128.0       | 41        |
| 5.2      | Innovation linkages .....                                 | 46.3        | 26        |
| 5.2.1    | University/industry research collaboration†.....          | 66.0        | 16        |
| 5.2.2    | State of cluster development†.....                        | 70.3        | 6 ●       |
| 5.2.3    | GERD financed by abroad, %.....                           | 0.5         | 89 ○      |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 45        |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 5.3         | 1 ●       |
| 5.3      | Knowledge absorption.....                                 | 32.3        | 35        |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | 2.1         | 6         |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 13.2        | 17        |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 0.6         | 87 ○      |
| 5.3.4    | FDI net inflows, % GDP.....                               | 0.0         | 135 ○     |
| <b>6</b> | <b>Knowledge &amp; technology outputs</b> .....           | <b>47.2</b> | <b>12</b> |
| 6.1      | Knowledge creation.....                                   | 52.8        | 11        |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP.....            | 62.7        | 1 ●       |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP.....                 | 9.5         | 4 ●       |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP.....          | 1.4         | 24        |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 15.7        | 57        |
| 6.1.5    | Citable documents H index.....                            | 635.0       | 6 ●       |
| 6.2      | Knowledge impact.....                                     | 40.5        | 65        |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | 0.5         | 76 ○      |
| 6.2.2    | New businesses/th pop. 15–64.....                         | 1.2         | 54        |
| 6.2.3    | Computer software spending, % GDP.....                    | 0.3         | 47 ○      |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 11.0        | 46        |
| 6.2.5    | High- & medium-high-tech manufactures, %.....             | 52.0        | 8         |
| 6.3      | Knowledge diffusion.....                                  | 48.2        | 17        |
| 6.3.1    | Royalty & license fees receipts, % total trade.....       | 3.3         | 6         |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 13.4        | 15        |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 0.2         | 119 ○     |
| 6.3.4    | FDI net outflows, % GDP.....                              | 2.1         | 34        |
| <b>7</b> | <b>Creative outputs</b> .....                             | <b>38.1</b> | <b>46</b> |
| 7.1      | Intangible assets.....                                    | 38.8        | 99 ○      |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP.....              | 0.0         | 101 ○     |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.5         | 41        |
| 7.1.3    | ICTs & business model creation†.....                      | 70.7        | 19        |
| 7.1.4    | ICTs & organizational model creation†.....                | 61.2        | 35        |
| 7.2      | Creative goods & services.....                            | 36.4        | 24        |
| 7.2.1    | Cultural & creative services exports, % total trade.....  | 0.0         | 87 ○      |
| 7.2.2    | National feature films/mn pop. 15–69.....                 | 5.0         | 28        |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....             | 2.2         | 5         |
| 7.2.4    | Printing & publishing manufactures, %.....                | 0.0         | 29        |
| 7.2.5    | Creative goods exports, % total trade.....                | 2.7         | 20        |
| 7.3      | Online creativity.....                                    | 38.2        | 37        |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....       | 20.3        | 31        |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                      | 37.7        | 47        |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                           | 9,289.2     | 46        |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                  | 79.0        | 30        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 6.3                              |
| GDP (US\$ billions) .....   | 33.9                             |
| GDP per capita, PPP\$ ..... | 6,115.0                          |
| Income group .....          | Upper-middle income              |
| Region .....                | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>36.2</b>                           | <b>64</b> |
| Innovation Output Sub-Index .....                | 32.1                                  | 57        |
| Innovation Input Sub-Index.....                  | 40.3                                  | 72        |
| Innovation Efficiency Ratio.....                 | 0.8                                   | 40        |
| Global Innovation Index 2013 (out of 142) .....  | 37.3                                  | 61        |

|          |  |             |              |
|----------|--|-------------|--------------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>64.3</b> | <b>61</b>    |
| 1.1      | Political environment.....                             | 51.5        | 83           |
| 1.1.1    | Political stability*.....                              | 53.0        | 96           |
| 1.1.2    | Government effectiveness*.....                         | 39.9        | 71           |
| 1.1.3    | Press freedom*.....                                    | 61.5        | 109 ○        |
| 1.2      | Regulatory environment.....                            | 77.5        | 36 ●         |
| 1.2.1    | Regulatory quality*.....                               | 53.5        | 66           |
| 1.2.2    | Rule of law*.....                                      | 56.6        | 50           |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 8.0         | 1 ●          |
| 1.3      | Business environment.....                              | 64.0        | 73           |
| 1.3.1    | Ease of starting a business*.....                      | 84.1        | 71           |
| 1.3.2    | Ease of resolving insolvency*.....                     | 28.8        | 100          |
| 1.3.3    | Ease of paying taxes*.....                             | 79.2        | 36 ●         |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>28.3</b> | <b>72</b>    |
| 2.1      | Education.....   | 35.5        | 97           |
| 2.1.1    | Expenditure on education, % GDP.....                   | n/a         | n/a          |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 22.0        | 50           |
| 2.1.3    | School life expectancy, years.....                     | 13.3        | 65           |
| 2.1.4    | PISA scales in reading, maths, & science.....          | 398.0       | 54 ○         |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | n/a         | n/a          |
| 2.2      | Tertiary education.....                                | 35.9        | 60           |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 39.9        | 64           |
| 2.2.2    | Graduates in science & engineering, %.....             | 16.1        | 77           |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 9.9         | 17 ●         |
| 2.3      | Research & development (R&D).....                      | 13.5        | 59           |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 1,913.3     | 41           |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 0.4         | 64           |
| 2.3.3    | QS university ranking, average score top 3*.....       | 13.0        | 57           |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>31.1</b> | <b>92</b>    |
| 3.1      | Information & communication technologies (ICTs).....   | 29.6        | 91           |
| 3.1.1    | ICT access*.....                                       | 49.5        | 69           |
| 3.1.2    | ICT use*.....  | 19.2        | 84           |
| 3.1.3    | Government's online service*.....                      | 39.2        | 96           |
| 3.1.4    | E-participation*.....                                  | 10.5        | 94           |
| 3.2      | General infrastructure.....                            | 31.7        | 75           |
| 3.2.1    | Electricity output, kWh/cap.....                       | 2,370.1     | 71           |
| 3.2.2    | Logistics performance*.....                            | 37.7        | 97           |
| 3.2.3    | Gross capital formation, % GDP.....                    | 27.3        | 32 ●         |
| 3.3      | Ecological sustainability.....                         | 31.9        | 85           |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 4.6         | 88           |
| 3.3.2    | Environmental performance*.....                        | 55.8        | 56           |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 1.1         | 63           |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>39.9</b> | <b>126</b> ○ |
| 4.1      | Credit.....  | 19.0        | 127 ○        |
| 4.1.1    | Ease of getting credit*.....                           | 25.0        | 134 ○        |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 72.4        | 45           |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | 0.7         | 43           |

|       |   |      |       |
|-------|---|------|-------|
| 4.2   | Investment.....                                     | 26.0 | 117 ○ |
| 4.2.1 | Ease of protecting investors*.....                  | 30.0 | 133 ○ |
| 4.2.2 | Market capitalization, % GDP.....                   | 86.4 | 42 ●  |
| 4.2.3 | Total value of stocks traded, % GDP.....            | 8.9  | 42    |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | 0.0  | 29    |
| 4.3   | Trade & competition.....                            | 74.9 | 77    |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 5.2  | 85    |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 2.3  | 93    |
| 4.3.3 | Intensity of local competition†.....                | 71.2 | 42    |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>5</b> | <b>Business sophistication.....</b>                       | <b>37.8</b> | <b>41</b> |
| 5.1      | Knowledge workers.....                                    | 34.5        | 84        |
| 5.1.1    | Knowledge-intensive employment, %.....                    | n/a         | n/a       |
| 5.1.2    | Firms offering formal training, % firms.....              | 23.9        | 84 ○      |
| 5.1.3    | GERD performed by business, % GDP.....                    | n/a         | n/a       |
| 5.1.4    | GERD performed by business, %.....                        | n/a         | n/a       |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 119.0       | 43        |
| 5.2      | Innovation linkages.....                                  | 53.4        | 9 ●       |
| 5.2.1    | University/industry research collaboration†.....          | 39.3        | 81        |
| 5.2.2    | State of cluster development†.....                        | 58.3        | 25 ●      |
| 5.2.3    | GERD financed by abroad, %.....                           | n/a         | n/a       |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.3         | 1 ●       |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.1         | 54        |
| 5.3      | Knowledge absorption.....                                 | 25.5        | 69        |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | n/a         | n/a       |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 5.4         | 94 ○      |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | n/a         | n/a       |
| 5.3.4    | FDI net inflows, % GDP.....                               | 5.1         | 38        |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>6</b> | <b>Knowledge &amp; technology outputs.....</b>            | <b>29.4</b> | <b>59</b> |
| 6.1      | Knowledge creation.....                                   | 19.6        | 52        |
| 6.1.1    | Domestic resident patent app./tr PPP\$ GDP.....           | 1.3         | 62        |
| 6.1.2    | PCT resident patent app./tr PPP\$ GDP.....                | n/a         | n/a       |
| 6.1.3    | Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a       |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 28.4        | 34 ●      |
| 6.1.5    | Citable documents H index.....                            | 82.0        | 78        |
| 6.2      | Knowledge impact.....                                     | 35.3        | 80        |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | 2.6         | 44        |
| 6.2.2    | New businesses/th pop. 15–64.....                         | 1.0         | 60        |
| 6.2.3    | Computer software spending, % GDP.....                    | 0.3         | 36        |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 9.5         | 50        |
| 6.2.5    | High- & medium-high-tech manufactures, %.....             | 19.8        | 55        |
| 6.3      | Knowledge diffusion.....                                  | 33.3        | 57        |
| 6.3.1    | Royalty & license fees receipts, % total trade.....       | n/a         | n/a       |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.6         | 76        |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | n/a         | n/a       |
| 6.3.4    | FDI net outflows, % GDP.....                              | 0.0         | 101 ○     |

|          |  |             |           |
|----------|--|-------------|-----------|
| <b>7</b> | <b>Creative outputs.....</b>                             | <b>34.9</b> | <b>61</b> |
| 7.1      | Intangible assets.....                                   | 49.8        | 44        |
| 7.1.1    | Domestic res trademark app./bn PPP\$ GDP.....            | 59.8        | 43        |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a         | n/a       |
| 7.1.3    | ICTs & business model creation†.....                     | 64.7        | 34 ●      |
| 7.1.4    | ICTs & organizational model creation†.....               | 61.5        | 31 ●      |
| 7.2      | Creative goods & services.....                           | 18.8        | 64        |
| 7.2.1    | Cultural & creative services exports, % total trade..... | n/a         | n/a       |
| 7.2.2    | National feature films/mn pop. 15–69.....                | n/a         | n/a       |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....            | 0.1         | 50 ○      |
| 7.2.4    | Printing & publishing manufactures, %.....               | 0.0         | 34        |
| 7.2.5    | Creative goods exports, % total trade.....               | 0.8         | 45        |
| 7.3      | Online creativity.....                                   | 21.1        | 64        |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....      | 10.0        | 49        |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                     | 8.7         | 106 ○     |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                          | 2,151.8     | 80        |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                 | 62.1        | 49 ○      |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 16.8                      |
| GDP (US\$ billions) .....   | 220.3                     |
| GDP per capita, PPP\$ ..... | 14,391.1                  |
| Income group .....          | Upper-middle income       |
| Region .....                | Central and Southern Asia |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>32.8</b>                           | <b>79</b> |
| Innovation Output Sub-Index .....                             | 24.4                                  | 101       |
| Innovation Input Sub-Index .....                              | 41.1                                  | 69        |
| Innovation Efficiency Ratio .....                             | 0.6                                   | 118       |
| Global Innovation Index 2013 (out of 142) .....               | 32.7                                  | 84        |
| <b>1 Institutions.....</b>                                    | <b>61.1</b>                           | <b>67</b> |
| 1.1 Political environment.....                                | 43.5                                  | 119       |
| 1.1.1 Political stability*.....                               | 56.5                                  | 86        |
| 1.1.2 Government effectiveness*.....                          | 29.1                                  | 94        |
| 1.1.3 Press freedom*.....                                     | 44.9                                  | 132 ○     |
| 1.2 Regulatory environment .....                              | 66.0                                  | 71        |
| 1.2.1 Regulatory quality* .....                               | 38.7                                  | 101       |
| 1.2.2 Rule of law*.....                                       | 28.1                                  | 103       |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.7                                   | 25 ●      |
| 1.3 Business environment.....                                 | 73.9                                  | 35 ●      |
| 1.3.1 Ease of starting a business*.....                       | 88.5                                  | 50        |
| 1.3.2 Ease of resolving insolvency*.....                      | 45.7                                  | 48        |
| 1.3.3 Ease of paying taxes*.....                              | 87.4                                  | 14 ●      |
| <b>2 Human capital &amp; research.....</b>                    | <b>30.0</b>                           | <b>63</b> |
| 2.1 Education .....   | 49.8                                  | 49        |
| 2.1.1 Expenditure on education, % GDP .....                   | 3.1                                   | 110       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a       |
| 2.1.3 School life expectancy, years.....                      | 15.0                                  | 43        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 416.4                                 | 48        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 8.6                                   | 11 ●      |
| 2.2 Tertiary education.....                                   | 25.8                                  | 88        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 44.5                                  | 58        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a       |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.4                                   | 76        |
| 2.3 Research & development (R&D).....                         | 14.4                                  | 58        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 713.6                                 | 64        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.2                                   | 91        |
| 2.3.3 QS university ranking, average score top 3*.....        | 33.4                                  | 38 ●      |
| <b>3 Infrastructure.....</b>                                  | <b>43.8</b>                           | <b>44</b> |
| 3.1 Information & communication technologies (ICTs).....      | 69.1                                  | 20 ●      |
| 3.1.1 ICT access*.....  | 66.0                                  | 38        |
| 3.1.2 ICT use* .....  | 37.1                                  | 49        |
| 3.1.3 Government's online service*.....                       | 78.4                                  | 21 ●      |
| 3.1.4 E-participation*.....                                   | 94.7                                  | 3 ●       |
| 3.2 General infrastructure.....                               | 31.9                                  | 74        |
| 3.2.1 Electricity output, kWh/cap.....                        | 5,228.6                               | 40        |
| 3.2.2 Logistics performance* .....                            | 42.9                                  | 87        |
| 3.2.3 Gross capital formation, % GDP.....                     | 23.0                                  | 70        |
| 3.3 Ecological sustainability .....                           | 30.5                                  | 91        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 2.5                                   | 115 ○     |
| 3.3.2 Environmental performance*.....                         | 51.1                                  | 76        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a                                   | n/a       |
| <b>4 Market sophistication .....</b>                          | <b>44.1</b>                           | <b>98</b> |
| 4.1 Credit.....   | 23.2                                  | 116       |
| 4.1.1 Ease of getting credit* .....                           | 56.3                                  | 81        |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 37.2                                  | 87        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.2                                   | 63        |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 35.1        | 68         |
| 4.2.1 Ease of protecting investors*.....                        | 66.7        | 21 ●       |
| 4.2.2 Market capitalization, % GDP.....                         | 11.6        | 87         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.6         | 77         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 74.2        | 83         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 3.4         | 60         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.3         | 41         |
| 4.3.3 Intensity of local competition†.....                      | 55.8        | 113 ○      |
| <b>5 Business sophistication .....</b>                          | <b>26.4</b> | <b>106</b> |
| 5.1 Knowledge workers.....                                      | 43.2        | 56         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 29.3        | 49         |
| 5.1.2 Firms offering formal training, % firms.....              | 41.7        | 40         |
| 5.1.3 GERD performed by business, % GDP .....                   | 0.1         | 60         |
| 5.1.4 GERD performed by business, %.....                        | 51.6        | 36         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 56.8        | 71         |
| 5.2 Innovation linkages .....                                   | 16.5        | 136 ○      |
| 5.2.1 University/industry research collaboration† .....         | 40.5        | 76         |
| 5.2.2 State of cluster development† .....                       | 34.2        | 119 ○      |
| 5.2.3 GERD financed by abroad, %.....                           | 0.3         | 91 ○       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 80         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 98 ○       |
| 5.3 Knowledge absorption.....                                   | 19.5        | 105        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 81         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 5.3         | 95         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.3         | 116 ○      |
| 5.3.4 FDI net inflows, % GDP.....                               | 7.1         | 26 ●       |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>24.8</b> | <b>82</b>  |
| 6.1 Knowledge creation.....                                     | 9.7         | 83         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....           | 6.6         | 19 ●       |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 89         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.4         | 40         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 2.1         | 134 ○      |
| 6.1.5 Citable documents H index.....                            | 52.0        | 109        |
| 6.2 Knowledge impact.....                                       | 35.5        | 79         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                  | 4.5         | 11 ●       |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.7         | 46         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 2.5         | 93         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 6.8         | 84 ○       |
| 6.3 Knowledge diffusion.....                                    | 29.4        | 81         |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 4.5         | 36         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.2         | 127 ○      |
| 6.3.4 FDI net outflows, % GDP .....                             | 1.3         | 44         |
| <b>7 Creative outputs .....</b>                                 | <b>23.9</b> | <b>106</b> |
| 7.1 Intangible assets .....                                     | 34.8        | 116        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 28.9        | 74         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.3         | 46         |
| 7.1.3 ICTs & business model creation†.....                      | 54.3        | 77         |
| 7.1.4 ICTs & organizational model creation†.....                | 53.2        | 68         |
| 7.2 Creative goods & services.....                              | 13.4        | 84         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 67         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.1         | 69         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 47         |
| 7.2.5 Creative goods exports, % total trade.....                | 0.4         | 64         |
| 7.3 Online creativity .....                                     | 12.9        | 82         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.5         | 117        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 30.9        | 57         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 4,267.0     | 60         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 43.2               |
| GDP (US\$ billions) .....   | 45.1               |
| GDP per capita, PPP\$ ..... | 1,812.0            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>31.9</b>                           | <b>85</b>    |
| Innovation Output Sub-Index .....                             | 29.0                                  | 73           |
| Innovation Input Sub-Index.....                               | 34.7                                  | 103          |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 26 ●         |
| Global Innovation Index 2013 (out of 142) .....               | 30.3                                  | 99           |
| <b>1 Institutions.....</b>                                    | <b>53.6</b>                           | <b>97</b>    |
| 1.1 Political environment.....                                | 44.2                                  | 114          |
| 1.1.1 Political stability*.....                               | 34.0                                  | 129 ○        |
| 1.1.2 Government effectiveness*.....                          | 26.3                                  | 103          |
| 1.1.3 Press freedom*.....                                     | 72.2                                  | 58           |
| 1.2 Regulatory environment .....                              | 65.8                                  | 74           |
| 1.2.1 Regulatory quality* .....                               | 40.7                                  | 96           |
| 1.2.2 Rule of law*.....                                       | 22.6                                  | 117          |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.0                                   | 1 ●          |
| 1.3 Business environment.....                                 | 50.9                                  | 116          |
| 1.3.1 Ease of starting a business*.....                       | 72.5                                  | 111          |
| 1.3.2 Ease of resolving insolvency*.....                      | 26.2                                  | 107          |
| 1.3.3 Ease of paying taxes*.....                              | 54.2                                  | 115          |
| <b>2 Human capital &amp; research.....</b>                    | <b>15.8</b>                           | <b>117</b>   |
| 2.1 Education .....   | 35.9                                  | 94           |
| 2.1.1 Expenditure on education, % GDP .....                   | 6.7                                   | 18 ●         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 21.2                                  | 53           |
| 2.1.3 School life expectancy, years.....                      | 11.0                                  | 105          |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 29.7                                  | 103 ○        |
| 2.2 Tertiary education.....                                   | 3.3                                   | 134 ○        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 4.0                                   | 128 ○        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a          |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a          |
| 2.3 Research & development (R&D).....                         | 8.4                                   | 73           |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 318.1                                 | 79           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 1.0                                   | 35           |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○         |
| <b>3 Infrastructure.....</b>                                  | <b>21.1</b>                           | <b>127</b> ○ |
| 3.1 Information & communication technologies (ICTs).....      | 21.8                                  | 106          |
| 3.1.1 ICT access*.....  | 27.3                                  | 104          |
| 3.1.2 ICT use* .....  | 11.5                                  | 102          |
| 3.1.3 Government's online service*.....                       | 43.1                                  | 88           |
| 3.1.4 E-participation*.....                                   | 5.3                                   | 111          |
| 3.2 General infrastructure.....                               | 21.0                                  | 128 ○        |
| 3.2.1 Electricity output, kWh/cap.....                        | 188.6                                 | 115 ○        |
| 3.2.2 Logistics performance*.....                             | 32.5                                  | 117          |
| 3.2.3 Gross capital formation, % GDP.....                     | 20.9                                  | 82           |
| 3.3 Ecological sustainability.....                            | 20.6                                  | 131 ○        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 3.1                                   | 108          |
| 3.3.2 Environmental performance*.....                         | 37.0                                  | 118          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.4                                   | 87           |
| <b>4 Market sophistication .....</b>                          | <b>54.4</b>                           | <b>40</b>    |
| 4.1 Credit.....   | 51.8                                  | 32 ●         |
| 4.1.1 Ease of getting credit*.....                            | 87.5                                  | 13 ●         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 36.6                                  | 88           |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 4.6                                   | 12 ●         |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 30.1        | 94        |
| 4.2.1 Ease of protecting investors*.....                        | 50.0        | 81        |
| 4.2.2 Market capitalization, % GDP.....                         | 39.7        | 50        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 2.7         | 58        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.1         | 21        |
| 4.3 Trade & competition .....                                   | 81.2        | 25 ●      |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 6.1         | 95        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.0         | 1 ●       |
| 4.3.3 Intensity of local competition†.....                      | 73.2        | 33 ●      |
| <b>5 Business sophistication .....</b>                          | <b>28.5</b> | <b>91</b> |
| 5.1 Knowledge workers.....                                      | 16.4        | 132 ○     |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a       |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a       |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.1         | 58        |
| 5.1.4 GERD performed by business, %.....                        | 8.7         | 76 ○      |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 51.9        | 73        |
| 5.2 Innovation linkages .....                                   | 42.0        | 37        |
| 5.2.1 University/industry research collaboration†.....          | 54.7        | 37        |
| 5.2.2 State of cluster development† .....                       | 50.8        | 50        |
| 5.2.3 GERD financed by abroad, %.....                           | 47.1        | 8 ●       |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 53        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 76        |
| 5.3 Knowledge absorption.....                                   | 27.1        | 58        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 97        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 15.5        | 12 ●      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.5         | 100       |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.0         | 115       |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>26.9</b> | <b>70</b> |
| 6.1 Knowledge creation.....                                     | 12.3        | 68        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 1.6         | 57        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 84        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.9         | 34        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 15.8        | 54        |
| 6.1.5 Citable documents H index.....                            | 131.0       | 49        |
| 6.2 Knowledge impact.....                                       | 29.3        | 108       |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.4         | 48        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.0         | 92 ○      |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 54        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 6.1         | 60        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 9.9         | 77        |
| 6.3 Knowledge diffusion.....                                    | 39.0        | 35        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.4         | 25 ●      |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.1         | 66        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 3.1         | 20 ●      |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.0         | 96        |
| <b>7 Creative outputs .....</b>                                 | <b>31.2</b> | <b>73</b> |
| 7.1 Intangible assets.....                                      | 48.6        | 48        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.0         | 65        |
| 7.1.3 ICTs & business model creation†.....                      | 63.5        | 39        |
| 7.1.4 ICTs & organizational model creation†.....                | 57.7        | 50        |
| 7.2 Creative goods & services.....                              | 16.9        | 74        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 104 ○     |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a       |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.1         | 55 ○      |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 25        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.5         | 56        |
| 7.3 Online creativity .....                                     | 10.5        | 90        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.9         | 105       |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 10.8        | 100       |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 234.3       | 116       |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 29.9        | 61 ○      |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

# Korea, Republic of

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 50.0                        |
| GDP (US\$ billions) .....   | 1,221.8                     |
| GDP per capita, PPP\$ ..... | 33,189.1                    |
| Income group .....          | High income                 |
| Region .....                | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143)</b> .....             | <b>55.3</b>                           | <b>16</b>  |
| Innovation Output Sub-Index .....                             | 48.4                                  | 15         |
| Innovation Input Sub-Index .....                              | 62.2                                  | 16         |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 54         |
| Global Innovation Index 2013 (out of 142) .....               | 54.5                                  | 18         |
| <b>1 Institutions</b> .....                                   | <b>75.8</b>                           | <b>32</b>  |
| 1.1 Political environment .....                               | 72.7                                  | 40         |
| 1.1.1 Political stability* .....                              | 69.7                                  | 60         |
| 1.1.2 Government effectiveness* .....                         | 72.9                                  | 27         |
| 1.1.3 Press freedom* .....                                    | 75.5                                  | 42         |
| 1.2 Regulatory environment .....                              | 66.8                                  | 67         |
| 1.2.1 Regulatory quality* .....                               | 71.9                                  | 36         |
| 1.2.2 Rule of law* .....                                      | 73.0                                  | 32         |
| 1.2.3 Cost of redundancy dismissal, salary weeks .....        | 27.4                                  | 120 ○      |
| 1.3 Business environment .....                                | 87.8                                  | 11         |
| 1.3.1 Ease of starting a business* .....                      | 90.0                                  | 38         |
| 1.3.2 Ease of resolving insolvency* .....                     | 87.1                                  | 15         |
| 1.3.3 Ease of paying taxes* .....                             | 86.3                                  | 18         |
| <b>2 Human capital &amp; research</b> .....                   | <b>64.1</b>                           | <b>3 ●</b> |
| 2.1 Education .....   | 54.4                                  | 31         |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.0                                   | 59         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap .....     | 23.8                                  | 47         |
| 2.1.3 School life expectancy, years .....                     | 17.0                                  | 9          |
| 2.1.4 PISA scales in reading, maths, & science .....          | 542.4                                 | 4          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 16.2                                  | 66         |
| 2.2 Tertiary education .....                                  | 55.3                                  | 16         |
| 2.2.1 Tertiary enrolment, % gross .....                       | 98.5                                  | 1 ●        |
| 2.2.2 Graduates in science & engineering, % .....             | 31.1                                  | 11         |
| 2.2.3 Tertiary inbound mobility, % .....                      | 1.8                                   | 66         |
| 2.3 Research & development (R&D) .....                        | 82.6                                  | 1 ●        |
| 2.3.1 Researchers, headcounts/mn pop. .....                   | 7,698.7                               | 8          |
| 2.3.2 Gross expenditure on R&D, % GDP .....                   | 4.4                                   | 1 ●        |
| 2.3.3 QS university ranking, average score top 3* .....       | 75.8                                  | 11         |
| <b>3 Infrastructure</b> .....                                 | <b>62.8</b>                           | <b>5</b>   |
| 3.1 Information & communication technologies (ICTs) .....     | 91.3                                  | 1 ●        |
| 3.1.1 ICT access* .....                                       | 82.8                                  | 9          |
| 3.1.2 ICT use* .....  | 82.2                                  | 2 ●        |
| 3.1.3 Government's online service* .....                      | 100.0                                 | 1 ●        |
| 3.1.4 E-participation* .....                                  | 100.0                                 | 1 ●        |
| 3.2 General infrastructure .....                              | 52.6                                  | 13         |
| 3.2.1 Electricity output, kWh/cap .....                       | 10,576.6                              | 11         |
| 3.2.2 Logistics performance* .....                            | 82.9                                  | 19         |
| 3.2.3 Gross capital formation, % GDP .....                    | 26.8                                  | 37         |
| 3.3 Ecological sustainability .....                           | 44.6                                  | 41         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 5.3                                   | 79 ○       |
| 3.3.2 Environmental performance* .....                        | 63.8                                  | 43         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 7.2                                   | 18         |
| <b>4 Market sophistication</b> .....                          | <b>65.4</b>                           | <b>14</b>  |
| 4.1 Credit .....  | 67.8                                  | 10         |
| 4.1.1 Ease of getting credit* .....                           | 87.5                                  | 13         |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 148.0                                 | 15         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|  |             |           |
|--|-------------|-----------|
| 4.2 Investment .....   | 57.3        | 19        |
| 4.2.1 Ease of protecting investors* .....                        | 60.0        | 42        |
| 4.2.2 Market capitalization, % GDP .....                         | 104.5       | 16        |
| 4.2.3 Total value of stocks traded, % GDP .....                  | 134.0       | 1 ●       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP .....                   | 0.0         | 45        |
| 4.3 Trade & competition .....                                    | 71.2        | 103 ○     |
| 4.3.1 Applied tariff rate, weighted mean, % .....                | 8.7         | 120 ○     |
| 4.3.2 Non-agricultural mkt access weighted tariff, % .....       | 4.5         | 130 ○     |
| 4.3.3 Intensity of local competition† .....                      | 81.5        | 7         |
| <b>5 Business sophistication</b> .....                           | <b>42.7</b> | <b>30</b> |
| 5.1 Knowledge workers .....                                      | 61.2        | 27        |
| 5.1.1 Knowledge-intensive employment, % .....                    | 21.5        | 67        |
| 5.1.2 Firms offering formal training, % firms .....              | 39.5        | 42        |
| 5.1.3 GERD performed by business, % GDP .....                    | 3.1         | 2 ●       |
| 5.1.4 GERD performed by business, % .....                        | 76.5        | 4         |
| 5.1.5 GMAT test takers/mn pop. 20–34 .....                       | 433.4       | 10        |
| 5.2 Innovation linkages .....                                    | 40.7        | 41        |
| 5.2.1 University/industry research collaboration† .....          | 61.3        | 25        |
| 5.2.2 State of cluster development† .....                        | 57.7        | 26        |
| 5.2.3 GERD financed by abroad, % .....                           | 0.2         | 92 ○      |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....             | 0.0         | 66        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....     | 5.0         | 2 ●       |
| 5.3 Knowledge absorption .....                                   | 26.3        | 64        |
| 5.3.1 Royalty & license fees payments, % total trade .....       | 1.3         | 16        |
| 5.3.2 High-tech imports less re-imports, % .....                 | 12.2        | 20        |
| 5.3.3 Comm., computer & info. services imp., % total trade ..... | 0.3         | 114 ○     |
| 5.3.4 FDI net inflows, % GDP .....                               | 0.4         | 127 ○     |
| <b>6 Knowledge &amp; technology outputs</b> .....                | <b>54.5</b> | <b>6</b>  |
| 6.1 Knowledge creation .....                                     | 74.8        | 1 ●       |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....            | 92.7        | 1 ●       |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP .....                 | 7.4         | 6         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....          | 7.4         | 6         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP .....         | 29.5        | 30        |
| 6.1.5 Citable documents H index .....                            | 333.0       | 19        |
| 6.2 Knowledge impact .....                                       | 44.3        | 47        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                   | 0.8         | 72        |
| 6.2.2 New businesses/th pop. 15–64 .....                         | 2.0         | 42        |
| 6.2.3 Computer software spending, % GDP .....                    | 0.3         | 30        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....           | 16.1        | 30        |
| 6.2.5 High- & medium-high-tech manufactures, % .....             | 48.9        | 9         |
| 6.3 Knowledge diffusion .....                                    | 44.6        | 22        |
| 6.3.1 Royalty & license fees receipts, % total trade .....       | 0.5         | 22        |
| 6.3.2 High-tech exports less re-exports, % .....                 | 20.4        | 4 ●       |
| 6.3.3 Comm., computer & info. services exp., % total trade ..... | 0.2         | 123 ○     |
| 6.3.4 FDI net outflows, % GDP .....                              | 2.1         | 33        |
| <b>7 Creative outputs</b> .....                                  | <b>42.2</b> | <b>37</b> |
| 7.1 Intangible assets .....                                      | 52.4        | 29        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....              | 88.2        | 23        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....           | 0.3         | 50 ○      |
| 7.1.3 ICTs & business model creation† .....                      | 78.3        | 2 ●       |
| 7.1.4 ICTs & organizational model creation† .....                | 68.2        | 14        |
| 7.2 Creative goods & services .....                              | 27.2        | 43        |
| 7.2.1 Cultural & creative services exports, % total trade .....  | 0.3         | 33        |
| 7.2.2 National feature films/mn pop. 15–69 .....                 | 5.8         | 24        |
| 7.2.3 Global ent. & media output/th pop. 15–69 .....             | 1.2         | 20        |
| 7.2.4 Printing & publishing manufactures, % .....                | 0.0         | 89 ○      |
| 7.2.5 Creative goods exports, % total trade .....                | 2.5         | 22        |
| 7.3 Online creativity .....                                      | 36.7        | 40        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69 .....       | 10.2        | 48        |
| 7.3.2 Country-code TLDs/th pop. 15–69 .....                      | 45.4        | 40        |
| 7.3.3 Wikipedia edits/pop. 15–69 .....                           | 7,577.3     | 50        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                  | 78.6        | 32        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 3.3                              |
| GDP (US\$ billions) .....   | 185.3                            |
| GDP per capita, PPP\$ ..... | 39,706.1                         |
| Income group .....          | High income                      |
| Region .....                | Northern Africa and Western Asia |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>35.2</b>                           | <b>69</b> |
| Innovation Output Sub-Index .....                             | 30.9                                  | 62        |
| Innovation Input Sub-Index.....                               | 39.4                                  | 79        |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 50        |
| Global Innovation Index 2013 (out of 142) .....               | 40.0                                  | 50        |
| <b>1 Institutions.....</b>                                    | <b>60.2</b>                           | <b>72</b> |
| 1.1 Political environment.....                                | 60.2                                  | 61        |
| 1.1.1 Political stability*.....                               | 70.1                                  | 59        |
| 1.1.2 Government effectiveness*.....                          | 38.8                                  | 76        |
| 1.1.3 Press freedom*.....                                     | 71.7                                  | 63        |
| 1.2 Regulatory environment .....                              | 55.9                                  | 100       |
| 1.2.1 Regulatory quality* .....                               | 47.6                                  | 74        |
| 1.2.2 Rule of law*.....                                       | 57.0                                  | 49        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 28.1                                  | 126 ○     |
| 1.3 Business environment.....                                 | 64.6                                  | 71        |
| 1.3.1 Ease of starting a business*.....                       | 69.5                                  | 115       |
| 1.3.2 Ease of resolving insolvency*.....                      | 33.9                                  | 84        |
| 1.3.3 Ease of paying taxes*.....                              | 90.4                                  | 10 ●      |
| <b>2 Human capital &amp; research.....</b>                    | <b>23.3</b>                           | <b>91</b> |
| 2.1 Education .....   | 45.1                                  | 61        |
| 2.1.1 Expenditure on education, % GDP .....                   | 3.8                                   | 94        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 20.9                                  | 55        |
| 2.1.3 School life expectancy, years.....                      | 14.6                                  | 45        |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a       |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 8.2                                   | 6 ●       |
| 2.2 Tertiary education.....                                   | 22.0                                  | 97        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 22.3                                  | 88        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a       |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a       |
| 2.3 Research & development (R&D).....                         | 2.6                                   | 98        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 131.5                                 | 96        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.1                                   | 104 ○     |
| 2.3.3 QS university ranking, average score top 3*.....        | 4.9                                   | 67        |
| <b>3 Infrastructure.....</b>                                  | <b>39.0</b>                           | <b>61</b> |
| 3.1 Information & communication technologies (ICTs).....      | 38.3                                  | 69        |
| 3.1.1 ICT access*.....  | n/a                                   | n/a       |
| 3.1.2 ICT use* .....  | n/a                                   | n/a       |
| 3.1.3 Government's online service*.....                       | 58.2                                  | 47        |
| 3.1.4 E-participation*.....                                   | 18.4                                  | 73        |
| 3.2 General infrastructure.....                               | 45.0                                  | 28 ●      |
| 3.2.1 Electricity output, kWh/cap.....                        | 20,374.8                              | 1 ●       |
| 3.2.2 Logistics performance*.....                             | 48.4                                  | 69        |
| 3.2.3 Gross capital formation, % GDP.....                     | 16.4                                  | 120 ○     |
| 3.3 Ecological sustainability.....                            | 33.7                                  | 79        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 4.2                                   | 96        |
| 3.3.2 Environmental performance*.....                         | 63.9                                  | 42 ●      |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.7                                   | 74        |
| <b>4 Market sophistication .....</b>                          | <b>47.0</b>                           | <b>79</b> |
| 4.1 Credit.....   | 31.5                                  | 87        |
| 4.1.1 Ease of getting credit*.....                            | 43.8                                  | 112 ○     |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 61.7                                  | 53        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a       |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 38.0        | 57          |
| 4.2.1 Ease of protecting investors*.....                            | 53.3        | 66          |
| 4.2.2 Market capitalization, % GDP.....                             | 57.1        | 35          |
| 4.2.3 Total value of stocks traded, % GDP.....                      | 12.1        | 37          |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                       | n/a         | n/a         |
| 4.3 Trade & competition .....                                       | 71.6        | 100         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                    | 4.1         | 76          |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....           | 1.5         | 86          |
| 4.3.3 Intensity of local competition <sup>†</sup> .....             | 58.5        | 103         |
| <b>5 Business sophistication .....</b>                              | <b>27.7</b> | <b>98</b>   |
| 5.1 Knowledge workers.....  | 47.9        | 46          |
| 5.1.1 Knowledge-intensive employment, %.....                        | 18.7        | 77          |
| 5.1.2 Firms offering formal training, % firms.....                  | n/a         | n/a         |
| 5.1.3 GERD performed by business, % GDP.....                        | n/a         | n/a         |
| 5.1.4 GERD performed by business, %.....                            | n/a         | n/a         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                           | 510.3       | 9 ●         |
| 5.2 Innovation linkages .....                                       | 25.7        | 99          |
| 5.2.1 University/industry research collaboration <sup>†</sup> ..... | 32.8        | 116 ○       |
| 5.2.2 State of cluster development <sup>†</sup> .....               | 42.3        | 86          |
| 5.2.3 GERD financed by abroad, %.....                               | 1.2         | 78 ○        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....                | 0.1         | 12 ●        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....        | 0.0         | 94          |
| 5.3 Knowledge absorption.....                                       | 9.5         | 138 ○       |
| 5.3.1 Royalty & license fees payments, % total trade.....           | n/a         | n/a         |
| 5.3.2 High-tech imports less re-imports, %.....                     | n/a         | n/a         |
| 5.3.3 Comm., computer & info. services imp., % total trade.....     | 0.3         | 117 ○       |
| 5.3.4 FDI net inflows, % GDP.....                                   | 0.2         | 131 ○       |
| <b>6 Knowledge &amp; technology outputs .....</b>                   | <b>33.8</b> | <b>43 ●</b> |
| 6.1 Knowledge creation.....   | 7.7         | 91          |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....                | n/a         | n/a         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                     | n/a         | n/a         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....              | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....             | 4.1         | 116         |
| 6.1.5 Citable documents H index.....                                | 83.0        | 76          |
| 6.2 Knowledge impact.....   | 37.3        | 73          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                       | 4.2         | 18 ●        |
| 6.2.2 New businesses/th pop. 15–64.....                             | n/a         | n/a         |
| 6.2.3 Computer software spending, % GDP.....                        | 0.3         | 45          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....               | 2.8         | 90          |
| 6.2.5 High- & medium-high-tech manufactures, % .....                | 10.0        | 76          |
| 6.3 Knowledge diffusion.....  | 56.4        | 6 ●         |
| 6.3.1 Royalty & license fees receipts, % total trade .....          | n/a         | n/a         |
| 6.3.2 High-tech exports less re-exports, %.....                     | n/a         | n/a         |
| 6.3.3 Comm., computer & info. services exp., % total trade.....     | 4.0         | 11 ●        |
| 6.3.4 FDI net outflows, % GDP .....                                 | 5.5         | 12 ●        |
| <b>7 Creative outputs .....</b>                                     | <b>28.1</b> | <b>87</b>   |
| 7.1 Intangible assets .....   | 36.6        | 107         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....                  | n/a         | n/a         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....               | n/a         | n/a         |
| 7.1.3 ICTs & business model creation <sup>†</sup> .....             | 38.7        | 128 ○       |
| 7.1.4 ICTs & organizational model creation <sup>†</sup> .....       | 34.5        | 127 ○       |
| 7.2 Creative goods & services.....                                  | 11.6        | 87          |
| 7.2.1 Cultural & creative services exports, % total trade.....      | n/a         | n/a         |
| 7.2.2 National feature films/mn pop. 15–69.....                     | n/a         | n/a         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....                 | 0.6         | 27          |
| 7.2.4 Printing & publishing manufactures, %.....                    | 0.0         | 78 ○        |
| 7.2.5 Creative goods exports, % total trade.....                    | n/a         | n/a         |
| 7.3 Online creativity .....   | 27.4        | 55          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....           | 12.3        | 45 ●        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                          | 12.1        | 95          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                               | 5,220.2     | 54          |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                     | 76.5        | 36          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Kyrgyzstan

## Key indicators

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 5.6                       |
| GDP (US\$ billions) .....   | 7.2                       |
| GDP per capita, PPP\$ ..... | 2,610.6                   |
| Income group .....          | Low income                |
| Region .....                | Central and Southern Asia |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>27.8</b>                           | <b>112</b> |
| Innovation Output Sub-Index .....                 | 17.6                                  | 131        |
| Innovation Input Sub-Index .....                  | 37.9                                  | 90         |
| Innovation Efficiency Ratio .....                 | 0.5                                   | 136 ○      |
| Global Innovation Index 2013 (out of 142) .....   | 27.0                                  | 117        |

|   |             |            |
|---|-------------|------------|
| <b>1 Institutions</b> .....                                   | <b>52.9</b> | <b>102</b> |
| 1.1 Political environment .....                               | 45.0        | 108        |
| 1.1.1 Political stability* .....                              | 43.9        | 115        |
| 1.1.2 Government effectiveness* .....                         | 23.3        | 113        |
| 1.1.3 Press freedom* .....                                    | 67.8        | 85         |
| 1.2 Regulatory environment .....                              | 54.2        | 105        |
| 1.2.1 Regulatory quality* .....                               | 39.8        | 98         |
| 1.2.2 Rule of law* .....                                      | 14.7        | 131        |
| 1.2.3 Cost of redundancy dismissal, salary weeks .....        | 17.3        | 81         |
| 1.3 Business environment .....                                | 59.6        | 86         |
| 1.3.1 Ease of starting a business* .....                      | 96.3        | 7 ●        |
| 1.3.2 Ease of resolving insolvency* .....                     | 22.9        | 114        |
| 1.3.3 Ease of paying taxes* .....                             | 59.6        | 104        |
| <b>2 Human capital &amp; research</b> .....                   | <b>29.4</b> | <b>66</b>  |
| 2.1 Education .....   | 54.8        | 27 ●       |
| 2.1.1 Expenditure on education, % GDP .....                   | 6.8         | 17 ●       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap .....     | n/a         | n/a        |
| 2.1.3 School life expectancy, years .....                     | 12.5        | 79         |
| 2.1.4 PISA scales in reading, maths, & science .....          | n/a         | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 15.2        | 63         |
| 2.2 Tertiary education .....                                  | 31.2        | 73         |
| 2.2.1 Tertiary enrolment, % gross .....                       | 41.3        | 61         |
| 2.2.2 Graduates in science & engineering, % .....             | 15.6        | 80         |
| 2.2.3 Tertiary inbound mobility, % .....                      | 6.3         | 26 ●       |
| 2.3 Research & development (R&D) .....                        | 2.4         | 102        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 411.6       | 72         |
| 2.3.2 Gross expenditure on R&D, % GDP .....                   | 0.2         | 94         |
| 2.3.3 QS university ranking, average score top 3* .....       | 0.0         | 70 ○       |
| <b>3 Infrastructure</b> .....                                 | <b>31.3</b> | <b>90</b>  |
| 3.1 Information & communication technologies (ICTs) .....     | 35.7        | 74         |
| 3.1.1 ICT access* .....                                       | n/a         | n/a        |
| 3.1.2 ICT use* .....  | n/a         | n/a        |
| 3.1.3 Government's online service* .....                      | 42.5        | 90         |
| 3.1.4 E-participation* .....                                  | 29.0        | 53         |
| 3.2 General infrastructure .....                              | 29.7        | 86         |
| 3.2.1 Electricity output, kWh/cap .....                       | 2,751.0     | 65         |
| 3.2.2 Logistics performance* .....                            | 29.4        | 122        |
| 3.2.3 Gross capital formation, % GDP .....                    | 27.0        | 36 ●       |
| 3.3 Ecological sustainability .....                           | 28.4        | 99         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 3.8         | 100        |
| 3.3.2 Environmental performance* .....                        | 40.6        | 106        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a         | n/a        |
| <b>4 Market sophistication</b> .....                          | <b>53.6</b> | <b>43</b>  |
| 4.1 Credit .....  | 55.1        | 24 ●       |
| 4.1.1 Ease of getting credit* .....                           | 87.5        | 13 ●       |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 15.1        | 130        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 5.9         | 7 ●        |

|  |      |       |
|--|------|-------|
| 4.2 Investment .....                                       | 33.7 | 74    |
| 4.2.1 Ease of protecting investors* .....                  | 66.7 | 21 ●  |
| 4.2.2 Market capitalization, % GDP .....                   | 2.5  | 106 ○ |
| 4.2.3 Total value of stocks traded, % GDP .....            | 0.1  | 100   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP .....             | n/a  | n/a   |
| 4.3 Trade & competition .....                              | 72.0 | 96    |
| 4.3.1 Applied tariff rate, weighted mean, % .....          | 2.4  | 52    |
| 4.3.2 Non-agricultural mkt access weighted tariff, % ..... | 1.2  | 81    |
| 4.3.3 Intensity of local competition† .....                | 54.7 | 118   |

|  |             |              |
|--|-------------|--------------|
| <b>5 Business sophistication</b> .....                           | <b>22.4</b> | <b>125</b>   |
| 5.1 Knowledge workers .....                                      | 25.9        | 106          |
| 5.1.1 Knowledge-intensive employment, % .....                    | 17.6        | 79           |
| 5.1.2 Firms offering formal training, % firms .....              | 29.7        | 67           |
| 5.1.3 GERD performed by business, % GDP .....                    | 0.0         | 73           |
| 5.1.4 GERD performed by business, % .....                        | 23.3        | 61           |
| 5.1.5 GMAT test takers/mn pop. 20–34 .....                       | 26.6        | 100          |
| 5.2 Innovation linkages .....                                    | 16.3        | 137 ○        |
| 5.2.1 University/industry research collaboration† .....          | 20.3        | 131 ○        |
| 5.2.2 State of cluster development† .....                        | 28.3        | 131 ○        |
| 5.2.3 GERD financed by abroad, % .....                           | 0.9         | 83           |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....             | 0.1         | 22 ●         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....     | 0.0         | 106 ○        |
| 5.3 Knowledge absorption .....                                   | 25.0        | 74           |
| 5.3.1 Royalty & license fees payments, % total trade .....       | 0.1         | 89           |
| 5.3.2 High-tech imports less re-imports, % .....                 | 5.3         | 96           |
| 5.3.3 Comm., computer & info. services imp., % total trade ..... | 0.4         | 101          |
| 5.3.4 FDI net inflows, % GDP .....                               | 11.2        | 12 ●         |
| <b>6 Knowledge &amp; technology outputs</b> .....                | <b>21.1</b> | <b>107</b>   |
| 6.1 Knowledge creation .....                                     | 17.2        | 63           |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....            | 8.4         | 11 ●         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP .....                 | 0.3         | 52           |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....          | 1.3         | 25           |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP .....         | 6.4         | 96           |
| 6.1.5 Citable documents H index .....                            | 31.0        | 132 ○        |
| 6.2 Knowledge impact .....                                       | 24.0        | 117          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                   | −0.6        | 98           |
| 6.2.2 New businesses/th pop. 15–64 .....                         | 0.9         | 61           |
| 6.2.3 Computer software spending, % GDP .....                    | n/a         | n/a          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....           | 0.5         | 132          |
| 6.2.5 High- & medium-high-tech manufactures, % .....             | 3.3         | 90 ○         |
| 6.3 Knowledge diffusion .....                                    | 22.1        | 122          |
| 6.3.1 Royalty & license fees receipts, % total trade .....       | 0.0         | 74           |
| 6.3.2 High-tech exports less re-exports, % .....                 | 0.3         | 89           |
| 6.3.3 Comm., computer & info. services exp., % total trade ..... | 0.3         | 117          |
| 6.3.4 FDI net outflows, % GDP .....                              | 0.0         | 106          |
| <b>7 Creative outputs</b> .....                                  | <b>14.1</b> | <b>137</b> ○ |
| 7.1 Intangible assets .....                                      | 22.6        | 136 ○        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....              | 17.5        | 85           |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....           | 0.2         | 53           |
| 7.1.3 ICTs & business model creation† .....                      | 37.5        | 131 ○        |
| 7.1.4 ICTs & organizational model creation† .....                | 32.7        | 128 ○        |
| 7.2 Creative goods & services .....                              | 6.1         | 109          |
| 7.2.1 Cultural & creative services exports, % total trade .....  | 0.1         | 56           |
| 7.2.2 National feature films/mn pop. 15–69 .....                 | 0.0         | 101 ○        |
| 7.2.3 Global ent. & media output/th pop. 15–69 .....             | n/a         | n/a          |
| 7.2.4 Printing & publishing manufactures, % .....                | 0.0         | 72           |
| 7.2.5 Creative goods exports, % total trade .....                | 0.1         | 92           |
| 7.3 Online creativity .....                                      | 4.9         | 109          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69 .....       | 0.5         | 120          |
| 7.3.2 Country-code TLDs/th pop. 15–69 .....                      | 12.0        | 97           |
| 7.3.3 Wikipedia edits/pop. 15–69 .....                           | 1,342.6     | 90           |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                  | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 2.0         |
| GDP (US\$ billions) .....   | 31.0        |
| GDP per capita, PPP\$ ..... | 19,119.5    |
| Income group .....          | High income |
| Region .....                | Europe      |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>44.8</b>                           | <b>34</b> |
| Innovation Output Sub-Index .....                            | 40.4                                  | 32        |
| Innovation Input Sub-Index.....                              | 49.2                                  | 35        |
| Innovation Efficiency Ratio.....                             | 0.8                                   | 32        |
| Global Innovation Index 2013 (out of 142) .....              | 45.2                                  | 33        |
| <b>1 Institutions.....</b>                                   | <b>76.8</b>                           | <b>29</b> |
| 1.1 Political environment.....                               | 72.1                                  | 41        |
| 1.1.1 Political stability*.....                              | 76.2                                  | 49        |
| 1.1.2 Government effectiveness*.....                         | 63.0                                  | 38        |
| 1.1.3 Press freedom*.....                                    | 77.1                                  | 35        |
| 1.2 Regulatory environment .....                             | 83.9                                  | 25        |
| 1.2.1 Regulatory quality* .....                              | 75.0                                  | 31        |
| 1.2.2 Rule of law*.....                                      | 67.2                                  | 37        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 9.7                                   | 34        |
| 1.3 Business environment.....                                | 74.2                                  | 32        |
| 1.3.1 Ease of starting a business*.....                      | 91.8                                  | 26        |
| 1.3.2 Ease of resolving insolvency*.....                     | 51.3                                  | 38        |
| 1.3.3 Ease of paying taxes*.....                             | 79.6                                  | 34        |
| <b>2 Human capital &amp; research.....</b>                   | <b>34.1</b>                           | <b>51</b> |
| 2.1 Education .....  | 54.0                                  | 34        |
| 2.1.1 Expenditure on education, % GDP.....                   | 5.0                                   | 61        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 29.3                                  | 23        |
| 2.1.3 School life expectancy, years.....                     | 15.5                                  | 33        |
| 2.1.4 PISA scales in reading, maths, & science.....          | 493.8                                 | 24        |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 8.3                                   | 7 ●       |
| 2.2 Tertiary education.....                                  | 32.3                                  | 71        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 67.3                                  | 26        |
| 2.2.2 Graduates in science & engineering, % .....            | 15.7                                  | 79 ○      |
| 2.2.3 Tertiary inbound mobility, %.....                      | 1.9                                   | 61        |
| 2.3 Research & development (R&D).....                        | 16.0                                  | 52        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 3,557.9                               | 28        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.7                                   | 52        |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                 | <b>42.9</b>                           | <b>46</b> |
| 3.1 Information & communication technologies (ICTs).....     | 49.2                                  | 47        |
| 3.1.1 ICT access*.....                                       | 62.5                                  | 49        |
| 3.1.2 ICT use*.....  | 54.5                                  | 28        |
| 3.1.3 Government's online service*.....                      | 58.8                                  | 45        |
| 3.1.4 E-participation*.....                                  | 21.1                                  | 65        |
| 3.2 General infrastructure.....                              | 32.6                                  | 71        |
| 3.2.1 Electricity output, kWh/cap.....                       | 2,745.0                               | 66        |
| 3.2.2 Logistics performance*.....                            | 46.4                                  | 77        |
| 3.2.3 Gross capital formation, % GDP.....                    | 25.7                                  | 45        |
| 3.3 Ecological sustainability.....                           | 47.0                                  | 35        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 7.0                                   | 50        |
| 3.3.2 Environmental performance*.....                        | 64.1                                  | 40        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 6.4                                   | 21        |
| <b>4 Market sophistication .....</b>                         | <b>54.0</b>                           | <b>42</b> |
| 4.1 Credit.....  | 57.5                                  | 21 ●      |
| 4.1.1 Ease of getting credit*.....                           | 93.8                                  | 3 ●       |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 67.7                                  | 50        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | n/a                                   | n/a       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 27.7        | 112 ○     |
| 4.2.1 Ease of protecting investors*.....                        | 56.7        | 55        |
| 4.2.2 Market capitalization, % GDP.....                         | 3.9         | 104 ○     |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.1         | 98 ○      |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.1         | 22        |
| 4.3 Trade & competition .....                                   | 76.9        | 54        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 73.3        | 32        |
| <b>5 Business sophistication .....</b>                          | <b>38.2</b> | <b>39</b> |
| 5.1 Knowledge workers.....                                      | 46.2        | 51        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 39.5        | 24        |
| 5.1.2 Firms offering formal training, % firms.....              | 41.4        | 41        |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.1         | 53 ○      |
| 5.1.4 GERD performed by business, %.....                        | 22.6        | 62 ○      |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 153.0       | 34        |
| 5.2 Innovation linkages .....                                   | 44.8        | 30        |
| 5.2.1 University/industry research collaboration†.....          | 43.3        | 64        |
| 5.2.2 State of cluster development†.....                        | 40.2        | 99 ○      |
| 5.2.3 GERD financed by abroad, %.....                           | 50.4        | 5 ●       |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP.....             | n/a         | n/a       |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.1         | 45        |
| 5.3 Knowledge absorption.....                                   | 23.6        | 82        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 75        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.4         | 79 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.4         | 41        |
| 5.3.4 FDI net inflows, % GDP.....                               | 3.2         | 63        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>36.8</b> | <b>35</b> |
| 6.1 Knowledge creation.....                                     | 21.0        | 47        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 5.2         | 25        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 1.0         | 32        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 14.8        | 60        |
| 6.1.5 Citable documents H index.....                            | 85.0        | 74        |
| 6.2 Knowledge impact.....                                       | 58.4        | 6 ●       |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.6         | 25        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 11.6        | 9 ●       |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 21.5        | 20 ●      |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 15.2        | 62 ○      |
| 6.3 Knowledge diffusion.....                                    | 30.9        | 73        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.1         | 66        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 4.4         | 37        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.8         | 47        |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.6         | 62        |
| <b>7 Creative outputs .....</b>                                 | <b>44.1</b> | <b>29</b> |
| 7.1 Intangible assets.....                                      | 45.6        | 64        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 70.7        | 34        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 2.4         | 11 ●      |
| 7.1.3 ICTs & business model creation†.....                      | 56.5        | 66        |
| 7.1.4 ICTs & organizational model creation†.....                | 54.2        | 63        |
| 7.2 Creative goods & services.....                              | 49.0        | 7 ●       |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 1.3         | 4 ●       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 4.0         | 33        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 26        |
| 7.2.5 Creative goods exports, % total trade.....                | 3.2         | 16 ●      |
| 7.3 Online creativity.....                                      | 35.9        | 43        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 12.6        | 43        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 58.3        | 23 ●      |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 21,760.9    | 20 ●      |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Lebanon

| Key indicators   |                                       |           |   |
|--|---------------------------------------|-----------|---|
| Population (millions)                                      | 4.4                                   |           |   |
| GDP (US\$ billions)  | 44.3                                  |           |   |
| GDP per capita, PPP\$                                      | 14,845.0                              |           |   |
| Income group   | Upper-middle income                   |           |   |
| Region   | Northern Africa and Western Asia      |           |   |
|  | Score (0–100)<br>or value (hard data) | Rank      |   |
| <b>Global Innovation Index (out of 143)</b>                | <b>33.6</b>                           | <b>77</b> |   |
| Innovation Output Sub-Index                                | 25.0                                  | 95        |   |
| Innovation Input Sub-Index                                 | 42.2                                  | 61        |   |
| Innovation Efficiency Ratio                                | 0.6                                   | 119       | ○ |
| Global Innovation Index 2013 (out of 142)                  | 35.5                                  | 75        |   |
| <b>1 Institutions</b>                                      | <b>58.1</b>                           | <b>81</b> |   |
| 1.1 Political environment                                  | 42.3                                  | 121       | ○ |
| 1.1.1 Political stability*                                 | 25.3                                  | 137       | ○ |
| 1.1.2 Government effectiveness*                            | 31.7                                  | 89        |   |
| 1.1.3 Press freedom*                                       | 69.9                                  | 81        |   |
| 1.2 Regulatory environment                                 | 67.1                                  | 66        |   |
| 1.2.1 Regulatory quality*                                  | 45.6                                  | 84        |   |
| 1.2.2 Rule of law*   | 25.7                                  | 110       |   |
| 1.2.3 Cost of redundancy dismissal, salary weeks           | 8.7                                   | 25        | ● |
| 1.3 Business environment                                   | 64.9                                  | 70        |   |
| 1.3.1 Ease of starting a business*                         | 80.1                                  | 90        |   |
| 1.3.2 Ease of resolving insolvency*                        | 34.3                                  | 83        |   |
| 1.3.3 Ease of paying taxes*                                | 80.4                                  | 32        | ● |
| <b>2 Human capital &amp; research</b>                      | <b>34.4</b>                           | <b>50</b> |   |
| 2.1 Education  | 32.1                                  | 107       |   |
| 2.1.1 Expenditure on education, % GDP                      | 2.2                                   | 126       | ○ |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap        | 3.7                                   | 111       | ○ |
| 2.1.3 School life expectancy, years                        | 13.2                                  | 69        |   |
| 2.1.4 PISA scales in reading, maths, & science             | n/a                                   | n/a       |   |
| 2.1.5 Pupil-teacher ratio, secondary                       | 9.3                                   | 17        | ● |
| 2.2 Tertiary education                                     | 48.3                                  | 26        | ● |
| 2.2.1 Tertiary enrolment, % gross                          | 46.3                                  | 55        |   |
| 2.2.2 Graduates in science & engineering, %                | 23.3                                  | 32        |   |
| 2.2.3 Tertiary inbound mobility, %                         | 12.8                                  | 13        | ● |
| 2.3 Research & development (R&D)                           | 22.7                                  | 41        |   |
| 2.3.1 Researchers, headcounts/mn pop.                      | n/a                                   | n/a       |   |
| 2.3.2 Gross expenditure on R&D, % GDP                      | n/a                                   | n/a       |   |
| 2.3.3 QS university ranking, average score top 3*          | 22.7                                  | 49        |   |
| <b>3 Infrastructure</b>                                    | <b>34.9</b>                           | <b>77</b> |   |
| 3.1 Information & communication technologies (ICTs)        | 43.8                                  | 53        |   |
| 3.1.1 ICT access*  | 60.4                                  | 52        |   |
| 3.1.2 ICT use*   | 35.4                                  | 53        |   |
| 3.1.3 Government's online service*                         | 47.7                                  | 76        |   |
| 3.1.4 E-participation*                                     | 31.6                                  | 48        |   |
| 3.2 General infrastructure                                 | 24.8                                  | 115       | ○ |
| 3.2.1 Electricity output, kWh/cap                          | 3,841.5                               | 55        |   |
| 3.2.2 Logistics performance*                               | 38.5                                  | 94        |   |
| 3.2.3 Gross capital formation, % GDP                       | 18.8                                  | 104       |   |
| 3.3 Ecological sustainability                              | 36.2                                  | 68        |   |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq         | 8.7                                   | 31        |   |
| 3.3.2 Environmental performance*                           | 50.2                                  | 82        |   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP    | 0.2                                   | 106       | ○ |
| <b>4 Market sophistication</b>                             | <b>44.6</b>                           | <b>95</b> |   |
| 4.1 Credit   | 26.9                                  | 105       |   |
| 4.1.1 Ease of getting credit*                              | 50.0                                  | 96        |   |
| 4.1.2 Domestic credit to private sector, % GDP             | 92.2                                  | 33        | ● |
| 4.1.3 Microfinance gross loans, % GDP                      | 0.1                                   | 68        |   |
| 4.2 Investment   | 28.7                                  | 106       |   |
| 4.2.1 Ease of protecting investors*                        | 50.0                                  | 81        |   |
| 4.2.2 Market capitalization, % GDP                         | 24.0                                  | 62        |   |
| 4.2.3 Total value of stocks traded, % GDP                  | 0.9                                   | 67        |   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP                   | n/a                                   | n/a       |   |
| 4.3 Trade & competition                                    | 78.1                                  | 41        |   |
| 4.3.1 Applied tariff rate, weighted mean, %                | 4.8                                   | 82        |   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %       | n/a                                   | n/a       |   |
| 4.3.3 Intensity of local competition†                      | 75.7                                  | 23        | ● |
| <b>5 Business sophistication</b>                           | <b>39.1</b>                           | <b>38</b> |   |
| 5.1 Knowledge workers                                      | 65.5                                  | 18        | ● |
| 5.1.1 Knowledge-intensive employment, %                    | 31.9                                  | 41        |   |
| 5.1.2 Firms offering formal training, % firms              | 52.4                                  | 21        | ● |
| 5.1.3 GERD performed by business, % GDP                    | n/a                                   | n/a       |   |
| 5.1.4 GERD performed by business, %                        | n/a                                   | n/a       |   |
| 5.1.5 GMAT test takers/mn pop. 20–34                       | 804.8                                 | 5         | ● |
| 5.2 Innovation linkages                                    | 27.7                                  | 87        |   |
| 5.2.1 University/industry research collaboration†          | 35.5                                  | 106       | ○ |
| 5.2.2 State of cluster development†                        | 37.0                                  | 110       | ○ |
| 5.2.3 GERD financed by abroad, %                           | n/a                                   | n/a       |   |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP             | 0.0                                   | 39        |   |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP     | 0.0                                   | 64        |   |
| 5.3 Knowledge absorption                                   | 24.0                                  | 78        |   |
| 5.3.1 Royalty & license fees payments, % total trade       | 0.1                                   | 107       | ○ |
| 5.3.2 High-tech imports less re-imports, %                 | 2.7                                   | 123       | ○ |
| 5.3.3 Comm., computer & info. services imp., % total trade | 1.4                                   | 42        |   |
| 5.3.4 FDI net inflows, % GDP                               | 8.7                                   | 17        | ● |
| <b>6 Knowledge &amp; technology outputs</b>                | <b>22.6</b>                           | <b>96</b> |   |
| 6.1 Knowledge creation                                     | 16.3                                  | 64        |   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP            | n/a                                   | n/a       |   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP                 | n/a                                   | n/a       |   |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP          | n/a                                   | n/a       |   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP         | 14.4                                  | 61        |   |
| 6.1.5 Citable documents H index                            | 97.0                                  | 67        |   |
| 6.2 Knowledge impact                                       | 24.7                                  | 116       | ○ |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %                   | n/a                                   | n/a       |   |
| 6.2.2 New businesses/th pop. 15–64                         | n/a                                   | n/a       |   |
| 6.2.3 Computer software spending, % GDP                    | n/a                                   | n/a       |   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP           | 8.3                                   | 53        |   |
| 6.2.5 High- & medium-high-tech manufactures, %             | 22.0                                  | 48        |   |
| 6.3 Knowledge diffusion                                    | 26.7                                  | 97        |   |
| 6.3.1 Royalty & license fees receipts, % total trade       | 0.0                                   | 79        |   |
| 6.3.2 High-tech exports less re-exports, %                 | 0.2                                   | 93        |   |
| 6.3.3 Comm., computer & info. services exp., % total trade | 1.7                                   | 50        |   |
| 6.3.4 FDI net outflows, % GDP                              | 1.3                                   | 43        |   |
| <b>7 Creative outputs</b>                                  | <b>27.4</b>                           | <b>93</b> |   |
| 7.1 Intangible assets                                      | 35.9                                  | 111       | ○ |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP              | n/a                                   | n/a       |   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP           | n/a                                   | n/a       |   |
| 7.1.3 ICTs & business model creation†                      | 39.7                                  | 127       | ○ |
| 7.1.4 ICTs & organizational model creation†                | 32.2                                  | 131       | ○ |
| 7.2 Creative goods & services                              | 29.5                                  | 39        |   |
| 7.2.1 Cultural & creative services exports, % total trade  | n/a                                   | n/a       |   |
| 7.2.2 National feature films/mn pop. 15–69                 | 4.3                                   | 30        |   |
| 7.2.3 Global ent. & media output/th pop. 15–69             | 0.2                                   | 45        |   |
| 7.2.4 Printing & publishing manufactures, %                | 0.0                                   | 9         | ● |
| 7.2.5 Creative goods exports, % total trade                | 0.5                                   | 60        |   |
| 7.3 Online creativity                                      | 8.2                                   | 100       |   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69       | 11.6                                  | 46        |   |
| 7.3.2 Country-code TLDs/th pop. 15–69                      | 9.1                                   | 105       |   |
| 7.3.3 Wikipedia edits/pop. 15–69                           | 2,259.8                               | 78        |   |
| 7.3.4 Video uploads on YouTube/pop. 15–69                  | n/a                                   | n/a       |   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 2.1                 |
| GDP (US\$ billions) .....   | 2.3                 |
| GDP per capita, PPP\$ ..... | 2,255.2             |
| Income group .....          | Lower-middle income |
| Region .....                | Sub-Saharan Africa  |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>27.0</b>                           | <b>117</b> |
| Innovation Output Sub-Index .....                | 15.5                                  | 137 ○      |
| Innovation Input Sub-Index.....                  | 38.6                                  | 87         |
| Innovation Efficiency Ratio.....                 | 0.4                                   | 140 ○      |
| Global Innovation Index 2013 (out of 142) .....  | 26.3                                  | 124        |

|   |             |           |
|---|-------------|-----------|
| <b>1 Institutions.....</b>                                    | <b>59.8</b> | <b>74</b> |
| 1.1 Political environment.....                                | 58.1        | 68 ●      |
| 1.1.1 Political stability*.....                               | 71.9        | 55 ●      |
| 1.1.2 Government effectiveness*.....                          | 30.7        | 91        |
| 1.1.3 Press freedom*.....                                     | 71.6        | 67 ●      |
| 1.2 Regulatory environment .....                              | 61.3        | 85        |
| 1.2.1 Regulatory quality* .....                               | 34.8        | 110       |
| 1.2.2 Rule of law*.....                                       | 38.5        | 77        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 15.0        | 68 ●      |
| 1.3 Business environment.....                                 | 60.0        | 85        |
| 1.3.1 Ease of starting a business*.....                       | 81.7        | 80        |
| 1.3.2 Ease of resolving insolvency*.....                      | 30.3        | 93        |
| 1.3.3 Ease of paying taxes*.....                              | 68.1        | 79        |
| <b>2 Human capital &amp; research.....</b>                    | <b>25.5</b> | <b>81</b> |
| 2.1 Education .....   | 63.5        | 5 ●       |
| 2.1.1 Expenditure on education, % GDP.....                    | 13.0        | 1 ●       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 51.2        | 2 ●       |
| 2.1.3 School life expectancy, years.....                      | 11.1        | 103       |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a         | n/a       |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 24.7        | 88        |
| 2.2 Tertiary education.....                                   | 13.0        | 118       |
| 2.2.1 Tertiary enrolment, % gross.....                        | 10.8        | 106       |
| 2.2.2 Graduates in science & engineering, % .....             | 12.6        | 94        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.5         | 93        |
| 2.3 Research & development (R&D).....                         | 0.0         | 130       |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 20.7        | 118 ○     |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.0         | 117 ○     |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0         | 70 ○      |
| <b>3 Infrastructure.....</b>                                  | <b>28.8</b> | <b>98</b> |
| 3.1 Information & communication technologies (ICTs).....      | 15.0        | 127       |
| 3.1.1 ICT access*.....  | 22.6        | 118       |
| 3.1.2 ICT use* .....  | 4.8         | 117       |
| 3.1.3 Government's online service*.....                       | 30.1        | 120       |
| 3.1.4 E-participation*.....                                   | 2.6         | 116       |
| 3.2 General infrastructure.....                               | 50.5        | 17 ●      |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a         | n/a       |
| 3.2.2 Logistics performance* .....                            | 25.0        | 133 ○     |
| 3.2.3 Gross capital formation, % GDP.....                     | 38.9        | 7 ●       |
| 3.3 Ecological sustainability.....                            | 20.8        | 130       |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a         | n/a       |
| 3.3.2 Environmental performance*.....                         | 20.8        | 140 ○     |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a         | n/a       |
| <b>4 Market sophistication .....</b>                          | <b>47.5</b> | <b>74</b> |
| 4.1 Credit.....   | 21.1        | 126       |
| 4.1.1 Ease of getting credit*.....                            | 37.5        | 130 ○     |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 18.8        | 121       |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a         | n/a       |

|   |      |      |
|---|------|------|
| 4.2 Investment .....                                      | 50.0 | 30 ● |
| 4.2.1 Ease of protecting investors*.....                  | 50.0 | 81   |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a  |
| 4.2.3 Total value of stocks traded, % GDP.....            | n/a  | n/a  |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a  |
| 4.3 Trade & competition .....                             | 71.4 | 102  |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 10.7 | 129  |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.1  | 24 ● |
| 4.3.3 Intensity of local competition†.....                | 62.0 | 90   |

**5 Business sophistication..... 31.3 73**

|   |      |      |
|---|------|------|
| 5.1 Knowledge workers.....                                      | 49.3 | 42 ● |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a  | n/a  |
| 5.1.2 Firms offering formal training, % firms.....              | 54.4 | 16 ● |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a  | n/a  |
| 5.1.4 GERD performed by business, %.....                        | n/a  | n/a  |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 11.6 | 118  |
| 5.2 Innovation linkages .....                                   | 24.8 | 104  |
| 5.2.1 University/industry research collaboration†.....          | 28.7 | 122  |
| 5.2.2 State of cluster development† .....                       | 43.3 | 83   |
| 5.2.3 GERD financed by abroad, %.....                           | 3.4  | 70   |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | n/a  | n/a  |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a  | n/a  |
| 5.3 Knowledge absorption.....                                   | 19.8 | 102  |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.3  | 72   |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a  | n/a  |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.5  | 93   |
| 5.3.4 FDI net inflows, % GDP.....                               | 5.2  | 37 ● |

**6 Knowledge & technology outputs..... 14.6 129**

|   |      |       |
|---|------|-------|
| 6.1 Knowledge creation.....                                     | 4.5  | 117   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a  | n/a   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a  | n/a   |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a  | n/a   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 5.4  | 104   |
| 6.1.5 Citable documents H index.....                            | 22.0 | 140 ○ |
| 6.2 Knowledge impact.....                                       | 5.1  | 131   |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a  | n/a   |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.5  | 49 ●  |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.2  | 138 ○ |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a  | n/a   |
| 6.3 Knowledge diffusion.....                                    | 34.3 | 47 ●  |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a  | n/a   |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a  | n/a   |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.3  | 111   |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.1  | 88    |

**7 Creative outputs .....** **16.3 131**

|  |      |       |
|--|------|-------|
| 7.1 Intangible assets.....                                     | 31.5 | 126   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | n/a  | n/a   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a  | n/a   |
| 7.1.3 ICTs & business model creation†.....                     | 34.0 | 133 ○ |
| 7.1.4 ICTs & organizational model creation†.....               | 29.0 | 135 ○ |
| 7.2 Creative goods & services.....                             | 0.4  | 138 ○ |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.0  | 93    |
| 7.2.2 National feature films/mn pop. 15–69.....                | n/a  | n/a   |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a  | n/a   |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a  | n/a   |
| 7.2.5 Creative goods exports, % total trade.....               | n/a  | n/a   |
| 7.3 Online creativity.....                                     | 1.8  | 121   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.2  | 126   |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 5.0  | 113   |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 43.5 | 131   |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | n/a  | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 3.0         |
| GDP (US\$ billions) .....   | 47.6        |
| GDP per capita, PPP\$ ..... | 22,747.2    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>41.0</b>                           | <b>39</b> |
| Innovation Output Sub-Index .....                             | 33.3                                  | 52        |
| Innovation Input Sub-Index .....                              | 48.7                                  | 36        |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 89        |
| Global Innovation Index 2013 (out of 142) .....               | 41.4                                  | 40        |
| <b>1 Institutions.....</b>                                    | <b>73.4</b>                           | <b>38</b> |
| 1.1 Political environment.....                                | 76.2                                  | 31        |
| 1.1.1 Political stability*.....                               | 84.0                                  | 34        |
| 1.1.2 Government effectiveness*.....                          | 63.0                                  | 39        |
| 1.1.3 Press freedom*.....                                     | 81.8                                  | 30        |
| 1.2 Regulatory environment .....                              | 69.9                                  | 55        |
| 1.2.1 Regulatory quality* .....                               | 77.6                                  | 27        |
| 1.2.2 Rule of law*.....                                       | 68.6                                  | 36        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 24.6                                  | 111 ○     |
| 1.3 Business environment.....                                 | 74.0                                  | 34        |
| 1.3.1 Ease of starting a business*.....                       | 93.2                                  | 19 ●      |
| 1.3.2 Ease of resolving insolvency*.....                      | 51.3                                  | 39        |
| 1.3.3 Ease of paying taxes*.....                              | 77.6                                  | 42        |
| <b>2 Human capital &amp; research.....</b>                    | <b>41.6</b>                           | <b>34</b> |
| 2.1 Education .....   | 54.3                                  | 32        |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.4                                   | 46        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 23.3                                  | 48        |
| 2.1.3 School life expectancy, years.....                      | 16.7                                  | 12 ●      |
| 2.1.4 PISA scales in reading, maths, & science.....           | 483.9                                 | 32        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 8.6                                   | 10 ●      |
| 2.2 Tertiary education.....                                   | 40.0                                  | 44        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 76.6                                  | 13 ●      |
| 2.2.2 Graduates in science & engineering, % .....             | 21.5                                  | 43        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.6                                   | 69        |
| 2.3 Research & development (R&D).....                         | 30.5                                  | 33        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 5,702.4                               | 19 ●      |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.9                                   | 36        |
| 2.3.3 QS university ranking, average score top 3*.....        | 17.6                                  | 54        |
| <b>3 Infrastructure.....</b>                                  | <b>44.4</b>                           | <b>42</b> |
| 3.1 Information & communication technologies (ICTs).....      | 56.2                                  | 32        |
| 3.1.1 ICT access*.....  | 64.7                                  | 41        |
| 3.1.2 ICT use* .....  | 37.6                                  | 47        |
| 3.1.3 Government's online service*.....                       | 69.9                                  | 29        |
| 3.1.4 E-participation*.....                                   | 52.6                                  | 30        |
| 3.2 General infrastructure.....                               | 24.6                                  | 116 ○     |
| 3.2.1 Electricity output, kWh/cap.....                        | 1,326.9                               | 87        |
| 3.2.2 Logistics performance*.....                             | 53.2                                  | 58        |
| 3.2.3 Gross capital formation, % GDP.....                     | 18.1                                  | 108 ○     |
| 3.3 Ecological sustainability.....                            | 52.2                                  | 20 ●      |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 7.4                                   | 45        |
| 3.3.2 Environmental performance*.....                         | 61.3                                  | 47        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 10.6                                  | 8 ●       |
| <b>4 Market sophistication .....</b>                          | <b>52.1</b>                           | <b>46</b> |
| 4.1 Credit.....   | 48.5                                  | 35        |
| 4.1.1 Ease of getting credit*.....                            | 81.3                                  | 27        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 51.3                                  | 66        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 31.1        | 91        |
| 4.2.1 Ease of protecting investors*.....                        | 56.7        | 55        |
| 4.2.2 Market capitalization, % GDP.....                         | 9.4         | 91 ○      |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.4         | 81        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.2         | 16        |
| 4.3 Trade & competition .....                                   | 76.8        | 56        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 73.0        | 34        |
| <b>5 Business sophistication .....</b>                          | <b>32.2</b> | <b>70</b> |
| 5.1 Knowledge workers.....                                      | 50.1        | 41        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 42.8        | 18 ●      |
| 5.1.2 Firms offering formal training, % firms.....              | 46.8        | 33        |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.2         | 44        |
| 5.1.4 GERD performed by business, %.....                        | 26.6        | 57        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 110.2       | 48        |
| 5.2 Innovation linkages .....                                   | 33.7        | 63        |
| 5.2.1 University/industry research collaboration†.....          | 59.3        | 27        |
| 5.2.2 State of cluster development† .....                       | 38.5        | 105 ○     |
| 5.2.3 GERD financed by abroad, %.....                           | 33.3        | 13 ●      |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 74        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 62        |
| 5.3 Knowledge absorption.....                                   | 12.7        | 132 ○     |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 100 ○     |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.5         | 107 ○     |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.5         | 92        |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.6         | 96        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>30.3</b> | <b>56</b> |
| 6.1 Knowledge creation.....                                     | 18.5        | 56        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 1.7         | 55        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.5         | 40        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 26.4        | 37        |
| 6.1.5 Citable documents H index.....                            | 109.0       | 57        |
| 6.2 Knowledge impact.....                                       | 46.8        | 40        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.3         | 50        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 4.7         | 22        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 18.1        | 24 ●      |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 19.6        | 57        |
| 6.3 Knowledge diffusion.....                                    | 25.7        | 106       |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 90 ○      |
| 6.3.2 High-tech exports less re-exports, %.....                 | 4.8         | 31        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.6         | 100       |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.6         | 57        |
| <b>7 Creative outputs .....</b>                                 | <b>36.2</b> | <b>56</b> |
| 7.1 Intangible assets.....                                      | 47.7        | 51        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 57.3        | 45        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 1.6         | 22        |
| 7.1.3 ICTs & business model creation†.....                      | 66.0        | 31        |
| 7.1.4 ICTs & organizational model creation†.....                | 64.5        | 24 ●      |
| 7.2 Creative goods & services.....                              | 16.0        | 78        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 96 ○      |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.9         | 74        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 74 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 1.6         | 35        |
| 7.3 Online creativity .....                                     | 33.5        | 44        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 15.1        | 34        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 57.9        | 26        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 16,213.1    | 31        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 0.5         |
| GDP (US\$ billions) .....   | 59.8        |
| GDP per capita, PPP\$ ..... | 78,669.8    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>56.9</b>                           | <b>9</b>  |
| Innovation Output Sub-Index .....                             | 54.9                                  | 5 ●       |
| Innovation Input Sub-Index.....                               | 58.8                                  | 21        |
| Innovation Efficiency Ratio.....                              | 0.9                                   | 9         |
| Global Innovation Index 2013 (out of 142) .....               | 56.6                                  | 12        |
| <b>1 Institutions.....</b>                                    | <b>82.9</b>                           | <b>20</b> |
| 1.1 Political environment.....                                | 92.3                                  | 6         |
| 1.1.1 Political stability*.....                               | 98.4                                  | 5 ●       |
| 1.1.2 Government effectiveness*.....                          | 85.2                                  | 11        |
| 1.1.3 Press freedom*.....                                     | 93.3                                  | 4 ●       |
| 1.2 Regulatory environment .....                              | 83.7                                  | 26        |
| 1.2.1 Regulatory quality* .....                               | 94.7                                  | 8         |
| 1.2.2 Rule of law*.....                                       | 95.2                                  | 9         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 21.7                                  | 100 ○     |
| 1.3 Business environment.....                                 | 72.8                                  | 38        |
| 1.3.1 Ease of starting a business*.....                       | 85.9                                  | 65        |
| 1.3.2 Ease of resolving insolvency*.....                      | 46.1                                  | 47        |
| 1.3.3 Ease of paying taxes*.....                              | 86.4                                  | 17        |
| <b>2 Human capital &amp; research.....</b>                    | <b>47.2</b>                           | <b>27</b> |
| 2.1 Education .....   | 52.6                                  | 39        |
| 2.1.1 Expenditure on education, % GDP .....                   | n/a                                   | n/a       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 20.3                                  | 58        |
| 2.1.3 School life expectancy, years.....                      | 13.9                                  | 58        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 489.6                                 | 26        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 8.5                                   | 9         |
| 2.2 Tertiary education.....                                   | 59.0                                  | 8         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 18.2                                  | 92 ○      |
| 2.2.2 Graduates in science & engineering, % .....             | 32.5                                  | 10        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 41.4                                  | 1 ●       |
| 2.3 Research & development (R&D).....                         | 29.9                                  | 35        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 5,924.3                               | 16        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 1.5                                   | 25        |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                  | <b>53.4</b>                           | <b>22</b> |
| 3.1 Information & communication technologies (ICTs).....      | 67.9                                  | 22        |
| 3.1.1 ICT access*.....  | 89.3                                  | 2 ●       |
| 3.1.2 ICT use*.....   | 72.9                                  | 10        |
| 3.1.3 Government's online service*.....                       | 69.9                                  | 29        |
| 3.1.4 E-participation*.....                                   | 39.5                                  | 38        |
| 3.2 General infrastructure.....                               | 41.4                                  | 40        |
| 3.2.1 Electricity output, kWh/cap.....                        | 5,173.6                               | 43        |
| 3.2.2 Logistics performance*.....                             | 87.7                                  | 15        |
| 3.2.3 Gross capital formation, % GDP.....                     | 21.3                                  | 75        |
| 3.3 Ecological sustainability.....                            | 50.9                                  | 24        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 8.7                                   | 28        |
| 3.3.2 Environmental performance*.....                         | 83.3                                  | 2 ●       |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 1.2                                   | 58        |
| <b>4 Market sophistication .....</b>                          | <b>49.7</b>                           | <b>59</b> |
| 4.1 Credit.....   | 39.5                                  | 58        |
| 4.1.1 Ease of getting credit*.....                            | 25.0                                  | 134 ○     |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 165.4                                 | 12        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a       |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 34.9        | 69         |
| 4.2.1 Ease of protecting investors*.....                        | 43.3        | 105 ○      |
| 4.2.2 Market capitalization, % GDP.....                         | 123.1       | 8          |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.2         | 91 ○       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.1         | 28         |
| 4.3 Trade & competition .....                                   | 74.6        | 82         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○       |
| 4.3.3 Intensity of local competition†.....                      | 68.7        | 56         |
| <b>5 Business sophistication .....</b>                          | <b>60.8</b> | <b>2 ●</b> |
| 5.1 Knowledge workers.....                                      | 75.0        | 6          |
| 5.1.1 Knowledge-intensive employment, %.....                    | 57.2        | 1 ●        |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a        |
| 5.1.3 GERD performed by business, % GDP.....                    | 1.0         | 23         |
| 5.1.4 GERD performed by business, %.....                        | 67.6        | 14         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 233.6       | 23         |
| 5.2 Innovation linkages .....                                   | 55.0        | 6          |
| 5.2.1 University/industry research collaboration†.....          | 65.0        | 18         |
| 5.2.2 State of cluster development† .....                       | 62.3        | 21         |
| 5.2.3 GERD financed by abroad, %.....                           | 20.7        | 18         |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.1         | 11         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 2.8         | 8          |
| 5.3 Knowledge absorption.....                                   | 52.4        | 3 ●        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.7         | 44         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.6         | 105 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 2.7         | 4 ●        |
| 5.3.4 FDI net inflows, % GDP.....                               | 31.0        | 1 ●        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>45.8</b> | <b>16</b>  |
| 6.1 Knowledge creation.....                                     | 28.8        | 35         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.6         | 43         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 6.4         | 8          |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 19.2        | 48         |
| 6.1.5 Citable documents H index.....                            | 80.0        | 79         |
| 6.2 Knowledge impact.....                                       | 42.6        | 54         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -1.6        | 109 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 21.0        | 1 ●        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 3.9         | 76         |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 2.7         | 92 ○       |
| 6.3 Knowledge diffusion.....                                    | 66.1        | 2 ●        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.9         | 17         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.2         | 65         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 4.7         | 7          |
| 6.3.4 FDI net outflows, % GDP .....                             | 487.1       | 2 ●        |
| <b>7 Creative outputs .....</b>                                 | <b>64.1</b> | <b>3 ●</b> |
| 7.1 Intangible assets.....                                      | 70.6        | 2 ●        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 135.7       | 6          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 6.4         | 1 ●        |
| 7.1.3 ICTs & business model creation†.....                      | 76.2        | 5          |
| 7.1.4 ICTs & organizational model creation†.....                | 68.3        | 13         |
| 7.2 Creative goods & services.....                              | 42.1        | 14         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 3.9         | 1 ●        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 42.9        | 1 ●        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 52         |
| 7.2.5 Creative goods exports, % total trade.....                | 0.2         | 80         |
| 7.3 Online creativity.....                                      | 73.0        | 5 ●        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 100.0       | 1 ●        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 71.9        | 7          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 27,784.6    | 10         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



# Madagascar

## Key indicators

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 22.3               |
| GDP (US\$ billions) .....   | 11.2               |
| GDP per capita, PPP\$ ..... | 970.1              |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>25.5</b>                           | <b>124</b> |
| Innovation Output Sub-Index .....                             | 19.6                                  | 121        |
| Innovation Input Sub-Index .....                              | 31.4                                  | 123        |
| Innovation Efficiency Ratio .....                             | 0.6                                   | 105        |
| Global Innovation Index 2013 (out of 142) .....               | 22.9                                  | 140        |
| <b>1 Institutions.....</b>                                    | <b>55.1</b>                           | <b>91</b>  |
| 1.1 Political environment.....                                | 45.0                                  | 106        |
| 1.1.1 Political stability*.....                               | 51.8                                  | 100        |
| 1.1.2 Government effectiveness*.....                          | 11.9                                  | 134        |
| 1.1.3 Press freedom*.....                                     | 71.4                                  | 73         |
| 1.2 Regulatory environment .....                              | 59.6                                  | 89         |
| 1.2.1 Regulatory quality* .....                               | 33.7                                  | 112        |
| 1.2.2 Rule of law*.....                                       | 21.9                                  | 119        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 12.3                                  | 53 ●       |
| 1.3 Business environment.....                                 | 60.8                                  | 83         |
| 1.3.1 Ease of starting a business*.....                       | 95.0                                  | 12 ●       |
| 1.3.2 Ease of resolving insolvency*.....                      | 12.4                                  | 134        |
| 1.3.3 Ease of paying taxes*.....                              | 74.9                                  | 50 ●       |
| <b>2 Human capital &amp; research.....</b>                    | <b>14.5</b>                           | <b>124</b> |
| 2.1 Education .....   | 21.8                                  | 129        |
| 2.1.1 Expenditure on education, % GDP .....                   | 2.7                                   | 116        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 8.3                                   | 103        |
| 2.1.3 School life expectancy, years.....                      | 10.3                                  | 111        |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 27.6                                  | 99         |
| 2.2 Tertiary education.....                                   | 20.6                                  | 100        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 4.1                                   | 127        |
| 2.2.2 Graduates in science & engineering, % .....             | 20.5                                  | 51         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.7                                   | 67         |
| 2.3 Research & development (R&D).....                         | 1.0                                   | 116        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 109.0                                 | 101        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.1                                   | 103        |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>22.4</b>                           | <b>123</b> |
| 3.1 Information & communication technologies (ICTs).....      | 12.5                                  | 135        |
| 3.1.1 ICT access*.....  | 14.8                                  | 135 ○      |
| 3.1.2 ICT use* .....  | 0.7                                   | 131 ○      |
| 3.1.3 Government's online service*.....                       | 32.0                                  | 114        |
| 3.1.4 E-participation*.....                                   | 2.6                                   | 116        |
| 3.2 General infrastructure.....                               | 36.6                                  | 55 ●       |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a                                   | n/a        |
| 3.2.2 Logistics performance* .....                            | 44.0                                  | 85         |
| 3.2.3 Gross capital formation, % GDP.....                     | 24.5                                  | 55 ●       |
| 3.3 Ecological sustainability.....                            | 18.0                                  | 139 ○      |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a                                   | n/a        |
| 3.3.2 Environmental performance*.....                         | 26.7                                  | 136 ○      |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.1                                   | 123 ○      |
| <b>4 Market sophistication .....</b>                          | <b>41.8</b>                           | <b>116</b> |
| 4.1 Credit.....   | 9.7                                   | 141 ○      |
| 4.1.1 Ease of getting credit* .....                           | 18.8                                  | 142 ○      |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 11.0                                  | 139 ○      |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.7                                   | 45         |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 41.0        | 49 ●       |
| 4.2.1 Ease of protecting investors*.....                        | 56.7        | 55         |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 33         |
| 4.3 Trade & competition .....                                   | 74.6        | 81         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 6.1         | 97         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.8         | 67         |
| 4.3.3 Intensity of local competition†.....                      | 64.2        | 78         |
| <b>5 Business sophistication .....</b>                          | <b>23.3</b> | <b>122</b> |
| 5.1 Knowledge workers.....                                      | 14.2        | 136        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 2.8         | 107 ○      |
| 5.1.2 Firms offering formal training, % firms.....              | 27.4        | 71         |
| 5.1.3 GERD performed by business, % GDP .....                   | n/a         | n/a        |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 2.5         | 139 ○      |
| 5.2 Innovation linkages .....                                   | 26.2        | 95         |
| 5.2.1 University/industry research collaboration† .....         | 37.8        | 92         |
| 5.2.2 State of cluster development† .....                       | 33.2        | 120        |
| 5.2.3 GERD financed by abroad, %.....                           | 10.6        | 41 ●       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a         | n/a        |
| 5.3 Knowledge absorption.....                                   | 29.4        | 45 ●       |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 74         |
| 5.3.2 High-tech imports less re-imports, % .....                | 4.3         | 110        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.7         | 27 ●       |
| 5.3.4 FDI net inflows, % GDP.....                               | 9.2         | 16 ●       |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>16.7</b> | <b>124</b> |
| 6.1 Knowledge creation.....                                     | 5.8         | 107        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....           | 0.2         | 89         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 73         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 9.3         | 81         |
| 6.1.5 Citable documents H index.....                            | 56.0        | 102        |
| 6.2 Knowledge impact.....                                       | 22.0        | 118        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                  | -1.4        | 107        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.1         | 90         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....          | 2.0         | 98         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 2.4         | 93 ○       |
| 6.3 Knowledge diffusion.....                                    | 22.4        | 119        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.5         | 23 ●       |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.1         | 116        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.3         | 71         |
| 6.3.4 FDI net outflows, % GDP .....                             | n/a         | n/a        |
| <b>7 Creative outputs .....</b>                                 | <b>22.5</b> | <b>115</b> |
| 7.1 Intangible assets .....                                     | 36.7        | 106        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....             | 94.3        | 18 ●       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.1         | 57         |
| 7.1.3 ICTs & business model creation†.....                      | 46.0        | 111        |
| 7.1.4 ICTs & organizational model creation†.....                | 44.7        | 102        |
| 7.2 Creative goods & services.....                              | 15.7        | 79         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 32 ●       |
| 7.2.5 Creative goods exports, % total trade.....                | 0.1         | 89         |
| 7.3 Online creativity .....                                     | 0.7         | 130        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.2         | 132        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 2.0         | 124        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 37.7        | 132        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 15.9               |
| GDP (US\$ billions) .....   | 3.8                |
| GDP per capita, PPP\$ ..... | 878.7              |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>27.6</b>                           | <b>113</b>   |
| Innovation Output Sub-Index .....                             | 22.2                                  | 108          |
| Innovation Input Sub-Index.....                               | 33.0                                  | 109          |
| Innovation Efficiency Ratio.....                              | 0.7                                   | 96           |
| Global Innovation Index 2013 (out of 142) .....               | 26.7                                  | 119          |
| <b>1 Institutions.....</b>                                    | <b>54.2</b>                           | <b>95</b>    |
| 1.1 Political environment.....                                | 55.0                                  | 77           |
| 1.1.1 Political stability*.....                               | 65.5                                  | 74           |
| 1.1.2 Government effectiveness*.....                          | 27.6                                  | 97           |
| 1.1.3 Press freedom*.....                                     | 71.8                                  | 62 ●         |
| 1.2 Regulatory environment .....                              | 58.7                                  | 93           |
| 1.2.1 Regulatory quality* .....                               | 30.1                                  | 119          |
| 1.2.2 Rule of law*.....                                       | 39.7                                  | 75           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 16.7                                  | 78           |
| 1.3 Business environment.....                                 | 48.8                                  | 121          |
| 1.3.1 Ease of starting a business*.....                       | 60.9                                  | 131 ○        |
| 1.3.2 Ease of resolving insolvency*.....                      | 16.5                                  | 128          |
| 1.3.3 Ease of paying taxes*.....                              | 69.2                                  | 73 ●         |
| <b>2 Human capital &amp; research.....</b>                    | <b>11.7</b>                           | <b>136 ○</b> |
| 2.1 Education .....   | 31.6                                  | 110          |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.4                                   | 49 ●         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 33.2                                  | 14 ●         |
| 2.1.3 School life expectancy, years.....                      | 10.8                                  | 108          |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 41.5                                  | 114 ○        |
| 2.2 Tertiary education.....                                   | 2.8                                   | 136 ○        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 0.8                                   | 134 ○        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a          |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.1                                   | 80           |
| 2.3 Research & development (R&D).....                         | 0.5                                   | 123          |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 122.8                                 | 98           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a          |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○         |
| <b>3 Infrastructure.....</b>                                  | <b>24.1</b>                           | <b>118</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 10.3                                  | 138 ○        |
| 3.1.1 ICT access*.....  | 17.2                                  | 129 ○        |
| 3.1.2 ICT use* .....  | 2.6                                   | 123          |
| 3.1.3 Government's online service*.....                       | 21.6                                  | 133 ○        |
| 3.1.4 E-participation*.....                                   | 0.0                                   | 129 ○        |
| 3.2 General infrastructure.....                               | 34.3                                  | 65 ●         |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a                                   | n/a          |
| 3.2.2 Logistics performance* .....                            | 47.6                                  | 74           |
| 3.2.3 Gross capital formation, % GDP.....                     | 22.0                                  | 73 ●         |
| 3.3 Ecological sustainability.....                            | 27.6                                  | 103          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a                                   | n/a          |
| 3.3.2 Environmental performance*.....                         | 40.1                                  | 108          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.4                                   | 88           |
| <b>4 Market sophistication .....</b>                          | <b>39.6</b>                           | <b>128</b>   |
| 4.1 Credit.....   | 17.7                                  | 129          |
| 4.1.1 Ease of getting credit*.....                            | 43.8                                  | 112          |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 20.6                                  | 118          |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.3                                   | 53           |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 29.3        | 101         |
| 4.2.1 Ease of protecting investors*.....                            | 53.3        | 66          |
| 4.2.2 Market capitalization, % GDP.....                             | 17.7        | 77          |
| 4.2.3 Total value of stocks traded, % GDP.....                      | 0.4         | 83          |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                       | n/a         | n/a         |
| 4.3 Trade & competition .....                                       | 71.8        | 98          |
| 4.3.1 Applied tariff rate, weighted mean, %.....                    | 6.2         | 99          |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....           | 0.0         | 1 ●         |
| 4.3.3 Intensity of local competition <sup>†</sup> .....             | 54.5        | 119         |
| <b>5 Business sophistication .....</b>                              | <b>35.3</b> | <b>50 ●</b> |
| 5.1 Knowledge workers.....  | 40.8        | 64 ●        |
| 5.1.1 Knowledge-intensive employment, %.....                        | n/a         | n/a         |
| 5.1.2 Firms offering formal training, % firms.....                  | 47.6        | 32 ●        |
| 5.1.3 GERD performed by business, % GDP.....                        | n/a         | n/a         |
| 5.1.4 GERD performed by business, %.....                            | n/a         | n/a         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                           | 5.3         | 130         |
| 5.2 Innovation linkages .....                                       | 41.3        | 39 ●        |
| 5.2.1 University/industry research collaboration <sup>†</sup> ..... | 35.0        | 107         |
| 5.2.2 State of cluster development <sup>†</sup> .....               | 44.5        | 77          |
| 5.2.3 GERD financed by abroad, %.....                               | n/a         | n/a         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....                | n/a         | n/a         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....        | n/a         | n/a         |
| 5.3 Knowledge absorption.....                                       | 23.8        | 81          |
| 5.3.1 Royalty & license fees payments, % total trade.....           | 0.0         | 118 ○       |
| 5.3.2 High-tech imports less re-imports, %.....                     | 13.2        | 16 ●        |
| 5.3.3 Comm., computer & info. services imp., % total trade.....     | 0.4         | 111         |
| 5.3.4 FDI net inflows, % GDP.....                                   | 1.6         | 93          |
| <b>6 Knowledge &amp; technology outputs .....</b>                   | <b>24.7</b> | <b>84</b>   |
| 6.1 Knowledge creation.....   | 19.9        | 51 ●        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....                | n/a         | n/a         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                     | n/a         | n/a         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....              | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....             | 20.8        | 43 ●        |
| 6.1.5 Citable documents H index.....                                | 80.0        | 79          |
| 6.2 Knowledge impact.....   | 27.4        | 112         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                       | 1.1         | 63          |
| 6.2.2 New businesses/th pop. 15–64.....                             | 0.0         | 92 ○        |
| 6.2.3 Computer software spending, % GDP.....                        | n/a         | n/a         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....               | 1.4         | 116         |
| 6.2.5 High- & medium-high-tech manufactures, % .....                | 7.9         | 81          |
| 6.3 Knowledge diffusion.....  | 26.9        | 96          |
| 6.3.1 Royalty & license fees receipts, % total trade .....          | n/a         | n/a         |
| 6.3.2 High-tech exports less re-exports, %.....                     | 1.0         | 68          |
| 6.3.3 Comm., computer & info. services exp., % total trade.....     | 0.3         | 115         |
| 6.3.4 FDI net outflows, % GDP .....                                 | 1.2         | 45 ●        |
| <b>7 Creative outputs .....</b>                                     | <b>19.8</b> | <b>125</b>  |
| 7.1 Intangible assets.....  | 33.2        | 120         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....                  | 25.5        | 80          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....               | n/a         | n/a         |
| 7.1.3 ICTs & business model creation <sup>†</sup> .....             | 45.8        | 112         |
| 7.1.4 ICTs & organizational model creation <sup>†</sup> .....       | 43.8        | 103         |
| 7.2 Creative goods & services.....                                  | 11.6        | 88          |
| 7.2.1 Cultural & creative services exports, % total trade.....      | 0.0         | 76          |
| 7.2.2 National feature films/mn pop. 15–69.....                     | n/a         | n/a         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....                 | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                    | 0.0         | 37 ●        |
| 7.2.5 Creative goods exports, % total trade.....                    | 0.1         | 93          |
| 7.3 Online creativity .....   | 1.1         | 127         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....           | 0.2         | 127         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                          | 3.0         | 120         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                               | 23.9        | 138 ○       |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                     | n/a         | n/a         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 29.2                        |
| GDP (US\$ billions) .....   | 312.4                       |
| GDP per capita, PPP\$ ..... | 17,748.0                    |
| Income group .....          | Upper-middle income         |
| Region .....                | South East Asia and Oceania |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>45.6</b>                           | <b>33</b> |
| Innovation Output Sub-Index .....                            | 38.7                                  | 35        |
| Innovation Input Sub-Index.....                              | 52.5                                  | 30        |
| Innovation Efficiency Ratio.....                             | 0.7                                   | 72        |
| Global Innovation Index 2013 (out of 142) .....              | 46.9                                  | 32        |
| <b>1 Institutions.....</b>                                   | <b>68.2</b>                           | <b>50</b> |
| 1.1 Political environment.....                               | 63.6                                  | 52        |
| 1.1.1 Political stability*.....                              | 65.6                                  | 72        |
| 1.1.2 Government effectiveness*.....                         | 67.8                                  | 32        |
| 1.1.3 Press freedom*.....                                    | 57.3                                  | 119 ○     |
| 1.2 Regulatory environment .....                             | 64.9                                  | 77        |
| 1.2.1 Regulatory quality* .....                              | 63.1                                  | 46        |
| 1.2.2 Rule of law*.....                                      | 60.3                                  | 44        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 23.9                                  | 110 ○     |
| 1.3 Business environment.....                                | 76.2                                  | 25        |
| 1.3.1 Ease of starting a business*.....                      | 94.3                                  | 15        |
| 1.3.2 Ease of resolving insolvency*.....                     | 51.8                                  | 37        |
| 1.3.3 Ease of paying taxes*.....                             | 82.4                                  | 28        |
| <b>2 Human capital &amp; research.....</b>                   | <b>41.6</b>                           | <b>35</b> |
| 2.1 Education .....  | 42.2                                  | 72        |
| 2.1.1 Expenditure on education, % GDP.....                   | 5.9                                   | 29        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 19.9                                  | 60        |
| 2.1.3 School life expectancy, years.....                     | 12.7                                  | 76        |
| 2.1.4 PISA scales in reading, maths, & science.....          | 412.7                                 | 51 ○      |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 13.6                                  | 46        |
| 2.2 Tertiary education.....                                  | 51.4                                  | 21        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 36.0                                  | 70        |
| 2.2.2 Graduates in science & engineering, % .....            | 37.7                                  | 6 ●       |
| 2.2.3 Tertiary inbound mobility, %.....                      | 6.1                                   | 28        |
| 2.3 Research & development (R&D).....                        | 31.1                                  | 32        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 2,564.5                               | 35        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 1.1                                   | 34        |
| 2.3.3 QS university ranking, average score top 3*.....       | 45.2                                  | 28        |
| <b>3 Infrastructure.....</b>                                 | <b>45.7</b>                           | <b>35</b> |
| 3.1 Information & communication technologies (ICTs).....     | 55.3                                  | 35        |
| 3.1.1 ICT access*.....                                       | 60.9                                  | 51        |
| 3.1.2 ICT use*.....  | 31.1                                  | 59        |
| 3.1.3 Government's online service*.....                      | 79.1                                  | 20        |
| 3.1.4 E-participation*.....                                  | 50.0                                  | 31        |
| 3.2 General infrastructure.....                              | 43.3                                  | 31        |
| 3.2.1 Electricity output, kWh/cap.....                       | 4,507.6                               | 47        |
| 3.2.2 Logistics performance*.....                            | 74.6                                  | 28        |
| 3.2.3 Gross capital formation, % GDP.....                    | 27.1                                  | 34        |
| 3.3 Ecological sustainability.....                           | 38.5                                  | 59        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 5.4                                   | 77 ○      |
| 3.3.2 Environmental performance*.....                        | 59.3                                  | 49        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 3.9                                   | 28        |
| <b>4 Market sophistication .....</b>                         | <b>63.9</b>                           | <b>17</b> |
| 4.1 Credit.....  | 46.6                                  | 41        |
| 4.1.1 Ease of getting credit*.....                           | 100.0                                 | 1 ●       |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 118.2                                 | 25        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.1                                   | 66 ○      |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 62.9        | 15        |
| 4.2.1 Ease of protecting investors*.....                        | 86.7        | 4 ●       |
| 4.2.2 Market capitalization, % GDP.....                         | 156.9       | 4 ●       |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 41.0        | 21        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 35        |
| 4.3 Trade & competition .....                                   | 82.4        | 12 ●      |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 4.0         | 71        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.4         | 48        |
| 4.3.3 Intensity of local competition†.....                      | 74.0        | 29        |
| <b>5 Business sophistication .....</b>                          | <b>42.9</b> | <b>29</b> |
| 5.1 Knowledge workers.....                                      | 48.1        | 44        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 27.5        | 50        |
| 5.1.2 Firms offering formal training, % firms.....              | 50.1        | 27        |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.6         | 31        |
| 5.1.4 GERD performed by business, %.....                        | 56.7        | 27        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 45.9        | 78        |
| 5.2 Innovation linkages .....                                   | 33.8        | 62        |
| 5.2.1 University/industry research collaboration†.....          | 67.0        | 15        |
| 5.2.2 State of cluster development†.....                        | 67.3        | 13        |
| 5.2.3 GERD financed by abroad, %.....                           | 0.3         | 90 ○      |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.1         | 29        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 68        |
| 5.3 Knowledge absorption.....                                   | 46.8        | 6 ●       |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.6         | 47        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 22.1        | 1 ●       |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.1         | 56        |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.2         | 51        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>35.5</b> | <b>39</b> |
| 6.1 Knowledge creation.....                                     | 11.5        | 72        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.3         | 50        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.6         | 35        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.1         | 58 ○      |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 16.9        | 53        |
| 6.1.5 Citable documents H index.....                            | 125.0       | 52        |
| 6.2 Knowledge impact.....                                       | 48.9        | 31        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.6         | 42        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 2.3         | 40        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.4         | 23        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 23.7        | 18        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 41.0        | 19        |
| 6.3 Knowledge diffusion.....                                    | 46.0        | 19        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.1         | 65        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 26.9        | 2 ●       |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.1         | 80        |
| 6.3.4 FDI net outflows, % GDP.....                              | 5.5         | 11 ●      |
| <b>7 Creative outputs .....</b>                                 | <b>42.0</b> | <b>39</b> |
| 7.1 Intangible assets.....                                      | 51.8        | 32        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 28.2        | 75 ○      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a       |
| 7.1.3 ICTs & business model creation†.....                      | 73.7        | 11 ●      |
| 7.1.4 ICTs & organizational model creation†.....                | 70.8        | 11 ●      |
| 7.2 Creative goods & services.....                              | 36.0        | 25        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.4         | 26        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 2.4         | 52        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.4         | 33        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 76 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 10.6        | 4 ●       |
| 7.3 Online creativity.....                                      | 28.5        | 52        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 6.1         | 57        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 31.2        | 54        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 4,707.5     | 57        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 68.6        | 45 ○      |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 14.9               |
| GDP (US\$ billions) .....   | 11.1               |
| GDP per capita, PPP\$ ..... | 1,103.4            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>26.2</b>                           | <b>119</b> |
| Innovation Output Sub-Index .....                            | 23.7                                  | 103        |
| Innovation Input Sub-Index.....                              | 28.7                                  | 132        |
| Innovation Efficiency Ratio.....                             | 0.8                                   | 30 ●       |
| Global Innovation Index 2013 (out of 142) .....              | 28.8                                  | 106        |
| <b>1 Institutions.....</b>                                   | <b>47.8</b>                           | <b>117</b> |
| 1.1 Political environment.....                               | 33.9                                  | 135        |
| 1.1.1 Political stability*.....                              | 17.2                                  | 139 ○      |
| 1.1.2 Government effectiveness*.....                         | 14.5                                  | 131        |
| 1.1.3 Press freedom*.....                                    | 70.0                                  | 79         |
| 1.2 Regulatory environment.....                              | 60.6                                  | 86         |
| 1.2.1 Regulatory quality*.....                               | 37.8                                  | 104        |
| 1.2.2 Rule of law*.....                                      | 27.3                                  | 104        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 13.7                                  | 62 ●       |
| 1.3 Business environment.....                                | 48.9                                  | 120        |
| 1.3.1 Ease of starting a business*.....                      | 66.8                                  | 123        |
| 1.3.2 Ease of resolving insolvency*.....                     | 23.5                                  | 113        |
| 1.3.3 Ease of paying taxes*.....                             | 56.3                                  | 114        |
| <b>2 Human capital &amp; research.....</b>                   | <b>13.9</b>                           | <b>128</b> |
| 2.1 Education.....   | 32.0                                  | 108        |
| 2.1.1 Expenditure on education, % GDP.....                   | 4.8                                   | 66         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 31.2                                  | 21 ●       |
| 2.1.3 School life expectancy, years.....                     | 8.4                                   | 123        |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | 24.7                                  | 89         |
| 2.2 Tertiary education.....                                  | 4.7                                   | 133 ○      |
| 2.2.1 Tertiary enrolment, % gross.....                       | 7.5                                   | 119        |
| 2.2.2 Graduates in science & engineering, %.....             | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                      | 0.5                                   | 92         |
| 2.3 Research & development (R&D).....                        | 5.1                                   | 84         |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 64.2                                  | 110        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.7                                   | 51 ●       |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                 | <b>18.1</b>                           | <b>136</b> |
| 3.1 Information & communication technologies (ICTs).....     | 14.4                                  | 130        |
| 3.1.1 ICT access*.....                                       | 24.4                                  | 112        |
| 3.1.2 ICT use*.....  | 1.0                                   | 129        |
| 3.1.3 Government's online service*.....                      | 32.0                                  | 114        |
| 3.1.4 E-participation*.....                                  | 0.0                                   | 129 ○      |
| 3.2 General infrastructure.....                              | 27.5                                  | 99         |
| 3.2.1 Electricity output, kWh/cap.....                       | n/a                                   | n/a        |
| 3.2.2 Logistics performance*.....                            | 26.2                                  | 130        |
| 3.2.3 Gross capital formation, % GDP.....                    | 22.2                                  | 72         |
| 3.3 Ecological sustainability.....                           | 12.4                                  | 143 ○      |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | n/a                                   | n/a        |
| 3.3.2 Environmental performance*.....                        | 18.4                                  | 141 ○      |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.1                                   | 124        |
| <b>4 Market sophistication.....</b>                          | <b>38.3</b>                           | <b>130</b> |
| 4.1 Credit.....  | 16.7                                  | 134        |
| 4.1.1 Ease of getting credit*.....                           | 43.8                                  | 112        |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 20.9                                  | 116        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.1                                   | 75         |

|   |      |      |
|---|------|------|
| 4.2 Investment.....                                       | 36.7 | 59 ● |
| 4.2.1 Ease of protecting investors*.....                  | 36.7 | 119  |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a  |
| 4.2.3 Total value of stocks traded, % GDP.....            | n/a  | n/a  |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a  |
| 4.3 Trade & competition.....                              | 61.7 | 128  |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 8.4  | 114  |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 3.8  | 128  |
| 4.3.3 Intensity of local competition†.....                | 58.3 | 105  |

**5 Business sophistication.....25.1 112**

|   |      |      |
|---|------|------|
| 5.1 Knowledge workers.....                                      | 19.4 | 125  |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a  | n/a  |
| 5.1.2 Firms offering formal training, % firms.....              | 36.7 | 45 ● |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.0  | 79   |
| 5.1.4 GERD performed by business, %.....                        | 3.0  | 79   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 5.3  | 129  |
| 5.2 Innovation linkages.....                                    | 26.1 | 98   |
| 5.2.1 University/industry research collaboration†.....          | 31.5 | 118  |
| 5.2.2 State of cluster development†.....                        | 44.8 | 74   |
| 5.2.3 GERD financed by abroad, %.....                           | 8.8  | 45 ● |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0  | 51 ● |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a  | n/a  |
| 5.3 Knowledge absorption.....                                   | 30.0 | 43 ● |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1  | 109  |
| 5.3.2 High-tech imports less re-imports, %.....                 | 8.2  | 54 ● |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 2.4  | 7 ●  |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.7  | 92   |

**6 Knowledge & technology outputs.....18.7 116**

|   |      |       |
|---|------|-------|
| 6.1 Knowledge creation.....                                     | 6.3  | 100   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a  | n/a   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1  | 78    |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a  | n/a   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 7.2  | 88    |
| 6.1.5 Citable documents H index.....                            | 55.0 | 103   |
| 6.2 Knowledge impact.....                                       | 18.0 | 120   |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -7.3 | 115 ○ |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a  | n/a   |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.2  | 139 ○ |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | n/a  | n/a   |
| 6.3 Knowledge diffusion.....                                    | 31.9 | 68 ●  |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.0  | 95    |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.2  | 100   |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 3.9  | 12 ●  |
| 6.3.4 FDI net outflows, % GDP.....                              | -3.9 | 124 ○ |

**7 Creative outputs.....28.7 81**

|  |      |       |
|--|------|-------|
| 7.1 Intangible assets.....                                     | 56.4 | 15 ●  |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | n/a  | n/a   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a  | n/a   |
| 7.1.3 ICTs & business model creation†.....                     | 59.0 | 61 ●  |
| 7.1.4 ICTs & organizational model creation†.....               | 53.8 | 66    |
| 7.2 Creative goods & services.....                             | 1.8  | 127   |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.1  | 57    |
| 7.2.2 National feature films/mn pop. 15–69.....                | 0.1  | 98    |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a  | n/a   |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a  | n/a   |
| 7.2.5 Creative goods exports, % total trade.....               | 0.0  | 122 ○ |
| 7.3 Online creativity.....                                     | 0.1  | 142 ○ |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.2  | 134   |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 0.0  | 142 ○ |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 26.7 | 137 ○ |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | n/a  | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 0.4         |
| GDP (US\$ billions) .....   | 9.5         |
| GDP per capita, PPP\$ ..... | 27,840.2    |
| Income group .....          | High income |
| Region .....                | Europe      |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>50.4</b>                           | <b>25</b> |
| Innovation Output Sub-Index .....                            | 50.3                                  | 10 ●      |
| Innovation Input Sub-Index .....                             | 50.6                                  | 33        |
| Innovation Efficiency Ratio .....                            | 1.0                                   | 3 ●       |
| Global Innovation Index 2013 (out of 142) .....              | 51.8                                  | 24        |
| <b>1 Institutions.....</b>                                   | <b>79.2</b>                           | <b>22</b> |
| 1.1 Political environment.....                               | 80.6                                  | 22        |
| 1.1.1 Political stability*.....                              | 91.1                                  | 17        |
| 1.1.2 Government effectiveness*.....                         | 74.0                                  | 26        |
| 1.1.3 Press freedom*.....                                    | 76.7                                  | 40        |
| 1.2 Regulatory environment .....                             | 91.6                                  | 16        |
| 1.2.1 Regulatory quality* .....                              | 83.1                                  | 19        |
| 1.2.2 Rule of law*.....                                      | 83.1                                  | 22        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 8.0                                   | 1 ●       |
| 1.3 Business environment.....                                | 65.5                                  | 67        |
| 1.3.1 Ease of starting a business*.....                      | 72.3                                  | 113 ○     |
| 1.3.2 Ease of resolving insolvency*.....                     | 41.5                                  | 56        |
| 1.3.3 Ease of paying taxes*.....                             | 82.7                                  | 27        |
| <b>2 Human capital &amp; research.....</b>                   | <b>34.6</b>                           | <b>49</b> |
| 2.1 Education .....  | 57.4                                  | 15        |
| 2.1.1 Expenditure on education, % GDP.....                   | 6.9                                   | 12        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 35.4                                  | 11        |
| 2.1.3 School life expectancy, years.....                     | 14.5                                  | 48        |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a       |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 7.9                                   | 4 ●       |
| 2.2 Tertiary education.....                                  | 30.6                                  | 76        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 39.4                                  | 66        |
| 2.2.2 Graduates in science & engineering, % .....            | 18.3                                  | 62 ○      |
| 2.2.3 Tertiary inbound mobility, %.....                      | 4.1                                   | 41        |
| 2.3 Research & development (R&D).....                        | 15.7                                  | 54        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 2,985.8                               | 31        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.8                                   | 39        |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                 | <b>44.7</b>                           | <b>41</b> |
| 3.1 Information & communication technologies (ICTs).....     | 57.7                                  | 31        |
| 3.1.1 ICT access*.....                                       | 82.8                                  | 9         |
| 3.1.2 ICT use*.....  | 60.4                                  | 22        |
| 3.1.3 Government's online service*.....                      | 61.4                                  | 41        |
| 3.1.4 E-participation*.....                                  | 26.3                                  | 56        |
| 3.2 General infrastructure.....                              | 25.7                                  | 107 ○     |
| 3.2.1 Electricity output, kWh/cap.....                       | 5,223.8                               | 41        |
| 3.2.2 Logistics performance*.....                            | 61.5                                  | 42        |
| 3.2.3 Gross capital formation, % GDP.....                    | 12.6                                  | 138 ○     |
| 3.3 Ecological sustainability.....                           | 50.6                                  | 25        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 11.2                                  | 10 ●      |
| 3.3.2 Environmental performance*.....                        | 67.4                                  | 34        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 2.1                                   | 48        |
| <b>4 Market sophistication .....</b>                         | <b>48.9</b>                           | <b>65</b> |
| 4.1 Credit.....  | 30.1                                  | 93 ○      |
| 4.1.1 Ease of getting credit*.....                           | 18.8                                  | 142 ○     |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 127.9                                 | 20        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | n/a                                   | n/a       |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 34.5        | 72         |
| 4.2.1 Ease of protecting investors*.....                        | 56.7        | 55         |
| 4.2.2 Market capitalization, % GDP.....                         | 41.6        | 49         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.5         | 78 ○       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 82.0        | 19         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○       |
| 4.3.3 Intensity of local competition†.....                      | 83.5        | 3 ●        |
| <b>5 Business sophistication .....</b>                          | <b>45.5</b> | <b>23</b>  |
| 5.1 Knowledge workers.....                                      | 54.9        | 32         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 39.7        | 23         |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a        |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.5         | 33         |
| 5.1.4 GERD performed by business, %.....                        | 60.0        | 22         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 109.4       | 49         |
| 5.2 Innovation linkages .....                                   | 41.0        | 40         |
| 5.2.1 University/industry research collaboration†.....          | 46.2        | 53         |
| 5.2.2 State of cluster development†.....                        | 48.5        | 61         |
| 5.2.3 GERD financed by abroad, %.....                           | 17.3        | 23         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.1         | 20         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.9         | 21         |
| 5.3 Knowledge absorption.....                                   | 40.7        | 13         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.2         | 20         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 13.0        | 19         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.7         | 22         |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.7         | 43         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>45.1</b> | <b>18</b>  |
| 6.1 Knowledge creation.....                                     | 17.4        | 61         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 1.0         | 69 ○       |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 1.6         | 27         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 19.0        | 49         |
| 6.1.5 Citable documents H index.....                            | 60.0        | 98 ○       |
| 6.2 Knowledge impact.....                                       | 75.3        | 1 ●        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.4         | 80 ○       |
| 6.2.2 New businesses/th pop. 15–64.....                         | 13.6        | 6 ●        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 39.5        | 5 ●        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 53.4        | 7 ●        |
| 6.3 Knowledge diffusion.....                                    | 42.5        | 26         |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.2         | 35         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 14.8        | 10 ●       |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.4         | 63         |
| 6.3.4 FDI net outflows, % GDP.....                              | 6.2         | 9 ●        |
| <b>7 Creative outputs .....</b>                                 | <b>55.5</b> | <b>8 ●</b> |
| 7.1 Intangible assets.....                                      | 57.8        | 13         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 107.8       | 13         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                      | 68.8        | 24         |
| 7.1.4 ICTs & organizational model creation†.....                | 62.8        | 30         |
| 7.2 Creative goods & services.....                              | 44.9        | 10 ●       |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.2         | 46         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 3.2         | 44         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.1         | 3 ●        |
| 7.2.5 Creative goods exports, % total trade.....                | 1.1         | 38         |
| 7.3 Online creativity.....                                      | 61.6        | 16         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 97.5        | 5 ●        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 40.6        | 46         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 27,516.4    | 12         |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 1.3                 |
| GDP (US\$ billions) .....   | 11.9                |
| GDP per capita, PPP\$ ..... | 16,056.1            |
| Income group .....          | Upper-middle income |
| Region .....                | Sub-Saharan Africa  |

|  | Score (0–100)<br>or value (hard data) | Rank        |
|--|---------------------------------------|-------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>40.9</b>                           | <b>40</b>   |
| Innovation Output Sub-Index .....                            | 35.0                                  | 43          |
| Innovation Input Sub-Index.....                              | 46.9                                  | 42          |
| Innovation Efficiency Ratio.....                             | 0.7                                   | 65          |
| Global Innovation Index 2013 (out of 142) .....              | 38.0                                  | 53          |
| <b>1 Institutions.....</b>                                   | <b>78.3</b>                           | <b>27</b>   |
| 1.1 Political environment.....                               | 76.2                                  | 32          |
| 1.1.1 Political stability*.....                              | 89.3                                  | 21 ●        |
| 1.1.2 Government effectiveness*.....                         | 65.8                                  | 35          |
| 1.1.3 Press freedom*.....                                    | 73.5                                  | 52          |
| 1.2 Regulatory environment.....                              | 84.0                                  | 24 ●        |
| 1.2.1 Regulatory quality*.....                               | 74.5                                  | 32          |
| 1.2.2 Rule of law*.....                                      | 72.1                                  | 33          |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 10.6                                  | 43          |
| 1.3 Business environment.....                                | 74.5                                  | 31          |
| 1.3.1 Ease of starting a business*.....                      | 91.2                                  | 28          |
| 1.3.2 Ease of resolving insolvency*.....                     | 43.5                                  | 53          |
| 1.3.3 Ease of paying taxes*.....                             | 88.9                                  | 12 ●        |
| <b>2 Human capital &amp; research.....</b>                   | <b>25.9</b>                           | <b>80</b>   |
| 2.1 Education.....   | 43.0                                  | 70          |
| 2.1.1 Expenditure on education, % GDP.....                   | 3.5                                   | 99 ○        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 19.0                                  | 64          |
| 2.1.3 School life expectancy, years.....                     | 15.6                                  | 32          |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a         |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | 14.7                                  | 58          |
| 2.2 Tertiary education.....                                  | 30.5                                  | 78          |
| 2.2.1 Tertiary enrolment, % gross.....                       | 39.9                                  | 65          |
| 2.2.2 Graduates in science & engineering, %.....             | 20.4                                  | 52          |
| 2.2.3 Tertiary inbound mobility, %.....                      | 2.3                                   | 57          |
| 2.3 Research & development (R&D).....                        | 4.1                                   | 88          |
| 2.3.1 Researchers, headcounts/mn pop.....                    | n/a                                   | n/a         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.4                                   | 72          |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○        |
| <b>3 Infrastructure.....</b>                                 | <b>37.1</b>                           | <b>67</b>   |
| 3.1 Information & communication technologies (ICTs).....     | 32.4                                  | 82          |
| 3.1.1 ICT access*.....                                       | 51.7                                  | 65          |
| 3.1.2 ICT use*.....  | 26.9                                  | 65          |
| 3.1.3 Government's online service*.....                      | 43.1                                  | 88          |
| 3.1.4 E-participation*.....                                  | 7.9                                   | 98 ○        |
| 3.2 General infrastructure.....                              | 38.7                                  | 47          |
| 3.2.1 Electricity output, kWh/cap.....                       | n/a                                   | n/a         |
| 3.2.2 Logistics performance*.....                            | 48.0                                  | 72          |
| 3.2.3 Gross capital formation, % GDP.....                    | 25.1                                  | 49          |
| 3.3 Ecological sustainability.....                           | 40.2                                  | 55          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | n/a                                   | n/a         |
| 3.3.2 Environmental performance*.....                        | 58.1                                  | 54          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.7                                   | 75          |
| <b>4 Market sophistication.....</b>                          | <b>63.0</b>                           | <b>20 ●</b> |
| 4.1 Credit.....  | 53.6                                  | 26          |
| 4.1.1 Ease of getting credit*.....                           | 75.0                                  | 40          |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 100.7                                 | 30          |
| 4.1.3 Microfinance gross loans, % GDP.....                   | n/a                                   | n/a         |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment.....   | 48.9        | 33        |
| 4.2.1 Ease of protecting investors*.....                        | 76.7        | 12 ●      |
| 4.2.2 Market capitalization, % GDP.....                         | 67.6        | 28        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 2.8         | 55        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a       |
| 4.3 Trade & competition.....                                    | 86.5        | 3 ●       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 0.7         | 5 ●       |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.0         | 12 ●      |
| 4.3.3 Intensity of local competition†.....                      | 74.3        | 28        |
| <b>5 Business sophistication.....</b>                           | <b>30.2</b> | <b>80</b> |
| 5.1 Knowledge workers.....                                      | 38.3        | 73        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 20.4        | 71        |
| 5.1.2 Firms offering formal training, % firms.....              | 28.8        | 70        |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a       |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 156.9       | 32        |
| 5.2 Innovation linkages.....                                    | 33.1        | 65        |
| 5.2.1 University/industry research collaboration†.....          | 38.0        | 91        |
| 5.2.2 State of cluster development†.....                        | 50.7        | 51        |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 72        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.1         | 39        |
| 5.3 Knowledge absorption.....                                   | 19.3        | 106       |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 77        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 5.3         | 97 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.2         | 53        |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.4         | 76        |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>26.6</b> | <b>72</b> |
| 6.1 Knowledge creation.....                                     | 3.7         | 128 ○     |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 0.1         | 99 ○      |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | n/a         | n/a       |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 4.6         | 111 ○     |
| 6.1.5 Citable documents H index.....                            | 41.0        | 120 ○     |
| 6.2 Knowledge impact.....                                       | 26.7        | 114 ○     |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a       |
| 6.2.2 New businesses/th pop. 15–64.....                         | 7.4         | 15 ●      |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 12.0        | 44        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 3.3         | 89 ○      |
| 6.3 Knowledge diffusion.....                                    | 49.5        | 13 ●      |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.0         | 88 ○      |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.2         | 104 ○     |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.6         | 24 ●      |
| 6.3.4 FDI net outflows, % GDP.....                              | 655.2       | 1 ●       |
| <b>7 Creative outputs.....</b>                                  | <b>43.4</b> | <b>31</b> |
| 7.1 Intangible assets.....                                      | 57.6        | 14 ●      |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | n/a         | n/a       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a       |
| 7.1.3 ICTs & business model creation†.....                      | 59.5        | 56        |
| 7.1.4 ICTs & organizational model creation†.....                | 55.7        | 58        |
| 7.2 Creative goods & services.....                              | 41.1        | 16 ●      |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 78        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 32.6        | 1 ●       |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 11 ●      |
| 7.2.5 Creative goods exports, % total trade.....                | 0.9         | 41        |
| 7.3 Online creativity.....                                      | 17.1        | 71        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 17.5        | 32        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 29.6        | 62        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 2,545.2     | 71        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 120.8                           |
| GDP (US\$ billions) .....   | 1,258.5                         |
| GDP per capita, PPP\$ ..... | 15,562.6                        |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>36.0</b>                           | <b>66</b> |
| Innovation Output Sub-Index .....                             | 29.9                                  | 70        |
| Innovation Input Sub-Index .....                              | 42.2                                  | 62        |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 79        |
| Global Innovation Index 2013 (out of 142) .....               | 36.8                                  | 63        |
| <b>1 Institutions.....</b>                                    | <b>61.8</b>                           | <b>66</b> |
| 1.1 Political environment.....                                | 51.1                                  | 85        |
| 1.1.1 Political stability*.....                               | 49.2                                  | 107       |
| 1.1.2 Government effectiveness*.....                          | 49.5                                  | 55        |
| 1.1.3 Press freedom*.....                                     | 54.7                                  | 125 ○     |
| 1.2 Regulatory environment .....                              | 59.0                                  | 92        |
| 1.2.1 Regulatory quality* .....                               | 61.1                                  | 52        |
| 1.2.2 Rule of law*.....                                       | 31.0                                  | 95        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 22.0                                  | 104       |
| 1.3 Business environment.....                                 | 75.2                                  | 27 ●      |
| 1.3.1 Ease of starting a business*.....                       | 87.5                                  | 59        |
| 1.3.2 Ease of resolving insolvency*.....                      | 71.6                                  | 24 ●      |
| 1.3.3 Ease of paying taxes*.....                              | 66.6                                  | 83        |
| <b>2 Human capital &amp; research.....</b>                    | <b>32.5</b>                           | <b>56</b> |
| 2.1 Education .....   | 38.3                                  | 89        |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.2                                   | 52        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 15.9                                  | 78        |
| 2.1.3 School life expectancy, years.....                      | 12.8                                  | 75        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 417.3                                 | 47        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 17.7                                  | 74        |
| 2.2 Tertiary education.....                                   | 41.0                                  | 42        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 27.7                                  | 80        |
| 2.2.2 Graduates in science & engineering, % .....             | 26.8                                  | 20 ●      |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a       |
| 2.3 Research & development (R&D).....                         | 18.0                                  | 47        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 386.4                                 | 74        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.4                                   | 66        |
| 2.3.3 QS university ranking, average score top 3*.....        | 41.0                                  | 33 ●      |
| <b>3 Infrastructure.....</b>                                  | <b>39.9</b>                           | <b>55</b> |
| 3.1 Information & communication technologies (ICTs).....      | 48.6                                  | 49        |
| 3.1.1 ICT access*.....  | 41.1                                  | 80        |
| 3.1.2 ICT use* .....  | 22.3                                  | 77        |
| 3.1.3 Government's online service*.....                       | 73.2                                  | 28 ●      |
| 3.1.4 E-participation*.....                                   | 57.9                                  | 25 ●      |
| 3.2 General infrastructure.....                               | 33.7                                  | 67        |
| 3.2.1 Electricity output, kWh/cap.....                        | 2,687.1                               | 68        |
| 3.2.2 Logistics performance* .....                            | 57.5                                  | 47        |
| 3.2.3 Gross capital formation, % GDP.....                     | 24.2                                  | 60        |
| 3.3 Ecological sustainability.....                            | 37.3                                  | 60        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 7.9                                   | 38        |
| 3.3.2 Environmental performance*.....                         | 55.0                                  | 60        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.6                                   | 77        |
| <b>4 Market sophistication .....</b>                          | <b>46.9</b>                           | <b>81</b> |
| 4.1 Credit.....   | 28.9                                  | 96        |
| 4.1.1 Ease of getting credit*.....                            | 75.0                                  | 40        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 27.7                                  | 103       |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.3                                   | 54        |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 30.4        | 93        |
| 4.2.1 Ease of protecting investors*.....                        | 56.7        | 55        |
| 4.2.2 Market capitalization, % GDP.....                         | 44.6        | 45        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 10.0        | 41        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 49        |
| 4.3 Trade & competition .....                                   | 81.5        | 23 ●      |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 2.2         | 48        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.1         | 30 ●      |
| 4.3.3 Intensity of local competition†.....                      | 67.5        | 62        |
| <b>5 Business sophistication .....</b>                          | <b>29.9</b> | <b>81</b> |
| 5.1 Knowledge workers.....                                      | 35.1        | 82        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 14.7        | 93 ○      |
| 5.1.2 Firms offering formal training, % firms.....              | 45.1        | 35        |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.2         | 50        |
| 5.1.4 GERD performed by business, %.....                        | 39.0        | 46        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 50.3        | 76        |
| 5.2 Innovation linkages .....                                   | 24.3        | 107       |
| 5.2.1 University/industry research collaboration†.....          | 51.3        | 42        |
| 5.2.2 State of cluster development† .....                       | 54.7        | 33        |
| 5.2.3 GERD financed by abroad, %.....                           | 0.7         | 84 ○      |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 96 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 73        |
| 5.3 Knowledge absorption.....                                   | 30.4        | 41        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | n/a         | n/a       |
| 5.3.2 High-tech imports less re-imports, %.....                 | 16.9        | 9 ●       |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.0         | 138 ○     |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.1         | 112 ○     |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>26.9</b> | <b>71</b> |
| 6.1 Knowledge creation.....                                     | 8.7         | 88        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.7         | 72        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 71        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.3         | 43        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 5.9         | 100       |
| 6.1.5 Citable documents H index.....                            | 232.0       | 33 ●      |
| 6.2 Knowledge impact.....                                       | 33.5        | 88        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.7         | 73        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.9         | 64        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.2         | 68 ○      |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 3.1         | 85        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 40.3        | 20 ●      |
| 6.3 Knowledge diffusion.....                                    | 38.3        | 37        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a       |
| 6.3.2 High-tech exports less re-exports, %.....                 | 14.7        | 11 ●      |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.1         | 135 ○     |
| 6.3.4 FDI net outflows, % GDP .....                             | 2.0         | 36        |
| <b>7 Creative outputs .....</b>                                 | <b>32.9</b> | <b>68</b> |
| 7.1 Intangible assets.....                                      | 37.9        | 103       |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 42.3        | 62        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.0         | 71 ○      |
| 7.1.3 ICTs & business model creation†.....                      | 59.8        | 53        |
| 7.1.4 ICTs & organizational model creation†.....                | 56.5        | 54        |
| 7.2 Creative goods & services.....                              | 28.6        | 40        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 80        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.9         | 73        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.3         | 38        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 87 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 10.6        | 3 ●       |
| 7.3 Online creativity .....                                     | 26.9        | 57        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.9         | 75        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 30.1        | 59        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 2,306.9     | 76        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 70.9        | 40        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 3.6                 |
| GDP (US\$ billions) .....   | 7.9                 |
| GDP per capita, PPP\$ ..... | 3,736.1             |
| Income group .....          | Lower-middle income |
| Region .....                | Europe              |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>40.7</b>                           | <b>43</b> |
| Innovation Output Sub-Index .....                            | 42.1                                  | 30        |
| Innovation Input Sub-Index.....                              | 39.4                                  | 80        |
| Innovation Efficiency Ratio.....                             | 1.1                                   | 1 ●       |
| Global Innovation Index 2013 (out of 142) .....              | 40.9                                  | 45        |
| <b>1 Institutions.....</b>                                   | <b>58.4</b>                           | <b>80</b> |
| 1.1 Political environment.....                               | 55.5                                  | 75        |
| 1.1.1 Political stability*.....                              | 66.3                                  | 70        |
| 1.1.2 Government effectiveness*.....                         | 26.1                                  | 105       |
| 1.1.3 Press freedom*.....                                    | 74.0                                  | 46        |
| 1.2 Regulatory environment .....                             | 55.9                                  | 101       |
| 1.2.1 Regulatory quality* .....                              | 45.8                                  | 81        |
| 1.2.2 Rule of law*.....                                      | 36.5                                  | 80        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 22.6                                  | 105       |
| 1.3 Business environment.....                                | 63.7                                  | 74        |
| 1.3.1 Ease of starting a business*.....                      | 88.6                                  | 48        |
| 1.3.2 Ease of resolving insolvency*.....                     | 34.7                                  | 81        |
| 1.3.3 Ease of paying taxes*.....                             | 67.9                                  | 80        |
| <b>2 Human capital &amp; research.....</b>                   | <b>28.6</b>                           | <b>71</b> |
| 2.1 Education .....  | 55.8                                  | 21 ●      |
| 2.1.1 Expenditure on education, % GDP .....                  | 8.4                                   | 4 ●       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 37.9                                  | 6 ●       |
| 2.1.3 School life expectancy, years.....                     | 11.8                                  | 90        |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a       |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 9.6                                   | 21        |
| 2.2 Tertiary education.....                                  | 24.0                                  | 92        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 40.1                                  | 63        |
| 2.2.2 Graduates in science & engineering, % .....            | n/a                                   | n/a       |
| 2.2.3 Tertiary inbound mobility, %.....                      | 1.6                                   | 71        |
| 2.3 Research & development (R&D).....                        | 6.0                                   | 81        |
| 2.3.1 Researchers, headcounts/mn pop. ....                   | 951.8                                 | 57        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.4                                   | 70        |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                 | <b>31.9</b>                           | <b>88</b> |
| 3.1 Information & communication technologies (ICTs).....     | 43.0                                  | 58        |
| 3.1.1 ICT access*.....                                       | 58.1                                  | 55        |
| 3.1.2 ICT use*.....  | 22.7                                  | 74        |
| 3.1.3 Government's online service*.....                      | 51.6                                  | 62        |
| 3.1.4 E-participation*.....                                  | 39.5                                  | 38        |
| 3.2 General infrastructure.....                              | 25.2                                  | 111       |
| 3.2.1 Electricity output, kWh/cap.....                       | 1,625.3                               | 82        |
| 3.2.2 Logistics performance*.....                            | 28.6                                  | 123 ○     |
| 3.2.3 Gross capital formation, % GDP.....                    | 24.1                                  | 61        |
| 3.3 Ecological sustainability.....                           | 27.5                                  | 104       |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 3.2                                   | 107 ○     |
| 3.3.2 Environmental performance*.....                        | 53.4                                  | 67        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.6                                   | 79        |
| <b>4 Market sophistication .....</b>                         | <b>51.4</b>                           | <b>49</b> |
| 4.1 Credit.....  | 42.9                                  | 51        |
| 4.1.1 Ease of getting credit*.....                           | 87.5                                  | 13        |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 38.1                                  | 85        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 2.4                                   | 22        |

|   |      |       |
|---|------|-------|
| 4.2 Investment .....                                      | 35.6 | 66    |
| 4.2.1 Ease of protecting investors*.....                  | 53.3 | 66    |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a   |
| 4.2.3 Total value of stocks traded, % GDP.....            | 0.2  | 88    |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3 Trade & competition .....                             | 75.7 | 68    |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 2.5  | 53    |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.0  | 1 ●   |
| 4.3.3 Intensity of local competition†.....                | 55.8 | 113 ○ |

**5 Business sophistication.....26.8 102**

|   |      |       |
|---|------|-------|
| 5.1 Knowledge workers.....                                      | 36.0 | 81    |
| 5.1.1 Knowledge-intensive employment, %.....                    | 31.3 | 42    |
| 5.1.2 Firms offering formal training, % firms.....              | 32.4 | 55    |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.1  | 62    |
| 5.1.4 GERD performed by business, %.....                        | 19.0 | 65    |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 81.5 | 56    |
| 5.2 Innovation linkages .....                                   | 18.7 | 132 ○ |
| 5.2.1 University/industry research collaboration†.....          | 28.0 | 123 ○ |
| 5.2.2 State of cluster development†.....                        | 22.2 | 135 ○ |
| 5.2.3 GERD financed by abroad, %.....                           | 9.4  | 43    |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.1  | 48    |
| 5.3 Knowledge absorption.....                                   | 25.8 | 66    |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.4  | 62    |
| 5.3.2 High-tech imports less re-imports, %.....                 | 7.0  | 64    |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.7  | 26    |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.3  | 79    |

**6 Knowledge & technology outputs.....40.8 26**

|   |      |      |
|---|------|------|
| 6.1 Knowledge creation.....                                     | 48.0 | 16 ● |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 7.7  | 14 ● |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.2  | 62   |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 14.2 | 1 ●  |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 18.9 | 50   |
| 6.1.5 Citable documents H index.....                            | 60.0 | 98   |
| 6.2 Knowledge impact.....                                       | 36.8 | 74   |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 4.0  | 20 ● |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.0  | 92 ○ |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a  |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 10.9 | 47   |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 8.2  | 80 ○ |
| 6.3 Knowledge diffusion.....                                    | 37.6 | 40   |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.1  | 53   |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.6  | 77   |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 4.3  | 9 ●  |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.4  | 68   |

**7 Creative outputs.....43.3 32**

|  |         |       |
|--|---------|-------|
| 7.1 Intangible assets.....                                     | 68.4    | 3 ●   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 257.8   | 1 ●   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | 5.7     | 1 ●   |
| 7.1.3 ICTs & business model creation†.....                     | 45.7    | 113 ○ |
| 7.1.4 ICTs & organizational model creation†.....               | 43.7    | 104   |
| 7.2 Creative goods & services.....                             | 22.6    | 53    |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.8     | 13 ●  |
| 7.2.2 National feature films/mn pop. 15–69.....                | 0.4     | 92 ○  |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a     | n/a   |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0     | 21    |
| 7.2.5 Creative goods exports, % total trade.....               | 0.1     | 97    |
| 7.3 Online creativity.....                                     | 14.0    | 80    |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 2.8     | 79    |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 30.9    | 58    |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 4,845.8 | 55    |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | n/a     | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Mongolia

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 2.8                         |
| GDP (US\$ billions) .....   | 11.5                        |
| GDP per capita, PPP\$ ..... | 5,885.2                     |
| Income group .....          | Lower-middle income         |
| Region .....                | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>37.5</b>                           | <b>56</b> |
| Innovation Output Sub-Index .....                 | 30.3                                  | 67        |
| Innovation Input Sub-Index .....                  | 44.8                                  | 51        |
| Innovation Efficiency Ratio .....                 | 0.7                                   | 94        |
| Global Innovation Index 2013 (out of 142) .....   | 37.6                                  | 72        |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>1</b> | <b>Institutions</b> .....                               | <b>62.5</b> | <b>63</b> |
| 1.1      | Political environment .....                             | 56.9        | 72        |
| 1.1.1    | Political stability* .....                              | 76.7        | 48        |
| 1.1.2    | Government effectiveness* .....                         | 24.0        | 110       |
| 1.1.3    | Press freedom* .....                                    | 70.1        | 78        |
| 1.2      | Regulatory environment .....                            | 69.4        | 56        |
| 1.2.1    | Regulatory quality* .....                               | 44.5        | 86        |
| 1.2.2    | Rule of law* .....                                      | 35.9        | 81        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks .....        | 8.7         | 25        |
| 1.3      | Business environment .....                              | 61.1        | 81        |
| 1.3.1    | Ease of starting a business* .....                      | 90.4        | 36        |
| 1.3.2    | Ease of resolving insolvency* .....                     | 22.9        | 115       |
| 1.3.3    | Ease of paying taxes* .....                             | 70.0        | 67        |
| <b>2</b> | <b>Human capital &amp; research</b> .....               | <b>26.9</b> | <b>79</b> |
| 2.1      | Education .....   | 45.7        | 60        |
| 2.1.1    | Expenditure on education, % GDP .....                   | 5.5         | 44        |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap .....     | 16.4        | 75        |
| 2.1.3    | School life expectancy, years .....                     | 15.0        | 44        |
| 2.1.4    | PISA scales in reading, maths, & science .....          | n/a         | n/a       |
| 2.1.5    | Pupil-teacher ratio, secondary .....                    | 14.5        | 53        |
| 2.2      | Tertiary education .....                                | 31.0        | 74        |
| 2.2.1    | Tertiary enrolment, % gross .....                       | 61.1        | 34        |
| 2.2.2    | Graduates in science & engineering, % .....             | 17.6        | 66        |
| 2.2.3    | Tertiary inbound mobility, % .....                      | 0.6         | 89        |
| 2.3      | Research & development (R&D) .....                      | 4.0         | 90        |
| 2.3.1    | Researchers, headcounts/mn pop. .....                   | 653.2       | 66        |
| 2.3.2    | Gross expenditure on R&D, % GDP .....                   | 0.3         | 78        |
| 2.3.3    | QS university ranking, average score top 3* .....       | 0.0         | 70        |
| <b>3</b> | <b>Infrastructure</b> .....                             | <b>42.0</b> | <b>48</b> |
| 3.1      | Information & communication technologies (ICTs) .....   | 44.0        | 51        |
| 3.1.1    | ICT access* .....                                       | 40.4        | 81        |
| 3.1.2    | ICT use* .....  | 16.4        | 90        |
| 3.1.3    | Government's online service* .....                      | 58.8        | 45        |
| 3.1.4    | E-participation* .....                                  | 60.5        | 24        |
| 3.2      | General infrastructure .....                            | 58.4        | 7         |
| 3.2.1    | Electricity output, kWh/cap .....                       | 1,697.5     | 81        |
| 3.2.2    | Logistics performance* .....                            | 25.4        | 132       |
| 3.2.3    | Gross capital formation, % GDP .....                    | 56.5        | 1         |
| 3.3      | Ecological sustainability .....                         | 23.5        | 125       |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 3.2         | 104       |
| 3.3.2    | Environmental performance* .....                        | 44.7        | 96        |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.1         | 119       |
| <b>4</b> | <b>Market sophistication</b> .....                      | <b>57.2</b> | <b>33</b> |
| 4.1      | Credit .....  | 61.6        | 16        |
| 4.1.1    | Ease of getting credit* .....                           | 68.8        | 53        |
| 4.1.2    | Domestic credit to private sector, % GDP .....          | 52.3        | 63        |
| 4.1.3    | Microfinance gross loans, % GDP .....                   | 17.3        | 1         |

|       |  |      |     |
|-------|--|------|-----|
| 4.2   | Investment .....                                     | 35.2 | 67  |
| 4.2.1 | Ease of protecting investors* .....                  | 66.7 | 21  |
| 4.2.2 | Market capitalization, % GDP .....                   | 12.6 | 84  |
| 4.2.3 | Total value of stocks traded, % GDP .....            | 0.4  | 82  |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP .....             | n/a  | n/a |
| 4.3   | Trade & competition .....                            | 74.8 | 79  |
| 4.3.1 | Applied tariff rate, weighted mean, % .....          | 5.1  | 84  |
| 4.3.2 | Non-agricultural mkt access weighted tariff, % ..... | 0.3  | 39  |
| 4.3.3 | Intensity of local competition† .....                | 60.0 | 94  |

**5 Business sophistication** ..... **35.2** **51**

|       |  |       |     |
|-------|--|-------|-----|
| 5.1   | Knowledge workers .....                                    | 42.4  | 58  |
| 5.1.1 | Knowledge-intensive employment, % .....                    | 24.0  | 60  |
| 5.1.2 | Firms offering formal training, % firms .....              | 61.0  | 7   |
| 5.1.3 | GERD performed by business, % GDP .....                    | 0.0   | 77  |
| 5.1.4 | GERD performed by business, % .....                        | 6.8   | 78  |
| 5.1.5 | GMAT test takers/mn pop. 20–34 .....                       | 138.2 | 39  |
| 5.2   | Innovation linkages .....                                  | 23.5  | 113 |
| 5.2.1 | University/industry research collaboration† .....          | 34.2  | 109 |
| 5.2.2 | State of cluster development† .....                        | 30.0  | 129 |
| 5.2.3 | GERD financed by abroad, % .....                           | 3.9   | 67  |
| 5.2.4 | JV–strategic alliance deals/tr PPP\$ GDP .....             | 0.1   | 19  |
| 5.2.5 | Patent families filed in 3+ offices/bn PPP\$ GDP .....     | 0.1   | 42  |
| 5.3   | Knowledge absorption .....                                 | 39.8  | 18  |
| 5.3.1 | Royalty & license fees payments, % total trade .....       | 0.1   | 99  |
| 5.3.2 | High-tech imports less re-imports, % .....                 | 5.0   | 99  |
| 5.3.3 | Comm., computer & info. services imp., % total trade ..... | 1.1   | 60  |
| 5.3.4 | FDI net inflows, % GDP .....                               | 53.8  | 1   |

**6 Knowledge & technology outputs** ..... **24.2** **89**

|       |  |      |     |
|-------|--|------|-----|
| 6.1   | Knowledge creation .....                                   | 47.8 | 17  |
| 6.1.1 | Domestic resident patent app/tr PPP\$ GDP .....            | 10.0 | 9   |
| 6.1.2 | PCT resident patent app/tr PPP\$ GDP .....                 | 0.1  | 82  |
| 6.1.3 | Domestic res utility model app/tr PPP\$ GDP .....          | 11.6 | 1   |
| 6.1.4 | Scientific & technical articles/bn PPP\$ GDP .....         | 12.4 | 68  |
| 6.1.5 | Citable documents H index .....                            | 55.0 | 103 |
| 6.2   | Knowledge impact .....                                     | 2.9  | 138 |
| 6.2.1 | Growth rate of PPP\$ GDP/worker, % .....                   | n/a  | n/a |
| 6.2.2 | New businesses/th pop. 15–64 .....                         | n/a  | n/a |
| 6.2.3 | Computer software spending, % GDP .....                    | n/a  | n/a |
| 6.2.4 | ISO 9001 quality certificates/bn PPP\$ GDP .....           | 0.7  | 126 |
| 6.2.5 | High- & medium-high-tech manufactures, % .....             | 4.2  | 88  |
| 6.3   | Knowledge diffusion .....                                  | 21.9 | 123 |
| 6.3.1 | Royalty & license fees receipts, % total trade .....       | 0.0  | 82  |
| 6.3.2 | High-tech exports less re-exports, % .....                 | 0.3  | 90  |
| 6.3.3 | Comm., computer & info. services exp., % total trade ..... | 0.3  | 112 |
| 6.3.4 | FDI net outflows, % GDP .....                              | 0.4  | 66  |

**7 Creative outputs** ..... **36.4** **54**

|       |   |         |     |
|-------|---|---------|-----|
| 7.1   | Intangible assets .....                                   | 56.0    | 16  |
| 7.1.1 | Domestic res trademark app/bn PPP\$ GDP .....             | 294.6   | 1   |
| 7.1.2 | Madrid trademark app. holders/bn PPP\$ GDP .....          | 0.1     | 58  |
| 7.1.3 | ICTs & business model creation† .....                     | 51.3    | 89  |
| 7.1.4 | ICTs & organizational model creation† .....               | 43.3    | 107 |
| 7.2   | Creative goods & services .....                           | 22.6    | 54  |
| 7.2.1 | Cultural & creative services exports, % total trade ..... | 0.0     | 101 |
| 7.2.2 | National feature films/mn pop. 15–69 .....                | 6.7     | 18  |
| 7.2.3 | Global ent. & media output/th pop. 15–69 .....            | n/a     | n/a |
| 7.2.4 | Printing & publishing manufactures, % .....               | 0.0     | 14  |
| 7.2.5 | Creative goods exports, % total trade .....               | 0.0     | 116 |
| 7.3   | Online creativity .....                                   | 10.9    | 89  |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69 .....      | 0.9     | 106 |
| 7.3.2 | Country-code TLDs/th pop. 15–69 .....                     | 24.2    | 70  |
| 7.3.3 | Wikipedia edits/pop. 15–69 .....                          | 4,504.6 | 58  |
| 7.3.4 | Video uploads on YouTube/pop. 15–69 .....                 | n/a     | n/a |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 0.6                 |
| GDP (US\$ billions) .....   | 4.4                 |
| GDP per capita, PPP\$ ..... | 11,912.6            |
| Income group .....          | Upper-middle income |
| Region .....                | Europe              |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>37.0</b>                           | <b>59</b> |
| Innovation Output Sub-Index .....                             | 28.4                                  | 74        |
| Innovation Input Sub-Index .....                              | 45.6                                  | 46        |
| Innovation Efficiency Ratio .....                             | 0.6                                   | 106 ○     |
| Global Innovation Index 2013 (out of 142) .....               | 41.0                                  | 44        |
| <b>1 Institutions.....</b>                                    | <b>68.1</b>                           | <b>51</b> |
| 1.1 Political environment.....                                | 63.6                                  | 53        |
| 1.1.1 Political stability*.....                               | 79.3                                  | 44        |
| 1.1.2 Government effectiveness*.....                          | 44.3                                  | 61        |
| 1.1.3 Press freedom*.....                                     | 67.0                                  | 91        |
| 1.2 Regulatory environment .....                              | 70.6                                  | 51        |
| 1.2.1 Regulatory quality* .....                               | 49.1                                  | 73        |
| 1.2.2 Rule of law*.....                                       | 46.2                                  | 60        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 11.2                                  | 46        |
| 1.3 Business environment.....                                 | 70.2                                  | 50        |
| 1.3.1 Ease of starting a business*.....                       | 88.8                                  | 45        |
| 1.3.2 Ease of resolving insolvency*.....                      | 51.3                                  | 39        |
| 1.3.3 Ease of paying taxes*.....                              | 70.5                                  | 64        |
| <b>2 Human capital &amp; research.....</b>                    | <b>40.7</b>                           | <b>37</b> |
| 2.1 Education .....   | 55.4                                  | 25 ●      |
| 2.1.1 Expenditure on education, % GDP .....                   | n/a                                   | n/a       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a       |
| 2.1.3 School life expectancy, years.....                      | 15.2                                  | 40        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 413.9                                 | 49 ○      |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a       |
| 2.2 Tertiary education.....                                   | 56.0                                  | 13 ●      |
| 2.2.1 Tertiary enrolment, % gross.....                        | 55.5                                  | 44        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a       |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a       |
| 2.3 Research & development (R&D).....                         | 10.8                                  | 66        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 2,491.0                               | 37        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.4                                   | 69        |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                  | <b>34.2</b>                           | <b>78</b> |
| 3.1 Information & communication technologies (ICTs).....      | 41.3                                  | 61        |
| 3.1.1 ICT access*.....  | n/a                                   | n/a       |
| 3.1.2 ICT use* .....  | n/a                                   | n/a       |
| 3.1.3 Government's online service*.....                       | 51.0                                  | 65        |
| 3.1.4 E-participation*.....                                   | 31.6                                  | 48        |
| 3.2 General infrastructure.....                               | 26.2                                  | 105       |
| 3.2.1 Electricity output, kWh/cap.....                        | 4,215.9                               | 50        |
| 3.2.2 Logistics performance*.....                             | 33.3                                  | 115 ○     |
| 3.2.3 Gross capital formation, % GDP.....                     | 21.0                                  | 81        |
| 3.3 Ecological sustainability.....                            | 35.2                                  | 71        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 5.6                                   | 74        |
| 3.3.2 Environmental performance*.....                         | 55.5                                  | 58        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 2.2                                   | 45        |
| <b>4 Market sophistication .....</b>                          | <b>50.6</b>                           | <b>53</b> |
| 4.1 Credit.....   | 39.4                                  | 59        |
| 4.1.1 Ease of getting credit*.....                            | 93.8                                  | 3 ●       |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 52.7                                  | 62        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.7                                   | 47        |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment .....  | 45.1        | 38           |
| 4.2.1 Ease of protecting investors*.....                        | 63.3        | 32           |
| 4.2.2 Market capitalization, % GDP.....                         | 90.4        | 17 ●         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 1.0         | 66           |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a          |
| 4.3 Trade & competition .....                                   | 67.2        | 121 ○        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 3.5         | 61           |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 1.4         | 84           |
| 4.3.3 Intensity of local competition†.....                      | 47.8        | 127 ○        |
| <b>5 Business sophistication .....</b>                          | <b>34.4</b> | <b>58</b>    |
| 5.1 Knowledge workers.....                                      | 38.5        | 70           |
| 5.1.1 Knowledge-intensive employment, %.....                    | 37.2        | 27 ●         |
| 5.1.2 Firms offering formal training, % firms.....              | 25.2        | 78 ○         |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.1         | 57           |
| 5.1.4 GERD performed by business, %.....                        | 22.3        | 63           |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 149.9       | 36 ●         |
| 5.2 Innovation linkages .....                                   | 31.2        | 71           |
| 5.2.1 University/industry research collaboration†.....          | 50.0        | 43           |
| 5.2.2 State of cluster development† .....                       | 36.2        | 113 ○        |
| 5.2.3 GERD financed by abroad, %.....                           | 15.3        | 29           |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a          |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.2         | 33           |
| 5.3 Knowledge absorption.....                                   | 33.6        | 33 ●         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 98 ○         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.5         | 108 ○        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.8         | 17 ●         |
| 5.3.4 FDI net inflows, % GDP.....                               | 12.4        | 10 ●         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>20.9</b> | <b>109</b> ○ |
| 6.1 Knowledge creation.....                                     | 18.3        | 58           |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 5.1         | 26 ●         |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.3         | 58           |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 23.2        | 41           |
| 6.1.5 Citable documents H index.....                            | 17.0        | 142 ○        |
| 6.2 Knowledge impact.....                                       | 16.4        | 121 ○        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a          |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.0         | 92 ○         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 14.1        | 33 ●         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a          |
| 6.3 Knowledge diffusion.....                                    | 28.1        | 88           |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 73           |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.4         | 82           |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.0         | 41           |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.6         | 58           |
| <b>7 Creative outputs .....</b>                                 | <b>35.9</b> | <b>57</b>    |
| 7.1 Intangible assets.....                                      | 45.0        | 68           |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | n/a         | n/a          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.4         | 42           |
| 7.1.3 ICTs & business model creation†.....                      | 56.0        | 68           |
| 7.1.4 ICTs & organizational model creation†.....                | 52.8        | 69           |
| 7.2 Creative goods & services.....                              | 12.0        | 86           |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.4         | 25 ●         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a          |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a          |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a          |
| 7.2.5 Creative goods exports, % total trade.....                | 0.1         | 85           |
| 7.3 Online creativity .....                                     | 41.5        | 34 ●         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 3.3         | 68           |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 100.0       | 1 ●          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 12,433.8    | 38           |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 32.5                             |
| GDP (US\$ billions) .....   | 105.1                            |
| GDP per capita, PPP\$ ..... | 5,455.8                          |
| Income group .....          | Lower-middle income              |
| Region .....                | Northern Africa and Western Asia |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>32.2</b>                           | <b>84</b>  |
| Innovation Output Sub-Index .....                             | 26.5                                  | 86         |
| Innovation Input Sub-Index .....                              | 38.0                                  | 89         |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 83         |
| Global Innovation Index 2013 (out of 142) .....               | 30.9                                  | 92         |
| <b>1 Institutions.....</b>                                    | <b>59.6</b>                           | <b>77</b>  |
| 1.1 Political environment.....                                | 51.7                                  | 82         |
| 1.1.1 Political stability*.....                               | 54.4                                  | 93         |
| 1.1.2 Government effectiveness*.....                          | 39.7                                  | 72         |
| 1.1.3 Press freedom*.....                                     | 61.0                                  | 111        |
| 1.2 Regulatory environment .....                              | 59.1                                  | 91         |
| 1.2.1 Regulatory quality* .....                               | 46.4                                  | 78         |
| 1.2.2 Rule of law*.....                                       | 41.0                                  | 71         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 20.7                                  | 96         |
| 1.3 Business environment.....                                 | 68.0                                  | 58         |
| 1.3.1 Ease of starting a business*.....                       | 89.4                                  | 41 ●       |
| 1.3.2 Ease of resolving insolvency*.....                      | 40.6                                  | 61         |
| 1.3.3 Ease of paying taxes*.....                              | 73.9                                  | 51         |
| <b>2 Human capital &amp; research.....</b>                    | <b>29.7</b>                           | <b>64</b>  |
| 2.1 Education .....   | 41.9                                  | 76         |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.4                                   | 48         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 30.7                                  | 22 ●       |
| 2.1.3 School life expectancy, years.....                      | 11.6                                  | 94         |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 18.7                                  | 78         |
| 2.2 Tertiary education.....                                   | 38.2                                  | 53         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 16.2                                  | 95         |
| 2.2.2 Graduates in science & engineering, % .....             | 34.9                                  | 7 ●        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.9                                   | 60         |
| 2.3 Research & development (R&D).....                         | 9.1                                   | 70         |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 1,145.7                               | 55         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.7                                   | 48         |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>39.6</b>                           | <b>58</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 40.8                                  | 62         |
| 3.1.1 ICT access*.....  | 46.7                                  | 72         |
| 3.1.2 ICT use*.....   | 22.8                                  | 73         |
| 3.1.3 Government's online service*.....                       | 54.3                                  | 53         |
| 3.1.4 E-participation*.....                                   | 39.5                                  | 38 ●       |
| 3.2 General infrastructure.....                               | 41.7                                  | 38 ●       |
| 3.2.1 Electricity output, kWh/cap.....                        | 770.7                                 | 96         |
| 3.2.2 Logistics performance*.....                             | 56.3                                  | 50         |
| 3.2.3 Gross capital formation, % GDP.....                     | 34.3                                  | 16 ●       |
| 3.3 Ecological sustainability.....                            | 36.3                                  | 67         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 8.3                                   | 35 ●       |
| 3.3.2 Environmental performance*.....                         | 51.9                                  | 73         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.3                                   | 103        |
| <b>4 Market sophistication .....</b>                          | <b>42.8</b>                           | <b>109</b> |
| 4.1 Credit.....   | 26.6                                  | 106        |
| 4.1.1 Ease of getting credit*.....                            | 50.0                                  | 96         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 73.3                                  | 43 ●       |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.5                                   | 48         |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment .....  | 25.8        | 118 ○        |
| 4.2.1 Ease of protecting investors*.....                        | 46.7        | 97           |
| 4.2.2 Market capitalization, % GDP.....                         | 54.4        | 37           |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 3.6         | 53           |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 63 ○         |
| 4.3 Trade & competition .....                                   | 76.0        | 61           |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 7.1         | 106          |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.8         | 66           |
| 4.3.3 Intensity of local competition†.....                      | 68.7        | 56           |
| <b>5 Business sophistication .....</b>                          | <b>18.2</b> | <b>134</b> ○ |
| 5.1 Knowledge workers.....                                      | 20.9        | 121 ○        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 6.8         | 104 ○        |
| 5.1.2 Firms offering formal training, % firms.....              | 24.7        | 80           |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.2         | 47           |
| 5.1.4 GERD performed by business, %.....                        | 29.9        | 54           |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 33.0        | 92           |
| 5.2 Innovation linkages .....                                   | 20.4        | 124 ○        |
| 5.2.1 University/industry research collaboration†.....          | 34.0        | 111 ○        |
| 5.2.2 State of cluster development† .....                       | 49.5        | 57           |
| 5.2.3 GERD financed by abroad, %.....                           | 1.7         | 74           |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 87 ○         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 96 ○         |
| 5.3 Knowledge absorption.....                                   | 13.3        | 130 ○        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 92           |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a         | n/a          |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.4         | 107          |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.5         | 72           |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>25.5</b> | <b>78</b>    |
| 6.1 Knowledge creation.....                                     | 9.3         | 86           |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 1.2         | 63           |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.2         | 63           |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 8.4         | 84           |
| 6.1.5 Citable documents H index.....                            | 99.0        | 65           |
| 6.2 Knowledge impact.....                                       | 31.0        | 101          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 1.3         | 61           |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.0         | 92 ○         |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 57           |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 3.6         | 80           |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 27.4        | 39           |
| 6.3 Knowledge diffusion.....                                    | 36.3        | 43 ●         |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 99 ○         |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a         | n/a          |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.8         | 21 ●         |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.4         | 71           |
| <b>7 Creative outputs .....</b>                                 | <b>27.4</b> | <b>92</b>    |
| 7.1 Intangible assets.....                                      | 38.8        | 97           |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 88.8        | 22 ●         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.4         | 44           |
| 7.1.3 ICTs & business model creation†.....                      | 52.8        | 83           |
| 7.1.4 ICTs & organizational model creation†.....                | 45.5        | 95           |
| 7.2 Creative goods & services.....                              | 12.8        | 85           |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.4         | 23 ●         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.1         | 68           |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.1         | 54 ○         |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 70           |
| 7.2.5 Creative goods exports, % total trade.....                | n/a         | n/a          |
| 7.3 Online creativity.....                                      | 19.2        | 68           |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.1         | 90           |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 14.4        | 89           |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 967.8       | 98           |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 58.9        | 52 ○         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 25.2               |
| GDP (US\$ billions) .....   | 15.3               |
| GDP per capita, PPP\$ ..... | 1,089.8            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>28.5</b>                           | <b>107</b> |
| Innovation Output Sub-Index .....                | 20.6                                  | 115        |
| Innovation Input Sub-Index .....                 | 36.4                                  | 96         |
| Innovation Efficiency Ratio .....                | 0.6                                   | 124        |
| Global Innovation Index 2013 (out of 142) .....  | 26.5                                  | 121        |

**1 Institutions.....49.2 110**

|   |      |       |
|---|------|-------|
| 1.1 Political environment.....                        | 56.6 | 73    |
| 1.1.1 Political stability*.....                       | 74.1 | 52 ●  |
| 1.1.2 Government effectiveness*.....                  | 23.8 | 112   |
| 1.1.3 Press freedom*.....                             | 72.0 | 60 ●  |
| 1.2 Regulatory environment.....                       | 37.0 | 134 ○ |
| 1.2.1 Regulatory quality*.....                        | 36.8 | 106   |
| 1.2.2 Rule of law*.....                               | 29.9 | 99    |
| 1.2.3 Cost of redundancy dismissal, salary weeks..... | 37.5 | 136 ○ |
| 1.3 Business environment.....                         | 54.1 | 104   |
| 1.3.1 Ease of starting a business*.....               | 80.7 | 87    |
| 1.3.2 Ease of resolving insolvency*.....              | 17.5 | 126   |
| 1.3.3 Ease of paying taxes*.....                      | 63.9 | 93    |

**2 Human capital & research.....20.5 101**

|  |      |       |
|--|------|-------|
| 2.1 Education.....                                       | 50.2 | 44 ●  |
| 2.1.1 Expenditure on education, % GDP.....               | 5.0  | 62    |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap..... | 86.0 | 1 ●   |
| 2.1.3 School life expectancy, years.....                 | 9.5  | 116   |
| 2.1.4 PISA scales in reading, maths, & science.....      | n/a  | n/a   |
| 2.1.5 Pupil-teacher ratio, secondary.....                | 33.1 | 107 ○ |
| 2.2 Tertiary education.....                              | 7.6  | 128 ○ |
| 2.2.1 Tertiary enrolment, % gross.....                   | 4.9  | 124   |
| 2.2.2 Graduates in science & engineering, %.....         | 8.9  | 101 ○ |
| 2.2.3 Tertiary inbound mobility, %.....                  | 0.3  | 98    |
| 2.3 Research & development (R&D).....                    | 3.6  | 91    |
| 2.3.1 Researchers, headcounts/mn pop.....                | 66.3 | 109   |
| 2.3.2 Gross expenditure on R&D, % GDP.....               | 0.5  | 63    |
| 2.3.3 QS university ranking, average score top 3*.....   | 0.0  | 70 ○  |

**3 Infrastructure.....27.5 105**

|  |       |       |
|--|-------|-------|
| 3.1 Information & communication technologies (ICTs).....     | 17.2  | 120   |
| 3.1.1 ICT access*.....                                       | 16.9  | 131 ○ |
| 3.1.2 ICT use*.....  | 2.3   | 125   |
| 3.1.3 Government's online service*.....                      | 36.6  | 101   |
| 3.1.4 E-participation*.....                                  | 13.2  | 84    |
| 3.2 General infrastructure.....                              | 49.5  | 19 ●  |
| 3.2.1 Electricity output, kWh/cap.....                       | 703.3 | 100   |
| 3.2.2 Logistics performance*.....                            | 27.0  | 126   |
| 3.2.3 Gross capital formation, % GDP.....                    | 48.7  | 3 ●   |
| 3.3 Ecological sustainability.....                           | 15.9  | 140 ○ |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 2.0   | 120 ○ |
| 3.3.2 Environmental performance*.....                        | 30.0  | 130   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.6   | 80    |

**4 Market sophistication.....49.9 58 ●**

|   |      |     |
|---|------|-----|
| 4.1 Credit.....                                     | 17.3 | 130 |
| 4.1.1 Ease of getting credit*.....                  | 43.8 | 112 |
| 4.1.2 Domestic credit to private sector, % GDP..... | 25.3 | 107 |
| 4.1.3 Microfinance gross loans, % GDP.....          | 0.1  | 71  |

|   |      |      |
|---|------|------|
| 4.2 Investment.....                                       | 60.0 | 17 ● |
| 4.2.1 Ease of protecting investors*.....                  | 60.0 | 42 ● |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a  |
| 4.2.3 Total value of stocks traded, % GDP.....            | n/a  | n/a  |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a  |
| 4.3 Trade & competition.....                              | 72.3 | 94   |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 4.8  | 80   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.0  | 21 ● |
| 4.3.3 Intensity of local competition†.....                | 53.3 | 120  |

**5 Business sophistication.....35.0 54 ●**

|   |      |       |
|---|------|-------|
| 5.1 Knowledge workers.....                                      | 15.6 | 133 ○ |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a  | n/a   |
| 5.1.2 Firms offering formal training, % firms.....              | 22.0 | 87    |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a  | n/a   |
| 5.1.4 GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 1.2  | 142 ○ |
| 5.2 Innovation linkages.....                                    | 57.5 | 5 ●   |
| 5.2.1 University/industry research collaboration†.....          | 37.8 | 92    |
| 5.2.2 State of cluster development†.....                        | 40.5 | 97    |
| 5.2.3 GERD financed by abroad, %.....                           | 78.1 | 1 ●   |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP.....             | 0.1  | 33 ●  |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a  | n/a   |
| 5.3 Knowledge absorption.....                                   | 31.8 | 37 ●  |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1  | 95    |
| 5.3.2 High-tech imports less re-imports, %.....                 | 3.0  | 121 ○ |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.0  | 62    |
| 5.3.4 FDI net inflows, % GDP.....                               | 16.5 | 7 ●   |

**6 Knowledge & technology outputs.....26.9 69**

|   |      |      |
|---|------|------|
| 6.1 Knowledge creation.....                                     | 4.2  | 122  |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 1.0  | 67   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a  | n/a  |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.1  | 55   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 5.0  | 109  |
| 6.1.5 Citable documents H index.....                            | 53.0 | 106  |
| 6.2 Knowledge impact.....                                       | 51.9 | 22 ● |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 4.5  | 13 ● |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a  | n/a  |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a  |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.7  | 108  |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | n/a  | n/a  |
| 6.3 Knowledge diffusion.....                                    | 24.6 | 114  |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.1  | 67   |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.6  | 57   |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.6  | 99   |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.1  | 93   |

**7 Creative outputs.....14.3 136 ○**

|  |      |       |
|--|------|-------|
| 7.1 Intangible assets.....                                     | 27.4 | 131 ○ |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 30.2 | 72    |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | 0.1  | 60    |
| 7.1.3 ICTs & business model creation†.....                     | 43.8 | 118   |
| 7.1.4 ICTs & organizational model creation†.....               | 39.7 | 120   |
| 7.2 Creative goods & services.....                             | 1.3  | 131   |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.0  | 70    |
| 7.2.2 National feature films/mn pop. 15–69.....                | 0.1  | 100 ○ |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a  | n/a   |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a  | n/a   |
| 7.2.5 Creative goods exports, % total trade.....               | 0.0  | 115   |
| 7.3 Online creativity.....                                     | 1.2  | 124   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.1  | 140 ○ |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 3.5  | 115   |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 79.2 | 124   |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | n/a  | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Myanmar

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 52.8                        |
| GDP (US\$ billions) .....   | 56.4                        |
| GDP per capita, PPP\$ ..... | 1,739.8                     |
| Income group .....          | Low income                  |
| Region .....                | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>19.6</b>                           | <b>140</b> |
| Innovation Output Sub-Index .....                 | 16.3                                  | 133        |
| Innovation Input Sub-Index .....                  | 23.0                                  | 143 ○      |
| Innovation Efficiency Ratio .....                 | 0.7                                   | 80 ●       |
| Global Innovation Index 2013 (out of 142) .....   | 30.5                                  | n/a        |

|   |             |            |
|---|-------------|------------|
| <b>1 Institutions</b> .....                                   | <b>35.3</b> | <b>140</b> |
| 1.1 Political environment .....                               | 32.5        | 137        |
| 1.1.1 Political stability* .....                              | 42.1        | 117        |
| 1.1.2 Government effectiveness* .....                         | 0.0         | 143 ○      |
| 1.1.3 Press freedom* .....                                    | 55.3        | 123        |
| 1.2 Regulatory environment .....                              | 40.0        | 130        |
| 1.2.1 Regulatory quality* .....                               | 0.0         | 143 ○      |
| 1.2.2 Rule of law* .....                                      | 9.1         | 140        |
| 1.2.3 Cost of redundancy dismissal, salary weeks .....        | 20.2        | 93 ●       |
| 1.3 Business environment .....                                | 33.4        | 141        |
| 1.3.1 Ease of starting a business* .....                      | 20.3        | 143 ○      |
| 1.3.2 Ease of resolving insolvency* .....                     | 15.5        | 132        |
| 1.3.3 Ease of paying taxes* .....                             | 64.3        | 91 ●       |
| <b>2 Human capital &amp; research</b> .....                   | <b>17.4</b> | <b>112</b> |
| 2.1 Education .....   | 13.4        | 139        |
| 2.1.1 Expenditure on education, % GDP .....                   | 0.8         | 132 ○      |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap .....     | n/a         | n/a        |
| 2.1.3 School life expectancy, years .....                     | 8.6         | 122        |
| 2.1.4 PISA scales in reading, maths, & science .....          | n/a         | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 34.1        | 110        |
| 2.2 Tertiary education .....                                  | 38.9        | 51 ●       |
| 2.2.1 Tertiary enrolment, % gross .....                       | 13.8        | 98         |
| 2.2.2 Graduates in science & engineering, % .....             | 38.7        | 5 ●        |
| 2.2.3 Tertiary inbound mobility, % .....                      | 0.0         | 113 ○      |
| 2.3 Research & development (R&D) .....                        | 0.0         | 131 ○      |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | n/a         | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP .....                   | n/a         | n/a        |
| 2.3.3 QS university ranking, average score top 3* .....       | 0.0         | 70 ○       |
| <b>3 Infrastructure</b> .....                                 | <b>16.7</b> | <b>138</b> |
| 3.1 Information & communication technologies (ICTs) .....     | 6.8         | 142        |
| 3.1.1 ICT access* .....                                       | 16.2        | 134        |
| 3.1.2 ICT use* .....  | 0.4         | 135 ○      |
| 3.1.3 Government's online service* .....                      | 10.5        | 141        |
| 3.1.4 E-participation* .....                                  | 0.0         | 129 ○      |
| 3.2 General infrastructure .....                              | 22.9        | 123        |
| 3.2.1 Electricity output, kWh/cap .....                       | 151.6       | 118        |
| 3.2.2 Logistics performance* .....                            | 30.2        | 121        |
| 3.2.3 Gross capital formation, % GDP .....                    | 23.3        | 69 ●       |
| 3.3 Ecological sustainability .....                           | 20.5        | 132        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 5.3         | 78 ●       |
| 3.3.2 Environmental performance* .....                        | 27.4        | 135        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.0         | 125        |
| <b>4 Market sophistication</b> .....                          | <b>36.9</b> | <b>135</b> |
| 4.1 Credit .....  | 12.5        | 140        |
| 4.1.1 Ease of getting credit* .....                           | 25.0        | 134        |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 4.7         | 141        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a         | n/a        |

|  |      |       |
|--|------|-------|
| 4.2 Investment .....                                       | 23.3 | 128   |
| 4.2.1 Ease of protecting investors* .....                  | 23.3 | 142 ○ |
| 4.2.2 Market capitalization, % GDP .....                   | n/a  | n/a   |
| 4.2.3 Total value of stocks traded, % GDP .....            | n/a  | n/a   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP .....             | n/a  | n/a   |
| 4.3 Trade & competition .....                              | 74.9 | 76 ●  |
| 4.3.1 Applied tariff rate, weighted mean, % .....          | 3.2  | 59 ●  |
| 4.3.2 Non-agricultural mkt access weighted tariff, % ..... | 0.9  | 70 ●  |
| 4.3.3 Intensity of local competition† .....                | 60.2 | 93    |

|  |            |            |
|--|------------|------------|
| <b>5 Business sophistication</b> .....                           | <b>8.8</b> | <b>143</b> |
| 5.1 Knowledge workers .....                                      | 3.3        | 143 ○      |
| 5.1.1 Knowledge-intensive employment, % .....                    | n/a        | n/a        |
| 5.1.2 Firms offering formal training, % firms .....              | n/a        | n/a        |
| 5.1.3 GERD performed by business, % GDP .....                    | n/a        | n/a        |
| 5.1.4 GERD performed by business, % .....                        | n/a        | n/a        |
| 5.1.5 GMAT test takers/mn pop. 20–34 .....                       | 3.0        | 135        |
| 5.2 Innovation linkages .....                                    | 23.0       | 116        |
| 5.2.1 University/industry research collaboration† .....          | 17.7       | 136 ○      |
| 5.2.2 State of cluster development† .....                        | 24.2       | 134        |
| 5.2.3 GERD financed by abroad, % .....                           | n/a        | n/a        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....             | 0.1        | 15 ●       |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....     | 0.0        | 88         |
| 5.3 Knowledge absorption .....                                   | 0.0        | 143 ○      |
| 5.3.1 Royalty & license fees payments, % total trade .....       | n/a        | n/a        |
| 5.3.2 High-tech imports less re-imports, % .....                 | 2.0        | 126 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade ..... | n/a        | n/a        |
| 5.3.4 FDI net inflows, % GDP .....                               | n/a        | n/a        |

|  |             |            |
|--|-------------|------------|
| <b>6 Knowledge &amp; technology outputs</b> .....                | <b>17.7</b> | <b>118</b> |
| 6.1 Knowledge creation .....                                     | 1.9         | 140        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....            | n/a         | n/a        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP .....                 | n/a         | n/a        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP .....         | 0.5         | 141        |
| 6.1.5 Citable documents H index .....                            | 38.0        | 126        |
| 6.2 Knowledge impact .....                                       | 51.2        | 24 ●       |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                   | 4.6         | 10 ●       |
| 6.2.2 New businesses/th pop. 15–64 .....                         | n/a         | n/a        |
| 6.2.3 Computer software spending, % GDP .....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....           | 0.4         | 134        |
| 6.2.5 High- & medium-high-tech manufactures, % .....             | n/a         | n/a        |
| 6.3 Knowledge diffusion .....                                    | 0.0         | 142 ○      |
| 6.3.1 Royalty & license fees receipts, % total trade .....       | n/a         | n/a        |
| 6.3.2 High-tech exports less re-exports, % .....                 | 0.0         | 126        |
| 6.3.3 Comm., computer & info. services exp., % total trade ..... | n/a         | n/a        |
| 6.3.4 FDI net outflows, % GDP .....                              | n/a         | n/a        |

|   |             |            |
|---|-------------|------------|
| <b>7 Creative outputs</b> .....                                 | <b>14.8</b> | <b>134</b> |
| 7.1 Intangible assets .....                                     | 28.3        | 130        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....             | 43.1        | 60 ●       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....          | n/a         | n/a        |
| 7.1.3 ICTs & business model creation† .....                     | 35.7        | 132        |
| 7.1.4 ICTs & organizational model creation† .....               | 32.7        | 128        |
| 7.2 Creative goods & services .....                             | 2.4         | 121        |
| 7.2.1 Cultural & creative services exports, % total trade ..... | n/a         | n/a        |
| 7.2.2 National feature films/mn pop. 15–69 .....                | 0.7         | 80         |
| 7.2.3 Global ent. & media output/th pop. 15–69 .....            | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, % .....               | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade .....               | 0.0         | 109        |
| 7.3 Online creativity .....                                     | 0.1         | 138        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69 .....      | 0.1         | 139        |
| 7.3.2 Country-code TLDs/th pop. 15–69 .....                     | 0.3         | 136        |
| 7.3.3 Wikipedia edits/pop. 15–69 .....                          | 35.2        | 134        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 2.3                 |
| GDP (US\$ billions) .....   | 12.3                |
| GDP per capita, PPP\$ ..... | 8,191.1             |
| Income group .....          | Upper-middle income |
| Region .....                | Sub-Saharan Africa  |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>28.5</b>                           | <b>108</b> |
| Innovation Output Sub-Index .....                             | 20.3                                  | 119        |
| Innovation Input Sub-Index.....                               | 36.7                                  | 95         |
| Innovation Efficiency Ratio.....                              | 0.6                                   | 125 ○      |
| Global Innovation Index 2013 (out of 142) .....               | 28.4                                  | 109        |
| <b>1 Institutions.....</b>                                    | <b>68.2</b>                           | <b>49</b>  |
| 1.1 Political environment.....                                | 73.5                                  | 38 ●       |
| 1.1.1 Political stability*.....                               | 88.8                                  | 22 ●       |
| 1.1.2 Government effectiveness*.....                          | 44.2                                  | 62         |
| 1.1.3 Press freedom*.....                                     | 87.5                                  | 17 ●       |
| 1.2 Regulatory environment .....                              | 74.2                                  | 43 ●       |
| 1.2.1 Regulatory quality* .....                               | 50.5                                  | 71         |
| 1.2.2 Rule of law*.....                                       | 52.9                                  | 54         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 9.7                                   | 34 ●       |
| 1.3 Business environment.....                                 | 57.1                                  | 92         |
| 1.3.1 Ease of starting a business*.....                       | 67.9                                  | 121        |
| 1.3.2 Ease of resolving insolvency*.....                      | 37.0                                  | 74         |
| 1.3.3 Ease of paying taxes*.....                              | 66.4                                  | 85         |
| <b>2 Human capital &amp; research.....</b>                    | <b>19.3</b>                           | <b>104</b> |
| 2.1 Education .....   | 40.8                                  | 81         |
| 2.1.1 Expenditure on education, % GDP .....                   | 8.4                                   | 5 ●        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 15.8                                  | 80         |
| 2.1.3 School life expectancy, years.....                      | 11.3                                  | 98         |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 24.6                                  | 87         |
| 2.2 Tertiary education.....                                   | 15.0                                  | 112        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 9.3                                   | 113        |
| 2.2.2 Graduates in science & engineering, % .....             | 2.6                                   | 104 ○      |
| 2.2.3 Tertiary inbound mobility, %.....                       | 10.2                                  | 16 ●       |
| 2.3 Research & development (R&D).....                         | 2.1                                   | 106        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 343.3                                 | 77         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.1                                   | 97         |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>25.8</b>                           | <b>113</b> |
| 3.1 Information & communication technologies (ICTs).....      | 19.8                                  | 111        |
| 3.1.1 ICT access*.....  | 30.9                                  | 101        |
| 3.1.2 ICT use* .....  | 15.5                                  | 94         |
| 3.1.3 Government's online service*.....                       | 30.1                                  | 120 ○      |
| 3.1.4 E-participation*.....                                   | 2.6                                   | 116 ○      |
| 3.2 General infrastructure.....                               | 23.6                                  | 118        |
| 3.2.1 Electricity output, kWh/cap.....                        | 616.4                                 | 103        |
| 3.2.2 Logistics performance*.....                             | 41.3                                  | 89         |
| 3.2.3 Gross capital formation, % GDP.....                     | 20.8                                  | 83         |
| 3.3 Ecological sustainability.....                            | 34.0                                  | 76         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 8.8                                   | 27 ●       |
| 3.3.2 Environmental performance*.....                         | 43.7                                  | 101        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.4                                   | 93         |
| <b>4 Market sophistication .....</b>                          | <b>44.4</b>                           | <b>96</b>  |
| 4.1 Credit.....   | 27.9                                  | 101        |
| 4.1.1 Ease of getting credit*.....                            | 68.8                                  | 53         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 48.4                                  | 71         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.0                                   | 81 ○       |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 28.1        | 108        |
| 4.2.1 Ease of protecting investors*.....                        | 53.3        | 66         |
| 4.2.2 Market capitalization, % GDP.....                         | 10.2        | 89         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.2         | 95 ○       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 77.1        | 52         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 9 ●        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.7         | 63         |
| 4.3.3 Intensity of local competition†.....                      | 59.8        | 95         |
| <b>5 Business sophistication .....</b>                          | <b>25.7</b> | <b>108</b> |
| 5.1 Knowledge workers.....                                      | 29.4        | 98         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 16.9        | 83         |
| 5.1.2 Firms offering formal training, % firms.....              | 44.5        | 36         |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.0         | 78 ○       |
| 5.1.4 GERD performed by business, %.....                        | 12.8        | 72         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 26.7        | 99         |
| 5.2 Innovation linkages .....                                   | 24.5        | 106        |
| 5.2.1 University/industry research collaboration†.....          | 42.0        | 71         |
| 5.2.2 State of cluster development† .....                       | 44.2        | 78         |
| 5.2.3 GERD financed by abroad, %.....                           | 1.5         | 77         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.1         | 50         |
| 5.3 Knowledge absorption.....                                   | 23.0        | 83         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 108        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.7         | 74         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.5         | 90         |
| 5.3.4 FDI net inflows, % GDP.....                               | 7.7         | 22 ●       |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>12.7</b> | <b>137</b> |
| 6.1 Knowledge creation.....                                     | 11.6        | 70         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.8         | 33 ●       |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 7.3         | 86         |
| 6.1.5 Citable documents H index.....                            | 55.0        | 103        |
| 6.2 Knowledge impact.....                                       | 4.7         | 132 ○      |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.9         | 67         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.7         | 107        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a        |
| 6.3 Knowledge diffusion.....                                    | 21.7        | 125 ○      |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 110 ○      |
| 6.3.2 High-tech exports less re-exports, %.....                 | 2.0         | 52         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.2         | 120 ○      |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.2         | 84         |
| <b>7 Creative outputs .....</b>                                 | <b>27.9</b> | <b>89</b>  |
| 7.1 Intangible assets.....                                      | 48.3        | 49         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                      | 51.0        | 91         |
| 7.1.4 ICTs & organizational model creation†.....                | 45.5        | 95         |
| 7.2 Creative goods & services.....                              | 10.3        | 93         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.8         | 76         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.4         | 63         |
| 7.3 Online creativity .....                                     | 4.8         | 112        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 11.0        | 47 ●       |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 1.9         | 125 ○      |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 853.6       | 100        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 27.5                      |
| GDP (US\$ billions) .....   | 19.3                      |
| GDP per capita, PPP\$ ..... | 1,508.2                   |
| Income group .....          | Low income                |
| Region .....                | Central and Southern Asia |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>23.8</b>                           | <b>136</b> ○ |
| Innovation Output Sub-Index .....                | 15.7                                  | 135 ○        |
| Innovation Input Sub-Index .....                 | 31.8                                  | 121          |
| Innovation Efficiency Ratio .....                | 0.5                                   | 134 ○        |
| Global Innovation Index 2013 (out of 142) .....  | 25.0                                  | 128          |

|          |   |             |            |
|----------|---|-------------|------------|
| <b>1</b> | <b>Institutions.....</b>                        | <b>46.1</b> | <b>123</b> |
| 1.1      | Political environment.....                      | 37.2        | 132 ○      |
| 1.1.1    | Political stability*.....                       | 31.8        | 133 ○      |
| 1.1.2    | Government effectiveness*.....                  | 14.5        | 130 ○      |
| 1.1.3    | Press freedom*.....                             | 65.4        | 97         |
| 1.2      | Regulatory environment .....                    | 43.8        | 124        |
| 1.2.1    | Regulatory quality* .....                       | 27.6        | 123        |
| 1.2.2    | Rule of law*.....                               | 24.7        | 111        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks..... | 27.2        | 118        |
| 1.3      | Business environment.....                       | 57.3        | 90         |
| 1.3.1    | Ease of starting a business*.....               | 81.5        | 82         |
| 1.3.2    | Ease of resolving insolvency*.....              | 26.0        | 109        |
| 1.3.3    | Ease of paying taxes*.....                      | 64.4        | 90         |

|          |  |             |            |
|----------|--|-------------|------------|
| <b>2</b> | <b>Human capital &amp; research.....</b>           | <b>15.5</b> | <b>119</b> |
| 2.1      | Education .....                                    | 31.1        | 112        |
| 2.1.1    | Expenditure on education, % GDP .....              | 4.7         | 69         |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap..... | 12.2        | 91         |
| 2.1.3    | School life expectancy, years.....                 | 12.4        | 83         |
| 2.1.4    | PISA scales in reading, maths, & science.....      | n/a         | n/a        |
| 2.1.5    | Pupil-teacher ratio, secondary .....               | 29.2        | 102        |
| 2.2      | Tertiary education.....                            | 12.6        | 121        |
| 2.2.1    | Tertiary enrolment, % gross.....                   | 14.5        | 97         |
| 2.2.2    | Graduates in science & engineering, % .....        | 11.8        | 98 ○       |
| 2.2.3    | Tertiary inbound mobility, %.....                  | 0.0         | 112 ○      |
| 2.3      | Research & development (R&D).....                  | 2.8         | 95         |
| 2.3.1    | Researchers, headcounts/mn pop.....                | 190.8       | 88         |
| 2.3.2    | Gross expenditure on R&D, % GDP.....               | 0.3         | 75         |
| 2.3.3    | QS university ranking, average score top 3*.....   | 0.0         | 70 ○       |

|          |   |             |            |
|----------|---|-------------|------------|
| <b>3</b> | <b>Infrastructure.....</b>                              | <b>23.2</b> | <b>119</b> |
| 3.1      | Information & communication technologies (ICTs).....    | 15.7        | 124        |
| 3.1.1    | ICT access*.....  | n/a         | n/a        |
| 3.1.2    | ICT use*.....   | n/a         | n/a        |
| 3.1.3    | Government's online service*.....                       | 28.8        | 127        |
| 3.1.4    | E-participation*.....                                   | 2.6         | 116        |
| 3.2      | General infrastructure.....                             | 28.4        | 94         |
| 3.2.1    | Electricity output, kWh/cap.....                        | 108.6       | 120 ○      |
| 3.2.2    | Logistics performance*.....                             | 17.1        | 136 ○      |
| 3.2.3    | Gross capital formation, % GDP.....                     | 31.8        | 19 ●       |
| 3.3      | Ecological sustainability.....                          | 25.3        | 115        |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 3.2         | 105        |
| 3.3.2    | Environmental performance*.....                         | 37.0        | 117        |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a         | n/a        |

|          |   |             |            |
|----------|---|-------------|------------|
| <b>4</b> | <b>Market sophistication .....</b>            | <b>43.1</b> | <b>105</b> |
| 4.1      | Credit.....                                   | 31.9        | 86         |
| 4.1.1    | Ease of getting credit*.....                  | 68.8        | 53 ●       |
| 4.1.2    | Domestic credit to private sector, % GDP..... | 55.1        | 58 ●       |
| 4.1.3    | Microfinance gross loans, % GDP .....         | 0.8         | 42 ●       |

|       |   |      |       |
|-------|---|------|-------|
| 4.2   | Investment .....                                    | 29.8 | 98    |
| 4.2.1 | Ease of protecting investors*.....                  | 53.3 | 66    |
| 4.2.2 | Market capitalization, % GDP.....                   | 21.4 | 68    |
| 4.2.3 | Total value of stocks traded, % GDP.....            | 0.3  | 87    |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3   | Trade & competition .....                           | 67.6 | 118   |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 12.0 | 133 ○ |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 0.4  | 46 ●  |
| 4.3.3 | Intensity of local competition†.....                | 58.5 | 103   |

|          |   |             |           |
|----------|---|-------------|-----------|
| <b>5</b> | <b>Business sophistication .....</b>                      | <b>31.3</b> | <b>74</b> |
| 5.1      | Knowledge workers.....                                    | 38.3        | 74        |
| 5.1.1    | Knowledge-intensive employment, %.....                    | n/a         | n/a       |
| 5.1.2    | Firms offering formal training, % firms.....              | 31.9        | 58        |
| 5.1.3    | GERD performed by business, % GDP .....                   | n/a         | n/a       |
| 5.1.4    | GERD performed by business, %.....                        | n/a         | n/a       |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 68.6        | 63 ●      |
| 5.2      | Innovation linkages .....                                 | 28.0        | 86        |
| 5.2.1    | University/industry research collaboration†.....          | 29.2        | 121       |
| 5.2.2    | State of cluster development† .....                       | 39.7        | 103       |
| 5.2.3    | GERD financed by abroad, %.....                           | n/a         | n/a       |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 91        |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a         | n/a       |
| 5.3      | Knowledge absorption.....                                 | 27.6        | 54 ●      |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | n/a         | n/a       |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 8.9         | 44 ●      |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 1.6         | 31 ●      |
| 5.3.4    | FDI net inflows, % GDP.....                               | 0.5         | 126       |

|          |   |             |              |
|----------|---|-------------|--------------|
| <b>6</b> | <b>Knowledge &amp; technology outputs .....</b>           | <b>11.2</b> | <b>141</b> ○ |
| 6.1      | Knowledge creation.....                                   | 11.4        | 73 ●         |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a          |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP.....                 | n/a         | n/a          |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a          |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 10.2        | 73 ●         |
| 6.1.5    | Citable documents H index.....                            | 71.0        | 89           |
| 6.2      | Knowledge impact.....                                     | 2.4         | 141 ○        |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a          |
| 6.2.2    | New businesses/th pop. 15–64.....                         | 0.7         | 71           |
| 6.2.3    | Computer software spending, % GDP.....                    | n/a         | n/a          |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.2         | 119          |
| 6.2.5    | High- & medium-high-tech manufactures, % .....            | 1.4         | 95 ○         |
| 6.3      | Knowledge diffusion.....                                  | 19.9        | 131 ○        |
| 6.3.1    | Royalty & license fees receipts, % total trade .....      | n/a         | n/a          |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.1         | 114          |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 2.4         | 28 ●         |
| 6.3.4    | FDI net outflows, % GDP .....                             | n/a         | n/a          |

|          |  |             |            |
|----------|--|-------------|------------|
| <b>7</b> | <b>Creative outputs .....</b>                            | <b>20.3</b> | <b>124</b> |
| 7.1      | Intangible assets.....                                   | 29.6        | 129 ○      |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP.....             | 20.8        | 83         |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a         | n/a        |
| 7.1.3    | ICTs & business model creation†.....                     | 41.0        | 125 ○      |
| 7.1.4    | ICTs & organizational model creation†.....               | 39.8        | 118        |
| 7.2      | Creative goods & services.....                           | 16.1        | 77         |
| 7.2.1    | Cultural & creative services exports, % total trade..... | n/a         | n/a        |
| 7.2.2    | National feature films/mn pop. 15–69.....                | n/a         | n/a        |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....            | n/a         | n/a        |
| 7.2.4    | Printing & publishing manufactures, %.....               | 0.0         | 48 ●       |
| 7.2.5    | Creative goods exports, % total trade.....               | 0.4         | 66         |
| 7.3      | Online creativity.....                                   | 5.6         | 107        |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.6         | 114        |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                     | 14.9        | 87         |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                          | 751.4       | 102        |
| 7.3.4    | Video uploads on YouTube/pop. 15–69 .....                | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 16.8        |
| GDP (US\$ billions) .....   | 800.0       |
| GDP per capita, PPP\$ ..... | 41,710.7    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |   |
|---|---------------------------------------|-----------|---|
| <b>Global Innovation Index (out of 143).....</b>                    | <b>60.6</b>                           | <b>5</b>  | ● |
| Innovation Output Sub-Index .....                                   | 57.7                                  | 2         | ● |
| Innovation Input Sub-Index.....                                     | 63.5                                  | 11        |   |
| Innovation Efficiency Ratio.....                                    | 0.9                                   | 12        |   |
| Global Innovation Index 2013 (out of 142) .....                     | 61.1                                  | 4         |   |
| <b>1 Institutions.....</b>  | <b>93.3</b>                           | <b>5</b>  | ● |
| 1.1 Political environment.....                                      | 92.3                                  | 7         |   |
| 1.1.1 Political stability*.....                                     | 94.3                                  | 11        |   |
| 1.1.2 Government effectiveness*.....                                | 88.9                                  | 8         |   |
| 1.1.3 Press freedom*.....   | 93.5                                  | 2         | ● |
| 1.2 Regulatory environment .....                                    | 97.2                                  | 4         | ● |
| 1.2.1 Regulatory quality* .....                                     | 94.6                                  | 9         |   |
| 1.2.2 Rule of law*.....   | 97.0                                  | 7         |   |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....               | 8.7                                   | 25        |   |
| 1.3 Business environment.....                                       | 90.4                                  | 9         |   |
| 1.3.1 Ease of starting a business*.....                             | 93.3                                  | 18        |   |
| 1.3.2 Ease of resolving insolvency*.....                            | 94.5                                  | 5         | ● |
| 1.3.3 Ease of paying taxes*.....                                    | 83.3                                  | 24        |   |
| <b>2 Human capital &amp; research.....</b>                          | <b>50.5</b>                           | <b>22</b> |   |
| 2.1 Education .....   | 58.2                                  | 11        |   |
| 2.1.1 Expenditure on education, % GDP .....                         | 5.9                                   | 30        |   |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....            | 25.9                                  | 33        |   |
| 2.1.3 School life expectancy, years.....                            | 17.9                                  | 5         |   |
| 2.1.4 PISA scales in reading, maths, & science.....                 | 518.8                                 | 10        |   |
| 2.1.5 Pupil-teacher ratio, secondary .....                          | 13.6                                  | 45        |   |
| 2.2 Tertiary education.....   | 36.5                                  | 59        | ○ |
| 2.2.1 Tertiary enrolment, % gross.....                              | 76.4                                  | 14        |   |
| 2.2.2 Graduates in science & engineering, % .....                   | 13.7                                  | 89        | ○ |
| 2.2.3 Tertiary inbound mobility, %.....                             | 4.9                                   | 35        |   |
| 2.3 Research & development (R&D).....                               | 56.6                                  | 18        |   |
| 2.3.1 Researchers, headcounts/mn pop. ....                          | 4,979.6                               | 21        |   |
| 2.3.2 Gross expenditure on R&D, % GDP.....                          | 2.2                                   | 18        |   |
| 2.3.3 QS university ranking, average score top 3*.....              | 74.0                                  | 12        |   |
| <b>3 Infrastructure.....</b>  | <b>58.7</b>                           | <b>12</b> |   |
| 3.1 Information & communication technologies (ICTs).....            | 88.0                                  | 2         | ● |
| 3.1.1 ICT access*.....  | 82.8                                  | 9         |   |
| 3.1.2 ICT use* .....  | 73.2                                  | 9         |   |
| 3.1.3 Government's online service*.....                             | 96.1                                  | 5         | ● |
| 3.1.4 E-participation*.....   | 100.0                                 | 1         | ● |
| 3.2 General infrastructure.....                                     | 38.5                                  | 48        |   |
| 3.2.1 Electricity output, kWh/cap.....                              | 6,098.6                               | 34        |   |
| 3.2.2 Logistics performance*.....                                   | 95.6                                  | 5         |   |
| 3.2.3 Gross capital formation, % GDP.....                           | 15.7                                  | 124       | ○ |
| 3.3 Ecological sustainability.....                                  | 49.4                                  | 29        |   |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....             | 7.8                                   | 40        |   |
| 3.3.2 Environmental performance*.....                               | 77.8                                  | 11        |   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP .....       | 3.0                                   | 34        |   |
| <b>4 Market sophistication .....</b>                                | <b>63.6</b>                           | <b>19</b> |   |
| 4.1 Credit.....   | 64.1                                  | 14        |   |
| 4.1.1 Ease of getting credit*.....                                  | 62.5                                  | 69        | ○ |
| 4.1.2 Domestic credit to private sector, % GDP.....                 | 200.2                                 | 3         | ● |
| 4.1.3 Microfinance gross loans, % GDP .....                         | n/a                                   | n/a       |   |
| 4.2 Investment .....  | 44.7                                  | 39        |   |
| 4.2.1 Ease of protecting investors*.....                            | 46.7                                  | 97        | ○ |
| 4.2.2 Market capitalization, % GDP.....                             | 84.3                                  | 21        |   |
| 4.2.3 Total value of stocks traded, % GDP.....                      | 57.1                                  | 14        |   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                       | 0.1                                   | 20        |   |
| 4.3 Trade & competition .....                                       | 81.9                                  | 20        |   |
| 4.3.1 Applied tariff rate, weighted mean, %.....                    | 1.1                                   | 10        |   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....           | 3.3                                   | 97        | ○ |
| 4.3.3 Intensity of local competition <sup>†</sup> .....             | 83.3                                  | 4         | ● |
| <b>5 Business sophistication .....</b>                              | <b>51.3</b>                           | <b>11</b> |   |
| 5.1 Knowledge workers.....  | 66.9                                  | 15        |   |
| 5.1.1 Knowledge-intensive employment, %.....                        | 45.9                                  | 8         |   |
| 5.1.2 Firms offering formal training, % firms.....                  | n/a                                   | n/a       |   |
| 5.1.3 GERD performed by business, % GDP .....                       | 1.2                                   | 19        |   |
| 5.1.4 GERD performed by business, %.....                            | 56.6                                  | 28        |   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                           | 319.1                                 | 14        |   |
| 5.2 Innovation linkages .....                                       | 46.6                                  | 23        |   |
| 5.2.1 University/industry research collaboration <sup>†</sup> ..... | 70.8                                  | 11        |   |
| 5.2.2 State of cluster development <sup>†</sup> .....               | 69.5                                  | 8         |   |
| 5.2.3 GERD financed by abroad, %.....                               | 10.9                                  | 40        | ○ |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....                | 0.0                                   | 42        | ○ |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....        | 1.5                                   | 12        |   |
| 5.3 Knowledge absorption.....                                       | 40.4                                  | 16        |   |
| 5.3.1 Royalty & license fees payments, % total trade.....           | 3.1                                   | 4         | ● |
| 5.3.2 High-tech imports less re-imports, %.....                     | 12.2                                  | 21        |   |
| 5.3.3 Comm., computer & info. services imp., % total trade.....     | 1.5                                   | 33        |   |
| 5.3.4 FDI net inflows, % GDP.....                                   | -1.1                                  | 140       | ○ |
| <b>6 Knowledge &amp; technology outputs .....</b>                   | <b>53.8</b>                           | <b>9</b>  |   |
| 6.1 Knowledge creation.....   | 57.4                                  | 8         |   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....                | 3.4                                   | 34        |   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                     | 5.9                                   | 10        |   |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....              | n/a                                   | n/a       |   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....             | 48.6                                  | 11        |   |
| 6.1.5 Citable documents H index.....                                | 576.0                                 | 8         |   |
| 6.2 Knowledge impact.....   | 50.1                                  | 27        |   |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                       | -0.2                                  | 91        | ○ |
| 6.2.2 New businesses/th pop. 15–64.....                             | 4.4                                   | 24        |   |
| 6.2.3 Computer software spending, % GDP.....                        | 0.7                                   | 5         |   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....               | 16.4                                  | 28        |   |
| 6.2.5 High- & medium-high-tech manufactures, % .....                | 36.7                                  | 24        |   |
| 6.3 Knowledge diffusion.....  | 53.9                                  | 7         |   |
| 6.3.1 Royalty & license fees receipts, % total trade .....          | 4.7                                   | 3         | ● |
| 6.3.2 High-tech exports less re-exports, %.....                     | 12.6                                  | 17        |   |
| 6.3.3 Comm., computer & info. services exp., % total trade.....     | 1.8                                   | 49        |   |
| 6.3.4 FDI net outflows, % GDP .....                                 | -0.9                                  | 117       | ○ |
| <b>7 Creative outputs .....</b>                                     | <b>61.7</b>                           | <b>4</b>  | ● |
| 7.1 Intangible assets.....  | 55.1                                  | 20        |   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....                  | 70.8                                  | 33        |   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....               | 1.8                                   | 18        |   |
| 7.1.3 ICTs & business model creation <sup>†</sup> .....             | 75.8                                  | 6         |   |
| 7.1.4 ICTs & organizational model creation <sup>†</sup> .....       | 73.5                                  | 5         | ● |
| 7.2 Creative goods & services.....                                  | 55.5                                  | 3         | ● |
| 7.2.1 Cultural & creative services exports, % total trade.....      | 0.5                                   | 22        |   |
| 7.2.2 National feature films/mn pop. 15–69.....                     | 6.1                                   | 22        |   |
| 7.2.3 Global ent. & media output/th pop. 15–69.....                 | 1.6                                   | 12        |   |
| 7.2.4 Printing & publishing manufactures, %.....                    | 0.0                                   | 8         |   |
| 7.2.5 Creative goods exports, % total trade.....                    | 5.9                                   | 9         |   |
| 7.3 Online creativity.....  | 81.1                                  | 2         | ● |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....           | 89.0                                  | 8         |   |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                          | 82.4                                  | 2         | ● |
| 7.3.3 Wikipedia edits/pop. 15–69.....                               | 33,562.3                              | 7         |   |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                     | 95.9                                  | 3         |   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## New Zealand

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 4.4                         |
| GDP (US\$ billions) .....   | 181.3                       |
| GDP per capita, PPP\$ ..... | 30,493.3                    |
| Income group .....          | High income                 |
| Region .....                | South East Asia and Oceania |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>54.5</b>                           | <b>18</b> |
| Innovation Output Sub-Index .....                | 46.6                                  | 18        |
| Innovation Input Sub-Index .....                 | 62.5                                  | 13        |
| Innovation Efficiency Ratio .....                | 0.7                                   | 66        |
| Global Innovation Index 2013 (out of 142) .....  | 59.4                                  | 17        |

**1 Institutions.....94.3**

|   |       |     |
|---|-------|-----|
| 1.1 Political environment.....                        | 93.1  | 4 ● |
| 1.1.1 Political stability*.....                       | 99.0  | 3 ● |
| 1.1.2 Government effectiveness*.....                  | 88.7  | 9 ● |
| 1.1.3 Press freedom*.....                             | 91.6  | 6 ● |
| 1.2 Regulatory environment .....                      | 98.7  | 2 ● |
| 1.2.1 Regulatory quality* .....                       | 96.9  | 4 ● |
| 1.2.2 Rule of law*.....                               | 98.0  | 4 ● |
| 1.2.3 Cost of redundancy dismissal, salary weeks..... | 8.0   | 1   |
| 1.3 Business environment.....                         | 91.1  | 8 ● |
| 1.3.1 Ease of starting a business*.....               | 100.0 | 1 ● |
| 1.3.2 Ease of resolving insolvency*.....              | 88.3  | 12  |
| 1.3.3 Ease of paying taxes*.....                      | 85.2  | 21  |

**2 Human capital & research.....55.5**

|  |         |      |
|--|---------|------|
| 2.1 Education .....                                      | 62.2    | 6 ●  |
| 2.1.1 Expenditure on education, % GDP .....              | 7.4     | 9    |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap..... | 23.2    | 49   |
| 2.1.3 School life expectancy, years.....                 | 19.4    | 2 ●  |
| 2.1.4 PISA scales in reading, maths, & science.....      | 509.2   | 16   |
| 2.1.5 Pupil-teacher ratio, secondary .....               | 14.4    | 52   |
| 2.2 Tertiary education.....                              | 55.5    | 14   |
| 2.2.1 Tertiary enrolment, % gross.....                   | 80.8    | 10   |
| 2.2.2 Graduates in science & engineering, % .....        | 18.3    | 64 ○ |
| 2.2.3 Tertiary inbound mobility, %.....                  | 15.6    | 11   |
| 2.3 Research & development (R&D).....                    | 48.9    | 22   |
| 2.3.1 Researchers, headcounts/mn pop.....                | 6,366.2 | 12   |
| 2.3.2 Gross expenditure on R&D, % GDP.....               | 1.3     | 29   |
| 2.3.3 QS university ranking, average score top 3*.....   | 58.1    | 19   |

**3 Infrastructure.....52.1**

|   |         |      |
|---|---------|------|
| 3.1 Information & communication technologies (ICTs).....      | 70.1    | 19   |
| 3.1.1 ICT access*.....  | 76.9    | 17   |
| 3.1.2 ICT use* .....  | 67.2    | 14   |
| 3.1.3 Government's online service*.....                       | 78.4    | 21   |
| 3.1.4 E-participation*.....                                   | 57.9    | 25   |
| 3.2 General infrastructure.....                               | 42.3    | 36   |
| 3.2.1 Electricity output, kWh/cap.....                        | 9,946.5 | 13   |
| 3.2.2 Logistics performance*.....                             | 71.8    | 30   |
| 3.2.3 Gross capital formation, % GDP.....                     | 20.4    | 87 ○ |
| 3.3 Ecological sustainability.....                            | 43.8    | 46   |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 6.1     | 65 ○ |
| 3.3.2 Environmental performance*.....                         | 76.4    | 16   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 1.7     | 50   |

**4 Market sophistication.....68.9**

|   |       |     |
|---|-------|-----|
| 4.1 Credit.....                                     | 71.1  | 7 ● |
| 4.1.1 Ease of getting credit*.....                  | 93.8  | 3   |
| 4.1.2 Domestic credit to private sector, % GDP..... | 149.0 | 14  |
| 4.1.3 Microfinance gross loans, % GDP .....         | n/a   | n/a |

|  |      |     |
|--|------|-----|
| 4.2 Investment .....                           | 51.4 | 26  |
| 4.2.1 Ease of protecting investors*.....       | 96.7 | 1 ● |
| 4.2.2 Market capitalization, % GDP.....        | 51.4 | 39  |
| 4.2.3 Total value of stocks traded, % GDP..... | 12.8 | 35  |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....  | 0.1  | 25  |

|   |      |     |
|---|------|-----|
| 4.3 Trade & competition .....                             | 84.2 | 7 ● |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 1.6  | 43  |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.5  | 53  |
| 4.3.3 Intensity of local competition†.....                | 74.0 | 29  |

**5 Business sophistication.....41.5**

|   |       |      |
|---|-------|------|
| 5.1 Knowledge workers.....                                      | 55.7  | 31   |
| 5.1.1 Knowledge-intensive employment, %.....                    | 42.9  | 15   |
| 5.1.2 Firms offering formal training, % firms.....              | n/a   | n/a  |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.6   | 32   |
| 5.1.4 GERD performed by business, %.....                        | 45.4  | 40   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 165.3 | 30   |
| 5.2 Innovation linkages .....                                   | 34.1  | 60   |
| 5.2.1 University/industry research collaboration†.....          | 64.5  | 19   |
| 5.2.2 State of cluster development† .....                       | 46.8  | 70   |
| 5.2.3 GERD financed by abroad, %.....                           | 6.3   | 57 ○ |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.1   | 32   |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.4   | 27   |
| 5.3 Knowledge absorption.....                                   | 34.8  | 30   |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.8   | 10   |
| 5.3.2 High-tech imports less re-imports, %.....                 | 9.8   | 32   |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.4   | 36   |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.7   | 67   |

**6 Knowledge & technology outputs.....45.3**

|   |       |       |
|---|-------|-------|
| 6.1 Knowledge creation.....                                     | 56.6  | 9 ●   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 10.9  | 8     |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 2.3   | 19    |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a   | n/a   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 58.4  | 6 ●   |
| 6.1.5 Citable documents H index.....                            | 282.0 | 26    |
| 6.2 Knowledge impact.....                                       | 46.8  | 39    |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 1.1   | 64 ○  |
| 6.2.2 New businesses/th pop. 15–64.....                         | 15.1  | 1 ●   |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3   | 39 ○  |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 7.5   | 54    |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 15.1  | 63 ○  |
| 6.3 Knowledge diffusion.....                                    | 32.4  | 65    |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.5   | 24    |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.6   | 58    |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.0   | 85 ○  |
| 6.3.4 FDI net outflows, % GDP .....                             | -0.3  | 116 ○ |

**7 Creative outputs.....47.9**

|  |          |      |
|--|----------|------|
| 7.1 Intangible assets.....                                     | 53.3     | 26   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 121.3    | 10   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | 0.2      | 52 ○ |
| 7.1.3 ICTs & business model creation†.....                     | 71.2     | 16   |
| 7.1.4 ICTs & organizational model creation†.....               | 66.3     | 19   |
| 7.2 Creative goods & services.....                             | 26.2     | 45   |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.2      | 44   |
| 7.2.2 National feature films/mn pop. 15–69.....                | 8.0      | 16   |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | 1.5      | 16   |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0      | 35   |
| 7.2.5 Creative goods exports, % total trade.....               | 0.3      | 67 ○ |
| 7.3 Online creativity.....                                     | 58.6     | 20   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 41.1     | 21   |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 69.4     | 12   |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 21,448.6 | 22   |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | 87.4     | 15   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 6.0                             |
| GDP (US\$ billions) .....   | 11.3                            |
| GDP per capita, PPP\$ ..... | 4,554.0                         |
| Income group .....          | Lower-middle income             |
| Region .....                | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>25.5</b>                           | <b>125</b> |
| Innovation Output Sub-Index .....                | 17.7                                  | 130 ○      |
| Innovation Input Sub-Index .....                 | 33.2                                  | 108        |
| Innovation Efficiency Ratio .....                | 0.5                                   | 129 ○      |
| Global Innovation Index 2013 (out of 142) .....  | 27.1                                  | 115        |

|  |             |              |
|--|-------------|--------------|
| <b>1 Institutions.....</b>                                   | <b>53.4</b> | <b>98</b>    |
| 1.1 Political environment.....                               | 48.5        | 93           |
| 1.1.1 Political stability*.....                              | 56.7        | 85           |
| 1.1.2 Government effectiveness*.....                         | 17.1        | 123          |
| 1.1.3 Press freedom*.....                                    | 71.7        | 64 ●         |
| 1.2 Regulatory environment.....                              | 59.8        | 88           |
| 1.2.1 Regulatory quality*.....                               | 40.9        | 94           |
| 1.2.2 Rule of law*.....                                      | 26.1        | 107          |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 14.9        | 67 ●         |
| 1.3 Business environment.....                                | 52.0        | 110          |
| 1.3.1 Ease of starting a business*.....                      | 72.3        | 112          |
| 1.3.2 Ease of resolving insolvency*.....                     | 37.0        | 74           |
| 1.3.3 Ease of paying taxes*.....                             | 46.7        | 124          |
| <b>2 Human capital &amp; research.....</b>                   | <b>10.5</b> | <b>138</b> ○ |
| 2.1 Education.....   | 20.7        | 133 ○        |
| 2.1.1 Expenditure on education, % GDP.....                   | 4.6         | 72           |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 7.6         | 106 ○        |
| 2.1.3 School life expectancy, years.....                     | n/a         | n/a          |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a         | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | 30.8        | 106 ○        |
| 2.2 Tertiary education.....                                  | n/a         | n/a          |
| 2.2.1 Tertiary enrolment, % gross.....                       | n/a         | n/a          |
| 2.2.2 Graduates in science & engineering, %.....             | n/a         | n/a          |
| 2.2.3 Tertiary inbound mobility, %.....                      | n/a         | n/a          |
| 2.3 Research & development (R&D).....                        | 0.2         | 128 ○        |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 60.5        | 111 ○        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | n/a         | n/a          |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0         | 70 ○         |
| <b>3 Infrastructure.....</b>                                 | <b>28.1</b> | <b>101</b>   |
| 3.1 Information & communication technologies (ICTs).....     | 20.1        | 109          |
| 3.1.1 ICT access*.....                                       | 29.9        | 103          |
| 3.1.2 ICT use*.....  | 5.8         | 115          |
| 3.1.3 Government's online service*.....                      | 31.4        | 117          |
| 3.1.4 E-participation*.....                                  | 13.2        | 84           |
| 3.2 General infrastructure.....                              | 32.1        | 73           |
| 3.2.1 Electricity output, kWh/cap.....                       | 651.6       | 102          |
| 3.2.2 Logistics performance*.....                            | 36.9        | 102          |
| 3.2.3 Gross capital formation, % GDP.....                    | 29.9        | 23 ●         |
| 3.3 Ecological sustainability.....                           | 32.2        | 84           |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 6.5         | 56 ●         |
| 3.3.2 Environmental performance*.....                        | 50.3        | 81           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.2         | 108          |
| <b>4 Market sophistication.....</b>                          | <b>47.1</b> | <b>78</b>    |
| 4.1 Credit.....  | 30.5        | 89           |
| 4.1.1 Ease of getting credit*.....                           | 50.0        | 96           |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 26.9        | 105          |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 2.7         | 20 ●         |

|   |      |       |
|---|------|-------|
| 4.2 Investment.....                                       | 40.0 | 51 ●  |
| 4.2.1 Ease of protecting investors*.....                  | 40.0 | 113   |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a   |
| 4.2.3 Total value of stocks traded, % GDP.....            | n/a  | n/a   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3 Trade & competition.....                              | 70.8 | 105   |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 2.3  | 51 ●  |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.3  | 43 ●  |
| 4.3.3 Intensity of local competition†.....                | 47.3 | 128 ○ |

**5 Business sophistication.....27.0 101**

|   |      |       |
|---|------|-------|
| 5.1 Knowledge workers.....                                      | 29.5 | 96    |
| 5.1.1 Knowledge-intensive employment, %.....                    | 14.8 | 92    |
| 5.1.2 Firms offering formal training, % firms.....              | 35.2 | 50 ●  |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a  | n/a   |
| 5.1.4 GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 12.8 | 116   |
| 5.2 Innovation linkages.....                                    | 27.5 | 88    |
| 5.2.1 University/industry research collaboration†.....          | 38.7 | 86    |
| 5.2.2 State of cluster development†.....                        | 40.7 | 95    |
| 5.2.3 GERD financed by abroad, %.....                           | n/a  | n/a   |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0  | 44 ●  |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0  | 106 ○ |
| 5.3 Knowledge absorption.....                                   | 23.9 | 80    |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.0  | 120 ○ |
| 5.3.2 High-tech imports less re-imports, %.....                 | 7.0  | 65    |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.6  | 82    |
| 5.3.4 FDI net inflows, % GDP.....                               | 7.7  | 20 ●  |

**6 Knowledge & technology outputs.....12.1 140**

|   |      |       |
|---|------|-------|
| 6.1 Knowledge creation.....                                     | 2.6  | 135 ○ |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.2  | 97    |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1  | 83    |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a  | n/a   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 2.3  | 130 ○ |
| 6.1.5 Citable documents H index.....                            | 45.0 | 116   |
| 6.2 Knowledge impact.....                                       | 3.8  | 134 ○ |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a  | n/a   |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a  | n/a   |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.7  | 106   |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | n/a  | n/a   |
| 6.3 Knowledge diffusion.....                                    | 29.8 | 79    |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | n/a  | n/a   |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.1  | 106   |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.3  | 75    |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.4  | 67    |

**7 Creative outputs.....23.4 109**

|  |         |       |
|--|---------|-------|
| 7.1 Intangible assets.....                                     | 42.7    | 77    |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | n/a     | n/a   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a     | n/a   |
| 7.1.3 ICTs & business model creation†.....                     | 42.5    | 121 ○ |
| 7.1.4 ICTs & organizational model creation†.....               | 42.8    | 113   |
| 7.2 Creative goods & services.....                             | 1.8     | 128 ○ |
| 7.2.1 Cultural & creative services exports, % total trade..... | n/a     | n/a   |
| 7.2.2 National feature films/mn pop. 15–69.....                | 0.3     | 93 ○  |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a     | n/a   |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a     | n/a   |
| 7.2.5 Creative goods exports, % total trade.....               | 0.0     | 105   |
| 7.3 Online creativity.....                                     | 6.4     | 103   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 2.9     | 77    |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 13.9    | 90    |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 1,360.0 | 89    |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | n/a     | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 17.2               |
| GDP (US\$ billions) .....   | 7.4                |
| GDP per capita, PPP\$ ..... | 828.9              |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>24.3</b>                           | <b>131</b> |
| Innovation Output Sub-Index .....                | 16.2                                  | 134        |
| Innovation Input Sub-Index .....                 | 32.3                                  | 118        |
| Innovation Efficiency Ratio .....                | 0.5                                   | 132        |
| Global Innovation Index 2013 (out of 142) .....  | 24.0                                  | 131        |

**1 Institutions.....49.6 109**

|   |      |      |
|---|------|------|
| 1.1 Political environment.....                        | 45.3 | 105  |
| 1.1.1 Political stability*.....                       | 37.0 | 123  |
| 1.1.2 Government effectiveness*.....                  | 22.1 | 115  |
| 1.1.3 Press freedom*.....                             | 76.9 | 38 ● |
| 1.2 Regulatory environment .....                      | 62.6 | 82   |
| 1.2.1 Regulatory quality* .....                       | 32.9 | 114  |
| 1.2.2 Rule of law*.....                               | 26.1 | 108  |
| 1.2.3 Cost of redundancy dismissal, salary weeks..... | 10.1 | 41 ● |
| 1.3 Business environment.....                         | 40.8 | 133  |
| 1.3.1 Ease of starting a business*.....               | 52.8 | 137  |
| 1.3.2 Ease of resolving insolvency*.....              | 15.8 | 131  |
| 1.3.3 Ease of paying taxes*.....                      | 53.9 | 118  |

**2 Human capital & research.....11.8 135**

|  |      |       |
|--|------|-------|
| 2.1 Education .....                                      | 26.8 | 125   |
| 2.1.1 Expenditure on education, % GDP .....              | 4.2  | 85    |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap..... | 49.2 | 3 ●   |
| 2.1.3 School life expectancy, years.....                 | 5.4  | 128 ○ |
| 2.1.4 PISA scales in reading, maths, & science.....      | n/a  | n/a   |
| 2.1.5 Pupil-teacher ratio, secondary .....               | 34.7 | 111   |
| 2.2 Tertiary education.....                              | 8.7  | 126   |
| 2.2.1 Tertiary enrolment, % gross.....                   | 1.8  | 132 ○ |
| 2.2.2 Graduates in science & engineering, % .....        | 4.3  | 102 ○ |
| 2.2.3 Tertiary inbound mobility, %.....                  | 5.4  | 32 ●  |
| 2.3 Research & development (R&D).....                    | 0.0  | 131 ○ |
| 2.3.1 Researchers, headcounts/mn pop.....                | 9.8  | 119 ○ |
| 2.3.2 Gross expenditure on R&D, % GDP.....               | n/a  | n/a   |
| 2.3.3 QS university ranking, average score top 3*.....   | 0.0  | 70 ○  |

**3 Infrastructure.....28.8 97**

|   |      |       |
|---|------|-------|
| 3.1 Information & communication technologies (ICTs).....      | 9.2  | 140   |
| 3.1.1 ICT access*.....  | 16.5 | 132   |
| 3.1.2 ICT use* .....  | 0.7  | 131 ○ |
| 3.1.3 Government's online service*.....                       | 19.6 | 134   |
| 3.1.4 E-participation*.....                                   | 0.0  | 129 ○ |
| 3.2 General infrastructure.....                               | 52.3 | 14 ●  |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a  | n/a   |
| 3.2.2 Logistics performance* .....                            | 42.9 | 87    |
| 3.2.3 Gross capital formation, % GDP.....                     | 36.0 | 12 ●  |
| 3.3 Ecological sustainability.....                            | 24.9 | 119   |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a  | n/a   |
| 3.3.2 Environmental performance*.....                         | 36.3 | 120   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.3  | 97    |

**4 Market sophistication.....43.2 104**

|   |      |     |
|---|------|-----|
| 4.1 Credit.....                                     | 16.1 | 135 |
| 4.1.1 Ease of getting credit*.....                  | 43.8 | 112 |
| 4.1.2 Domestic credit to private sector, % GDP..... | 14.9 | 132 |
| 4.1.3 Microfinance gross loans, % GDP .....         | 0.1  | 72  |

|   |      |      |
|---|------|------|
| 4.2 Investment .....                                      | 33.3 | 76   |
| 4.2.1 Ease of protecting investors*.....                  | 33.3 | 125  |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a  |
| 4.2.3 Total value of stocks traded, % GDP.....            | n/a  | n/a  |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a  |
| 4.3 Trade & competition .....                             | 80.3 | 29 ● |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 9.7  | 122  |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.5  | 52 ● |
| 4.3.3 Intensity of local competition†.....                | n/a  | n/a  |

**5 Business sophistication.....28.3 92**

|   |      |       |
|---|------|-------|
| 5.1 Knowledge workers.....                                      | 28.4 | 101   |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a  | n/a   |
| 5.1.2 Firms offering formal training, % firms.....              | 36.1 | 47    |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a  | n/a   |
| 5.1.4 GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 1.5  | 141 ○ |
| 5.2 Innovation linkages .....                                   | 17.4 | 135   |
| 5.2.1 University/industry research collaboration†.....          | n/a  | n/a   |
| 5.2.2 State of cluster development† .....                       | n/a  | n/a   |
| 5.2.3 GERD financed by abroad, %.....                           | n/a  | n/a   |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a  | n/a   |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.1  | 41 ●  |
| 5.3 Knowledge absorption.....                                   | 39.1 | 19 ●  |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1  | 101   |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.9  | 101   |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.7  | 24 ●  |
| 5.3.4 FDI net inflows, % GDP.....                               | 16.8 | 6 ●   |

**6 Knowledge & technology outputs.....31.3 52 ●**

|   |      |       |
|---|------|-------|
| 6.1 Knowledge creation.....                                     | 5.9  | 106   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a  | n/a   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.2  | 66    |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a  | n/a   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 6.0  | 99    |
| 6.1.5 Citable documents H index.....                            | 47.0 | 115   |
| 6.2 Knowledge impact.....                                       | 66.9 | 2 ●   |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 10.2 | 1 ●   |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a  | n/a   |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.5  | 131   |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a  | n/a   |
| 6.3 Knowledge diffusion.....                                    | 21.0 | 127   |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0  | 111   |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.2  | 92    |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.7  | 90    |
| 6.3.4 FDI net outflows, % GDP .....                             | -3.6 | 123 ○ |

**7 Creative outputs.....1.1 142 ○**

|  |      |       |
|--|------|-------|
| 7.1 Intangible assets.....                                     | n/a  | n/a   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | n/a  | n/a   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a  | n/a   |
| 7.1.3 ICTs & business model creation†.....                     | n/a  | n/a   |
| 7.1.4 ICTs & organizational model creation†.....               | n/a  | n/a   |
| 7.2 Creative goods & services.....                             | 1.5  | 130   |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.0  | 95    |
| 7.2.2 National feature films/mn pop. 15–69.....                | 0.7  | 79    |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a  | n/a   |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a  | n/a   |
| 7.2.5 Creative goods exports, % total trade.....               | 0.0  | 119   |
| 7.3 Online creativity.....                                     | 0.8  | 129   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 2.0  | 91    |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 0.2  | 138   |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 12.8 | 141 ○ |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | n/a  | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



**Key indicators**

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 168.8               |
| GDP (US\$ billions) .....   | 286.5               |
| GDP per capita, PPP\$ ..... | 2,831.5             |
| Income group .....          | Lower-middle income |
| Region .....                | Sub-Saharan Africa  |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>27.8</b>                           | <b>110</b> |
| Innovation Output Sub-Index .....                            | 27.0                                  | 83         |
| Innovation Input Sub-Index.....                              | 28.6                                  | 133        |
| Innovation Efficiency Ratio.....                             | 0.9                                   | 8 ●        |
| Global Innovation Index 2013 (out of 142) .....              | 26.6                                  | 120        |
| <b>1 Institutions.....</b>                                   | <b>44.0</b>                           | <b>129</b> |
| 1.1 Political environment.....                               | 31.8                                  | 138 ○      |
| 1.1.1 Political stability*.....                              | 15.4                                  | 140 ○      |
| 1.1.2 Government effectiveness*.....                         | 14.2                                  | 132        |
| 1.1.3 Press freedom*.....                                    | 65.9                                  | 94         |
| 1.2 Regulatory environment .....                             | 52.7                                  | 108        |
| 1.2.1 Regulatory quality* .....                              | 29.9                                  | 120        |
| 1.2.2 Rule of law*.....                                      | 13.9                                  | 135 ○      |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 16.2                                  | 77         |
| 1.3 Business environment.....                                | 47.4                                  | 127        |
| 1.3.1 Ease of starting a business*.....                      | 74.5                                  | 106        |
| 1.3.2 Ease of resolving insolvency*.....                     | 29.5                                  | 95         |
| 1.3.3 Ease of paying taxes*.....                             | 38.3                                  | 132        |
| <b>2 Human capital &amp; research.....</b>                   | <b>12.2</b>                           | <b>134</b> |
| 2.1 Education .....  | 24.9                                  | 127        |
| 2.1.1 Expenditure on education, % GDP.....                   | n/a                                   | n/a        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | n/a                                   | n/a        |
| 2.1.3 School life expectancy, years.....                     | 9.0                                   | 120        |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 33.1                                  | 108        |
| 2.2 Tertiary education.....                                  | 9.8                                   | 123        |
| 2.2.1 Tertiary enrolment, % gross.....                       | 10.4                                  | 107        |
| 2.2.2 Graduates in science & engineering, % .....            | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                      | n/a                                   | n/a        |
| 2.3 Research & development (R&D).....                        | 1.9                                   | 108        |
| 2.3.1 Researchers, headcounts/mn pop. ....                   | 119.7                                 | 99         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.2                                   | 84         |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                 | <b>21.8</b>                           | <b>125</b> |
| 3.1 Information & communication technologies (ICTs).....     | 19.4                                  | 112        |
| 3.1.1 ICT access*.....                                       | 19.9                                  | 122        |
| 3.1.2 ICT use* .....   | 17.2                                  | 88         |
| 3.1.3 Government's online service*.....                      | 22.2                                  | 132        |
| 3.1.4 E-participation*.....                                  | 18.4                                  | 73         |
| 3.2 General infrastructure.....                              | 25.0                                  | 113        |
| 3.2.1 Electricity output, kWh/cap.....                       | 166.4                                 | 117 ○      |
| 3.2.2 Logistics performance*.....                            | 33.3                                  | 115        |
| 3.2.3 Gross capital formation, % GDP.....                    | 24.6                                  | 53 ●       |
| 3.3 Ecological sustainability.....                           | 20.9                                  | 129        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 3.1                                   | 109        |
| 3.3.2 Environmental performance*.....                        | 39.2                                  | 112        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.1                                   | 122 ○      |
| <b>4 Market sophistication .....</b>                         | <b>43.9</b>                           | <b>101</b> |
| 4.1 Credit.....  | 32.8                                  | 83         |
| 4.1.1 Ease of getting credit*.....                           | 87.5                                  | 13 ●       |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 20.8                                  | 117        |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.4                                   | 49         |

|   |      |      |
|---|------|------|
| 4.2 Investment .....                                      | 25.7 | 119  |
| 4.2.1 Ease of protecting investors*.....                  | 56.7 | 55 ● |
| 4.2.2 Market capitalization, % GDP.....                   | 21.5 | 66   |
| 4.2.3 Total value of stocks traded, % GDP.....            | 1.6  | 61   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | 0.0  | 58   |
| 4.3 Trade & competition .....                             | 73.1 | 90   |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 10.6 | 128  |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.0  | 20 ● |
| 4.3.3 Intensity of local competition†.....                | 65.2 | 73   |

**5 Business sophistication.....21.3 128**

|   |      |       |
|---|------|-------|
| 5.1 Knowledge workers.....                                      | 28.8 | 99    |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a  | n/a   |
| 5.1.2 Firms offering formal training, % firms.....              | 25.7 | 76    |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a  | n/a   |
| 5.1.4 GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 34.2 | 89    |
| 5.2 Innovation linkages .....                                   | 20.2 | 127   |
| 5.2.1 University/industry research collaboration†.....          | 38.2 | 89    |
| 5.2.2 State of cluster development† .....                       | 48.3 | 62 ●  |
| 5.2.3 GERD financed by abroad, %.....                           | 1.0  | 79    |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0  | 89    |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0  | 102   |
| 5.3 Knowledge absorption.....                                   | 14.8 | 124   |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.3  | 70    |
| 5.3.2 High-tech imports less re-imports, %.....                 | 3.0  | 122 ○ |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.7  | 79    |
| 5.3.4 FDI net inflows, % GDP.....                               | 3.6  | 59 ●  |

**6 Knowledge & technology outputs.....21.1 108**

|   |      |       |
|---|------|-------|
| 6.1 Knowledge creation.....                                     | 5.4  | 109   |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | n/a  | n/a   |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.0  | 103   |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a  | n/a   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 3.7  | 120   |
| 6.1.5 Citable documents H index.....                            | 89.0 | 70    |
| 6.2 Knowledge impact.....                                       | 33.0 | 90    |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 4.3  | 16 ●  |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.9  | 63    |
| 6.2.3 Computer software spending, % GDP.....                    | 0.2  | 71 ○  |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.1  | 142 ○ |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a  | n/a   |
| 6.3 Knowledge diffusion.....                                    | 24.8 | 111   |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | n/a  | n/a   |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.1  | 109   |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.1  | 137 ○ |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.6  | 61 ●  |

**7 Creative outputs.....32.8 69 ●**

|  |      |      |
|--|------|------|
| 7.1 Intangible assets.....                                     | 55.2 | 19 ● |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....            | n/a  | n/a  |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a  | n/a  |
| 7.1.3 ICTs & business model creation†.....                     | 59.8 | 53 ● |
| 7.1.4 ICTs & organizational model creation†.....               | 50.5 | 77   |
| 7.2 Creative goods & services.....                             | 20.4 | 59 ● |
| 7.2.1 Cultural & creative services exports, % total trade..... | n/a  | n/a  |
| 7.2.2 National feature films/mn pop. 15–69.....                | 11.2 | 9 ●  |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | 0.0  | 56 ○ |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a  | n/a  |
| 7.2.5 Creative goods exports, % total trade.....               | 0.1  | 96   |
| 7.3 Online creativity.....                                     | 0.6  | 131  |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.7  | 113  |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 1.7  | 127  |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 62.0 | 129  |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | 0.0  | 64 ○ |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Norway

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 5.0         |
| GDP (US\$ billions) .....   | 511.3       |
| GDP per capita, PPP\$ ..... | 54,946.7    |
| Income group .....          | High income |
| Region .....                | Europe      |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>55.6</b>                           | <b>14</b> |
| Innovation Output Sub-Index .....                | 48.8                                  | 14        |
| Innovation Input Sub-Index .....                 | 62.4                                  | 14        |
| Innovation Efficiency Ratio .....                | 0.8                                   | 51        |
| Global Innovation Index 2013 (out of 142) .....  | 55.6                                  | 16        |

|          |  |             |           |          |
|----------|--|-------------|-----------|----------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>94.1</b> | <b>3</b>  | <b>●</b> |
| 1.1      | Political environment.....                             | 94.2        | 2         | ●        |
| 1.1.1    | Political stability*.....                              | 97.7        | 7         |          |
| 1.1.2    | Government effectiveness*.....                         | 91.4        | 5         | ●        |
| 1.1.3    | Press freedom*.....                                    | 93.5        | 3         | ●        |
| 1.2      | Regulatory environment.....                            | 96.5        | 7         |          |
| 1.2.1    | Regulatory quality*.....                               | 88.8        | 16        |          |
| 1.2.2    | Rule of law*.....                                      | 100.0       | 1         | ●        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 8.7         | 25        |          |
| 1.3      | Business environment.....                              | 91.6        | 5         | ●        |
| 1.3.1    | Ease of starting a business*.....                      | 91.0        | 30        |          |
| 1.3.2    | Ease of resolving insolvency*.....                     | 96.7        | 2         | ●        |
| 1.3.3    | Ease of paying taxes*.....                             | 87.2        | 15        |          |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>52.6</b> | <b>19</b> |          |
| 2.1      | Education.....   | 55.5        | 23        |          |
| 2.1.1    | Expenditure on education, % GDP.....                   | 6.9         | 15        |          |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 27.3        | 30        |          |
| 2.1.3    | School life expectancy, years.....                     | 17.6        | 6         |          |
| 2.1.4    | PISA scales in reading, maths, & science.....          | 495.9       | 23        |          |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | n/a         | n/a       |          |
| 2.2      | Tertiary education.....                                | 41.6        | 39        |          |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 73.1        | 22        |          |
| 2.2.2    | Graduates in science & engineering, %.....             | 16.8        | 70        | ○        |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 7.2         | 25        |          |
| 2.3      | Research & development (R&D).....                      | 60.8        | 14        |          |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 9,219.3     | 5         | ●        |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 1.7         | 24        |          |
| 2.3.3    | QS university ranking, average score top 3*.....       | 58.3        | 18        |          |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>63.9</b> | <b>3</b>  | <b>●</b> |
| 3.1      | Information & communication technologies (ICTs).....   | 77.9        | 11        |          |
| 3.1.1    | ICT access*.....                                       | 77.2        | 16        |          |
| 3.1.2    | ICT use*.....  | 80.5        | 4         | ●        |
| 3.1.3    | Government's online service*.....                      | 85.6        | 13        |          |
| 3.1.4    | E-participation*.....                                  | 68.4        | 15        |          |
| 3.2      | General infrastructure.....                            | 63.9        | 3         | ●        |
| 3.2.1    | Electricity output, kWh/cap.....                       | 29,237.6    | 1         | ●        |
| 3.2.2    | Logistics performance*.....                            | 82.1        | 21        |          |
| 3.2.3    | Gross capital formation, % GDP.....                    | 26.3        | 39        |          |
| 3.3      | Ecological sustainability.....                         | 49.9        | 26        |          |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 8.0         | 37        |          |
| 3.3.2    | Environmental performance*.....                        | 78.0        | 10        |          |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 3.0         | 33        |          |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>57.9</b> | <b>31</b> |          |
| 4.1      | Credit.....  | 45.0        | 46        |          |
| 4.1.1    | Ease of getting credit*.....                           | 62.5        | 69        | ○        |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 86.2        | 38        |          |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | n/a         | n/a       |          |

|          |   |             |           |          |
|----------|---|-------------|-----------|----------|
| 4.2      | Investment.....   | 44.3        | 40        |          |
| 4.2.1    | Ease of protecting investors*.....                        | 66.7        | 21        |          |
| 4.2.2    | Market capitalization, % GDP.....                         | 50.6        | 40        |          |
| 4.2.3    | Total value of stocks traded, % GDP.....                  | 26.6        | 28        |          |
| 4.2.4    | Venture capital deals/tr PPP\$ GDP.....                   | 0.1         | 18        |          |
| 4.3      | Trade & competition.....                                  | 84.5        | 6         |          |
| 4.3.1    | Applied tariff rate, weighted mean, %.....                | 0.5         | 4         | ●        |
| 4.3.2    | Non-agricultural mkt access weighted tariff, %.....       | 0.5         | 49        |          |
| 4.3.3    | Intensity of local competition†.....                      | 72.3        | 37        |          |
| <b>5</b> | <b>Business sophistication.....</b>                       | <b>43.2</b> | <b>28</b> |          |
| 5.1      | Knowledge workers.....                                    | 63.4        | 21        |          |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 46.0        | 7         |          |
| 5.1.2    | Firms offering formal training, % firms.....              | n/a         | n/a       |          |
| 5.1.3    | GERD performed by business, % GDP.....                    | 0.9         | 25        |          |
| 5.1.4    | GERD performed by business, %.....                        | 52.4        | 34        |          |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 290.4       | 19        |          |
| 5.2      | Innovation linkages.....                                  | 43.5        | 34        |          |
| 5.2.1    | University/industry research collaboration†.....          | 68.0        | 13        |          |
| 5.2.2    | State of cluster development†.....                        | 66.8        | 14        |          |
| 5.2.3    | GERD financed by abroad, %.....                           | 7.8         | 50        | ○        |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.1         | 30        |          |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.8         | 22        |          |
| 5.3      | Knowledge absorption.....                                 | 22.8        | 86        | ○        |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | 0.3         | 68        | ○        |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 5.9         | 86        | ○        |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 1.7         | 25        |          |
| 5.3.4    | FDI net inflows, % GDP.....                               | 1.5         | 99        | ○        |
| <b>6</b> | <b>Knowledge &amp; technology outputs.....</b>            | <b>40.1</b> | <b>28</b> |          |
| 6.1      | Knowledge creation.....                                   | 40.2        | 23        |          |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP.....            | 3.7         | 32        |          |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP.....                 | 2.4         | 18        |          |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a       |          |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 38.8        | 18        |          |
| 6.1.5    | Citable documents H index.....                            | 327.0       | 20        |          |
| 6.2      | Knowledge impact.....                                     | 47.0        | 38        |          |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | 2.2         | 51        | ○        |
| 6.2.2    | New businesses/th pop. 15–64.....                         | 7.8         | 14        |          |
| 6.2.3    | Computer software spending, % GDP.....                    | 0.6         | 18        |          |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 5.8         | 62        | ○        |
| 6.2.5    | High- & medium-high-tech manufactures, %.....             | 21.6        | 51        | ○        |
| 6.3      | Knowledge diffusion.....                                  | 33.1        | 60        |          |
| 6.3.1    | Royalty & license fees receipts, % total trade.....       | 0.2         | 36        |          |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 3.0         | 42        |          |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 1.3         | 68        | ○        |
| 6.3.4    | FDI net outflows, % GDP.....                              | 6.2         | 10        |          |
| <b>7</b> | <b>Creative outputs.....</b>                              | <b>57.5</b> | <b>5</b>  | <b>●</b> |
| 7.1      | Intangible assets.....                                    | 51.1        | 37        |          |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP.....              | 59.9        | 42        |          |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....           | 1.2         | 27        |          |
| 7.1.3    | ICTs & business model creation†.....                      | 73.7        | 11        |          |
| 7.1.4    | ICTs & organizational model creation†.....                | 71.8        | 8         |          |
| 7.2      | Creative goods & services.....                            | 54.7        | 4         | ●        |
| 7.2.1    | Cultural & creative services exports, % total trade.....  | 0.3         | 30        |          |
| 7.2.2    | National feature films/mn pop. 15–69.....                 | 10.0        | 12        |          |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....             | 3.3         | 1         | ●        |
| 7.2.4    | Printing & publishing manufactures, %.....                | 0.1         | 6         |          |
| 7.2.5    | Creative goods exports, % total trade.....                | 0.5         | 54        |          |
| 7.3      | Online creativity.....                                    | 73.1        | 3         | ●        |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....       | 60.6        | 16        |          |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                      | 69.3        | 13        |          |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                           | 43,209.9    | 2         | ●        |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                  | 89.1        | 11        |          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 3.3                              |
| GDP (US\$ billions) .....   | 80.6                             |
| GDP per capita, PPP\$ ..... | 29,813.2                         |
| Income group .....          | High income                      |
| Region .....                | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>33.9</b>                           | <b>75</b> |
| Innovation Output Sub-Index .....                | 24.9                                  | 96        |
| Innovation Input Sub-Index.....                  | 42.8                                  | 59        |
| Innovation Efficiency Ratio.....                 | 0.6                                   | 121       |
| Global Innovation Index 2013 (out of 142) .....  | 33.3                                  | 80        |

**1 Institutions.....70.8 43**

|   |      |      |
|---|------|------|
| 1.1 Political environment.....                        | 61.2 | 58   |
| 1.1.1 Political stability*.....                       | 77.1 | 47   |
| 1.1.2 Government effectiveness*.....                  | 47.9 | 58   |
| 1.1.3 Press freedom*.....                             | 58.5 | 116  |
| 1.2 Regulatory environment .....                      | 80.9 | 31 ● |
| 1.2.1 Regulatory quality* .....                       | 61.2 | 51   |
| 1.2.2 Rule of law*.....                               | 62.5 | 41 ● |
| 1.2.3 Cost of redundancy dismissal, salary weeks..... | 8.0  | 1 ●  |
| 1.3 Business environment.....                         | 70.3 | 49   |
| 1.3.1 Ease of starting a business*.....               | 80.6 | 88   |
| 1.3.2 Ease of resolving insolvency*.....              | 39.5 | 64   |
| 1.3.3 Ease of paying taxes*.....                      | 90.7 | 9 ●  |

**2 Human capital & research.....28.3 73**

|  |       |      |
|--|-------|------|
| 2.1 Education .....                                      | 33.4  | 103  |
| 2.1.1 Expenditure on education, % GDP .....              | 4.3   | 80   |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap..... | 15.9  | 79   |
| 2.1.3 School life expectancy, years.....                 | 13.6  | 63   |
| 2.1.4 PISA scales in reading, maths, & science.....      | n/a   | n/a  |
| 2.1.5 Pupil-teacher ratio, secondary .....               | n/a   | n/a  |
| 2.2 Tertiary education.....                              | 45.8  | 32 ● |
| 2.2.1 Tertiary enrolment, % gross.....                   | 28.1  | 78   |
| 2.2.2 Graduates in science & engineering, % .....        | 38.9  | 4 ●  |
| 2.2.3 Tertiary inbound mobility, %.....                  | 2.4   | 56   |
| 2.3 Research & development (R&D).....                    | 5.5   | 83   |
| 2.3.1 Researchers, headcounts/mn pop. ....               | 478.1 | 71   |
| 2.3.2 Gross expenditure on R&D, % GDP.....               | 0.1   | 99   |
| 2.3.3 QS university ranking, average score top 3*.....   | 9.4   | 59   |

**3 Infrastructure.....39.8 57**

|   |         |       |
|---|---------|-------|
| 3.1 Information & communication technologies (ICTs).....      | 52.4    | 38 ●  |
| 3.1.1 ICT access*.....  | 57.4    | 57    |
| 3.1.2 ICT use* .....  | 40.7    | 45    |
| 3.1.3 Government's online service*.....                       | 66.7    | 35 ●  |
| 3.1.4 E-participation*.....                                   | 44.7    | 36 ●  |
| 3.2 General infrastructure.....                               | 42.2    | 37 ●  |
| 3.2.1 Electricity output, kWh/cap.....                        | 7,675.1 | 24 ●  |
| 3.2.2 Logistics performance* .....                            | 50.8    | 62    |
| 3.2.3 Gross capital formation, % GDP.....                     | 28.0    | 29 ●  |
| 3.3 Ecological sustainability.....                            | 24.8    | 120   |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 2.9     | 113 ○ |
| 3.3.2 Environmental performance*.....                         | 47.8    | 89    |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.7     | 71    |

**4 Market sophistication.....48.1 72**

|   |      |     |
|---|------|-----|
| 4.1 Credit.....                                     | 34.3 | 75  |
| 4.1.1 Ease of getting credit*.....                  | 56.3 | 81  |
| 4.1.2 Domestic credit to private sector, % GDP..... | 41.2 | 80  |
| 4.1.3 Microfinance gross loans, % GDP .....         | n/a  | n/a |

|   |      |      |
|---|------|------|
| 4.2 Investment .....                                      | 29.9 | 97   |
| 4.2.1 Ease of protecting investors*.....                  | 50.0 | 81   |
| 4.2.2 Market capitalization, % GDP.....                   | 27.5 | 60   |
| 4.2.3 Total value of stocks traded, % GDP.....            | 3.6  | 54   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a  |
| 4.3 Trade & competition .....                             | 80.2 | 30 ● |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 3.2  | 58   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.7  | 64   |
| 4.3.3 Intensity of local competition†.....                | 70.0 | 50   |

**5 Business sophistication.....27.2 100**

|   |      |       |
|---|------|-------|
| 5.1 Knowledge workers.....                                      | 19.2 | 126 ○ |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a  | n/a   |
| 5.1.2 Firms offering formal training, % firms.....              | n/a  | n/a   |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.0  | 74 ○  |
| 5.1.4 GERD performed by business, %.....                        | 23.9 | 60    |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 31.7 | 95    |
| 5.2 Innovation linkages .....                                   | 53.4 | 10 ●  |
| 5.2.1 University/industry research collaboration†.....          | 50.0 | 43    |
| 5.2.2 State of cluster development† .....                       | 54.5 | 34 ●  |
| 5.2.3 GERD financed by abroad, %.....                           | n/a  | n/a   |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.2  | 1 ●   |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0  | 58    |
| 5.3 Knowledge absorption.....                                   | 8.9  | 139 ○ |
| 5.3.1 Royalty & license fees payments, % total trade.....       | n/a  | n/a   |
| 5.3.2 High-tech imports less re-imports, %.....                 | 3.4  | 119 ○ |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.2  | 132 ○ |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.1  | 110   |

**6 Knowledge & technology outputs.....21.2 105**

|   |      |       |
|---|------|-------|
| 6.1 Knowledge creation.....                                     | 5.3  | 111   |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | n/a  | n/a   |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.1  | 91    |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a  | n/a   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 5.3  | 106   |
| 6.1.5 Citable documents H index.....                            | 63.0 | 93    |
| 6.2 Knowledge impact.....                                       | 32.8 | 92    |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.4  | 47    |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.0  | 92 ○  |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 4.0  | 75    |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 14.9 | 64    |
| 6.3 Knowledge diffusion.....                                    | 25.6 | 107   |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a  | n/a   |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.4  | 85    |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.2  | 126 ○ |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.8  | 51    |

**7 Creative outputs.....28.6 83**

|  |         |       |
|--|---------|-------|
| 7.1 Intangible assets.....                                     | 47.4    | 52    |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....            | n/a     | n/a   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | 0.0     | 68 ○  |
| 7.1.3 ICTs & business model creation†.....                     | 62.0    | 48    |
| 7.1.4 ICTs & organizational model creation†.....               | 56.5    | 54    |
| 7.2 Creative goods & services.....                             | 2.6     | 120 ○ |
| 7.2.1 Cultural & creative services exports, % total trade..... | n/a     | n/a   |
| 7.2.2 National feature films/mn pop. 15–69.....                | 0.0     | 101 ○ |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | 0.3     | 39    |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0     | 88 ○  |
| 7.2.5 Creative goods exports, % total trade.....               | 0.0     | 118 ○ |
| 7.3 Online creativity.....                                     | 17.0    | 72    |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 3.0     | 74    |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 6.1     | 110   |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 1,139.3 | 94    |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | 56.8    | 54    |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 179.2                     |
| GDP (US\$ billions) .....   | 238.7                     |
| GDP per capita, PPP\$ ..... | 3,149.4                   |
| Income group .....          | Lower-middle income       |
| Region .....                | Central and Southern Asia |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>24.0</b>                           | <b>134</b> ○ |
| Innovation Output Sub-Index .....                 | 22.6                                  | 107          |
| Innovation Input Sub-Index .....                  | 25.4                                  | 139 ○        |
| Innovation Efficiency Ratio .....                 | 0.9                                   | 16 ●         |
| Global Innovation Index 2013 (out of 142) .....   | 23.3                                  | 137          |

|          |  |             |            |   |
|----------|--|-------------|------------|---|
| <b>1</b> | <b>Institutions</b> .....                        | <b>40.1</b> | <b>135</b> | ○ |
| 1.1      | Political environment .....                      | 22.8        | 141        | ○ |
| 1.1.1    | Political stability* .....                       | 0.0         | 143        | ○ |
| 1.1.2    | Government effectiveness* .....                  | 19.8        | 120        |   |
| 1.1.3    | Press freedom* .....                             | 48.7        | 131        | ○ |
| 1.2      | Regulatory environment .....                     | 43.5        | 125        |   |
| 1.2.1    | Regulatory quality* .....                        | 29.8        | 121        |   |
| 1.2.2    | Rule of law* .....                               | 21.3        | 122        |   |
| 1.2.3    | Cost of redundancy dismissal, salary weeks ..... | 27.2        | 118        |   |
| 1.3      | Business environment .....                       | 53.9        | 107        |   |
| 1.3.1    | Ease of starting a business* .....               | 78.2        | 96         |   |
| 1.3.2    | Ease of resolving insolvency* .....              | 40.0        | 63         | ● |
| 1.3.3    | Ease of paying taxes* .....                      | 43.5        | 128        |   |

|          |   |            |            |   |
|----------|---|------------|------------|---|
| <b>2</b> | <b>Human capital &amp; research</b> .....           | <b>9.8</b> | <b>139</b> | ○ |
| 2.1      | Education .....                                     | 10.7       | 141        | ○ |
| 2.1.1    | Expenditure on education, % GDP .....               | 2.1        | 128        | ○ |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap ..... | n/a        | n/a        |   |
| 2.1.3    | School life expectancy, years .....                 | 7.7        | 125        | ○ |
| 2.1.4    | PISA scales in reading, maths, & science .....      | n/a        | n/a        |   |
| 2.1.5    | Pupil-teacher ratio, secondary .....                | 41.9       | 115        | ○ |
| 2.2      | Tertiary education .....                            | 8.9        | 124        |   |
| 2.2.1    | Tertiary enrolment, % gross .....                   | 9.5        | 111        |   |
| 2.2.2    | Graduates in science & engineering, % .....         | n/a        | n/a        |   |
| 2.2.3    | Tertiary inbound mobility, % .....                  | n/a        | n/a        |   |
| 2.3      | Research & development (R&D) .....                  | 9.8        | 68         |   |
| 2.3.1    | Researchers, headcounts/mn pop. .....               | 294.9      | 80         |   |
| 2.3.2    | Gross expenditure on R&D, % GDP .....               | 0.3        | 74         |   |
| 2.3.3    | QS university ranking, average score top 3* .....   | 19.6       | 52         | ● |

|          |   |             |            |   |
|----------|---|-------------|------------|---|
| <b>3</b> | <b>Infrastructure</b> .....                             | <b>22.2</b> | <b>124</b> |   |
| 3.1      | Information & communication technologies (ICTs) .....   | 19.8        | 110        |   |
| 3.1.1    | ICT access* .....                                       | 25.6        | 109        |   |
| 3.1.2    | ICT use* .....  | 3.8         | 121        |   |
| 3.1.3    | Government's online service* .....                      | 36.6        | 101        |   |
| 3.1.4    | E-participation* .....                                  | 13.2        | 84         |   |
| 3.2      | General infrastructure .....                            | 18.4        | 134        | ○ |
| 3.2.1    | Electricity output, kWh/cap .....                       | 538.9       | 106        |   |
| 3.2.2    | Logistics performance* .....                            | 48.4        | 69         |   |
| 3.2.3    | Gross capital formation, % GDP .....                    | 14.2        | 131        | ○ |
| 3.3      | Ecological sustainability .....                         | 28.5        | 98         |   |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 5.1         | 82         |   |
| 3.3.2    | Environmental performance* .....                        | 34.6        | 124        |   |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a         | n/a        |   |

|          |  |             |            |   |
|----------|--|-------------|------------|---|
| <b>4</b> | <b>Market sophistication</b> .....             | <b>35.8</b> | <b>140</b> | ○ |
| 4.1      | Credit .....                                   | 22.6        | 119        |   |
| 4.1.1    | Ease of getting credit* .....                  | 62.5        | 69         |   |
| 4.1.2    | Domestic credit to private sector, % GDP ..... | 16.4        | 126        |   |
| 4.1.3    | Microfinance gross loans, % GDP .....          | 0.1         | 69         |   |

|       |  |      |     |   |
|-------|--|------|-----|---|
| 4.2   | Investment .....                                     | 28.6 | 107 |   |
| 4.2.1 | Ease of protecting investors* .....                  | 63.3 | 32  | ● |
| 4.2.2 | Market capitalization, % GDP .....                   | 18.9 | 75  |   |
| 4.2.3 | Total value of stocks traded, % GDP .....            | 5.2  | 49  | ● |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP .....             | 0.0  | 65  |   |
| 4.3   | Trade & competition .....                            | 56.2 | 135 | ○ |
| 4.3.1 | Applied tariff rate, weighted mean, % .....          | 9.5  | 121 |   |
| 4.3.2 | Non-agricultural mkt access weighted tariff, % ..... | 6.8  | 135 | ○ |
| 4.3.3 | Intensity of local competition <sup>†</sup> .....    | 64.8 | 76  |   |

|          |   |             |            |   |
|----------|---|-------------|------------|---|
| <b>5</b> | <b>Business sophistication</b> .....                          | <b>19.3</b> | <b>133</b> | ○ |
| 5.1      | Knowledge workers .....                                       | 17.5        | 129        |   |
| 5.1.1    | Knowledge-intensive employment, % .....                       | 19.5        | 74         |   |
| 5.1.2    | Firms offering formal training, % firms .....                 | 4.5         | 106        | ○ |
| 5.1.3    | GERD performed by business, % GDP .....                       | n/a         | n/a        |   |
| 5.1.4    | GERD performed by business, % .....                           | n/a         | n/a        |   |
| 5.1.5    | GMAT test takers/mn pop. 20–34 .....                          | 19.3        | 110        |   |
| 5.2      | Innovation linkages .....                                     | 20.1        | 128        |   |
| 5.2.1    | University/industry research collaboration <sup>†</sup> ..... | 37.5        | 94         |   |
| 5.2.2    | State of cluster development <sup>†</sup> .....               | 49.2        | 59         | ● |
| 5.2.3    | GERD financed by abroad, % .....                              | 0.9         | 82         |   |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP .....                | 0.0         | 101        | ○ |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP .....        | 0.0         | 103        |   |
| 5.3      | Knowledge absorption .....                                    | 20.3        | 99         |   |
| 5.3.1    | Royalty & license fees payments, % total trade .....          | 0.4         | 60         |   |
| 5.3.2    | High-tech imports less re-imports, % .....                    | 7.8         | 57         | ● |
| 5.3.3    | Comm., computer & info. services imp., % total trade .....    | 1.0         | 61         | ● |
| 5.3.4    | FDI net inflows, % GDP .....                                  | 0.4         | 130        |   |

|          |  |             |            |   |
|----------|--|-------------|------------|---|
| <b>6</b> | <b>Knowledge &amp; technology outputs</b> .....            | <b>21.9</b> | <b>101</b> |   |
| 6.1      | Knowledge creation .....                                   | 10.0        | 79         |   |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP .....            | 0.2         | 91         |   |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP .....                 | n/a         | n/a        |   |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP .....          | n/a         | n/a        |   |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP .....         | 10.6        | 71         |   |
| 6.1.5    | Citable documents H index .....                            | 111.0       | 56         | ● |
| 6.2      | Knowledge impact .....                                     | 29.7        | 105        |   |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, % .....                   | 0.9         | 71         |   |
| 6.2.2    | New businesses/th pop. 15–64 .....                         | 0.0         | 91         |   |
| 6.2.3    | Computer software spending, % GDP .....                    | 0.3         | 55         |   |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP .....           | 3.9         | 78         |   |
| 6.2.5    | High- & medium-high-tech manufactures, % .....             | 23.7        | 45         |   |
| 6.3      | Knowledge diffusion .....                                  | 26.0        | 103        |   |
| 6.3.1    | Royalty & license fees receipts, % total trade .....       | 0.0         | 89         |   |
| 6.3.2    | High-tech exports less re-exports, % .....                 | 0.8         | 73         |   |
| 6.3.3    | Comm., computer & info. services exp., % total trade ..... | 1.5         | 59         | ● |
| 6.3.4    | FDI net outflows, % GDP .....                              | 0.0         | 97         |   |

|          |   |             |            |   |
|----------|---|-------------|------------|---|
| <b>7</b> | <b>Creative outputs</b> .....                             | <b>23.2</b> | <b>110</b> |   |
| 7.1      | Intangible assets .....                                   | 36.0        | 110        |   |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP .....             | 28.0        | 76         |   |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP .....          | n/a         | n/a        |   |
| 7.1.3    | ICTs & business model creation <sup>†</sup> .....         | 49.7        | 95         |   |
| 7.1.4    | ICTs & organizational model creation <sup>†</sup> .....   | 47.5        | 89         |   |
| 7.2      | Creative goods & services .....                           | 19.0        | 63         | ● |
| 7.2.1    | Cultural & creative services exports, % total trade ..... | 0.1         | 55         |   |
| 7.2.2    | National feature films/mn pop. 15–69 .....                | 0.3         | 95         | ○ |
| 7.2.3    | Global ent. & media output/th pop. 15–69 .....            | 0.0         | 59         | ○ |
| 7.2.4    | Printing & publishing manufactures, % .....               | 0.0         | 91         | ○ |
| 7.2.5    | Creative goods exports, % total trade .....               | 4.3         | 12         | ● |
| 7.3      | Online creativity .....                                   | 1.9         | 119        |   |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69 .....      | 0.6         | 115        |   |
| 7.3.2    | Country-code TLDs/th pop. 15–69 .....                     | 4.4         | 114        |   |
| 7.3.3    | Wikipedia edits/pop. 15–69 .....                          | 467.2       | 107        |   |
| 7.3.4    | Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 3.8                             |
| GDP (US\$ billions) .....   | 40.3                            |
| GDP per capita, PPP\$ ..... | 16,658.1                        |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>38.3</b>                           | <b>52</b>  |
| Innovation Output Sub-Index .....                            | 35.2                                  | 42         |
| Innovation Input Sub-Index.....                              | 41.4                                  | 64         |
| Innovation Efficiency Ratio.....                             | 0.9                                   | 20 ●       |
| Global Innovation Index 2013 (out of 142) .....              | 31.8                                  | 86         |
| <b>1 Institutions.....</b>                                   | <b>59.7</b>                           | <b>75</b>  |
| 1.1 Political environment.....                               | 59.4                                  | 64         |
| 1.1.1 Political stability*.....                              | 61.9                                  | 80         |
| 1.1.2 Government effectiveness*.....                         | 49.2                                  | 56         |
| 1.1.3 Press freedom*.....                                    | 67.1                                  | 90         |
| 1.2 Regulatory environment .....                             | 64.6                                  | 79         |
| 1.2.1 Regulatory quality* .....                              | 59.0                                  | 57         |
| 1.2.2 Rule of law*.....                                      | 40.0                                  | 72         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 18.1                                  | 86         |
| 1.3 Business environment.....                                | 55.0                                  | 101        |
| 1.3.1 Ease of starting a business*.....                      | 90.8                                  | 33         |
| 1.3.2 Ease of resolving insolvency*.....                     | 29.1                                  | 99         |
| 1.3.3 Ease of paying taxes*.....                             | 45.1                                  | 126 ○      |
| <b>2 Human capital &amp; research.....</b>                   | <b>25.1</b>                           | <b>86</b>  |
| 2.1 Education .....  | 33.9                                  | 100        |
| 2.1.1 Expenditure on education, % GDP.....                   | 3.5                                   | 98         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 10.3                                  | 97 ○       |
| 2.1.3 School life expectancy, years.....                     | 12.4                                  | 81         |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | 14.2                                  | 49         |
| 2.2 Tertiary education.....                                  | 39.5                                  | 50         |
| 2.2.1 Tertiary enrolment, % gross.....                       | 41.8                                  | 60         |
| 2.2.2 Graduates in science & engineering, % .....            | 22.0                                  | 39         |
| 2.2.3 Tertiary inbound mobility, %.....                      | n/a                                   | n/a        |
| 2.3 Research & development (R&D).....                        | 1.8                                   | 109        |
| 2.3.1 Researchers, headcounts/mn pop. ....                   | 136.2                                 | 95         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.2                                   | 88         |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                 | <b>40.5</b>                           | <b>54</b>  |
| 3.1 Information & communication technologies (ICTs).....     | 39.4                                  | 65         |
| 3.1.1 ICT access*.....                                       | 55.1                                  | 62         |
| 3.1.2 ICT use*.....  | 24.6                                  | 71         |
| 3.1.3 Government's online service*.....                      | 46.4                                  | 79         |
| 3.1.4 E-participation*.....                                  | 31.6                                  | 48         |
| 3.2 General infrastructure.....                              | 36.5                                  | 56         |
| 3.2.1 Electricity output, kWh/cap.....                       | 2,200.8                               | 76         |
| 3.2.2 Logistics performance*.....                            | 52.4                                  | 61         |
| 3.2.3 Gross capital formation, % GDP.....                    | 28.6                                  | 25 ●       |
| 3.3 Ecological sustainability.....                           | 45.6                                  | 39         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 12.1                                  | 6 ●        |
| 3.3.2 Environmental performance*.....                        | 56.8                                  | 55         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.3                                   | 101        |
| <b>4 Market sophistication .....</b>                         | <b>44.1</b>                           | <b>100</b> |
| 4.1 Credit.....  | 36.3                                  | 66         |
| 4.1.1 Ease of getting credit*.....                           | 68.8                                  | 53         |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 89.6                                  | 35         |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.9                                   | 38         |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 31.8        | 85        |
| 4.2.1 Ease of protecting investors*.....                        | 53.3        | 66        |
| 4.2.2 Market capitalization, % GDP.....                         | 34.6        | 55        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.3         | 85        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a       |
| 4.3 Trade & competition .....                                   | 64.2        | 126 ○     |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 7.6         | 110       |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 4.6         | 131 ○     |
| 4.3.3 Intensity of local competition†.....                      | 66.2        | 68        |
| <b>5 Business sophistication .....</b>                          | <b>37.7</b> | <b>42</b> |
| 5.1 Knowledge workers.....                                      | 19.4        | 124       |
| 5.1.1 Knowledge-intensive employment, %.....                    | 24.4        | 56        |
| 5.1.2 Firms offering formal training, % firms.....              | 8.6         | 103 ○     |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.0         | 86 ○      |
| 5.1.4 GERD performed by business, %.....                        | 0.2         | 85 ○      |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 67.4        | 64        |
| 5.2 Innovation linkages .....                                   | 49.6        | 18 ●      |
| 5.2.1 University/industry research collaboration†.....          | 54.2        | 41        |
| 5.2.2 State of cluster development†.....                        | 50.0        | 55        |
| 5.2.3 GERD financed by abroad, %.....                           | 49.5        | 6 ●       |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP.....             | n/a         | n/a       |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.1         | 43        |
| 5.3 Knowledge absorption.....                                   | 44.0        | 9 ●       |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 87        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 21.3        | 4 ●       |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.2         | 128 ○     |
| 5.3.4 FDI net inflows, % GDP.....                               | 9.3         | 15 ●      |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>25.4</b> | <b>79</b> |
| 6.1 Knowledge creation.....                                     | 5.4         | 110       |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.4         | 82        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 57        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.1         | 57 ○      |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 5.6         | 103       |
| 6.1.5 Citable documents H index.....                            | 106.0       | 60        |
| 6.2 Knowledge impact.....                                       | 29.3        | 109       |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a       |
| 6.2.2 New businesses/th pop. 15–64.....                         | 14.1        | 5 ●       |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 60        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 2.0         | 99        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 5.2         | 85 ○      |
| 6.3 Knowledge diffusion.....                                    | 41.6        | 28        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.0         | 71        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 19.4        | 5 ●       |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.9         | 45        |
| 6.3.4 FDI net outflows, % GDP.....                              | 1.0         | 48        |
| <b>7 Creative outputs .....</b>                                 | <b>45.0</b> | <b>27</b> |
| 7.1 Intangible assets.....                                      | 51.3        | 35        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 80.0        | 28        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a       |
| 7.1.3 ICTs & business model creation†.....                      | 64.3        | 36        |
| 7.1.4 ICTs & organizational model creation†.....                | 58.5        | 45        |
| 7.2 Creative goods & services.....                              | 46.9        | 9 ●       |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 54        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.4         | 90 ○      |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.1         | 7 ●       |
| 7.2.5 Creative goods exports, % total trade.....                | 4.7         | 11 ●      |
| 7.3 Online creativity .....                                     | 30.4        | 48        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 67.3        | 14 ●      |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 20.2        | 79        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 2,261.7     | 77        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Paraguay

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 6.7                             |
| GDP (US\$ billions) .....   | 28.3                            |
| GDP per capita, PPP\$ ..... | 6,823.2                         |
| Income group .....          | Lower-middle income             |
| Region .....                | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>31.6</b>                           | <b>89</b> |
| Innovation Output Sub-Index .....                 | 27.2                                  | 79        |
| Innovation Input Sub-Index .....                  | 36.0                                  | 99        |
| Innovation Efficiency Ratio .....                 | 0.8                                   | 63        |
| Global Innovation Index 2013 (out of 142) .....   | 30.3                                  | 100       |

|          |   |             |             |
|----------|---|-------------|-------------|
| <b>1</b> | <b>Institutions</b> .....                               | <b>47.9</b> | <b>116</b>  |
| 1.1      | Political environment .....                             | 44.4        | 112         |
| 1.1.1    | Political stability* .....                              | 45.1        | 113         |
| 1.1.2    | Government effectiveness* .....                         | 16.8        | 125         |
| 1.1.3    | Press freedom* .....                                    | 71.2        | 74          |
| 1.2      | Regulatory environment .....                            | 47.5        | 119         |
| 1.2.1    | Regulatory quality* .....                               | 40.4        | 97          |
| 1.2.2    | Rule of law* .....                                      | 22.3        | 118         |
| 1.2.3    | Cost of redundancy dismissal, salary weeks .....        | 26.1        | 115         |
| 1.3      | Business environment .....                              | 51.8        | 113         |
| 1.3.1    | Ease of starting a business* .....                      | 76.4        | 101         |
| 1.3.2    | Ease of resolving insolvency* .....                     | 16.1        | 130         |
| 1.3.3    | Ease of paying taxes* .....                             | 62.9        | 94          |
| <b>2</b> | <b>Human capital &amp; research</b> .....               | <b>25.3</b> | <b>83</b>   |
| 2.1      | Education .....   | 40.5        | 84          |
| 2.1.1    | Expenditure on education, % GDP .....                   | 4.8         | 67          |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap .....     | 17.0        | 72          |
| 2.1.3    | School life expectancy, years .....                     | 11.9        | 89          |
| 2.1.4    | PISA scales in reading, maths, & science .....          | n/a         | n/a         |
| 2.1.5    | Pupil-teacher ratio, secondary .....                    | 8.9         | 14 ●        |
| 2.2      | Tertiary education .....                                | 34.5        | 64          |
| 2.2.1    | Tertiary enrolment, % gross .....                       | 34.5        | 72          |
| 2.2.2    | Graduates in science & engineering, % .....             | n/a         | n/a         |
| 2.2.3    | Tertiary inbound mobility, % .....                      | n/a         | n/a         |
| 2.3      | Research & development (R&D) .....                      | 0.9         | 119         |
| 2.3.1    | Researchers, headcounts/mn pop. ....                    | 195.2       | 87          |
| 2.3.2    | Gross expenditure on R&D, % GDP .....                   | 0.1         | 110 ○       |
| 2.3.3    | QS university ranking, average score top 3* .....       | 0.0         | 70 ○        |
| <b>3</b> | <b>Infrastructure</b> .....                             | <b>27.6</b> | <b>104</b>  |
| 3.1      | Information & communication technologies (ICTs) .....   | 27.3        | 96          |
| 3.1.1    | ICT access* .....                                       | 36.0        | 91          |
| 3.1.2    | ICT use* .....  | 11.7        | 101         |
| 3.1.3    | Government's online service* .....                      | 45.8        | 82          |
| 3.1.4    | E-participation* .....                                  | 15.8        | 79          |
| 3.2      | General infrastructure .....                            | 27.5        | 100         |
| 3.2.1    | Electricity output, kWh/cap .....                       | 8,771.1     | 18 ●        |
| 3.2.2    | Logistics performance* .....                            | 34.5        | 110         |
| 3.2.3    | Gross capital formation, % GDP .....                    | 16.6        | 119         |
| 3.3      | Ecological sustainability .....                         | 28.0        | 102         |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 6.6         | 53 ●        |
| 3.3.2    | Environmental performance* .....                        | 39.3        | 111         |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.3         | 99          |
| <b>4</b> | <b>Market sophistication</b> .....                      | <b>50.2</b> | <b>57 ●</b> |
| 4.1      | Credit .....  | 43.2        | 49 ●        |
| 4.1.1    | Ease of getting credit* .....                           | 56.3        | 81          |
| 4.1.2    | Domestic credit to private sector, % GDP .....          | 41.3        | 79          |
| 4.1.3    | Microfinance gross loans, % GDP .....                   | 4.9         | 10 ●        |

|          |  |             |             |
|----------|--|-------------|-------------|
| 4.2      | Investment .....   | 28.9        | 103         |
| 4.2.1    | Ease of protecting investors* .....                        | 56.7        | 55          |
| 4.2.2    | Market capitalization, % GDP .....                         | 3.8         | 105 ○       |
| 4.2.3    | Total value of stocks traded, % GDP .....                  | 0.2         | 90          |
| 4.2.4    | Venture capital deals/tr PPP\$ GDP .....                   | n/a         | n/a         |
| 4.3      | Trade & competition .....                                  | 78.4        | 39 ●        |
| 4.3.1    | Applied tariff rate, weighted mean, % .....                | 4.5         | 79          |
| 4.3.2    | Non-agricultural mkt access weighted tariff, % .....       | 1.0         | 73          |
| 4.3.3    | Intensity of local competition† .....                      | 69.7        | 54 ●        |
| <b>5</b> | <b>Business sophistication</b> .....                       | <b>29.1</b> | <b>86</b>   |
| 5.1      | Knowledge workers .....                                    | 27.3        | 103         |
| 5.1.1    | Knowledge-intensive employment, % .....                    | 15.4        | 88          |
| 5.1.2    | Firms offering formal training, % firms .....              | 51.7        | 24 ●        |
| 5.1.3    | GERD performed by business, % GDP .....                    | 0.0         | 85 ○        |
| 5.1.4    | GERD performed by business, % .....                        | 0.8         | 82 ○        |
| 5.1.5    | GMAT test takers/mn pop. 20–34 .....                       | 9.5         | 122         |
| 5.2      | Innovation linkages .....                                  | 28.9        | 84          |
| 5.2.1    | University/industry research collaboration† .....          | 29.3        | 120         |
| 5.2.2    | State of cluster development† .....                        | 36.0        | 115         |
| 5.2.3    | GERD financed by abroad, % .....                           | 16.9        | 24 ●        |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP .....             | n/a         | n/a         |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP .....     | n/a         | n/a         |
| 5.3      | Knowledge absorption .....                                 | 31.1        | 40 ●        |
| 5.3.1    | Royalty & license fees payments, % total trade .....       | 0.0         | 117 ○       |
| 5.3.2    | High-tech imports less re-imports, % .....                 | 19.9        | 6 ●         |
| 5.3.3    | Comm., computer & info. services imp., % total trade ..... | 0.0         | 136 ○       |
| 5.3.4    | FDI net inflows, % GDP .....                               | 1.6         | 98          |
| <b>6</b> | <b>Knowledge &amp; technology outputs</b> .....            | <b>17.5</b> | <b>121</b>  |
| 6.1      | Knowledge creation .....                                   | 3.0         | 132 ○       |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP .....            | 0.5         | 77          |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP .....                 | n/a         | n/a         |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP .....          | n/a         | n/a         |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP .....         | 1.4         | 136 ○       |
| 6.1.5    | Citable documents H index .....                            | 45.0        | 116         |
| 6.2      | Knowledge impact .....                                     | 12.9        | 122         |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, % .....                   | n/a         | n/a         |
| 6.2.2    | New businesses/th pop. 15–64 .....                         | n/a         | n/a         |
| 6.2.3    | Computer software spending, % GDP .....                    | n/a         | n/a         |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP .....           | 5.6         | 63          |
| 6.2.5    | High- & medium-high-tech manufactures, % .....             | n/a         | n/a         |
| 6.3      | Knowledge diffusion .....                                  | 36.5        | 42 ●        |
| 6.3.1    | Royalty & license fees receipts, % total trade .....       | 2.4         | 10 ●        |
| 6.3.2    | High-tech exports less re-exports, % .....                 | 0.5         | 79          |
| 6.3.3    | Comm., computer & info. services exp., % total trade ..... | 0.1         | 130 ○       |
| 6.3.4    | FDI net outflows, % GDP .....                              | 0.4         | 72          |
| <b>7</b> | <b>Creative outputs</b> .....                              | <b>36.9</b> | <b>50 ●</b> |
| 7.1      | Intangible assets .....                                    | 67.9        | 4 ●         |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP .....              | 347.6       | 1 ●         |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP .....           | n/a         | n/a         |
| 7.1.3    | ICTs & business model creation† .....                      | 53.8        | 79          |
| 7.1.4    | ICTs & organizational model creation† .....                | 49.8        | 82          |
| 7.2      | Creative goods & services .....                            | 3.2         | 117         |
| 7.2.1    | Cultural & creative services exports, % total trade .....  | 0.0         | 99 ○        |
| 7.2.2    | National feature films/mn pop. 15–69 .....                 | 1.3         | 66          |
| 7.2.3    | Global ent. & media output/th pop. 15–69 .....             | n/a         | n/a         |
| 7.2.4    | Printing & publishing manufactures, % .....                | n/a         | n/a         |
| 7.2.5    | Creative goods exports, % total trade .....                | 0.1         | 101         |
| 7.3      | Online creativity .....                                    | 8.6         | 98          |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69 .....       | 2.2         | 87          |
| 7.3.2    | Country-code TLDs/th pop. 15–69 .....                      | 20.3        | 78          |
| 7.3.3    | Wikipedia edits/pop. 15–69 .....                           | 1,957.3     | 82          |
| 7.3.4    | Video uploads on YouTube/pop. 15–69 .....                  | n/a         | n/a         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 30.0                            |
| GDP (US\$ billions) .....   | 206.5                           |
| GDP per capita, PPP\$ ..... | 11,123.7                        |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>34.7</b>                           | <b>73</b> |
| Innovation Output Sub-Index .....                | 26.6                                  | 85        |
| Innovation Input Sub-Index.....                  | 42.8                                  | 60        |
| Innovation Efficiency Ratio.....                 | 0.6                                   | 107       |
| Global Innovation Index 2013 (out of 142) .....  | 36.0                                  | 69        |

|          |  |             |             |
|----------|--|-------------|-------------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>61.1</b> | <b>68</b>   |
| 1.1      | Political environment.....                             | 49.8        | 89          |
| 1.1.1    | Political stability*.....                              | 44.6        | 114         |
| 1.1.2    | Government effectiveness*.....                         | 36.7        | 81          |
| 1.1.3    | Press freedom*.....                                    | 68.1        | 84          |
| 1.2      | Regulatory environment.....                            | 69.3        | 58          |
| 1.2.1    | Regulatory quality*.....                               | 61.6        | 50          |
| 1.2.2    | Rule of law*.....                                      | 29.5        | 100         |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 11.4        | 47          |
| 1.3      | Business environment.....                              | 64.2        | 72          |
| 1.3.1    | Ease of starting a business*.....                      | 86.3        | 63          |
| 1.3.2    | Ease of resolving insolvency*.....                     | 29.3        | 97          |
| 1.3.3    | Ease of paying taxes*.....                             | 76.9        | 43          |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>27.2</b> | <b>76</b>   |
| 2.1      | Education.....   | 30.4        | 116         |
| 2.1.1    | Expenditure on education, % GDP.....                   | 2.8         | 115 ○       |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 10.1        | 98 ○        |
| 2.1.3    | School life expectancy, years.....                     | 13.1        | 72          |
| 2.1.4    | PISA scales in reading, maths, & science.....          | 375.1       | 61 ○        |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 16.8        | 69          |
| 2.2      | Tertiary education.....                                | 42.8        | 37 ●        |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 42.6        | 59          |
| 2.2.2    | Graduates in science & engineering, %.....             | n/a         | n/a         |
| 2.2.3    | Tertiary inbound mobility, %.....                      | n/a         | n/a         |
| 2.3      | Research & development (R&D).....                      | 8.4         | 72          |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 181.2       | 89          |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 0.1         | 96          |
| 2.3.3    | QS university ranking, average score top 3*.....       | 20.6        | 50          |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>38.2</b> | <b>63</b>   |
| 3.1      | Information & communication technologies (ICTs).....   | 36.5        | 72          |
| 3.1.1    | ICT access*.....                                       | 38.5        | 88          |
| 3.1.2    | ICT use*.....  | 16.3        | 92          |
| 3.1.3    | Government's online service*.....                      | 51.6        | 62          |
| 3.1.4    | E-participation*.....                                  | 39.5        | 38          |
| 3.2      | General infrastructure.....                            | 34.8        | 62          |
| 3.2.1    | Electricity output, kWh/cap.....                       | 1,334.1     | 86          |
| 3.2.2    | Logistics performance*.....                            | 52.8        | 59          |
| 3.2.3    | Gross capital formation, % GDP.....                    | 27.9        | 30 ●        |
| 3.3      | Ecological sustainability.....                         | 43.3        | 48          |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 12.9        | 3 ●         |
| 3.3.2    | Environmental performance*.....                        | 45.1        | 95          |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.9         | 65          |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>58.5</b> | <b>29 ●</b> |
| 4.1      | Credit.....  | 50.5        | 33 ●        |
| 4.1.1    | Ease of getting credit*.....                           | 81.3        | 27 ●        |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 27.3        | 104         |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | 5.0         | 9 ●         |

|          |   |             |            |
|----------|---|-------------|------------|
| 4.2      | Investment.....   | 42.8        | 45         |
| 4.2.1    | Ease of protecting investors*.....                        | 70.0        | 16 ●       |
| 4.2.2    | Market capitalization, % GDP.....                         | 49.1        | 41         |
| 4.2.3    | Total value of stocks traded, % GDP.....                  | 2.5         | 59         |
| 4.2.4    | Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3      | Trade & competition.....                                  | 82.4        | 13 ●       |
| 4.3.1    | Applied tariff rate, weighted mean, %.....                | 1.5         | 40         |
| 4.3.2    | Non-agricultural mkt access weighted tariff, %.....       | 0.2         | 33 ●       |
| 4.3.3    | Intensity of local competition†.....                      | 68.3        | 58         |
| <b>5</b> | <b>Business sophistication.....</b>                       | <b>29.1</b> | <b>88</b>  |
| 5.1      | Knowledge workers.....                                    | 38.5        | 72         |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 15.3        | 90         |
| 5.1.2    | Firms offering formal training, % firms.....              | 57.0        | 12 ●       |
| 5.1.3    | GERD performed by business, % GDP.....                    | 0.0         | 70         |
| 5.1.4    | GERD performed by business, %.....                        | 29.2        | 55         |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 69.9        | 62         |
| 5.2      | Innovation linkages.....                                  | 23.5        | 114        |
| 5.2.1    | University/industry research collaboration†.....          | 35.7        | 105        |
| 5.2.2    | State of cluster development†.....                        | 40.3        | 98         |
| 5.2.3    | GERD financed by abroad, %.....                           | n/a         | n/a        |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 105 ○      |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 101 ○      |
| 5.3      | Knowledge absorption.....                                 | 25.2        | 71         |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | 0.5         | 53         |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 8.4         | 51         |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 0.8         | 70         |
| 5.3.4    | FDI net inflows, % GDP.....                               | 4.7         | 45         |
| <b>6</b> | <b>Knowledge &amp; technology outputs.....</b>            | <b>20.2</b> | <b>112</b> |
| 6.1      | Knowledge creation.....                                   | 4.4         | 119        |
| 6.1.1    | Domestic resident patent app./tr PPP\$ GDP.....           | 0.2         | 96 ○       |
| 6.1.2    | PCT resident patent app./tr PPP\$ GDP.....                | 0.0         | 100 ○      |
| 6.1.3    | Domestic res utility model app./tr PPP\$ GDP.....         | 0.4         | 41         |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 2.1         | 133 ○      |
| 6.1.5    | Citable documents H index.....                            | 109.0       | 57         |
| 6.2      | Knowledge impact.....                                     | 35.0        | 81         |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | 4.5         | 14 ●       |
| 6.2.2    | New businesses/th pop. 15–64.....                         | 3.8         | 28 ●       |
| 6.2.3    | Computer software spending, % GDP.....                    | 0.3         | 61         |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 2.9         | 88         |
| 6.2.5    | High- & medium-high-tech manufactures, %.....             | 10.0        | 75         |
| 6.3      | Knowledge diffusion.....                                  | 21.4        | 126 ○      |
| 6.3.1    | Royalty & license fees receipts, % total trade.....       | 0.0         | 91         |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.4         | 83         |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 0.3         | 113        |
| 6.3.4    | FDI net outflows, % GDP.....                              | 0.0         | 110 ○      |
| <b>7</b> | <b>Creative outputs.....</b>                              | <b>33.1</b> | <b>66</b>  |
| 7.1      | Intangible assets.....                                    | 44.8        | 69         |
| 7.1.1    | Domestic res trademark app./bn PPP\$ GDP.....             | 56.0        | 47         |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a        |
| 7.1.3    | ICTs & business model creation†.....                      | 55.8        | 70         |
| 7.1.4    | ICTs & organizational model creation†.....                | 56.8        | 53         |
| 7.2      | Creative goods & services.....                            | 17.3        | 72         |
| 7.2.1    | Cultural & creative services exports, % total trade.....  | 0.1         | 61         |
| 7.2.2    | National feature films/mn pop. 15–69.....                 | 0.4         | 91 ○       |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4    | Printing & publishing manufactures, %.....                | 0.0         | 17 ●       |
| 7.2.5    | Creative goods exports, % total trade.....                | 0.3         | 71         |
| 7.3      | Online creativity.....                                    | 25.4        | 59         |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....       | 4.8         | 61         |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                      | 20.8        | 75         |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                           | 3,190.1     | 68         |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                  | 70.4        | 41         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Philippines

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 96.7                        |
| GDP (US\$ billions) .....   | 272.0                       |
| GDP per capita, PPP\$ ..... | 4,682.0                     |
| Income group .....          | Lower-middle income         |
| Region .....                | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>29.9</b>                           | <b>100</b> |
| Innovation Output Sub-Index .....                             | 26.8                                  | 84         |
| Innovation Input Sub-Index .....                              | 32.9                                  | 110        |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 35 ●       |
| Global Innovation Index 2013 (out of 142) .....               | 35.5                                  | 90         |
| <b>1 Institutions.....</b>                                    | <b>49.6</b>                           | <b>108</b> |
| 1.1 Political environment.....                                | 45.7                                  | 104        |
| 1.1.1 Political stability*.....                               | 37.3                                  | 121        |
| 1.1.2 Government effectiveness*.....                          | 42.9                                  | 64         |
| 1.1.3 Press freedom*.....                                     | 56.9                                  | 120        |
| 1.2 Regulatory environment .....                              | 50.1                                  | 115        |
| 1.2.1 Regulatory quality* .....                               | 47.3                                  | 75         |
| 1.2.2 Rule of law*.....                                       | 31.4                                  | 94         |
| 1.2.3 Cost of redundancy dismissal, salary weeks .....        | 27.4                                  | 124 ○      |
| 1.3 Business environment.....                                 | 53.0                                  | 109        |
| 1.3.1 Ease of starting a business* .....                      | 65.0                                  | 125 ○      |
| 1.3.2 Ease of resolving insolvency*.....                      | 31.7                                  | 89         |
| 1.3.3 Ease of paying taxes*.....                              | 62.3                                  | 95         |
| <b>2 Human capital &amp; research.....</b>                    | <b>15.2</b>                           | <b>121</b> |
| 2.1 Education .....   | 20.8                                  | 132 ○      |
| 2.1.1 Expenditure on education, % GDP .....                   | 2.7                                   | 117 ○      |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 9.1                                   | 101 ○      |
| 2.1.3 School life expectancy, years.....                      | 11.3                                  | 101        |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 34.8                                  | 112 ○      |
| 2.2 Tertiary education.....                                   | 14.3                                  | 113        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 28.2                                  | 77         |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.1                                   | 108 ○      |
| 2.3 Research & development (R&D).....                         | 10.5                                  | 67         |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 129.3                                 | 97         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.1                                   | 102 ○      |
| 2.3.3 QS university ranking, average score top 3*.....        | 28.0                                  | 45 ●       |
| <b>3 Infrastructure.....</b>                                  | <b>30.0</b>                           | <b>94</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 29.9                                  | 90         |
| 3.1.1 ICT access*.....  | 34.1                                  | 95         |
| 3.1.2 ICT use* .....  | 14.6                                  | 95         |
| 3.1.3 Government's online service*.....                       | 49.7                                  | 68         |
| 3.1.4 E-participation*.....                                   | 21.1                                  | 65         |
| 3.2 General infrastructure.....                               | 25.1                                  | 112        |
| 3.2.1 Electricity output, kWh/cap.....                        | 729.3                                 | 98         |
| 3.2.2 Logistics performance* .....                            | 56.0                                  | 52         |
| 3.2.3 Gross capital formation, % GDP.....                     | 18.6                                  | 107        |
| 3.3 Ecological sustainability.....                            | 35.0                                  | 72         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 8.5                                   | 32 ●       |
| 3.3.2 Environmental performance*.....                         | 44.0                                  | 99         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 1.3                                   | 57         |
| <b>4 Market sophistication .....</b>                          | <b>44.8</b>                           | <b>93</b>  |
| 4.1 Credit.....   | 23.0                                  | 118        |
| 4.1.1 Ease of getting credit* .....                           | 56.3                                  | 81         |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 33.4                                  | 92         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.2                                   | 56         |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 34.0        | 73         |
| 4.2.1 Ease of protecting investors*.....                        | 43.3        | 105        |
| 4.2.2 Market capitalization, % GDP.....                         | 105.5       | 14 ●       |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 13.9        | 32 ●       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 38         |
| 4.3 Trade & competition .....                                   | 77.6        | 47 ●       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 4.8         | 81         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.8         | 68         |
| 4.3.3 Intensity of local competition†.....                      | 67.8        | 60         |
| <b>5 Business sophistication .....</b>                          | <b>25.1</b> | <b>113</b> |
| 5.1 Knowledge workers.....                                      | 33.6        | 87         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 22.5        | 64         |
| 5.1.2 Firms offering formal training, % firms.....              | 31.1        | 61         |
| 5.1.3 GERD performed by business, % GDP .....                   | 0.1         | 67         |
| 5.1.4 GERD performed by business, %.....                        | 56.9        | 26 ●       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 15.5        | 112        |
| 5.2 Innovation linkages .....                                   | 26.2        | 97         |
| 5.2.1 University/industry research collaboration† .....         | 43.0        | 67         |
| 5.2.2 State of cluster development† .....                       | 50.5        | 52         |
| 5.2.3 GERD financed by abroad, %.....                           | 4.1         | 65         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.1         | 34 ●       |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 87         |
| 5.3 Knowledge absorption.....                                   | 15.4        | 123        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.7         | 42 ●       |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a         | n/a        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.5         | 96         |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.1         | 111        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>27.1</b> | <b>68</b>  |
| 6.1 Knowledge creation.....                                     | 10.4        | 76         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.4         | 84         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 93         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.6         | 21         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 2.1         | 131 ○      |
| 6.1.5 Citable documents H index.....                            | 116.0       | 54         |
| 6.2 Knowledge impact.....                                       | 30.8        | 103        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                  | 2.5         | 45         |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.3         | 81         |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 53         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 4.5         | 67         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 16.3        | 60         |
| 6.3 Knowledge diffusion.....                                    | 40.2        | 31 ●       |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 92         |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a         | n/a        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 3.6         | 15 ●       |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.7         | 53         |
| <b>7 Creative outputs .....</b>                                 | <b>26.5</b> | <b>98</b>  |
| 7.1 Intangible assets .....                                     | 40.7        | 88         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 39.2        | 64         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.0         | 64         |
| 7.1.3 ICTs & business model creation†.....                      | 63.3        | 41 ●       |
| 7.1.4 ICTs & organizational model creation†.....                | 63.7        | 26 ●       |
| 7.2 Creative goods & services.....                              | 4.4         | 112        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 62         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.3         | 63         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.1         | 51 ○       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 90 ○       |
| 7.2.5 Creative goods exports, % total trade.....                | n/a         | n/a        |
| 7.3 Online creativity .....                                     | 20.1        | 66         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 1.5         | 100        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 10.1        | 103        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 2,190.9     | 79         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 65.1        | 48         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 38.5        |
| GDP (US\$ billions) .....   | 516.1       |
| GDP per capita, PPP\$ ..... | 21,214.3    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>40.6</b>                           | <b>45</b> |
| Innovation Output Sub-Index .....                             | 34.0                                  | 48        |
| Innovation Input Sub-Index.....                               | 47.3                                  | 40        |
| Innovation Efficiency Ratio.....                              | 0.7                                   | 76        |
| Global Innovation Index 2013 (out of 142) .....               | 40.1                                  | 49        |
| <b>1 Institutions.....</b>                                    | <b>74.7</b>                           | <b>35</b> |
| 1.1 Political environment.....                                | 78.8                                  | 27        |
| 1.1.1 Political stability*.....                               | 90.9                                  | 18 ●      |
| 1.1.2 Government effectiveness*.....                          | 58.6                                  | 42        |
| 1.1.3 Press freedom*.....                                     | 86.9                                  | 20 ●      |
| 1.2 Regulatory environment .....                              | 74.4                                  | 42        |
| 1.2.1 Regulatory quality* .....                               | 73.9                                  | 34        |
| 1.2.2 Rule of law*.....                                       | 66.9                                  | 38        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 18.8                                  | 88        |
| 1.3 Business environment.....                                 | 71.1                                  | 42        |
| 1.3.1 Ease of starting a business*.....                       | 85.9                                  | 66        |
| 1.3.2 Ease of resolving insolvency*.....                      | 58.0                                  | 33        |
| 1.3.3 Ease of paying taxes*.....                              | 69.3                                  | 72        |
| <b>2 Human capital &amp; research.....</b>                    | <b>37.9</b>                           | <b>43</b> |
| 2.1 Education .....   | 54.0                                  | 33        |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.2                                   | 53        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 24.7                                  | 43        |
| 2.1.3 School life expectancy, years.....                      | 15.5                                  | 34        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 520.5                                 | 9 ●       |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 8.7                                   | 12 ●      |
| 2.2 Tertiary education.....                                   | 34.0                                  | 67        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 73.2                                  | 21 ●      |
| 2.2.2 Graduates in science & engineering, % .....             | 16.8                                  | 69        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.2                                   | 79 ○      |
| 2.3 Research & development (R&D).....                         | 25.7                                  | 38        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 2,636.4                               | 33        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.9                                   | 37        |
| 2.3.3 QS university ranking, average score top 3*.....        | 31.9                                  | 39        |
| <b>3 Infrastructure.....</b>                                  | <b>41.9</b>                           | <b>49</b> |
| 3.1 Information & communication technologies (ICTs).....      | 46.3                                  | 50        |
| 3.1.1 ICT access*.....  | 64.6                                  | 42        |
| 3.1.2 ICT use* .....  | 48.4                                  | 35        |
| 3.1.3 Government's online service*.....                       | 53.6                                  | 56        |
| 3.1.4 E-participation*.....                                   | 18.4                                  | 73        |
| 3.2 General infrastructure.....                               | 35.1                                  | 61        |
| 3.2.1 Electricity output, kWh/cap.....                        | 4,202.9                               | 51        |
| 3.2.2 Logistics performance*.....                             | 72.2                                  | 29        |
| 3.2.3 Gross capital formation, % GDP.....                     | 20.2                                  | 90        |
| 3.3 Ecological sustainability.....                            | 44.5                                  | 43        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 7.3                                   | 46        |
| 3.3.2 Environmental performance*.....                         | 69.5                                  | 30        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 2.5                                   | 38        |
| <b>4 Market sophistication .....</b>                          | <b>48.2</b>                           | <b>70</b> |
| 4.1 Credit.....   | 37.0                                  | 64        |
| 4.1.1 Ease of getting credit*.....                            | 93.8                                  | 3 ●       |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 53.8                                  | 61        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.1                                   | 76 ○      |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 31.2        | 90        |
| 4.2.1 Ease of protecting investors*.....                        | 60.0        | 42        |
| 4.2.2 Market capitalization, % GDP.....                         | 36.3        | 54        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 13.7        | 33        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 55 ○      |
| 4.3 Trade & competition .....                                   | 76.5        | 57        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 72.5        | 36        |
| <b>5 Business sophistication .....</b>                          | <b>33.7</b> | <b>64</b> |
| 5.1 Knowledge workers.....                                      | 50.6        | 40        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 35.1        | 33        |
| 5.1.2 Firms offering formal training, % firms.....              | 60.5        | 8 ●       |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.3         | 41        |
| 5.1.4 GERD performed by business, %.....                        | 37.2        | 49        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 32.7        | 93        |
| 5.2 Innovation linkages .....                                   | 24.8        | 103 ○     |
| 5.2.1 University/industry research collaboration†.....          | 42.3        | 70        |
| 5.2.2 State of cluster development† .....                       | 40.2        | 99 ○      |
| 5.2.3 GERD financed by abroad, %.....                           | 13.3        | 35        |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 95 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.1         | 49        |
| 5.3 Knowledge absorption.....                                   | 25.8        | 67        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.0         | 28        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 8.9         | 43        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.1         | 55        |
| 5.3.4 FDI net inflows, % GDP.....                               | 0.6         | 123 ○     |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>31.2</b> | <b>53</b> |
| 6.1 Knowledge creation.....                                     | 25.2        | 41        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 5.6         | 23        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 51        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.2         | 30        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 26.6        | 36        |
| 6.1.5 Citable documents H index.....                            | 302.0       | 23        |
| 6.2 Knowledge impact.....                                       | 37.7        | 71        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.1         | 54        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.0         | 92 ○      |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 48        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 12.8        | 37        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 33.8        | 30        |
| 6.3 Knowledge diffusion.....                                    | 30.7        | 75        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 55        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 4.7         | 33        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.3         | 69        |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.3         | 75        |
| <b>7 Creative outputs .....</b>                                 | <b>36.7</b> | <b>51</b> |
| 7.1 Intangible assets.....                                      | 34.1        | 118 ○     |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 53.2        | 52        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.5         | 40        |
| 7.1.3 ICTs & business model creation†.....                      | 48.3        | 102 ○     |
| 7.1.4 ICTs & organizational model creation†.....                | 46.0        | 92        |
| 7.2 Creative goods & services.....                              | 34.7        | 29        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 1.1         | 6 ●       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.8         | 55        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.3         | 34        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 64 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 4.2         | 14 ●      |
| 7.3 Online creativity .....                                     | 44.1        | 32        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 8.7         | 51        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 60.2        | 19 ●      |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 14,003.0    | 36        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 83.7        | 21        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Portugal

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 10.5        |
| GDP (US\$ billions) .....   | 220.0       |
| GDP per capita, PPP\$ ..... | 23,068.4    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>45.6</b>                           | <b>32</b> |
| Innovation Output Sub-Index .....                             | 38.7                                  | 36        |
| Innovation Input Sub-Index .....                              | 52.6                                  | 29        |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 73        |
| Global Innovation Index 2013 (out of 142) .....               | 45.1                                  | 34        |
| <b>1 Institutions.....</b>                                    | <b>77.3</b>                           | <b>28</b> |
| 1.1 Political environment.....                                | 78.6                                  | 28        |
| 1.1.1 Political stability*.....                               | 84.0                                  | 35        |
| 1.1.2 Government effectiveness*.....                          | 68.5                                  | 30        |
| 1.1.3 Press freedom*.....                                     | 83.3                                  | 26        |
| 1.2 Regulatory environment .....                              | 71.1                                  | 47        |
| 1.2.1 Regulatory quality* .....                               | 70.0                                  | 37        |
| 1.2.2 Rule of law*.....                                       | 74.9                                  | 27        |
| 1.2.3 Cost of redundancy dismissal, salary weeks .....        | 23.1                                  | 107 ○     |
| 1.3 Business environment.....                                 | 82.2                                  | 17 ●      |
| 1.3.1 Ease of starting a business* .....                      | 95.7                                  | 11 ●      |
| 1.3.2 Ease of resolving insolvency*.....                      | 75.8                                  | 21        |
| 1.3.3 Ease of paying taxes*.....                              | 74.9                                  | 48        |
| <b>2 Human capital &amp; research.....</b>                    | <b>51.3</b>                           | <b>21</b> |
| 2.1 Education .....   | 58.7                                  | 9 ●       |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.6                                   | 40        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 36.5                                  | 8 ●       |
| 2.1.3 School life expectancy, years.....                      | 16.3                                  | 20        |
| 2.1.4 PISA scales in reading, maths, & science .....          | 488.0                                 | 29        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 7.3                                   | 1 ●       |
| 2.2 Tertiary education.....                                   | 42.0                                  | 38        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 65.9                                  | 27        |
| 2.2.2 Graduates in science & engineering, % .....             | 24.6                                  | 30        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 2.9                                   | 53        |
| 2.3 Research & development (R&D).....                         | 53.1                                  | 19        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 9,477.1                               | 4 ●       |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 1.5                                   | 26        |
| 2.3.3 QS university ranking, average score top 3*.....        | 36.4                                  | 36        |
| <b>3 Infrastructure.....</b>                                  | <b>46.6</b>                           | <b>32</b> |
| 3.1 Information & communication technologies (ICTs).....      | 54.2                                  | 36        |
| 3.1.1 ICT access*.....  | 70.0                                  | 33        |
| 3.1.2 ICT use*.....   | 44.5                                  | 40        |
| 3.1.3 Government's online service*.....                       | 65.4                                  | 38        |
| 3.1.4 E-participation*.....                                   | 36.8                                  | 42        |
| 3.2 General infrastructure.....                               | 30.2                                  | 83        |
| 3.2.1 Electricity output, kWh/cap.....                        | 4,279.7                               | 48        |
| 3.2.2 Logistics performance*.....                             | 75.0                                  | 27        |
| 3.2.3 Gross capital formation, % GDP.....                     | 14.7                                  | 128 ○     |
| 3.3 Ecological sustainability.....                            | 55.4                                  | 13 ●      |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 10.1                                  | 16 ●      |
| 3.3.2 Environmental performance*.....                         | 75.8                                  | 17 ●      |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 4.8                                   | 25        |
| <b>4 Market sophistication .....</b>                          | <b>53.2</b>                           | <b>45</b> |
| 4.1 Credit.....   | 55.2                                  | 23        |
| 4.1.1 Ease of getting credit* .....                           | 50.0                                  | 96 ○      |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 184.2                                 | 8 ●       |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 31.6        | 88        |
| 4.2.1 Ease of protecting investors*.....                        | 60.0        | 42        |
| 4.2.2 Market capitalization, % GDP.....                         | 30.8        | 58        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 12.5        | 36        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 39        |
| 4.3 Trade & competition .....                                   | 72.8        | 93 ○      |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 65.0        | 74        |
| <b>5 Business sophistication .....</b>                          | <b>34.5</b> | <b>56</b> |
| 5.1 Knowledge workers.....                                      | 46.6        | 50        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 31.0        | 44        |
| 5.1.2 Firms offering formal training, % firms.....              | 31.9        | 58        |
| 5.1.3 GERD performed by business, % GDP .....                   | 0.7         | 27        |
| 5.1.4 GERD performed by business, %.....                        | 47.0        | 38        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 288.1       | 20        |
| 5.2 Innovation linkages .....                                   | 29.3        | 81        |
| 5.2.1 University/industry research collaboration† .....         | 60.0        | 26        |
| 5.2.2 State of cluster development† .....                       | 52.7        | 38        |
| 5.2.3 GERD financed by abroad, %.....                           | 5.9         | 59 ○      |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 76 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.1         | 40        |
| 5.3 Knowledge absorption.....                                   | 27.7        | 53        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.5         | 50        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.5         | 78 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.2         | 50        |
| 5.3.4 FDI net inflows, % GDP.....                               | 6.5         | 29        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>32.7</b> | <b>46</b> |
| 6.1 Knowledge creation.....                                     | 23.1        | 44        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....           | 2.5         | 44        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.5         | 38        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....         | 0.3         | 44 ○      |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 50.1        | 10 ●      |
| 6.1.5 Citable documents H index.....                            | 234.0       | 32        |
| 6.2 Knowledge impact.....                                       | 46.3        | 42        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                  | 0.4         | 83 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.0         | 92 ○      |
| 6.2.3 Computer software spending, % GDP.....                    | 0.7         | 8 ●       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....          | 27.2        | 17 ●      |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 24.7        | 42        |
| 6.3 Knowledge diffusion.....                                    | 28.9        | 85        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 64        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 2.3         | 50        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.5         | 61        |
| 6.3.4 FDI net outflows, % GDP .....                             | 2.4         | 32        |
| <b>7 Creative outputs .....</b>                                 | <b>44.7</b> | <b>28</b> |
| 7.1 Intangible assets .....                                     | 50.5        | 39        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....             | 93.8        | 19        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....          | 0.8         | 33        |
| 7.1.3 ICTs & business model creation†.....                      | 69.2        | 21        |
| 7.1.4 ICTs & organizational model creation†.....                | 64.0        | 25        |
| 7.2 Creative goods & services.....                              | 31.8        | 36        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.6         | 21        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 3.9         | 34        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.9         | 23        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 39        |
| 7.2.5 Creative goods exports, % total trade.....                | 2.0         | 26        |
| 7.3 Online creativity .....                                     | 45.8        | 30        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 21.3        | 30        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 59.1        | 22        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 11,967.6    | 40        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 82.5        | 24        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 2.1                              |
| GDP (US\$ billions) .....   | 202.6                            |
| GDP per capita, PPP\$ ..... | 98,813.7                         |
| Income group .....          | High income                      |
| Region .....                | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>40.3</b>                           | <b>47</b> |
| Innovation Output Sub-Index .....                | 30.2                                  | 69        |
| Innovation Input Sub-Index.....                  | 50.4                                  | 34        |
| Innovation Efficiency Ratio.....                 | 0.6                                   | 114       |
| Global Innovation Index 2013 (out of 142) .....  | 41.0                                  | 43        |

|          |  |             |           |
|----------|--|-------------|-----------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>75.5</b> | <b>33</b> |
| 1.1      | Political environment.....                             | 76.2        | 33        |
| 1.1.1    | Political stability*.....                              | 95.4        | 9 ●       |
| 1.1.2    | Government effectiveness*.....                         | 66.1        | 34        |
| 1.1.3    | Press freedom*.....                                    | 67.1        | 89        |
| 1.2      | Regulatory environment.....                            | 70.8        | 49        |
| 1.2.1    | Regulatory quality*.....                               | 69.6        | 38        |
| 1.2.2    | Rule of law*.....                                      | 74.8        | 28        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 23.2        | 109       |
| 1.3      | Business environment.....                              | 79.5        | 24        |
| 1.3.1    | Ease of starting a business*.....                      | 82.1        | 77        |
| 1.3.2    | Ease of resolving insolvency*.....                     | 58.9        | 32        |
| 1.3.3    | Ease of paying taxes*.....                             | 97.5        | 2 ●       |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>33.6</b> | <b>53</b> |
| 2.1      | Education.....   | 33.8        | 101       |
| 2.1.1    | Expenditure on education, % GDP.....                   | 2.5         | 122 ○     |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 10.3        | 96 ○      |
| 2.1.3    | School life expectancy, years.....                     | 13.8        | 59        |
| 2.1.4    | PISA scales in reading, maths, & science.....          | 382.5       | 60 ○      |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 9.7         | 23        |
| 2.2      | Tertiary education.....                                | 58.5        | 9 ●       |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 12.1        | 103       |
| 2.2.2    | Graduates in science & engineering, %.....             | 33.6        | 9 ●       |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 41.4        | 1 ●       |
| 2.3      | Research & development (R&D).....                      | 8.3         | 74        |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | n/a         | n/a       |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | n/a         | n/a       |
| 2.3.3    | QS university ranking, average score top 3*.....       | 8.3         | 60        |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>53.1</b> | <b>23</b> |
| 3.1      | Information & communication technologies (ICTs).....   | 66.5        | 23        |
| 3.1.1    | ICT access*.....                                       | 71.0        | 31        |
| 3.1.2    | ICT use*.....  | 57.9        | 25        |
| 3.1.3    | Government's online service*.....                      | 73.9        | 27        |
| 3.1.4    | E-participation*.....                                  | 63.2        | 22        |
| 3.2      | General infrastructure.....                            | 58.8        | 6 ●       |
| 3.2.1    | Electricity output, kWh/cap.....                       | 16,433.2    | 6 ●       |
| 3.2.2    | Logistics performance*.....                            | 67.9        | 33        |
| 3.2.3    | Gross capital formation, % GDP.....                    | 29.5        | 24        |
| 3.3      | Ecological sustainability.....                         | 34.0        | 77        |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 4.4         | 93        |
| 3.3.2    | Environmental performance*.....                        | 63.0        | 44        |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.8         | 67        |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>46.3</b> | <b>84</b> |
| 4.1      | Credit.....  | 27.2        | 104       |
| 4.1.1    | Ease of getting credit*.....                           | 43.8        | 112 ○     |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 36.1        | 89        |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | n/a         | n/a       |

|          |   |             |            |
|----------|---|-------------|------------|
| 4.2      | Investment.....   | 28.8        | 105        |
| 4.2.1    | Ease of protecting investors*.....                        | 43.3        | 105        |
| 4.2.2    | Market capitalization, % GDP.....                         | 72.5        | 23         |
| 4.2.3    | Total value of stocks traded, % GDP.....                  | 13.4        | 34         |
| 4.2.4    | Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 54         |
| 4.3      | Trade & competition.....                                  | 83.1        | 9 ●        |
| 4.3.1    | Applied tariff rate, weighted mean, %.....                | 3.8         | 67         |
| 4.3.2    | Non-agricultural mkt access weighted tariff, %.....       | 1.2         | 82         |
| 4.3.3    | Intensity of local competition†.....                      | 79.3        | 14         |
| <b>5</b> | <b>Business sophistication.....</b>                       | <b>43.4</b> | <b>27</b>  |
| 5.1      | Knowledge workers.....                                    | 37.2        | 80         |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 24.2        | 58         |
| 5.1.2    | Firms offering formal training, % firms.....              | n/a         | n/a        |
| 5.1.3    | GERD performed by business, % GDP.....                    | n/a         | n/a        |
| 5.1.4    | GERD performed by business, %.....                        | n/a         | n/a        |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 32.1        | 94         |
| 5.2      | Innovation linkages.....                                  | 71.8        | 1 ●        |
| 5.2.1    | University/industry research collaboration†.....          | 74.5        | 7 ●        |
| 5.2.2    | State of cluster development†.....                        | 69.3        | 9 ●        |
| 5.2.3    | GERD financed by abroad, %.....                           | n/a         | n/a        |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.1         | 6 ●        |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a         | n/a        |
| 5.3      | Knowledge absorption.....                                 | 21.4        | 93         |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | n/a         | n/a        |
| 5.3.2    | High-tech imports less re-imports, %.....                 | n/a         | n/a        |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 1.4         | 38         |
| 5.3.4    | FDI net inflows, % GDP.....                               | -0.1        | 137 ○      |
| <b>6</b> | <b>Knowledge &amp; technology outputs.....</b>            | <b>20.4</b> | <b>110</b> |
| 6.1      | Knowledge creation.....                                   | 4.7         | 115        |
| 6.1.1    | Domestic resident patent app./tr PPP\$ GDP.....           | 0.0         | 110 ○      |
| 6.1.2    | PCT resident patent app./tr PPP\$ GDP.....                | 0.3         | 55         |
| 6.1.3    | Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a        |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 4.3         | 114        |
| 6.1.5    | Citable documents H index.....                            | 50.0        | 111        |
| 6.2      | Knowledge impact.....                                     | 29.5        | 106        |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | 0.6         | 75         |
| 6.2.2    | New businesses/th pop. 15–64.....                         | 1.7         | 45         |
| 6.2.3    | Computer software spending, % GDP.....                    | 0.2         | 67 ○       |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 2.7         | 91         |
| 6.2.5    | High- & medium-high-tech manufactures, %.....             | 20.8        | 53         |
| 6.3      | Knowledge diffusion.....                                  | 27.0        | 94         |
| 6.3.1    | Royalty & license fees receipts, % total trade.....       | n/a         | n/a        |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.0         | 125 ○      |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 0.4         | 106        |
| 6.3.4    | FDI net outflows, % GDP.....                              | 3.5         | 19         |
| <b>7</b> | <b>Creative outputs.....</b>                              | <b>40.1</b> | <b>41</b>  |
| 7.1      | Intangible assets.....                                    | 60.5        | 9 ●        |
| 7.1.1    | Domestic res trademark app./bn PPP\$ GDP.....             | n/a         | n/a        |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.0         | 74 ○       |
| 7.1.3    | ICTs & business model creation†.....                      | 75.8        | 6 ●        |
| 7.1.4    | ICTs & organizational model creation†.....                | 75.5        | 2 ●        |
| 7.2      | Creative goods & services.....                            | 11.0        | 89         |
| 7.2.1    | Cultural & creative services exports, % total trade.....  | n/a         | n/a        |
| 7.2.2    | National feature films/mn pop. 15–69.....                 | n/a         | n/a        |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....             | 0.8         | 24         |
| 7.2.4    | Printing & publishing manufactures, %.....                | 0.0         | 63         |
| 7.2.5    | Creative goods exports, % total trade.....                | 0.0         | 125 ○      |
| 7.3      | Online creativity.....                                    | 28.3        | 53         |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....       | 4.9         | 60         |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                      | 31.0        | 56         |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                           | 4,842.3     | 56         |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                  | 68.9        | 44         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Romania

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 21.3                |
| GDP (US\$ billions) .....   | 189.7               |
| GDP per capita, PPP\$ ..... | 13,395.9            |
| Income group .....          | Upper-middle income |
| Region .....                | Europe              |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>38.1</b>                           | <b>55</b>    |
| Innovation Output Sub-Index .....                             | 34.8                                  | 44           |
| Innovation Input Sub-Index .....                              | 41.4                                  | 65           |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 24 ●         |
| Global Innovation Index 2013 (out of 142) .....               | 40.3                                  | 48           |
| <b>1 Institutions.....</b>                                    | <b>65.9</b>                           | <b>59</b>    |
| 1.1 Political environment.....                                | 58.9                                  | 65           |
| 1.1.1 Political stability*.....                               | 67.4                                  | 65           |
| 1.1.2 Government effectiveness*.....                          | 32.5                                  | 88           |
| 1.1.3 Press freedom*.....                                     | 77.0                                  | 37           |
| 1.2 Regulatory environment .....                              | 77.4                                  | 37           |
| 1.2.1 Regulatory quality* .....                               | 62.8                                  | 48           |
| 1.2.2 Rule of law*.....                                       | 46.9                                  | 59           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.0                                   | 1 ●          |
| 1.3 Business environment.....                                 | 61.2                                  | 79           |
| 1.3.1 Ease of starting a business*.....                       | 90.8                                  | 33 ●         |
| 1.3.2 Ease of resolving insolvency*.....                      | 31.7                                  | 88           |
| 1.3.3 Ease of paying taxes*.....                              | 61.2                                  | 99           |
| <b>2 Human capital &amp; research.....</b>                    | <b>29.1</b>                           | <b>69</b>    |
| 2.1 Education .....   | 41.9                                  | 75           |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.2                                   | 83           |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 17.5                                  | 69           |
| 2.1.3 School life expectancy, years.....                      | 14.1                                  | 54           |
| 2.1.4 PISA scales in reading, maths, & science.....           | 440.3                                 | 43           |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 13.0                                  | 43           |
| 2.2 Tertiary education.....                                   | 32.6                                  | 70           |
| 2.2.1 Tertiary enrolment, % gross.....                        | 51.6                                  | 50           |
| 2.2.2 Graduates in science & engineering, % .....             | 20.2                                  | 54           |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.8                                   | 63           |
| 2.3 Research & development (R&D).....                         | 12.6                                  | 62           |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 1,168.7                               | 53           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.5                                   | 60           |
| 2.3.3 QS university ranking, average score top 3*.....        | 16.1                                  | 55           |
| <b>3 Infrastructure.....</b>                                  | <b>41.7</b>                           | <b>50</b>    |
| 3.1 Information & communication technologies (ICTs).....      | 37.8                                  | 71           |
| 3.1.1 ICT access*.....  | 58.1                                  | 55           |
| 3.1.2 ICT use* .....  | 33.4                                  | 56           |
| 3.1.3 Government's online service*.....                       | 51.6                                  | 62           |
| 3.1.4 E-participation*.....                                   | 7.9                                   | 98 ○         |
| 3.2 General infrastructure.....                               | 35.4                                  | 58           |
| 3.2.1 Electricity output, kWh/cap.....                        | 2,898.5                               | 64           |
| 3.2.2 Logistics performance* .....                            | 55.2                                  | 53           |
| 3.2.3 Gross capital formation, % GDP.....                     | 26.1                                  | 41           |
| 3.3 Ecological sustainability.....                            | 52.0                                  | 22 ●         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 6.5                                   | 55           |
| 3.3.2 Environmental performance*.....                         | 50.5                                  | 78           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 31.8                                  | 1 ●          |
| <b>4 Market sophistication .....</b>                          | <b>42.9</b>                           | <b>108</b> ○ |
| 4.1 Credit.....   | 34.5                                  | 73           |
| 4.1.1 Ease of getting credit*.....                            | 87.5                                  | 13 ●         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 45.0                                  | 75           |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.2                                   | 59           |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 25.5        | 120 ○     |
| 4.2.1 Ease of protecting investors*.....                        | 60.0        | 42        |
| 4.2.2 Market capitalization, % GDP.....                         | 9.4         | 90 ○      |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 1.3         | 64        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 61 ○      |
| 4.3 Trade & competition .....                                   | 68.6        | 116 ○     |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 56.7        | 109 ○     |
| <b>5 Business sophistication .....</b>                          | <b>27.3</b> | <b>99</b> |
| 5.1 Knowledge workers.....                                      | 32.1        | 90        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 22.2        | 66        |
| 5.1.2 Firms offering formal training, % firms.....              | 25.9        | 75        |
| 5.1.3 GERD performed by business, % GDP .....                   | 0.2         | 49        |
| 5.1.4 GERD performed by business, %.....                        | 39.0        | 47        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 61.6        | 67        |
| 5.2 Innovation linkages .....                                   | 24.3        | 108 ○     |
| 5.2.1 University/industry research collaboration† .....         | 38.8        | 85        |
| 5.2.2 State of cluster development† .....                       | 41.3        | 92        |
| 5.2.3 GERD financed by abroad, %.....                           | 14.4        | 32        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 79        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 69        |
| 5.3 Knowledge absorption.....                                   | 25.6        | 68        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.6         | 46        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 9.3         | 39        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.2         | 52        |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.4         | 105 ○     |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>36.6</b> | <b>37</b> |
| 6.1 Knowledge creation.....                                     | 14.5        | 66        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 3.8         | 31        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 77        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.2         | 46 ○      |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 27.1        | 35        |
| 6.1.5 Citable documents H index.....                            | 135.0       | 45        |
| 6.2 Knowledge impact.....                                       | 57.5        | 9 ●       |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.3         | 84        |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a       |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 35        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 67.8        | 1 ●       |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 35.0        | 27        |
| 6.3 Knowledge diffusion.....                                    | 37.8        | 39        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.3         | 28 ●      |
| 6.3.2 High-tech exports less re-exports, %.....                 | 5.1         | 29 ●      |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.2         | 36        |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.1         | 94 ○      |
| <b>7 Creative outputs .....</b>                                 | <b>33.0</b> | <b>67</b> |
| 7.1 Intangible assets.....                                      | 36.2        | 109 ○     |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 83.5        | 24 ●      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.3         | 49        |
| 7.1.3 ICTs & business model creation†.....                      | 48.7        | 100       |
| 7.1.4 ICTs & organizational model creation†.....                | 43.0        | 111 ○     |
| 7.2 Creative goods & services.....                              | 23.1        | 52        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.6         | 17 ●      |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.1         | 70        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.2         | 47 ○      |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 62        |
| 7.2.5 Creative goods exports, % total trade.....                | 1.9         | 28 ●      |
| 7.3 Online creativity .....                                     | 36.4        | 41        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 5.6         | 58        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 51.5        | 36        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 4,163.9     | 61        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 81.5        | 26        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 143.5       |
| GDP (US\$ billions) .....   | 2,118.0     |
| GDP per capita, PPP\$ ..... | 17,884.5    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>39.1</b>                           | <b>49</b>    |
| Innovation Output Sub-Index .....                             | 34.5                                  | 45           |
| Innovation Input Sub-Index.....                               | 43.8                                  | 56           |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 49           |
| Global Innovation Index 2013 (out of 142) .....               | 37.2                                  | 62           |
| <b>1 Institutions.....</b>                                    | <b>56.4</b>                           | <b>88</b>    |
| 1.1 Political environment.....                                | 43.9                                  | 117 ○        |
| 1.1.1 Political stability*.....                               | 45.6                                  | 112 ○        |
| 1.1.2 Government effectiveness*.....                          | 29.5                                  | 92           |
| 1.1.3 Press freedom*.....                                     | 56.6                                  | 121 ○        |
| 1.2 Regulatory environment .....                              | 56.5                                  | 98           |
| 1.2.1 Regulatory quality* .....                               | 39.5                                  | 100          |
| 1.2.2 Rule of law*.....                                       | 23.8                                  | 116 ○        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 17.3                                  | 81           |
| 1.3 Business environment.....                                 | 68.9                                  | 55           |
| 1.3.1 Ease of starting a business*.....                       | 85.9                                  | 64           |
| 1.3.2 Ease of resolving insolvency*.....                      | 45.4                                  | 49           |
| 1.3.3 Ease of paying taxes*.....                              | 75.3                                  | 47           |
| <b>2 Human capital &amp; research.....</b>                    | <b>44.5</b>                           | <b>30</b>    |
| 2.1 Education .....   | 54.6                                  | 28           |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.1                                   | 87           |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a          |
| 2.1.3 School life expectancy, years.....                      | 14.0                                  | 55           |
| 2.1.4 PISA scales in reading, maths, & science.....           | 481.2                                 | 35           |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 8.5                                   | 8 ●          |
| 2.2 Tertiary education.....                                   | 46.0                                  | 30           |
| 2.2.1 Tertiary enrolment, % gross.....                        | 75.5                                  | 15 ●         |
| 2.2.2 Graduates in science & engineering, % .....             | 28.1                                  | 14 ●         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 1.4                                   | 74           |
| 2.3 Research & development (R&D).....                         | 33.0                                  | 30           |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 2,602.6                               | 34           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 1.1                                   | 32           |
| 2.3.3 QS university ranking, average score top 3*.....        | 49.3                                  | 25           |
| <b>3 Infrastructure.....</b>                                  | <b>41.1</b>                           | <b>51</b>    |
| 3.1 Information & communication technologies (ICTs).....      | 60.6                                  | 28           |
| 3.1.1 ICT access*.....  | 67.3                                  | 35           |
| 3.1.2 ICT use* .....  | 43.4                                  | 41           |
| 3.1.3 Government's online service*.....                       | 66.0                                  | 37           |
| 3.1.4 E-participation*.....                                   | 65.8                                  | 19 ●         |
| 3.2 General infrastructure.....                               | 36.1                                  | 57           |
| 3.2.1 Electricity output, kWh/cap.....                        | 7,419.2                               | 28           |
| 3.2.2 Logistics performance*.....                             | 38.5                                  | 94           |
| 3.2.3 Gross capital formation, % GDP.....                     | 25.4                                  | 47           |
| 3.3 Ecological sustainability.....                            | 26.7                                  | 109          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 2.9                                   | 112 ○        |
| 3.3.2 Environmental performance*.....                         | 53.5                                  | 66           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.4                                   | 86           |
| <b>4 Market sophistication .....</b>                          | <b>42.5</b>                           | <b>111</b> ○ |
| 4.1 Credit.....   | 21.6                                  | 124 ○        |
| 4.1.1 Ease of getting credit*.....                            | 50.0                                  | 96 ○         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 48.5                                  | 70           |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.0                                   | 84 ○         |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 32.0        | 84        |
| 4.2.1 Ease of protecting investors*.....                        | 46.7        | 97        |
| 4.2.2 Market capitalization, % GDP.....                         | 43.4        | 47        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 36.3        | 24        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 43        |
| 4.3 Trade & competition .....                                   | 73.9        | 84        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 5.2         | 86        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.2         | 36        |
| 4.3.3 Intensity of local competition†.....                      | 58.2        | 106 ○     |
| <b>5 Business sophistication .....</b>                          | <b>34.3</b> | <b>60</b> |
| 5.1 Knowledge workers.....                                      | 54.7        | 33        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 42.8        | 17 ●      |
| 5.1.2 Firms offering formal training, % firms.....              | 44.3        | 37        |
| 5.1.3 GERD performed by business, % GDP .....                   | 0.7         | 30        |
| 5.1.4 GERD performed by business, %.....                        | 58.3        | 24        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 58.6        | 70        |
| 5.2 Innovation linkages .....                                   | 20.3        | 126 ○     |
| 5.2.1 University/industry research collaboration†.....          | 44.0        | 62        |
| 5.2.2 State of cluster development† .....                       | 34.3        | 117 ○     |
| 5.2.3 GERD financed by abroad, %.....                           | 4.0         | 66        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 62        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 57        |
| 5.3 Knowledge absorption.....                                   | 27.8        | 51        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.5         | 12 ●      |
| 5.3.2 High-tech imports less re-imports, %.....                 | 7.5         | 59        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.1         | 57        |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.6         | 71        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>37.6</b> | <b>34</b> |
| 6.1 Knowledge creation.....                                     | 46.9        | 18 ●      |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 11.5        | 7 ●       |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.4         | 41        |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | 5.4         | 8 ●       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 10.7        | 70        |
| 6.1.5 Citable documents H index.....                            | 325.0       | 21 ●      |
| 6.2 Knowledge impact.....                                       | 38.3        | 70        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.4         | 30        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 4.3         | 27        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 58 ○      |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 5.0         | 64        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 23.9        | 44        |
| 6.3 Knowledge diffusion.....                                    | 27.5        | 91        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 48        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.5         | 59        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.7         | 93        |
| 6.3.4 FDI net outflows, % GDP .....                             | 2.4         | 31        |
| <b>7 Creative outputs .....</b>                                 | <b>31.4</b> | <b>72</b> |
| 7.1 Intangible assets.....                                      | 35.2        | 114 ○     |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | 64.2        | 40        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.5         | 39        |
| 7.1.3 ICTs & business model creation†.....                      | 46.2        | 110 ○     |
| 7.1.4 ICTs & organizational model creation†.....                | 47.5        | 89        |
| 7.2 Creative goods & services.....                              | 17.9        | 70        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.8         | 11 ●      |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.3         | 64        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.2         | 40        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 58        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.3         | 76        |
| 7.3 Online creativity .....                                     | 37.4        | 38        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 4.1         | 65        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 51.9        | 33        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 9,098.5     | 47        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 78.3        | 33        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 11.5               |
| GDP (US\$ billions) .....   | 7.4                |
| GDP per capita, PPP\$ ..... | 1,538.2            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|  | Score (0–100)<br>or value (hard data) | Rank       |
|--|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>29.3</b>                           | <b>102</b> |
| Innovation Output Sub-Index .....                | 18.4                                  | 128        |
| Innovation Input Sub-Index .....                 | 40.2                                  | 74         |
| Innovation Efficiency Ratio .....                | 0.5                                   | 137 ○      |
| Global Innovation Index 2013 (out of 142) .....  | 27.6                                  | 112        |

|   |             |           |
|---|-------------|-----------|
| <b>1 Institutions.....</b>                            | <b>60.6</b> | <b>70</b> |
| 1.1 Political environment.....                        | 48.1        | 94        |
| 1.1.1 Political stability*.....                       | 60.5        | 82        |
| 1.1.2 Government effectiveness*.....                  | 39.2        | 73        |
| 1.1.3 Press freedom*.....                             | 44.5        | 133 ○     |
| 1.2 Regulatory environment .....                      | 66.4        | 69        |
| 1.2.1 Regulatory quality* .....                       | 46.2        | 80        |
| 1.2.2 Rule of law*.....                               | 39.1        | 76        |
| 1.2.3 Cost of redundancy dismissal, salary weeks..... | 13.0        | 55        |
| 1.3 Business environment.....                         | 67.5        | 60        |
| 1.3.1 Ease of starting a business*.....               | 97.4        | 5 ●       |
| 1.3.2 Ease of resolving insolvency*.....              | 20.2        | 119       |
| 1.3.3 Ease of paying taxes*.....                      | 84.8        | 23 ●      |

|  |             |            |
|--|-------------|------------|
| <b>2 Human capital &amp; research.....</b>               | <b>20.4</b> | <b>102</b> |
| 2.1 Education .....                                      | 38.9        | 88         |
| 2.1.1 Expenditure on education, % GDP.....               | 5.1         | 57         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap..... | 36.4        | 10 ●       |
| 2.1.3 School life expectancy, years.....                 | 10.2        | 113        |
| 2.1.4 PISA scales in reading, maths, & science.....      | n/a         | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....               | 22.9        | 84         |
| 2.2 Tertiary education.....                              | 22.1        | 96         |
| 2.2.1 Tertiary enrolment, % gross.....                   | 6.9         | 121        |
| 2.2.2 Graduates in science & engineering, % .....        | 22.5        | 36         |
| 2.2.3 Tertiary inbound mobility, %.....                  | 0.8         | 87         |
| 2.3 Research & development (R&D).....                    | 0.2         | 129        |
| 2.3.1 Researchers, headcounts/mn pop.....                | 53.6        | 112 ○      |
| 2.3.2 Gross expenditure on R&D, % GDP.....               | n/a         | n/a        |
| 2.3.3 QS university ranking, average score top 3*.....   | 0.0         | 70 ○       |

|  |             |            |
|--|-------------|------------|
| <b>3 Infrastructure.....</b>                                 | <b>23.0</b> | <b>120</b> |
| 3.1 Information & communication technologies (ICTs).....     | 15.0        | 128        |
| 3.1.1 ICT access*.....                                       | 19.6        | 123 ○      |
| 3.1.2 ICT use*.....  | 3.8         | 121        |
| 3.1.3 Government's online service*.....                      | 34.0        | 109        |
| 3.1.4 E-participation*.....                                  | 2.6         | 116        |
| 3.2 General infrastructure.....                              | 30.2        | 82         |
| 3.2.1 Electricity output, kWh/cap.....                       | n/a         | n/a        |
| 3.2.2 Logistics performance*.....                            | 26.2        | 130 ○      |
| 3.2.3 Gross capital formation, % GDP.....                    | 24.2        | 59         |
| 3.3 Ecological sustainability.....                           | 23.9        | 123        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | n/a         | n/a        |
| 3.3.2 Environmental performance*.....                        | 35.4        | 123        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.1         | 118 ○      |

|   |             |             |
|---|-------------|-------------|
| <b>4 Market sophistication .....</b>                | <b>59.4</b> | <b>27 ●</b> |
| 4.1 Credit.....                                     | 35.1        | 71          |
| 4.1.1 Ease of getting credit*.....                  | 87.5        | 13 ●        |
| 4.1.2 Domestic credit to private sector, % GDP..... | 11.2        | 138 ○       |
| 4.1.3 Microfinance gross loans, % GDP.....          | 1.2         | 33          |

|   |      |      |
|---|------|------|
| 4.2 Investment .....                                      | 67.4 | 9 ●  |
| 4.2.1 Ease of protecting investors*.....                  | 66.7 | 21 ● |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a  |
| 4.2.3 Total value of stocks traded, % GDP.....            | n/a  | n/a  |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | 0.3  | 11 ● |
| 4.3 Trade & competition .....                             | 75.8 | 67   |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 6.1  | 98   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.0  | 1 ●  |
| 4.3.3 Intensity of local competition†.....                | 62.3 | 85   |

|   |             |           |
|---|-------------|-----------|
| <b>5 Business sophistication .....</b>                          | <b>37.5</b> | <b>44</b> |
| 5.1 Knowledge workers.....                                      | 47.3        | 47        |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a       |
| 5.1.2 Firms offering formal training, % firms.....              | 52.3        | 22 ●      |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a       |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 11.0        | 119       |
| 5.2 Innovation linkages .....                                   | 42.5        | 36        |
| 5.2.1 University/industry research collaboration†.....          | 45.2        | 57        |
| 5.2.2 State of cluster development†.....                        | 47.3        | 67        |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.1         | 26        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a         | n/a       |
| 5.3 Knowledge absorption.....                                   | 22.7        | 87        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.0         | 124 ○     |
| 5.3.2 High-tech imports less re-imports, %.....                 | 10.2        | 27 ●      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.9         | 64        |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.7         | 91        |

|   |             |            |
|---|-------------|------------|
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>15.5</b> | <b>126</b> |
| 6.1 Knowledge creation.....                                     | 9.9         | 80         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.7         | 41         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a         | n/a        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.8         | 35         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 7.3         | 87         |
| 6.1.5 Citable documents H index.....                            | 36.0        | 128        |
| 6.2 Knowledge impact.....                                       | 3.6         | 135 ○      |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.1         | 57         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.1         | 141 ○      |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | n/a         | n/a        |
| 6.3 Knowledge diffusion.....                                    | 33.2        | 59         |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 2.1         | 11 ●       |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.1         | 111        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.3         | 70         |
| 6.3.4 FDI net outflows, % GDP.....                              | n/a         | n/a        |

|  |             |            |
|--|-------------|------------|
| <b>7 Creative outputs .....</b>                                | <b>21.3</b> | <b>117</b> |
| 7.1 Intangible assets.....                                     | 41.8        | 83         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 7.3         | 97 ○       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                     | 65.3        | 33         |
| 7.1.4 ICTs & organizational model creation†.....               | 57.3        | 51         |
| 7.2 Creative goods & services.....                             | 1.0         | 133 ○      |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.0         | 88         |
| 7.2.2 National feature films/mn pop. 15–69.....                | n/a         | n/a        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade.....               | 0.0         | 107        |
| 7.3 Online creativity.....                                     | 0.6         | 132 ○      |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.2         | 129        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 1.5         | 128        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 90.1        | 122        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 28.3                             |
| GDP (US\$ billions) .....   | 745.3                            |
| GDP per capita, PPP\$ ..... | 31,244.7                         |
| Income group .....          | High income                      |
| Region .....                | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>41.6</b>                           | <b>38</b> |
| Innovation Output Sub-Index .....                | 35.4                                  | 41        |
| Innovation Input Sub-Index .....                 | 47.8                                  | 39        |
| Innovation Efficiency Ratio .....                | 0.7                                   | 70        |
| Global Innovation Index 2013 (out of 142) .....  | 41.2                                  | 42        |

|          |  |             |           |
|----------|--|-------------|-----------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>60.0</b> | <b>73</b> |
| 1.1      | Political environment.....                             | 46.4        | 102 ○     |
| 1.1.1    | Political stability*.....                              | 54.5        | 92        |
| 1.1.2    | Government effectiveness*.....                         | 41.6        | 65        |
| 1.1.3    | Press freedom*.....                                    | 43.1        | 135 ○     |
| 1.2      | Regulatory environment.....                            | 64.6        | 78        |
| 1.2.1    | Regulatory quality*.....                               | 51.5        | 69        |
| 1.2.2    | Rule of law*.....                                      | 53.0        | 53        |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 19.5        | 92        |
| 1.3      | Business environment.....                              | 69.1        | 53        |
| 1.3.1    | Ease of starting a business*.....                      | 80.8        | 86        |
| 1.3.2    | Ease of resolving insolvency*.....                     | 30.0        | 94        |
| 1.3.3    | Ease of paying taxes*.....                             | 96.6        | 3 ●       |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>35.6</b> | <b>47</b> |
| 2.1      | Education.....   | 48.1        | 54        |
| 2.1.1    | Expenditure on education, % GDP.....                   | 5.1         | 56        |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | 18.1        | 65        |
| 2.1.3    | School life expectancy, years.....                     | 15.6        | 29        |
| 2.1.4    | PISA scales in reading, maths, & science.....          | n/a         | n/a       |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 11.3        | 32        |
| 2.2      | Tertiary education.....                                | 43.7        | 36        |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 50.9        | 52        |
| 2.2.2    | Graduates in science & engineering, %.....             | 29.0        | 13 ●      |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 3.9         | 44        |
| 2.3      | Research & development (R&D).....                      | 15.1        | 57        |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 47.4        | 114 ○     |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 0.1         | 107 ○     |
| 2.3.3    | QS university ranking, average score top 3*.....       | 43.5        | 31        |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>47.0</b> | <b>31</b> |
| 3.1      | Information & communication technologies (ICTs).....   | 61.8        | 27        |
| 3.1.1    | ICT access*.....                                       | 67.6        | 34        |
| 3.1.2    | ICT use*.....  | 36.7        | 50        |
| 3.1.3    | Government's online service*.....                      | 79.7        | 19 ●      |
| 3.1.4    | E-participation*.....                                  | 63.2        | 22 ●      |
| 3.2      | General infrastructure.....                            | 46.9        | 21 ●      |
| 3.2.1    | Electricity output, kWh/cap.....                       | 8,905.9     | 16 ●      |
| 3.2.2    | Logistics performance*.....                            | 62.3        | 37        |
| 3.2.3    | Gross capital formation, % GDP.....                    | 28.3        | 27        |
| 3.3      | Ecological sustainability.....                         | 32.3        | 83        |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 3.2         | 106 ○     |
| 3.3.2    | Environmental performance*.....                        | 66.7        | 35        |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.2         | 110 ○     |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>59.0</b> | <b>28</b> |
| 4.1      | Credit.....  | 39.9        | 57        |
| 4.1.1    | Ease of getting credit*.....                           | 68.8        | 53        |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 37.6        | 86        |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | n/a         | n/a       |

|          |   |             |           |
|----------|---|-------------|-----------|
| 4.2      | Investment.....   | 54.3        | 22 ●      |
| 4.2.1    | Ease of protecting investors*.....                        | 66.7        | 21        |
| 4.2.2    | Market capitalization, % GDP.....                         | 58.7        | 34        |
| 4.2.3    | Total value of stocks traded, % GDP.....                  | 50.8        | 16 ●      |
| 4.2.4    | Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a       |
| 4.3      | Trade & competition.....                                  | 82.8        | 11 ●      |
| 4.3.1    | Applied tariff rate, weighted mean, %.....                | 3.9         | 69        |
| 4.3.2    | Non-agricultural mkt access weighted tariff, %.....       | 1.1         | 77        |
| 4.3.3    | Intensity of local competition†.....                      | 78.2        | 16 ●      |
| <b>5</b> | <b>Business sophistication.....</b>                       | <b>37.6</b> | <b>43</b> |
| 5.1      | Knowledge workers.....                                    | 49.2        | 43        |
| 5.1.1    | Knowledge-intensive employment, %.....                    | 22.9        | 63        |
| 5.1.2    | Firms offering formal training, % firms.....              | n/a         | n/a       |
| 5.1.3    | GERD performed by business, % GDP.....                    | n/a         | n/a       |
| 5.1.4    | GERD performed by business, %.....                        | n/a         | n/a       |
| 5.1.5    | GMAT test takers/mn pop. 20–34.....                       | 293.3       | 18 ●      |
| 5.2      | Innovation linkages.....                                  | 45.9        | 27        |
| 5.2.1    | University/industry research collaboration†.....          | 57.8        | 30        |
| 5.2.2    | State of cluster development†.....                        | 61.5        | 22 ●      |
| 5.2.3    | GERD financed by abroad, %.....                           | n/a         | n/a       |
| 5.2.4    | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.1         | 21        |
| 5.2.5    | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 66        |
| 5.3      | Knowledge absorption.....                                 | 17.7        | 113 ○     |
| 5.3.1    | Royalty & license fees payments, % total trade.....       | n/a         | n/a       |
| 5.3.2    | High-tech imports less re-imports, %.....                 | 5.8         | 89 ○      |
| 5.3.3    | Comm., computer & info. services imp., % total trade..... | 0.7         | 77        |
| 5.3.4    | FDI net inflows, % GDP.....                               | 1.7         | 90        |
| <b>6</b> | <b>Knowledge &amp; technology outputs.....</b>            | <b>25.7</b> | <b>77</b> |
| 6.1      | Knowledge creation.....                                   | 10.0        | 78        |
| 6.1.1    | Domestic resident patent app/tr PPP\$ GDP.....            | 0.4         | 81 ○      |
| 6.1.2    | PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 47        |
| 6.1.3    | Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a       |
| 6.1.4    | Scientific & technical articles/bn PPP\$ GDP.....         | 9.3         | 79        |
| 6.1.5    | Citable documents H index.....                            | 124.0       | 53        |
| 6.2      | Knowledge impact.....                                     | 42.3        | 56        |
| 6.2.1    | Growth rate of PPP\$ GDP/worker, %.....                   | 3.5         | 28        |
| 6.2.2    | New businesses/th pop. 15–64.....                         | n/a         | n/a       |
| 6.2.3    | Computer software spending, % GDP.....                    | 0.3         | 41        |
| 6.2.4    | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 2.5         | 92        |
| 6.2.5    | High- & medium-high-tech manufactures, %.....             | 30.4        | 35        |
| 6.3      | Knowledge diffusion.....                                  | 25.0        | 109 ○     |
| 6.3.1    | Royalty & license fees receipts, % total trade.....       | n/a         | n/a       |
| 6.3.2    | High-tech exports less re-exports, %.....                 | 0.1         | 110 ○     |
| 6.3.3    | Comm., computer & info. services exp., % total trade..... | 0.1         | 132 ○     |
| 6.3.4    | FDI net outflows, % GDP.....                              | 0.6         | 59        |
| <b>7</b> | <b>Creative outputs.....</b>                              | <b>45.0</b> | <b>26</b> |
| 7.1      | Intangible assets.....                                    | 67.3        | 5 ●       |
| 7.1.1    | Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a       |
| 7.1.2    | Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a       |
| 7.1.3    | ICTs & business model creation†.....                      | 69.0        | 23        |
| 7.1.4    | ICTs & organizational model creation†.....                | 65.7        | 20 ●      |
| 7.2      | Creative goods & services.....                            | 19.5        | 61        |
| 7.2.1    | Cultural & creative services exports, % total trade.....  | n/a         | n/a       |
| 7.2.2    | National feature films/mn pop. 15–69.....                 | n/a         | n/a       |
| 7.2.3    | Global ent. & media output/th pop. 15–69.....             | 0.5         | 29        |
| 7.2.4    | Printing & publishing manufactures, %.....                | 0.0         | 19        |
| 7.2.5    | Creative goods exports, % total trade.....                | 0.1         | 88 ○      |
| 7.3      | Online creativity.....                                    | 25.9        | 58        |
| 7.3.1    | Generic top-level domains (TLDs)/th pop. 15–69.....       | 4.4         | 63        |
| 7.3.2    | Country-code TLDs/th pop. 15–69.....                      | 13.3        | 92        |
| 7.3.3    | Wikipedia edits/pop. 15–69.....                           | 3,212.6     | 67        |
| 7.3.4    | Video uploads on YouTube/pop. 15–69.....                  | 80.5        | 28        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 13.7                |
| GDP (US\$ billions) .....   | 15.2                |
| GDP per capita, PPP\$ ..... | 1,958.2             |
| Income group .....          | Lower-middle income |
| Region .....                | Sub-Saharan Africa  |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>30.1</b>                           | <b>98</b>  |
| Innovation Output Sub-Index .....                             | 27.6                                  | 78         |
| Innovation Input Sub-Index .....                              | 32.6                                  | 116        |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 23 ●       |
| Global Innovation Index 2013 (out of 142) .....               | 30.5                                  | 96         |
| <b>1 Institutions.....</b>                                    | <b>54.5</b>                           | <b>93</b>  |
| 1.1 Political environment.....                                | 55.2                                  | 76         |
| 1.1.1 Political stability*.....                               | 63.2                                  | 78         |
| 1.1.2 Government effectiveness*.....                          | 28.7                                  | 95         |
| 1.1.3 Press freedom*.....                                     | 73.8                                  | 50 ●       |
| 1.2 Regulatory environment .....                              | 65.2                                  | 75         |
| 1.2.1 Regulatory quality* .....                               | 46.3                                  | 79         |
| 1.2.2 Rule of law*.....                                       | 37.3                                  | 78         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 13.7                                  | 63         |
| 1.3 Business environment.....                                 | 43.0                                  | 130 ○      |
| 1.3.1 Ease of starting a business*.....                       | 76.2                                  | 102        |
| 1.3.2 Ease of resolving insolvency*.....                      | 26.8                                  | 106        |
| 1.3.3 Ease of paying taxes*.....                              | 25.8                                  | 137 ○      |
| <b>2 Human capital &amp; research.....</b>                    | <b>14.7</b>                           | <b>123</b> |
| 2.1 Education .....   | 31.0                                  | 113        |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.6                                   | 42 ●       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 29.0                                  | 26 ●       |
| 2.1.3 School life expectancy, years.....                      | 7.9                                   | 124 ○      |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 27.4                                  | 97         |
| 2.2 Tertiary education.....                                   | 7.0                                   | 130 ○      |
| 2.2.1 Tertiary enrolment, % gross.....                        | 7.6                                   | 117        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a        |
| 2.3 Research & development (R&D).....                         | 6.0                                   | 80         |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 630.9                                 | 67         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.5                                   | 56         |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>27.3</b>                           | <b>106</b> |
| 3.1 Information & communication technologies (ICTs).....      | 22.4                                  | 103        |
| 3.1.1 ICT access*.....  | 25.9                                  | 107        |
| 3.1.2 ICT use*.....   | 8.0                                   | 109        |
| 3.1.3 Government's online service*.....                       | 34.6                                  | 108        |
| 3.1.4 E-participation*.....                                   | 21.1                                  | 65         |
| 3.2 General infrastructure.....                               | 31.5                                  | 76         |
| 3.2.1 Electricity output, kWh/cap.....                        | 236.0                                 | 113 ○      |
| 3.2.2 Logistics performance*.....                             | 34.9                                  | 107        |
| 3.2.3 Gross capital formation, % GDP.....                     | 30.3                                  | 21 ●       |
| 3.3 Ecological sustainability.....                            | 28.0                                  | 100        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 6.3                                   | 61         |
| 3.3.2 Environmental performance*.....                         | 40.8                                  | 105        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.3                                   | 104        |
| <b>4 Market sophistication .....</b>                          | <b>42.4</b>                           | <b>114</b> |
| 4.1 Credit.....   | 29.7                                  | 94         |
| 4.1.1 Ease of getting credit*.....                            | 43.8                                  | 112 ○      |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 29.6                                  | 100        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 2.9                                   | 18 ●       |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 30.0        | 95         |
| 4.2.1 Ease of protecting investors*.....                        | 30.0        | 133 ○      |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 67.6        | 119        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 8.4         | 115        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.6         | 124        |
| 4.3.3 Intensity of local competition†.....                      | 68.8        | 55 ●       |
| <b>5 Business sophistication .....</b>                          | <b>23.9</b> | <b>118</b> |
| 5.1 Knowledge workers.....                                      | 11.7        | 139 ○      |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a        |
| 5.1.2 Firms offering formal training, % firms.....              | 19.9        | 93         |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.0         | 82 ○       |
| 5.1.4 GERD performed by business, %.....                        | 0.3         | 83 ○       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 14.1        | 114        |
| 5.2 Innovation linkages .....                                   | 38.2        | 49 ●       |
| 5.2.1 University/industry research collaboration†.....          | 37.2        | 97         |
| 5.2.2 State of cluster development†.....                        | 39.8        | 101        |
| 5.2.3 GERD financed by abroad, %.....                           | 40.5        | 11 ●       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 68         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a         | n/a        |
| 5.3 Knowledge absorption.....                                   | 22.0        | 91         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 90         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 3.8         | 116 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 2.0         | 11 ●       |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.0         | 87         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>24.1</b> | <b>91</b>  |
| 6.1 Knowledge creation.....                                     | 9.6         | 85         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 97         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 13.1        | 65         |
| 6.1.5 Citable documents H index.....                            | 75.0        | 84         |
| 6.2 Knowledge impact.....                                       | 27.0        | 113        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.6         | 74         |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.3         | 82         |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 50         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.8         | 104        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 15.3        | 61         |
| 6.3 Knowledge diffusion.....                                    | 35.6        | 45 ●       |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 76         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.2         | 98         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 4.4         | 8 ●        |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.1         | 90         |
| <b>7 Creative outputs .....</b>                                 | <b>31.0</b> | <b>75</b>  |
| 7.1 Intangible assets.....                                      | 52.5        | 28 ●       |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                      | 60.0        | 52 ●       |
| 7.1.4 ICTs & organizational model creation†.....                | 45.0        | 101        |
| 7.2 Creative goods & services.....                              | 9.8         | 96         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 72         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.7         | 82         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 57         |
| 7.2.5 Creative goods exports, % total trade.....                | 0.2         | 79         |
| 7.3 Online creativity.....                                      | 9.4         | 94         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 1.1         | 104        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 5.1         | 112        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 107.0       | 120        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 31.1        | 60 ○       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 7.2                 |
| GDP (US\$ billions) .....   | 42.5                |
| GDP per capita, PPP\$ ..... | 11,268.9            |
| Income group .....          | Upper-middle income |
| Region .....                | Europe              |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>35.9</b>                           | <b>67</b>    |
| Innovation Output Sub-Index .....                             | 31.7                                  | 59           |
| Innovation Input Sub-Index.....                               | 40.1                                  | 75           |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 46           |
| Global Innovation Index 2013 (out of 142) .....               | 37.9                                  | 54           |
| <b>1 Institutions.....</b>                                    | <b>61.0</b>                           | <b>69</b>    |
| 1.1 Political environment.....                                | 57.1                                  | 71           |
| 1.1.1 Political stability*.....                               | 60.2                                  | 83           |
| 1.1.2 Government effectiveness*.....                          | 37.8                                  | 77           |
| 1.1.3 Press freedom*.....                                     | 73.4                                  | 53           |
| 1.2 Regulatory environment .....                              | 70.6                                  | 50           |
| 1.2.1 Regulatory quality* .....                               | 46.8                                  | 77           |
| 1.2.2 Rule of law*.....                                       | 35.8                                  | 82           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.0                                   | 1 ●          |
| 1.3 Business environment.....                                 | 55.3                                  | 99           |
| 1.3.1 Ease of starting a business*.....                       | 87.8                                  | 56           |
| 1.3.2 Ease of resolving insolvency*.....                      | 30.7                                  | 92           |
| 1.3.3 Ease of paying taxes*.....                              | 47.2                                  | 123 ○        |
| <b>2 Human capital &amp; research.....</b>                    | <b>31.5</b>                           | <b>59</b>    |
| 2.1 Education .....   | 43.0                                  | 69           |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.8                                   | 65           |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 14.1                                  | 87 ○         |
| 2.1.3 School life expectancy, years.....                      | 13.6                                  | 62           |
| 2.1.4 PISA scales in reading, maths, & science.....           | 446.6                                 | 41           |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 9.1                                   | 16 ●         |
| 2.2 Tertiary education.....                                   | 40.0                                  | 45           |
| 2.2.1 Tertiary enrolment, % gross.....                        | 52.4                                  | 49           |
| 2.2.2 Graduates in science & engineering, % .....             | 24.8                                  | 28           |
| 2.2.3 Tertiary inbound mobility, %.....                       | 3.9                                   | 45           |
| 2.3 Research & development (R&D).....                         | 11.6                                  | 64           |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 1,418.0                               | 49           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.8                                   | 42           |
| 2.3.3 QS university ranking, average score top 3*.....        | 3.9                                   | 69           |
| <b>3 Infrastructure.....</b>                                  | <b>41.0</b>                           | <b>53</b>    |
| 3.1 Information & communication technologies (ICTs).....      | 43.7                                  | 54           |
| 3.1.1 ICT access*.....  | 58.2                                  | 54           |
| 3.1.2 ICT use* .....  | 35.2                                  | 54           |
| 3.1.3 Government's online service*.....                       | 57.5                                  | 48           |
| 3.1.4 E-participation*.....                                   | 23.7                                  | 60           |
| 3.2 General infrastructure.....                               | 30.0                                  | 85           |
| 3.2.1 Electricity output, kWh/cap.....                        | 5,237.5                               | 39           |
| 3.2.2 Logistics performance*.....                             | 47.2                                  | 75           |
| 3.2.3 Gross capital formation, % GDP.....                     | 20.1                                  | 91           |
| 3.3 Ecological sustainability.....                            | 49.5                                  | 28 ●         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 4.4                                   | 91           |
| 3.3.2 Environmental performance*.....                         | 69.1                                  | 31 ●         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 10.5                                  | 9 ●          |
| <b>4 Market sophistication .....</b>                          | <b>37.0</b>                           | <b>134</b> ○ |
| 4.1 Credit.....   | 38.1                                  | 62           |
| 4.1.1 Ease of getting credit*.....                            | 75.0                                  | 40           |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 53.9                                  | 60           |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 1.8                                   | 27           |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 29.7        | 100       |
| 4.2.1 Ease of protecting investors*.....                        | 53.3        | 66        |
| 4.2.2 Market capitalization, % GDP.....                         | 19.9        | 71        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.8         | 73        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a       |
| 4.3 Trade & competition .....                                   | 43.3        | 143 ○     |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 6.0         | 94        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 9.5         | 140 ○     |
| 4.3.3 Intensity of local competition†.....                      | 47.2        | 129 ○     |
| <b>5 Business sophistication .....</b>                          | <b>29.7</b> | <b>83</b> |
| 5.1 Knowledge workers.....                                      | 35.0        | 83        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 30.4        | 45        |
| 5.1.2 Firms offering formal training, % firms.....              | 35.8        | 48        |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.1         | 64        |
| 5.1.4 GERD performed by business, %.....                        | 9.4         | 75 ○      |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 73.7        | 59        |
| 5.2 Innovation linkages .....                                   | 20.4        | 123 ○     |
| 5.2.1 University/industry research collaboration†.....          | 36.5        | 101 ○     |
| 5.2.2 State of cluster development† .....                       | 32.7        | 122 ○     |
| 5.2.3 GERD financed by abroad, %.....                           | 5.5         | 61        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 40        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 70        |
| 5.3 Knowledge absorption.....                                   | 33.7        | 32        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.9         | 30        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 7.2         | 62        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.8         | 18 ●      |
| 5.3.4 FDI net inflows, % GDP.....                               | 6.2         | 31 ●      |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>33.8</b> | <b>44</b> |
| 6.1 Knowledge creation.....                                     | 23.8        | 43        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.5         | 46        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 60        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.0         | 33        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 60.3        | 5 ●       |
| 6.1.5 Citable documents H index.....                            | 68.0        | 90        |
| 6.2 Knowledge impact.....                                       | 43.4        | 52        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a       |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.7         | 47        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 39.4        | 6 ●       |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 19.8        | 56        |
| 6.3 Knowledge diffusion.....                                    | 34.2        | 49        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.2         | 37        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 2.5         | 49        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.3         | 34        |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.1         | 87        |
| <b>7 Creative outputs .....</b>                                 | <b>29.6</b> | <b>79</b> |
| 7.1 Intangible assets.....                                      | 32.3        | 123 ○     |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 32.3        | 71        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 2.3         | 12 ●      |
| 7.1.3 ICTs & business model creation†.....                      | 42.8        | 119 ○     |
| 7.1.4 ICTs & organizational model creation†.....                | 37.2        | 125 ○     |
| 7.2 Creative goods & services.....                              | 33.8        | 32        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 1.2         | 5 ●       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 4.1         | 32        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 42        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.8         | 43        |
| 7.3 Online creativity .....                                     | 20.1        | 67        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.5         | 121 ○     |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 34.2        | 52        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 15,063.8    | 32        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 0.1                 |
| GDP (US\$ billions) .....   | 1.4                 |
| GDP per capita, PPP\$ ..... | 26,492.1            |
| Income group .....          | Upper-middle income |
| Region .....                | Sub-Saharan Africa  |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>38.6</b>                           | <b>51</b>    |
| Innovation Output Sub-Index .....                             | 32.7                                  | 56           |
| Innovation Input Sub-Index .....                              | 44.5                                  | 53           |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 74           |
| Global Innovation Index 2013 (out of 142) .....               | n/a                                   | n/a          |
| <b>1 Institutions.....</b>                                    | <b>67.0</b>                           | <b>55</b>    |
| 1.1 Political environment.....                                | 68.6                                  | 48           |
| 1.1.1 Political stability*.....                               | 84.2                                  | 33 ●         |
| 1.1.2 Government effectiveness*.....                          | 50.9                                  | 53           |
| 1.1.3 Press freedom*.....                                     | 70.8                                  | 75           |
| 1.2 Regulatory environment .....                              | 66.0                                  | 72           |
| 1.2.1 Regulatory quality* .....                               | 40.7                                  | 93           |
| 1.2.2 Rule of law*.....                                       | 45.3                                  | 65           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 13.5                                  | 61           |
| 1.3 Business environment.....                                 | 66.2                                  | 65           |
| 1.3.1 Ease of starting a business*.....                       | 74.2                                  | 107          |
| 1.3.2 Ease of resolving insolvency*.....                      | 41.2                                  | 57           |
| 1.3.3 Ease of paying taxes*.....                              | 83.3                                  | 25 ●         |
| <b>2 Human capital &amp; research.....</b>                    | <b>21.6</b>                           | <b>97</b>    |
| 2.1 Education .....   | 32.4                                  | 106          |
| 2.1.1 Expenditure on education, % GDP .....                   | 3.6                                   | 96           |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 7.1                                   | 107 ○        |
| 2.1.3 School life expectancy, years.....                      | 11.6                                  | 93           |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 11.8                                  | 36           |
| 2.2 Tertiary education.....                                   | 29.7                                  | 81           |
| 2.2.1 Tertiary enrolment, % gross.....                        | 1.4                                   | 133 ○        |
| 2.2.2 Graduates in science & engineering, % .....             | 25.0                                  | 26 ●         |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a          |
| 2.3 Research & development (R&D).....                         | 2.7                                   | 97           |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 160.7                                 | 92           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.3                                   | 76           |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○         |
| <b>3 Infrastructure.....</b>                                  | <b>49.6</b>                           | <b>27 ●</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 31.9                                  | 85           |
| 3.1.1 ICT access*.....  | 61.0                                  | 50           |
| 3.1.2 ICT use* .....  | 25.2                                  | 69           |
| 3.1.3 Government's online service*.....                       | 33.3                                  | 110 ○        |
| 3.1.4 E-participation*.....                                   | 7.9                                   | 98 ○         |
| 3.2 General infrastructure.....                               | 61.3                                  | 4 ●          |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a                                   | n/a          |
| 3.2.2 Logistics performance* .....                            | n/a                                   | n/a          |
| 3.2.3 Gross capital formation, % GDP.....                     | 38.0                                  | 9 ●          |
| 3.3 Ecological sustainability.....                            | 55.6                                  | 12 ●         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a                                   | n/a          |
| 3.3.2 Environmental performance*.....                         | 55.6                                  | 57           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a                                   | n/a          |
| <b>4 Market sophistication .....</b>                          | <b>41.7</b>                           | <b>117 ○</b> |
| 4.1 Credit.....   | 16.0                                  | 136 ○        |
| 4.1.1 Ease of getting credit*.....                            | 25.0                                  | 134 ○        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 25.3                                  | 106          |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a          |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 56.7        | 20 ●        |
| 4.2.1 Ease of protecting investors*.....                        | 56.7        | 55          |
| 4.2.2 Market capitalization, % GDP.....                         | n/a         | n/a         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | n/a         | n/a         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a         |
| 4.3 Trade & competition .....                                   | 52.6        | 138 ○       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 28.3        | 142 ○       |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.9         | 71          |
| 4.3.3 Intensity of local competition†.....                      | 59.8        | 95          |
| <b>5 Business sophistication .....</b>                          | <b>42.4</b> | <b>31 ●</b> |
| 5.1 Knowledge workers.....                                      | 47.9        | 45          |
| 5.1.1 Knowledge-intensive employment, %.....                    | 26.3        | 51          |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a         |
| 5.1.3 GERD performed by business, % GDP .....                   | n/a         | n/a         |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 130.3       | 40 ●        |
| 5.2 Innovation linkages .....                                   | 51.3        | 12 ●        |
| 5.2.1 University/industry research collaboration† .....         | 40.3        | 78          |
| 5.2.2 State of cluster development† .....                       | 48.0        | 64          |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 1.5         | 14 ●        |
| 5.3 Knowledge absorption.....                                   | 28.1        | 49          |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 104 ○       |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a         | n/a         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.1         | 134 ○       |
| 5.3.4 FDI net inflows, % GDP.....                               | 13.1        | 9 ●         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>22.4</b> | <b>97</b>   |
| 6.1 Knowledge creation.....                                     | 25.9        | 39 ●        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 3.9         | 12 ●        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 17.5        | 51          |
| 6.1.5 Citable documents H index.....                            | 33.0        | 131 ○       |
| 6.2 Knowledge impact.....                                       | 8.9         | 126 ○       |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a         |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 3.9         | 77          |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a         |
| 6.3 Knowledge diffusion.....                                    | 32.4        | 66          |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 44          |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a         | n/a         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.7         | 95          |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.1         | 95          |
| <b>7 Creative outputs .....</b>                                 | <b>43.0</b> | <b>34 ●</b> |
| 7.1 Intangible assets.....                                      | 38.1        | 102         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 41.5        | 63          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a         |
| 7.1.3 ICTs & business model creation†.....                      | 52.8        | 83          |
| 7.1.4 ICTs & organizational model creation†.....                | 45.5        | 95          |
| 7.2 Creative goods & services.....                              | n/a         | n/a         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a         |
| 7.2.5 Creative goods exports, % total trade.....                | n/a         | n/a         |
| 7.3 Online creativity.....                                      | 52.6        | 23 ●        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 100.0       | 1 ●         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 56.2        | 27 ●        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 920.7       | 99          |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 5.3                         |
| GDP (US\$ billions) .....   | 295.7                       |
| GDP per capita, PPP\$ ..... | 64,583.6                    |
| Income group .....          | High income                 |
| Region .....                | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>59.2</b>                           | <b>7</b>   |
| Innovation Output Sub-Index .....                             | 44.9                                  | 25         |
| Innovation Input Sub-Index.....                               | 73.6                                  | 1 ●        |
| Innovation Efficiency Ratio.....                              | 0.6                                   | 110 ○      |
| Global Innovation Index 2013 (out of 142) .....               | 53.3                                  | 8          |
| <b>1 Institutions.....</b>                                    | <b>92.8</b>                           | <b>6</b>   |
| 1.1 Political environment.....                                | 84.5                                  | 17         |
| 1.1.1 Political stability*.....                               | 98.6                                  | 4          |
| 1.1.2 Government effectiveness*.....                          | 98.3                                  | 2 ●        |
| 1.1.3 Press freedom*.....                                     | 56.6                                  | 122 ○      |
| 1.2 Regulatory environment .....                              | 98.8                                  | 1 ●        |
| 1.2.1 Regulatory quality* .....                               | 100.0                                 | 1 ●        |
| 1.2.2 Rule of law*.....                                       | 95.1                                  | 10         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.0                                   | 1          |
| 1.3 Business environment.....                                 | 95.0                                  | 1 ●        |
| 1.3.1 Ease of starting a business*.....                       | 95.9                                  | 8          |
| 1.3.2 Ease of resolving insolvency*.....                      | 94.7                                  | 4          |
| 1.3.3 Ease of paying taxes*.....                              | 94.4                                  | 5          |
| <b>2 Human capital &amp; research.....</b>                    | <b>64.9</b>                           | <b>2 ●</b> |
| 2.1 Education .....   | 39.1                                  | 86 ○       |
| 2.1.1 Expenditure on education, % GDP .....                   | 3.0                                   | 111 ○      |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 17.0                                  | 73 ○       |
| 2.1.3 School life expectancy, years.....                      | n/a                                   | n/a        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 555.7                                 | 2          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 14.9                                  | 61 ○       |
| 2.2 Tertiary education.....                                   | 96.6                                  | 2 ●        |
| 2.2.1 Tertiary enrolment, % gross.....                        | n/a                                   | n/a        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 19.2                                  | 8          |
| 2.3 Research & development (R&D).....                         | 58.8                                  | 16         |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 7,321.2                               | 9          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 2.2                                   | 16         |
| 2.3.3 QS university ranking, average score top 3*.....        | 56.8                                  | 20         |
| <b>3 Infrastructure.....</b>                                  | <b>65.6</b>                           | <b>2 ●</b> |
| 3.1 Information & communication technologies (ICTs).....      | 87.6                                  | 3 ●        |
| 3.1.1 ICT access*.....  | 83.1                                  | 8          |
| 3.1.2 ICT use* .....  | 72.5                                  | 11         |
| 3.1.3 Government's online service*.....                       | 100.0                                 | 1 ●        |
| 3.1.4 E-participation*.....                                   | 94.7                                  | 3          |
| 3.2 General infrastructure.....                               | 54.3                                  | 10         |
| 3.2.1 Electricity output, kWh/cap.....                        | 8,880.1                               | 17         |
| 3.2.2 Logistics performance*.....                             | 100.0                                 | 1 ●        |
| 3.2.3 Gross capital formation, % GDP.....                     | 26.4                                  | 38         |
| 3.3 Ecological sustainability.....                            | 54.8                                  | 14         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 8.3                                   | 35         |
| 3.3.2 Environmental performance*.....                         | 81.8                                  | 4          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 5.1                                   | 24         |
| <b>4 Market sophistication .....</b>                          | <b>78.2</b>                           | <b>4</b>   |
| 4.1 Credit.....   | 66.4                                  | 12         |
| 4.1.1 Ease of getting credit*.....                            | 93.8                                  | 3          |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 120.6                                 | 24         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 81.3        | 3 ●        |
| 4.2.1 Ease of protecting investors*.....                        | 93.3        | 2 ●        |
| 4.2.2 Market capitalization, % GDP.....                         | 150.8       | 5          |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 57.0        | 15         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.3         | 8          |
| 4.3 Trade & competition .....                                   | 86.8        | 2 ●        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 0.0         | 1 ●        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.7         | 60         |
| 4.3.3 Intensity of local competition†.....                      | 77.3        | 17         |
| <b>5 Business sophistication .....</b>                          | <b>66.7</b> | <b>1 ●</b> |
| 5.1 Knowledge workers.....                                      | 76.4        | 4          |
| 5.1.1 Knowledge-intensive employment, %.....                    | 51.0        | 2 ●        |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a        |
| 5.1.3 GERD performed by business, % GDP .....                   | 1.4         | 15         |
| 5.1.4 GERD performed by business, %.....                        | 62.1        | 20         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 783.1       | 6          |
| 5.2 Innovation linkages .....                                   | 51.5        | 11         |
| 5.2.1 University/industry research collaboration†.....          | 77.0        | 4          |
| 5.2.2 State of cluster development† .....                       | 70.0        | 7          |
| 5.2.3 GERD financed by abroad, %.....                           | 5.0         | 62 ○       |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.1         | 9          |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 1.1         | 16         |
| 5.3 Knowledge absorption.....                                   | 72.1        | 1 ●        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 3.2         | 1 ●        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 20.1        | 5          |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.6         | 85 ○       |
| 5.3.4 FDI net inflows, % GDP.....                               | 20.6        | 1 ●        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>46.7</b> | <b>13</b>  |
| 6.1 Knowledge creation.....                                     | 34.6        | 29         |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 3.3         | 35         |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 2.2         | 20         |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 32.3        | 27         |
| 6.1.5 Citable documents H index.....                            | 268.0       | 28         |
| 6.2 Knowledge impact.....                                       | 56.1        | 12         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.0         | 89 ○       |
| 6.2.2 New businesses/th pop. 15–64.....                         | 8.0         | 13         |
| 6.2.3 Computer software spending, % GDP.....                    | 0.4         | 26         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 18.0        | 25         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 70.0        | 1 ●        |
| 6.3 Knowledge diffusion.....                                    | 49.3        | 14         |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.3         | 30         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 26.0        | 3 ●        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.7         | 96 ○       |
| 6.3.4 FDI net outflows, % GDP .....                             | 8.4         | 5          |
| <b>7 Creative outputs .....</b>                                 | <b>43.1</b> | <b>33</b>  |
| 7.1 Intangible assets.....                                      | 46.1        | 61         |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | 21.6        | 82 ○       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.7         | 35         |
| 7.1.3 ICTs & business model creation†.....                      | 74.7        | 10         |
| 7.1.4 ICTs & organizational model creation†.....                | 71.8        | 8          |
| 7.2 Creative goods & services.....                              | 33.9        | 31         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.3         | 34         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 3.8         | 35         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 1.2         | 19         |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 73 ○       |
| 7.2.5 Creative goods exports, % total trade.....                | 5.4         | 10         |
| 7.3 Online creativity .....                                     | 46.2        | 29         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 33.2        | 22         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 49.0        | 37         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 8,573.6     | 48         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 88.0        | 12         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 5.4         |
| GDP (US\$ billions) .....   | 95.8        |
| GDP per capita, PPP\$ ..... | 24,605.3    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>41.9</b>                           | <b>37</b> |
| Innovation Output Sub-Index .....                             | 37.0                                  | 38        |
| Innovation Input Sub-Index .....                              | 46.7                                  | 43        |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 45        |
| Global Innovation Index 2013 (out of 142) .....               | 42.2                                  | 36        |
| <b>1 Institutions.....</b>                                    | <b>74.5</b>                           | <b>36</b> |
| 1.1 Political environment.....                                | 80.5                                  | 24 ●      |
| 1.1.1 Political stability*.....                               | 91.7                                  | 15 ●      |
| 1.1.2 Government effectiveness*.....                          | 62.9                                  | 40        |
| 1.1.3 Press freedom*.....                                     | 86.8                                  | 21 ●      |
| 1.2 Regulatory environment .....                              | 72.9                                  | 45        |
| 1.2.1 Regulatory quality* .....                               | 75.8                                  | 30        |
| 1.2.2 Rule of law*.....                                       | 58.9                                  | 47        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 18.8                                  | 88        |
| 1.3 Business environment.....                                 | 70.1                                  | 51        |
| 1.3.1 Ease of starting a business*.....                       | 84.2                                  | 70        |
| 1.3.2 Ease of resolving insolvency*.....                      | 57.3                                  | 34        |
| 1.3.3 Ease of paying taxes*.....                              | 68.8                                  | 75        |
| <b>2 Human capital &amp; research.....</b>                    | <b>32.9</b>                           | <b>55</b> |
| 2.1 Education .....   | 41.7                                  | 77        |
| 2.1.1 Expenditure on education, % GDP .....                   | 4.2                                   | 84        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 19.6                                  | 62        |
| 2.1.3 School life expectancy, years.....                      | 12.4                                  | 82        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 471.9                                 | 37        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 11.3                                  | 33        |
| 2.2 Tertiary education.....                                   | 36.5                                  | 58        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 55.1                                  | 47        |
| 2.2.2 Graduates in science & engineering, % .....             | 20.6                                  | 49        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 3.9                                   | 43        |
| 2.3 Research & development (R&D).....                         | 20.6                                  | 43        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 4,603.4                               | 24        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.8                                   | 40        |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                  | <b>43.5</b>                           | <b>45</b> |
| 3.1 Information & communication technologies (ICTs).....      | 43.5                                  | 56        |
| 3.1.1 ICT access*.....  | 62.8                                  | 48        |
| 3.1.2 ICT use* .....  | 47.9                                  | 36        |
| 3.1.3 Government's online service*.....                       | 50.3                                  | 67        |
| 3.1.4 E-participation*.....                                   | 13.2                                  | 84        |
| 3.2 General infrastructure.....                               | 30.1                                  | 84        |
| 3.2.1 Electricity output, kWh/cap.....                        | 5,184.1                               | 42        |
| 3.2.2 Logistics performance* .....                            | 56.3                                  | 50        |
| 3.2.3 Gross capital formation, % GDP.....                     | 18.0                                  | 109 ○     |
| 3.3 Ecological sustainability.....                            | 57.0                                  | 9 ●       |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 6.9                                   | 51        |
| 3.3.2 Environmental performance*.....                         | 74.5                                  | 21 ●      |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 10.9                                  | 6 ●       |
| <b>4 Market sophistication .....</b>                          | <b>48.6</b>                           | <b>67</b> |
| 4.1 Credit.....   | 44.3                                  | 47        |
| 4.1.1 Ease of getting credit*.....                            | 75.0                                  | 40        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 45.0                                  | 74        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 24.1        | 123 ○     |
| 4.2.1 Ease of protecting investors*.....                        | 46.7        | 97 ○      |
| 4.2.2 Market capitalization, % GDP.....                         | 5.0         | 101 ○     |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.2         | 93 ○      |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a       |
| 4.3 Trade & competition .....                                   | 77.5        | 48        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 74.5        | 27        |
| <b>5 Business sophistication .....</b>                          | <b>34.2</b> | <b>61</b> |
| 5.1 Knowledge workers.....                                      | 42.0        | 61        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 32.9        | 38        |
| 5.1.2 Firms offering formal training, % firms.....              | 33.8        | 52        |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.3         | 40        |
| 5.1.4 GERD performed by business, %.....                        | 41.3        | 44        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 71.8        | 60        |
| 5.2 Innovation linkages .....                                   | 32.8        | 66        |
| 5.2.1 University/industry research collaboration†.....          | 38.2        | 89        |
| 5.2.2 State of cluster development† .....                       | 47.3        | 67        |
| 5.2.3 GERD financed by abroad, %.....                           | 18.7        | 21        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a       |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.1         | 46        |
| 5.3 Knowledge absorption.....                                   | 27.7        | 52        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 85        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 13.6        | 15 ●      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.4         | 106 ○     |
| 5.3.4 FDI net inflows, % GDP.....                               | 3.8         | 56        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>34.7</b> | <b>41</b> |
| 6.1 Knowledge creation.....                                     | 21.0        | 48        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 1.3         | 60        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 49        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 2.3         | 13        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 21.9        | 42        |
| 6.1.5 Citable documents H index.....                            | 148.0       | 41        |
| 6.2 Knowledge impact.....                                       | 55.5        | 13 ●      |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 1.6         | 59        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 5.1         | 19 ●      |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 49        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 32.8        | 11 ●      |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 54.9        | 5 ●       |
| 6.3 Knowledge diffusion.....                                    | 27.4        | 92        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 97 ○      |
| 6.3.2 High-tech exports less re-exports, %.....                 | 7.5         | 25        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.8         | 88        |
| 6.3.4 FDI net outflows, % GDP .....                             | -1.5        | 121 ○     |
| <b>7 Creative outputs .....</b>                                 | <b>39.4</b> | <b>42</b> |
| 7.1 Intangible assets.....                                      | 39.2        | 95        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 68.2        | 38        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.8         | 34        |
| 7.1.3 ICTs & business model creation†.....                      | 53.3        | 81        |
| 7.1.4 ICTs & organizational model creation†.....                | 50.2        | 80        |
| 7.2 Creative goods & services.....                              | 39.3        | 20 ●      |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.3         | 32        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 2.9         | 47        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 75 ○      |
| 7.2.5 Creative goods exports, % total trade.....                | 10.3        | 5 ●       |
| 7.3 Online creativity .....                                     | 39.9        | 35        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 4.5         | 62        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 58.1        | 24 ●      |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 12,016.7    | 39        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 76.8        | 35        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 2.1         |
| GDP (US\$ billions) .....   | 46.9        |
| GDP per capita, PPP\$ ..... | 27,899.8    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>47.2</b>                           | <b>28</b> |
| Innovation Output Sub-Index .....                             | 41.4                                  | 31        |
| Innovation Input Sub-Index.....                               | 53.1                                  | 28        |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 53        |
| Global Innovation Index 2013 (out of 142) .....               | 47.3                                  | 30        |
| <b>1 Institutions.....</b>                                    | <b>78.7</b>                           | <b>23</b> |
| 1.1 Political environment.....                                | 78.6                                  | 29        |
| 1.1.1 Political stability*.....                               | 88.1                                  | 26        |
| 1.1.2 Government effectiveness*.....                          | 68.1                                  | 31        |
| 1.1.3 Press freedom*.....                                     | 79.5                                  | 31        |
| 1.2 Regulatory environment .....                              | 81.8                                  | 28        |
| 1.2.1 Regulatory quality* .....                               | 64.6                                  | 44        |
| 1.2.2 Rule of law*.....                                       | 73.4                                  | 31        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 10.7                                  | 44        |
| 1.3 Business environment.....                                 | 75.8                                  | 26        |
| 1.3.1 Ease of starting a business*.....                       | 94.8                                  | 14        |
| 1.3.2 Ease of resolving insolvency*.....                      | 53.1                                  | 36        |
| 1.3.3 Ease of paying taxes*.....                              | 79.6                                  | 35        |
| <b>2 Human capital &amp; research.....</b>                    | <b>49.2</b>                           | <b>25</b> |
| 2.1 Education .....   | 58.1                                  | 13 ●      |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.7                                   | 37        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 31.3                                  | 20        |
| 2.1.3 School life expectancy, years.....                      | 16.8                                  | 11 ●      |
| 2.1.4 PISA scales in reading, maths, & science.....           | 498.9                                 | 21        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 9.0                                   | 15        |
| 2.2 Tertiary education.....                                   | 46.5                                  | 29        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 86.0                                  | 6 ●       |
| 2.2.2 Graduates in science & engineering, % .....             | 24.7                                  | 29        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 2.3                                   | 58        |
| 2.3 Research & development (R&D).....                         | 43.0                                  | 25        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 6,069.0                               | 14        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 2.8                                   | 10 ●      |
| 2.3.3 QS university ranking, average score top 3*.....        | 8.1                                   | 61        |
| <b>3 Infrastructure.....</b>                                  | <b>46.4</b>                           | <b>34</b> |
| 3.1 Information & communication technologies (ICTs).....      | 52.4                                  | 40        |
| 3.1.1 ICT access*.....  | 72.3                                  | 29        |
| 3.1.2 ICT use*.....   | 49.4                                  | 33        |
| 3.1.3 Government's online service*.....                       | 66.7                                  | 35        |
| 3.1.4 E-participation*.....                                   | 21.1                                  | 65        |
| 3.2 General infrastructure.....                               | 33.6                                  | 69        |
| 3.2.1 Electricity output, kWh/cap.....                        | 7,537.4                               | 26        |
| 3.2.2 Logistics performance*.....                             | 66.7                                  | 34        |
| 3.2.3 Gross capital formation, % GDP.....                     | 16.2                                  | 122 ○     |
| 3.3 Ecological sustainability.....                            | 53.2                                  | 17        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 7.1                                   | 49        |
| 3.3.2 Environmental performance*.....                         | 76.4                                  | 15        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 7.3                                   | 17        |
| <b>4 Market sophistication .....</b>                          | <b>51.1</b>                           | <b>51</b> |
| 4.1 Credit.....   | 38.9                                  | 60        |
| 4.1.1 Ease of getting credit*.....                            | 50.0                                  | 96 ○      |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 87.4                                  | 37        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 38.9        | 54        |
| 4.2.1 Ease of protecting investors*.....                        | 73.3        | 14        |
| 4.2.2 Market capitalization, % GDP.....                         | 14.2        | 82 ○      |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.9         | 69        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a       |
| 4.3 Trade & competition .....                                   | 75.5        | 72        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 70.5        | 46        |
| <b>5 Business sophistication .....</b>                          | <b>39.9</b> | <b>36</b> |
| 5.1 Knowledge workers.....                                      | 66.6        | 16        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 41.4        | 21        |
| 5.1.2 Firms offering formal training, % firms.....              | 48.6        | 29        |
| 5.1.3 GERD performed by business, % GDP.....                    | 2.2         | 7 ●       |
| 5.1.4 GERD performed by business, %.....                        | 77.2        | 2 ●       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 93.9        | 54        |
| 5.2 Innovation linkages .....                                   | 27.3        | 90        |
| 5.2.1 University/industry research collaboration†.....          | 46.2        | 53        |
| 5.2.2 State of cluster development† .....                       | 41.7        | 90        |
| 5.2.3 GERD financed by abroad, %.....                           | 8.6         | 48        |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 50        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.2         | 31        |
| 5.3 Knowledge absorption.....                                   | 25.8        | 65        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.2         | 19        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 5.7         | 92 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.8         | 13 ●      |
| 5.3.4 FDI net inflows, % GDP.....                               | 0.0         | 136 ○     |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>40.6</b> | <b>27</b> |
| 6.1 Knowledge creation.....                                     | 33.4        | 31        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 8.1         | 12        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 2.0         | 24        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.2         | 51 ○      |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 64.0        | 4 ●       |
| 6.1.5 Citable documents H index.....                            | 153.0       | 40        |
| 6.2 Knowledge impact.....                                       | 54.0        | 15        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -0.6        | 99 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 4.4         | 25        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 28.2        | 15        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 46.3        | 12        |
| 6.3 Knowledge diffusion.....                                    | 34.2        | 48        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.3         | 33        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 4.5         | 35        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.6         | 54        |
| 6.3.4 FDI net outflows, % GDP .....                             | -1.0        | 118 ○     |
| <b>7 Creative outputs .....</b>                                 | <b>42.2</b> | <b>36</b> |
| 7.1 Intangible assets.....                                      | 42.2        | 80        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 12.3        | 93 ○      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 3.7         | 6 ●       |
| 7.1.3 ICTs & business model creation†.....                      | 56.2        | 67        |
| 7.1.4 ICTs & organizational model creation†.....                | 53.8        | 66        |
| 7.2 Creative goods & services.....                              | 40.1        | 18        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.9         | 10 ●      |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 12.5        | 8 ●       |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a       |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 36        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.8         | 44        |
| 7.3 Online creativity .....                                     | 44.3        | 31        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 29.1        | 25        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 58.0        | 25        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 26,997.8    | 14        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a       |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

# South Africa

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 51.2                |
| GDP (US\$ billions) .....   | 350.8               |
| GDP per capita, PPP\$ ..... | 11,259.1            |
| Income group .....          | Upper-middle income |
| Region .....                | Sub-Saharan Africa  |

|   | Score (0–100)<br>or value (hard data) | Rank        |
|---|---------------------------------------|-------------|
| <b>Global Innovation Index (out of 143)</b> .....             | <b>38.2</b>                           | <b>53</b>   |
| Innovation Output Sub-Index .....                             | 30.9                                  | 63          |
| Innovation Input Sub-Index .....                              | 45.6                                  | 47          |
| Innovation Efficiency Ratio .....                             | 0.7                                   | 93          |
| Global Innovation Index 2013 (out of 142) .....               | 37.6                                  | 58          |
| <b>1 Institutions</b> .....                                   | <b>69.9</b>                           | <b>44</b>   |
| 1.1 Political environment.....                                | 63.5                                  | 54          |
| 1.1.1 Political stability*.....                               | 65.6                                  | 73          |
| 1.1.2 Government effectiveness*.....                          | 49.5                                  | 54          |
| 1.1.3 Press freedom*.....                                     | 75.4                                  | 43          |
| 1.2 Regulatory environment .....                              | 75.5                                  | 39          |
| 1.2.1 Regulatory quality* .....                               | 58.7                                  | 59          |
| 1.2.2 Rule of law* .....                                      | 48.6                                  | 57          |
| 1.2.3 Cost of redundancy dismissal, salary weeks .....        | 9.3                                   | 32          |
| 1.3 Business environment.....                                 | 70.8                                  | 45          |
| 1.3.1 Ease of starting a business* .....                      | 88.8                                  | 46          |
| 1.3.2 Ease of resolving insolvency*.....                      | 37.6                                  | 73          |
| 1.3.3 Ease of paying taxes*.....                              | 86.0                                  | 19 ●        |
| <b>2 Human capital &amp; research</b> .....                   | <b>28.7</b>                           | <b>70</b>   |
| 2.1 Education .....   | 34.5                                  | 99 ○        |
| 2.1.1 Expenditure on education, % GDP .....                   | 6.0                                   | 28          |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 19.7                                  | 61          |
| 2.1.3 School life expectancy, years.....                      | n/a                                   | n/a         |
| 2.1.4 PISA scales in reading, maths, & science .....          | n/a                                   | n/a         |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 25.0                                  | 90 ○        |
| 2.2 Tertiary education.....                                   | n/a                                   | n/a         |
| 2.2.1 Tertiary enrolment, % gross.....                        | n/a                                   | n/a         |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a         |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a         |
| 2.3 Research & development (R&D).....                         | 22.8                                  | 40          |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 736.6                                 | 62          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.8                                   | 43          |
| 2.3.3 QS university ranking, average score top 3*.....        | 44.5                                  | 30 ●        |
| <b>3 Infrastructure</b> .....                                 | <b>32.9</b>                           | <b>84</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 31.6                                  | 86          |
| 3.1.1 ICT access*.....  | 41.4                                  | 78          |
| 3.1.2 ICT use* .....  | 23.5                                  | 72          |
| 3.1.3 Government's online service*.....                       | 45.8                                  | 82          |
| 3.1.4 E-participation*.....                                   | 15.8                                  | 79          |
| 3.2 General infrastructure.....                               | 37.6                                  | 52          |
| 3.2.1 Electricity output, kWh/cap.....                        | 5,131.0                               | 44          |
| 3.2.2 Logistics performance* .....                            | 81.7                                  | 22 ●        |
| 3.2.3 Gross capital formation, % GDP .....                    | 19.2                                  | 99 ○        |
| 3.3 Ecological sustainability .....                           | 29.5                                  | 95          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 3.5                                   | 102 ○       |
| 3.3.2 Environmental performance*.....                         | 53.5                                  | 65          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 1.6                                   | 51          |
| <b>4 Market sophistication</b> .....                          | <b>63.8</b>                           | <b>18 ●</b> |
| 4.1 Credit.....   | 47.2                                  | 39          |
| 4.1.1 Ease of getting credit* .....                           | 81.3                                  | 27          |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 151.1                                 | 13 ●        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.9                                   | 39          |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 66.6        | 12 ●      |
| 4.2.1 Ease of protecting investors*.....                        | 80.0        | 10 ●      |
| 4.2.2 Market capitalization, % GDP.....                         | 159.3       | 3 ●       |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 81.1        | 6 ●       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 66 ○      |
| 4.3 Trade & competition .....                                   | 77.6        | 44        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 4.5         | 78        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 1.5         | 85        |
| 4.3.3 Intensity of local competition†.....                      | 71.0        | 43        |
| <b>5 Business sophistication</b> .....                          | <b>32.7</b> | <b>68</b> |
| 5.1 Knowledge workers.....                                      | 40.8        | 63        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 25.3        | 52        |
| 5.1.2 Firms offering formal training, % firms.....              | 38.7        | 44        |
| 5.1.3 GERD performed by business, % GDP .....                   | 0.4         | 37        |
| 5.1.4 GERD performed by business, %.....                        | 49.7        | 37        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 53.5        | 72        |
| 5.2 Innovation linkages .....                                   | 30.4        | 75        |
| 5.2.1 University/industry research collaboration† .....         | 59.0        | 28 ●      |
| 5.2.2 State of cluster development† .....                       | 52.5        | 39        |
| 5.2.3 GERD financed by abroad, %.....                           | 12.1        | 37        |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 49        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 81 ○      |
| 5.3 Knowledge absorption.....                                   | 26.8        | 59        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.8         | 9 ●       |
| 5.3.2 High-tech imports less re-imports, % .....                | 9.8         | 33        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.4         | 104 ○     |
| 5.3.4 FDI net inflows, % GDP .....                              | 1.5         | 100 ○     |
| <b>6 Knowledge &amp; technology outputs</b> .....               | <b>29.1</b> | <b>62</b> |
| 6.1 Knowledge creation.....                                     | 18.2        | 59        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....           | 1.1         | 66        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP .....                | 0.5         | 37        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....         | n/a         | n/a       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP .....        | 15.8        | 55        |
| 6.1.5 Citable documents H index.....                            | 231.0       | 34        |
| 6.2 Knowledge impact.....                                       | 44.5        | 45        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                  | 3.2         | 34        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 6.5         | 16 ●      |
| 6.2.3 Computer software spending, % GDP.....                    | 0.4         | 25        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....          | 6.8         | 56        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 28.2        | 38        |
| 6.3 Knowledge diffusion.....                                    | 24.7        | 112 ○     |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 63        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.9         | 54        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.4         | 105 ○     |
| 6.3.4 FDI net outflows, % GDP .....                             | 1.1         | 46        |
| <b>7 Creative outputs</b> .....                                 | <b>32.7</b> | <b>70</b> |
| 7.1 Intangible assets .....                                     | 44.7        | 71        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....             | 35.6        | 70        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....          | n/a         | n/a       |
| 7.1.3 ICTs & business model creation†.....                      | 62.2        | 44        |
| 7.1.4 ICTs & organizational model creation†.....                | 58.0        | 48        |
| 7.2 Creative goods & services.....                              | 18.2        | 68        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.6         | 84 ○      |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.3         | 35        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 27        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.5         | 53        |
| 7.3 Online creativity .....                                     | 23.1        | 62        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 4.2         | 64        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 43.9        | 43        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 1,071.9     | 95        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 42.5        | 57 ○      |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 46.2        |
| GDP (US\$ billions) .....   | 1,358.7     |
| GDP per capita, PPP\$ ..... | 29,851.1    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank        |
|---|---------------------------------------|-------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>49.3</b>                           | <b>27</b>   |
| Innovation Output Sub-Index .....                             | 42.6                                  | 28          |
| Innovation Input Sub-Index.....                               | 55.9                                  | 26          |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 60          |
| Global Innovation Index 2013 (out of 142) .....               | 49.4                                  | 26          |
| <b>1 Institutions.....</b>                                    | <b>74.8</b>                           | <b>34</b>   |
| 1.1 Political environment.....                                | 71.8                                  | 43          |
| 1.1.1 Political stability*.....                               | 65.4                                  | 75 ○        |
| 1.1.2 Government effectiveness*.....                          | 70.5                                  | 29          |
| 1.1.3 Press freedom*.....                                     | 79.5                                  | 32          |
| 1.2 Regulatory environment .....                              | 77.7                                  | 35          |
| 1.2.1 Regulatory quality* .....                               | 73.5                                  | 35          |
| 1.2.2 Rule of law*.....                                       | 75.1                                  | 26          |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 17.4                                  | 85 ○        |
| 1.3 Business environment.....                                 | 75.0                                  | 28          |
| 1.3.1 Ease of starting a business*.....                       | 77.8                                  | 97 ○        |
| 1.3.2 Ease of resolving insolvency*.....                      | 76.6                                  | 20 ●        |
| 1.3.3 Ease of paying taxes*.....                              | 70.7                                  | 63          |
| <b>2 Human capital &amp; research.....</b>                    | <b>48.3</b>                           | <b>26</b>   |
| 2.1 Education .....   | 54.5                                  | 30          |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.0                                   | 63          |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 26.6                                  | 31          |
| 2.1.3 School life expectancy, years.....                      | 17.1                                  | 7 ●         |
| 2.1.4 PISA scales in reading, maths, & science.....           | 489.6                                 | 27          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 11.4                                  | 34          |
| 2.2 Tertiary education.....                                   | 47.4                                  | 28          |
| 2.2.1 Tertiary enrolment, % gross.....                        | 82.6                                  | 8 ●         |
| 2.2.2 Graduates in science & engineering, % .....             | 25.3                                  | 25          |
| 2.2.3 Tertiary inbound mobility, %.....                       | 3.2                                   | 50          |
| 2.3 Research & development (R&D).....                         | 42.8                                  | 26          |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 4,735.2                               | 23          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 1.3                                   | 27          |
| 2.3.3 QS university ranking, average score top 3*.....        | 54.6                                  | 22          |
| <b>3 Infrastructure.....</b>                                  | <b>56.7</b>                           | <b>16 ●</b> |
| 3.1 Information & communication technologies (ICTs).....      | 62.9                                  | 25          |
| 3.1.1 ICT access*.....  | 70.5                                  | 32          |
| 3.1.2 ICT use* .....  | 55.2                                  | 27          |
| 3.1.3 Government's online service*.....                       | 75.8                                  | 23          |
| 3.1.4 E-participation*.....                                   | 50.0                                  | 31          |
| 3.2 General infrastructure.....                               | 38.1                                  | 49          |
| 3.2.1 Electricity output, kWh/cap.....                        | 6,369.4                               | 32          |
| 3.2.2 Logistics performance*.....                             | 82.9                                  | 19          |
| 3.2.3 Gross capital formation, % GDP.....                     | 18.0                                  | 110 ○       |
| 3.3 Ecological sustainability.....                            | 69.0                                  | 2 ●         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 9.8                                   | 18          |
| 3.3.2 Environmental performance*.....                         | 79.8                                  | 7 ●         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 14.0                                  | 3 ●         |
| <b>4 Market sophistication .....</b>                          | <b>64.7</b>                           | <b>15 ●</b> |
| 4.1 Credit.....   | 65.3                                  | 13 ●        |
| 4.1.1 Ease of getting credit*.....                            | 68.8                                  | 53          |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 188.8                                 | 6 ●         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a         |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 51.1        | 28        |
| 4.2.1 Ease of protecting investors*.....                        | 50.0        | 81 ○      |
| 4.2.2 Market capitalization, % GDP.....                         | 73.7        | 22        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 79.8        | 7 ●       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.2         | 17        |
| 4.3 Trade & competition .....                                   | 77.6        | 45        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○      |
| 4.3.3 Intensity of local competition†.....                      | 74.7        | 25        |
| <b>5 Business sophistication .....</b>                          | <b>35.2</b> | <b>52</b> |
| 5.1 Knowledge workers.....                                      | 53.2        | 36        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 32.5        | 39        |
| 5.1.2 Firms offering formal training, % firms.....              | 51.3        | 25        |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.7         | 29        |
| 5.1.4 GERD performed by business, %.....                        | 53.0        | 32        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 114.1       | 46        |
| 5.2 Innovation linkages .....                                   | 29.7        | 79 ○      |
| 5.2.1 University/industry research collaboration†.....          | 49.7        | 46        |
| 5.2.2 State of cluster development† .....                       | 52.5        | 39        |
| 5.2.3 GERD financed by abroad, %.....                           | 6.7         | 54 ○      |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 75 ○      |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.2         | 30        |
| 5.3 Knowledge absorption.....                                   | 22.9        | 85 ○      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.5         | 52        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.0         | 83 ○      |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.3         | 47        |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.7         | 69        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>43.1</b> | <b>22</b> |
| 6.1 Knowledge creation.....                                     | 33.6        | 30        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.4         | 48        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 1.2         | 30        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.8         | 19        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 36.7        | 20 ●      |
| 6.1.5 Citable documents H index.....                            | 476.0       | 12 ●      |
| 6.2 Knowledge impact.....                                       | 60.2        | 5 ●       |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.3         | 49        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 2.7         | 36        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.6         | 10 ●      |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 42.8        | 1 ●       |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 34.5        | 28        |
| 6.3 Knowledge diffusion.....                                    | 35.4        | 46        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.3         | 31        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 3.3         | 40        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.0         | 42        |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.4         | 73 ○      |
| <b>7 Creative outputs .....</b>                                 | <b>42.1</b> | <b>38</b> |
| 7.1 Intangible assets .....                                     | 45.8        | 63        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 59.5        | 44        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.8         | 32        |
| 7.1.3 ICTs & business model creation†.....                      | 68.3        | 26        |
| 7.1.4 ICTs & organizational model creation†.....                | 61.5        | 31        |
| 7.2 Creative goods & services.....                              | 26.0        | 47        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.2         | 37        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 5.9         | 23        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.8         | 25        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 33        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.9         | 40        |
| 7.3 Online creativity .....                                     | 51.0        | 26        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 31.0        | 24        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 53.1        | 32        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 19,110.7    | 28        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 87.3        | 16        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 20.3                      |
| GDP (US\$ billions) .....   | 65.8                      |
| GDP per capita, PPP\$ ..... | 6,530.5                   |
| Income group .....          | Lower-middle income       |
| Region .....                | Central and Southern Asia |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>29.0</b>                           | <b>105</b>   |
| Innovation Output Sub-Index .....                             | 27.0                                  | 81           |
| Innovation Input Sub-Index .....                              | 30.9                                  | 125 ○        |
| Innovation Efficiency Ratio .....                             | 0.9                                   | 17 ●         |
| Global Innovation Index 2013 (out of 142) .....               | 30.4                                  | 98           |
| <b>1 Institutions.....</b>                                    | <b>40.9</b>                           | <b>134</b> ○ |
| 1.1 Political environment.....                                | 42.1                                  | 122 ○        |
| 1.1.1 Political stability*.....                               | 48.4                                  | 109          |
| 1.1.2 Government effectiveness*.....                          | 34.5                                  | 83           |
| 1.1.3 Press freedom*.....                                     | 43.4                                  | 134 ○        |
| 1.2 Regulatory environment .....                              | 22.3                                  | 139 ○        |
| 1.2.1 Regulatory quality* .....                               | 45.7                                  | 82           |
| 1.2.2 Rule of law*.....                                       | 43.4                                  | 65           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 69.3                                  | 139 ○        |
| 1.3 Business environment.....                                 | 58.3                                  | 88           |
| 1.3.1 Ease of starting a business*.....                       | 87.0                                  | 60           |
| 1.3.2 Ease of resolving insolvency*.....                      | 44.4                                  | 51 ●         |
| 1.3.3 Ease of paying taxes*.....                              | 43.4                                  | 129 ○        |
| <b>2 Human capital &amp; research.....</b>                    | <b>17.1</b>                           | <b>115</b>   |
| 2.1 Education .....   | 29.9                                  | 119          |
| 2.1.1 Expenditure on education, % GDP .....                   | 1.7                                   | 130 ○        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 6.9                                   | 108 ○        |
| 2.1.3 School life expectancy, years.....                      | 13.7                                  | 60           |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 17.3                                  | 72           |
| 2.2 Tertiary education.....                                   | 18.2                                  | 104          |
| 2.2.1 Tertiary enrolment, % gross.....                        | 17.0                                  | 94           |
| 2.2.2 Graduates in science & engineering, % .....             | 16.7                                  | 72           |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.1                                   | 103 ○        |
| 2.3 Research & development (R&D).....                         | 3.4                                   | 92           |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 248.7                                 | 82           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.2                                   | 93           |
| 2.3.3 QS university ranking, average score top 3*.....        | 4.6                                   | 68           |
| <b>3 Infrastructure.....</b>                                  | <b>36.6</b>                           | <b>69</b>    |
| 3.1 Information & communication technologies (ICTs).....      | 22.0                                  | 105          |
| 3.1.1 ICT access*.....  | 33.6                                  | 96           |
| 3.1.2 ICT use* .....  | 8.7                                   | 107          |
| 3.1.3 Government's online service*.....                       | 37.9                                  | 97           |
| 3.1.4 E-participation*.....                                   | 7.9                                   | 98           |
| 3.2 General infrastructure.....                               | 38.1                                  | 50 ●         |
| 3.2.1 Electricity output, kWh/cap.....                        | 558.0                                 | 104 ○        |
| 3.2.2 Logistics performance* .....                            | 45.2                                  | 81           |
| 3.2.3 Gross capital formation, % GDP.....                     | 33.7                                  | 17 ●         |
| 3.3 Ecological sustainability.....                            | 49.7                                  | 27 ●         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 9.9                                   | 17 ●         |
| 3.3.2 Environmental performance*.....                         | 53.9                                  | 63           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a                                   | n/a          |
| <b>4 Market sophistication .....</b>                          | <b>40.2</b>                           | <b>124</b> ○ |
| 4.1 Credit.....   | 28.2                                  | 99           |
| 4.1.1 Ease of getting credit*.....                            | 62.5                                  | 69           |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 31.1                                  | 96           |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 1.1                                   | 36 ●         |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment .....  | 28.1        | 109          |
| 4.2.1 Ease of protecting investors*.....                        | 60.0        | 42 ●         |
| 4.2.2 Market capitalization, % GDP.....                         | 28.7        | 59           |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 2.8         | 56           |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 60 ○         |
| 4.3 Trade & competition .....                                   | 64.2        | 125 ○        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 5.7         | 92           |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 7.3         | 138 ○        |
| 4.3.3 Intensity of local competition†.....                      | 76.8        | 18 ●         |
| <b>5 Business sophistication .....</b>                          | <b>19.8</b> | <b>132</b> ○ |
| 5.1 Knowledge workers.....                                      | 23.6        | 113          |
| 5.1.1 Knowledge-intensive employment, %.....                    | 19.1        | 76           |
| 5.1.2 Firms offering formal training, % firms.....              | 13.1        | 100 ○        |
| 5.1.3 GERD performed by business, % GDP .....                   | 0.1         | 65           |
| 5.1.4 GERD performed by business, %.....                        | 43.7        | 41           |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 23.6        | 107          |
| 5.2 Innovation linkages .....                                   | 21.9        | 121 ○        |
| 5.2.1 University/industry research collaboration†.....          | 33.7        | 114 ○        |
| 5.2.2 State of cluster development† .....                       | 49.3        | 58           |
| 5.2.3 GERD financed by abroad, %.....                           | 2.7         | 72           |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 65           |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 80           |
| 5.3 Knowledge absorption.....                                   | 13.9        | 127 ○        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | n/a         | n/a          |
| 5.3.2 High-tech imports less re-imports, %.....                 | 5.0         | 98           |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.4         | 109          |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.6         | 95           |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>26.5</b> | <b>75</b>    |
| 6.1 Knowledge creation.....                                     | 7.1         | 95           |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 1.7         | 56           |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 70           |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 3.7         | 119          |
| 6.1.5 Citable documents H index.....                            | 86.0        | 72           |
| 6.2 Knowledge impact.....                                       | 34.9        | 83           |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 6.1         | 4 ●          |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.5         | 76           |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 37           |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 4.2         | 71           |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 8.9         | 78           |
| 6.3 Knowledge diffusion.....                                    | 37.5        | 41 ●         |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a          |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.3         | 88           |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 3.1         | 19 ●         |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.1         | 86           |
| <b>7 Creative outputs .....</b>                                 | <b>27.6</b> | <b>91</b>    |
| 7.1 Intangible assets .....                                     | 45.2        | 67           |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 37.7        | 67           |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a          |
| 7.1.3 ICTs & business model creation†.....                      | 62.2        | 44 ●         |
| 7.1.4 ICTs & organizational model creation†.....                | 58.8        | 43 ●         |
| 7.2 Creative goods & services.....                              | 16.6        | 75           |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a          |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a          |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a          |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 41           |
| 7.2.5 Creative goods exports, % total trade.....                | 0.3         | 69           |
| 7.3 Online creativity .....                                     | 3.2         | 117          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 1.4         | 101          |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 6.1         | 111          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 1,282.5     | 91           |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 37.2                |
| GDP (US\$ billions) .....   | 70.1                |
| GDP per capita, PPP\$ ..... | 2,631.1             |
| Income group .....          | Lower-middle income |
| Region .....                | Sub-Saharan Africa  |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>12.7</b>                           | <b>143</b> ○ |
| Innovation Output Sub-Index .....                | 2.1                                   | 143 ○        |
| Innovation Input Sub-Index.....                  | 23.2                                  | 142 ○        |
| Innovation Efficiency Ratio.....                 | 0.1                                   | 143 ○        |
| Global Innovation Index 2013 (out of 142) .....  | 19.8                                  | 141          |

|          |  |             |              |
|----------|--|-------------|--------------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>36.4</b> | <b>139</b>   |
| 1.1      | Political environment.....                             | 14.0        | 143 ○        |
| 1.1.1    | Political stability*.....                              | 10.2        | 141 ○        |
| 1.1.2    | Government effectiveness*.....                         | 1.9         | 142 ○        |
| 1.1.3    | Press freedom*.....                                    | 29.9        | 139 ○        |
| 1.2      | Regulatory environment.....                            | 37.5        | 133          |
| 1.2.1    | Regulatory quality*.....                               | 9.3         | 139          |
| 1.2.2    | Rule of law*.....                                      | 13.1        | 136          |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 26.0        | 113          |
| 1.3      | Business environment.....                              | 57.8        | 89 ●         |
| 1.3.1    | Ease of starting a business*.....                      | 73.7        | 108          |
| 1.3.2    | Ease of resolving insolvency*.....                     | 35.2        | 79 ●         |
| 1.3.3    | Ease of paying taxes*.....                             | 64.4        | 89 ●         |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>7.6</b>  | <b>141</b> ○ |
| 2.1      | Education.....   | 11.9        | 140 ○        |
| 2.1.1    | Expenditure on education, % GDP.....                   | 2.2         | 125          |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | n/a         | n/a          |
| 2.1.3    | School life expectancy, years.....                     | n/a         | n/a          |
| 2.1.4    | PISA scales in reading, maths, & science.....          | n/a         | n/a          |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | n/a         | n/a          |
| 2.2      | Tertiary education.....                                | n/a         | n/a          |
| 2.2.1    | Tertiary enrolment, % gross.....                       | n/a         | n/a          |
| 2.2.2    | Graduates in science & engineering, %.....             | n/a         | n/a          |
| 2.2.3    | Tertiary inbound mobility, %.....                      | n/a         | n/a          |
| 2.3      | Research & development (R&D).....                      | 3.3         | 93           |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 354.8       | 75 ●         |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 0.3         | 77           |
| 2.3.3    | QS university ranking, average score top 3*.....       | 0.0         | 70 ○         |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>18.3</b> | <b>135</b>   |
| 3.1      | Information & communication technologies (ICTs).....   | 18.0        | 118          |
| 3.1.1    | ICT access*.....                                       | 26.2        | 106          |
| 3.1.2    | ICT use*.....  | 12.6        | 98           |
| 3.1.3    | Government's online service*.....                      | 25.5        | 128          |
| 3.1.4    | E-participation*.....                                  | 7.9         | 98           |
| 3.2      | General infrastructure.....                            | 17.1        | 137          |
| 3.2.1    | Electricity output, kWh/cap.....                       | 192.7       | 114          |
| 3.2.2    | Logistics performance*.....                            | 19.4        | 135 ○        |
| 3.2.3    | Gross capital formation, % GDP.....                    | 20.3        | 89 ●         |
| 3.3      | Ecological sustainability.....                         | 19.7        | 135          |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 5.5         | 76 ●         |
| 3.3.2    | Environmental performance*.....                        | 24.6        | 139 ○        |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.0         | 126 ○        |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>38.9</b> | <b>129</b>   |
| 4.1      | Credit.....  | 9.7         | 142 ○        |
| 4.1.1    | Ease of getting credit*.....                           | 25.0        | 134 ○        |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 12.8        | 137          |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | 0.1         | 70           |

|       |   |      |      |
|-------|---|------|------|
| 4.2   | Investment.....                                     | 33.3 | 76 ● |
| 4.2.1 | Ease of protecting investors*.....                  | 33.3 | 125  |
| 4.2.2 | Market capitalization, % GDP.....                   | n/a  | n/a  |
| 4.2.3 | Total value of stocks traded, % GDP.....            | n/a  | n/a  |
| 4.2.4 | Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a  |
| 4.3   | Trade & competition.....                            | 73.8 | 87 ● |
| 4.3.1 | Applied tariff rate, weighted mean, %.....          | 14.7 | 136  |
| 4.3.2 | Non-agricultural mkt access weighted tariff, %..... | 0.0  | 16 ● |
| 4.3.3 | Intensity of local competition†.....                | n/a  | n/a  |

**5 Business sophistication..... 14.8 139**

|       |   |      |       |
|-------|---|------|-------|
| 5.1   | Knowledge workers.....                                    | 14.6 | 135   |
| 5.1.1 | Knowledge-intensive employment, %.....                    | n/a  | n/a   |
| 5.1.2 | Firms offering formal training, % firms.....              | n/a  | n/a   |
| 5.1.3 | GERD performed by business, % GDP.....                    | 0.1  | 56    |
| 5.1.4 | GERD performed by business, %.....                        | 33.7 | 53 ●  |
| 5.1.5 | GMAT test takers/mn pop. 20–34.....                       | 1.7  | 140 ○ |
| 5.2   | Innovation linkages.....                                  | 10.7 | 139 ○ |
| 5.2.1 | University/industry research collaboration†.....          | n/a  | n/a   |
| 5.2.2 | State of cluster development†.....                        | n/a  | n/a   |
| 5.2.3 | GERD financed by abroad, %.....                           | n/a  | n/a   |
| 5.2.4 | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0  | 60 ●  |
| 5.2.5 | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a  | n/a   |
| 5.3   | Knowledge absorption.....                                 | 19.0 | 110   |
| 5.3.1 | Royalty & license fees payments, % total trade.....       | 0.0  | 119   |
| 5.3.2 | High-tech imports less re-imports, %.....                 | 7.8  | 58 ●  |
| 5.3.3 | Comm., computer & info. services imp., % total trade..... | 0.3  | 122   |
| 5.3.4 | FDI net inflows, % GDP.....                               | 4.8  | 41 ●  |

**6 Knowledge & technology outputs..... 2.4 143 ○**

|       |   |       |       |
|-------|---|-------|-------|
| 6.1   | Knowledge creation.....                                   | 2.6   | 134   |
| 6.1.1 | Domestic resident patent app./tr PPP\$ GDP.....           | 0.0   | 106   |
| 6.1.2 | PCT resident patent app./tr PPP\$ GDP.....                | 0.0   | 104   |
| 6.1.3 | Domestic res utility model app./tr PPP\$ GDP.....         | n/a   | n/a   |
| 6.1.4 | Scientific & technical articles/bn PPP\$ GDP.....         | 3.1   | 123   |
| 6.1.5 | Citable documents H index.....                            | 52.0  | 109   |
| 6.2   | Knowledge impact.....                                     | 0.7   | 142 ○ |
| 6.2.1 | Growth rate of PPP\$ GDP/worker, %.....                   | -13.8 | 116 ○ |
| 6.2.2 | New businesses/th pop. 15–64.....                         | n/a   | n/a   |
| 6.2.3 | Computer software spending, % GDP.....                    | n/a   | n/a   |
| 6.2.4 | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.0   | 122   |
| 6.2.5 | High- & medium-high-tech manufactures, %.....             | n/a   | n/a   |
| 6.3   | Knowledge diffusion.....                                  | 3.8   | 137   |
| 6.3.1 | Royalty & license fees receipts, % total trade.....       | 0.0   | 85    |
| 6.3.2 | High-tech exports less re-exports, %.....                 | 0.1   | 115   |
| 6.3.3 | Comm., computer & info. services exp., % total trade..... | 0.4   | 108   |
| 6.3.4 | FDI net outflows, % GDP.....                              | n/a   | n/a   |

**7 Creative outputs..... 1.9 141 ○**

|       |  |      |       |
|-------|--|------|-------|
| 7.1   | Intangible assets.....                                   | 2.7  | 140 ○ |
| 7.1.1 | Domestic res trademark app./bn PPP\$ GDP.....            | 10.0 | 95    |
| 7.1.2 | Madrid trademark app. holders/bn PPP\$ GDP.....          | 0.0  | 66    |
| 7.1.3 | ICTs & business model creation†.....                     | n/a  | n/a   |
| 7.1.4 | ICTs & organizational model creation†.....               | n/a  | n/a   |
| 7.2   | Creative goods & services.....                           | 1.9  | 126   |
| 7.2.1 | Cultural & creative services exports, % total trade..... | 0.0  | 94    |
| 7.2.2 | National feature films/mn pop. 15–69.....                | n/a  | n/a   |
| 7.2.3 | Global ent. & media output/th pop. 15–69.....            | n/a  | n/a   |
| 7.2.4 | Printing & publishing manufactures, %.....               | n/a  | n/a   |
| 7.2.5 | Creative goods exports, % total trade.....               | 0.1  | 94    |
| 7.3   | Online creativity.....                                   | 0.2  | 137   |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.2  | 133   |
| 7.3.2 | Country-code TLDs/th pop. 15–69.....                     | 0.3  | 137   |
| 7.3.3 | Wikipedia edits/pop. 15–69.....                          | 75.8 | 125   |
| 7.3.4 | Video uploads on YouTube/pop. 15–69.....                 | n/a  | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Swaziland

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 1.2                 |
| GDP (US\$ billions) .....   | 3.6                 |
| GDP per capita, PPP\$ ..... | 6,218.0             |
| Income group .....          | Lower-middle income |
| Region .....                | Sub-Saharan Africa  |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>25.3</b>                           | <b>127</b>   |
| Innovation Output Sub-Index .....                             | 18.4                                  | 127          |
| Innovation Input Sub-Index .....                              | 32.2                                  | 119          |
| Innovation Efficiency Ratio .....                             | 0.6                                   | 123          |
| Global Innovation Index 2013 (out of 142) .....               | 29.6                                  | 104          |
| <b>1 Institutions.....</b>                                    | <b>55.3</b>                           | <b>90</b>    |
| 1.1 Political environment.....                                | 44.9                                  | 109          |
| 1.1.1 Political stability*.....                               | 55.8                                  | 89           |
| 1.1.2 Government effectiveness*.....                          | 25.5                                  | 108          |
| 1.1.3 Press freedom*.....                                     | 53.2                                  | 127          |
| 1.2 Regulatory environment .....                              | 60.3                                  | 87           |
| 1.2.1 Regulatory quality* .....                               | 34.1                                  | 111          |
| 1.2.2 Rule of law*.....                                       | 33.6                                  | 89           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 14.6                                  | 66 ●         |
| 1.3 Business environment.....                                 | 60.7                                  | 84           |
| 1.3.1 Ease of starting a business*.....                       | 68.8                                  | 118          |
| 1.3.2 Ease of resolving insolvency*.....                      | 40.8                                  | 60 ●         |
| 1.3.3 Ease of paying taxes*.....                              | 72.5                                  | 55 ●         |
| <b>2 Human capital &amp; research.....</b>                    | <b>18.4</b>                           | <b>106</b>   |
| 2.1 Education .....   | 52.6                                  | 37 ●         |
| 2.1.1 Expenditure on education, % GDP.....                    | 8.3                                   | 6 ●          |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 40.8                                  | 4 ●          |
| 2.1.3 School life expectancy, years.....                      | 11.3                                  | 99           |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 16.4                                  | 67           |
| 2.2 Tertiary education.....                                   | 2.5                                   | 137 ○        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 6.0                                   | 122 ○        |
| 2.2.2 Graduates in science & engineering, % .....             | 2.7                                   | 103 ○        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.9                                   | 84           |
| 2.3 Research & development (R&D).....                         | 0.0                                   | 131 ○        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | n/a                                   | n/a          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a          |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○         |
| <b>3 Infrastructure.....</b>                                  | <b>14.8</b>                           | <b>143</b> ○ |
| 3.1 Information & communication technologies (ICTs).....      | 13.8                                  | 131 ○        |
| 3.1.1 ICT access*.....  | 24.3                                  | 113          |
| 3.1.2 ICT use* .....  | 11.1                                  | 104          |
| 3.1.3 Government's online service*.....                       | 14.4                                  | 139 ○        |
| 3.1.4 E-participation*.....                                   | 5.3                                   | 111          |
| 3.2 General infrastructure.....                               | 3.3                                   | 143 ○        |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a                                   | n/a          |
| 3.2.2 Logistics performance* .....                            | n/a                                   | n/a          |
| 3.2.3 Gross capital formation, % GDP.....                     | 10.4                                  | 141 ○        |
| 3.3 Ecological sustainability.....                            | 27.4                                  | 105          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a                                   | n/a          |
| 3.3.2 Environmental performance*.....                         | 37.4                                  | 116          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 1.1                                   | 60           |
| <b>4 Market sophistication .....</b>                          | <b>38.1</b>                           | <b>131</b> ○ |
| 4.1 Credit.....   | 32.1                                  | 84           |
| 4.1.1 Ease of getting credit* .....                           | 68.8                                  | 53           |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 25.0                                  | 109          |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 1.7                                   | 30 ●         |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment .....  | 22.6        | 129          |
| 4.2.1 Ease of protecting investors*.....                        | 43.3        | 105          |
| 4.2.2 Market capitalization, % GDP.....                         | 6.7         | 96           |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.0         | 109 ○        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a          |
| 4.3 Trade & competition .....                                   | 59.6        | 131 ○        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 4.2         | 77           |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 5.6         | 133 ○        |
| 4.3.3 Intensity of local competition†.....                      | 56.0        | 111          |
| <b>5 Business sophistication .....</b>                          | <b>34.5</b> | <b>57</b> ●  |
| 5.1 Knowledge workers.....                                      | 51.2        | 38 ●         |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a         | n/a          |
| 5.1.2 Firms offering formal training, % firms.....              | 51.0        | 26 ●         |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a          |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a          |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 33.6        | 90           |
| 5.2 Innovation linkages .....                                   | 37.5        | 50 ●         |
| 5.2.1 University/industry research collaboration†.....          | 36.0        | 102          |
| 5.2.2 State of cluster development† .....                       | 43.7        | 81           |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a          |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a          |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.2         | 32 ●         |
| 5.3 Knowledge absorption.....                                   | 14.6        | 125          |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.7         | 43 ●         |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a         | n/a          |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.2         | 130 ○        |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.4         | 77           |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>14.4</b> | <b>131</b> ○ |
| 6.1 Knowledge creation.....                                     | 6.7         | 97           |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a          |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 48 ●         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 6.7         | 93           |
| 6.1.5 Citable documents H index.....                            | 28.0        | 135 ○        |
| 6.2 Knowledge impact.....                                       | 7.3         | 128          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a         | n/a          |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a          |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 3.2         | 83           |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a          |
| 6.3 Knowledge diffusion.....                                    | 29.1        | 83           |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 93           |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a         | n/a          |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.0         | 84           |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.1         | 89           |
| <b>7 Creative outputs .....</b>                                 | <b>22.5</b> | <b>114</b>   |
| 7.1 Intangible assets.....                                      | 42.4        | 79           |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a          |
| 7.1.3 ICTs & business model creation†.....                      | 41.7        | 123 ○        |
| 7.1.4 ICTs & organizational model creation†.....                | 43.2        | 110          |
| 7.2 Creative goods & services.....                              | 0.4         | 137 ○        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 92           |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a          |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a          |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a          |
| 7.2.5 Creative goods exports, % total trade.....                | n/a         | n/a          |
| 7.3 Online creativity .....                                     | 4.8         | 111          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 1.8         | 97           |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 12.5        | 93           |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 145.1       | 119          |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 9.5         |
| GDP (US\$ billions) .....   | 557.9       |
| GDP per capita, PPP\$ ..... | 41,188.4    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>                | <b>62.3</b>                           | <b>3</b> ● |
| Innovation Output Sub-Index .....                               | 57.1                                  | 3 ●        |
| Innovation Input Sub-Index.....                                 | 67.5                                  | 6          |
| Innovation Efficiency Ratio.....                                | 0.8                                   | 22         |
| Global Innovation Index 2013 (out of 142) .....                 | 61.4                                  | 2          |
| <b>1 Institutions.....</b>                                      | <b>89.7</b>                           | <b>10</b>  |
| 1.1 Political environment.....                                  | 92.5                                  | 5 ●        |
| 1.1.1 Political stability*.....                                 | 94.2                                  | 12         |
| 1.1.2 Government effectiveness*.....                            | 92.7                                  | 4 ●        |
| 1.1.3 Press freedom*.....                                       | 90.8                                  | 8          |
| 1.2 Regulatory environment.....                                 | 93.0                                  | 14         |
| 1.2.1 Regulatory quality*.....                                  | 98.2                                  | 3 ●        |
| 1.2.2 Rule of law*.....   | 99.6                                  | 3 ●        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....           | 14.4                                  | 65 ○       |
| 1.3 Business environment.....                                   | 83.7                                  | 16         |
| 1.3.1 Ease of starting a business*.....                         | 92.3                                  | 24         |
| 1.3.2 Ease of resolving insolvency*.....                        | 80.0                                  | 19         |
| 1.3.3 Ease of paying taxes*.....                                | 78.9                                  | 37         |
| <b>2 Human capital &amp; research.....</b>                      | <b>61.9</b>                           | <b>6</b>   |
| 2.1 Education.....  | 58.2                                  | 12         |
| 2.1.1 Expenditure on education, % GDP.....                      | 7.0                                   | 11         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....        | 31.9                                  | 18         |
| 2.1.3 School life expectancy, years.....                        | 15.8                                  | 24         |
| 2.1.4 PISA scales in reading, maths, & science.....             | 482.1                                 | 34 ○       |
| 2.1.5 Pupil-teacher ratio, secondary.....                       | 9.5                                   | 19         |
| 2.2 Tertiary education.....                                     | 51.6                                  | 20         |
| 2.2.1 Tertiary enrolment, % gross.....                          | 73.9                                  | 18         |
| 2.2.2 Graduates in science & engineering, %.....                | 25.8                                  | 22         |
| 2.2.3 Tertiary inbound mobility, %.....                         | 7.9                                   | 21         |
| 2.3 Research & development (R&D).....                           | 75.9                                  | 5 ●        |
| 2.3.1 Researchers, headcounts/mn pop.....                       | 8,470.7                               | 6          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                      | 3.4                                   | 4 ●        |
| 2.3.3 QS university ranking, average score top 3*.....          | 70.3                                  | 14         |
| <b>3 Infrastructure.....</b>                                    | <b>63.6</b>                           | <b>4</b> ● |
| 3.1 Information & communication technologies (ICTs).....        | 79.7                                  | 7          |
| 3.1.1 ICT access*.....  | 83.7                                  | 7          |
| 3.1.2 ICT use*.....   | 82.5                                  | 1 ●        |
| 3.1.3 Government's online service*.....                         | 84.3                                  | 16         |
| 3.1.4 E-participation*.....                                     | 68.4                                  | 15         |
| 3.2 General infrastructure.....                                 | 53.8                                  | 11         |
| 3.2.1 Electricity output, kWh/cap.....                          | 17,358.9                              | 5 ●        |
| 3.2.2 Logistics performance*.....                               | 88.9                                  | 12         |
| 3.2.3 Gross capital formation, % GDP.....                       | 18.7                                  | 105 ○      |
| 3.3 Ecological sustainability.....                              | 57.2                                  | 8          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....         | 6.8                                   | 52 ○       |
| 3.3.2 Environmental performance*.....                           | 78.1                                  | 9          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP.....    | 10.1                                  | 10         |
| <b>4 Market sophistication.....</b>                             | <b>68.2</b>                           | <b>9</b>   |
| 4.1 Credit.....   | 60.0                                  | 18         |
| 4.1.1 Ease of getting credit*.....                              | 75.0                                  | 40         |
| 4.1.2 Domestic credit to private sector, % GDP.....             | 138.5                                 | 17         |
| 4.1.3 Microfinance gross loans, % GDP.....                      | n/a                                   | n/a        |
| 4.2 Investment.....   | 66.2                                  | 13         |
| 4.2.1 Ease of protecting investors*.....                        | 63.3                                  | 32         |
| 4.2.2 Market capitalization, % GDP.....                         | 106.6                                 | 13         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 71.6                                  | 8          |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.3                                   | 9          |
| 4.3 Trade & competition.....                                    | 78.3                                  | 40         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1                                   | 10         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3                                   | 97 ○       |
| 4.3.3 Intensity of local competition†.....                      | 76.2                                  | 21         |
| <b>5 Business sophistication.....</b>                           | <b>53.9</b>                           | <b>9</b>   |
| 5.1 Knowledge workers.....                                      | 77.7                                  | 3 ●        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 47.6                                  | 4 ●        |
| 5.1.2 Firms offering formal training, % firms.....              | n/a                                   | n/a        |
| 5.1.3 GERD performed by business, % GDP.....                    | 2.3                                   | 5          |
| 5.1.4 GERD performed by business, %.....                        | 67.8                                  | 12         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 346.7                                 | 12         |
| 5.2 Innovation linkages.....                                    | 48.1                                  | 19         |
| 5.2.1 University/industry research collaboration†.....          | 72.3                                  | 10         |
| 5.2.2 State of cluster development†.....                        | 63.8                                  | 18         |
| 5.2.3 GERD financed by abroad, %.....                           | 11.1                                  | 39 ○       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.1                                   | 31         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 2.5                                   | 9          |
| 5.3 Knowledge absorption.....                                   | 35.9                                  | 26         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.0                                   | 29         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 9.6                                   | 35         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 2.6                                   | 6          |
| 5.3.4 FDI net inflows, % GDP.....                               | 0.7                                   | 122 ○      |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>58.8</b>                           | <b>3</b> ● |
| 6.1 Knowledge creation.....                                     | 65.5                                  | 5 ●        |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 5.9                                   | 22         |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 9.3                                   | 5          |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a                                   | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 57.6                                  | 7          |
| 6.1.5 Citable documents H index.....                            | 511.0                                 | 11         |
| 6.2 Knowledge impact.....                                       | 52.7                                  | 19         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 1.0                                   | 66 ○       |
| 6.2.2 New businesses/th pop. 15–64.....                         | 6.4                                   | 17         |
| 6.2.3 Computer software spending, % GDP.....                    | 0.6                                   | 19         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 12.6                                  | 40         |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 47.8                                  | 11         |
| 6.3 Knowledge diffusion.....                                    | 58.3                                  | 5 ●        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 2.8                                   | 7          |
| 6.3.2 High-tech exports less re-exports, %.....                 | 9.5                                   | 21         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 4.2                                   | 10         |
| 6.3.4 FDI net outflows, % GDP.....                              | 3.5                                   | 18         |
| <b>7 Creative outputs.....</b>                                  | <b>55.4</b>                           | <b>9</b>   |
| 7.1 Intangible assets.....                                      | 55.0                                  | 22         |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | 65.3                                  | 39 ○       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 1.7                                   | 21         |
| 7.1.3 ICTs & business model creation†.....                      | 78.2                                  | 3 ●        |
| 7.1.4 ICTs & organizational model creation†.....                | 74.0                                  | 4 ●        |
| 7.2 Creative goods & services.....                              | 41.9                                  | 15         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 1.0                                   | 9          |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 6.4                                   | 19         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 2.2                                   | 6          |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0                                   | 50 ○       |
| 7.2.5 Creative goods exports, % total trade.....                | 1.8                                   | 30         |
| 7.3 Online creativity.....                                      | 69.7                                  | 7          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 49.0                                  | 19         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 71.6                                  | 9          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 38,695.2                              | 5 ●        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 92.6                                  | 7          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Switzerland

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 8.0         |
| GDP (US\$ billions) .....   | 650.8       |
| GDP per capita, PPP\$ ..... | 46,430.1    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143)</b> .....             | <b>64.8</b>                           | <b>1</b> ● |
| Innovation Output Sub-Index .....                             | 63.1                                  | 1 ●        |
| Innovation Input Sub-Index .....                              | 66.4                                  | 7          |
| Innovation Efficiency Ratio .....                             | 0.9                                   | 6          |
| Global Innovation Index 2013 (out of 142) .....               | 66.6                                  | 1          |
| <b>1 Institutions</b> .....                                   | <b>87.6</b>                           | <b>16</b>  |
| 1.1 Political environment.....                                | 93.7                                  | 3 ●        |
| 1.1.1 Political stability*.....                               | 100.0                                 | 1 ●        |
| 1.1.2 Government effectiveness*.....                          | 91.0                                  | 6          |
| 1.1.3 Press freedom*.....                                     | 90.1                                  | 12         |
| 1.2 Regulatory environment .....                              | 95.0                                  | 10         |
| 1.2.1 Regulatory quality* .....                               | 92.2                                  | 11         |
| 1.2.2 Rule of law*.....                                       | 96.2                                  | 8          |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 10.1                                  | 38         |
| 1.3 Business environment.....                                 | 74.2                                  | 32         |
| 1.3.1 Ease of starting a business*.....                       | 85.7                                  | 67 ○       |
| 1.3.2 Ease of resolving insolvency*.....                      | 50.4                                  | 42         |
| 1.3.3 Ease of paying taxes*.....                              | 86.6                                  | 16         |
| <b>2 Human capital &amp; research</b> .....                   | <b>56.7</b>                           | <b>12</b>  |
| 2.1 Education .....   | 49.5                                  | 52         |
| 2.1.1 Expenditure on education, % GDP .....                   | 5.2                                   | 51         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 27.9                                  | 28         |
| 2.1.3 School life expectancy, years.....                      | 15.7                                  | 27         |
| 2.1.4 PISA scales in reading, maths, & science.....           | 518.4                                 | 11         |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a        |
| 2.2 Tertiary education.....                                   | 51.1                                  | 23         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 54.3                                  | 48         |
| 2.2.2 Graduates in science & engineering, % .....             | 19.8                                  | 59 ○       |
| 2.2.3 Tertiary inbound mobility, %.....                       | 16.2                                  | 10         |
| 2.3 Research & development (R&D).....                         | 69.3                                  | 9          |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 5,994.2                               | 15         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 2.9                                   | 8          |
| 2.3.3 QS university ranking, average score top 3*.....        | 86.2                                  | 4          |
| <b>3 Infrastructure</b> .....                                 | <b>59.0</b>                           | <b>10</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 63.6                                  | 24         |
| 3.1.1 ICT access*.....  | 87.3                                  | 4          |
| 3.1.2 ICT use*.....   | 65.4                                  | 17         |
| 3.1.3 Government's online service*.....                       | 67.3                                  | 32         |
| 3.1.4 E-participation*.....                                   | 34.2                                  | 45         |
| 3.2 General infrastructure.....                               | 45.0                                  | 29         |
| 3.2.1 Electricity output, kWh/cap.....                        | 8,573.1                               | 19         |
| 3.2.2 Logistics performance*.....                             | 86.9                                  | 16         |
| 3.2.3 Gross capital formation, % GDP.....                     | 21.0                                  | 80 ○       |
| 3.3 Ecological sustainability.....                            | 68.4                                  | 3 ●        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 12.3                                  | 5          |
| 3.3.2 Environmental performance*.....                         | 87.7                                  | 1 ●        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 7.7                                   | 15         |
| <b>4 Market sophistication</b> .....                          | <b>74.7</b>                           | <b>6</b>   |
| 4.1 Credit.....   | 69.4                                  | 9          |
| 4.1.1 Ease of getting credit*.....                            | 81.3                                  | 27         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 176.1                                 | 11         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 71.8        | 7          |
| 4.2.1 Ease of protecting investors*.....                            | 30.0        | 133 ○      |
| 4.2.2 Market capitalization, % GDP.....                             | 170.7       | 1 ●        |
| 4.2.3 Total value of stocks traded, % GDP.....                      | 101.4       | 5          |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                       | 0.4         | 1 ●        |
| 4.3 Trade & competition .....                                       | 83.0        | 10         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                    | 0.0         | 1 ●        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....           | 2.1         | 92 ○       |
| 4.3.3 Intensity of local competition <sup>†</sup> .....             | 76.8        | 18         |
| <b>5 Business sophistication</b> .....                              | <b>54.2</b> | <b>8</b>   |
| 5.1 Knowledge workers.....  | 79.3        | 2 ●        |
| 5.1.1 Knowledge-intensive employment, %.....                        | 49.8        | 3          |
| 5.1.2 Firms offering formal training, % firms.....                  | n/a         | n/a        |
| 5.1.3 GERD performed by business, % GDP.....                        | 2.2         | 6          |
| 5.1.4 GERD performed by business, %.....                            | 73.5        | 6          |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                           | 312.7       | 16         |
| 5.2 Innovation linkages .....                                       | 54.2        | 8          |
| 5.2.1 University/industry research collaboration <sup>†</sup> ..... | 80.7        | 1 ●        |
| 5.2.2 State of cluster development <sup>†</sup> .....               | 71.3        | 4          |
| 5.2.3 GERD financed by abroad, %.....                               | 6.0         | 58 ○       |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....                | 0.1         | 17         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....        | 4.6         | 4          |
| 5.3 Knowledge absorption.....                                       | 29.1        | 47         |
| 5.3.1 Royalty & license fees payments, % total trade.....           | 5.5         | 1 ●        |
| 5.3.2 High-tech imports less re-imports, %.....                     | 8.0         | 56         |
| 5.3.3 Comm., computer & info. services imp., % total trade.....     | 0.2         | 127 ○      |
| 5.3.4 FDI net inflows, % GDP.....                                   | 1.5         | 101 ○      |
| <b>6 Knowledge &amp; technology outputs</b> .....                   | <b>60.9</b> | <b>1</b> ● |
| 6.1 Knowledge creation.....   | 70.0        | 2 ●        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....                | 4.1         | 29         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                     | 11.7        | 3 ●        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....              | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....             | 67.2        | 2 ●        |
| 6.1.5 Citable documents H index.....                                | 569.0       | 9          |
| 6.2 Knowledge impact.....   | 61.7        | 4          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                       | -0.2        | 94 ○       |
| 6.2.2 New businesses/th pop. 15–64.....                             | 2.5         | 37         |
| 6.2.3 Computer software spending, % GDP.....                        | 0.8         | 3          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....               | 32.2        | 12         |
| 6.2.5 High- & medium-high-tech manufactures, % .....                | 63.2        | 2 ●        |
| 6.3 Knowledge diffusion.....  | 51.0        | 10         |
| 6.3.1 Royalty & license fees receipts, % total trade .....          | 5.0         | 2 ●        |
| 6.3.2 High-tech exports less re-exports, %.....                     | 13.5        | 14         |
| 6.3.3 Comm., computer & info. services exp., % total trade.....     | 0.2         | 121 ○      |
| 6.3.4 FDI net outflows, % GDP .....                                 | 5.0         | 13         |
| <b>7 Creative outputs</b> .....                                     | <b>65.3</b> | <b>2</b> ● |
| 7.1 Intangible assets.....  | 63.9        | 7          |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....                  | 101.8       | 16         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....               | 8.1         | 1 ●        |
| 7.1.3 ICTs & business model creation <sup>†</sup> .....             | 71.0        | 17         |
| 7.1.4 ICTs & organizational model creation <sup>†</sup> .....       | 63.2        | 29         |
| 7.2 Creative goods & services.....                                  | 64.4        | 2 ●        |
| 7.2.1 Cultural & creative services exports, % total trade.....      | n/a         | n/a        |
| 7.2.2 National feature films/mn pop. 15–69.....                     | 14.5        | 1 ●        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....                 | 2.6         | 2 ●        |
| 7.2.4 Printing & publishing manufactures, %.....                    | 0.0         | 10         |
| 7.2.5 Creative goods exports, % total trade.....                    | 3.2         | 17         |
| 7.3 Online creativity.....  | 69.2        | 8          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....           | 77.2        | 11         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                          | 77.5        | 4          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                               | 23,126.3    | 18         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                     | 82.7        | 23         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 8.0                       |
| GDP (US\$ billions) .....   | 8.5                       |
| GDP per capita, PPP\$ ..... | 2,354.1                   |
| Income group .....          | Low income                |
| Region .....                | Central and Southern Asia |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>23.7</b>                           | <b>137</b> ○ |
| Innovation Output Sub-Index .....                | 14.6                                  | 140 ○        |
| Innovation Input Sub-Index.....                  | 32.8                                  | 114          |
| Innovation Efficiency Ratio.....                 | 0.4                                   | 138 ○        |
| Global Innovation Index 2013 (out of 142) .....  | 30.0                                  | 101          |

|          |  |             |             |
|----------|--|-------------|-------------|
| <b>1</b> | <b>Institutions.....</b>                               | <b>46.2</b> | <b>122</b>  |
| 1.1      | Political environment.....                             | 39.1        | 128         |
| 1.1.1    | Political stability*.....                              | 37.2        | 122         |
| 1.1.2    | Government effectiveness*.....                         | 15.9        | 127         |
| 1.1.3    | Press freedom*.....                                    | 64.3        | 101         |
| 1.2      | Regulatory environment.....                            | 51.6        | 110         |
| 1.2.1    | Regulatory quality*.....                               | 22.5        | 131         |
| 1.2.2    | Rule of law*.....                                      | 14.0        | 134         |
| 1.2.3    | Cost of redundancy dismissal, salary weeks.....        | 15.5        | 72 ●        |
| 1.3      | Business environment.....                              | 47.7        | 126         |
| 1.3.1    | Ease of starting a business*.....                      | 82.7        | 74          |
| 1.3.2    | Ease of resolving insolvency*.....                     | 38.0        | 72 ●        |
| 1.3.3    | Ease of paying taxes*.....                             | 22.6        | 139 ○       |
| <b>2</b> | <b>Human capital &amp; research.....</b>               | <b>24.4</b> | <b>88</b>   |
| 2.1      | Education.....   | 41.6        | 79          |
| 2.1.1    | Expenditure on education, % GDP.....                   | 3.9         | 91          |
| 2.1.2    | Gov't expenditure/pupil, secondary, % GDP/cap.....     | n/a         | n/a         |
| 2.1.3    | School life expectancy, years.....                     | 11.2        | 102         |
| 2.1.4    | PISA scales in reading, maths, & science.....          | n/a         | n/a         |
| 2.1.5    | Pupil-teacher ratio, secondary.....                    | 15.4        | 64          |
| 2.2      | Tertiary education.....                                | 30.1        | 79          |
| 2.2.1    | Tertiary enrolment, % gross.....                       | 22.5        | 87          |
| 2.2.2    | Graduates in science & engineering, %.....             | 25.5        | 24 ●        |
| 2.2.3    | Tertiary inbound mobility, %.....                      | 1.6         | 70          |
| 2.3      | Research & development (R&D).....                      | 1.4         | 113         |
| 2.3.1    | Researchers, headcounts/mn pop.....                    | 200.3       | 85          |
| 2.3.2    | Gross expenditure on R&D, % GDP.....                   | 0.1         | 100         |
| 2.3.3    | QS university ranking, average score top 3*.....       | 0.0         | 70 ○        |
| <b>3</b> | <b>Infrastructure.....</b>                             | <b>19.6</b> | <b>133</b>  |
| 3.1      | Information & communication technologies (ICTs).....   | 12.1        | 136 ○       |
| 3.1.1    | ICT access*.....                                       | n/a         | n/a         |
| 3.1.2    | ICT use*.....  | n/a         | n/a         |
| 3.1.3    | Government's online service*.....                      | 24.2        | 131         |
| 3.1.4    | E-participation*.....                                  | 0.0         | 129 ○       |
| 3.2      | General infrastructure.....                            | 17.6        | 136 ○       |
| 3.2.1    | Electricity output, kWh/cap.....                       | 2,323.6     | 72          |
| 3.2.2    | Logistics performance*.....                            | 26.6        | 127         |
| 3.2.3    | Gross capital formation, % GDP.....                    | 16.6        | 118         |
| 3.3      | Ecological sustainability.....                         | 29.1        | 97          |
| 3.3.1    | GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 6.0         | 68          |
| 3.3.2    | Environmental performance*.....                        | 31.3        | 127         |
| 3.3.3    | ISO 14001 environmental certificates/bn PPP\$ GDP..... | n/a         | n/a         |
| <b>4</b> | <b>Market sophistication.....</b>                      | <b>61.3</b> | <b>23</b> ● |
| 4.1      | Credit.....  | 46.8        | 40 ●        |
| 4.1.1    | Ease of getting credit*.....                           | 37.5        | 130         |
| 4.1.2    | Domestic credit to private sector, % GDP.....          | 13.0        | 135 ○       |
| 4.1.3    | Microfinance gross loans, % GDP.....                   | 8.0         | 1 ●         |

|            |   |             |            |
|------------|---|-------------|------------|
| 4.2        | Investment.....                                     | 66.7        | 10 ●       |
| 4.2.1      | Ease of protecting investors*.....                  | 66.7        | 21 ●       |
| 4.2.2      | Market capitalization, % GDP.....                   | n/a         | n/a        |
| 4.2.3      | Total value of stocks traded, % GDP.....            | n/a         | n/a        |
| 4.2.4      | Venture capital deals/tr PPP\$ GDP.....             | n/a         | n/a        |
| <b>4.3</b> | <b>Trade &amp; competition.....</b>                 | <b>70.5</b> | <b>108</b> |
| 4.3.1      | Applied tariff rate, weighted mean, %.....          | 5.9         | 93         |
| 4.3.2      | Non-agricultural mkt access weighted tariff, %..... | 3.6         | 125        |
| 4.3.3      | Intensity of local competition†.....                | n/a         | n/a        |

**5 Business sophistication..... 12.6 142 ○**

|       |   |      |       |
|-------|---|------|-------|
| 5.1   | Knowledge workers.....                                    | 17.3 | 130   |
| 5.1.1 | Knowledge-intensive employment, %.....                    | n/a  | n/a   |
| 5.1.2 | Firms offering formal training, % firms.....              | 21.2 | 90    |
| 5.1.3 | GERD performed by business, % GDP.....                    | n/a  | n/a   |
| 5.1.4 | GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 | GMAT test takers/mn pop. 20–34.....                       | 5.5  | 128   |
| 5.2   | Innovation linkages.....                                  | 4.8  | 141 ○ |
| 5.2.1 | University/industry research collaboration†.....          | n/a  | n/a   |
| 5.2.2 | State of cluster development†.....                        | n/a  | n/a   |
| 5.2.3 | GERD financed by abroad, %.....                           | 0.6  | 86    |
| 5.2.4 | JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0  | 52 ●  |
| 5.2.5 | Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a  | n/a   |
| 5.3   | Knowledge absorption.....                                 | 15.8 | 122   |
| 5.3.1 | Royalty & license fees payments, % total trade.....       | 0.0  | 127 ○ |
| 5.3.2 | High-tech imports less re-imports, %.....                 | n/a  | n/a   |
| 5.3.3 | Comm., computer & info. services imp., % total trade..... | 1.2  | 49 ●  |
| 5.3.4 | FDI net inflows, % GDP.....                               | 0.2  | 132   |

**6 Knowledge & technology outputs..... 24.3 88**

|       |   |      |       |
|-------|---|------|-------|
| 6.1   | Knowledge creation.....                                   | 21.9 | 46 ●  |
| 6.1.1 | Domestic resident patent app/tr PPP\$ GDP.....            | 0.2  | 93    |
| 6.1.2 | PCT resident patent app/tr PPP\$ GDP.....                 | n/a  | n/a   |
| 6.1.3 | Domestic res utility model app/tr PPP\$ GDP.....          | 3.9  | 9 ●   |
| 6.1.4 | Scientific & technical articles/bn PPP\$ GDP.....         | 3.5  | 122   |
| 6.1.5 | Citable documents H index.....                            | 23.0 | 139 ○ |
| 6.2   | Knowledge impact.....                                     | 31.2 | 99    |
| 6.2.1 | Growth rate of PPP\$ GDP/worker, %.....                   | 4.5  | 12 ●  |
| 6.2.2 | New businesses/th pop. 15–64.....                         | 0.3  | 83    |
| 6.2.3 | Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 | ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.2  | 140 ○ |
| 6.2.5 | High- & medium-high-tech manufactures, %.....             | 2.4  | 94 ○  |
| 6.3   | Knowledge diffusion.....                                  | 19.9 | 132   |
| 6.3.1 | Royalty & license fees receipts, % total trade.....       | 0.0  | 83    |
| 6.3.2 | High-tech exports less re-exports, %.....                 | n/a  | n/a   |
| 6.3.3 | Comm., computer & info. services exp., % total trade..... | 2.1  | 39 ●  |
| 6.3.4 | FDI net outflows, % GDP.....                              | n/a  | n/a   |

**7 Creative outputs..... 5.0 140 ○**

|       |  |       |       |
|-------|--|-------|-------|
| 7.1   | Intangible assets.....                                   | 4.0   | 139 ○ |
| 7.1.1 | Domestic res trademark app/bn PPP\$ GDP.....             | 15.6  | 89    |
| 7.1.2 | Madrid trademark app. holders/bn PPP\$ GDP.....          | 0.0   | 74 ○  |
| 7.1.3 | ICTs & business model creation†.....                     | n/a   | n/a   |
| 7.1.4 | ICTs & organizational model creation†.....               | n/a   | n/a   |
| 7.2   | Creative goods & services.....                           | 8.0   | 102   |
| 7.2.1 | Cultural & creative services exports, % total trade..... | n/a   | n/a   |
| 7.2.2 | National feature films/mn pop. 15–69.....                | 1.8   | 56    |
| 7.2.3 | Global ent. & media output/th pop. 15–69.....            | n/a   | n/a   |
| 7.2.4 | Printing & publishing manufactures, %.....               | 0.0   | 84    |
| 7.2.5 | Creative goods exports, % total trade.....               | n/a   | n/a   |
| 7.3   | Online creativity.....                                   | 3.8   | 114   |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.1   | 136 ○ |
| 7.3.2 | Country-code TLDs/th pop. 15–69.....                     | 10.7  | 101   |
| 7.3.3 | Wikipedia edits/pop. 15–69.....                          | 332.0 | 110   |
| 7.3.4 | Video uploads on YouTube/pop. 15–69.....                 | n/a   | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

# Tanzania, United Republic of

## Key indicators

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 47.8               |
| GDP (US\$ billions) .....   | 32.5               |
| GDP per capita, PPP\$ ..... | 1,715.5            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143)</b> .....             | <b>25.6</b>                           | <b>123</b>   |
| Innovation Output Sub-Index .....                             | 19.2                                  | 122          |
| Innovation Input Sub-Index .....                              | 32.0                                  | 120          |
| Innovation Efficiency Ratio .....                             | 0.6                                   | 113          |
| Global Innovation Index 2013 (out of 142) .....               | 26.4                                  | 123          |
| <b>1 Institutions</b> .....                                   | <b>57.2</b>                           | <b>85</b>    |
| 1.1 Political environment.....                                | 53.8                                  | 80           |
| 1.1.1 Political stability*.....                               | 66.3                                  | 68           |
| 1.1.2 Government effectiveness*.....                          | 22.4                                  | 114          |
| 1.1.3 Press freedom*.....                                     | 72.7                                  | 57 ●         |
| 1.2 Regulatory environment .....                              | 65.9                                  | 73           |
| 1.2.1 Regulatory quality* .....                               | 38.4                                  | 103          |
| 1.2.2 Rule of law*.....                                       | 30.5                                  | 97           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 9.3                                   | 32 ●         |
| 1.3 Business environment.....                                 | 52.0                                  | 111          |
| 1.3.1 Ease of starting a business*.....                       | 76.8                                  | 100          |
| 1.3.2 Ease of resolving insolvency*.....                      | 22.7                                  | 116          |
| 1.3.3 Ease of paying taxes*.....                              | 56.3                                  | 113          |
| <b>2 Human capital &amp; research</b> .....                   | <b>12.7</b>                           | <b>132</b> ○ |
| 2.1 Education .....   | 30.8                                  | 115          |
| 2.1.1 Expenditure on education, % GDP .....                   | 6.2                                   | 24 ●         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 16.2                                  | 77           |
| 2.1.3 School life expectancy, years.....                      | 9.2                                   | 117 ○        |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 26.4                                  | 95           |
| 2.2 Tertiary education.....                                   | 3.2                                   | 135 ○        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 3.9                                   | 129 ○        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a          |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.6                                   | 88           |
| 2.3 Research & development (R&D).....                         | 4.0                                   | 89           |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 69.0                                  | 108          |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.5                                   | 58           |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○         |
| <b>3 Infrastructure</b> .....                                 | <b>25.4</b>                           | <b>115</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 16.7                                  | 121          |
| 3.1.1 ICT access*.....  | 18.7                                  | 125 ○        |
| 3.1.2 ICT use*.....   | 4.9                                   | 116          |
| 3.1.3 Government's online service*.....                       | 35.3                                  | 106          |
| 3.1.4 E-participation*.....                                   | 7.9                                   | 98           |
| 3.2 General infrastructure.....                               | 39.6                                  | 45 ●         |
| 3.2.1 Electricity output, kWh/cap.....                        | 114.7                                 | 119 ○        |
| 3.2.2 Logistics performance*.....                             | 41.3                                  | 89           |
| 3.2.3 Gross capital formation, % GDP.....                     | 36.7                                  | 10 ●         |
| 3.3 Ecological sustainability.....                            | 19.8                                  | 134 ○        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 2.9                                   | 110          |
| 3.3.2 Environmental performance*.....                         | 36.2                                  | 121          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.4                                   | 90           |
| <b>4 Market sophistication</b> .....                          | <b>36.6</b>                           | <b>136</b> ○ |
| 4.1 Credit.....   | 17.8                                  | 128          |
| 4.1.1 Ease of getting credit*.....                            | 43.8                                  | 112          |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 17.9                                  | 124          |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.4                                   | 51           |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 21.7        | 133 ○      |
| 4.2.1 Ease of protecting investors*.....                        | 50.0        | 81         |
| 4.2.2 Market capitalization, % GDP.....                         | 6.4         | 98         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.1         | 99         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 46         |
| 4.3 Trade & competition .....                                   | 70.3        | 110        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 6.6         | 103        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.2         | 32 ●       |
| 4.3.3 Intensity of local competition†.....                      | 53.0        | 121        |
| <b>5 Business sophistication</b> .....                          | <b>28.0</b> | <b>94</b>  |
| 5.1 Knowledge workers.....                                      | 19.7        | 123        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 2.6         | 108 ○      |
| 5.1.2 Firms offering formal training, % firms.....              | 36.5        | 46 ●       |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a        |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 5.1         | 132 ○      |
| 5.2 Innovation linkages .....                                   | 46.7        | 22 ●       |
| 5.2.1 University/industry research collaboration†.....          | 41.8        | 72         |
| 5.2.2 State of cluster development† .....                       | 42.0        | 87         |
| 5.2.3 GERD financed by abroad, %.....                           | 42.0        | 10 ●       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a         | n/a        |
| 5.3 Knowledge absorption.....                                   | 17.7        | 114        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.0         | 126 ○      |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.6         | 75         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.3         | 113        |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.6         | 46 ●       |
| <b>6 Knowledge &amp; technology outputs</b> .....               | <b>17.5</b> | <b>119</b> |
| 6.1 Knowledge creation.....                                     | 8.2         | 90         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 106 ○      |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 9.0         | 83         |
| 6.1.5 Citable documents H index.....                            | 93.0        | 69         |
| 6.2 Knowledge impact.....                                       | 39.4        | 68         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.4         | 31 ●       |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.7         | 127        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 10.5        | 74         |
| 6.3 Knowledge diffusion.....                                    | 5.0         | 135 ○      |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.9         | 70         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.4         | 104        |
| 6.3.4 FDI net outflows, % GDP .....                             | n/a         | n/a        |
| <b>7 Creative outputs</b> .....                                 | <b>20.9</b> | <b>122</b> |
| 7.1 Intangible assets.....                                      | 31.3        | 127        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 1.0         | 100 ○      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                      | 47.8        | 105        |
| 7.1.4 ICTs & organizational model creation†.....                | 45.7        | 94         |
| 7.2 Creative goods & services.....                              | 19.8        | 60 ●       |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 81         |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 12 ●       |
| 7.2.5 Creative goods exports, % total trade.....                | 0.1         | 102        |
| 7.3 Online creativity.....                                      | 1.2         | 123        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.2         | 130        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 3.4         | 116        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 82.6        | 123        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 2.1                 |
| GDP (US\$ billions) .....   | 10.2                |
| GDP per capita, PPP\$ ..... | 10,904.5            |
| Income group .....          | Upper-middle income |
| Region .....                | Europe              |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143)</b> .....             | <b>36.9</b>                           | <b>60</b> |
| Innovation Output Sub-Index .....                             | 30.4                                  | 66        |
| Innovation Input Sub-Index.....                               | 43.4                                  | 57        |
| Innovation Efficiency Ratio.....                              | 0.7                                   | 82        |
| Global Innovation Index 2013 (out of 142) .....               | 38.2                                  | 51        |
| <b>1 Institutions.....</b>                                    | <b>65.8</b>                           | <b>60</b> |
| 1.1 Political environment.....                                | 53.1                                  | 81        |
| 1.1.1 Political stability*.....                               | 54.8                                  | 91        |
| 1.1.2 Government effectiveness*.....                          | 38.9                                  | 75        |
| 1.1.3 Press freedom*.....                                     | 65.7                                  | 95        |
| 1.2 Regulatory environment .....                              | 69.4                                  | 57        |
| 1.2.1 Regulatory quality* .....                               | 57.8                                  | 60        |
| 1.2.2 Rule of law*.....                                       | 39.8                                  | 74        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 13.0                                  | 56        |
| 1.3 Business environment.....                                 | 74.7                                  | 29 ●      |
| 1.3.1 Ease of starting a business*.....                       | 97.7                                  | 3 ●       |
| 1.3.2 Ease of resolving insolvency*.....                      | 46.4                                  | 46        |
| 1.3.3 Ease of paying taxes*.....                              | 80.1                                  | 33        |
| <b>2 Human capital &amp; research.....</b>                    | <b>33.8</b>                           | <b>52</b> |
| 2.1 Education .....   | 65.2                                  | 3 ●       |
| 2.1.1 Expenditure on education, % GDP .....                   | n/a                                   | n/a       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a       |
| 2.1.3 School life expectancy, years.....                      | 13.3                                  | 64        |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a       |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 11.9                                  | 38        |
| 2.2 Tertiary education.....                                   | 31.9                                  | 72        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 40.8                                  | 62        |
| 2.2.2 Graduates in science & engineering, % .....             | 21.2                                  | 45        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 2.6                                   | 54        |
| 2.3 Research & development (R&D).....                         | 4.2                                   | 87        |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 854.5                                 | 59        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.2                                   | 85 ○      |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○      |
| <b>3 Infrastructure.....</b>                                  | <b>36.3</b>                           | <b>72</b> |
| 3.1 Information & communication technologies (ICTs).....      | 37.9                                  | 70        |
| 3.1.1 ICT access*.....  | 56.5                                  | 59        |
| 3.1.2 ICT use* .....  | 36.7                                  | 50        |
| 3.1.3 Government's online service*.....                       | 45.1                                  | 85        |
| 3.1.4 E-participation*.....                                   | 13.2                                  | 84        |
| 3.2 General infrastructure.....                               | 27.0                                  | 101       |
| 3.2.1 Electricity output, kWh/cap.....                        | 3,337.9                               | 59        |
| 3.2.2 Logistics performance* .....                            | 37.7                                  | 97 ○      |
| 3.2.3 Gross capital formation, % GDP.....                     | n/a                                   | n/a       |
| 3.3 Ecological sustainability .....                           | 44.1                                  | 45        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 6.3                                   | 62        |
| 3.3.2 Environmental performance*.....                         | 50.4                                  | 80        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 9.4                                   | 12 ●      |
| <b>4 Market sophistication .....</b>                          | <b>54.6</b>                           | <b>39</b> |
| 4.1 Credit.....   | 48.2                                  | 36        |
| 4.1.1 Ease of getting credit*.....                            | 93.8                                  | 3 ●       |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 47.5                                  | 72        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 2.9                                   | 19 ●      |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment .....  | 35.9        | 64           |
| 4.2.1 Ease of protecting investors*.....                        | 70.0        | 16 ●         |
| 4.2.2 Market capitalization, % GDP.....                         | 5.8         | 100 ○        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.3         | 84 ○         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a          |
| 4.3 Trade & competition .....                                   | 79.7        | 31           |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 2.0         | 47           |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.1         | 25 ●         |
| 4.3.3 Intensity of local competition†.....                      | 63.3        | 82           |
| <b>5 Business sophistication .....</b>                          | <b>26.8</b> | <b>103</b> ○ |
| 5.1 Knowledge workers.....                                      | 25.8        | 107 ○        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 29.6        | 47           |
| 5.1.2 Firms offering formal training, % firms.....              | 19.0        | 95 ○         |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.0         | 75 ○         |
| 5.1.4 GERD performed by business, %.....                        | 11.5        | 73 ○         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 26.4        | 102 ○        |
| 5.2 Innovation linkages .....                                   | 30.8        | 73           |
| 5.2.1 University/industry research collaboration†.....          | 39.7        | 79           |
| 5.2.2 State of cluster development† .....                       | 41.7        | 90           |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a          |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a          |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 106 ○        |
| 5.3 Knowledge absorption.....                                   | 23.9        | 79           |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.5         | 57           |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.2         | 81           |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.3         | 45           |
| 5.3.4 FDI net inflows, % GDP.....                               | 3.4         | 62           |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>28.2</b> | <b>64</b>    |
| 6.1 Knowledge creation.....                                     | 9.6         | 84           |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 1.7         | 54           |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.1         | 76           |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 12.8        | 66           |
| 6.1.5 Citable documents H index.....                            | 62.0        | 94           |
| 6.2 Knowledge impact.....                                       | 42.5        | 55           |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.4         | 81           |
| 6.2.2 New businesses/th pop. 15–64.....                         | 3.6         | 29           |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 22.3        | 19 ●         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 13.8        | 68           |
| 6.3 Knowledge diffusion.....                                    | 32.7        | 63           |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.1         | 51           |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.9         | 53           |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 2.3         | 33           |
| 6.3.4 FDI net outflows, % GDP .....                             | 1.9         | 37           |
| <b>7 Creative outputs .....</b>                                 | <b>32.6</b> | <b>71</b>    |
| 7.1 Intangible assets .....                                     | 45.9        | 62           |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | 96.9        | 17 ●         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 2.3         | 13 ●         |
| 7.1.3 ICTs & business model creation†.....                      | 54.2        | 78           |
| 7.1.4 ICTs & organizational model creation†.....                | 48.5        | 85           |
| 7.2 Creative goods & services.....                              | 21.6        | 57           |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a          |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 2.5         | 50           |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a          |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 16 ●         |
| 7.2.5 Creative goods exports, % total trade.....                | 0.2         | 84           |
| 7.3 Online creativity .....                                     | 17.0        | 73           |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 3.2         | 72           |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 23.0        | 71           |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 14,509.2    | 34           |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Thailand

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 66.8                        |
| GDP (US\$ billions) .....   | 387.2                       |
| GDP per capita, PPP\$ ..... | 9,874.5                     |
| Income group .....          | Upper-middle income         |
| Region .....                | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143)</b> ..... | <b>39.3</b>                           | <b>48</b> |
| Innovation Output Sub-Index .....                 | 33.8                                  | 49        |
| Innovation Input Sub-Index .....                  | 44.7                                  | 52        |
| Innovation Efficiency Ratio .....                 | 0.8                                   | 62        |
| Global Innovation Index 2013 (out of 142) .....   | 34.8                                  | 57        |

**1 Institutions .....** **54.4** **94**

|  |      |       |
|--|------|-------|
| 1.1 Political environment .....                        | 48.0 | 95    |
| 1.1.1 Political stability* .....                       | 36.2 | 125 ○ |
| 1.1.2 Government effectiveness* .....                  | 46.4 | 59    |
| 1.1.3 Press freedom* .....                             | 61.4 | 110 ○ |
| 1.2 Regulatory environment .....                       | 46.0 | 122 ○ |
| 1.2.1 Regulatory quality* .....                        | 54.7 | 64    |
| 1.2.2 Rule of law* .....                               | 41.6 | 69    |
| 1.2.3 Cost of redundancy dismissal, salary weeks ..... | 36.0 | 134 ○ |
| 1.3 Business environment .....                         | 69.2 | 52    |
| 1.3.1 Ease of starting a business* .....               | 87.9 | 55    |
| 1.3.2 Ease of resolving insolvency* .....              | 44.7 | 50    |
| 1.3.3 Ease of paying taxes* .....                      | 74.9 | 48    |

**2 Human capital & research .....** **41.1** **36**

|   |       |     |
|---|-------|-----|
| 2.1 Education .....                                       | 43.2  | 67  |
| 2.1.1 Expenditure on education, % GDP .....               | 5.8   | 35  |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap ..... | 25.9  | 34  |
| 2.1.3 School life expectancy, years .....                 | 13.1  | 73  |
| 2.1.4 PISA scales in reading, maths, & science .....      | 437.3 | 44  |
| 2.1.5 Pupil-teacher ratio, secondary .....                | 19.9  | 80  |
| 2.2 Tertiary education .....                              | 64.0  | 5 ● |
| 2.2.1 Tertiary enrolment, % gross .....                   | 51.4  | 51  |
| 2.2.2 Graduates in science & engineering, % .....         | 53.2  | 1 ● |
| 2.2.3 Tertiary inbound mobility, % .....                  | 0.8   | 85  |
| 2.3 Research & development (R&D) .....                    | 16.1  | 51  |
| 2.3.1 Researchers, headcounts/mn pop. ....                | 581.0 | 68  |
| 2.3.2 Gross expenditure on R&D, % GDP .....               | 0.3   | 81  |
| 2.3.3 QS university ranking, average score top 3* .....   | 37.3  | 35  |

**3 Infrastructure .....** **36.5** **71**

|   |         |     |
|---|---------|-----|
| 3.1 Information & communication technologies (ICTs) .....     | 33.7    | 81  |
| 3.1.1 ICT access* .....                                       | 40.0    | 83  |
| 3.1.2 ICT use* .....  | 12.3    | 100 |
| 3.1.3 Government's online service* .....                      | 51.0    | 65  |
| 3.1.4 E-participation* .....                                  | 31.6    | 48  |
| 3.2 General infrastructure .....                              | 40.5    | 43  |
| 3.2.1 Electricity output, kWh/cap .....                       | 2,243.8 | 74  |
| 3.2.2 Logistics performance* .....                            | 62.3    | 37  |
| 3.2.3 Gross capital formation, % GDP .....                    | 30.0    | 22  |
| 3.3 Ecological sustainability .....                           | 35.2    | 70  |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq .....      | 4.5     | 90  |
| 3.3.2 Environmental performance* .....                        | 52.8    | 71  |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 4.7     | 26  |

**4 Market sophistication .....** **56.9** **34**

|  |       |      |
|--|-------|------|
| 4.1 Credit .....                                     | 36.8  | 65   |
| 4.1.1 Ease of getting credit* .....                  | 62.5  | 69   |
| 4.1.2 Domestic credit to private sector, % GDP ..... | 147.6 | 16 ● |
| 4.1.3 Microfinance gross loans, % GDP .....          | 0.0   | 91 ○ |

|   |       |      |
|---|-------|------|
| 4.2 Investment .....                            | 55.3  | 21   |
| 4.2.1 Ease of protecting investors* .....       | 76.7  | 12 ● |
| 4.2.2 Market capitalization, % GDP .....        | 104.8 | 15   |
| 4.2.3 Total value of stocks traded, % GDP ..... | 62.8  | 12 ● |
| 4.2.4 Venture capital deals/tr PPP\$ GDP .....  | 0.0   | 68 ○ |

|  |      |    |
|--|------|----|
| 4.3 Trade & competition .....                              | 78.6 | 35 |
| 4.3.1 Applied tariff rate, weighted mean, % .....          | 4.9  | 83 |
| 4.3.2 Non-agricultural mkt access weighted tariff, % ..... | 1.2  | 79 |
| 4.3.3 Intensity of local competition† .....                | 72.0 | 39 |

**5 Business sophistication .....** **34.9** **55**

|  |       |       |
|--|-------|-------|
| 5.1 Knowledge workers .....                                      | 47.0  | 48    |
| 5.1.1 Knowledge-intensive employment, % .....                    | 10.9  | 97 ○  |
| 5.1.2 Firms offering formal training, % firms .....              | 75.3  | 2 ●   |
| 5.1.3 GERD performed by business, % GDP .....                    | 0.1   | 55    |
| 5.1.4 GERD performed by business, % .....                        | 41.2  | 45    |
| 5.1.5 GMAT test takers/mn pop. 20–34 .....                       | 118.5 | 44    |
| 5.2 Innovation linkages .....                                    | 26.5  | 94    |
| 5.2.1 University/industry research collaboration† .....          | 48.7  | 49    |
| 5.2.2 State of cluster development† .....                        | 55.7  | 31    |
| 5.2.3 GERD financed by abroad, % .....                           | 1.0   | 80 ○  |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....             | 0.0   | 41    |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....     | 0.0   | 86    |
| 5.3 Knowledge absorption .....                                   | 31.1  | 38    |
| 5.3.1 Royalty & license fees payments, % total trade .....       | 1.3   | 15 ●  |
| 5.3.2 High-tech imports less re-imports, % .....                 | 14.5  | 13 ●  |
| 5.3.3 Comm., computer & info. services imp., % total trade ..... | 0.2   | 129 ○ |
| 5.3.4 FDI net inflows, % GDP .....                               | 2.4   | 78    |

**6 Knowledge & technology outputs .....** **32.4** **47**

|  |       |       |
|--|-------|-------|
| 6.1 Knowledge creation .....                                     | 17.3  | 62    |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....            | 1.6   | 58    |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP .....                 | 0.1   | 72    |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....          | 2.2   | 14    |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP .....         | 9.2   | 82    |
| 6.1.5 Citable documents H index .....                            | 167.0 | 38    |
| 6.2 Knowledge impact .....                                       | 46.3  | 43    |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                   | 4.9   | 8 ●   |
| 6.2.2 New businesses/th pop. 15–64 .....                         | 0.9   | 66    |
| 6.2.3 Computer software spending, % GDP .....                    | 0.3   | 32    |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....           | 13.5  | 35    |
| 6.2.5 High- & medium-high-tech manufactures, % .....             | 43.9  | 15    |
| 6.3 Knowledge diffusion .....                                    | 33.8  | 52    |
| 6.3.1 Royalty & license fees receipts, % total trade .....       | 0.1   | 56    |
| 6.3.2 High-tech exports less re-exports, % .....                 | 13.6  | 13 ●  |
| 6.3.3 Comm., computer & info. services exp., % total trade ..... | 0.2   | 124 ○ |
| 6.3.4 FDI net outflows, % GDP .....                              | 3.5   | 20    |

**7 Creative outputs .....** **35.2** **60**

|   |         |      |
|---|---------|------|
| 7.1 Intangible assets .....                                     | 41.2    | 85   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....             | 42.6    | 61   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....          | n/a     | n/a  |
| 7.1.3 ICTs & business model creation† .....                     | 57.3    | 65   |
| 7.1.4 ICTs & organizational model creation† .....               | 49.7    | 83   |
| 7.2 Creative goods & services .....                             | 35.5    | 27   |
| 7.2.1 Cultural & creative services exports, % total trade ..... | n/a     | n/a  |
| 7.2.2 National feature films/mn pop. 15–69 .....                | 1.0     | 71   |
| 7.2.3 Global ent. & media output/th pop. 15–69 .....            | 0.2     | 46 ○ |
| 7.2.4 Printing & publishing manufactures, % .....               | 0.0     | 65   |
| 7.2.5 Creative goods exports, % total trade .....               | 10.1    | 6 ●  |
| 7.3 Online creativity .....                                     | 22.8    | 63   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69 .....      | 6.7     | 54   |
| 7.3.2 Country-code TLDs/th pop. 15–69 .....                     | 11.0    | 99   |
| 7.3.3 Wikipedia edits/pop. 15–69 .....                          | 2,472.0 | 73   |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 69.5    | 43   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 6.6                |
| GDP (US\$ billions) .....   | 4.4                |
| GDP per capita, PPP\$ ..... | 1,084.0            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>17.6</b>                           | <b>142</b> ○ |
| Innovation Output Sub-Index .....                | 7.0                                   | 142 ○        |
| Innovation Input Sub-Index.....                  | 28.3                                  | 134          |
| Innovation Efficiency Ratio.....                 | 0.2                                   | 142 ○        |
| Global Innovation Index 2013 (out of 142) .....  | 23.0                                  | 139          |

**1 Institutions.....47.9 115**

|   |      |       |
|---|------|-------|
| 1.1 Political environment.....                        | 44.2 | 115   |
| 1.1.1 Political stability*.....                       | 55.4 | 90    |
| 1.1.2 Government effectiveness*.....                  | 5.5  | 140 ○ |
| 1.1.3 Press freedom*.....                             | 71.6 | 69 ●  |
| 1.2 Regulatory environment.....                       | 56.7 | 97    |
| 1.2.1 Regulatory quality*.....                        | 26.5 | 125   |
| 1.2.2 Rule of law*.....                               | 21.1 | 123   |
| 1.2.3 Cost of redundancy dismissal, salary weeks..... | 13.1 | 59 ●  |
| 1.3 Business environment.....                         | 43.0 | 131   |
| 1.3.1 Ease of starting a business*.....               | 51.5 | 139 ○ |
| 1.3.2 Ease of resolving insolvency*.....              | 29.2 | 98    |
| 1.3.3 Ease of paying taxes*.....                      | 48.2 | 122   |

**2 Human capital & research.....14.5 125**

|  |      |      |
|--|------|------|
| 2.1 Education.....                                       | 32.9 | 105  |
| 2.1.1 Expenditure on education, % GDP.....               | 4.5  | 73 ● |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap..... | 15.7 | 81   |
| 2.1.3 School life expectancy, years.....                 | 12.2 | 87   |
| 2.1.4 PISA scales in reading, maths, & science.....      | n/a  | n/a  |
| 2.1.5 Pupil-teacher ratio, secondary.....                | 26.2 | 93   |
| 2.2 Tertiary education.....                              | 8.4  | 127  |
| 2.2.1 Tertiary enrolment, % gross.....                   | 10.3 | 108  |
| 2.2.2 Graduates in science & engineering, %.....         | n/a  | n/a  |
| 2.2.3 Tertiary inbound mobility, %.....                  | 1.4  | 73   |
| 2.3 Research & development (R&D).....                    | 2.1  | 105  |
| 2.3.1 Researchers, headcounts/mn pop.....                | 90.1 | 104  |
| 2.3.2 Gross expenditure on R&D, % GDP.....               | 0.3  | 80   |
| 2.3.3 QS university ranking, average score top 3*.....   | 0.0  | 70 ○ |

**3 Infrastructure.....15.4 142 ○**

|  |      |       |
|--|------|-------|
| 3.1 Information & communication technologies (ICTs).....     | 9.5  | 139 ○ |
| 3.1.1 ICT access*.....                                       | n/a  | n/a   |
| 3.1.2 ICT use*.....  | n/a  | n/a   |
| 3.1.3 Government's online service*.....                      | 13.7 | 140 ○ |
| 3.1.4 E-participation*.....                                  | 5.3  | 111   |
| 3.2 General infrastructure.....                              | 21.9 | 125   |
| 3.2.1 Electricity output, kWh/cap.....                       | 22.6 | 123 ○ |
| 3.2.2 Logistics performance*.....                            | 38.5 | 94    |
| 3.2.3 Gross capital formation, % GDP.....                    | 20.5 | 86    |
| 3.3 Ecological sustainability.....                           | 14.7 | 141 ○ |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 2.1  | 119 ○ |
| 3.3.2 Environmental performance*.....                        | 27.9 | 134 ○ |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.3  | 100   |

**4 Market sophistication.....42.7 110**

|   |      |      |
|---|------|------|
| 4.1 Credit.....                                     | 41.5 | 53 ● |
| 4.1.1 Ease of getting credit*.....                  | 43.8 | 112  |
| 4.1.2 Domestic credit to private sector, % GDP..... | 30.9 | 97   |
| 4.1.3 Microfinance gross loans, % GDP.....          | 5.7  | 8 ●  |

|   |      |       |
|---|------|-------|
| 4.2 Investment.....                                       | 36.7 | 59 ●  |
| 4.2.1 Ease of protecting investors*.....                  | 36.7 | 119   |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a   |
| 4.2.3 Total value of stocks traded, % GDP.....            | n/a  | n/a   |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3 Trade & competition.....                              | 49.8 | 141 ○ |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 11.1 | 130   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 5.8  | 134 ○ |
| 4.3.3 Intensity of local competition†.....                | n/a  | n/a   |

**5 Business sophistication.....21.1 129**

|   |      |       |
|---|------|-------|
| 5.1 Knowledge workers.....                                      | 28.6 | 100   |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a  | n/a   |
| 5.1.2 Firms offering formal training, % firms.....              | 32.3 | 56 ●  |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a  | n/a   |
| 5.1.4 GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 8.9  | 124   |
| 5.2 Innovation linkages.....                                    | 14.9 | 138 ○ |
| 5.2.1 University/industry research collaboration†.....          | n/a  | n/a   |
| 5.2.2 State of cluster development†.....                        | n/a  | n/a   |
| 5.2.3 GERD financed by abroad, %.....                           | 11.7 | 38 ●  |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a  | n/a   |
| 5.3 Knowledge absorption.....                                   | 19.7 | 103   |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1  | 103   |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.9  | 102   |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.6  | 30 ●  |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.5  | 102   |

**6 Knowledge & technology outputs.....13.4 135**

|   |      |       |
|---|------|-------|
| 6.1 Knowledge creation.....                                     | 4.8  | 114   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a  | n/a   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0  | 114 ○ |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a  | n/a   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 8.3  | 85 ●  |
| 6.1.5 Citable documents H index.....                            | 31.0 | 132   |
| 6.2 Knowledge impact.....                                       | 2.5  | 139 ○ |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | n/a  | n/a   |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.1  | 88    |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.9  | 102   |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | n/a  | n/a   |
| 6.3 Knowledge diffusion.....                                    | 32.8 | 62 ●  |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.0  | 108   |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.1  | 117   |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 3.8  | 13 ●  |
| 6.3.4 FDI net outflows, % GDP.....                              | 2.4  | 29 ●  |

**7 Creative outputs.....0.6 143 ○**

|  |      |       |
|--|------|-------|
| 7.1 Intangible assets.....                                     | n/a  | n/a   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | n/a  | n/a   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a  | n/a   |
| 7.1.3 ICTs & business model creation†.....                     | n/a  | n/a   |
| 7.1.4 ICTs & organizational model creation†.....               | n/a  | n/a   |
| 7.2 Creative goods & services.....                             | 0.9  | 134 ○ |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.0  | 90    |
| 7.2.2 National feature films/mn pop. 15–69.....                | n/a  | n/a   |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a  | n/a   |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a  | n/a   |
| 7.2.5 Creative goods exports, % total trade.....               | 0.0  | 108   |
| 7.3 Online creativity.....                                     | 0.3  | 136 ○ |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.8  | 108   |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 0.0  | 143 ○ |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 36.8 | 133   |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | n/a  | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Trinidad and Tobago

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 1.3                             |
| GDP (US\$ billions) .....   | 27.7                            |
| GDP per capita, PPP\$ ..... | 20,437.7                        |
| Income group .....          | High income                     |
| Region .....                | Latin America and the Caribbean |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>31.6</b>                           | <b>90</b>  |
| Innovation Output Sub-Index .....                             | 24.5                                  | 98         |
| Innovation Input Sub-Index .....                              | 38.6                                  | 86         |
| Innovation Efficiency Ratio .....                             | 0.6                                   | 103        |
| Global Innovation Index 2013 (out of 142) .....               | 33.2                                  | 81         |
| <b>1 Institutions.....</b>                                    | <b>62.1</b>                           | <b>64</b>  |
| 1.1 Political environment.....                                | 65.6                                  | 51         |
| 1.1.1 Political stability*.....                               | 68.3                                  | 61         |
| 1.1.2 Government effectiveness*.....                          | 51.6                                  | 52         |
| 1.1.3 Press freedom*.....                                     | 76.9                                  | 39 ●       |
| 1.2 Regulatory environment .....                              | 61.4                                  | 84         |
| 1.2.1 Regulatory quality* .....                               | 54.5                                  | 65         |
| 1.2.2 Rule of law*.....                                       | 41.2                                  | 70         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 20.5                                  | 95         |
| 1.3 Business environment.....                                 | 59.4                                  | 87         |
| 1.3.1 Ease of starting a business*.....                       | 81.1                                  | 83         |
| 1.3.2 Ease of resolving insolvency*.....                      | 28.5                                  | 101        |
| 1.3.3 Ease of paying taxes*.....                              | 68.6                                  | 77         |
| <b>2 Human capital &amp; research.....</b>                    | <b>29.2</b>                           | <b>68</b>  |
| 2.1 Education .....   | 47.4                                  | 55         |
| 2.1.1 Expenditure on education, % GDP .....                   | n/a                                   | n/a        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a        |
| 2.1.3 School life expectancy, years.....                      | 12.3                                  | 85         |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a        |
| 2.2 Tertiary education.....                                   | 37.6                                  | 56         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 12.0                                  | 104        |
| 2.2.2 Graduates in science & engineering, % .....             | 30.4                                  | 12 ●       |
| 2.2.3 Tertiary inbound mobility, %.....                       | 5.8                                   | 31 ●       |
| 2.3 Research & development (R&D).....                         | 2.6                                   | 100        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 758.4                                 | 61         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.0                                   | 112 ○      |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>25.7</b>                           | <b>114</b> |
| 3.1 Information & communication technologies (ICTs).....      | 35.3                                  | 76         |
| 3.1.1 ICT access*.....  | 56.7                                  | 58         |
| 3.1.2 ICT use* .....  | 28.3                                  | 61         |
| 3.1.3 Government's online service*.....                       | 48.4                                  | 74         |
| 3.1.4 E-participation*.....                                   | 7.9                                   | 98         |
| 3.2 General infrastructure.....                               | 17.9                                  | 135 ○      |
| 3.2.1 Electricity output, kWh/cap.....                        | 6,568.1                               | 31 ●       |
| 3.2.2 Logistics performance* .....                            | n/a                                   | n/a        |
| 3.2.3 Gross capital formation, % GDP.....                     | 14.0                                  | 134 ○      |
| 3.3 Ecological sustainability.....                            | 23.8                                  | 124        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 1.4                                   | 123 ○      |
| 3.3.2 Environmental performance*.....                         | 52.3                                  | 72         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.7                                   | 73         |
| <b>4 Market sophistication .....</b>                          | <b>48.4</b>                           | <b>69</b>  |
| 4.1 Credit.....   | 30.3                                  | 92         |
| 4.1.1 Ease of getting credit*.....                            | 81.3                                  | 27 ●       |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 30.7                                  | 98         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.1                                   | 73         |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 42.7        | 46         |
| 4.2.1 Ease of protecting investors*.....                        | 66.7        | 21 ●       |
| 4.2.2 Market capitalization, % GDP.....                         | 63.2        | 30 ●       |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.5         | 80         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 72.1        | 95         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 10.0        | 125        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.1         | 26 ●       |
| 4.3.3 Intensity of local competition†.....                      | 62.3        | 85         |
| <b>5 Business sophistication .....</b>                          | <b>27.9</b> | <b>95</b>  |
| 5.1 Knowledge workers.....                                      | 31.0        | 92         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 25.0        | 53         |
| 5.1.2 Firms offering formal training, % firms.....              | 31.5        | 60         |
| 5.1.3 GERD performed by business, % GDP .....                   | 0.0         | 83 ○       |
| 5.1.4 GERD performed by business, %.....                        | 2.2         | 80 ○       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 150.5       | 35 ●       |
| 5.2 Innovation linkages .....                                   | 35.1        | 58         |
| 5.2.1 University/industry research collaboration†.....          | 37.0        | 99         |
| 5.2.2 State of cluster development† .....                       | 42.0        | 87         |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.1         | 38         |
| 5.3 Knowledge absorption.....                                   | 17.6        | 115        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.3         | 65         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.9         | 100        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.9         | 66         |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.4         | 75         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>21.9</b> | <b>102</b> |
| 6.1 Knowledge creation.....                                     | 4.1         | 123        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.0         | 107 ○      |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 98         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 6.1         | 98         |
| 6.1.5 Citable documents H index.....                            | 61.0        | 96         |
| 6.2 Knowledge impact.....                                       | 40.7        | 62         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 1.3         | 62         |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.8         | 105        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 24.1        | 43         |
| 6.3 Knowledge diffusion.....                                    | 20.8        | 128        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 104 ○      |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.0         | 118 ○      |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.1         | 136 ○      |
| 6.3.4 FDI net outflows, % GDP .....                             | 4.5         | 16 ●       |
| <b>7 Creative outputs .....</b>                                 | <b>27.1</b> | <b>95</b>  |
| 7.1 Intangible assets .....                                     | 45.6        | 65         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                      | 45.2        | 115        |
| 7.1.4 ICTs & organizational model creation†.....                | 46.0        | 92         |
| 7.2 Creative goods & services.....                              | 8.0         | 104        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 67         |
| 7.2.5 Creative goods exports, % total trade.....                | 0.1         | 103        |
| 7.3 Online creativity .....                                     | 9.3         | 95         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 6.7         | 56         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 17.0        | 84         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 2,460.0     | 74         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 10.8                             |
| GDP (US\$ billions) .....   | 47.4                             |
| GDP per capita, PPP\$ ..... | 9,931.7                          |
| Income group.....           | Upper-middle income              |
| Region.....                 | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>             | <b>32.9</b>                           | <b>78</b>    |
| Innovation Output Sub-Index .....                            | 26.1                                  | 87           |
| Innovation Input Sub-Index.....                              | 39.7                                  | 77           |
| Innovation Efficiency Ratio.....                             | 0.7                                   | 98           |
| Global Innovation Index 2013 (out of 142) .....              | 35.8                                  | 70           |
| <b>1 Institutions.....</b>                                   | <b>61.8</b>                           | <b>65</b>    |
| 1.1 Political environment.....                               | 49.5                                  | 91           |
| 1.1.1 Political stability*.....                              | 47.9                                  | 110          |
| 1.1.2 Government effectiveness*.....                         | 40.5                                  | 68           |
| 1.1.3 Press freedom*.....                                    | 60.1                                  | 113          |
| 1.2 Regulatory environment.....                              | 67.4                                  | 64           |
| 1.2.1 Regulatory quality*.....                               | 43.4                                  | 89           |
| 1.2.2 Rule of law*.....                                      | 42.7                                  | 68           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 12.1                                  | 51           |
| 1.3 Business environment.....                                | 68.6                                  | 56           |
| 1.3.1 Ease of starting a business*.....                      | 81.1                                  | 84           |
| 1.3.2 Ease of resolving insolvency*.....                     | 55.0                                  | 35 ●         |
| 1.3.3 Ease of paying taxes*.....                             | 69.7                                  | 70           |
| <b>2 Human capital &amp; research.....</b>                   | <b>37.8</b>                           | <b>44</b>    |
| 2.1 Education.....   | 46.5                                  | 59           |
| 2.1.1 Expenditure on education, % GDP.....                   | 6.2                                   | 25 ●         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 24.4                                  | 45           |
| 2.1.3 School life expectancy, years.....                     | 14.6                                  | 46           |
| 2.1.4 PISA scales in reading, maths, & science.....          | 396.6                                 | 56 ○         |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | 13.6                                  | 47           |
| 2.2 Tertiary education.....                                  | 48.7                                  | 25 ●         |
| 2.2.1 Tertiary enrolment, % gross.....                       | 35.2                                  | 71           |
| 2.2.2 Graduates in science & engineering, %.....             | 42.4                                  | 3 ●          |
| 2.2.3 Tertiary inbound mobility, %.....                      | 0.5                                   | 91           |
| 2.3 Research & development (R&D).....                        | 18.3                                  | 46           |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 3,194.8                               | 30 ●         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 1.1                                   | 33 ●         |
| 2.3.3 QS university ranking, average score top 3*.....       | 0.0                                   | 70 ○         |
| <b>3 Infrastructure.....</b>                                 | <b>37.0</b>                           | <b>68</b>    |
| 3.1 Information & communication technologies (ICTs).....     | 35.6                                  | 75           |
| 3.1.1 ICT access*.....                                       | 39.5                                  | 84           |
| 3.1.2 ICT use*.....  | 18.2                                  | 86           |
| 3.1.3 Government's online service*.....                      | 47.7                                  | 76           |
| 3.1.4 E-participation*.....                                  | 36.8                                  | 42           |
| 3.2 General infrastructure.....                              | 33.8                                  | 66           |
| 3.2.1 Electricity output, kWh/cap.....                       | 1,511.7                               | 83           |
| 3.2.2 Logistics performance*.....                            | 61.9                                  | 39           |
| 3.2.3 Gross capital formation, % GDP.....                    | 24.6                                  | 54           |
| 3.3 Ecological sustainability.....                           | 41.7                                  | 51           |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 9.3                                   | 20 ●         |
| 3.3.2 Environmental performance*.....                        | 59.0                                  | 50           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.8                                   | 69           |
| <b>4 Market sophistication.....</b>                          | <b>39.9</b>                           | <b>127</b> ○ |
| 4.1 Credit.....  | 25.4                                  | 109          |
| 4.1.1 Ease of getting credit*.....                           | 50.0                                  | 96           |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 75.2                                  | 42 ●         |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.2                                   | 60           |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment.....   | 27.1        | 114          |
| 4.2.1 Ease of protecting investors*.....                        | 60.0        | 42           |
| 4.2.2 Market capitalization, % GDP.....                         | 19.5        | 73           |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 2.7         | 57           |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 56           |
| 4.3 Trade & competition.....                                    | 67.3        | 120 ○        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 16.0        | 139 ○        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.3         | 44           |
| 4.3.3 Intensity of local competition†.....                      | 64.5        | 77           |
| <b>5 Business sophistication.....</b>                           | <b>22.1</b> | <b>126</b> ○ |
| 5.1 Knowledge workers.....                                      | 24.8        | 111          |
| 5.1.1 Knowledge-intensive employment, %.....                    | 20.9        | 68           |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a          |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.2         | 46           |
| 5.1.4 GERD performed by business, %.....                        | 20.0        | 64           |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 21.5        | 109          |
| 5.2 Innovation linkages.....                                    | 24.1        | 110          |
| 5.2.1 University/industry research collaboration†.....          | 34.2        | 109 ○        |
| 5.2.2 State of cluster development†.....                        | 44.8        | 74           |
| 5.2.3 GERD financed by abroad, %.....                           | 14.9        | 31           |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 102 ○        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 79           |
| 5.3 Knowledge absorption.....                                   | 17.5        | 116 ○        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 111 ○        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 9.3         | 40           |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.4         | 105          |
| 5.3.4 FDI net inflows, % GDP.....                               | 0.9         | 116 ○        |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>21.2</b> | <b>106</b>   |
| 6.1 Knowledge creation.....                                     | 13.8        | 67           |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | 0.8         | 70           |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.1         | 87           |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 26.3        | 38 ●         |
| 6.1.5 Citable documents H index.....                            | 85.0        | 74           |
| 6.2 Knowledge impact.....                                       | 29.4        | 107          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 1.7         | 57           |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.0         | 92 ○         |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 33           |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 4.9         | 65           |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 11.8        | 70           |
| 6.3 Knowledge diffusion.....                                    | 20.4        | 130 ○        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.1         | 52           |
| 6.3.2 High-tech exports less re-exports, %.....                 | 4.5         | 34 ●         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.6         | 55           |
| 6.3.4 FDI net outflows, % GDP.....                              | n/a         | n/a          |
| <b>7 Creative outputs.....</b>                                  | <b>31.1</b> | <b>74</b>    |
| 7.1 Intangible assets.....                                      | 39.8        | 92           |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | n/a         | n/a          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.0         | 69 ○         |
| 7.1.3 ICTs & business model creation†.....                      | 50.7        | 92           |
| 7.1.4 ICTs & organizational model creation†.....                | 48.7        | 84           |
| 7.2 Creative goods & services.....                              | 26.9        | 44           |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 73           |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.4         | 59           |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a          |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a          |
| 7.2.5 Creative goods exports, % total trade.....                | 2.8         | 19 ●         |
| 7.3 Online creativity.....                                      | 17.8        | 69           |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.7         | 80           |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 7.2         | 108          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 1,389.4     | 88           |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 58.9        | 52 ○         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 74.0                             |
| GDP (US\$ billions) .....   | 827.2                            |
| GDP per capita, PPP\$ ..... | 15,352.6                         |
| Income group .....          | Upper-middle income              |
| Region .....                | Northern Africa and Western Asia |

|   | Score (0–100)<br>or value (hard data) | Rank      |
|---|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>38.2</b>                           | <b>54</b> |
| Innovation Output Sub-Index .....                             | 36.7                                  | 39        |
| Innovation Input Sub-Index .....                              | 39.7                                  | 78        |
| Innovation Efficiency Ratio .....                             | 0.9                                   | 11 ●      |
| Global Innovation Index 2013 (out of 142) .....               | 36.0                                  | 68        |
| <b>1 Institutions.....</b>                                    | <b>54.9</b>                           | <b>92</b> |
| 1.1 Political environment.....                                | 47.2                                  | 98        |
| 1.1.1 Political stability*.....                               | 36.5                                  | 124 ○     |
| 1.1.2 Government effectiveness*.....                          | 51.6                                  | 51        |
| 1.1.3 Press freedom*.....                                     | 53.4                                  | 126 ○     |
| 1.2 Regulatory environment .....                              | 54.9                                  | 104       |
| 1.2.1 Regulatory quality* .....                               | 59.7                                  | 55        |
| 1.2.2 Rule of law*.....                                       | 47.4                                  | 58        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 29.8                                  | 128 ○     |
| 1.3 Business environment.....                                 | 62.7                                  | 76        |
| 1.3.1 Ease of starting a business*.....                       | 87.7                                  | 57        |
| 1.3.2 Ease of resolving insolvency*.....                      | 23.6                                  | 112       |
| 1.3.3 Ease of paying taxes*.....                              | 76.8                                  | 44        |
| <b>2 Human capital &amp; research.....</b>                    | <b>33.3</b>                           | <b>54</b> |
| 2.1 Education .....   | 41.7                                  | 78        |
| 2.1.1 Expenditure on education, % GDP .....                   | 2.9                                   | 113 ○     |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a       |
| 2.1.3 School life expectancy, years.....                      | 14.4                                  | 50        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 462.3                                 | 40        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a       |
| 2.2 Tertiary education.....                                   | 35.7                                  | 62        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 60.7                                  | 36        |
| 2.2.2 Graduates in science & engineering, % .....             | 22.3                                  | 38        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.8                                   | 86        |
| 2.3 Research & development (R&D).....                         | 22.5                                  | 42        |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 1,881.4                               | 42        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.9                                   | 38        |
| 2.3.3 QS university ranking, average score top 3*.....        | 30.4                                  | 41        |
| <b>3 Infrastructure.....</b>                                  | <b>35.6</b>                           | <b>75</b> |
| 3.1 Information & communication technologies (ICTs).....      | 32.3                                  | 83        |
| 3.1.1 ICT access*.....  | 51.1                                  | 67        |
| 3.1.2 ICT use* .....  | 26.3                                  | 66        |
| 3.1.3 Government's online service*.....                       | 46.4                                  | 79        |
| 3.1.4 E-participation*.....                                   | 5.3                                   | 111 ○     |
| 3.2 General infrastructure.....                               | 34.5                                  | 63        |
| 3.2.1 Electricity output, kWh/cap.....                        | 3,194.1                               | 61        |
| 3.2.2 Logistics performance*.....                             | 75.4                                  | 26 ●      |
| 3.2.3 Gross capital formation, % GDP.....                     | 20.0                                  | 92        |
| 3.3 Ecological sustainability.....                            | 40.1                                  | 56        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 8.8                                   | 26 ●      |
| 3.3.2 Environmental performance*.....                         | 54.9                                  | 61        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 1.5                                   | 52        |
| <b>4 Market sophistication .....</b>                          | <b>49.1</b>                           | <b>63</b> |
| 4.1 Credit.....   | 24.3                                  | 111       |
| 4.1.1 Ease of getting credit*.....                            | 56.3                                  | 81        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 54.4                                  | 59        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.0                                   | 88 ○      |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 38.7        | 55         |
| 4.2.1 Ease of protecting investors*.....                        | 63.3        | 32         |
| 4.2.2 Market capitalization, % GDP.....                         | 39.1        | 51         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 44.2        | 18 ●       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 62 ○       |
| 4.3 Trade & competition .....                                   | 84.2        | 8 ●        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 2.7         | 56         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 1.3         | 83         |
| 4.3.3 Intensity of local competition†.....                      | 79.8        | 13 ●       |
| <b>5 Business sophistication .....</b>                          | <b>25.4</b> | <b>110</b> |
| 5.1 Knowledge workers.....                                      | 34.4        | 85         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 20.2        | 72         |
| 5.1.2 Firms offering formal training, % firms.....              | 29.7        | 67         |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.4         | 38         |
| 5.1.4 GERD performed by business, %.....                        | 43.2        | 43         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 71.1        | 61         |
| 5.2 Innovation linkages .....                                   | 25.1        | 102        |
| 5.2.1 University/industry research collaboration†.....          | 47.7        | 50         |
| 5.2.2 State of cluster development† .....                       | 57.0        | 28 ●       |
| 5.2.3 GERD financed by abroad, %.....                           | 0.7         | 85 ○       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 78         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 67         |
| 5.3 Knowledge absorption.....                                   | 16.8        | 118 ○      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.3         | 67         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 8.4         | 52         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.2         | 131 ○      |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.6         | 97         |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>32.3</b> | <b>48</b>  |
| 6.1 Knowledge creation.....                                     | 30.2        | 32         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 4.0         | 30         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.5         | 39         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 3.4         | 11 ●       |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 20.8        | 44         |
| 6.1.5 Citable documents H index.....                            | 210.0       | 36         |
| 6.2 Knowledge impact.....                                       | 40.5        | 64         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 1.0         | 68         |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.8         | 68         |
| 6.2.3 Computer software spending, % GDP.....                    | 0.7         | 9 ●        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 7.0         | 55         |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 27.2        | 40         |
| 6.3 Knowledge diffusion.....                                    | 26.2        | 99         |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.0         | 67         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.2         | 122 ○      |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.5         | 63         |
| <b>7 Creative outputs .....</b>                                 | <b>41.2</b> | <b>40</b>  |
| 7.1 Intangible assets.....                                      | 55.2        | 18 ●       |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 174.7       | 4 ●        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 1.1         | 29         |
| 7.1.3 ICTs & business model creation†.....                      | 60.5        | 51         |
| 7.1.4 ICTs & organizational model creation†.....                | 55.5        | 59         |
| 7.2 Creative goods & services.....                              | 24.9        | 50         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.6         | 20 ●       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.4         | 60         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.2         | 43         |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 66         |
| 7.2.5 Creative goods exports, % total trade.....                | 2.5         | 21 ●       |
| 7.3 Online creativity.....                                      | 29.4        | 51         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 13.8        | 40         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 27.4        | 65         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 3,514.9     | 63         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 70.3        | 42         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 36.3               |
| GDP (US\$ billions) .....   | 23.1               |
| GDP per capita, PPP\$ ..... | 1,483.9            |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>31.1</b>                           | <b>91</b>  |
| Innovation Output Sub-Index .....                             | 26.0                                  | 90         |
| Innovation Input Sub-Index.....                               | 36.3                                  | 98         |
| Innovation Efficiency Ratio.....                              | 0.7                                   | 77         |
| Global Innovation Index 2013 (out of 142) .....               | 31.2                                  | 89         |
| <b>1 Institutions.....</b>                                    | <b>56.7</b>                           | <b>86</b>  |
| 1.1 Political environment.....                                | 46.0                                  | 103        |
| 1.1.1 Political stability*.....                               | 43.9                                  | 116        |
| 1.1.2 Government effectiveness*.....                          | 25.7                                  | 107        |
| 1.1.3 Press freedom*.....                                     | 68.3                                  | 83         |
| 1.2 Regulatory environment .....                              | 69.1                                  | 60         |
| 1.2.1 Regulatory quality* .....                               | 42.4                                  | 91         |
| 1.2.2 Rule of law*.....                                       | 36.5                                  | 79         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.7                                   | 25 ●       |
| 1.3 Business environment.....                                 | 55.2                                  | 100        |
| 1.3.1 Ease of starting a business*.....                       | 58.7                                  | 133 ○      |
| 1.3.2 Ease of resolving insolvency*.....                      | 38.1                                  | 70         |
| 1.3.3 Ease of paying taxes*.....                              | 68.8                                  | 76         |
| <b>2 Human capital &amp; research.....</b>                    | <b>17.3</b>                           | <b>114</b> |
| 2.1 Education .....   | 31.9                                  | 109        |
| 2.1.1 Expenditure on education, % GDP .....                   | 3.3                                   | 104        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 20.7                                  | 57         |
| 2.1.3 School life expectancy, years.....                      | 10.8                                  | 107        |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 18.5                                  | 77         |
| 2.2 Tertiary education.....                                   | 15.5                                  | 110        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 9.1                                   | 114        |
| 2.2.2 Graduates in science & engineering, % .....             | 9.5                                   | 100 ○      |
| 2.2.3 Tertiary inbound mobility, %.....                       | 5.2                                   | 33 ●       |
| 2.3 Research & development (R&D).....                         | 4.4                                   | 86         |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 83.1                                  | 106        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.6                                   | 55         |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>28.1</b>                           | <b>102</b> |
| 3.1 Information & communication technologies (ICTs).....      | 16.1                                  | 123        |
| 3.1.1 ICT access*.....  | 19.5                                  | 124 ○      |
| 3.1.2 ICT use* .....  | 7.5                                   | 110        |
| 3.1.3 Government's online service*.....                       | 29.4                                  | 125        |
| 3.1.4 E-participation*.....                                   | 7.9                                   | 98         |
| 3.2 General infrastructure.....                               | 41.7                                  | 39 ●       |
| 3.2.1 Electricity output, kWh/cap.....                        | n/a                                   | n/a        |
| 3.2.2 Logistics performance* .....                            | 48.0                                  | 72         |
| 3.2.3 Gross capital formation, % GDP.....                     | 27.2                                  | 33 ●       |
| 3.3 Ecological sustainability.....                            | 26.5                                  | 110        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | n/a                                   | n/a        |
| 3.3.2 Environmental performance*.....                         | 39.2                                  | 113        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.2                                   | 116 ○      |
| <b>4 Market sophistication .....</b>                          | <b>43.7</b>                           | <b>102</b> |
| 4.1 Credit.....   | 30.4                                  | 90         |
| 4.1.1 Ease of getting credit* .....                           | 75.0                                  | 40 ●       |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 16.3                                  | 127        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 1.0                                   | 37         |

|   |             |             |
|---|-------------|-------------|
| 4.2 Investment .....  | 23.7        | 125         |
| 4.2.1 Ease of protecting investors*.....                        | 46.7        | 97          |
| 4.2.2 Market capitalization, % GDP.....                         | 36.7        | 53          |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.1         | 103 ○       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 48          |
| 4.3 Trade & competition .....                                   | 76.9        | 55 ●        |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 7.3         | 107         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.1         | 23 ●        |
| 4.3.3 Intensity of local competition†.....                      | 67.0        | 64          |
| <b>5 Business sophistication .....</b>                          | <b>35.8</b> | <b>48 ●</b> |
| 5.1 Knowledge workers.....                                      | 22.1        | 118         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 4.4         | 106 ○       |
| 5.1.2 Firms offering formal training, % firms.....              | 35.0        | 51          |
| 5.1.3 GERD performed by business, % GDP .....                   | 0.2         | 48          |
| 5.1.4 GERD performed by business, %.....                        | 34.8        | 51          |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 10.3        | 121         |
| 5.2 Innovation linkages .....                                   | 54.4        | 7 ●         |
| 5.2.1 University/industry research collaboration†.....          | 45.5        | 56          |
| 5.2.2 State of cluster development† .....                       | 39.8        | 101         |
| 5.2.3 GERD financed by abroad, %.....                           | 57.3        | 3 ●         |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | n/a         | n/a         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a         | n/a         |
| 5.3 Knowledge absorption.....                                   | 31.1        | 39 ●        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2         | 84          |
| 5.3.2 High-tech imports less re-imports, %.....                 | 8.5         | 49 ●        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.1         | 54          |
| 5.3.4 FDI net inflows, % GDP.....                               | 8.7         | 18 ●        |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>24.3</b> | <b>87</b>   |
| 6.1 Knowledge creation.....                                     | 8.5         | 89          |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP .....           | 0.2         | 95          |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 94          |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP .....         | n/a         | n/a         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 13.6        | 63          |
| 6.1.5 Citable documents H index.....                            | 99.0        | 65          |
| 6.2 Knowledge impact.....                                       | 31.3        | 97          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, % .....                  | 0.3         | 86          |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.2         | 53          |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP .....          | 0.3         | 136 ○       |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a         |
| 6.3 Knowledge diffusion.....                                    | 33.2        | 58          |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.3         | 29 ●        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 2.9         | 44 ●        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.3         | 73          |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.0         | 108         |
| <b>7 Creative outputs .....</b>                                 | <b>27.6</b> | <b>90</b>   |
| 7.1 Intangible assets.....                                      | 50.0        | 41 ●        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP .....             | n/a         | n/a         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP .....          | n/a         | n/a         |
| 7.1.3 ICTs & business model creation†.....                      | 51.7        | 87          |
| 7.1.4 ICTs & organizational model creation†.....                | 48.3        | 88          |
| 7.2 Creative goods & services.....                              | 5.8         | 110         |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.1         | 49          |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a         |
| 7.2.5 Creative goods exports, % total trade.....                | 0.1         | 87          |
| 7.3 Online creativity .....                                     | 4.6         | 113         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.4         | 125         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 2.1         | 122         |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 70.3        | 128 ○       |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 15.7        | 63 ○        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Ukraine

## Key indicators

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 45.6                |
| GDP (US\$ billions) .....   | 177.8               |
| GDP per capita, PPP\$ ..... | 7,423.1             |
| Income group.....           | Lower-middle income |
| Region.....                 | Europe              |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>36.3</b>                           | <b>63</b> |
| Innovation Output Sub-Index .....                | 34.4                                  | 46        |
| Innovation Input Sub-Index.....                  | 38.2                                  | 88        |
| Innovation Efficiency Ratio.....                 | 0.9                                   | 14 ●      |
| Global Innovation Index 2013 (out of 142) .....  | 35.8                                  | 71        |

|  |             |            |
|--|-------------|------------|
| <b>1 Institutions.....</b>                                   | <b>52.9</b> | <b>103</b> |
| 1.1 Political environment.....                               | 50.6        | 86         |
| 1.1.1 Political stability*.....                              | 63.3        | 77         |
| 1.1.2 Government effectiveness*.....                         | 25.3        | 109        |
| 1.1.3 Press freedom*.....                                    | 63.2        | 103        |
| 1.2 Regulatory environment.....                              | 59.3        | 90         |
| 1.2.1 Regulatory quality*.....                               | 32.8        | 115        |
| 1.2.2 Rule of law*.....                                      | 24.5        | 112        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 13.0        | 56         |
| 1.3 Business environment.....                                | 48.8        | 122 ○      |
| 1.3.1 Ease of starting a business*.....                      | 86.4        | 62         |
| 1.3.2 Ease of resolving insolvency*.....                     | 8.7         | 136 ○      |
| 1.3.3 Ease of paying taxes*.....                             | 51.3        | 119 ○      |
| <b>2 Human capital &amp; research.....</b>                   | <b>36.6</b> | <b>45</b>  |
| 2.1 Education.....   | 46.6        | 58         |
| 2.1.1 Expenditure on education, % GDP.....                   | 6.2         | 26 ●       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 27.5        | 29 ●       |
| 2.1.3 School life expectancy, years.....                     | 15.1        | 42         |
| 2.1.4 PISA scales in reading, maths, & science.....          | n/a         | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary.....                    | n/a         | n/a        |
| 2.2 Tertiary education.....                                  | 45.1        | 34 ●       |
| 2.2.1 Tertiary enrolment, % gross.....                       | 79.7        | 11 ●       |
| 2.2.2 Graduates in science & engineering, %.....             | 25.6        | 23 ●       |
| 2.2.3 Tertiary inbound mobility, %.....                      | 1.8         | 64         |
| 2.3 Research & development (R&D).....                        | 18.0        | 48         |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 1,536.5     | 46         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | 0.7         | 47         |
| 2.3.3 QS university ranking, average score top 3*.....       | 22.9        | 48         |
| <b>3 Infrastructure.....</b>                                 | <b>27.1</b> | <b>107</b> |
| 3.1 Information & communication technologies (ICTs).....     | 32.1        | 84         |
| 3.1.1 ICT access*.....                                       | 52.7        | 64         |
| 3.1.2 ICT use*.....  | 17.6        | 87         |
| 3.1.3 Government's online service*.....                      | 42.5        | 90         |
| 3.1.4 E-participation*.....                                  | 15.8        | 79         |
| 3.2 General infrastructure.....                              | 25.2        | 110        |
| 3.2.1 Electricity output, kWh/cap.....                       | 4,264.9     | 49         |
| 3.2.2 Logistics performance*.....                            | 49.2        | 66         |
| 3.2.3 Gross capital formation, % GDP.....                    | 16.2        | 121 ○      |
| 3.3 Ecological sustainability.....                           | 23.9        | 122 ○      |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 2.3         | 117 ○      |
| 3.3.2 Environmental performance*.....                        | 49.0        | 86         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.5         | 83         |
| <b>4 Market sophistication.....</b>                          | <b>45.1</b> | <b>90</b>  |
| 4.1 Credit.....  | 36.1        | 67         |
| 4.1.1 Ease of getting credit*.....                           | 87.5        | 13 ●       |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 62.0        | 52         |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.1         | 67         |

|   |      |       |
|---|------|-------|
| 4.2 Investment.....                                       | 23.5 | 127 ○ |
| 4.2.1 Ease of protecting investors*.....                  | 43.3 | 105   |
| 4.2.2 Market capitalization, % GDP.....                   | 11.7 | 85    |
| 4.2.3 Total value of stocks traded, % GDP.....            | 0.7  | 75    |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3 Trade & competition.....                              | 75.8 | 65    |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 1.9  | 46    |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.8  | 65    |
| 4.3.3 Intensity of local competition†.....                | 59.0 | 101   |

|   |             |             |
|---|-------------|-------------|
| <b>5 Business sophistication.....</b>                           | <b>29.1</b> | <b>87</b>   |
| 5.1 Knowledge workers.....                                      | 40.3        | 65          |
| 5.1.1 Knowledge-intensive employment, %.....                    | 33.8        | 37          |
| 5.1.2 Firms offering formal training, % firms.....              | 24.6        | 81          |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.4         | 35          |
| 5.1.4 GERD performed by business, %.....                        | 55.7        | 29          |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 41.0        | 80          |
| 5.2 Innovation linkages.....                                    | 24.7        | 105         |
| 5.2.1 University/industry research collaboration†.....          | 40.7        | 75          |
| 5.2.2 State of cluster development†.....                        | 31.2        | 126 ○       |
| 5.2.3 GERD financed by abroad, %.....                           | 25.8        | 17 ●        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 103 ○       |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0         | 93 ○        |
| 5.3 Knowledge absorption.....                                   | 22.2        | 90          |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.8         | 38          |
| 5.3.2 High-tech imports less re-imports, %.....                 | 6.7         | 72          |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.5         | 89          |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.4         | 47          |
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>38.2</b> | <b>32 ●</b> |
| 6.1 Knowledge creation.....                                     | 48.8        | 15 ●        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 7.5         | 15 ●        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.4         | 45          |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 30.2        | 1 ●         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 13.9        | 62          |
| 6.1.5 Citable documents H index.....                            | 142.0       | 43          |
| 6.2 Knowledge impact.....                                       | 34.6        | 85          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.8         | 21 ●        |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.9         | 62          |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 43          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 3.3         | 82          |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 21.7        | 50          |
| 6.3 Knowledge diffusion.....                                    | 31.1        | 71          |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.1         | 47          |
| 6.3.2 High-tech exports less re-exports, %.....                 | 2.8         | 46          |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.6         | 56          |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.7         | 55          |
| <b>7 Creative outputs.....</b>                                  | <b>30.6</b> | <b>77</b>   |
| 7.1 Intangible assets.....                                      | 35.8        | 112         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 91.7        | 20 ●        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.9         | 31          |
| 7.1.3 ICTs & business model creation†.....                      | 42.7        | 120 ○       |
| 7.1.4 ICTs & organizational model creation†.....                | 39.0        | 122 ○       |
| 7.2 Creative goods & services.....                              | 14.4        | 82          |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.0         | 74          |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 0.1         | 99 ○        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a         |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 43          |
| 7.2.5 Creative goods exports, % total trade.....                | 0.7         | 51          |
| 7.3 Online creativity.....                                      | 36.3        | 42          |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 5.1         | 59          |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 41.3        | 45          |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 10,862.7    | 43          |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | 80.5        | 28          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 9.2                              |
| GDP (US\$ billions) .....   | 396.2                            |
| GDP per capita, PPP\$ ..... | 30,122.1                         |
| Income group .....          | High income                      |
| Region .....                | Northern Africa and Western Asia |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>43.2</b>                           | <b>36</b>  |
| Innovation Output Sub-Index .....                             | 30.3                                  | 68         |
| Innovation Input Sub-Index.....                               | 56.2                                  | 25         |
| Innovation Efficiency Ratio.....                              | 0.5                                   | 127 ○      |
| Global Innovation Index 2013 (out of 142) .....               | 41.9                                  | 38         |
| <b>1 Institutions.....</b>                                    | <b>76.6</b>                           | <b>30</b>  |
| 1.1 Political environment.....                                | 75.0                                  | 34         |
| 1.1.1 Political stability*.....                               | 87.2                                  | 29         |
| 1.1.2 Government effectiveness*.....                          | 71.3                                  | 28         |
| 1.1.3 Press freedom*.....                                     | 66.5                                  | 93         |
| 1.2 Regulatory environment .....                              | 82.0                                  | 27         |
| 1.2.1 Regulatory quality* .....                               | 66.4                                  | 43         |
| 1.2.2 Rule of law*.....                                       | 61.8                                  | 42         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.0                                   | 1 ●        |
| 1.3 Business environment.....                                 | 72.9                                  | 36         |
| 1.3.1 Ease of starting a business*.....                       | 88.7                                  | 47         |
| 1.3.2 Ease of resolving insolvency*.....                      | 31.1                                  | 90         |
| 1.3.3 Ease of paying taxes*.....                              | 98.9                                  | 1 ●        |
| <b>2 Human capital &amp; research.....</b>                    | <b>62.1</b>                           | <b>4 ●</b> |
| 2.1 Education .....   | 66.3                                  | 2 ●        |
| 2.1.1 Expenditure on education, % GDP .....                   | n/a                                   | n/a        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a        |
| 2.1.3 School life expectancy, years.....                      | n/a                                   | n/a        |
| 2.1.4 PISA scales in reading, maths, & science.....           | 468.7                                 | 38         |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 14.3                                  | 51         |
| 2.2 Tertiary education.....                                   | 100.0                                 | 1 ●        |
| 2.2.1 Tertiary enrolment, % gross.....                        | n/a                                   | n/a        |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                       | 39.8                                  | 1 ●        |
| 2.3 Research & development (R&D).....                         | 19.9                                  | 44         |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | n/a                                   | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.5                                   | 59         |
| 2.3.3 QS university ranking, average score top 3*.....        | 28.8                                  | 42         |
| <b>3 Infrastructure.....</b>                                  | <b>55.9</b>                           | <b>18</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 71.2                                  | 18         |
| 3.1.1 ICT access*.....  | 73.1                                  | 24         |
| 3.1.2 ICT use* .....  | 51.8                                  | 29         |
| 3.1.3 Government's online service*.....                       | 86.3                                  | 9 ●        |
| 3.1.4 E-participation*.....                                   | 73.7                                  | 11 ●       |
| 3.2 General infrastructure.....                               | 53.7                                  | 12 ●       |
| 3.2.1 Electricity output, kWh/cap.....                        | 12,564.9                              | 9 ●        |
| 3.2.2 Logistics performance* .....                            | 86.1                                  | 17         |
| 3.2.3 Gross capital formation, % GDP.....                     | 24.9                                  | 50         |
| 3.3 Ecological sustainability.....                            | 42.7                                  | 50         |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 5.0                                   | 83 ○       |
| 3.3.2 Environmental performance*.....                         | 72.9                                  | 25         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 3.4                                   | 30         |
| <b>4 Market sophistication .....</b>                          | <b>46.2</b>                           | <b>85</b>  |
| 4.1 Credit.....   | 37.3                                  | 63         |
| 4.1.1 Ease of getting credit*.....                            | 56.3                                  | 81         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 59.1                                  | 55         |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |             |              |
|---|-------------|--------------|
| 4.2 Investment .....  | 25.2        | 121 ○        |
| 4.2.1 Ease of protecting investors*.....                        | 50.0        | 81 ○         |
| 4.2.2 Market capitalization, % GDP.....                         | 19.8        | 72 ○         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 4.4         | 51           |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 31           |
| 4.3 Trade & competition .....                                   | 76.2        | 58           |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 3.7         | 65           |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.7         | 126 ○        |
| 4.3.3 Intensity of local competition†.....                      | 78.5        | 15 ●         |
| <b>5 Business sophistication .....</b>                          | <b>40.3</b> | <b>34</b>    |
| 5.1 Knowledge workers.....                                      | 37.6        | 78           |
| 5.1.1 Knowledge-intensive employment, %.....                    | 36.1        | 30           |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a          |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.1         | 54           |
| 5.1.4 GERD performed by business, %.....                        | 28.6        | 56           |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 25.4        | 105 ○        |
| 5.2 Innovation linkages .....                                   | 63.8        | 2 ●          |
| 5.2.1 University/industry research collaboration†.....          | 63.2        | 22           |
| 5.2.2 State of cluster development† .....                       | 74.2        | 2 ●          |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a          |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.3         | 1 ●          |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 63           |
| 5.3 Knowledge absorption.....                                   | 19.5        | 104 ○        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | n/a         | n/a          |
| 5.3.2 High-tech imports less re-imports, %.....                 | 5.5         | 93 ○         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | n/a         | n/a          |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.2         | 85           |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>14.3</b> | <b>132 ○</b> |
| 6.1 Knowledge creation.....                                     | 7.7         | 92           |
| 6.1.1 Domestic resident patent app./tr PPP\$ GDP.....           | n/a         | n/a          |
| 6.1.2 PCT resident patent app./tr PPP\$ GDP.....                | 0.2         | 65           |
| 6.1.3 Domestic res utility model app./tr PPP\$ GDP.....         | n/a         | n/a          |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 5.1         | 108 ○        |
| 6.1.5 Citable documents H index.....                            | 87.0        | 71           |
| 6.2 Knowledge impact.....                                       | 34.9        | 82           |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.9         | 70           |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.4         | 50           |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 59 ○         |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 12.6        | 39           |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a          |
| 6.3 Knowledge diffusion.....                                    | 0.3         | 141 ○        |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a          |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.1         | 108 ○        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | n/a         | n/a          |
| 6.3.4 FDI net outflows, % GDP .....                             | n/a         | n/a          |
| <b>7 Creative outputs .....</b>                                 | <b>46.2</b> | <b>21</b>    |
| 7.1 Intangible assets.....                                      | 74.2        | 1 ●          |
| 7.1.1 Domestic res trademark app./bn PPP\$ GDP.....             | n/a         | n/a          |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a          |
| 7.1.3 ICTs & business model creation†.....                      | 76.5        | 4 ●          |
| 7.1.4 ICTs & organizational model creation†.....                | 71.8        | 8 ●          |
| 7.2 Creative goods & services.....                              | 4.9         | 111 ○        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a          |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a          |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.4         | 32           |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a          |
| 7.2.5 Creative goods exports, % total trade.....                | 0.1         | 98 ○         |
| 7.3 Online creativity .....                                     | 31.7        | 46           |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 13.9        | 39           |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 35.2        | 50           |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 3,798.4     | 62           |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 71.3        | 39           |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

# United Kingdom

## Key indicators

|                             |             |
|-----------------------------|-------------|
| Population (millions) ..... | 63.2        |
| GDP (US\$ billions) .....   | 2,535.8     |
| GDP per capita, PPP\$ ..... | 37,306.6    |
| Income group .....          | High income |
| Region .....                | Europe      |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143)</b> .....             | <b>62.4</b>                           | <b>2</b> ● |
| Innovation Output Sub-Index .....                             | 56.5                                  | 4 ●        |
| Innovation Input Sub-Index .....                              | 68.2                                  | 3 ●        |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 29         |
| Global Innovation Index 2013 (out of 142) .....               | 61.2                                  | 3          |
| <b>1 Institutions</b> .....                                   | <b>88.6</b>                           | <b>13</b>  |
| 1.1 Political environment.....                                | 80.2                                  | 25         |
| 1.1.1 Political stability*.....                               | 75.7                                  | 50 ○       |
| 1.1.2 Government effectiveness*.....                          | 81.6                                  | 17         |
| 1.1.3 Press freedom*.....                                     | 83.1                                  | 27         |
| 1.2 Regulatory environment .....                              | 95.7                                  | 9          |
| 1.2.1 Regulatory quality* .....                               | 91.7                                  | 12         |
| 1.2.2 Rule of law*.....                                       | 92.9                                  | 14         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 8.5                                   | 24         |
| 1.3 Business environment.....                                 | 90.0                                  | 10         |
| 1.3.1 Ease of starting a business*.....                       | 88.5                                  | 49 ○       |
| 1.3.2 Ease of resolving insolvency*.....                      | 93.8                                  | 7          |
| 1.3.3 Ease of paying taxes*.....                              | 87.6                                  | 13         |
| <b>2 Human capital &amp; research</b> .....                   | <b>60.3</b>                           | <b>10</b>  |
| 2.1 Education .....   | 57.2                                  | 16         |
| 2.1.1 Expenditure on education, % GDP .....                   | 6.2                                   | 23         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | 33.6                                  | 12         |
| 2.1.3 School life expectancy, years.....                      | 16.2                                  | 22         |
| 2.1.4 PISA scales in reading, maths, & science.....           | 502.5                                 | 17         |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 14.3                                  | 50 ○       |
| 2.2 Tertiary education.....                                   | 56.2                                  | 12         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 61.2                                  | 33         |
| 2.2.2 Graduates in science & engineering, % .....             | 22.3                                  | 37 ○       |
| 2.2.3 Tertiary inbound mobility, %.....                       | 16.8                                  | 9          |
| 2.3 Research & development (R&D).....                         | 67.5                                  | 11         |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 6,872.2                               | 11         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 1.7                                   | 21         |
| 2.3.3 QS university ranking, average score top 3*.....        | 98.9                                  | 1 ●        |
| <b>3 Infrastructure</b> .....                                 | <b>60.6</b>                           | <b>6</b> ● |
| 3.1 Information & communication technologies (ICTs).....      | 86.5                                  | 4 ●        |
| 3.1.1 ICT access*.....  | 84.6                                  | 6          |
| 3.1.2 ICT use* .....  | 71.9                                  | 12         |
| 3.1.3 Government's online service*.....                       | 97.4                                  | 4 ●        |
| 3.1.4 E-participation*.....                                   | 92.1                                  | 5 ●        |
| 3.2 General infrastructure.....                               | 35.1                                  | 60 ○       |
| 3.2.1 Electricity output, kWh/cap.....                        | 5,697.9                               | 36         |
| 3.2.2 Logistics performance* .....                            | 90.9                                  | 10         |
| 3.2.3 Gross capital formation, % GDP.....                     | 14.0                                  | 132 ○      |
| 3.3 Ecological sustainability.....                            | 60.1                                  | 7          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 10.8                                  | 12         |
| 3.3.2 Environmental performance*.....                         | 77.4                                  | 12         |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 6.9                                   | 19         |
| <b>4 Market sophistication</b> .....                          | <b>81.4</b>                           | <b>2</b> ● |
| 4.1 Credit.....   | 79.2                                  | 3 ●        |
| 4.1.1 Ease of getting credit*.....                            | 100.0                                 | 1 ●        |
| 4.1.2 Domestic credit to private sector, % GDP .....          | 178.7                                 | 9          |
| 4.1.3 Microfinance gross loans, % GDP .....                   | n/a                                   | n/a        |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 82.8        | 2 ●        |
| 4.2.1 Ease of protecting investors*.....                        | 80.0        | 10         |
| 4.2.2 Market capitalization, % GDP.....                         | 124.0       | 7          |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 102.2       | 1 ●        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.4         | 7          |
| 4.3 Trade & competition .....                                   | 82.3        | 16         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 1.1         | 10         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 3.3         | 97 ○       |
| 4.3.3 Intensity of local competition†.....                      | 84.0        | 2 ●        |
| <b>5 Business sophistication</b> .....                          | <b>50.2</b> | <b>14</b>  |
| 5.1 Knowledge workers.....                                      | 65.0        | 20         |
| 5.1.1 Knowledge-intensive employment, %.....                    | 47.2        | 5          |
| 5.1.2 Firms offering formal training, % firms.....              | n/a         | n/a        |
| 5.1.3 GERD performed by business, % GDP .....                   | 1.1         | 21         |
| 5.1.4 GERD performed by business, %.....                        | 63.4        | 19         |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 124.5       | 42         |
| 5.2 Innovation linkages .....                                   | 50.7        | 13         |
| 5.2.1 University/industry research collaboration†.....          | 76.3        | 5 ●        |
| 5.2.2 State of cluster development† .....                       | 67.7        | 12         |
| 5.2.3 GERD financed by abroad, %.....                           | 19.7        | 20         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.1         | 24         |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 1.0         | 19         |
| 5.3 Knowledge absorption.....                                   | 34.8        | 29         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.0         | 27         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 10.9        | 25         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.8         | 16         |
| 5.3.4 FDI net inflows, % GDP.....                               | 2.3         | 80 ○       |
| <b>6 Knowledge &amp; technology outputs</b> .....               | <b>56.4</b> | <b>5</b> ● |
| 6.1 Knowledge creation.....                                     | 59.7        | 7          |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 6.6         | 18         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 2.1         | 21         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 43.0        | 15         |
| 6.1.5 Citable documents H index.....                            | 851.0       | 1 ●        |
| 6.2 Knowledge impact.....                                       | 57.8        | 8          |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -0.7        | 102 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | 11.0        | 10         |
| 6.2.3 Computer software spending, % GDP.....                    | 0.7         | 6          |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 19.3        | 22         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 38.0        | 23         |
| 6.3 Knowledge diffusion.....                                    | 51.7        | 9          |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 1.4         | 14         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 9.3         | 22         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 3.3         | 18         |
| 6.3.4 FDI net outflows, % GDP .....                             | 2.9         | 25         |
| <b>7 Creative outputs</b> .....                                 | <b>56.6</b> | <b>7</b>   |
| 7.1 Intangible assets.....                                      | 50.5        | 40         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 48.7        | 56 ○       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 1.0         | 30 ○       |
| 7.1.3 ICTs & business model creation†.....                      | 75.8        | 6          |
| 7.1.4 ICTs & organizational model creation†.....                | 73.2        | 6          |
| 7.2 Creative goods & services.....                              | 52.4        | 5 ●        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 1.4         | 1 ●        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 6.8         | 17         |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 1.9         | 8          |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 28         |
| 7.2.5 Creative goods exports, % total trade.....                | 2.9         | 18         |
| 7.3 Online creativity.....                                      | 73.1        | 4 ●        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 76.0        | 12         |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 73.9        | 6 ●        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 27,536.2    | 11         |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 95.6        | 4          |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

### Key indicators

|                             |                  |
|-----------------------------|------------------|
| Population (millions) ..... | 313.9            |
| GDP (US\$ billions) .....   | 16,799.7         |
| GDP per capita, PPP\$ ..... | 53,101.0         |
| Income group.....           | High income      |
| Region.....                 | Northern America |

|  | Score (0–100)<br>or value (hard data) | Rank     |
|--|---------------------------------------|----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>60.1</b>                           | <b>6</b> |
| Innovation Output Sub-Index .....                | 52.3                                  | 7        |
| Innovation Input Sub-Index.....                  | 67.9                                  | 4 ●      |
| Innovation Efficiency Ratio.....                 | 0.8                                   | 57       |
| Global Innovation Index 2013 (out of 142) .....  | 60.3                                  | 5        |

## 1 Institutions.....86.2 17

|   |      |     |
|---|------|-----|
| 1.1 Political environment.....                        | 81.4 | 21  |
| 1.1.1 Political stability*.....                       | 81.2 | 38  |
| 1.1.2 Government effectiveness*.....                  | 81.2 | 18  |
| 1.1.3 Press freedom*.....                             | 81.8 | 29  |
| 1.2 Regulatory environment .....                      | 93.2 | 13  |
| 1.2.1 Regulatory quality* .....                       | 82.4 | 20  |
| 1.2.2 Rule of law*.....                               | 90.5 | 17  |
| 1.2.3 Cost of redundancy dismissal, salary weeks..... | 8.0  | 1 ● |
| 1.3 Business environment.....                         | 84.0 | 15  |
| 1.3.1 Ease of starting a business*.....               | 89.9 | 39  |
| 1.3.2 Ease of resolving insolvency*.....              | 86.3 | 16  |
| 1.3.3 Ease of paying taxes*.....                      | 75.8 | 46  |

## 2 Human capital & research.....58.3 11

|  |       |      |
|--|-------|------|
| 2.1 Education .....                                      | 52.6  | 38   |
| 2.1.1 Expenditure on education, % GDP .....              | 5.4   | 45   |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap..... | 24.3  | 46   |
| 2.1.3 School life expectancy, years.....                 | 16.5  | 13   |
| 2.1.4 PISA scales in reading, maths, & science.....      | 492.1 | 25   |
| 2.1.5 Pupil-teacher ratio, secondary .....               | 14.7  | 57   |
| 2.2 Tertiary education.....                              | 41.1  | 41   |
| 2.2.1 Tertiary enrolment, % gross.....                   | 95.3  | 3 ●  |
| 2.2.2 Graduates in science & engineering, % .....        | 15.5  | 84 ○ |
| 2.2.3 Tertiary inbound mobility, %.....                  | 3.4   | 49   |
| 2.3 Research & development (R&D).....                    | 81.3  | 2 ●  |
| 2.3.1 Researchers, headcounts/mn pop. ....               | n/a   | n/a  |
| 2.3.2 Gross expenditure on R&D, % GDP.....               | 2.8   | 11   |
| 2.3.3 QS university ranking, average score top 3*.....   | 98.7  | 2 ●  |

## 3 Infrastructure.....57.5 14

|   |          |      |
|---|----------|------|
| 3.1 Information & communication technologies (ICTs).....      | 83.0     | 5    |
| 3.1.1 ICT access*.....  | 72.4     | 28   |
| 3.1.2 ICT use* .....  | 67.6     | 13   |
| 3.1.3 Government's online service*.....                       | 100.0    | 1 ●  |
| 3.1.4 E-participation*.....                                   | 92.1     | 5    |
| 3.2 General infrastructure.....                               | 50.7     | 16   |
| 3.2.1 Electricity output, kWh/cap.....                        | 13,589.2 | 7    |
| 3.2.2 Logistics performance* .....                            | 92.1     | 8    |
| 3.2.3 Gross capital formation, % GDP.....                     | 19.4     | 96 ○ |
| 3.3 Ecological sustainability.....                            | 38.9     | 58   |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 6.3      | 59   |
| 3.3.2 Environmental performance*.....                         | 67.5     | 33   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.4      | 94 ○ |

## 4 Market sophistication.....83.8 1 ●

|   |       |     |
|---|-------|-----|
| 4.1 Credit.....                                     | 78.4  | 4 ● |
| 4.1.1 Ease of getting credit*.....                  | 93.8  | 3   |
| 4.1.2 Domestic credit to private sector, % GDP..... | 192.4 | 5   |
| 4.1.3 Microfinance gross loans, % GDP .....         | n/a   | n/a |

|   |       |      |
|---|-------|------|
| 4.2 Investment .....                                      | 87.3  | 1 ●  |
| 4.2.1 Ease of protecting investors*.....                  | 83.3  | 6    |
| 4.2.2 Market capitalization, % GDP.....                   | 119.0 | 9    |
| 4.2.3 Total value of stocks traded, % GDP.....            | 136.3 | 1 ●  |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | 0.7   | 1 ●  |
| 4.3 Trade & competition .....                             | 85.6  | 4 ●  |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 1.6   | 42   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 1.2   | 80 ○ |
| 4.3.3 Intensity of local competition†.....                | 80.3  | 11   |

## 5 Business sophistication.....53.7 10

|   |         |       |
|---|---------|-------|
| 5.1 Knowledge workers.....                                      | 73.5    | 7     |
| 5.1.1 Knowledge-intensive employment, %.....                    | 36.3    | 28    |
| 5.1.2 Firms offering formal training, % firms.....              | n/a     | n/a   |
| 5.1.3 GERD performed by business, % GDP.....                    | 1.9     | 11    |
| 5.1.4 GERD performed by business, %.....                        | 69.8    | 8     |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 1,376.3 | 1 ●   |
| 5.2 Innovation linkages .....                                   | 46.4    | 25    |
| 5.2.1 University/industry research collaboration†.....          | 79.0    | 3 ●   |
| 5.2.2 State of cluster development† .....                       | 70.5    | 5     |
| 5.2.3 GERD financed by abroad, %.....                           | 3.8     | 68 ○  |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.0     | 37    |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 1.6     | 11    |
| 5.3 Knowledge absorption.....                                   | 41.3    | 12    |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 1.7     | 11    |
| 5.3.2 High-tech imports less re-imports, %.....                 | 15.9    | 11    |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 1.4     | 43    |
| 5.3.4 FDI net inflows, % GDP.....                               | 1.3     | 107 ○ |

## 6 Knowledge & technology outputs.....58.1 4 ●

|   |         |       |
|---|---------|-------|
| 6.1 Knowledge creation.....                                     | 68.5    | 3 ●   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 16.5    | 1 ●   |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 3.2     | 16    |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a     | n/a   |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 20.5    | 45    |
| 6.1.5 Citable documents H index.....                            | 1,380.0 | 1 ●   |
| 6.2 Knowledge impact.....                                       | 56.7    | 11    |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 0.5     | 77 ○  |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a     | n/a   |
| 6.2.3 Computer software spending, % GDP.....                    | 1.0     | 1 ●   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.6     | 110 ○ |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 43.3    | 17    |
| 6.3 Knowledge diffusion.....                                    | 49.0    | 15    |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 5.1     | 1 ●   |
| 6.3.2 High-tech exports less re-exports, %.....                 | 6.9     | 26    |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.2     | 77    |
| 6.3.4 FDI net outflows, % GDP .....                             | 2.6     | 26    |

## 7 Creative outputs.....46.5 20

|  |          |      |
|--|----------|------|
| 7.1 Intangible assets.....                                     | 44.0     | 72   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 20.3     | 84 ○ |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | 0.3      | 47 ○ |
| 7.1.3 ICTs & business model creation†.....                     | 71.3     | 15   |
| 7.1.4 ICTs & organizational model creation†.....               | 72.0     | 7    |
| 7.2 Creative goods & services.....                             | 34.4     | 30   |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.4      | 24   |
| 7.2.2 National feature films/mn pop. 15–69.....                | 3.7      | 36   |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | 2.2      | 4    |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0      | 38   |
| 7.2.5 Creative goods exports, % total trade.....               | 1.7      | 33   |
| 7.3 Online creativity.....                                     | 63.3     | 15   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 100.0    | 1 ●  |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 29.8     | 61   |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 13,812.2 | 37   |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | 100.0    | 1 ●  |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Uruguay

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 3.4                             |
| GDP (US\$ billions) .....   | 56.3                            |
| GDP per capita, PPP\$ ..... | 16,722.7                        |
| Income group .....          | High income                     |
| Region .....                | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank      |
|--|---------------------------------------|-----------|
| <b>Global Innovation Index (out of 143).....</b> | <b>34.8</b>                           | <b>72</b> |
| Innovation Output Sub-Index .....                | 29.3                                  | 72        |
| Innovation Input Sub-Index .....                 | 40.3                                  | 73        |
| Innovation Efficiency Ratio .....                | 0.7                                   | 75        |
| Global Innovation Index 2013 (out of 142) .....  | 38.1                                  | 52        |

**1 Institutions.....68.7 47**

|   |      |      |
|---|------|------|
| 1.1 Political environment.....                        | 73.3 | 39 ● |
| 1.1.1 Political stability*.....                       | 83.1 | 36 ● |
| 1.1.2 Government effectiveness*.....                  | 52.7 | 48   |
| 1.1.3 Press freedom*.....                             | 84.1 | 25 ● |
| 1.2 Regulatory environment .....                      | 67.3 | 65   |
| 1.2.1 Regulatory quality* .....                       | 59.1 | 56   |
| 1.2.2 Rule of law*.....                               | 61.3 | 43   |
| 1.2.3 Cost of redundancy dismissal, salary weeks..... | 20.8 | 97   |
| 1.3 Business environment.....                         | 65.5 | 68   |
| 1.3.1 Ease of starting a business*.....               | 88.8 | 44   |
| 1.3.2 Ease of resolving insolvency*.....              | 47.7 | 45   |
| 1.3.3 Ease of paying taxes*.....                      | 59.8 | 103  |

**2 Human capital & research.....29.4 67**

|  |       |      |
|--|-------|------|
| 2.1 Education .....                                      | 42.0  | 73   |
| 2.1.1 Expenditure on education, % GDP .....              | 4.5   | 76   |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap..... | 10.7  | 94 ○ |
| 2.1.3 School life expectancy, years.....                 | 15.5  | 35 ● |
| 2.1.4 PISA scales in reading, maths, & science.....      | 412.2 | 52 ○ |
| 2.1.5 Pupil-teacher ratio, secondary .....               | 11.3  | 31 ● |
| 2.2 Tertiary education.....                              | 38.4  | 52   |
| 2.2.1 Tertiary enrolment, % gross.....                   | 63.2  | 30 ● |
| 2.2.2 Graduates in science & engineering, % .....        | 15.6  | 82 ○ |
| 2.2.3 Tertiary inbound mobility, %.....                  | n/a   | n/a  |
| 2.3 Research & development (R&D).....                    | 7.9   | 75   |
| 2.3.1 Researchers, headcounts/mn pop.....                | 734.6 | 63   |
| 2.3.2 Gross expenditure on R&D, % GDP.....               | 0.4   | 65   |
| 2.3.3 QS university ranking, average score top 3*.....   | 7.2   | 63   |

**3 Infrastructure.....38.6 62**

|   |         |      |
|---|---------|------|
| 3.1 Information & communication technologies (ICTs).....      | 43.9    | 52   |
| 3.1.1 ICT access*.....  | 63.8    | 46   |
| 3.1.2 ICT use*.....   | 38.4    | 46   |
| 3.1.3 Government's online service*.....                       | 54.9    | 52   |
| 3.1.4 E-participation*.....                                   | 18.4    | 73   |
| 3.2 General infrastructure.....                               | 28.7    | 92   |
| 3.2.1 Electricity output, kWh/cap.....                        | 3,069.4 | 63   |
| 3.2.2 Logistics performance*.....                             | 54.4    | 56   |
| 3.2.3 Gross capital formation, % GDP.....                     | 19.7    | 93   |
| 3.3 Ecological sustainability.....                            | 43.1    | 49   |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 10.1    | 14 ● |
| 3.3.2 Environmental performance*.....                         | 53.6    | 64   |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 2.2     | 46   |

**4 Market sophistication.....40.0 125 ○**

|   |      |       |
|---|------|-------|
| 4.1 Credit.....                                     | 23.1 | 117 ○ |
| 4.1.1 Ease of getting credit*.....                  | 62.5 | 69    |
| 4.1.2 Domestic credit to private sector, % GDP..... | 24.1 | 110   |
| 4.1.3 Microfinance gross loans, % GDP .....         | 0.0  | 83 ○  |

|  |      |       |
|--|------|-------|
| 4.2 Investment .....                           | 23.9 | 124 ○ |
| 4.2.1 Ease of protecting investors*.....       | 50.0 | 81    |
| 4.2.2 Market capitalization, % GDP.....        | 0.4  | 108 ○ |
| 4.2.3 Total value of stocks traded, % GDP..... | 0.0  | 108 ○ |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....  | 0.1  | 26    |

|   |      |       |
|---|------|-------|
| 4.3 Trade & competition .....                             | 73.0 | 91    |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 3.8  | 66    |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 1.0  | 75    |
| 4.3.3 Intensity of local competition†.....                | 57.7 | 108 ○ |

**5 Business sophistication.....24.7 116 ○**

|  |      |      |
|--|------|------|
| 5.1 Knowledge workers.....                         | 30.5 | 94   |
| 5.1.1 Knowledge-intensive employment, %.....       | 23.1 | 62   |
| 5.1.2 Firms offering formal training, % firms..... | 32.3 | 56   |
| 5.1.3 GERD performed by business, % GDP.....       | 0.1  | 68   |
| 5.1.4 GERD performed by business, %.....           | 14.3 | 70 ○ |
| 5.1.5 GMAT test takers/mn pop. 20–34.....          | 66.2 | 65   |

**5.2 Innovation linkages.....22.6 119 ○**

|   |      |     |
|---|------|-----|
| 5.2.1 University/industry research collaboration†.....          | 43.3 | 64  |
| 5.2.2 State of cluster development†.....                        | 41.0 | 94  |
| 5.2.3 GERD financed by abroad, %.....                           | 6.5  | 56  |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0  | 84  |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.1  | 51  |
| 5.3 Knowledge absorption.....                                   | 21.0 | 95  |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.2  | 80  |
| 5.3.2 High-tech imports less re-imports, %.....                 | 8.1  | 55  |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.4  | 108 |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.7  | 44  |

**6 Knowledge & technology outputs.....24.1 90**

|   |       |       |
|---|-------|-------|
| 6.1 Knowledge creation.....                                     | 10.2  | 77    |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.4   | 83    |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a   | n/a   |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.7   | 37    |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 12.7  | 67    |
| 6.1.5 Citable documents H index.....                            | 104.0 | 63    |
| 6.2 Knowledge impact.....                                       | 36.4  | 76    |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 2.7   | 39    |
| 6.2.2 New businesses/th pop. 15–64.....                         | 3.0   | 31    |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3   | 56    |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 13.8  | 34 ●  |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 11.7  | 71    |
| 6.3 Knowledge diffusion.....                                    | 25.7  | 105   |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0   | 105 ○ |
| 6.3.2 High-tech exports less re-exports, %.....                 | 1.4   | 61    |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.5   | 60    |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.4   | 70    |

**7 Creative outputs.....34.4 62**

|  |          |      |
|--|----------|------|
| 7.1 Intangible assets.....                                     | 49.2     | 46   |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 77.3     | 29 ● |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a      | n/a  |
| 7.1.3 ICTs & business model creation†.....                     | 59.3     | 58   |
| 7.1.4 ICTs & organizational model creation†.....               | 58.2     | 46   |
| 7.2 Creative goods & services.....                             | 9.8      | 95   |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.0      | 84 ○ |
| 7.2.2 National feature films/mn pop. 15–69.....                | 3.5      | 41   |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a      | n/a  |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0      | 68   |
| 7.2.5 Creative goods exports, % total trade.....               | 0.1      | 90   |
| 7.3 Online creativity.....                                     | 29.6     | 49   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 8.4      | 52   |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 46.1     | 39 ● |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 20,274.9 | 26 ● |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | n/a      | n/a  |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



## Key indicators

|                             |                           |
|-----------------------------|---------------------------|
| Population (millions) ..... | 29.8                      |
| GDP (US\$ billions) .....   | 56.5                      |
| GDP per capita, PPP\$ ..... | 3,761.6                   |
| Income group .....          | Lower-middle income       |
| Region .....                | Central and Southern Asia |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>25.2</b>                           | <b>128</b> |
| Innovation Output Sub-Index .....                             | 19.1                                  | 123        |
| Innovation Input Sub-Index.....                               | 31.3                                  | 124        |
| Innovation Efficiency Ratio.....                              | 0.6                                   | 108        |
| Global Innovation Index 2013 (out of 142) .....               | 23.9                                  | 133        |
| <b>1 Institutions.....</b>                                    | <b>46.1</b>                           | <b>124</b> |
| 1.1 Political environment.....                                | 36.1                                  | 134        |
| 1.1.1 Political stability*.....                               | 52.9                                  | 97         |
| 1.1.2 Government effectiveness*.....                          | 15.8                                  | 129        |
| 1.1.3 Press freedom*.....                                     | 39.6                                  | 136 ○      |
| 1.2 Regulatory environment .....                              | 45.2                                  | 123        |
| 1.2.1 Regulatory quality* .....                               | 6.7                                   | 141 ○      |
| 1.2.2 Rule of law*.....                                       | 11.5                                  | 138 ○      |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 17.3                                  | 81         |
| 1.3 Business environment.....                                 | 56.9                                  | 93         |
| 1.3.1 Ease of starting a business*.....                       | 92.5                                  | 22 ●       |
| 1.3.2 Ease of resolving insolvency*.....                      | 42.2                                  | 55 ●       |
| 1.3.3 Ease of paying taxes*.....                              | 36.1                                  | 134 ○      |
| <b>2 Human capital &amp; research.....</b>                    | <b>27.1</b>                           | <b>77</b>  |
| 2.1 Education .....   | 55.7                                  | 22 ●       |
| 2.1.1 Expenditure on education, % GDP .....                   | n/a                                   | n/a        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a        |
| 2.1.3 School life expectancy, years.....                      | 11.5                                  | 95         |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | 13.3                                  | 44 ●       |
| 2.2 Tertiary education.....                                   | 20.5                                  | 101        |
| 2.2.1 Tertiary enrolment, % gross.....                        | 8.9                                   | 115        |
| 2.2.2 Graduates in science & engineering, % .....             | 21.1                                  | 46 ●       |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.1                                   | 104        |
| 2.3 Research & development (R&D).....                         | 5.1                                   | 85         |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 1,097.3                               | 56         |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a        |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>29.2</b>                           | <b>96</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 29.2                                  | 94         |
| 3.1.1 ICT access*.....  | 23.8                                  | 116        |
| 3.1.2 ICT use* .....  | 19.5                                  | 83         |
| 3.1.3 Government's online service*.....                       | 49.7                                  | 68         |
| 3.1.4 E-participation*.....                                   | 23.7                                  | 60         |
| 3.2 General infrastructure.....                               | 33.6                                  | 68         |
| 3.2.1 Electricity output, kWh/cap.....                        | 1,786.0                               | 80         |
| 3.2.2 Logistics performance* .....                            | 33.7                                  | 113        |
| 3.2.3 Gross capital formation, % GDP.....                     | 30.8                                  | 20 ●       |
| 3.3 Ecological sustainability.....                            | 24.9                                  | 117        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 1.8                                   | 122 ○      |
| 3.3.2 Environmental performance*.....                         | 43.2                                  | 102        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | n/a                                   | n/a        |
| <b>4 Market sophistication .....</b>                          | <b>41.1</b>                           | <b>118</b> |
| 4.1 Credit.....   | 27.3                                  | 103        |
| 4.1.1 Ease of getting credit*.....                            | 43.8                                  | 112        |
| 4.1.2 Domestic credit to private sector, % GDP.....           | n/a                                   | n/a        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.9                                   | 40 ●       |

|   |      |       |
|---|------|-------|
| 4.2 Investment .....                                      | 16.8 | 140 ○ |
| 4.2.1 Ease of protecting investors*.....                  | 40.0 | 113   |
| 4.2.2 Market capitalization, % GDP.....                   | 4.2  | 103 ○ |
| 4.2.3 Total value of stocks traded, % GDP.....            | 0.2  | 92    |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | 0.0  | 57    |
| 4.3 Trade & competition .....                             | 79.4 | 32 ●  |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 6.9  | 105   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 1.6  | 88    |
| 4.3.3 Intensity of local competition†.....                | n/a  | n/a   |

**5 Business sophistication .....** **12.7** **140** ○

|   |      |       |
|---|------|-------|
| 5.1 Knowledge workers.....                                      | 9.1  | 141 ○ |
| 5.1.1 Knowledge-intensive employment, %.....                    | n/a  | n/a   |
| 5.1.2 Firms offering formal training, % firms.....              | 9.6  | 102 ○ |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a  | n/a   |
| 5.1.4 GERD performed by business, %.....                        | n/a  | n/a   |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 10.8 | 120   |
| 5.2 Innovation linkages .....                                   | 3.6  | 142 ○ |
| 5.2.1 University/industry research collaboration†.....          | n/a  | n/a   |
| 5.2.2 State of cluster development† .....                       | n/a  | n/a   |
| 5.2.3 GERD financed by abroad, %.....                           | n/a  | n/a   |
| 5.2.4 JV-strategic alliance deals/tr PPP\$ GDP .....            | 0.0  | 85    |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0  | 85    |
| 5.3 Knowledge absorption.....                                   | 25.5 | 70    |
| 5.3.1 Royalty & license fees payments, % total trade.....       | n/a  | n/a   |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a  | n/a   |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | n/a  | n/a   |
| 5.3.4 FDI net inflows, % GDP.....                               | 3.1  | 64    |

**6 Knowledge & technology outputs .....** **26.6** **73**

|   |      |       |
|---|------|-------|
| 6.1 Knowledge creation.....                                     | 11.2 | 74    |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 2.5  | 45 ●  |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0  | 111 ○ |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 1.7  | 20 ●  |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 2.8  | 127   |
| 6.1.5 Citable documents H index.....                            | 53.0 | 106   |
| 6.2 Knowledge impact.....                                       | 41.9 | 58 ●  |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 5.4  | 6 ●   |
| 6.2.2 New businesses/th pop. 15–64.....                         | 0.6  | 72    |
| 6.2.3 Computer software spending, % GDP.....                    | n/a  | n/a   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.8  | 103   |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a  | n/a   |
| 6.3 Knowledge diffusion.....                                    | n/a  | n/a   |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a  | n/a   |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a  | n/a   |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | n/a  | n/a   |
| 6.3.4 FDI net outflows, % GDP .....                             | n/a  | n/a   |

**7 Creative outputs .....** **11.7** **139** ○

|  |       |       |
|--|-------|-------|
| 7.1 Intangible assets.....                                     | 16.1  | 138 ○ |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 62.0  | 41 ●  |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | 0.0   | 70    |
| 7.1.3 ICTs & business model creation†.....                     | n/a   | n/a   |
| 7.1.4 ICTs & organizational model creation†.....               | n/a   | n/a   |
| 7.2 Creative goods & services.....                             | n/a   | n/a   |
| 7.2.1 Cultural & creative services exports, % total trade..... | n/a   | n/a   |
| 7.2.2 National feature films/mn pop. 15–69.....                | n/a   | n/a   |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a   | n/a   |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a   | n/a   |
| 7.2.5 Creative goods exports, % total trade.....               | n/a   | n/a   |
| 7.3 Online creativity .....                                    | 2.9   | 118   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.1   | 138 ○ |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 8.4   | 107   |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 146.7 | 118   |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                | n/a   | n/a   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.



# Venezuela, Bolivarian Republic of

## Key indicators

|                             |                                 |
|-----------------------------|---------------------------------|
| Population (millions) ..... | 30.0                            |
| GDP (US\$ billions) .....   | 374.0                           |
| GDP per capita, PPP\$ ..... | 13,604.7                        |
| Income group .....          | Upper-middle income             |
| Region .....                | Latin America and the Caribbean |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143)</b> .....            | <b>25.7</b>                           | <b>122</b>   |
| Innovation Output Sub-Index .....                            | 25.0                                  | 94           |
| Innovation Input Sub-Index.....                              | 26.3                                  | 137          |
| Innovation Efficiency Ratio.....                             | 0.9                                   | 7 ●          |
| Global Innovation Index 2013 (out of 142) .....              | 27.3                                  | 114          |
| <b>1 Institutions.....</b>                                   | <b>21.1</b>                           | <b>143</b> ○ |
| 1.1 Political environment.....                               | 39.2                                  | 127          |
| 1.1.1 Political stability*.....                              | 41.4                                  | 118          |
| 1.1.2 Government effectiveness*.....                         | 10.5                                  | 136          |
| 1.1.3 Press freedom*.....                                    | 65.6                                  | 96           |
| 1.2 Regulatory environment .....                             | 2.2                                   | 142 ○        |
| 1.2.1 Regulatory quality* .....                              | 8.7                                   | 140 ○        |
| 1.2.2 Rule of law*.....                                      | 0.0                                   | 143 ○        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....        | 82.3                                  | 139 ○        |
| 1.3 Business environment.....                                | 21.9                                  | 143 ○        |
| 1.3.1 Ease of starting a business*.....                      | 45.7                                  | 141 ○        |
| 1.3.2 Ease of resolving insolvency*.....                     | 6.9                                   | 139 ○        |
| 1.3.3 Ease of paying taxes*.....                             | 13.1                                  | 141 ○        |
| <b>2 Human capital &amp; research.....</b>                   | <b>31.2</b>                           | <b>60</b>    |
| 2.1 Education .....  | 40.5                                  | 83           |
| 2.1.1 Expenditure on education, % GDP.....                   | 6.9                                   | 14 ●         |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....     | 16.6                                  | 74           |
| 2.1.3 School life expectancy, years.....                     | 14.2                                  | 53 ●         |
| 2.1.4 PISA scales in reading, maths, & science.....          | 413.4                                 | 50           |
| 2.1.5 Pupil-teacher ratio, secondary .....                   | n/a                                   | n/a          |
| 2.2 Tertiary education.....                                  | 39.7                                  | 47 ●         |
| 2.2.1 Tertiary enrolment, % gross.....                       | 77.9                                  | 12 ●         |
| 2.2.2 Graduates in science & engineering, % .....            | n/a                                   | n/a          |
| 2.2.3 Tertiary inbound mobility, %.....                      | 0.1                                   | 110 ○        |
| 2.3 Research & development (R&D).....                        | 13.5                                  | 60           |
| 2.3.1 Researchers, headcounts/mn pop.....                    | 342.4                                 | 78           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                   | n/a                                   | n/a          |
| 2.3.3 QS university ranking, average score top 3*.....       | 23.9                                  | 47 ●         |
| <b>3 Infrastructure.....</b>                                 | <b>26.0</b>                           | <b>112</b>   |
| 3.1 Information & communication technologies (ICTs).....     | 34.0                                  | 79           |
| 3.1.1 ICT access*.....                                       | 41.3                                  | 79           |
| 3.1.2 ICT use* .....   | 20.0                                  | 81           |
| 3.1.3 Government's online service*.....                      | 48.4                                  | 74           |
| 3.1.4 E-participation*.....                                  | 26.3                                  | 56 ●         |
| 3.2 General infrastructure.....                              | 29.7                                  | 89           |
| 3.2.1 Electricity output, kWh/cap.....                       | 4,168.7                               | 52           |
| 3.2.2 Logistics performance*.....                            | 34.9                                  | 107          |
| 3.2.3 Gross capital formation, % GDP.....                    | 24.0                                  | 63           |
| 3.3 Ecological sustainability.....                           | 14.3                                  | 142 ○        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 4.7                                   | 87           |
| 3.3.2 Environmental performance*.....                        | n/a                                   | n/a          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.2                                   | 107          |
| <b>4 Market sophistication .....</b>                         | <b>29.6</b>                           | <b>143</b> ○ |
| 4.1 Credit.....  | 17.1                                  | 131          |
| 4.1.1 Ease of getting credit*.....                           | 43.8                                  | 112          |
| 4.1.2 Domestic credit to private sector, % GDP.....          | 25.3                                  | 108          |
| 4.1.3 Microfinance gross loans, % GDP.....                   | 0.0                                   | 78           |

|   |      |       |
|---|------|-------|
| 4.2 Investment .....                                      | 12.6 | 143 ○ |
| 4.2.1 Ease of protecting investors*.....                  | 23.3 | 142 ○ |
| 4.2.2 Market capitalization, % GDP.....                   | 6.6  | 97    |
| 4.2.3 Total value of stocks traded, % GDP.....            | 0.0  | 107 ○ |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a   |
| 4.3 Trade & competition .....                             | 59.0 | 132   |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 8.6  | 119   |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.1  | 31 ●  |
| 4.3.3 Intensity of local competition†.....                | 34.0 | 135 ○ |

## 5 Business sophistication.....23.7 121

|   |      |      |
|---|------|------|
| 5.1 Knowledge workers.....                                      | 38.2 | 76   |
| 5.1.1 Knowledge-intensive employment, %.....                    | 18.6 | 78   |
| 5.1.2 Firms offering formal training, % firms.....              | 39.0 | 43 ● |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a  | n/a  |
| 5.1.4 GERD performed by business, %.....                        | n/a  | n/a  |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 48.2 | 77   |
| 5.2 Innovation linkages .....                                   | 19.9 | 129  |
| 5.2.1 University/industry research collaboration†.....          | 39.7 | 79   |
| 5.2.2 State of cluster development† .....                       | 27.7 | 132  |
| 5.2.3 GERD financed by abroad, %.....                           | n/a  | n/a  |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0  | 100  |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | 0.0  | 91   |
| 5.3 Knowledge absorption.....                                   | 13.1 | 131  |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.5  | 56   |
| 5.3.2 High-tech imports less re-imports, %.....                 | n/a  | n/a  |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.5  | 91   |
| 5.3.4 FDI net inflows, % GDP.....                               | 0.6  | 124  |

## 6 Knowledge & technology outputs.....26.6 74

|   |       |      |
|---|-------|------|
| 6.1 Knowledge creation.....                                     | 6.5   | 98   |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.1   | 104  |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a   | n/a  |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a   | n/a  |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 2.3   | 129  |
| 6.1.5 Citable documents H index.....                            | 130.0 | 50 ● |
| 6.2 Knowledge impact.....                                       | 39.6  | 67   |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.7   | 22 ● |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a   | n/a  |
| 6.2.3 Computer software spending, % GDP.....                    | 0.2   | 69   |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.6   | 113  |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a   | n/a  |
| 6.3 Knowledge diffusion.....                                    | 33.5  | 55 ● |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | n/a   | n/a  |
| 6.3.2 High-tech exports less re-exports, %.....                 | n/a   | n/a  |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.2   | 125  |
| 6.3.4 FDI net outflows, % GDP.....                              | 0.4   | 69   |

## 7 Creative outputs.....23.4 108

|  |         |      |
|--|---------|------|
| 7.1 Intangible assets.....                                     | 32.3    | 124  |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 29.9    | 73   |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a     | n/a  |
| 7.1.3 ICTs & business model creation†.....                     | 42.0    | 122  |
| 7.1.4 ICTs & organizational model creation†.....               | 43.3    | 107  |
| 7.2 Creative goods & services.....                             | 3.9     | 115  |
| 7.2.1 Cultural & creative services exports, % total trade..... | 0.0     | 89   |
| 7.2.2 National feature films/mn pop. 15–69.....                | 0.8     | 78   |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | 0.2     | 42   |
| 7.2.4 Printing & publishing manufactures, %.....               | n/a     | n/a  |
| 7.2.5 Creative goods exports, % total trade.....               | n/a     | n/a  |
| 7.3 Online creativity.....                                     | 25.2    | 60   |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 2.3     | 85   |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 34.5    | 51 ● |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 2,381.6 | 75   |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | 59.9    | 51   |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Key indicators

|                             |                             |
|-----------------------------|-----------------------------|
| Population (millions) ..... | 88.8                        |
| GDP (US\$ billions) .....   | 170.6                       |
| GDP per capita, PPP\$ ..... | 4,011.5                     |
| Income group.....           | Lower-middle income         |
| Region.....                 | South East Asia and Oceania |

|   | Score (0–100)<br>or value (hard data) | Rank       |
|---|---------------------------------------|------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>34.9</b>                           | <b>71</b>  |
| Innovation Output Sub-Index .....                             | 34.0                                  | 47         |
| Innovation Input Sub-Index.....                               | 35.8                                  | 100        |
| Innovation Efficiency Ratio.....                              | 1.0                                   | 5 ●        |
| Global Innovation Index 2013 (out of 142) .....               | 32.0                                  | 76         |
| <b>1 Institutions.....</b>                                    | <b>46.6</b>                           | <b>121</b> |
| 1.1 Political environment.....                                | 44.4                                  | 113        |
| 1.1.1 Political stability*.....                               | 71.8                                  | 56         |
| 1.1.2 Government effectiveness*.....                          | 33.1                                  | 86         |
| 1.1.3 Press freedom*.....                                     | 28.2                                  | 140 ○      |
| 1.2 Regulatory environment .....                              | 49.2                                  | 118        |
| 1.2.1 Regulatory quality* .....                               | 31.0                                  | 117        |
| 1.2.2 Rule of law*.....                                       | 32.5                                  | 91         |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 24.6                                  | 111        |
| 1.3 Business environment.....                                 | 46.2                                  | 129 ○      |
| 1.3.1 Ease of starting a business*.....                       | 75.7                                  | 104        |
| 1.3.2 Ease of resolving insolvency*.....                      | 17.2                                  | 127        |
| 1.3.3 Ease of paying taxes*.....                              | 45.7                                  | 125        |
| <b>2 Human capital &amp; research.....</b>                    | <b>24.2</b>                           | <b>89</b>  |
| 2.1 Education .....   | 45.1                                  | 62 ●       |
| 2.1.1 Expenditure on education, % GDP.....                    | 6.3                                   | 21 ●       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a        |
| 2.1.3 School life expectancy, years.....                      | n/a                                   | n/a        |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a        |
| 2.2 Tertiary education.....                                   | 27.5                                  | 83         |
| 2.2.1 Tertiary enrolment, % gross.....                        | 24.6                                  | 84         |
| 2.2.2 Graduates in science & engineering, % .....             | 24.0                                  | 31         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.2                                   | 102 ○      |
| 2.3 Research & development (R&D).....                         | 0.0                                   | 131 ○      |
| 2.3.1 Researchers, headcounts/mn pop.....                     | n/a                                   | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a        |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○       |
| <b>3 Infrastructure.....</b>                                  | <b>28.6</b>                           | <b>99</b>  |
| 3.1 Information & communication technologies (ICTs).....      | 28.9                                  | 95         |
| 3.1.1 ICT access*.....  | 40.4                                  | 81         |
| 3.1.2 ICT use* .....  | 22.2                                  | 78         |
| 3.1.3 Government's online service*.....                       | 42.5                                  | 90         |
| 3.1.4 E-participation*.....                                   | 10.5                                  | 94         |
| 3.2 General infrastructure.....                               | 31.1                                  | 79         |
| 3.2.1 Electricity output, kWh/cap.....                        | 1,129.1                               | 91         |
| 3.2.2 Logistics performance* .....                            | 55.2                                  | 53         |
| 3.2.3 Gross capital formation, % GDP.....                     | 24.0                                  | 62         |
| 3.3 Ecological sustainability.....                            | 25.9                                  | 112        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 4.3                                   | 94         |
| 3.3.2 Environmental performance*.....                         | 38.2                                  | 114        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 2.3                                   | 41         |
| <b>4 Market sophistication .....</b>                          | <b>45.0</b>                           | <b>92</b>  |
| 4.1 Credit.....   | 52.0                                  | 31 ●       |
| 4.1.1 Ease of getting credit*.....                            | 75.0                                  | 40         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 104.3                                 | 28 ●       |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 3.8                                   | 14 ●       |

|   |             |           |
|---|-------------|-----------|
| 4.2 Investment .....  | 16.5        | 141 ○     |
| 4.2.1 Ease of protecting investors*.....                        | 33.3        | 125 ○     |
| 4.2.2 Market capitalization, % GDP.....                         | 23.2        | 64        |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 2.4         | 60        |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | 0.0         | 71 ○      |
| 4.3 Trade & competition .....                                   | 66.6        | 122       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 5.7         | 90        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 5.1         | 132 ○     |
| 4.3.3 Intensity of local competition†.....                      | 70.2        | 48        |
| <b>5 Business sophistication .....</b>                          | <b>34.4</b> | <b>59</b> |
| 5.1 Knowledge workers.....                                      | 32.9        | 89        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 7.4         | 100 ○     |
| 5.1.2 Firms offering formal training, % firms.....              | 43.6        | 38        |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a       |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 51.6        | 74        |
| 5.2 Innovation linkages .....                                   | 29.5        | 80        |
| 5.2.1 University/industry research collaboration†.....          | 39.0        | 83        |
| 5.2.2 State of cluster development† .....                       | 48.0        | 64        |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a       |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.0         | 58        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 97        |
| 5.3 Knowledge absorption.....                                   | 40.7        | 14 ●      |
| 5.3.1 Royalty & license fees payments, % total trade.....       | n/a         | n/a       |
| 5.3.2 High-tech imports less re-imports, %.....                 | 18.9        | 7 ●       |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.0         | 137 ○     |
| 5.3.4 FDI net inflows, % GDP.....                               | 6.0         | 32 ●      |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>32.2</b> | <b>49</b> |
| 6.1 Knowledge creation.....                                     | 7.3         | 94        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 1.1         | 64        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.0         | 96        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.6         | 38        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 5.8         | 102       |
| 6.1.5 Citable documents H index.....                            | 107.0       | 59        |
| 6.2 Knowledge impact.....                                       | 48.4        | 33 ●      |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.5         | 27 ●      |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a       |
| 6.2.3 Computer software spending, % GDP.....                    | 0.3         | 42        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 18.3        | 23 ●      |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | 26.2        | 41        |
| 6.3 Knowledge diffusion.....                                    | 40.9        | 30 ●      |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a       |
| 6.3.2 High-tech exports less re-exports, %.....                 | 17.8        | 6 ●       |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.1         | 131 ○     |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.8         | 52        |
| <b>7 Creative outputs .....</b>                                 | <b>35.8</b> | <b>58</b> |
| 7.1 Intangible assets.....                                      | 46.4        | 57        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 104.4       | 14 ●      |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | 0.2         | 54        |
| 7.1.3 ICTs & business model creation†.....                      | 64.0        | 38        |
| 7.1.4 ICTs & organizational model creation†.....                | 56.0        | 57        |
| 7.2 Creative goods & services.....                              | 26.1        | 46        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | 1.2         | 67        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | 0.0         | 57 ○      |
| 7.2.4 Printing & publishing manufactures, %.....                | 0.0         | 61        |
| 7.2.5 Creative goods exports, % total trade.....                | 4.1         | 15 ●      |
| 7.3 Online creativity .....                                     | 24.4        | 61        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 2.1         | 88        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 27.6        | 63        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 1,142.9     | 93        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | 65.8        | 47        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                                  |
|-----------------------------|----------------------------------|
| Population (millions) ..... | 23.9                             |
| GDP (US\$ billions) .....   | 39.2                             |
| GDP per capita, PPP\$ ..... | 2,316.3                          |
| Income group .....          | Lower-middle income              |
| Region .....                | Northern Africa and Western Asia |

|  | Score (0–100)<br>or value (hard data) | Rank         |
|--|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b> | <b>19.5</b>                           | <b>141</b> ○ |
| Innovation Output Sub-Index .....                | 14.7                                  | 139          |
| Innovation Input Sub-Index .....                 | 24.4                                  | 141 ○        |
| Innovation Efficiency Ratio .....                | 0.6                                   | 111          |
| Global Innovation Index 2013 (out of 142) .....  | 19.3                                  | 142          |

|   |             |            |
|---|-------------|------------|
| <b>1 Institutions.....</b>                            | <b>36.6</b> | <b>138</b> |
| 1.1 Political environment.....                        | 14.6        | 142 ○      |
| 1.1.1 Political stability*.....                       | 6.1         | 142 ○      |
| 1.1.2 Government effectiveness*.....                  | 6.8         | 139        |
| 1.1.3 Press freedom*.....                             | 30.8        | 138        |
| 1.2 Regulatory environment .....                      | 41.1        | 128        |
| 1.2.1 Regulatory quality* .....                       | 30.6        | 118        |
| 1.2.2 Rule of law*.....                               | 11.6        | 137        |
| 1.2.3 Cost of redundancy dismissal, salary weeks..... | 27.4        | 120        |
| 1.3 Business environment.....                         | 54.1        | 103        |
| 1.3.1 Ease of starting a business*.....               | 74.5        | 105        |
| 1.3.2 Ease of resolving insolvency*.....              | 25.8        | 110        |
| 1.3.3 Ease of paying taxes*.....                      | 62.0        | 97         |

|  |             |            |
|--|-------------|------------|
| <b>2 Human capital &amp; research.....</b>               | <b>15.5</b> | <b>120</b> |
| 2.1 Education .....                                      | 30.9        | 114        |
| 2.1.1 Expenditure on education, % GDP .....              | 5.2         | 54 ●       |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap..... | 11.2        | 93         |
| 2.1.3 School life expectancy, years.....                 | 9.2         | 118        |
| 2.1.4 PISA scales in reading, maths, & science.....      | n/a         | n/a        |
| 2.1.5 Pupil-teacher ratio, secondary .....               | 16.1        | 65 ●       |
| 2.2 Tertiary education.....                              | 15.6        | 109        |
| 2.2.1 Tertiary enrolment, % gross.....                   | 10.3        | 109        |
| 2.2.2 Graduates in science & engineering, % .....        | n/a         | n/a        |
| 2.2.3 Tertiary inbound mobility, %.....                  | 4.3         | 37 ●       |
| 2.3 Research & development (R&D).....                    | 0.0         | 131 ○      |
| 2.3.1 Researchers, headcounts/mn pop.....                | n/a         | n/a        |
| 2.3.2 Gross expenditure on R&D, % GDP.....               | n/a         | n/a        |
| 2.3.3 QS university ranking, average score top 3*.....   | 0.0         | 70 ○       |

|  |             |            |
|--|-------------|------------|
| <b>3 Infrastructure.....</b>                                 | <b>16.3</b> | <b>140</b> |
| 3.1 Information & communication technologies (ICTs).....     | 11.2        | 137        |
| 3.1.1 ICT access*.....                                       | 20.9        | 120        |
| 3.1.2 ICT use*.....  | 6.2         | 113        |
| 3.1.3 Government's online service*.....                      | 17.7        | 137        |
| 3.1.4 E-participation*.....                                  | 0.0         | 129 ○      |
| 3.2 General infrastructure.....                              | 13.0        | 140        |
| 3.2.1 Electricity output, kWh/cap.....                       | 250.2       | 112        |
| 3.2.2 Logistics performance*.....                            | 50.8        | 62 ●       |
| 3.2.3 Gross capital formation, % GDP.....                    | 8.9         | 142 ○      |
| 3.3 Ecological sustainability.....                           | 24.9        | 118        |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....      | 7.1         | 48 ●       |
| 3.3.2 Environmental performance*.....                        | 30.2        | 129        |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP..... | 0.0         | 128 ○      |

|   |             |            |
|---|-------------|------------|
| <b>4 Market sophistication.....</b>                 | <b>40.7</b> | <b>120</b> |
| 4.1 Credit.....                                     | 8.4         | 143 ○      |
| 4.1.1 Ease of getting credit*.....                  | 25.0        | 134 ○      |
| 4.1.2 Domestic credit to private sector, % GDP..... | 4.6         | 142 ○      |
| 4.1.3 Microfinance gross loans, % GDP.....          | 0.0         | 86         |

|   |      |      |
|---|------|------|
| 4.2 Investment .....                                      | 40.0 | 51 ● |
| 4.2.1 Ease of protecting investors*.....                  | 40.0 | 113  |
| 4.2.2 Market capitalization, % GDP.....                   | n/a  | n/a  |
| 4.2.3 Total value of stocks traded, % GDP.....            | n/a  | n/a  |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....             | n/a  | n/a  |
| 4.3 Trade & competition .....                             | 73.8 | 86 ● |
| 4.3.1 Applied tariff rate, weighted mean, %.....          | 3.8  | 68 ● |
| 4.3.2 Non-agricultural mkt access weighted tariff, %..... | 0.3  | 42 ● |
| 4.3.3 Intensity of local competition†.....                | 56.0 | 111  |

|   |             |              |
|---|-------------|--------------|
| <b>5 Business sophistication.....</b>                           | <b>12.7</b> | <b>141</b> ○ |
| 5.1 Knowledge workers.....                                      | 14.2        | 137          |
| 5.1.1 Knowledge-intensive employment, %.....                    | 17.0        | 82           |
| 5.1.2 Firms offering formal training, % firms.....              | 7.3         | 104          |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a          |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a          |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 4.6         | 133          |
| 5.2 Innovation linkages .....                                   | 20.4        | 125          |
| 5.2.1 University/industry research collaboration†.....          | 18.7        | 134 ○        |
| 5.2.2 State of cluster development†.....                        | 30.3        | 128          |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a          |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP.....             | 0.0         | 97           |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP.....     | n/a         | n/a          |
| 5.3 Knowledge absorption.....                                   | 3.4         | 142 ○        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.0         | 113          |
| 5.3.2 High-tech imports less re-imports, %.....                 | 2.5         | 124          |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.3         | 119          |
| 5.3.4 FDI net inflows, % GDP.....                               | -2.2        | 141 ○        |

|   |             |            |
|---|-------------|------------|
| <b>6 Knowledge &amp; technology outputs.....</b>                | <b>13.7</b> | <b>133</b> |
| 6.1 Knowledge creation.....                                     | 3.6         | 129        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.6         | 75         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | n/a         | n/a        |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 2.8         | 126        |
| 6.1.5 Citable documents H index.....                            | 37.0        | 127        |
| 6.2 Knowledge impact.....                                       | 18.5        | 119        |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -5.3        | 114        |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a        |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 0.4         | 133        |
| 6.2.5 High- & medium-high-tech manufactures, %.....             | 2.9         | 91         |
| 6.3 Knowledge diffusion.....                                    | 19.1        | 133        |
| 6.3.1 Royalty & license fees receipts, % total trade.....       | 0.4         | 26 ●       |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.0         | 122        |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 1.0         | 81 ●       |
| 6.3.4 FDI net outflows, % GDP.....                              | n/a         | n/a        |

|  |             |            |
|--|-------------|------------|
| <b>7 Creative outputs.....</b>                                 | <b>15.7</b> | <b>133</b> |
| 7.1 Intangible assets.....                                     | 25.5        | 134        |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....             | 39.2        | 65 ●       |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....          | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                     | 29.5        | 136 ○      |
| 7.1.4 ICTs & organizational model creation†.....               | 31.8        | 132        |
| 7.2 Creative goods & services.....                             | 2.1         | 124        |
| 7.2.1 Cultural & creative services exports, % total trade..... | n/a         | n/a        |
| 7.2.2 National feature films/mn pop. 15–69.....                | n/a         | n/a        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....            | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....               | 0.0         | 86         |
| 7.2.5 Creative goods exports, % total trade.....               | 0.0         | 126 ○      |
| 7.3 Online creativity.....                                     | 9.5         | 93         |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....      | 0.6         | 116        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                     | 0.9         | 130        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                          | 317.7       | 111        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                 | 36.2        | 59         |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

**Key indicators**

|                             |                     |
|-----------------------------|---------------------|
| Population (millions) ..... | 14.1                |
| GDP (US\$ billions) .....   | 22.4                |
| GDP per capita, PPP\$ ..... | 1,754.0             |
| Income group .....          | Lower-middle income |
| Region .....                | Sub-Saharan Africa  |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143).....</b>              | <b>25.8</b>                           | <b>121</b>   |
| Innovation Output Sub-Index .....                             | 22.8                                  | 105          |
| Innovation Input Sub-Index.....                               | 28.7                                  | 131          |
| Innovation Efficiency Ratio.....                              | 0.8                                   | 44 ●         |
| Global Innovation Index 2013 (out of 142) .....               | 26.8                                  | 118          |
| <b>1 Institutions.....</b>                                    | <b>50.7</b>                           | <b>107</b>   |
| 1.1 Political environment.....                                | 60.1                                  | 62           |
| 1.1.1 Political stability*.....                               | 80.7                                  | 41 ●         |
| 1.1.2 Government effectiveness*.....                          | 27.5                                  | 98           |
| 1.1.3 Press freedom*.....                                     | 72.1                                  | 59           |
| 1.2 Regulatory environment .....                              | 25.5                                  | 138 ○        |
| 1.2.1 Regulatory quality* .....                               | 37.6                                  | 105          |
| 1.2.2 Rule of law*.....                                       | 35.3                                  | 85           |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 50.6                                  | 138 ○        |
| 1.3 Business environment.....                                 | 66.6                                  | 64           |
| 1.3.1 Ease of starting a business*.....                       | 88.3                                  | 51 ●         |
| 1.3.2 Ease of resolving insolvency*.....                      | 39.3                                  | 65           |
| 1.3.3 Ease of paying taxes*.....                              | 72.1                                  | 57           |
| <b>2 Human capital &amp; research.....</b>                    | <b>3.6</b>                            | <b>143 ○</b> |
| 2.1 Education .....   | 4.6                                   | 142 ○        |
| 2.1.1 Expenditure on education, % GDP .....                   | 1.3                                   | 131 ○        |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a          |
| 2.1.3 School life expectancy, years.....                      | n/a                                   | n/a          |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a          |
| 2.2 Tertiary education.....                                   | n/a                                   | n/a          |
| 2.2.1 Tertiary enrolment, % gross.....                        | n/a                                   | n/a          |
| 2.2.2 Graduates in science & engineering, % .....             | n/a                                   | n/a          |
| 2.2.3 Tertiary inbound mobility, %.....                       | n/a                                   | n/a          |
| 2.3 Research & development (R&D).....                         | 2.6                                   | 99           |
| 2.3.1 Researchers, headcounts/mn pop. ....                    | 49.1                                  | 113 ○        |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | 0.3                                   | 73           |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○         |
| <b>3 Infrastructure.....</b>                                  | <b>20.4</b>                           | <b>130</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 15.0                                  | 129          |
| 3.1.1 ICT access*.....  | 21.2                                  | 119          |
| 3.1.2 ICT use* .....  | 4.8                                   | 117          |
| 3.1.3 Government's online service*.....                       | 31.4                                  | 117          |
| 3.1.4 E-participation*.....                                   | 2.6                                   | 116          |
| 3.2 General infrastructure.....                               | 25.3                                  | 109          |
| 3.2.1 Electricity output, kWh/cap.....                        | 849.7                                 | 94           |
| 3.2.2 Logistics performance* .....                            | 26.6                                  | 127 ○        |
| 3.2.3 Gross capital formation, % GDP.....                     | 25.7                                  | 44 ●         |
| 3.3 Ecological sustainability.....                            | 21.0                                  | 128          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 2.3                                   | 118 ○        |
| 3.3.2 Environmental performance*.....                         | 41.7                                  | 104          |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 0.5                                   | 82           |
| <b>4 Market sophistication .....</b>                          | <b>47.0</b>                           | <b>80</b>    |
| 4.1 Credit.....   | 30.4                                  | 91           |
| 4.1.1 Ease of getting credit*.....                            | 87.5                                  | 13 ●         |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 14.8                                  | 133 ○        |
| 4.1.3 Microfinance gross loans, % GDP .....                   | 0.0                                   | 80           |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 29.0        | 102        |
| 4.2.1 Ease of protecting investors*.....                        | 53.3        | 66         |
| 4.2.2 Market capitalization, % GDP.....                         | 14.5        | 81         |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 0.9         | 68         |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 81.6        | 22 ●       |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | 2.7         | 55         |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.5         | 51 ●       |
| 4.3.3 Intensity of local competition†.....                      | 70.5        | 46 ●       |
| <b>5 Business sophistication .....</b>                          | <b>22.0</b> | <b>127</b> |
| 5.1 Knowledge workers.....                                      | 15.4        | 134 ○      |
| 5.1.1 Knowledge-intensive employment, %.....                    | 7.3         | 103 ○      |
| 5.1.2 Firms offering formal training, % firms.....              | 31.1        | 61         |
| 5.1.3 GERD performed by business, % GDP.....                    | 0.0         | 80         |
| 5.1.4 GERD performed by business, %.....                        | 2.0         | 81 ○       |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 8.4         | 125        |
| 5.2 Innovation linkages .....                                   | 29.8        | 78         |
| 5.2.1 University/industry research collaboration†.....          | 42.5        | 68         |
| 5.2.2 State of cluster development† .....                       | 51.5        | 45 ●       |
| 5.2.3 GERD financed by abroad, %.....                           | 1.6         | 75         |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.1         | 28 ●       |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | n/a         | n/a        |
| 5.3 Knowledge absorption.....                                   | 20.7        | 98         |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.1         | 110        |
| 5.3.2 High-tech imports less re-imports, %.....                 | 4.3         | 109        |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.2         | 125        |
| 5.3.4 FDI net inflows, % GDP.....                               | 10.3        | 13 ●       |
| <b>6 Knowledge &amp; technology outputs .....</b>               | <b>24.3</b> | <b>86</b>  |
| 6.1 Knowledge creation.....                                     | 6.0         | 104        |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | 0.3         | 85         |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.1         | 92         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | n/a         | n/a        |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 9.3         | 80         |
| 6.1.5 Citable documents H index.....                            | 68.0        | 90         |
| 6.2 Knowledge impact.....                                       | 38.7        | 69         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | 3.3         | 32 ●       |
| 6.2.2 New businesses/th pop. 15–64.....                         | 1.4         | 51         |
| 6.2.3 Computer software spending, % GDP.....                    | n/a         | n/a        |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 1.6         | 111        |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a        |
| 6.3 Knowledge diffusion.....                                    | 28.2        | 87         |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | n/a         | n/a        |
| 6.3.2 High-tech exports less re-exports, %.....                 | 2.7         | 47         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.3         | 116        |
| 6.3.4 FDI net outflows, % GDP .....                             | 0.9         | 50         |
| <b>7 Creative outputs .....</b>                                 | <b>21.2</b> | <b>118</b> |
| 7.1 Intangible assets.....                                      | 39.1        | 96         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | 26.7        | 79         |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                      | 56.0        | 68         |
| 7.1.4 ICTs & organizational model creation†.....                | 51.0        | 74         |
| 7.2 Creative goods & services.....                              | 6.6         | 107        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | 0.2         | 38 ●       |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.0         | 106        |
| 7.3 Online creativity .....                                     | 0.1         | 140 ○      |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.2         | 131        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 0.1         | 140 ○      |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 74.3        | 126        |
| 7.3.4 Video uploads on YouTube/pop. 15–69 .....                 | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

## Zimbabwe

## Key indicators

|                             |                    |
|-----------------------------|--------------------|
| Population (millions) ..... | 13.7               |
| GDP (US\$ billions) .....   | 13.0               |
| GDP per capita, PPP\$ ..... | 787.7              |
| Income group .....          | Low income         |
| Region .....                | Sub-Saharan Africa |

|   | Score (0–100)<br>or value (hard data) | Rank         |
|---|---------------------------------------|--------------|
| <b>Global Innovation Index (out of 143)</b> .....             | <b>24.3</b>                           | <b>130</b>   |
| Innovation Output Sub-Index .....                             | 21.5                                  | 111          |
| Innovation Input Sub-Index .....                              | 27.2                                  | 136          |
| Innovation Efficiency Ratio .....                             | 0.8                                   | 48 ●         |
| Global Innovation Index 2013 (out of 142) .....               | 24.0                                  | 132          |
| <b>1 Institutions</b> .....                                   | <b>26.7</b>                           | <b>142</b> ○ |
| 1.1 Political environment.....                                | 39.0                                  | 129          |
| 1.1.1 Political stability*.....                               | 46.4                                  | 111          |
| 1.1.2 Government effectiveness*.....                          | 8.6                                   | 137 ○        |
| 1.1.3 Press freedom*.....                                     | 61.9                                  | 108          |
| 1.2 Regulatory environment .....                              | 0.7                                   | 143 ○        |
| 1.2.1 Regulatory quality* .....                               | 1.1                                   | 142 ○        |
| 1.2.2 Rule of law*.....                                       | 1.9                                   | 142 ○        |
| 1.2.3 Cost of redundancy dismissal, salary weeks.....         | 82.3                                  | 139 ○        |
| 1.3 Business environment.....                                 | 40.4                                  | 134          |
| 1.3.1 Ease of starting a business*.....                       | 49.2                                  | 140 ○        |
| 1.3.2 Ease of resolving insolvency*.....                      | 13.8                                  | 133          |
| 1.3.3 Ease of paying taxes*.....                              | 58.1                                  | 106          |
| <b>2 Human capital &amp; research</b> .....                   | <b>12.4</b>                           | <b>133</b>   |
| 2.1 Education .....   | 14.1                                  | 138 ○        |
| 2.1.1 Expenditure on education, % GDP .....                   | 2.5                                   | 120          |
| 2.1.2 Gov't expenditure/pupil, secondary, % GDP/cap.....      | n/a                                   | n/a          |
| 2.1.3 School life expectancy, years.....                      | n/a                                   | n/a          |
| 2.1.4 PISA scales in reading, maths, & science.....           | n/a                                   | n/a          |
| 2.1.5 Pupil-teacher ratio, secondary .....                    | n/a                                   | n/a          |
| 2.2 Tertiary education.....                                   | 22.2                                  | 95           |
| 2.2.1 Tertiary enrolment, % gross.....                        | 5.9                                   | 123          |
| 2.2.2 Graduates in science & engineering, % .....             | 23.3                                  | 33 ●         |
| 2.2.3 Tertiary inbound mobility, %.....                       | 0.4                                   | 97           |
| 2.3 Research & development (R&D).....                         | 0.9                                   | 121          |
| 2.3.1 Researchers, headcounts/mn pop.....                     | 199.6                                 | 86           |
| 2.3.2 Gross expenditure on R&D, % GDP.....                    | n/a                                   | n/a          |
| 2.3.3 QS university ranking, average score top 3*.....        | 0.0                                   | 70 ○         |
| <b>3 Infrastructure</b> .....                                 | <b>22.8</b>                           | <b>121</b>   |
| 3.1 Information & communication technologies (ICTs).....      | 18.5                                  | 115          |
| 3.1.1 ICT access*.....  | 25.4                                  | 110          |
| 3.1.2 ICT use*.....   | 15.9                                  | 93           |
| 3.1.3 Government's online service*.....                       | 30.1                                  | 120          |
| 3.1.4 E-participation*.....                                   | 2.6                                   | 116          |
| 3.2 General infrastructure.....                               | 28.1                                  | 96           |
| 3.2.1 Electricity output, kWh/cap.....                        | 700.0                                 | 101          |
| 3.2.2 Logistics performance*.....                             | 37.3                                  | 101          |
| 3.2.3 Gross capital formation, % GDP.....                     | 25.9                                  | 43 ●         |
| 3.3 Ecological sustainability.....                            | 21.7                                  | 126          |
| 3.3.1 GDP/unit of energy use, 2005 PPP\$/kg oil eq.....       | 0.4                                   | 124 ○        |
| 3.3.2 Environmental performance*.....                         | 49.5                                  | 85           |
| 3.3.3 ISO 14001 environmental certificates/bn PPP\$ GDP ..... | 1.4                                   | 54 ●         |
| <b>4 Market sophistication</b> .....                          | <b>46.4</b>                           | <b>83</b>    |
| 4.1 Credit.....   | 21.9                                  | 122          |
| 4.1.1 Ease of getting credit*.....                            | 50.0                                  | 96           |
| 4.1.2 Domestic credit to private sector, % GDP.....           | 44.5                                  | 76           |
| 4.1.3 Microfinance gross loans, % GDP.....                    | 0.2                                   | 58           |

|   |             |            |
|---|-------------|------------|
| 4.2 Investment .....  | 41.3        | 48 ●       |
| 4.2.1 Ease of protecting investors*.....                        | 43.3        | 105        |
| 4.2.2 Market capitalization, % GDP.....                         | 109.3       | 12 ●       |
| 4.2.3 Total value of stocks traded, % GDP.....                  | 14.9        | 31 ●       |
| 4.2.4 Venture capital deals/tr PPP\$ GDP.....                   | n/a         | n/a        |
| 4.3 Trade & competition .....                                   | 75.8        | 66         |
| 4.3.1 Applied tariff rate, weighted mean, %.....                | n/a         | n/a        |
| 4.3.2 Non-agricultural mkt access weighted tariff, %.....       | 0.1         | 27 ●       |
| 4.3.3 Intensity of local competition†.....                      | 64.2        | 78         |
| <b>5 Business sophistication</b> .....                          | <b>27.7</b> | <b>97</b>  |
| 5.1 Knowledge workers.....                                      | 25.2        | 109        |
| 5.1.1 Knowledge-intensive employment, %.....                    | 6.6         | 105        |
| 5.1.2 Firms offering formal training, % firms.....              | 33.0        | 54         |
| 5.1.3 GERD performed by business, % GDP.....                    | n/a         | n/a        |
| 5.1.4 GERD performed by business, %.....                        | n/a         | n/a        |
| 5.1.5 GMAT test takers/mn pop. 20–34.....                       | 33.3        | 91         |
| 5.2 Innovation linkages .....                                   | 40.0        | 42 ●       |
| 5.2.1 University/industry research collaboration†.....          | 34.7        | 108        |
| 5.2.2 State of cluster development†.....                        | 32.7        | 122        |
| 5.2.3 GERD financed by abroad, %.....                           | n/a         | n/a        |
| 5.2.4 JV–strategic alliance deals/tr PPP\$ GDP .....            | 0.2         | 1 ●        |
| 5.2.5 Patent families filed in 3+ offices/bn PPP\$ GDP .....    | 0.0         | 106 ○      |
| 5.3 Knowledge absorption.....                                   | 17.9        | 112        |
| 5.3.1 Royalty & license fees payments, % total trade.....       | 0.3         | 73         |
| 5.3.2 High-tech imports less re-imports, %.....                 | 7.1         | 63         |
| 5.3.3 Comm., computer & info. services imp., % total trade..... | 0.2         | 126        |
| 5.3.4 FDI net inflows, % GDP.....                               | 4.0         | 54 ●       |
| <b>6 Knowledge &amp; technology outputs</b> .....               | <b>17.4</b> | <b>122</b> |
| 6.1 Knowledge creation.....                                     | 14.5        | 65         |
| 6.1.1 Domestic resident patent app/tr PPP\$ GDP.....            | n/a         | n/a        |
| 6.1.2 PCT resident patent app/tr PPP\$ GDP.....                 | 0.3         | 53         |
| 6.1.3 Domestic res utility model app/tr PPP\$ GDP.....          | 0.2         | 48         |
| 6.1.4 Scientific & technical articles/bn PPP\$ GDP.....         | 35.5        | 24 ●       |
| 6.1.5 Citable documents H index.....                            | 72.0        | 87         |
| 6.2 Knowledge impact.....                                       | 35.8        | 78         |
| 6.2.1 Growth rate of PPP\$ GDP/worker, %.....                   | -2.0        | 111 ○      |
| 6.2.2 New businesses/th pop. 15–64.....                         | n/a         | n/a        |
| 6.2.3 Computer software spending, % GDP.....                    | 0.5         | 20 ●       |
| 6.2.4 ISO 9001 quality certificates/bn PPP\$ GDP.....           | 2.2         | 95         |
| 6.2.5 High- & medium-high-tech manufactures, % .....            | n/a         | n/a        |
| 6.3 Knowledge diffusion.....                                    | 2.0         | 138 ○      |
| 6.3.1 Royalty & license fees receipts, % total trade .....      | 0.0         | 87         |
| 6.3.2 High-tech exports less re-exports, %.....                 | 0.4         | 87         |
| 6.3.3 Comm., computer & info. services exp., % total trade..... | 0.0         | 138 ○      |
| 6.3.4 FDI net outflows, % GDP.....                              | n/a         | n/a        |
| <b>7 Creative outputs</b> .....                                 | <b>25.5</b> | <b>101</b> |
| 7.1 Intangible assets.....                                      | 46.3        | 59         |
| 7.1.1 Domestic res trademark app/bn PPP\$ GDP.....              | n/a         | n/a        |
| 7.1.2 Madrid trademark app. holders/bn PPP\$ GDP.....           | n/a         | n/a        |
| 7.1.3 ICTs & business model creation†.....                      | 49.2        | 96         |
| 7.1.4 ICTs & organizational model creation†.....                | 43.3        | 107        |
| 7.2 Creative goods & services.....                              | 8.6         | 101        |
| 7.2.1 Cultural & creative services exports, % total trade.....  | n/a         | n/a        |
| 7.2.2 National feature films/mn pop. 15–69.....                 | n/a         | n/a        |
| 7.2.3 Global ent. & media output/th pop. 15–69.....             | n/a         | n/a        |
| 7.2.4 Printing & publishing manufactures, %.....                | n/a         | n/a        |
| 7.2.5 Creative goods exports, % total trade.....                | 0.3         | 74         |
| 7.3 Online creativity.....                                      | 0.8         | 128        |
| 7.3.1 Generic top-level domains (TLDs)/th pop. 15–69.....       | 0.5         | 118        |
| 7.3.2 Country-code TLDs/th pop. 15–69.....                      | 1.8         | 126        |
| 7.3.3 Wikipedia edits/pop. 15–69.....                           | 92.3        | 121        |
| 7.3.4 Video uploads on YouTube/pop. 15–69.....                  | n/a         | n/a        |

NOTE: ● indicates a strength; ○ a weakness; \* an index; † a survey question.

# Appendix II

Data Tables





# Data Tables

This appendix provides a table for each of the 81 indicators that make up the Global Innovation Index 2014 (GII).

## Structure

Each table is identified by indicator number, with the first digit representing the pillar, the second representing the sub-pillar, and the final digit representing the indicator within that particular sub-pillar. For example, Table 2.1.4 shows results for indicator 2.1.4, PISA scales in reading, maths, & science, which is the fourth indicator of sub-pillar 2.1, Education, within pillar 2, Human capital & research.

The sub-heading text provides a detailed description of each indicator, with information on the units of each variable, the scaling factor (if any), the question asked (for survey questions), and the most frequent year for which data were available.

For each indicator for each economy, the most recent value within the period 2004–13 was used. In instances where this base year does not correspond to the most frequent year reported in the sub-heading, the year of the value appears in parentheses after the economy name.

A total of 56 variables are hard data. A total of 20 variables are composite indicators and 5 are survey questions from the World Economic

Forum’s Executive Opinion Survey.

The source of each indicator is indicated at the bottom of the page; details for each can be found in Appendix III, Sources and Definitions.

the far right of each column, a solid circle indicates that an indicator is a strength for the country/economy in question, and a hollow circle indicates that it is a weakness (refer to Appendix I, Country/Economy Profiles, for details).

- Strengths (●) are all ranks of 1, as well as all scores with percent ranks greater than the 10th highest percent rank among the 81 indicators in a specific economy.
- Weaknesses (○) are all scores with percent ranks lower than the 10th smallest percent rank among the 81 indicators in a specific economy.

For three hard data series (7.3.1, 7.3.2, and 7.3.4), the raw data were provided under the condition that only the normalized scores be published and therefore the original value equals the normalized score. For indicators 1.1.3, 1.3.1, 1.3.2, 1.3.3, 2.3.3, 3.3.2, 4.1.1, and 4.2.1, the range for both measures is the same—(0–100)—and therefore both measures are also identical.

Details on the computation methodology can be found in Appendix IV, Technical Notes. See also Annex 2 in Chapter 1 for more information regarding the use of ‘n/a’ and zero in indicators 4.2.4, 5.2.4, 5.2.5, and 7.3.4.

**11.1 Political stability and absence of violence/terrorism**  
Political Stability and absence of violence/terrorism index | 2012

| Rank | Country/Economy | Score | Year | Rank | Country/Economy | Score | Year |
|------|-----------------|-------|------|------|-----------------|-------|------|
| 1    | Switzerland     | 1.45  | 2012 | 74   | Malawi          | 0.03  | 2012 |
| 2    | Denmark         | 1.41  | 2012 | 75   | Yemen           | 0.03  | 2012 |
| 3    | New Zealand     | 1.36  | 2012 | 76   | Yemen           | 0.03  | 2012 |
| 4    | Norway          | 1.34  | 2012 | 77   | Yemen           | 0.03  | 2012 |
| 5    | Sweden          | 1.34  | 2012 | 78   | Yemen           | 0.03  | 2012 |
| 6    | Netherlands     | 1.33  | 2012 | 79   | Yemen           | 0.03  | 2012 |
| 7    | Norway          | 1.31  | 2012 | 80   | Yemen           | 0.03  | 2012 |
| 8    | Denmark         | 1.31  | 2012 | 81   | Yemen           | 0.03  | 2012 |
| 9    | Denmark         | 1.31  | 2012 | 82   | Yemen           | 0.03  | 2012 |
| 10   | Netherlands     | 1.30  | 2012 | 83   | Yemen           | 0.03  | 2012 |
| 11   | Netherlands     | 1.29  | 2012 | 84   | Yemen           | 0.03  | 2012 |
| 12   | Denmark         | 1.28  | 2012 | 85   | Yemen           | 0.03  | 2012 |
| 13   | Netherlands     | 1.27  | 2012 | 86   | Yemen           | 0.03  | 2012 |
| 14   | Denmark         | 1.26  | 2012 | 87   | Yemen           | 0.03  | 2012 |
| 15   | Netherlands     | 1.26  | 2012 | 88   | Yemen           | 0.03  | 2012 |
| 16   | Denmark         | 1.24  | 2012 | 89   | Yemen           | 0.03  | 2012 |
| 17   | Netherlands     | 1.24  | 2012 | 90   | Yemen           | 0.03  | 2012 |
| 18   | Denmark         | 1.23  | 2012 | 91   | Yemen           | 0.03  | 2012 |
| 19   | Netherlands     | 1.23  | 2012 | 92   | Yemen           | 0.03  | 2012 |
| 20   | Denmark         | 1.22  | 2012 | 93   | Yemen           | 0.03  | 2012 |
| 21   | Netherlands     | 1.22  | 2012 | 94   | Yemen           | 0.03  | 2012 |
| 22   | Denmark         | 1.21  | 2012 | 95   | Yemen           | 0.03  | 2012 |
| 23   | Netherlands     | 1.21  | 2012 | 96   | Yemen           | 0.03  | 2012 |
| 24   | Denmark         | 1.20  | 2012 | 97   | Yemen           | 0.03  | 2012 |
| 25   | Netherlands     | 1.20  | 2012 | 98   | Yemen           | 0.03  | 2012 |
| 26   | Denmark         | 1.19  | 2012 | 99   | Yemen           | 0.03  | 2012 |
| 27   | Netherlands     | 1.19  | 2012 | 100  | Yemen           | 0.03  | 2012 |
| 28   | Denmark         | 1.18  | 2012 |      |                 |       |      |
| 29   | Netherlands     | 1.18  | 2012 |      |                 |       |      |
| 30   | Denmark         | 1.17  | 2012 |      |                 |       |      |
| 31   | Netherlands     | 1.17  | 2012 |      |                 |       |      |
| 32   | Denmark         | 1.16  | 2012 |      |                 |       |      |
| 33   | Netherlands     | 1.16  | 2012 |      |                 |       |      |
| 34   | Denmark         | 1.15  | 2012 |      |                 |       |      |
| 35   | Netherlands     | 1.15  | 2012 |      |                 |       |      |
| 36   | Denmark         | 1.14  | 2012 |      |                 |       |      |
| 37   | Netherlands     | 1.14  | 2012 |      |                 |       |      |
| 38   | Denmark         | 1.13  | 2012 |      |                 |       |      |
| 39   | Netherlands     | 1.13  | 2012 |      |                 |       |      |
| 40   | Denmark         | 1.12  | 2012 |      |                 |       |      |
| 41   | Netherlands     | 1.12  | 2012 |      |                 |       |      |
| 42   | Denmark         | 1.11  | 2012 |      |                 |       |      |
| 43   | Netherlands     | 1.11  | 2012 |      |                 |       |      |
| 44   | Denmark         | 1.10  | 2012 |      |                 |       |      |
| 45   | Netherlands     | 1.10  | 2012 |      |                 |       |      |
| 46   | Denmark         | 1.09  | 2012 |      |                 |       |      |
| 47   | Netherlands     | 1.09  | 2012 |      |                 |       |      |
| 48   | Denmark         | 1.08  | 2012 |      |                 |       |      |
| 49   | Netherlands     | 1.08  | 2012 |      |                 |       |      |
| 50   | Denmark         | 1.07  | 2012 |      |                 |       |      |
| 51   | Netherlands     | 1.07  | 2012 |      |                 |       |      |
| 52   | Denmark         | 1.06  | 2012 |      |                 |       |      |
| 53   | Netherlands     | 1.06  | 2012 |      |                 |       |      |
| 54   | Denmark         | 1.05  | 2012 |      |                 |       |      |
| 55   | Netherlands     | 1.05  | 2012 |      |                 |       |      |
| 56   | Denmark         | 1.04  | 2012 |      |                 |       |      |
| 57   | Netherlands     | 1.04  | 2012 |      |                 |       |      |
| 58   | Denmark         | 1.03  | 2012 |      |                 |       |      |
| 59   | Netherlands     | 1.03  | 2012 |      |                 |       |      |
| 60   | Denmark         | 1.02  | 2012 |      |                 |       |      |
| 61   | Netherlands     | 1.02  | 2012 |      |                 |       |      |
| 62   | Denmark         | 1.01  | 2012 |      |                 |       |      |
| 63   | Netherlands     | 1.01  | 2012 |      |                 |       |      |
| 64   | Denmark         | 1.00  | 2012 |      |                 |       |      |
| 65   | Netherlands     | 1.00  | 2012 |      |                 |       |      |
| 66   | Denmark         | 0.99  | 2012 |      |                 |       |      |
| 67   | Netherlands     | 0.99  | 2012 |      |                 |       |      |
| 68   | Denmark         | 0.98  | 2012 |      |                 |       |      |
| 69   | Netherlands     | 0.98  | 2012 |      |                 |       |      |
| 70   | Denmark         | 0.97  | 2012 |      |                 |       |      |
| 71   | Netherlands     | 0.97  | 2012 |      |                 |       |      |
| 72   | Denmark         | 0.96  | 2012 |      |                 |       |      |
| 73   | Netherlands     | 0.96  | 2012 |      |                 |       |      |
| 74   | Denmark         | 0.95  | 2012 |      |                 |       |      |
| 75   | Netherlands     | 0.95  | 2012 |      |                 |       |      |
| 76   | Denmark         | 0.94  | 2012 |      |                 |       |      |
| 77   | Netherlands     | 0.94  | 2012 |      |                 |       |      |
| 78   | Denmark         | 0.93  | 2012 |      |                 |       |      |
| 79   | Netherlands     | 0.93  | 2012 |      |                 |       |      |
| 80   | Denmark         | 0.92  | 2012 |      |                 |       |      |
| 81   | Netherlands     | 0.92  | 2012 |      |                 |       |      |

SOURCE: World Bank, World Governance Indicators, 2012 Update  
● Strengths (●) ○ Weaknesses (○)

## Explanation of scores

The tables list the economies by their rank order, with the best performers at the top. After the rank comes the country/economy name, the original value of the specific indicator for that country (in the units specified in the sub-heading), the normalized score in the 0–100 range, and the percentage of economies with scores that fall below the normalized score (i.e., percent ranks). To



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| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Switzerland              | 1.40  | 100.00        | 1.00         | ● | 74   | Malawi                     | -0.01 | 65.54         | 0.49         |   |
| 2    | Finland                  | 1.38  | 99.53         | 0.99         | ● | 75   | Spain                      | -0.01 | 65.40         | 0.48         | ○ |
| 3    | New Zealand              | 1.36  | 99.04         | 0.99         | ● | 76   | Fiji                       | -0.04 | 64.68         | 0.47         |   |
| 4    | Singapore                | 1.34  | 98.57         | 0.98         |   | 77   | Ukraine                    | -0.10 | 63.25         | 0.46         |   |
| 5    | Luxembourg               | 1.34  | 98.44         | 0.97         | ● | 78   | Senegal                    | -0.10 | 63.20         | 0.46         |   |
| 6    | Austria                  | 1.33  | 98.16         | 0.96         | ● | 79   | Cambodia                   | -0.14 | 62.36         | 0.45         |   |
| 7    | Norway                   | 1.31  | 97.74         | 0.96         |   | 80   | Panama                     | -0.15 | 61.94         | 0.44         |   |
| 8    | Iceland                  | 1.22  | 95.51         | 0.95         |   | 81   | Albania                    | -0.16 | 61.81         | 0.44         |   |
| 9    | Qatar                    | 1.21  | 95.37         | 0.94         | ● | 82   | Rwanda                     | -0.21 | 60.49         | 0.43         |   |
| 10   | Barbados                 | 1.20  | 94.96         | 0.94         | ● | 83   | Serbia                     | -0.22 | 60.18         | 0.42         |   |
| 11   | Netherlands              | 1.17  | 94.33         | 0.93         |   | 84   | Greece                     | -0.23 | 60.10         | 0.42         |   |
| 12   | Sweden                   | 1.16  | 94.15         | 0.92         |   | 85   | Nicaragua                  | -0.37 | 56.73         | 0.41         |   |
| 13   | Botswana                 | 1.11  | 92.75         | 0.92         | ● | 86   | Kazakhstan                 | -0.37 | 56.51         | 0.40         |   |
| 14   | Canada                   | 1.09  | 92.41         | 0.91         |   | 87   | Angola                     | -0.38 | 56.42         | 0.39         | ● |
| 15   | Slovakia                 | 1.06  | 91.67         | 0.90         | ● | 88   | Honduras                   | -0.40 | 55.88         | 0.39         |   |
| 16   | Czech Republic           | 1.04  | 91.18         | 0.89         |   | 89   | Swaziland                  | -0.40 | 55.83         | 0.38         |   |
| 17   | Malta                    | 1.04  | 91.12         | 0.89         |   | 90   | Togo                       | -0.42 | 55.42         | 0.37         |   |
| 18   | Poland                   | 1.03  | 90.92         | 0.88         | ● | 91   | TFYR of Macedonia          | -0.44 | 54.81         | 0.37         |   |
| 19   | Australia                | 1.00  | 90.08         | 0.87         |   | 92   | Saudi Arabia               | -0.46 | 54.49         | 0.36         |   |
| 20   | Hong Kong (China)        | 0.98  | 89.62         | 0.87         |   | 93   | Morocco                    | -0.46 | 54.42         | 0.35         |   |
| 21   | Mauritius                | 0.97  | 89.31         | 0.86         | ● | 94   | Guyana                     | -0.48 | 53.89         | 0.35         |   |
| 22   | Namibia                  | 0.94  | 88.79         | 0.85         | ● | 95   | Bolivia, Plurinational St. | -0.50 | 53.43         | 0.34         |   |
| 23   | Japan                    | 0.94  | 88.63         | 0.85         |   | 96   | Jordan                     | -0.52 | 53.02         | 0.33         |   |
| 24   | Ireland                  | 0.93  | 88.35         | 0.84         |   | 97   | Uzbekistan                 | -0.52 | 52.90         | 0.32         |   |
| 25   | Brunei Darussalam        | 0.92  | 88.17         | 0.83         | ● | 98   | Bosnia and Herzegovina     | -0.54 | 52.56         | 0.32         |   |
| 26   | Slovenia                 | 0.92  | 88.09         | 0.82         |   | 99   | China                      | -0.54 | 52.35         | 0.31         |   |
| 27   | Denmark                  | 0.90  | 87.84         | 0.82         |   | 100  | Madagascar                 | -0.57 | 51.79         | 0.30         |   |
| 28   | Belgium                  | 0.90  | 87.74         | 0.81         |   | 101  | Indonesia                  | -0.57 | 51.64         | 0.30         |   |
| 29   | United Arab Emirates     | 0.88  | 87.24         | 0.80         |   | 102  | Cameroon                   | -0.58 | 51.58         | 0.29         |   |
| 30   | Bhutan                   | 0.81  | 85.62         | 0.80         | ● | 103  | Ecuador                    | -0.60 | 50.94         | 0.28         |   |
| 31   | Cabo Verde               | 0.78  | 84.87         | 0.79         | ● | 104  | Burkina Faso               | -0.62 | 50.57         | 0.27         |   |
| 32   | Germany                  | 0.77  | 84.64         | 0.78         |   | 105  | Guatemala                  | -0.65 | 49.72         | 0.27         |   |
| 33   | Seychelles               | 0.75  | 84.17         | 0.77         | ● | 106  | Georgia                    | -0.67 | 49.22         | 0.26         |   |
| 34   | Lithuania                | 0.75  | 84.01         | 0.77         |   | 107  | Mexico                     | -0.67 | 49.17         | 0.25         |   |
| 35   | Portugal                 | 0.75  | 84.01         | 0.76         |   | 108  | Azerbaijan                 | -0.69 | 48.85         | 0.25         |   |
| 36   | Uruguay                  | 0.71  | 83.10         | 0.75         | ● | 109  | Sri Lanka                  | -0.71 | 48.39         | 0.24         |   |
| 37   | Hungary                  | 0.67  | 82.03         | 0.75         |   | 110  | Tunisia                    | -0.73 | 47.90         | 0.23         |   |
| 38   | United States of America | 0.63  | 81.21         | 0.74         |   | 111  | Zimbabwe                   | -0.79 | 46.45         | 0.23         |   |
| 39   | Cyprus                   | 0.63  | 81.13         | 0.73         |   | 112  | Russian Federation         | -0.82 | 45.55         | 0.22         | ○ |
| 40   | Costa Rica               | 0.63  | 81.12         | 0.73         |   | 113  | Paraguay                   | -0.84 | 45.11         | 0.21         |   |
| 41   | Zambia                   | 0.61  | 80.71         | 0.72         | ● | 114  | Peru                       | -0.86 | 44.57         | 0.20         |   |
| 42   | Estonia                  | 0.60  | 80.37         | 0.71         |   | 115  | Kyrgyzstan                 | -0.89 | 43.90         | 0.20         |   |
| 43   | Croatia                  | 0.58  | 79.79         | 0.70         |   | 116  | Uganda                     | -0.89 | 43.88         | 0.19         |   |
| 44   | Montenegro               | 0.56  | 79.34         | 0.70         |   | 117  | Myanmar                    | -0.96 | 42.13         | 0.18         |   |
| 45   | France                   | 0.55  | 79.17         | 0.69         |   | 118  | Venezuela, Bolivarian Rep. | -0.99 | 41.42         | 0.18         |   |
| 46   | Italy                    | 0.50  | 78.03         | 0.68         |   | 119  | Israel                     | -1.07 | 39.58         | 0.17         | ○ |
| 47   | Oman                     | 0.47  | 77.09         | 0.68         |   | 120  | Bahrain                    | -1.13 | 37.96         | 0.16         |   |
| 48   | Mongolia                 | 0.45  | 76.67         | 0.67         |   | 121  | Philippines                | -1.16 | 37.26         | 0.15         |   |
| 49   | Latvia                   | 0.43  | 76.24         | 0.66         |   | 122  | Tajikistan                 | -1.16 | 37.22         | 0.15         |   |
| 50   | United Kingdom           | 0.41  | 75.71         | 0.65         | ○ | 123  | Niger                      | -1.17 | 36.96         | 0.14         |   |
| 51   | Chile                    | 0.35  | 74.17         | 0.65         |   | 124  | Turkey                     | -1.19 | 36.49         | 0.13         | ○ |
| 52   | Mozambique               | 0.35  | 74.13         | 0.64         | ● | 125  | Thailand                   | -1.21 | 36.16         | 0.13         | ○ |
| 53   | Bulgaria                 | 0.33  | 73.81         | 0.63         |   | 126  | India                      | -1.25 | 35.17         | 0.12         | ○ |
| 54   | Benin                    | 0.31  | 73.32         | 0.63         | ● | 127  | Côte d'Ivoire              | -1.26 | 34.78         | 0.11         |   |
| 55   | Lesotho                  | 0.25  | 71.90         | 0.62         | ● | 128  | Guinea                     | -1.28 | 34.31         | 0.11         |   |
| 56   | Viet Nam                 | 0.25  | 71.83         | 0.61         |   | 129  | Kenya                      | -1.29 | 34.01         | 0.10         | ○ |
| 57   | Dominican Republic       | 0.23  | 71.40         | 0.61         | ● | 130  | Iran, Islamic Rep.         | -1.32 | 33.32         | 0.09         |   |
| 58   | El Salvador              | 0.21  | 70.81         | 0.60         |   | 131  | Algeria                    | -1.34 | 32.84         | 0.08         |   |
| 59   | Kuwait                   | 0.18  | 70.08         | 0.59         |   | 132  | Bangladesh                 | -1.35 | 32.60         | 0.08         |   |
| 60   | Korea, Rep.              | 0.17  | 69.73         | 0.58         |   | 133  | Nepal                      | -1.38 | 31.78         | 0.07         | ○ |
| 61   | Trinidad and Tobago      | 0.11  | 68.34         | 0.58         |   | 134  | Colombia                   | -1.40 | 31.31         | 0.06         | ○ |
| 62   | Armenia                  | 0.11  | 68.33         | 0.57         |   | 135  | Egypt                      | -1.48 | 29.41         | 0.06         | ○ |
| 63   | Jamaica                  | 0.10  | 68.16         | 0.56         |   | 136  | Ethiopia                   | -1.54 | 28.08         | 0.05         |   |
| 64   | Ghana                    | 0.10  | 68.13         | 0.56         |   | 137  | Lebanon                    | -1.65 | 25.32         | 0.04         | ○ |
| 65   | Romania                  | 0.07  | 67.40         | 0.55         |   | 138  | Burundi                    | -1.68 | 24.45         | 0.04         |   |
| 66   | Argentina                | 0.07  | 67.30         | 0.54         |   | 139  | Mali                       | -1.98 | 17.25         | 0.03         | ○ |
| 67   | Brazil                   | 0.07  | 67.28         | 0.54         |   | 140  | Nigeria                    | -2.05 | 15.39         | 0.02         | ○ |
| 68   | Tanzania, United Rep.    | 0.03  | 66.34         | 0.53         |   | 141  | Sudan                      | -2.27 | 10.16         | 0.01         | ○ |
| 69   | Belarus                  | 0.02  | 66.27         | 0.52         |   | 142  | Yemen                      | -2.43 | 6.15          | 0.01         | ○ |
| 70   | Moldova, Rep.            | 0.02  | 66.26         | 0.51         |   | 143  | Pakistan                   | -2.68 | 0.00          | 0.00         | ○ |
| 71   | Gambia                   | 0.01  | 65.82         | 0.51         |   |      |                            |       |               |              |   |
| 72   | Malaysia                 | 0.00  | 65.61         | 0.50         |   |      |                            |       |               |              |   |
| 73   | South Africa             | 0.00  | 65.57         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: World Bank, *World Governance Indicators 2013 update*

NOTE: ● indicates a strength; ○ a weakness.



# 1.1.2 Government effectiveness

## Government effectiveness index | 2012

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Finland                  | 2.21  | 100.00        | 1.00         | ● | 74   | Ghana                      | -0.07 | 38.91         | 0.49         |   |
| 2    | Singapore                | 2.15  | 98.33         | 0.99         | ● | 75   | TFYR of Macedonia          | -0.07 | 38.90         | 0.48         |   |
| 3    | Denmark                  | 1.97  | 93.34         | 0.99         | ● | 76   | Kuwait                     | -0.08 | 38.81         | 0.47         |   |
| 4    | Sweden                   | 1.94  | 92.71         | 0.98         | ● | 77   | Serbia                     | -0.11 | 37.82         | 0.46         |   |
| 5    | Norway                   | 1.89  | 91.40         | 0.97         | ● | 78   | Brazil                     | -0.12 | 37.54         | 0.46         |   |
| 6    | Switzerland              | 1.88  | 90.99         | 0.96         |   | 79   | Guyana                     | -0.14 | 37.13         | 0.45         |   |
| 7    | Hong Kong (China)        | 1.82  | 89.58         | 0.96         |   | 80   | El Salvador                | -0.14 | 37.04         | 0.44         |   |
| 8    | Netherlands              | 1.80  | 88.92         | 0.95         |   | 81   | Peru                       | -0.16 | 36.65         | 0.44         |   |
| 9    | New Zealand              | 1.79  | 88.66         | 0.94         | ● | 82   | India                      | -0.18 | 36.02         | 0.43         |   |
| 10   | Canada                   | 1.75  | 87.69         | 0.94         |   | 83   | Sri Lanka                  | -0.24 | 34.54         | 0.42         |   |
| 11   | Luxembourg               | 1.66  | 85.16         | 0.93         |   | 84   | Argentina                  | -0.25 | 34.05         | 0.42         |   |
| 12   | Australia                | 1.61  | 83.91         | 0.92         |   | 85   | Albania                    | -0.28 | 33.37         | 0.41         |   |
| 13   | Belgium                  | 1.59  | 83.34         | 0.92         | ● | 86   | Viet Nam                   | -0.29 | 33.10         | 0.40         |   |
| 14   | Germany                  | 1.57  | 82.92         | 0.91         |   | 87   | Indonesia                  | -0.29 | 33.09         | 0.39         |   |
| 15   | Austria                  | 1.56  | 82.45         | 0.90         |   | 88   | Romania                    | -0.31 | 32.47         | 0.39         |   |
| 16   | Ireland                  | 1.53  | 81.72         | 0.89         |   | 89   | Lebanon                    | -0.34 | 31.74         | 0.38         |   |
| 17   | United Kingdom           | 1.53  | 81.64         | 0.89         |   | 90   | Bolivia, Plurinational St. | -0.37 | 30.88         | 0.37         |   |
| 18   | United States of America | 1.51  | 81.22         | 0.88         |   | 91   | Lesotho                    | -0.38 | 30.68         | 0.37         |   |
| 19   | Iceland                  | 1.49  | 80.53         | 0.87         |   | 92   | Russian Federation         | -0.43 | 29.49         | 0.36         |   |
| 20   | Barbados                 | 1.45  | 79.64         | 0.87         |   | 93   | Ethiopia                   | -0.44 | 29.23         | 0.35         |   |
| 21   | Japan                    | 1.40  | 78.16         | 0.86         |   | 94   | Kazakhstan                 | -0.44 | 29.07         | 0.35         |   |
| 22   | Cyprus                   | 1.38  | 77.66         | 0.85         |   | 95   | Senegal                    | -0.46 | 28.65         | 0.34         |   |
| 23   | France                   | 1.33  | 76.36         | 0.85         |   | 96   | Bosnia and Herzegovina     | -0.47 | 28.36         | 0.33         |   |
| 24   | Chile                    | 1.25  | 74.30         | 0.84         | ● | 97   | Malawi                     | -0.50 | 27.63         | 0.32         |   |
| 25   | Israel                   | 1.25  | 74.29         | 0.83         |   | 98   | Zambia                     | -0.50 | 27.46         | 0.32         |   |
| 26   | Malta                    | 1.24  | 73.99         | 0.82         |   | 99   | Ecuador                    | -0.51 | 27.24         | 0.31         |   |
| 27   | Korea, Rep.              | 1.20  | 72.88         | 0.82         |   | 100  | Gambia                     | -0.51 | 27.16         | 0.30         |   |
| 28   | United Arab Emirates     | 1.14  | 71.25         | 0.81         |   | 101  | Benin                      | -0.53 | 26.61         | 0.30         |   |
| 29   | Spain                    | 1.11  | 70.45         | 0.80         |   | 102  | Iran, Islamic Rep.         | -0.54 | 26.40         | 0.29         |   |
| 30   | Portugal                 | 1.03  | 68.47         | 0.80         |   | 103  | Kenya                      | -0.55 | 26.30         | 0.28         |   |
| 31   | Slovenia                 | 1.02  | 68.06         | 0.79         |   | 104  | Dominican Republic         | -0.55 | 26.17         | 0.27         |   |
| 32   | Malaysia                 | 1.01  | 67.83         | 0.78         |   | 105  | Moldova, Rep.              | -0.55 | 26.11         | 0.27         |   |
| 33   | Estonia                  | 0.96  | 66.52         | 0.77         |   | 106  | Algeria                    | -0.55 | 26.09         | 0.26         |   |
| 34   | Qatar                    | 0.95  | 66.11         | 0.77         |   | 107  | Uganda                     | -0.57 | 25.69         | 0.25         |   |
| 35   | Mauritius                | 0.93  | 65.81         | 0.76         |   | 108  | Swaziland                  | -0.57 | 25.53         | 0.25         |   |
| 36   | Czech Republic           | 0.92  | 65.36         | 0.75         |   | 109  | Ukraine                    | -0.58 | 25.28         | 0.24         |   |
| 37   | Brunei Darussalam        | 0.83  | 63.14         | 0.75         | ● | 110  | Mongolia                   | -0.63 | 23.98         | 0.23         |   |
| 38   | Latvia                   | 0.83  | 63.02         | 0.74         |   | 111  | Burkina Faso               | -0.63 | 23.97         | 0.23         |   |
| 39   | Lithuania                | 0.83  | 62.98         | 0.73         |   | 112  | Mozambique                 | -0.64 | 23.82         | 0.22         |   |
| 40   | Slovakia                 | 0.83  | 62.93         | 0.73         |   | 113  | Kyrgyzstan                 | -0.66 | 23.27         | 0.21         |   |
| 41   | Croatia                  | 0.70  | 59.43         | 0.72         |   | 114  | Tanzania, United Rep.      | -0.69 | 22.41         | 0.20         |   |
| 42   | Poland                   | 0.66  | 58.60         | 0.71         |   | 115  | Niger                      | -0.70 | 22.06         | 0.20         |   |
| 43   | Hungary                  | 0.62  | 57.39         | 0.70         |   | 116  | Honduras                   | -0.72 | 21.70         | 0.19         |   |
| 44   | Georgia                  | 0.57  | 55.96         | 0.70         |   | 117  | Guatemala                  | -0.76 | 20.48         | 0.18         |   |
| 45   | Bahrain                  | 0.54  | 55.29         | 0.69         |   | 118  | Egypt                      | -0.77 | 20.33         | 0.18         |   |
| 46   | Costa Rica               | 0.49  | 53.88         | 0.68         |   | 119  | Azerbaijan                 | -0.78 | 20.08         | 0.17         |   |
| 47   | Bhutan                   | 0.48  | 53.61         | 0.68         | ● | 120  | Pakistan                   | -0.79 | 19.79         | 0.16         |   |
| 48   | Uruguay                  | 0.44  | 52.74         | 0.67         |   | 121  | Bangladesh                 | -0.83 | 18.83         | 0.15         |   |
| 49   | Botswana                 | 0.44  | 52.58         | 0.66         |   | 122  | Cambodia                   | -0.83 | 18.67         | 0.15         |   |
| 50   | Italy                    | 0.41  | 51.81         | 0.65         |   | 123  | Nicaragua                  | -0.89 | 17.11         | 0.14         |   |
| 51   | Turkey                   | 0.40  | 51.64         | 0.65         |   | 124  | Fiji                       | -0.90 | 16.85         | 0.13         | ○ |
| 52   | Trinidad and Tobago      | 0.40  | 51.61         | 0.64         |   | 125  | Paraguay                   | -0.90 | 16.85         | 0.13         |   |
| 53   | Seychelles               | 0.38  | 50.89         | 0.63         |   | 126  | Cameroon                   | -0.90 | 16.75         | 0.12         |   |
| 54   | South Africa             | 0.33  | 49.55         | 0.63         |   | 127  | Tajikistan                 | -0.93 | 15.94         | 0.11         |   |
| 55   | Mexico                   | 0.32  | 49.45         | 0.62         |   | 128  | Belarus                    | -0.94 | 15.77         | 0.11         | ○ |
| 56   | Panama                   | 0.31  | 49.23         | 0.61         |   | 129  | Uzbekistan                 | -0.94 | 15.77         | 0.10         |   |
| 57   | Greece                   | 0.31  | 49.07         | 0.61         |   | 130  | Nepal                      | -0.99 | 14.53         | 0.09         | ○ |
| 58   | Oman                     | 0.26  | 47.88         | 0.60         |   | 131  | Mali                       | -0.99 | 14.46         | 0.08         |   |
| 59   | Thailand                 | 0.21  | 46.40         | 0.59         |   | 132  | Nigeria                    | -1.00 | 14.21         | 0.08         |   |
| 60   | Bulgaria                 | 0.14  | 44.50         | 0.58         |   | 133  | Angola                     | -1.02 | 13.53         | 0.07         |   |
| 61   | Montenegro               | 0.13  | 44.29         | 0.58         |   | 134  | Madagascar                 | -1.08 | 11.93         | 0.06         |   |
| 62   | Namibia                  | 0.12  | 44.18         | 0.57         |   | 135  | Côte d'Ivoire              | -1.11 | 11.28         | 0.06         | ○ |
| 63   | Cabo Verde               | 0.10  | 43.51         | 0.56         | ● | 136  | Venezuela, Bolivarian Rep. | -1.14 | 10.50         | 0.05         |   |
| 64   | Philippines              | 0.08  | 42.93         | 0.56         |   | 137  | Zimbabwe                   | -1.21 | 8.59          | 0.04         | ○ |
| 65   | Saudi Arabia             | 0.03  | 41.55         | 0.55         |   | 138  | Guinea                     | -1.27 | 6.91          | 0.04         |   |
| 66   | Colombia                 | 0.01  | 41.15         | 0.54         |   | 139  | Yemen                      | -1.28 | 6.79          | 0.03         |   |
| 67   | China                    | 0.01  | 41.03         | 0.54         |   | 140  | Togo                       | -1.32 | 5.48          | 0.02         | ○ |
| 68   | Tunisia                  | -0.02 | 40.46         | 0.53         |   | 141  | Burundi                    | -1.33 | 5.30          | 0.01         | ○ |
| 69   | Jamaica                  | -0.02 | 40.27         | 0.52         |   | 142  | Sudan                      | -1.46 | 1.93          | 0.01         | ○ |
| 70   | Armenia                  | -0.04 | 39.89         | 0.51         |   | 143  | Myanmar                    | -1.53 | 0.00          | 0.00         | ○ |
| 71   | Jordan                   | -0.04 | 39.89         | 0.51         |   |      |                            |       |               |              |   |
| 72   | Morocco                  | -0.04 | 39.66         | 0.50         |   |      |                            |       |               |              |   |
| 73   | Rwanda                   | -0.06 | 39.25         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: World Bank, *World Governance Indicators 2013 update*

NOTE: ● indicates a strength; ○ a weakness.

# 1.1.3 Press freedom

## Press freedom index | 2013

| Rank | Country/Economy               | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy                | Value | Score (0–100) | Percent rank |   |
|------|-------------------------------|-------|---------------|--------------|---|------|--------------------------------|-------|---------------|--------------|---|
| 1    | Finland.....                  | 6.38  | 93.62         | 1.00         | ● | 74   | Paraguay.....                  | 28.78 | 71.22         | 0.48         |   |
| 2    | Netherlands.....              | 6.48  | 93.52         | 0.99         | ● | 75   | Seychelles.....                | 29.19 | 70.81         | 0.48         |   |
| 3    | Norway.....                   | 6.52  | 93.48         | 0.99         | ● | 76   | Guatemala.....                 | 29.39 | 70.61         | 0.47         |   |
| 4    | Luxembourg.....               | 6.68  | 93.32         | 0.98         | ● | 77   | Côte d'Ivoire.....             | 29.77 | 70.23         | 0.46         | ● |
| 5    | Denmark.....                  | 7.08  | 92.92         | 0.97         | ● | 78   | Mongolia.....                  | 29.93 | 70.07         | 0.45         |   |
| 6    | New Zealand.....              | 8.38  | 91.62         | 0.96         | ● | 79   | Mali.....                      | 30.03 | 69.97         | 0.45         |   |
| 7    | Iceland.....                  | 8.49  | 91.51         | 0.96         | ● | 80   | Georgia.....                   | 30.09 | 69.91         | 0.44         |   |
| 8    | Sweden.....                   | 9.23  | 90.77         | 0.95         |   | 81   | Lebanon.....                   | 30.15 | 69.85         | 0.43         |   |
| 9    | Estonia.....                  | 9.26  | 90.74         | 0.94         | ● | 82   | Albania.....                   | 30.88 | 69.12         | 0.43         |   |
| 10   | Austria.....                  | 9.40  | 90.60         | 0.94         | ● | 83   | Uganda.....                    | 31.69 | 68.31         | 0.42         |   |
| 11   | Jamaica.....                  | 9.88  | 90.12         | 0.93         | ● | 84   | Peru.....                      | 31.87 | 68.13         | 0.41         |   |
| 12   | Switzerland.....              | 9.94  | 90.06         | 0.92         |   | 85   | Kyrgyzstan.....                | 32.20 | 67.80         | 0.40         |   |
| 13   | Ireland.....                  | 10.06 | 89.94         | 0.91         |   | 86   | Fiji.....                      | 32.69 | 67.31         | 0.40         |   |
| 14   | Czech Republic.....           | 10.17 | 89.83         | 0.91         | ● | 87   | Brazil.....                    | 32.75 | 67.25         | 0.39         |   |
| 15   | Germany.....                  | 10.24 | 89.76         | 0.90         |   | 88   | Bolivia, Plurinational St..... | 32.80 | 67.20         | 0.38         |   |
| 16   | Costa Rica.....               | 12.08 | 87.92         | 0.89         | ● | 89   | Qatar.....                     | 32.86 | 67.14         | 0.38         |   |
| 17   | Namibia.....                  | 12.50 | 87.50         | 0.89         | ● | 90   | Panama.....                    | 32.95 | 67.05         | 0.37         |   |
| 18   | Canada.....                   | 12.69 | 87.31         | 0.88         |   | 91   | Israel.....                    | 32.97 | 67.03         | 0.35         | ○ |
| 19   | Belgium.....                  | 12.94 | 87.06         | 0.87         |   | 91   | Montenegro.....                | 32.97 | 67.03         | 0.35         |   |
| 20   | Poland.....                   | 13.11 | 86.89         | 0.87         | ● | 93   | United Arab Emirates.....      | 33.49 | 66.51         | 0.35         |   |
| 21   | Slovakia.....                 | 13.25 | 86.75         | 0.86         | ● | 94   | Nigeria.....                   | 34.11 | 65.89         | 0.34         |   |
| 22   | Cyprus.....                   | 13.83 | 86.17         | 0.85         |   | 95   | TFYR of Macedonia.....         | 34.27 | 65.73         | 0.33         |   |
| 23   | Cabo Verde.....               | 14.33 | 85.67         | 0.84         | ● | 96   | Venezuela, Bolivarian Rep..... | 34.44 | 65.56         | 0.33         |   |
| 24   | Australia.....                | 15.24 | 84.76         | 0.84         |   | 97   | Nepal.....                     | 34.61 | 65.39         | 0.32         |   |
| 25   | Uruguay.....                  | 15.92 | 84.08         | 0.83         | ● | 98   | Ecuador.....                   | 34.69 | 65.31         | 0.31         |   |
| 26   | Portugal.....                 | 16.75 | 83.25         | 0.82         |   | 99   | Cameroon.....                  | 34.78 | 65.22         | 0.30         |   |
| 27   | United Kingdom.....           | 16.89 | 83.11         | 0.82         |   | 100  | Brunei Darussalam.....         | 35.45 | 64.55         | 0.30         |   |
| 28   | Ghana.....                    | 17.27 | 82.73         | 0.81         | ● | 101  | Tajikistan.....                | 35.71 | 64.29         | 0.29         |   |
| 29   | United States of America..... | 18.22 | 81.78         | 0.80         |   | 102  | Algeria.....                   | 36.54 | 63.46         | 0.28         |   |
| 30   | Lithuania.....                | 18.24 | 81.76         | 0.79         |   | 103  | Ukraine.....                   | 36.79 | 63.21         | 0.28         |   |
| 31   | Slovenia.....                 | 20.49 | 79.51         | 0.79         |   | 104  | Honduras.....                  | 36.92 | 63.08         | 0.27         |   |
| 32   | Spain.....                    | 20.50 | 79.50         | 0.78         |   | 105  | Colombia.....                  | 37.48 | 62.52         | 0.26         |   |
| 33   | France.....                   | 21.60 | 78.40         | 0.77         |   | 106  | Angola.....                    | 37.80 | 62.20         | 0.26         |   |
| 34   | El Salvador.....              | 22.86 | 77.14         | 0.77         | ● | 107  | Burundi.....                   | 38.02 | 61.98         | 0.25         |   |
| 35   | Latvia.....                   | 22.89 | 77.11         | 0.76         |   | 108  | Zimbabwe.....                  | 38.12 | 61.88         | 0.24         |   |
| 36   | Botswana.....                 | 22.91 | 77.09         | 0.75         | ● | 109  | Jordan.....                    | 38.47 | 61.53         | 0.23         | ○ |
| 37   | Romania.....                  | 23.05 | 76.95         | 0.74         |   | 110  | Thailand.....                  | 38.60 | 61.40         | 0.23         | ○ |
| 38   | Niger.....                    | 23.08 | 76.92         | 0.74         | ● | 111  | Morocco.....                   | 39.04 | 60.96         | 0.22         |   |
| 39   | Trinidad and Tobago.....      | 23.12 | 76.88         | 0.73         | ● | 112  | Ethiopia.....                  | 39.57 | 60.43         | 0.21         |   |
| 40   | Malta.....                    | 23.30 | 76.70         | 0.72         |   | 113  | Tunisia.....                   | 39.93 | 60.07         | 0.21         |   |
| 41   | Burkina Faso.....             | 23.70 | 76.30         | 0.72         | ● | 114  | Indonesia.....                 | 41.05 | 58.95         | 0.20         |   |
| 42   | Korea, Rep.....               | 24.48 | 75.52         | 0.71         |   | 115  | India.....                     | 41.22 | 58.78         | 0.19         |   |
| 43   | South Africa.....             | 24.56 | 75.44         | 0.70         |   | 116  | Oman.....                      | 41.51 | 58.49         | 0.18         |   |
| 44   | Japan.....                    | 25.17 | 74.83         | 0.70         |   | 117  | Cambodia.....                  | 41.81 | 58.19         | 0.18         |   |
| 45   | Argentina.....                | 25.67 | 74.33         | 0.69         |   | 118  | Bangladesh.....                | 42.01 | 57.99         | 0.17         |   |
| 46   | Moldova, Rep.....             | 26.01 | 73.99         | 0.68         |   | 119  | Malaysia.....                  | 42.73 | 57.27         | 0.16         | ○ |
| 47   | Hungary.....                  | 26.09 | 73.91         | 0.67         |   | 120  | Philippines.....               | 43.11 | 56.89         | 0.16         |   |
| 48   | Italy.....                    | 26.11 | 73.89         | 0.67         |   | 121  | Russian Federation.....        | 43.42 | 56.58         | 0.15         | ○ |
| 49   | Hong Kong (China).....        | 26.16 | 73.84         | 0.66         |   | 122  | Singapore.....                 | 43.43 | 56.57         | 0.14         | ○ |
| 50   | Senegal.....                  | 26.19 | 73.81         | 0.65         | ● | 123  | Myanmar.....                   | 44.71 | 55.29         | 0.13         |   |
| 51   | Chile.....                    | 26.24 | 73.76         | 0.65         |   | 124  | Gambia.....                    | 45.09 | 54.91         | 0.13         |   |
| 52   | Mauritius.....                | 26.47 | 73.53         | 0.64         |   | 125  | Mexico.....                    | 45.30 | 54.70         | 0.12         | ○ |
| 53   | Serbia.....                   | 26.59 | 73.41         | 0.63         |   | 126  | Turkey.....                    | 46.56 | 53.44         | 0.11         | ○ |
| 54   | Croatia.....                  | 26.61 | 73.39         | 0.62         |   | 127  | Swaziland.....                 | 46.76 | 53.24         | 0.11         |   |
| 55   | Bosnia and Herzegovina.....   | 26.86 | 73.14         | 0.62         |   | 128  | Azerbaijan.....                | 47.73 | 52.27         | 0.10         | ○ |
| 56   | Guyana.....                   | 27.08 | 72.92         | 0.61         |   | 129  | Belarus.....                   | 48.35 | 51.65         | 0.09         | ○ |
| 57   | Tanzania, United Rep.....     | 27.34 | 72.66         | 0.60         | ● | 130  | Egypt.....                     | 48.66 | 51.34         | 0.09         | ○ |
| 58   | Kenya.....                    | 27.80 | 72.20         | 0.60         |   | 131  | Pakistan.....                  | 51.31 | 48.69         | 0.08         | ○ |
| 59   | Zambia.....                   | 27.93 | 72.07         | 0.59         |   | 132  | Kazakhstan.....                | 55.08 | 44.92         | 0.07         | ○ |
| 60   | Mozambique.....               | 28.01 | 71.99         | 0.58         | ● | 133  | Rwanda.....                    | 55.46 | 44.54         | 0.06         | ○ |
| 61   | Armenia.....                  | 28.04 | 71.96         | 0.57         |   | 134  | Sri Lanka.....                 | 56.59 | 43.41         | 0.06         | ○ |
| 62   | Malawi.....                   | 28.18 | 71.82         | 0.57         | ● | 135  | Saudi Arabia.....              | 56.88 | 43.12         | 0.05         | ○ |
| 63   | Kuwait.....                   | 28.28 | 71.72         | 0.56         |   | 136  | Uzbekistan.....                | 60.39 | 39.61         | 0.04         | ○ |
| 64   | Nicaragua.....                | 28.31 | 71.69         | 0.55         | ● | 137  | Bahrain.....                   | 62.75 | 37.25         | 0.04         | ○ |
| 65   | Benin.....                    | 28.33 | 71.67         | 0.55         | ● | 138  | Yemen.....                     | 69.22 | 30.78         | 0.03         |   |
| 66   | Dominican Republic.....       | 28.34 | 71.66         | 0.54         |   | 139  | Sudan.....                     | 70.06 | 29.94         | 0.02         | ○ |
| 67   | Lesotho.....                  | 28.36 | 71.64         | 0.53         | ● | 140  | Viet Nam.....                  | 71.78 | 28.22         | 0.01         | ○ |
| 68   | Bhutan.....                   | 28.42 | 71.58         | 0.52         |   | 141  | China.....                     | 73.07 | 26.93         | 0.01         | ○ |
| 69   | Togo.....                     | 28.45 | 71.55         | 0.52         | ● | 142  | Iran, Islamic Rep.....         | 73.40 | 26.60         | 0.00         | ○ |
| 70   | Greece.....                   | 28.46 | 71.54         | 0.51         |   | n/a  | Barbados.....                  | n/a   | n/a           | n/a          |   |
| 71   | Guinea.....                   | 28.49 | 71.51         | 0.50         | ● |      |                                |       |               |              |   |
| 72   | Bulgaria.....                 | 28.58 | 71.42         | 0.50         |   |      |                                |       |               |              |   |
| 73   | Madagascar.....               | 28.62 | 71.38         | 0.49         |   |      |                                |       |               |              |   |

SOURCE: Reporters Without Borders, *Press Freedom Index 2013*

NOTE: ● indicates a strength; ○ a weakness.

# 1.2.1 Regulatory quality

## Regulatory quality index | 2012

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Singapore                | 1.96  | 100.00        | 1.00         | ● | 74   | Kuwait                     | -0.05 | 47.55         | 0.49         |   |
| 2    | Hong Kong (China)        | 1.94  | 99.53         | 0.99         | ● | 75   | Philippines                | -0.06 | 47.30         | 0.48         |   |
| 3    | Sweden                   | 1.89  | 98.15         | 0.99         | ● | 76   | Bosnia and Herzegovina     | -0.06 | 47.14         | 0.47         |   |
| 4    | New Zealand              | 1.84  | 96.90         | 0.98         | ● | 77   | Serbia                     | -0.08 | 46.79         | 0.46         |   |
| 5    | Finland                  | 1.82  | 96.30         | 0.97         |   | 78   | Morocco                    | -0.09 | 46.40         | 0.46         |   |
| 6    | Denmark                  | 1.79  | 95.67         | 0.96         | ● | 79   | Senegal                    | -0.10 | 46.32         | 0.45         |   |
| 7    | Australia                | 1.77  | 95.01         | 0.96         | ● | 80   | Rwanda                     | -0.10 | 46.19         | 0.44         |   |
| 8    | Luxembourg               | 1.76  | 94.69         | 0.95         |   | 81   | Moldova, Rep.              | -0.11 | 45.84         | 0.44         |   |
| 9    | Netherlands              | 1.75  | 94.57         | 0.94         |   | 82   | Sri Lanka                  | -0.12 | 45.72         | 0.43         |   |
| 10   | Canada                   | 1.69  | 92.97         | 0.94         |   | 83   | Burkina Faso               | -0.12 | 45.69         | 0.42         |   |
| 11   | Switzerland              | 1.66  | 92.22         | 0.93         |   | 84   | Lebanon                    | -0.12 | 45.58         | 0.42         |   |
| 12   | United Kingdom           | 1.64  | 91.69         | 0.92         |   | 85   | Dominican Republic         | -0.14 | 45.10         | 0.41         |   |
| 13   | Ireland                  | 1.56  | 89.49         | 0.92         |   | 86   | Mongolia                   | -0.17 | 44.49         | 0.40         |   |
| 14   | Chile                    | 1.54  | 89.03         | 0.91         | ● | 87   | Guatemala                  | -0.18 | 44.20         | 0.39         |   |
| 15   | Germany                  | 1.53  | 88.83         | 0.90         |   | 88   | Honduras                   | -0.20 | 43.61         | 0.39         |   |
| 16   | Norway                   | 1.53  | 88.79         | 0.89         |   | 89   | Tunisia                    | -0.21 | 43.38         | 0.38         |   |
| 17   | Austria                  | 1.51  | 88.35         | 0.89         |   | 90   | Gambia                     | -0.23 | 42.81         | 0.37         |   |
| 18   | Estonia                  | 1.40  | 85.47         | 0.88         |   | 91   | Uganda                     | -0.24 | 42.44         | 0.37         |   |
| 19   | Malta                    | 1.31  | 83.14         | 0.87         |   | 92   | China                      | -0.26 | 42.06         | 0.36         |   |
| 20   | United States of America | 1.29  | 82.40         | 0.87         |   | 93   | Indonesia                  | -0.28 | 41.62         | 0.35         |   |
| 21   | Belgium                  | 1.22  | 80.70         | 0.86         |   | 94   | Nicaragua                  | -0.30 | 40.91         | 0.35         |   |
| 22   | Israel                   | 1.16  | 79.07         | 0.85         |   | 95   | Seychelles                 | -0.31 | 40.72         | 0.34         |   |
| 23   | Brunei Darussalam        | 1.16  | 79.05         | 0.85         | ● | 96   | Kenya                      | -0.31 | 40.71         | 0.33         |   |
| 24   | Cyprus                   | 1.12  | 78.14         | 0.84         |   | 97   | Paraguay                   | -0.32 | 40.40         | 0.32         |   |
| 25   | Japan                    | 1.12  | 78.07         | 0.83         |   | 98   | Kyrgyzstan                 | -0.35 | 39.79         | 0.32         |   |
| 26   | France                   | 1.11  | 77.81         | 0.82         |   | 99   | Cambodia                   | -0.35 | 39.68         | 0.31         |   |
| 27   | Lithuania                | 1.10  | 77.61         | 0.82         |   | 100  | Russian Federation         | -0.36 | 39.52         | 0.30         |   |
| 28   | Iceland                  | 1.06  | 76.59         | 0.81         |   | 101  | Kazakhstan                 | -0.39 | 38.71         | 0.30         |   |
| 29   | Czech Republic           | 1.06  | 76.53         | 0.80         |   | 102  | Benin                      | -0.39 | 38.51         | 0.29         |   |
| 30   | Slovakia                 | 1.03  | 75.80         | 0.80         |   | 103  | Tanzania, United Rep.      | -0.40 | 38.40         | 0.28         |   |
| 31   | Latvia                   | 1.00  | 75.05         | 0.79         |   | 104  | Mali                       | -0.42 | 37.76         | 0.27         |   |
| 32   | Mauritius                | 0.98  | 74.49         | 0.78         |   | 105  | Zambia                     | -0.43 | 37.61         | 0.27         |   |
| 33   | Hungary                  | 0.97  | 74.13         | 0.77         |   | 106  | Mozambique                 | -0.46 | 36.82         | 0.26         |   |
| 34   | Poland                   | 0.96  | 73.88         | 0.77         |   | 107  | Azerbaijan                 | -0.47 | 36.56         | 0.25         |   |
| 35   | Spain                    | 0.94  | 73.46         | 0.76         |   | 108  | India                      | -0.47 | 36.47         | 0.25         |   |
| 36   | Korea, Rep.              | 0.89  | 71.95         | 0.75         |   | 109  | Egypt                      | -0.49 | 36.03         | 0.24         |   |
| 37   | Portugal                 | 0.81  | 70.03         | 0.75         |   | 110  | Lesotho                    | -0.54 | 34.78         | 0.23         |   |
| 38   | Qatar                    | 0.80  | 69.59         | 0.74         |   | 111  | Swaziland                  | -0.56 | 34.13         | 0.23         |   |
| 39   | Italy                    | 0.73  | 67.92         | 0.73         |   | 112  | Madagascar                 | -0.58 | 33.75         | 0.22         |   |
| 40   | Botswana                 | 0.69  | 66.93         | 0.73         |   | 113  | Fiji                       | -0.60 | 33.10         | 0.21         |   |
| 41   | Bahrain                  | 0.69  | 66.75         | 0.72         |   | 114  | Niger                      | -0.61 | 32.93         | 0.20         |   |
| 42   | Georgia                  | 0.68  | 66.47         | 0.71         |   | 115  | Ukraine                    | -0.61 | 32.84         | 0.20         |   |
| 43   | United Arab Emirates     | 0.67  | 66.39         | 0.70         |   | 116  | Guyana                     | -0.63 | 32.27         | 0.19         |   |
| 44   | Slovenia                 | 0.61  | 64.62         | 0.70         |   | 117  | Viet Nam                   | -0.68 | 30.98         | 0.18         |   |
| 45   | Costa Rica               | 0.57  | 63.57         | 0.69         |   | 118  | Yemen                      | -0.70 | 30.64         | 0.18         |   |
| 46   | Malaysia                 | 0.55  | 63.15         | 0.68         |   | 119  | Malawi                     | -0.71 | 30.14         | 0.17         |   |
| 47   | Bulgaria                 | 0.54  | 63.03         | 0.68         |   | 120  | Nigeria                    | -0.72 | 29.94         | 0.16         |   |
| 48   | Romania                  | 0.54  | 62.81         | 0.67         |   | 121  | Pakistan                   | -0.73 | 29.81         | 0.15         |   |
| 49   | Greece                   | 0.50  | 61.82         | 0.66         |   | 122  | Côte d'Ivoire              | -0.77 | 28.73         | 0.15         |   |
| 50   | Peru                     | 0.49  | 61.59         | 0.65         |   | 123  | Nepal                      | -0.81 | 27.55         | 0.14         |   |
| 51   | Oman                     | 0.47  | 61.15         | 0.65         |   | 124  | Bolivia, Plurinational St. | -0.83 | 27.02         | 0.13         | ○ |
| 52   | Mexico                   | 0.47  | 61.13         | 0.64         |   | 125  | Togo                       | -0.86 | 26.45         | 0.13         |   |
| 53   | Croatia                  | 0.44  | 60.17         | 0.63         |   | 126  | Cameroon                   | -0.93 | 24.44         | 0.12         |   |
| 54   | Barbados                 | 0.42  | 59.79         | 0.63         |   | 127  | Burundi                    | -0.96 | 23.79         | 0.11         |   |
| 55   | Turkey                   | 0.42  | 59.68         | 0.62         |   | 128  | Bangladesh                 | -0.96 | 23.66         | 0.11         |   |
| 56   | Uruguay                  | 0.40  | 59.14         | 0.61         |   | 129  | Argentina                  | -0.96 | 23.63         | 0.10         | ○ |
| 57   | Panama                   | 0.39  | 58.96         | 0.61         |   | 130  | Angola                     | -0.98 | 23.29         | 0.09         |   |
| 58   | Colombia                 | 0.39  | 58.91         | 0.60         |   | 131  | Tajikistan                 | -1.01 | 22.54         | 0.08         |   |
| 59   | South Africa             | 0.38  | 58.69         | 0.59         |   | 132  | Guinea                     | -1.02 | 22.19         | 0.08         |   |
| 60   | TFYR of Macedonia        | 0.35  | 57.84         | 0.58         |   | 133  | Ecuador                    | -1.04 | 21.71         | 0.07         | ○ |
| 61   | Armenia                  | 0.33  | 57.40         | 0.58         |   | 134  | Ethiopia                   | -1.07 | 20.99         | 0.06         |   |
| 62   | El Salvador              | 0.32  | 57.19         | 0.57         |   | 135  | Belarus                    | -1.10 | 20.19         | 0.06         | ○ |
| 63   | Jamaica                  | 0.23  | 54.87         | 0.56         |   | 136  | Bhutan                     | -1.12 | 19.63         | 0.05         | ○ |
| 64   | Thailand                 | 0.23  | 54.74         | 0.56         |   | 137  | Algeria                    | -1.29 | 15.06         | 0.04         | ○ |
| 65   | Trinidad and Tobago      | 0.22  | 54.54         | 0.55         |   | 138  | Iran, Islamic Rep.         | -1.43 | 11.58         | 0.04         | ○ |
| 66   | Jordan                   | 0.18  | 53.45         | 0.54         |   | 139  | Sudan                      | -1.51 | 9.33          | 0.03         |   |
| 67   | Albania                  | 0.17  | 53.20         | 0.54         |   | 140  | Venezuela, Bolivarian Rep. | -1.54 | 8.70          | 0.02         | ○ |
| 68   | Ghana                    | 0.12  | 51.85         | 0.53         |   | 141  | Uzbekistan                 | -1.61 | 6.72          | 0.01         | ○ |
| 69   | Saudi Arabia             | 0.10  | 51.48         | 0.52         |   | 142  | Zimbabwe                   | -1.83 | 1.07          | 0.01         | ○ |
| 70   | Brazil                   | 0.09  | 51.19         | 0.51         |   | 143  | Myanmar                    | -1.87 | 0.00          | 0.00         | ○ |
| 71   | Namibia                  | 0.06  | 50.51         | 0.51         |   |      |                            |       |               |              |   |
| 72   | Cabo Verde               | 0.04  | 49.85         | 0.50         |   |      |                            |       |               |              |   |
| 73   | Montenegro               | 0.01  | 49.08         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: World Bank, *World Governance Indicators 2013 update*

NOTE: ● indicates a strength; ○ a weakness.

# 1.2.2 Rule of law

## Rule of law index | 2012

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Norway                   | 1.95  | 100.00        | 1.00         | ● | 74   | TFYR of Macedonia          | -0.24 | 39.85         | 0.49         |   |
| 2    | Finland                  | 1.94  | 99.84         | 0.99         | ● | 75   | Malawi                     | -0.24 | 39.67         | 0.48         |   |
| 3    | Sweden                   | 1.93  | 99.60         | 0.99         | ● | 76   | Rwanda                     | -0.26 | 39.13         | 0.47         |   |
| 4    | New Zealand              | 1.88  | 98.03         | 0.98         | ● | 77   | Lesotho                    | -0.29 | 38.50         | 0.46         |   |
| 5    | Denmark                  | 1.85  | 97.30         | 0.97         | ● | 78   | Senegal                    | -0.33 | 37.32         | 0.46         |   |
| 6    | Austria                  | 1.84  | 97.05         | 0.96         | ● | 79   | Uganda                     | -0.36 | 36.53         | 0.45         |   |
| 7    | Netherlands              | 1.84  | 97.04         | 0.96         |   | 80   | Moldova, Rep.              | -0.36 | 36.49         | 0.44         |   |
| 8    | Switzerland              | 1.81  | 96.23         | 0.95         |   | 81   | Mongolia                   | -0.38 | 35.87         | 0.44         |   |
| 9    | Luxembourg               | 1.77  | 95.18         | 0.94         |   | 82   | Serbia                     | -0.39 | 35.76         | 0.43         |   |
| 10   | Singapore                | 1.77  | 95.14         | 0.94         |   | 83   | Colombia                   | -0.39 | 35.59         | 0.42         |   |
| 11   | Canada                   | 1.75  | 94.61         | 0.93         |   | 84   | Armenia                    | -0.40 | 35.42         | 0.42         |   |
| 12   | Australia                | 1.75  | 94.41         | 0.92         |   | 85   | Zambia                     | -0.40 | 35.29         | 0.41         |   |
| 13   | Ireland                  | 1.73  | 93.97         | 0.92         |   | 86   | Jamaica                    | -0.41 | 35.01         | 0.40         |   |
| 14   | United Kingdom           | 1.69  | 92.87         | 0.91         |   | 87   | Burkina Faso               | -0.43 | 34.46         | 0.39         |   |
| 15   | Iceland                  | 1.67  | 92.38         | 0.90         |   | 88   | Egypt                      | -0.45 | 33.94         | 0.39         |   |
| 16   | Germany                  | 1.64  | 91.43         | 0.89         |   | 89   | Swaziland                  | -0.46 | 33.59         | 0.38         |   |
| 17   | United States of America | 1.60  | 90.53         | 0.89         |   | 90   | China                      | -0.49 | 32.92         | 0.37         |   |
| 18   | Hong Kong (China)        | 1.56  | 89.20         | 0.88         |   | 91   | Viet Nam                   | -0.50 | 32.51         | 0.37         |   |
| 19   | France                   | 1.43  | 85.75         | 0.87         |   | 92   | Guyana                     | -0.52 | 32.09         | 0.36         |   |
| 20   | Belgium                  | 1.40  | 84.76         | 0.87         |   | 93   | Gambia                     | -0.54 | 31.42         | 0.35         |   |
| 21   | Chile                    | 1.37  | 83.98         | 0.86         | ● | 94   | Philippines                | -0.55 | 31.37         | 0.35         |   |
| 22   | Malta                    | 1.34  | 83.11         | 0.85         |   | 95   | Mexico                     | -0.56 | 31.02         | 0.34         |   |
| 23   | Japan                    | 1.32  | 82.78         | 0.85         |   | 96   | Albania                    | -0.57 | 30.71         | 0.33         |   |
| 24   | Estonia                  | 1.13  | 77.38         | 0.84         |   | 97   | Tanzania, United Rep.      | -0.58 | 30.52         | 0.32         |   |
| 25   | Cyprus                   | 1.07  | 75.78         | 0.83         |   | 98   | Indonesia                  | -0.60 | 29.95         | 0.32         |   |
| 26   | Spain                    | 1.04  | 75.08         | 0.82         |   | 99   | Mozambique                 | -0.60 | 29.86         | 0.31         |   |
| 27   | Portugal                 | 1.04  | 74.95         | 0.82         |   | 100  | Peru                       | -0.61 | 29.53         | 0.30         |   |
| 28   | Qatar                    | 1.03  | 74.78         | 0.81         |   | 101  | Benin                      | -0.64 | 28.78         | 0.30         |   |
| 29   | Czech Republic           | 1.01  | 74.06         | 0.80         |   | 102  | Ethiopia                   | -0.66 | 28.33         | 0.29         |   |
| 30   | Barbados                 | 0.99  | 73.72         | 0.80         |   | 103  | Kazakhstan                 | -0.66 | 28.13         | 0.28         |   |
| 31   | Slovenia                 | 0.98  | 73.35         | 0.79         |   | 104  | Mali                       | -0.69 | 27.32         | 0.27         |   |
| 32   | Korea, Rep.              | 0.97  | 73.03         | 0.78         |   | 105  | Dominican Republic         | -0.70 | 27.04         | 0.27         |   |
| 33   | Mauritius                | 0.94  | 72.10         | 0.77         |   | 106  | Argentina                  | -0.71 | 26.73         | 0.26         |   |
| 34   | Israel                   | 0.92  | 71.60         | 0.77         |   | 107  | Nicaragua                  | -0.74 | 26.14         | 0.25         |   |
| 35   | Brunei Darussalam        | 0.81  | 68.59         | 0.76         | ● | 108  | Niger                      | -0.74 | 26.06         | 0.25         |   |
| 36   | Lithuania                | 0.81  | 68.58         | 0.75         |   | 109  | El Salvador                | -0.75 | 25.87         | 0.24         |   |
| 37   | Latvia                   | 0.76  | 67.24         | 0.75         |   | 110  | Lebanon                    | -0.75 | 25.70         | 0.23         |   |
| 38   | Poland                   | 0.74  | 66.87         | 0.74         |   | 111  | Nepal                      | -0.79 | 24.65         | 0.23         |   |
| 39   | Botswana                 | 0.66  | 64.52         | 0.73         |   | 112  | Ukraine                    | -0.79 | 24.51         | 0.22         |   |
| 40   | Hungary                  | 0.60  | 62.75         | 0.73         |   | 113  | Algeria                    | -0.79 | 24.51         | 0.21         |   |
| 41   | Oman                     | 0.58  | 62.46         | 0.72         | ● | 114  | Fiji                       | -0.80 | 24.33         | 0.20         |   |
| 42   | United Arab Emirates     | 0.56  | 61.77         | 0.71         |   | 115  | Azerbaijan                 | -0.81 | 24.22         | 0.20         |   |
| 43   | Uruguay                  | 0.54  | 61.31         | 0.70         |   | 116  | Russian Federation         | -0.82 | 23.79         | 0.19         | ○ |
| 44   | Malaysia                 | 0.51  | 60.30         | 0.70         |   | 117  | Kenya                      | -0.87 | 22.58         | 0.18         |   |
| 45   | Cabo Verde               | 0.48  | 59.56         | 0.69         | ● | 118  | Paraguay                   | -0.87 | 22.34         | 0.18         |   |
| 46   | Costa Rica               | 0.47  | 59.36         | 0.68         |   | 119  | Madagascar                 | -0.89 | 21.85         | 0.17         |   |
| 47   | Slovakia                 | 0.46  | 58.93         | 0.68         |   | 120  | Iran, Islamic Rep.         | -0.90 | 21.60         | 0.16         |   |
| 48   | Greece                   | 0.39  | 57.19         | 0.67         |   | 121  | Bangladesh                 | -0.91 | 21.39         | 0.15         |   |
| 49   | Kuwait                   | 0.38  | 56.96         | 0.66         |   | 122  | Pakistan                   | -0.91 | 21.34         | 0.15         |   |
| 50   | Jordan                   | 0.37  | 56.63         | 0.65         |   | 123  | Togo                       | -0.92 | 21.12         | 0.14         |   |
| 51   | Italy                    | 0.36  | 56.30         | 0.65         |   | 124  | Belarus                    | -0.92 | 21.02         | 0.13         | ○ |
| 52   | Bahrain                  | 0.28  | 53.97         | 0.64         |   | 125  | Cambodia                   | -0.97 | 19.82         | 0.13         |   |
| 53   | Saudi Arabia             | 0.24  | 53.03         | 0.63         |   | 126  | Cameroon                   | -1.02 | 18.29         | 0.12         |   |
| 54   | Namibia                  | 0.24  | 52.85         | 0.63         |   | 127  | Bolivia, Plurinational St. | -1.04 | 17.73         | 0.11         | ○ |
| 55   | Croatia                  | 0.21  | 52.22         | 0.62         |   | 128  | Burundi                    | -1.09 | 16.42         | 0.11         |   |
| 56   | Bhutan                   | 0.19  | 51.59         | 0.61         | ● | 129  | Guatemala                  | -1.10 | 16.19         | 0.10         |   |
| 57   | South Africa             | 0.08  | 48.56         | 0.61         |   | 130  | Côte d'Ivoire              | -1.11 | 15.86         | 0.09         | ○ |
| 58   | Turkey                   | 0.04  | 47.35         | 0.60         |   | 131  | Kyrgyzstan                 | -1.15 | 14.70         | 0.08         |   |
| 59   | Romania                  | -0.02 | 46.93         | 0.59         |   | 132  | Ecuador                    | -1.16 | 14.47         | 0.08         | ○ |
| 60   | Montenegro               | -0.01 | 46.18         | 0.58         |   | 133  | Honduras                   | -1.17 | 14.17         | 0.07         | ○ |
| 61   | Georgia                  | -0.03 | 45.58         | 0.58         |   | 134  | Tajikistan                 | -1.18 | 14.03         | 0.06         | ○ |
| 62   | Ghana                    | -0.03 | 45.46         | 0.57         | ● | 135  | Nigeria                    | -1.18 | 13.89         | 0.06         | ○ |
| 63   | Seychelles               | -0.04 | 45.35         | 0.56         |   | 136  | Sudan                      | -1.21 | 13.13         | 0.05         |   |
| 64   | India                    | -0.10 | 43.50         | 0.56         |   | 137  | Yemen                      | -1.27 | 11.57         | 0.04         |   |
| 65   | Sri Lanka                | -0.11 | 43.41         | 0.55         |   | 138  | Uzbekistan                 | -1.27 | 11.52         | 0.04         | ○ |
| 66   | Brazil                   | -0.11 | 43.35         | 0.54         |   | 139  | Angola                     | -1.28 | 11.26         | 0.03         | ○ |
| 67   | Bulgaria                 | -0.12 | 42.97         | 0.54         |   | 140  | Myanmar                    | -1.35 | 9.12          | 0.02         |   |
| 68   | Tunisia                  | -0.14 | 42.65         | 0.53         |   | 141  | Guinea                     | -1.44 | 6.83          | 0.01         | ○ |
| 69   | Thailand                 | -0.17 | 41.64         | 0.52         |   | 142  | Zimbabwe                   | -1.62 | 1.87          | 0.01         | ○ |
| 70   | Trinidad and Tobago      | -0.19 | 41.19         | 0.51         |   | 143  | Venezuela, Bolivarian Rep. | -1.69 | 0.00          | 0.00         | ○ |
| 71   | Morocco                  | -0.19 | 41.03         | 0.51         |   |      |                            |       |               |              |   |
| 72   | Panama                   | -0.23 | 40.04         | 0.50         |   |      |                            |       |               |              |   |
| 73   | Bosnia and Herzegovina   | -0.23 | 40.04         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: World Bank, *World Governance Indicators 2013 update*  
 NOTE: ● indicates a strength; ○ a weakness.

# 1.2.3 Cost of redundancy dismissal

Sum of notice period and severance pay for redundancy dismissal (in salary weeks, averages for workers with 1, 5, and 10 years of tenure, with a minimum threshold of 8 weeks) | 2013

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Austria                  | 8.00  | 100.00        | 0.85         | ● | 74   | Burundi                    | 15.89 | 84.15         | 0.48         |   |
| 1    | Bahrain                  | 8.00  | 100.00        | 0.85         | ● | 74   | Greece                     | 15.89 | 84.15         | 0.48         |   |
| 1    | Belgium                  | 8.00  | 100.00        | 0.85         | ● | 76   | Barbados                   | 16.00 | 83.93         | 0.47         |   |
| 1    | Brunei Darussalam        | 8.00  | 100.00        | 0.85         | ● | 77   | Nigeria                    | 16.20 | 83.53         | 0.46         |   |
| 1    | Bulgaria                 | 8.00  | 100.00        | 0.85         | ● | 78   | Colombia                   | 16.67 | 82.59         | 0.44         |   |
| 1    | Cyprus                   | 8.00  | 100.00        | 0.85         | ● | 78   | Guyana                     | 16.67 | 82.59         | 0.44         |   |
| 1    | Denmark                  | 8.00  | 100.00        | 0.85         | ● | 78   | Malawi                     | 16.67 | 82.59         | 0.44         |   |
| 1    | Georgia                  | 8.00  | 100.00        | 0.85         | ● | 81   | Algeria                    | 17.33 | 81.25         | 0.42         | ● |
| 1    | Guinea                   | 8.00  | 100.00        | 0.85         | ● | 81   | Kyrgyzstan                 | 17.33 | 81.25         | 0.42         |   |
| 1    | Hong Kong (China)        | 8.00  | 100.00        | 0.85         | ● | 81   | Russian Federation         | 17.33 | 81.25         | 0.42         |   |
| 1    | Italy                    | 8.00  | 100.00        | 0.85         | ● | 81   | Uzbekistan                 | 17.33 | 81.25         | 0.42         |   |
| 1    | Japan                    | 8.00  | 100.00        | 0.85         | ● | 85   | Spain                      | 17.38 | 81.15         | 0.41         | ○ |
| 1    | Jordan                   | 8.00  | 100.00        | 0.85         | ● | 86   | Panama                     | 18.13 | 79.64         | 0.40         |   |
| 1    | Kenya                    | 8.00  | 100.00        | 0.85         | ● | 87   | Costa Rica                 | 18.70 | 78.50         | 0.39         |   |
| 1    | Malta                    | 8.00  | 100.00        | 0.85         | ● | 88   | Poland                     | 18.78 | 78.35         | 0.38         |   |
| 1    | New Zealand              | 8.00  | 100.00        | 0.85         | ● | 88   | Slovakia                   | 18.78 | 78.35         | 0.38         |   |
| 1    | Oman                     | 8.00  | 100.00        | 0.85         | ● | 90   | Ethiopia                   | 19.14 | 77.61         | 0.37         |   |
| 1    | Romania                  | 8.00  | 100.00        | 0.85         | ● | 91   | Cambodia                   | 19.37 | 77.17         | 0.37         |   |
| 1    | Serbia                   | 8.00  | 100.00        | 0.85         | ● | 92   | Saudi Arabia               | 19.45 | 76.99         | 0.36         |   |
| 1    | Singapore                | 8.00  | 100.00        | 0.85         | ● | 93   | Myanmar                    | 20.22 | 75.45         | 0.35         | ● |
| 1    | United Arab Emirates     | 8.00  | 100.00        | 0.85         | ● | 94   | Czech Republic             | 20.22 | 75.45         | 0.35         | ○ |
| 1    | United States of America | 8.00  | 100.00        | 0.85         | ● | 95   | Trinidad and Tobago        | 20.51 | 74.86         | 0.34         |   |
| 23   | Bhutan                   | 8.29  | 99.43         | 0.85         | ● | 96   | Morocco                    | 20.69 | 74.51         | 0.33         |   |
| 24   | United Kingdom           | 8.47  | 99.06         | 0.84         | ● | 97   | Uruguay                    | 20.80 | 74.29         | 0.32         |   |
| 25   | Kazakhstan               | 8.67  | 98.66         | 0.80         | ● | 98   | Albania                    | 20.83 | 74.23         | 0.32         |   |
| 25   | Lebanon                  | 8.67  | 98.66         | 0.80         | ● | 99   | Germany                    | 21.56 | 72.77         | 0.31         | ○ |
| 25   | Mongolia                 | 8.67  | 98.66         | 0.80         | ● | 100  | Azerbaijan                 | 21.67 | 72.54         | 0.29         |   |
| 25   | Netherlands              | 8.67  | 98.66         | 0.80         | ● | 100  | Belarus                    | 21.67 | 72.54         | 0.29         |   |
| 25   | Norway                   | 8.67  | 98.66         | 0.80         | ● | 100  | Luxembourg                 | 21.67 | 72.54         | 0.29         | ○ |
| 25   | Uganda                   | 8.67  | 98.66         | 0.80         | ● | 103  | Botswana                   | 21.69 | 72.50         | 0.28         |   |
| 31   | Bosnia and Herzegovina   | 9.22  | 97.54         | 0.79         | ● | 104  | Mexico                     | 22.00 | 71.88         | 0.27         |   |
| 32   | South Africa             | 9.33  | 97.32         | 0.77         | ● | 105  | Moldova, Rep.              | 22.60 | 70.67         | 0.27         |   |
| 32   | Tanzania, United Rep.    | 9.33  | 97.32         | 0.77         | ● | 106  | El Salvador                | 22.86 | 70.15         | 0.26         |   |
| 34   | Fiji                     | 9.67  | 96.65         | 0.75         | ● | 107  | Portugal                   | 23.10 | 69.67         | 0.25         | ○ |
| 34   | Latvia                   | 9.67  | 96.65         | 0.75         | ● | 108  | Iran, Islamic Rep.         | 23.11 | 69.64         | 0.25         |   |
| 34   | Namibia                  | 9.67  | 96.65         | 0.75         | ● | 109  | Qatar                      | 23.22 | 69.42         | 0.24         |   |
| 37   | Canada                   | 10.00 | 95.98         | 0.75         | ● | 110  | Malaysia                   | 23.89 | 68.08         | 0.23         | ○ |
| 38   | Finland                  | 10.11 | 95.76         | 0.73         | ● | 111  | Lithuania                  | 24.56 | 66.74         | 0.22         | ○ |
| 38   | Iceland                  | 10.11 | 95.76         | 0.73         | ● | 111  | Viet Nam                   | 24.56 | 66.74         | 0.22         |   |
| 38   | Switzerland              | 10.11 | 95.76         | 0.73         | ● | 113  | Gambia                     | 26.00 | 63.84         | 0.20         |   |
| 41   | Niger                    | 10.12 | 95.74         | 0.72         | ● | 113  | Sudan                      | 26.00 | 63.84         | 0.20         |   |
| 42   | Burkina Faso             | 10.47 | 95.03         | 0.71         | ● | 115  | Paraguay                   | 26.07 | 63.70         | 0.20         |   |
| 43   | Mauritius                | 10.62 | 94.74         | 0.70         | ● | 116  | Dominican Republic         | 26.18 | 63.47         | 0.19         |   |
| 44   | Slovenia                 | 10.68 | 94.62         | 0.70         | ● | 117  | Guatemala                  | 26.96 | 61.90         | 0.18         |   |
| 45   | Armenia                  | 11.00 | 93.97         | 0.69         | ● | 118  | Nepal                      | 27.19 | 61.45         | 0.17         |   |
| 46   | Montenegro               | 11.22 | 93.53         | 0.68         | ● | 118  | Pakistan                   | 27.19 | 61.45         | 0.17         |   |
| 47   | Peru                     | 11.43 | 93.11         | 0.68         | ● | 120  | Chile                      | 27.40 | 61.03         | 0.14         | ○ |
| 48   | Benin                    | 11.63 | 92.71         | 0.67         | ● | 120  | China                      | 27.40 | 61.03         | 0.14         | ○ |
| 49   | Australia                | 11.67 | 92.63         | 0.66         | ● | 120  | Korea, Rep.                | 27.40 | 61.03         | 0.14         | ○ |
| 50   | France                   | 11.84 | 92.28         | 0.65         | ● | 120  | Yemen                      | 27.40 | 61.03         | 0.14         |   |
| 51   | Tunisia                  | 12.10 | 91.77         | 0.65         | ● | 124  | Israel                     | 27.44 | 60.94         | 0.13         | ○ |
| 52   | Ireland                  | 12.17 | 91.63         | 0.64         | ● | 124  | Philippines                | 27.44 | 60.94         | 0.13         | ○ |
| 53   | Madagascar               | 12.25 | 91.45         | 0.63         | ● | 126  | Kuwait                     | 28.12 | 59.58         | 0.12         | ○ |
| 54   | Estonia                  | 12.90 | 90.15         | 0.63         | ● | 127  | Cabo Verde                 | 29.54 | 56.73         | 0.11         | ○ |
| 55   | Rwanda                   | 12.95 | 90.05         | 0.62         | ● | 128  | Turkey                     | 29.78 | 56.25         | 0.11         | ○ |
| 56   | TFYR of Macedonia        | 13.00 | 89.96         | 0.61         | ● | 129  | Argentina                  | 30.33 | 55.13         | 0.09         | ○ |
| 56   | Ukraine                  | 13.00 | 89.96         | 0.61         | ● | 129  | Honduras                   | 30.33 | 55.13         | 0.09         | ○ |
| 58   | Côte d'Ivoire            | 13.07 | 89.81         | 0.60         | ● | 131  | Bangladesh                 | 31.00 | 53.79         | 0.08         |   |
| 59   | Togo                     | 13.14 | 89.67         | 0.59         | ● | 132  | Angola                     | 31.01 | 53.78         | 0.08         |   |
| 60   | Hungary                  | 13.41 | 89.13         | 0.58         | ● | 133  | Ecuador                    | 31.78 | 52.23         | 0.07         | ○ |
| 61   | Seychelles               | 13.48 | 89.00         | 0.58         | ● | 134  | Thailand                   | 36.00 | 43.75         | 0.06         | ○ |
| 62   | Mali                     | 13.65 | 88.65         | 0.57         | ● | 135  | Egypt                      | 36.83 | 42.08         | 0.06         | ○ |
| 63   | Senegal                  | 13.69 | 88.56         | 0.56         | ● | 136  | Mozambique                 | 37.51 | 40.72         | 0.05         | ○ |
| 64   | Jamaica                  | 14.00 | 87.95         | 0.56         | ● | 137  | Ghana                      | 49.78 | 16.07         | 0.04         | ○ |
| 65   | Sweden                   | 14.44 | 87.05         | 0.55         | ○ | 138  | Zambia                     | 50.56 | 14.51         | 0.04         | ○ |
| 66   | Swaziland                | 14.57 | 86.80         | 0.54         | ● | 139  | Bolivia, Plurinational St. | 82.33 | 0.00          | 0.00         | ○ |
| 67   | Nicaragua                | 14.93 | 86.09         | 0.54         | ● | 139  | Indonesia                  | 57.78 | 0.00          | 0.00         | ○ |
| 68   | Lesotho                  | 15.00 | 85.94         | 0.53         | ● | 139  | Sri Lanka                  | 69.33 | 0.00          | 0.00         | ○ |
| 69   | Croatia                  | 15.11 | 85.71         | 0.52         | ● | 139  | Venezuela, Bolivarian Rep. | 82.33 | 0.00          | 0.00         | ○ |
| 70   | Cameroon                 | 15.31 | 85.31         | 0.51         | ● | 139  | Zimbabwe                   | 82.33 | 0.00          | 0.00         | ○ |
| 71   | Brazil                   | 15.45 | 85.04         | 0.51         | ● |      |                            |       |               |              |   |
| 72   | Tajikistan               | 15.53 | 84.88         | 0.50         | ● |      |                            |       |               |              |   |
| 73   | India                    | 15.76 | 84.41         | 0.49         | ● |      |                            |       |               |              |   |

SOURCE: World Bank, *Doing Business 2014, Employing Workers*

NOTE: ● indicates a strength; ○ a weakness.

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | New Zealand              | 99.96 | 99.96         | 1.00         | ● | 74   | Tajikistan                 | 82.68 | 82.68         | 0.49         |   |
| 2    | Canada                   | 98.97 | 98.97         | 0.99         | ● | 75   | Ghana                      | 82.49 | 82.49         | 0.48         |   |
| 3    | TFYR of Macedonia        | 97.66 | 97.66         | 0.99         | ● | 76   | Germany                    | 82.09 | 82.09         | 0.47         |   |
| 4    | Georgia                  | 97.47 | 97.47         | 0.98         | ● | 77   | Qatar                      | 82.08 | 82.08         | 0.46         |   |
| 5    | Rwanda                   | 97.36 | 97.36         | 0.97         | ● | 78   | Japan                      | 81.90 | 81.90         | 0.46         |   |
| 6    | Armenia                  | 97.32 | 97.32         | 0.96         | ● | 79   | Guyana                     | 81.75 | 81.75         | 0.45         |   |
| 7    | Kyrgyzstan               | 96.25 | 96.25         | 0.96         | ● | 80   | Lesotho                    | 81.69 | 81.69         | 0.44         |   |
| 8    | Singapore                | 95.92 | 95.92         | 0.95         |   | 81   | Colombia                   | 81.64 | 81.64         | 0.44         |   |
| 9    | Australia                | 95.91 | 95.91         | 0.94         | ● | 82   | Nepal                      | 81.52 | 81.52         | 0.43         |   |
| 10   | Hong Kong (China)        | 95.89 | 95.89         | 0.94         |   | 83   | Trinidad and Tobago        | 81.11 | 81.11         | 0.42         |   |
| 11   | Portugal                 | 95.71 | 95.71         | 0.93         | ● | 84   | Tunisia                    | 81.07 | 81.07         | 0.42         |   |
| 12   | Madagascar               | 95.03 | 95.03         | 0.92         | ● | 85   | Dominican Republic         | 81.01 | 81.01         | 0.41         |   |
| 13   | Azerbaijan               | 94.89 | 94.89         | 0.92         | ● | 86   | Saudi Arabia               | 80.75 | 80.75         | 0.40         |   |
| 14   | Slovenia                 | 94.84 | 94.84         | 0.91         |   | 87   | Mozambique                 | 80.74 | 80.74         | 0.39         |   |
| 15   | Malaysia                 | 94.31 | 94.31         | 0.90         |   | 88   | Oman                       | 80.58 | 80.58         | 0.39         |   |
| 16   | Belgium                  | 94.15 | 94.15         | 0.89         |   | 89   | Guatemala                  | 80.38 | 80.38         | 0.38         |   |
| 17   | Burundi                  | 93.34 | 93.34         | 0.89         | ● | 90   | Lebanon                    | 80.09 | 80.09         | 0.37         |   |
| 18   | Netherlands              | 93.26 | 93.26         | 0.88         |   | 91   | Bhutan                     | 80.02 | 80.02         | 0.37         |   |
| 19   | Lithuania                | 93.23 | 93.23         | 0.87         | ● | 92   | Costa Rica                 | 79.44 | 79.44         | 0.36         |   |
| 20   | Finland                  | 93.01 | 93.01         | 0.87         |   | 93   | Austria                    | 79.22 | 79.22         | 0.35         |   |
| 21   | Ireland                  | 92.54 | 92.54         | 0.86         |   | 94   | Czech Republic             | 79.12 | 79.12         | 0.35         | ○ |
| 22   | Uzbekistan               | 92.47 | 92.47         | 0.85         | ● | 95   | El Salvador                | 78.40 | 78.40         | 0.34         |   |
| 23   | Denmark                  | 92.35 | 92.35         | 0.85         |   | 96   | Pakistan                   | 78.20 | 78.20         | 0.33         |   |
| 24   | Sweden                   | 92.34 | 92.34         | 0.84         |   | 97   | Spain                      | 77.79 | 77.79         | 0.32         | ○ |
| 25   | Hungary                  | 92.16 | 92.16         | 0.83         |   | 98   | Côte d'Ivoire              | 77.77 | 77.77         | 0.32         |   |
| 26   | Latvia                   | 91.79 | 91.79         | 0.82         |   | 99   | Cameroon                   | 76.87 | 76.87         | 0.31         |   |
| 27   | France                   | 91.43 | 91.43         | 0.82         |   | 100  | Tanzania, United Rep.      | 76.82 | 76.82         | 0.30         |   |
| 28   | Mauritius                | 91.23 | 91.23         | 0.81         |   | 101  | Paraguay                   | 76.43 | 76.43         | 0.30         |   |
| 29   | Iceland                  | 91.14 | 91.14         | 0.80         |   | 102  | Senegal                    | 76.23 | 76.23         | 0.29         |   |
| 30   | Norway                   | 90.99 | 90.99         | 0.80         |   | 103  | Bahrain                    | 76.16 | 76.16         | 0.28         |   |
| 31   | Belarus                  | 90.90 | 90.90         | 0.79         |   | 104  | Viet Nam                   | 75.69 | 75.69         | 0.27         |   |
| 32   | Jamaica                  | 90.88 | 90.88         | 0.78         | ● | 105  | Yemen                      | 74.50 | 74.50         | 0.27         |   |
| 33   | Panama                   | 90.79 | 90.79         | 0.77         |   | 106  | Nigeria                    | 74.48 | 74.48         | 0.26         |   |
| 33   | Romania                  | 90.79 | 90.79         | 0.77         | ● | 107  | Seychelles                 | 74.19 | 74.19         | 0.25         |   |
| 35   | Bulgaria                 | 90.70 | 90.70         | 0.76         |   | 108  | Sudan                      | 73.69 | 73.69         | 0.25         |   |
| 36   | Mongolia                 | 90.39 | 90.39         | 0.75         |   | 109  | Burkina Faso               | 73.25 | 73.25         | 0.24         |   |
| 37   | Estonia                  | 90.35 | 90.35         | 0.75         |   | 110  | Botswana                   | 72.58 | 72.58         | 0.23         |   |
| 38   | Korea, Rep.              | 90.01 | 90.01         | 0.74         |   | 111  | Kenya                      | 72.46 | 72.46         | 0.23         |   |
| 39   | United States of America | 89.91 | 89.91         | 0.73         |   | 112  | Nicaragua                  | 72.27 | 72.27         | 0.22         |   |
| 40   | Albania                  | 89.44 | 89.44         | 0.73         |   | 113  | Malta                      | 72.26 | 72.26         | 0.21         | ○ |
| 41   | Israel                   | 89.42 | 89.42         | 0.71         |   | 114  | Bosnia and Herzegovina     | 70.95 | 70.95         | 0.20         |   |
| 41   | Morocco                  | 89.42 | 89.42         | 0.71         | ● | 115  | Kuwait                     | 69.51 | 69.51         | 0.20         |   |
| 43   | Greece                   | 89.36 | 89.36         | 0.70         |   | 116  | Honduras                   | 69.43 | 69.43         | 0.19         |   |
| 44   | Uruguay                  | 88.82 | 88.82         | 0.70         |   | 117  | Indonesia                  | 69.19 | 69.19         | 0.18         |   |
| 45   | Montenegro               | 88.81 | 88.81         | 0.69         |   | 118  | Swaziland                  | 68.82 | 68.82         | 0.18         |   |
| 46   | South Africa             | 88.78 | 88.78         | 0.68         |   | 119  | Argentina                  | 68.77 | 68.77         | 0.17         |   |
| 47   | United Arab Emirates     | 88.66 | 88.66         | 0.68         |   | 120  | Algeria                    | 68.53 | 68.53         | 0.16         |   |
| 48   | Moldova, Rep.            | 88.61 | 88.61         | 0.67         |   | 121  | Namibia                    | 67.85 | 67.85         | 0.15         |   |
| 49   | United Kingdom           | 88.53 | 88.53         | 0.66         | ○ | 122  | China                      | 67.38 | 67.38         | 0.15         | ○ |
| 50   | Kazakhstan               | 88.49 | 88.49         | 0.65         |   | 123  | Mali                       | 66.79 | 66.79         | 0.14         |   |
| 51   | Croatia                  | 88.32 | 88.32         | 0.64         |   | 124  | Fiji                       | 66.59 | 66.59         | 0.13         | ○ |
| 51   | Zambia                   | 88.32 | 88.32         | 0.64         | ● | 125  | Philippines                | 65.00 | 65.00         | 0.13         | ○ |
| 53   | Chile                    | 88.11 | 88.11         | 0.63         |   | 126  | Guinea                     | 64.27 | 64.27         | 0.12         |   |
| 54   | Cyprus                   | 87.96 | 87.96         | 0.63         |   | 127  | Benin                      | 63.84 | 63.84         | 0.11         |   |
| 55   | Thailand                 | 87.94 | 87.94         | 0.62         |   | 128  | Ecuador                    | 63.34 | 63.34         | 0.11         | ○ |
| 56   | Serbia                   | 87.80 | 87.80         | 0.61         |   | 129  | India                      | 62.74 | 62.74         | 0.10         | ○ |
| 57   | Turkey                   | 87.69 | 87.69         | 0.61         |   | 130  | Ethiopia                   | 61.43 | 61.43         | 0.09         |   |
| 58   | Italy                    | 87.68 | 87.68         | 0.60         |   | 131  | Malawi                     | 60.87 | 60.87         | 0.08         | ○ |
| 59   | Mexico                   | 87.50 | 87.50         | 0.59         |   | 132  | Gambia                     | 60.76 | 60.76         | 0.08         |   |
| 60   | Sri Lanka                | 86.96 | 86.96         | 0.58         |   | 133  | Uganda                     | 58.71 | 58.71         | 0.07         | ○ |
| 61   | Egypt                    | 86.49 | 86.49         | 0.58         |   | 134  | Angola                     | 56.48 | 56.48         | 0.06         |   |
| 62   | Ukraine                  | 86.44 | 86.44         | 0.57         |   | 135  | Bolivia, Plurinational St. | 55.72 | 55.72         | 0.06         | ○ |
| 63   | Peru                     | 86.29 | 86.29         | 0.56         |   | 136  | Brazil                     | 54.66 | 54.66         | 0.05         | ○ |
| 64   | Russian Federation       | 85.91 | 85.91         | 0.56         |   | 137  | Niger                      | 52.83 | 52.83         | 0.04         |   |
| 65   | Luxembourg               | 85.89 | 85.89         | 0.55         |   | 138  | Brunei Darussalam          | 51.87 | 51.87         | 0.04         | ○ |
| 66   | Poland                   | 85.86 | 85.86         | 0.54         |   | 139  | Togo                       | 51.49 | 51.49         | 0.03         | ○ |
| 67   | Switzerland              | 85.74 | 85.74         | 0.54         | ○ | 140  | Zimbabwe                   | 49.20 | 49.20         | 0.02         | ○ |
| 68   | Cabo Verde               | 85.59 | 85.59         | 0.53         |   | 141  | Venezuela, Bolivarian Rep. | 45.72 | 45.72         | 0.01         | ○ |
| 69   | Bangladesh               | 84.71 | 84.71         | 0.52         |   | 142  | Cambodia                   | 40.08 | 40.08         | 0.01         | ○ |
| 70   | Slovakia                 | 84.22 | 84.22         | 0.51         |   | 143  | Myanmar                    | 20.29 | 20.29         | 0.00         | ○ |
| 71   | Jordan                   | 84.10 | 84.10         | 0.51         |   |      |                            |       |               |              |   |
| 72   | Iran, Islamic Rep.       | 83.72 | 83.72         | 0.50         |   |      |                            |       |               |              |   |
| 73   | Barbados                 | 82.81 | 82.81         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: World Bank, Ease of Doing Business Index 2014, *Doing Business 2014*

NOTE: ● indicates a strength; ○ a weakness.



# 1.3.2 Ease of resolving insolvency

## Ease of resolving insolvency (distance to frontier) | 2013

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Japan                      | 98.31 | 98.31         | 1.00         | ● | 74   | Namibia                    | 37.01 | 37.01         | 0.48         |   |
| 2    | Norway                     | 96.72 | 96.72         | 0.99         | ● | 74   | Nicaragua                  | 37.01 | 37.01         | 0.48         |   |
| 3    | Finland                    | 95.55 | 95.55         | 0.99         |   | 76   | Azerbaijan                 | 35.98 | 35.98         | 0.47         |   |
| 4    | Singapore                  | 94.66 | 94.66         | 0.98         |   | 77   | Greece                     | 35.97 | 35.97         | 0.46         |   |
| 5    | Netherlands                | 94.49 | 94.49         | 0.97         | ● | 78   | Georgia                    | 35.54 | 35.54         | 0.45         |   |
| 6    | Belgium                    | 94.23 | 94.23         | 0.96         | ● | 79   | Sudan                      | 35.20 | 35.20         | 0.45         | ● |
| 7    | United Kingdom             | 93.79 | 93.79         | 0.96         |   | 80   | El Salvador                | 34.75 | 34.75         | 0.44         |   |
| 8    | Ireland                    | 92.82 | 92.82         | 0.95         |   | 81   | Moldova, Rep.              | 34.72 | 34.72         | 0.43         |   |
| 9    | Canada                     | 92.46 | 92.46         | 0.94         |   | 82   | Bulgaria                   | 34.50 | 34.50         | 0.43         |   |
| 10   | Denmark                    | 92.14 | 92.14         | 0.94         |   | 83   | Lebanon                    | 34.34 | 34.34         | 0.42         |   |
| 11   | Iceland                    | 89.46 | 89.46         | 0.93         |   | 84   | Kuwait                     | 33.87 | 33.87         | 0.41         |   |
| 12   | New Zealand                | 88.26 | 88.26         | 0.92         |   | 85   | Côte d'Ivoire              | 33.65 | 33.65         | 0.40         | ● |
| 13   | Germany                    | 87.84 | 87.84         | 0.91         |   | 86   | Argentina                  | 32.64 | 32.64         | 0.40         | ● |
| 14   | Austria                    | 87.22 | 87.22         | 0.91         |   | 87   | Croatia                    | 32.09 | 32.09         | 0.39         |   |
| 15   | Korea, Rep.                | 87.12 | 87.12         | 0.90         |   | 88   | Romania                    | 31.72 | 31.72         | 0.38         |   |
| 16   | United States of America   | 86.31 | 86.31         | 0.89         |   | 89   | Philippines                | 31.69 | 31.69         | 0.38         |   |
| 17   | Australia                  | 86.14 | 86.14         | 0.89         |   | 90   | United Arab Emirates       | 31.09 | 31.09         | 0.37         |   |
| 18   | Hong Kong (China)          | 86.01 | 86.01         | 0.88         |   | 91   | Chile                      | 30.79 | 30.79         | 0.36         | ○ |
| 19   | Sweden                     | 79.98 | 79.98         | 0.87         |   | 92   | Serbia                     | 30.74 | 30.74         | 0.35         |   |
| 20   | Spain                      | 76.59 | 76.59         | 0.87         | ● | 93   | Lesotho                    | 30.25 | 30.25         | 0.35         |   |
| 21   | Portugal                   | 75.83 | 75.83         | 0.86         |   | 94   | Saudi Arabia               | 29.95 | 29.95         | 0.34         |   |
| 22   | Cyprus                     | 74.64 | 74.64         | 0.85         |   | 95   | Nigeria                    | 29.51 | 29.51         | 0.33         |   |
| 23   | Colombia                   | 74.47 | 74.47         | 0.84         | ● | 96   | Gambia                     | 29.41 | 29.41         | 0.33         |   |
| 24   | Mexico                     | 71.55 | 71.55         | 0.84         | ● | 97   | Peru                       | 29.30 | 29.30         | 0.32         |   |
| 25   | Bahrain                    | 71.35 | 71.35         | 0.83         |   | 98   | Togo                       | 29.21 | 29.21         | 0.31         |   |
| 26   | Barbados                   | 68.93 | 68.93         | 0.82         |   | 99   | Panama                     | 29.13 | 29.13         | 0.30         |   |
| 27   | Czech Republic             | 68.89 | 68.89         | 0.82         |   | 100  | Jordan                     | 28.80 | 28.80         | 0.30         |   |
| 28   | Jamaica                    | 68.03 | 68.03         | 0.81         | ● | 101  | Trinidad and Tobago        | 28.53 | 28.53         | 0.29         |   |
| 29   | Italy                      | 66.41 | 66.41         | 0.80         |   | 102  | Ghana                      | 27.71 | 27.71         | 0.28         |   |
| 30   | Botswana                   | 65.57 | 65.57         | 0.79         | ● | 103  | Burkina Faso               | 27.60 | 27.60         | 0.28         |   |
| 31   | Israel                     | 64.19 | 64.19         | 0.79         |   | 104  | Bangladesh                 | 27.28 | 27.28         | 0.27         |   |
| 32   | Qatar                      | 58.92 | 58.92         | 0.78         |   | 105  | India                      | 27.12 | 27.12         | 0.26         |   |
| 33   | Poland                     | 58.04 | 58.04         | 0.77         |   | 106  | Senegal                    | 26.81 | 26.81         | 0.26         |   |
| 34   | Slovakia                   | 57.30 | 57.30         | 0.77         |   | 107  | Kenya                      | 26.15 | 26.15         | 0.25         |   |
| 35   | Tunisia                    | 55.03 | 55.03         | 0.76         | ● | 108  | Costa Rica                 | 25.97 | 25.97         | 0.24         |   |
| 36   | Slovenia                   | 53.06 | 53.06         | 0.75         |   | 109  | Nepal                      | 25.95 | 25.95         | 0.23         |   |
| 37   | Malaysia                   | 51.84 | 51.84         | 0.74         |   | 110  | Yemen                      | 25.80 | 25.80         | 0.23         |   |
| 38   | Latvia                     | 51.30 | 51.30         | 0.74         |   | 111  | Iran, Islamic Rep.         | 23.71 | 23.71         | 0.22         |   |
| 39   | Lithuania                  | 51.26 | 51.26         | 0.72         |   | 112  | Turkey                     | 23.62 | 23.62         | 0.21         |   |
| 39   | Montenegro                 | 51.26 | 51.26         | 0.72         |   | 113  | Mali                       | 23.52 | 23.52         | 0.21         |   |
| 41   | France                     | 51.21 | 51.21         | 0.72         |   | 114  | Kyrgyzstan                 | 22.94 | 22.94         | 0.20         |   |
| 42   | Switzerland                | 50.37 | 50.37         | 0.71         |   | 115  | Mongolia                   | 22.86 | 22.86         | 0.19         |   |
| 43   | Brunei Darussalam          | 50.03 | 50.03         | 0.70         |   | 116  | Tanzania, United Rep.      | 22.71 | 22.71         | 0.18         |   |
| 44   | Fiji                       | 48.24 | 48.24         | 0.70         | ● | 117  | Brazil                     | 20.66 | 20.66         | 0.18         | ○ |
| 45   | Uruguay                    | 47.72 | 47.72         | 0.69         |   | 118  | Honduras                   | 20.63 | 20.63         | 0.17         |   |
| 46   | TFYR of Macedonia          | 46.36 | 46.36         | 0.68         |   | 119  | Rwanda                     | 20.17 | 20.17         | 0.16         |   |
| 47   | Luxembourg                 | 46.06 | 46.06         | 0.67         |   | 120  | Benin                      | 19.18 | 19.18         | 0.16         |   |
| 48   | Kazakhstan                 | 45.71 | 45.71         | 0.67         |   | 121  | Guyana                     | 19.01 | 19.01         | 0.15         |   |
| 49   | Russian Federation         | 45.38 | 45.38         | 0.66         |   | 122  | Ecuador                    | 18.93 | 18.93         | 0.14         |   |
| 50   | Thailand                   | 44.67 | 44.67         | 0.65         |   | 123  | Indonesia                  | 18.92 | 18.92         | 0.13         |   |
| 51   | Sri Lanka                  | 44.42 | 44.42         | 0.65         | ● | 124  | Guinea                     | 18.69 | 18.69         | 0.13         |   |
| 52   | Algeria                    | 44.12 | 44.12         | 0.64         | ● | 125  | Egypt                      | 17.94 | 17.94         | 0.12         | ○ |
| 53   | Mauritius                  | 43.47 | 43.47         | 0.63         |   | 126  | Mozambique                 | 17.53 | 17.53         | 0.11         |   |
| 54   | Albania                    | 43.07 | 43.07         | 0.62         |   | 127  | Viet Nam                   | 17.15 | 17.15         | 0.11         |   |
| 55   | Uzbekistan                 | 42.22 | 42.22         | 0.62         | ● | 128  | Malawi                     | 16.48 | 16.48         | 0.10         |   |
| 56   | Malta                      | 41.52 | 41.52         | 0.61         |   | 129  | Cameroon                   | 16.32 | 16.32         | 0.09         | ○ |
| 57   | Seychelles                 | 41.23 | 41.23         | 0.60         |   | 130  | Paraguay                   | 16.13 | 16.13         | 0.09         |   |
| 58   | Estonia                    | 41.20 | 41.20         | 0.60         |   | 131  | Niger                      | 15.80 | 15.80         | 0.08         |   |
| 59   | Bolivia, Plurinational St. | 41.16 | 41.16         | 0.59         | ● | 132  | Myanmar                    | 15.52 | 15.52         | 0.07         |   |
| 60   | Swaziland                  | 40.75 | 40.75         | 0.58         | ● | 133  | Zimbabwe                   | 13.84 | 13.84         | 0.06         |   |
| 61   | Morocco                    | 40.56 | 40.56         | 0.57         |   | 134  | Madagascar                 | 12.41 | 12.41         | 0.06         |   |
| 62   | Hungary                    | 40.55 | 40.55         | 0.57         |   | 135  | Dominican Republic         | 9.28  | 9.28          | 0.05         | ○ |
| 63   | Pakistan                   | 39.95 | 39.95         | 0.56         | ● | 136  | Ukraine                    | 8.67  | 8.67          | 0.04         | ○ |
| 64   | Oman                       | 39.53 | 39.53         | 0.55         |   | 137  | Cambodia                   | 8.65  | 8.65          | 0.04         |   |
| 65   | Zambia                     | 39.27 | 39.27         | 0.55         |   | 138  | Burundi                    | 8.14  | 8.14          | 0.03         |   |
| 66   | Belarus                    | 39.11 | 39.11         | 0.54         |   | 139  | Venezuela, Bolivarian Rep. | 6.93  | 6.93          | 0.02         | ○ |
| 67   | Ethiopia                   | 39.07 | 39.07         | 0.53         | ● | 140  | Angola                     | 0.00  | 0.00          | 0.00         | ○ |
| 68   | Armenia                    | 38.59 | 38.59         | 0.52         |   | 140  | Bhutan                     | 0.00  | 0.00          | 0.00         | ○ |
| 69   | Bosnia and Herzegovina     | 38.17 | 38.17         | 0.52         |   | 140  | Cabo Verde                 | 0.00  | 0.00          | 0.00         | ○ |
| 70   | China                      | 38.10 | 38.10         | 0.50         |   | n/a  | Guatemala                  | n/a   | n/a           | n/a          |   |
| 70   | Uganda                     | 38.10 | 38.10         | 0.50         |   |      |                            |       |               |              |   |
| 72   | Tajikistan                 | 37.95 | 37.95         | 0.50         | ● |      |                            |       |               |              |   |
| 73   | South Africa               | 37.61 | 37.61         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: World Bank, Ease of Doing Business Index 2014, *Doing Business 2014*

NOTE: ● indicates a strength; ○ a weakness.

# 1.3.3 Ease of paying taxes

## Ease of paying taxes (distance to frontier) | 2013

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | United Arab Emirates     | 98.88 | 98.88         | 1.00         | ● | 74   | Fiji                       | 69.18 | 69.18         | 0.48         |   |
| 2    | Qatar                    | 97.49 | 97.49         | 0.99         | ● | 75   | Slovakia                   | 68.79 | 68.79         | 0.48         |   |
| 3    | Saudi Arabia             | 96.55 | 96.55         | 0.99         | ● | 76   | Uganda                     | 68.75 | 68.75         | 0.47         |   |
| 4    | Hong Kong (China)        | 96.26 | 96.26         | 0.98         |   | 77   | Trinidad and Tobago        | 68.59 | 68.59         | 0.46         |   |
| 5    | Singapore                | 94.44 | 94.44         | 0.97         |   | 78   | Hungary                    | 68.40 | 68.40         | 0.45         |   |
| 6    | Ireland                  | 92.89 | 92.89         | 0.96         | ● | 79   | Lesotho                    | 68.09 | 68.09         | 0.45         |   |
| 7    | Bahrain                  | 92.81 | 92.81         | 0.96         | ● | 80   | Moldova, Rep.              | 67.91 | 67.91         | 0.44         |   |
| 8    | Canada                   | 90.99 | 90.99         | 0.95         |   | 81   | Barbados                   | 66.65 | 66.65         | 0.43         |   |
| 9    | Oman                     | 90.73 | 90.73         | 0.94         | ● | 81   | Guyana                     | 66.65 | 66.65         | 0.43         |   |
| 10   | Kuwait                   | 90.39 | 90.39         | 0.94         | ● | 83   | Mexico                     | 66.64 | 66.64         | 0.42         |   |
| 11   | Denmark                  | 89.51 | 89.51         | 0.93         |   | 84   | Ethiopia                   | 66.49 | 66.49         | 0.41         |   |
| 12   | Mauritius                | 88.86 | 88.86         | 0.92         | ● | 85   | Namibia                    | 66.38 | 66.38         | 0.40         |   |
| 13   | United Kingdom           | 87.55 | 87.55         | 0.91         |   | 86   | Belarus                    | 65.03 | 65.03         | 0.40         |   |
| 14   | Kazakhstan               | 87.41 | 87.41         | 0.91         | ● | 87   | Czech Republic             | 64.99 | 64.99         | 0.39         | ○ |
| 15   | Norway                   | 87.21 | 87.21         | 0.90         |   | 88   | Japan                      | 64.78 | 64.78         | 0.38         |   |
| 16   | Switzerland              | 86.61 | 86.61         | 0.89         |   | 89   | Sudan                      | 64.41 | 64.41         | 0.38         | ● |
| 17   | Luxembourg               | 86.44 | 86.44         | 0.89         |   | 90   | Nepal                      | 64.40 | 64.40         | 0.37         |   |
| 18   | Korea, Rep.              | 86.25 | 86.25         | 0.88         |   | 91   | Myanmar                    | 64.32 | 64.32         | 0.36         | ● |
| 19   | South Africa             | 86.01 | 86.01         | 0.87         | ● | 92   | Iran, Islamic Rep.         | 64.02 | 64.02         | 0.35         |   |
| 20   | Georgia                  | 85.50 | 85.50         | 0.87         | ● | 93   | Mozambique                 | 63.94 | 63.94         | 0.35         |   |
| 21   | New Zealand              | 85.16 | 85.16         | 0.86         |   | 94   | Paraguay                   | 62.94 | 62.94         | 0.34         |   |
| 22   | Finland                  | 85.02 | 85.02         | 0.85         |   | 95   | Philippines                | 62.25 | 62.25         | 0.33         |   |
| 23   | Rwanda                   | 84.83 | 84.83         | 0.84         | ● | 96   | Costa Rica                 | 62.16 | 62.16         | 0.33         |   |
| 24   | Netherlands              | 83.34 | 83.34         | 0.84         |   | 97   | Yemen                      | 61.98 | 61.98         | 0.32         |   |
| 25   | Seychelles               | 83.25 | 83.25         | 0.83         | ● | 98   | Ecuador                    | 61.55 | 61.55         | 0.31         |   |
| 26   | Chile                    | 83.02 | 83.02         | 0.82         |   | 99   | Romania                    | 61.22 | 61.22         | 0.30         |   |
| 27   | Malta                    | 82.71 | 82.71         | 0.82         |   | 100  | China                      | 61.14 | 61.14         | 0.30         |   |
| 28   | Malaysia                 | 82.38 | 82.38         | 0.81         |   | 101  | Burundi                    | 60.35 | 60.35         | 0.29         |   |
| 29   | Brunei Darussalam        | 82.29 | 82.29         | 0.80         | ● | 102  | Bosnia and Herzegovina     | 60.29 | 60.29         | 0.28         |   |
| 30   | Croatia                  | 81.87 | 81.87         | 0.79         | ● | 103  | Uruguay                    | 59.81 | 59.81         | 0.28         |   |
| 31   | Estonia                  | 80.68 | 80.68         | 0.79         |   | 104  | Kyrgyzstan                 | 59.61 | 59.61         | 0.27         |   |
| 32   | Lebanon                  | 80.37 | 80.37         | 0.78         | ● | 105  | Albania                    | 58.48 | 58.48         | 0.26         |   |
| 33   | TFYR of Macedonia        | 80.09 | 80.09         | 0.77         |   | 106  | Zimbabwe                   | 58.07 | 58.07         | 0.26         |   |
| 34   | Latvia                   | 79.63 | 79.63         | 0.77         |   | 107  | Colombia                   | 57.99 | 57.99         | 0.25         |   |
| 35   | Slovenia                 | 79.60 | 79.60         | 0.76         |   | 108  | Italy                      | 57.94 | 57.94         | 0.24         | ○ |
| 36   | Jordan                   | 79.19 | 79.19         | 0.75         | ● | 109  | Honduras                   | 57.79 | 57.79         | 0.23         |   |
| 37   | Sweden                   | 78.87 | 78.87         | 0.74         |   | 110  | Egypt                      | 57.62 | 57.62         | 0.23         |   |
| 38   | Australia                | 78.69 | 78.69         | 0.74         |   | 111  | Indonesia                  | 57.41 | 57.41         | 0.22         |   |
| 39   | Iceland                  | 78.62 | 78.62         | 0.73         |   | 112  | Angola                     | 56.94 | 56.94         | 0.21         |   |
| 40   | Cyprus                   | 78.23 | 78.23         | 0.72         |   | 113  | Tanzania, United Rep.      | 56.32 | 56.32         | 0.21         |   |
| 41   | Greece                   | 77.87 | 77.87         | 0.72         |   | 114  | Mali                       | 56.29 | 56.29         | 0.20         |   |
| 42   | Lithuania                | 77.60 | 77.60         | 0.71         |   | 115  | Kenya                      | 54.23 | 54.23         | 0.19         |   |
| 43   | Peru                     | 76.86 | 76.86         | 0.70         |   | 116  | Burkina Faso               | 54.02 | 54.02         | 0.18         |   |
| 44   | Turkey                   | 76.83 | 76.83         | 0.70         |   | 117  | Jamaica                    | 54.00 | 54.00         | 0.18         |   |
| 45   | Botswana                 | 75.78 | 75.78         | 0.69         |   | 118  | Niger                      | 53.87 | 53.87         | 0.17         |   |
| 46   | United States of America | 75.76 | 75.76         | 0.68         |   | 119  | Ukraine                    | 51.26 | 51.26         | 0.16         | ○ |
| 47   | Russian Federation       | 75.33 | 75.33         | 0.67         |   | 120  | India                      | 51.04 | 51.04         | 0.16         |   |
| 48   | Portugal                 | 74.92 | 74.92         | 0.66         |   | 121  | El Salvador                | 50.56 | 50.56         | 0.15         |   |
| 48   | Thailand                 | 74.92 | 74.92         | 0.66         |   | 122  | Togo                       | 48.16 | 48.16         | 0.14         |   |
| 50   | Madagascar               | 74.85 | 74.85         | 0.65         | ● | 123  | Serbia                     | 47.23 | 47.23         | 0.13         | ○ |
| 51   | Morocco                  | 73.90 | 73.90         | 0.65         |   | 124  | Nicaragua                  | 46.69 | 46.69         | 0.13         |   |
| 52   | Azerbaijan               | 73.69 | 73.69         | 0.64         |   | 125  | Viet Nam                   | 45.66 | 45.66         | 0.12         |   |
| 53   | Ghana                    | 73.42 | 73.42         | 0.63         | ● | 126  | Panama                     | 45.06 | 45.06         | 0.11         | ○ |
| 54   | Germany                  | 73.05 | 73.05         | 0.62         |   | 127  | Argentina                  | 43.99 | 43.99         | 0.11         | ○ |
| 55   | Swaziland                | 72.47 | 72.47         | 0.62         | ● | 128  | Pakistan                   | 43.48 | 43.48         | 0.10         |   |
| 56   | Austria                  | 72.17 | 72.17         | 0.61         |   | 129  | Sri Lanka                  | 43.38 | 43.38         | 0.09         | ○ |
| 57   | Zambia                   | 72.11 | 72.11         | 0.60         |   | 130  | Côte d'Ivoire              | 43.27 | 43.27         | 0.09         | ○ |
| 58   | Bulgaria                 | 71.95 | 71.95         | 0.60         |   | 131  | Brazil                     | 39.34 | 39.34         | 0.08         | ○ |
| 59   | Cambodia                 | 71.50 | 71.50         | 0.59         | ● | 132  | Nigeria                    | 38.28 | 38.28         | 0.07         |   |
| 60   | Dominican Republic       | 71.34 | 71.34         | 0.58         |   | 133  | Algeria                    | 38.07 | 38.07         | 0.06         |   |
| 61   | Bangladesh               | 71.24 | 71.24         | 0.57         | ● | 134  | Uzbekistan                 | 36.08 | 36.08         | 0.06         | ○ |
| 62   | Armenia                  | 70.80 | 70.80         | 0.57         |   | 135  | Benin                      | 35.99 | 35.99         | 0.05         | ○ |
| 63   | Spain                    | 70.74 | 70.74         | 0.56         |   | 136  | Cameroon                   | 34.49 | 34.49         | 0.04         | ○ |
| 64   | Montenegro               | 70.47 | 70.47         | 0.55         |   | 137  | Senegal                    | 25.83 | 25.83         | 0.04         | ○ |
| 65   | Israel                   | 70.26 | 70.26         | 0.55         |   | 138  | Gambia                     | 22.98 | 22.98         | 0.03         | ○ |
| 66   | Belgium                  | 70.10 | 70.10         | 0.54         |   | 139  | Tajikistan                 | 22.61 | 22.61         | 0.02         | ○ |
| 67   | Mongolia                 | 70.04 | 70.04         | 0.53         |   | 140  | Guinea                     | 16.09 | 16.09         | 0.01         | ○ |
| 68   | Cabo Verde               | 70.03 | 70.03         | 0.52         |   | 141  | Venezuela, Bolivarian Rep. | 13.05 | 13.05         | 0.01         | ○ |
| 69   | Bhutan                   | 69.81 | 69.81         | 0.52         |   | 142  | Bolivia, Plurinational St. | 12.67 | 12.67         | 0.00         | ○ |
| 70   | Tunisia                  | 69.66 | 69.66         | 0.51         |   | n/a  | Guatemala                  | n/a   | n/a           | n/a          |   |
| 71   | France                   | 69.48 | 69.48         | 0.50         |   |      |                            |       |               |              |   |
| 72   | Poland                   | 69.30 | 69.30         | 0.50         |   |      |                            |       |               |              |   |
| 73   | Malawi                   | 69.19 | 69.19         | 0.49         | ● |      |                            |       |               |              |   |

SOURCE: World Bank, Ease of Doing Business Index 2014, *Doing Business 2014*

NOTE: ● indicates a strength; ○ a weakness.

# 2.1.1 Expenditure on education

## Government expenditure on education (% of GDP) | 2010

| Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy           | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|-------|---------------|--------------|---|------|---------------------------|-------|---------------|--------------|---|
| 1    | Lesotho (2008)                    | 12.98 | 100.00        | 1.00         | ● | 74   | Chile (2012)              | 4.52  | 30.63         | 0.44         |   |
| 2    | Botswana (2009)                   | 9.49  | 71.35         | 0.99         | ● | 75   | Italy                     | 4.50  | 30.45         | 0.44         |   |
| 3    | Denmark (2009)                    | 8.74  | 65.22         | 0.98         | ● | 76   | Uruguay (2011)            | 4.50  | 30.44         | 0.43         |   |
| 4    | Moldova, Rep. (2012)              | 8.39  | 62.31         | 0.98         | ● | 77   | Colombia (2012)           | 4.38  | 29.50         | 0.42         |   |
| 5    | Namibia                           | 8.37  | 62.15         | 0.97         | ● | 78   | Ecuador (2012)            | 4.36  | 29.29         | 0.41         |   |
| 6    | Swaziland (2011)                  | 8.25  | 61.24         | 0.96         | ● | 79   | Algeria (2008)            | 4.34  | 29.12         | 0.40         |   |
| 7    | Ghana (2011)                      | 8.14  | 60.31         | 0.95         | ● | 80   | Oman (2009)               | 4.32  | 29.01         | 0.40         |   |
| 8    | Iceland                           | 7.60  | 55.87         | 0.95         |   | 81   | Croatia                   | 4.31  | 28.88         | 0.39         |   |
| 9    | New Zealand (2012)                | 7.38  | 54.10         | 0.94         |   | 82   | Czech Republic            | 4.25  | 28.39         | 0.38         | ○ |
| 10   | Cyprus                            | 7.27  | 53.18         | 0.93         | ● | 83   | Romania (2009)            | 4.24  | 28.32         | 0.37         |   |
| 11   | Sweden                            | 6.98  | 50.82         | 0.92         |   | 84   | Slovakia                  | 4.23  | 28.24         | 0.37         |   |
| 12   | Malta                             | 6.91  | 50.22         | 0.92         |   | 85   | Niger (2011)              | 4.21  | 28.04         | 0.36         |   |
| 13   | Bolivia, Plurinational St. (2011) | 6.89  | 50.07         | 0.91         | ● | 86   | Fiji (2011)               | 4.20  | 27.96         | 0.35         |   |
| 14   | Venezuela, Bolivarian Rep. (2009) | 6.87  | 49.92         | 0.90         | ● | 87   | Russian Federation (2008) | 4.10  | 27.19         | 0.34         |   |
| 15   | Norway                            | 6.87  | 49.90         | 0.89         |   | 88   | Bulgaria                  | 4.10  | 27.15         | 0.34         |   |
| 16   | Finland                           | 6.85  | 49.70         | 0.89         |   | 89   | Greece (2005)             | 4.09  | 27.10         | 0.33         |   |
| 17   | Kyrgyzstan (2011)                 | 6.79  | 49.23         | 0.88         | ● | 90   | Gambia (2012)             | 4.07  | 26.92         | 0.32         |   |
| 18   | Kenya                             | 6.67  | 48.23         | 0.87         | ● | 91   | Tajikistan (2011)         | 3.94  | 25.82         | 0.31         |   |
| 19   | Belgium                           | 6.58  | 47.48         | 0.86         |   | 92   | Japan (2011)              | 3.78  | 24.53         | 0.31         | ○ |
| 20   | Ireland                           | 6.41  | 46.08         | 0.85         |   | 93   | Egypt (2008)              | 3.76  | 24.39         | 0.30         |   |
| 21   | Viet Nam                          | 6.29  | 45.09         | 0.85         | ● | 94   | Kuwait (2006)             | 3.76  | 24.38         | 0.29         |   |
| 22   | Costa Rica (2009)                 | 6.28  | 45.06         | 0.84         | ● | 95   | Iran, Islamic Rep. (2012) | 3.71  | 24.01         | 0.28         |   |
| 23   | United Kingdom                    | 6.23  | 44.61         | 0.83         |   | 96   | Seychelles (2011)         | 3.58  | 22.88         | 0.27         |   |
| 24   | Tanzania, United Rep.             | 6.18  | 44.24         | 0.82         | ● | 97   | Hong Kong (China) (2012)  | 3.51  | 22.31         | 0.27         | ○ |
| 25   | Tunisia (2012)                    | 6.17  | 44.11         | 0.82         | ● | 98   | Panama (2011)             | 3.50  | 22.24         | 0.26         |   |
| 26   | Ukraine (2011)                    | 6.15  | 44.00         | 0.81         | ● | 99   | Mauritius (2012)          | 3.49  | 22.13         | 0.25         | ○ |
| 27   | Jamaica (2012)                    | 6.12  | 43.71         | 0.80         | ● | 100  | Angola                    | 3.48  | 22.06         | 0.24         |   |
| 28   | South Africa                      | 5.96  | 42.44         | 0.79         |   | 101  | Brunei Darussalam (2013)  | 3.45  | 21.85         | 0.24         |   |
| 29   | Malaysia (2011)                   | 5.94  | 42.27         | 0.79         |   | 102  | Burkina Faso (2011)       | 3.43  | 21.65         | 0.23         |   |
| 30   | Netherlands (2011)                | 5.93  | 42.19         | 0.78         |   | 103  | El Salvador (2011)        | 3.42  | 21.58         | 0.22         |   |
| 31   | Austria                           | 5.92  | 42.05         | 0.77         |   | 104  | Uganda (2012)             | 3.28  | 20.44         | 0.21         |   |
| 32   | France                            | 5.86  | 41.64         | 0.76         |   | 105  | Armenia (2012)            | 3.28  | 20.43         | 0.21         | ○ |
| 33   | Brazil                            | 5.82  | 41.29         | 0.76         |   | 106  | Albania (2007)            | 3.27  | 20.35         | 0.20         |   |
| 34   | Burundi (2012)                    | 5.82  | 41.28         | 0.75         | ● | 107  | Guyana (2012)             | 3.19  | 19.74         | 0.19         |   |
| 35   | Thailand (2011)                   | 5.79  | 41.01         | 0.74         |   | 108  | Cameroon (2011)           | 3.18  | 19.67         | 0.18         |   |
| 36   | Argentina                         | 5.78  | 40.96         | 0.73         |   | 109  | India (2011)              | 3.17  | 19.51         | 0.18         |   |
| 37   | Slovenia                          | 5.69  | 40.24         | 0.73         |   | 110  | Kazakhstan (2009)         | 3.06  | 18.65         | 0.17         |   |
| 38   | Estonia                           | 5.66  | 39.96         | 0.72         |   | 111  | Singapore (2013)          | 3.05  | 18.53         | 0.16         | ○ |
| 39   | Israel (2011)                     | 5.64  | 39.78         | 0.71         |   | 112  | Guatemala (2012)          | 2.97  | 17.88         | 0.15         |   |
| 40   | Portugal                          | 5.62  | 39.67         | 0.70         |   | 113  | Turkey (2006)             | 2.86  | 17.03         | 0.15         | ○ |
| 41   | Barbados (2012)                   | 5.61  | 39.56         | 0.69         |   | 114  | Indonesia (2011)          | 2.77  | 16.24         | 0.14         |   |
| 42   | Senegal                           | 5.60  | 39.47         | 0.69         | ● | 115  | Peru (2012)               | 2.76  | 16.19         | 0.13         | ○ |
| 43   | Australia                         | 5.59  | 39.38         | 0.68         |   | 116  | Madagascar (2012)         | 2.72  | 15.83         | 0.12         |   |
| 44   | Mongolia (2011)                   | 5.48  | 38.46         | 0.67         |   | 117  | Philippines (2009)        | 2.65  | 15.31         | 0.11         | ○ |
| 45   | United States of America          | 5.42  | 38.00         | 0.66         |   | 118  | Cambodia                  | 2.60  | 14.91         | 0.11         |   |
| 46   | Lithuania                         | 5.42  | 37.99         | 0.66         |   | 119  | Bahrain (2012)            | 2.58  | 14.68         | 0.10         | ○ |
| 47   | Canada (2011)                     | 5.40  | 37.80         | 0.65         |   | 120  | Zimbabwe                  | 2.50  | 14.06         | 0.09         |   |
| 48   | Morocco (2009)                    | 5.38  | 37.63         | 0.64         |   | 121  | Guinea (2012)             | 2.47  | 13.82         | 0.08         |   |
| 49   | Malawi (2011)                     | 5.35  | 37.45         | 0.63         | ● | 122  | Qatar (2008)              | 2.45  | 13.67         | 0.08         | ○ |
| 50   | Benin                             | 5.35  | 37.38         | 0.63         | ● | 123  | Azerbaijan (2011)         | 2.44  | 13.53         | 0.07         | ○ |
| 51   | Switzerland                       | 5.24  | 36.50         | 0.62         |   | 124  | Bangladesh (2009)         | 2.23  | 11.87         | 0.06         | ○ |
| 52   | Mexico                            | 5.21  | 36.30         | 0.61         |   | 125  | Sudan (2009)              | 2.23  | 11.85         | 0.05         |   |
| 53   | Poland                            | 5.17  | 35.96         | 0.60         |   | 126  | Lebanon (2012)            | 2.20  | 11.62         | 0.05         | ○ |
| 54   | Yemen (2008)                      | 5.15  | 35.79         | 0.60         | ● | 127  | Dominican Republic (2007) | 2.19  | 11.50         | 0.04         | ○ |
| 55   | Belarus (2012)                    | 5.15  | 35.78         | 0.59         |   | 128  | Pakistan (2012)           | 2.14  | 11.06         | 0.03         | ○ |
| 56   | Saudi Arabia (2008)               | 5.14  | 35.68         | 0.58         |   | 129  | Georgia (2012)            | 1.99  | 9.83          | 0.02         | ○ |
| 57   | Rwanda (2013)                     | 5.11  | 35.46         | 0.57         |   | 130  | Sri Lanka (2012)          | 1.72  | 7.68          | 0.02         | ○ |
| 58   | Germany                           | 5.08  | 35.22         | 0.56         |   | 131  | Zambia (2008)             | 1.35  | 4.59          | 0.01         | ○ |
| 59   | Korea, Rep. (2009)                | 5.05  | 34.96         | 0.56         |   | 132  | Myanmar (2011)            | 0.79  | 0.00          | 0.00         | ○ |
| 60   | Cabo Verde (2011)                 | 5.04  | 34.91         | 0.55         |   | n/a  | Bosnia and Herzegovina    | n/a   | n/a           | n/a          |   |
| 61   | Latvia                            | 5.03  | 34.79         | 0.54         |   | n/a  | China                     | n/a   | n/a           | n/a          |   |
| 62   | Mozambique (2006)                 | 5.01  | 34.61         | 0.53         |   | n/a  | Honduras                  | n/a   | n/a           | n/a          |   |
| 63   | Spain                             | 4.98  | 34.40         | 0.53         |   | n/a  | Jordan                    | n/a   | n/a           | n/a          |   |
| 64   | Hungary                           | 4.90  | 33.71         | 0.52         |   | n/a  | Luxembourg                | n/a   | n/a           | n/a          |   |
| 65   | Serbia (2011)                     | 4.82  | 33.09         | 0.51         |   | n/a  | Montenegro                | n/a   | n/a           | n/a          |   |
| 66   | Mali (2011)                       | 4.80  | 32.95         | 0.50         |   | n/a  | Nigeria                   | n/a   | n/a           | n/a          |   |
| 67   | Paraguay (2011)                   | 4.80  | 32.93         | 0.50         |   | n/a  | TFYR of Macedonia         | n/a   | n/a           | n/a          |   |
| 68   | Ethiopia                          | 4.73  | 32.37         | 0.49         |   | n/a  | Trinidad and Tobago       | n/a   | n/a           | n/a          |   |
| 69   | Nepal                             | 4.72  | 32.23         | 0.48         |   | n/a  | United Arab Emirates      | n/a   | n/a           | n/a          |   |
| 70   | Bhutan (2011)                     | 4.65  | 31.70         | 0.47         |   | n/a  | Uzbekistan                | n/a   | n/a           | n/a          |   |
| 71   | Côte d'Ivoire (2008)              | 4.60  | 31.30         | 0.47         | ● |      |                           |       |               |              |   |
| 72   | Nicaragua                         | 4.57  | 31.06         | 0.46         |   |      |                           |       |               |              |   |
| 73   | Togo (2011)                       | 4.52  | 30.63         | 0.45         | ● |      |                           |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

| Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|-------|---------------|--------------|---|------|-----------------------------------|-------|---------------|--------------|---|
| 1    | Mozambique (2006)                 | 85.98 | 100.00        | 1.00         | ● | 74   | Venezuela, Bolivarian Rep. (2009) | 16.61 | 15.66         | 0.34         |   |
| 2    | Lesotho (2008)                    | 51.21 | 57.73         | 0.99         | ● | 75   | Mongolia (2011)                   | 16.43 | 15.44         | 0.33         |   |
| 3    | Niger (2011)                      | 49.24 | 55.33         | 0.98         | ● | 76   | Iran, Islamic Rep. (2012)         | 16.30 | 15.29         | 0.32         |   |
| 4    | Swaziland (2011)                  | 40.80 | 45.07         | 0.97         | ● | 77   | Tanzania, United Rep.             | 16.25 | 15.22         | 0.31         |   |
| 5    | Cyprus                            | 40.75 | 45.01         | 0.96         | ● | 78   | Mexico                            | 15.92 | 14.82         | 0.30         |   |
| 6    | Moldova, Rep. (2012)              | 37.94 | 41.59         | 0.95         | ● | 79   | Oman (2011)                       | 15.89 | 14.79         | 0.29         |   |
| 7    | Belgium                           | 37.79 | 41.42         | 0.95         | ● | 80   | Namibia (2008)                    | 15.80 | 14.68         | 0.28         |   |
| 8    | Portugal                          | 36.53 | 39.89         | 0.94         | ● | 81   | Togo (2011)                       | 15.71 | 14.57         | 0.27         |   |
| 9    | Finland                           | 36.53 | 39.88         | 0.93         |   | 82   | Georgia (2008)                    | 15.49 | 14.30         | 0.26         |   |
| 10   | Rwanda (2012)                     | 36.43 | 39.75         | 0.92         | ● | 83   | Israel                            | 15.44 | 14.23         | 0.25         | ○ |
| 11   | Malta                             | 35.36 | 38.46         | 0.91         |   | 84   | Colombia (2012)                   | 15.23 | 13.98         | 0.25         |   |
| 12   | United Kingdom                    | 33.58 | 36.29         | 0.90         |   | 85   | Cabo Verde (2011)                 | 14.78 | 13.44         | 0.24         |   |
| 13   | Burundi (2012)                    | 33.51 | 36.21         | 0.89         | ● | 86   | Costa Rica (2009)                 | 14.39 | 12.96         | 0.23         |   |
| 14   | Malawi (2011)                     | 33.18 | 35.81         | 0.88         | ● | 87   | Serbia (2011)                     | 14.06 | 12.56         | 0.22         | ○ |
| 15   | Botswana (2009)                   | 33.00 | 35.59         | 0.87         | ● | 88   | Bangladesh (2011)                 | 13.93 | 12.41         | 0.21         |   |
| 16   | Denmark (2009)                    | 32.98 | 35.56         | 0.86         |   | 89   | Gambia                            | 13.14 | 11.44         | 0.20         |   |
| 17   | Estonia                           | 31.93 | 34.29         | 0.85         |   | 90   | India (2011)                      | 12.58 | 10.76         | 0.19         |   |
| 18   | Sweden                            | 31.87 | 34.22         | 0.85         |   | 91   | Nepal (2009)                      | 12.17 | 10.26         | 0.18         |   |
| 19   | Bhutan (2011)                     | 31.52 | 33.79         | 0.84         | ● | 92   | El Salvador                       | 11.31 | 9.21          | 0.17         |   |
| 20   | Slovenia                          | 31.26 | 33.48         | 0.83         |   | 93   | Yemen (2011)                      | 11.17 | 9.04          | 0.16         |   |
| 21   | Mali (2011)                       | 31.15 | 33.34         | 0.82         | ● | 94   | Uruguay (2006)                    | 10.69 | 8.46          | 0.15         | ○ |
| 22   | Morocco (2009)                    | 30.73 | 32.83         | 0.81         | ● | 95   | Ethiopia                          | 10.39 | 8.10          | 0.15         |   |
| 23   | Austria                           | 29.60 | 31.45         | 0.80         |   | 96   | Qatar (2009)                      | 10.29 | 7.98          | 0.14         | ○ |
| 24   | Latvia                            | 29.34 | 31.13         | 0.79         |   | 97   | Panama (2011)                     | 10.27 | 7.95          | 0.13         | ○ |
| 25   | France                            | 29.24 | 31.02         | 0.78         |   | 98   | Peru (2012)                       | 10.10 | 7.75          | 0.12         | ○ |
| 26   | Senegal                           | 28.95 | 30.67         | 0.77         | ● | 99   | Guinea (2012)                     | 9.89  | 7.49          | 0.11         |   |
| 27   | Ireland                           | 28.80 | 30.49         | 0.76         |   | 100  | Guyana (2012)                     | 9.83  | 7.42          | 0.10         |   |
| 28   | Switzerland                       | 27.95 | 29.44         | 0.75         |   | 101  | Philippines (2008)                | 9.14  | 6.58          | 0.09         | ○ |
| 29   | Ukraine (2011)                    | 27.46 | 28.85         | 0.75         | ● | 102  | Dominican Republic (2012)         | 8.46  | 5.75          | 0.08         | ○ |
| 30   | Norway                            | 27.28 | 28.64         | 0.74         |   | 103  | Madagascar (2012)                 | 8.34  | 5.60          | 0.07         |   |
| 31   | Spain                             | 26.64 | 27.86         | 0.73         |   | 104  | Brunei Darussalam (2013)          | 8.11  | 5.33          | 0.06         | ○ |
| 32   | Ghana (2009)                      | 26.08 | 27.17         | 0.72         | ● | 105  | Indonesia (2011)                  | 7.67  | 4.79          | 0.05         | ○ |
| 33   | Netherlands (2011)                | 25.89 | 26.94         | 0.71         |   | 106  | Nicaragua                         | 7.58  | 4.68          | 0.05         | ○ |
| 34   | Thailand (2011)                   | 25.89 | 26.94         | 0.70         |   | 107  | Seychelles (2011)                 | 7.11  | 4.11          | 0.04         | ○ |
| 35   | Jamaica (2011)                    | 25.85 | 26.89         | 0.69         | ● | 108  | Sri Lanka (2012)                  | 6.87  | 3.81          | 0.03         | ○ |
| 36   | Japan (2011)                      | 25.28 | 26.20         | 0.68         |   | 109  | Fiji (2011)                       | 5.75  | 2.46          | 0.02         | ○ |
| 37   | Italy                             | 25.26 | 26.18         | 0.67         |   | 110  | Guatemala (2011)                  | 4.83  | 1.34          | 0.01         | ○ |
| 38   | Argentina                         | 25.06 | 25.93         | 0.66         |   | 111  | Lebanon (2012)                    | 3.73  | 0.00          | 0.00         | ○ |
| 39   | Barbados                          | 24.97 | 25.82         | 0.65         |   | n/a  | Albania                           | n/a   | n/a           | n/a          |   |
| 40   | Bulgaria                          | 24.94 | 25.78         | 0.65         |   | n/a  | Algeria                           | n/a   | n/a           | n/a          |   |
| 41   | Germany                           | 24.70 | 25.49         | 0.64         |   | n/a  | Angola                            | n/a   | n/a           | n/a          |   |
| 42   | Benin (2005)                      | 24.69 | 25.48         | 0.63         | ● | n/a  | Azerbaijan                        | n/a   | n/a           | n/a          |   |
| 43   | Poland                            | 24.67 | 25.46         | 0.62         |   | n/a  | Bahrain                           | n/a   | n/a           | n/a          |   |
| 44   | Czech Republic                    | 24.42 | 25.16         | 0.61         |   | n/a  | Belarus                           | n/a   | n/a           | n/a          |   |
| 45   | Tunisia (2008)                    | 24.42 | 25.16         | 0.60         |   | n/a  | Bosnia and Herzegovina            | n/a   | n/a           | n/a          |   |
| 46   | United States of America          | 24.34 | 25.06         | 0.59         |   | n/a  | Brazil                            | n/a   | n/a           | n/a          |   |
| 47   | Korea, Rep. (2009)                | 23.81 | 24.42         | 0.58         |   | n/a  | Cambodia                          | n/a   | n/a           | n/a          |   |
| 48   | Lithuania                         | 23.30 | 23.80         | 0.57         |   | n/a  | Canada                            | n/a   | n/a           | n/a          |   |
| 49   | New Zealand (2011)                | 23.22 | 23.69         | 0.56         |   | n/a  | China                             | n/a   | n/a           | n/a          |   |
| 50   | Jordan                            | 21.97 | 22.18         | 0.55         |   | n/a  | Côte d'Ivoire                     | n/a   | n/a           | n/a          |   |
| 51   | Hungary                           | 21.81 | 21.98         | 0.55         |   | n/a  | Croatia                           | n/a   | n/a           | n/a          |   |
| 52   | Greece (2005)                     | 21.55 | 21.67         | 0.54         |   | n/a  | Egypt                             | n/a   | n/a           | n/a          |   |
| 53   | Kenya (2006)                      | 21.17 | 21.20         | 0.53         |   | n/a  | Honduras                          | n/a   | n/a           | n/a          |   |
| 54   | Iceland                           | 21.14 | 21.16         | 0.52         |   | n/a  | Kazakhstan                        | n/a   | n/a           | n/a          |   |
| 55   | Kuwait (2011)                     | 20.94 | 20.92         | 0.51         |   | n/a  | Kyrgyzstan                        | n/a   | n/a           | n/a          |   |
| 56   | Cameroon (2011)                   | 20.91 | 20.89         | 0.50         | ● | n/a  | Montenegro                        | n/a   | n/a           | n/a          |   |
| 57   | Uganda (2009)                     | 20.66 | 20.59         | 0.49         |   | n/a  | Myanmar                           | n/a   | n/a           | n/a          |   |
| 58   | Luxembourg                        | 20.34 | 20.19         | 0.48         |   | n/a  | Nigeria                           | n/a   | n/a           | n/a          |   |
| 59   | Australia                         | 19.88 | 19.63         | 0.47         | ○ | n/a  | Pakistan                          | n/a   | n/a           | n/a          |   |
| 60   | Malaysia (2011)                   | 19.87 | 19.62         | 0.46         |   | n/a  | Russian Federation                | n/a   | n/a           | n/a          |   |
| 61   | South Africa                      | 19.73 | 19.45         | 0.45         |   | n/a  | Sudan                             | n/a   | n/a           | n/a          |   |
| 62   | Slovakia                          | 19.61 | 19.31         | 0.45         |   | n/a  | Tajikistan                        | n/a   | n/a           | n/a          |   |
| 63   | Bolivia, Plurinational St. (2011) | 19.53 | 19.21         | 0.44         |   | n/a  | TFYR of Macedonia                 | n/a   | n/a           | n/a          |   |
| 64   | Mauritius (2012)                  | 19.03 | 18.60         | 0.43         |   | n/a  | Trinidad and Tobago               | n/a   | n/a           | n/a          |   |
| 65   | Saudi Arabia (2007)               | 18.11 | 17.49         | 0.42         |   | n/a  | Turkey                            | n/a   | n/a           | n/a          |   |
| 66   | Chile (2012)                      | 17.94 | 17.27         | 0.41         |   | n/a  | United Arab Emirates              | n/a   | n/a           | n/a          |   |
| 67   | Armenia (2012)                    | 17.75 | 17.04         | 0.40         |   | n/a  | Uzbekistan                        | n/a   | n/a           | n/a          |   |
| 68   | Ecuador (2011)                    | 17.65 | 16.92         | 0.39         |   | n/a  | Viet Nam                          | n/a   | n/a           | n/a          |   |
| 69   | Romania (2009)                    | 17.47 | 16.71         | 0.38         |   | n/a  | Zambia                            | n/a   | n/a           | n/a          |   |
| 70   | Hong Kong (China) (2012)          | 17.31 | 16.52         | 0.37         | ○ | n/a  | Zimbabwe                          | n/a   | n/a           | n/a          |   |
| 71   | Burkina Faso (2012)               | 17.09 | 16.24         | 0.36         |   |      |                                   |       |               |              |   |
| 72   | Paraguay (2011)                   | 17.01 | 16.15         | 0.35         |   |      |                                   |       |               |              |   |
| 73   | Singapore                         | 17.00 | 16.14         | 0.35         | ○ |      |                                   |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

## 2.1.3 School life expectancy

School life expectancy, primary to tertiary education (years) | 2011

II: Data Tables

| Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy              | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|-------|---------------|--------------|---|------|------------------------------|-------|---------------|--------------|---|
| 1    | Australia                         | 19.86 | 100.00        | 1.00         | ● | 74   | China (2012)                 | 13.07 | 52.97         | 0.43         |   |
| 2    | New Zealand                       | 19.39 | 96.71         | 0.99         | ● | 75   | Mexico                       | 12.78 | 50.95         | 0.42         |   |
| 3    | Iceland                           | 18.70 | 91.94         | 0.98         | ● | 76   | Malaysia (2005)              | 12.73 | 50.60         | 0.41         |   |
| 4    | Ireland                           | 18.57 | 91.03         | 0.98         | ● | 77   | Bhutan (2012)                | 12.73 | 50.59         | 0.40         |   |
| 5    | Netherlands                       | 17.91 | 86.46         | 0.97         |   | 78   | Indonesia                    | 12.72 | 50.55         | 0.39         |   |
| 6    | Norway                            | 17.56 | 84.04         | 0.96         |   | 79   | Kyrgyzstan                   | 12.51 | 49.09         | 0.39         |   |
| 7    | Spain                             | 17.15 | 81.17         | 0.95         | ● | 80   | Jamaica (2004)               | 12.49 | 48.96         | 0.38         |   |
| 8    | Finland                           | 17.03 | 80.34         | 0.94         |   | 81   | Panama                       | 12.39 | 48.25         | 0.37         |   |
| 9    | Korea, Rep.                       | 16.97 | 79.98         | 0.94         |   | 82   | Slovakia (2012)              | 12.38 | 48.20         | 0.36         |   |
| 10   | Denmark (2010)                    | 16.93 | 79.67         | 0.93         |   | 83   | Nepal                        | 12.35 | 47.99         | 0.35         |   |
| 11   | Slovenia (2012)                   | 16.81 | 78.82         | 0.92         | ● | 84   | Armenia (2009)               | 12.32 | 47.74         | 0.35         |   |
| 12   | Lithuania                         | 16.65 | 77.74         | 0.91         | ● | 85   | Trinidad and Tobago (2004)   | 12.27 | 47.40         | 0.34         |   |
| 13   | United States of America          | 16.52 | 76.81         | 0.91         |   | 86   | El Salvador (2012)           | 12.26 | 47.31         | 0.33         |   |
| 14   | Greece (2007)                     | 16.50 | 76.73         | 0.90         | ● | 87   | Togo                         | 12.23 | 47.17         | 0.32         |   |
| 15   | Estonia (2010)                    | 16.49 | 76.66         | 0.89         |   | 88   | Azerbaijan (2012)            | 11.94 | 45.13         | 0.31         |   |
| 16   | Argentina (2010)                  | 16.44 | 76.30         | 0.88         | ● | 89   | Paraguay (2010)              | 11.91 | 44.93         | 0.31         |   |
| 17   | Czech Republic                    | 16.39 | 75.91         | 0.87         |   | 90   | Moldova, Rep. (2012)         | 11.84 | 44.46         | 0.30         |   |
| 18   | Italy                             | 16.28 | 75.19         | 0.87         | ● | 91   | India                        | 11.70 | 43.44         | 0.29         |   |
| 19   | Germany                           | 16.28 | 75.16         | 0.86         |   | 92   | Botswana (2006)              | 11.69 | 43.42         | 0.28         |   |
| 20   | Portugal (2010)                   | 16.27 | 75.14         | 0.85         |   | 93   | Seychelles                   | 11.58 | 42.67         | 0.28         |   |
| 21   | Belgium                           | 16.23 | 74.85         | 0.84         |   | 94   | Morocco                      | 11.57 | 42.54         | 0.27         |   |
| 22   | United Kingdom                    | 16.22 | 74.73         | 0.83         |   | 95   | Uzbekistan                   | 11.51 | 42.16         | 0.26         |   |
| 23   | France                            | 15.99 | 73.16         | 0.83         |   | 96   | Ghana (2012)                 | 11.50 | 42.10         | 0.25         |   |
| 24   | Sweden                            | 15.80 | 71.86         | 0.82         |   | 97   | Honduras (2012)              | 11.40 | 41.40         | 0.24         |   |
| 25   | Belarus (2012)                    | 15.73 | 71.40         | 0.81         | ● | 98   | Namibia (2006)               | 11.34 | 41.00         | 0.24         |   |
| 26   | Fiji                              | 15.72 | 71.31         | 0.80         | ● | 99   | Swaziland                    | 11.33 | 40.92         | 0.23         |   |
| 27   | Switzerland                       | 15.70 | 71.14         | 0.80         |   | 100  | Angola                       | 11.32 | 40.81         | 0.22         |   |
| 28   | Israel (2009)                     | 15.67 | 70.97         | 0.79         |   | 101  | Philippines (2009)           | 11.28 | 40.54         | 0.21         |   |
| 29   | Saudi Arabia (2012)               | 15.64 | 70.78         | 0.78         |   | 102  | Tajikistan                   | 11.17 | 39.83         | 0.20         |   |
| 30   | Austria                           | 15.62 | 70.64         | 0.77         |   | 103  | Lesotho (2012)               | 11.14 | 39.59         | 0.20         |   |
| 31   | Hong Kong (China) (2012)          | 15.62 | 70.58         | 0.76         |   | 104  | Benin                        | 11.05 | 38.96         | 0.19         |   |
| 32   | Mauritius (2012)                  | 15.58 | 70.30         | 0.76         |   | 105  | Kenya (2009)                 | 10.98 | 38.51         | 0.18         |   |
| 33   | Latvia                            | 15.54 | 70.08         | 0.75         |   | 106  | Cambodia (2008)              | 10.90 | 37.96         | 0.17         |   |
| 34   | Poland (2012)                     | 15.50 | 69.80         | 0.74         |   | 107  | Uganda (2009)                | 10.75 | 36.92         | 0.17         |   |
| 35   | Uruguay (2010)                    | 15.50 | 69.79         | 0.73         | ● | 108  | Malawi                       | 10.75 | 36.91         | 0.16         |   |
| 36   | Barbados                          | 15.42 | 69.22         | 0.72         |   | 109  | Guatemala (2007)             | 10.62 | 36.01         | 0.15         |   |
| 37   | Hungary                           | 15.36 | 68.82         | 0.72         |   | 110  | Cameroon                     | 10.40 | 34.45         | 0.14         |   |
| 38   | Japan                             | 15.27 | 68.16         | 0.71         |   | 111  | Madagascar (2012)            | 10.35 | 34.09         | 0.13         |   |
| 39   | Chile (2012)                      | 15.25 | 68.02         | 0.70         |   | 112  | Guyana (2012)                | 10.29 | 33.71         | 0.13         |   |
| 40   | Montenegro (2010)                 | 15.18 | 67.55         | 0.69         |   | 113  | Rwanda (2012)                | 10.24 | 33.33         | 0.12         |   |
| 41   | Iran, Islamic Rep. (2012)         | 15.18 | 67.55         | 0.69         | ● | 114  | Burundi (2010)               | 10.11 | 32.42         | 0.11         |   |
| 42   | Ukraine (2012)                    | 15.09 | 66.91         | 0.68         |   | 115  | Bangladesh                   | 9.98  | 31.53         | 0.10         |   |
| 43   | Kazakhstan (2012)                 | 15.02 | 66.48         | 0.67         |   | 116  | Mozambique                   | 9.50  | 28.25         | 0.09         |   |
| 44   | Mongolia (2012)                   | 15.02 | 66.44         | 0.66         |   | 117  | Tanzania, United Rep. (2012) | 9.17  | 25.95         | 0.09         | ○ |
| 45   | Kuwait (2004)                     | 14.64 | 63.80         | 0.65         |   | 118  | Yemen                        | 9.15  | 25.84         | 0.08         |   |
| 46   | Tunisia                           | 14.62 | 63.71         | 0.65         |   | 119  | Gambia (2008)                | 9.14  | 25.75         | 0.07         | ○ |
| 47   | Croatia                           | 14.54 | 63.15         | 0.64         |   | 120  | Nigeria (2005)               | 8.97  | 24.59         | 0.06         |   |
| 48   | Malta                             | 14.54 | 63.12         | 0.63         |   | 121  | Guinea (2012)                | 8.70  | 22.70         | 0.06         |   |
| 49   | Brunei Darussalam (2012)          | 14.53 | 63.05         | 0.62         |   | 122  | Myanmar (2007)               | 8.63  | 22.19         | 0.05         |   |
| 50   | Turkey                            | 14.41 | 62.20         | 0.61         |   | 123  | Mali                         | 8.43  | 20.80         | 0.04         |   |
| 51   | Bulgaria                          | 14.30 | 61.48         | 0.61         |   | 124  | Senegal (2010)               | 7.95  | 17.47         | 0.03         | ○ |
| 52   | Brazil (2005)                     | 14.23 | 60.99         | 0.60         |   | 125  | Pakistan (2012)              | 7.69  | 15.69         | 0.02         | ○ |
| 53   | Venezuela, Bolivarian Rep. (2009) | 14.22 | 60.90         | 0.59         | ● | 126  | Burkina Faso (2012)          | 7.52  | 14.52         | 0.02         | ○ |
| 54   | Romania                           | 14.06 | 59.84         | 0.58         |   | 127  | Ethiopia (2005)              | 6.60  | 8.19          | 0.01         | ○ |
| 55   | Russian Federation (2009)         | 13.98 | 59.25         | 0.57         |   | 128  | Niger (2012)                 | 5.42  | 0.00          | 0.00         | ○ |
| 56   | Algeria                           | 13.97 | 59.15         | 0.57         | ● | n/a  | Albania                      | n/a   | n/a           | n/a          |   |
| 57   | Cyprus                            | 13.95 | 59.07         | 0.56         |   | n/a  | Bahrain                      | n/a   | n/a           | n/a          |   |
| 58   | Luxembourg (2010)                 | 13.88 | 58.59         | 0.55         |   | n/a  | Bosnia and Herzegovina       | n/a   | n/a           | n/a          |   |
| 59   | Qatar (2005)                      | 13.79 | 57.91         | 0.54         |   | n/a  | Canada                       | n/a   | n/a           | n/a          |   |
| 60   | Sri Lanka (2012)                  | 13.71 | 57.41         | 0.54         |   | n/a  | Côte d'Ivoire                | n/a   | n/a           | n/a          |   |
| 61   | Costa Rica (2012)                 | 13.70 | 57.30         | 0.53         |   | n/a  | Dominican Republic           | n/a   | n/a           | n/a          |   |
| 62   | Serbia (2012)                     | 13.65 | 56.96         | 0.52         |   | n/a  | Ecuador                      | n/a   | n/a           | n/a          |   |
| 63   | Oman                              | 13.57 | 56.41         | 0.51         |   | n/a  | Nicaragua                    | n/a   | n/a           | n/a          |   |
| 64   | TFYR of Macedonia (2010)          | 13.27 | 54.35         | 0.50         |   | n/a  | Singapore                    | n/a   | n/a           | n/a          |   |
| 65   | Jordan                            | 13.27 | 54.35         | 0.50         |   | n/a  | South Africa                 | n/a   | n/a           | n/a          |   |
| 66   | Cabo Verde (2012)                 | 13.23 | 54.09         | 0.49         |   | n/a  | Sudan                        | n/a   | n/a           | n/a          |   |
| 67   | Georgia (2009)                    | 13.23 | 54.04         | 0.48         |   | n/a  | United Arab Emirates         | n/a   | n/a           | n/a          |   |
| 68   | Colombia (2012)                   | 13.22 | 53.96         | 0.47         |   | n/a  | Viet Nam                     | n/a   | n/a           | n/a          |   |
| 69   | Lebanon (2012)                    | 13.16 | 53.61         | 0.46         |   | n/a  | Zambia                       | n/a   | n/a           | n/a          |   |
| 70   | Bolivia, Plurinational St. (2007) | 13.15 | 53.52         | 0.46         |   | n/a  | Zimbabwe                     | n/a   | n/a           | n/a          |   |
| 71   | Egypt                             | 13.13 | 53.35         | 0.45         |   |      |                              |       |               |              |   |
| 72   | Peru (2010)                       | 13.12 | 53.33         | 0.44         |   |      |                              |       |               |              |   |
| 73   | Thailand (2009)                   | 13.08 | 53.05         | 0.43         |   |      |                              |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

| Rank | Country/Economy                   | Value  | Score (0–100) | Percent rank | Rank | Country/Economy | Value                  | Score (0–100) | Percent rank |
|------|-----------------------------------|--------|---------------|--------------|------|-----------------|------------------------|---------------|--------------|
| 1    | China                             | 587.46 | 100.00        | 1.00         | ●    | n/a             | Bosnia and Herzegovina | n/a           | n/a          |
| 2    | Singapore                         | 555.73 | 87.38         | 0.98         |      | n/a             | Botswana               | n/a           | n/a          |
| 3    | Hong Kong (China)                 | 553.59 | 86.53         | 0.97         |      | n/a             | Brunei Darussalam      | n/a           | n/a          |
| 4    | Korea, Rep.                       | 542.45 | 82.10         | 0.95         |      | n/a             | Burkina Faso           | n/a           | n/a          |
| 5    | Japan                             | 540.40 | 81.28         | 0.93         |      | n/a             | Burundi                | n/a           | n/a          |
| 6    | Finland                           | 529.40 | 76.91         | 0.92         |      | n/a             | Cabo Verde             | n/a           | n/a          |
| 7    | Estonia                           | 526.08 | 75.59         | 0.90         |      | n/a             | Cambodia               | n/a           | n/a          |
| 8    | Canada                            | 522.21 | 74.05         | 0.89         |      | n/a             | Cameroon               | n/a           | n/a          |
| 9    | Poland                            | 520.50 | 73.37         | 0.87         | ●    | n/a             | Côte d'Ivoire          | n/a           | n/a          |
| 10   | Netherlands                       | 518.75 | 72.68         | 0.85         |      | n/a             | Cyprus                 | n/a           | n/a          |
| 11   | Switzerland                       | 518.42 | 72.55         | 0.84         |      | n/a             | Dominican Republic     | n/a           | n/a          |
| 12   | Ireland                           | 515.56 | 71.41         | 0.82         |      | n/a             | Ecuador                | n/a           | n/a          |
| 13   | Germany                           | 515.11 | 71.23         | 0.80         |      | n/a             | Egypt                  | n/a           | n/a          |
| 14   | Australia                         | 512.48 | 70.18         | 0.79         |      | n/a             | El Salvador            | n/a           | n/a          |
| 15   | Belgium                           | 509.77 | 69.10         | 0.77         |      | n/a             | Ethiopia               | n/a           | n/a          |
| 16   | New Zealand                       | 509.19 | 68.87         | 0.75         |      | n/a             | Fiji                   | n/a           | n/a          |
| 17   | United Kingdom                    | 502.46 | 66.20         | 0.74         |      | n/a             | Gambia                 | n/a           | n/a          |
| 18   | Austria                           | 500.31 | 65.34         | 0.72         |      | n/a             | Georgia                | n/a           | n/a          |
| 19   | Czech Republic                    | 500.05 | 65.24         | 0.70         |      | n/a             | Ghana                  | n/a           | n/a          |
| 20   | France                            | 499.81 | 65.14         | 0.69         |      | n/a             | Guatemala              | n/a           | n/a          |
| 21   | Slovenia                          | 498.86 | 64.77         | 0.67         |      | n/a             | Guinea                 | n/a           | n/a          |
| 22   | Denmark                           | 498.21 | 64.51         | 0.66         |      | n/a             | Guyana                 | n/a           | n/a          |
| 23   | Norway                            | 495.94 | 63.61         | 0.64         |      | n/a             | Honduras               | n/a           | n/a          |
| 24   | Latvia                            | 493.82 | 62.76         | 0.62         |      | n/a             | Iran, Islamic Rep.     | n/a           | n/a          |
| 25   | United States of America          | 492.12 | 62.09         | 0.61         |      | n/a             | Jamaica                | n/a           | n/a          |
| 26   | Luxembourg                        | 489.62 | 61.09         | 0.59         |      | n/a             | Kenya                  | n/a           | n/a          |
| 27   | Spain                             | 489.57 | 61.07         | 0.57         |      | n/a             | Kuwait                 | n/a           | n/a          |
| 28   | Italy                             | 489.54 | 61.06         | 0.56         |      | n/a             | Kyrgyzstan             | n/a           | n/a          |
| 29   | Portugal                          | 488.03 | 60.46         | 0.54         |      | n/a             | Lebanon                | n/a           | n/a          |
| 30   | Hungary                           | 486.60 | 59.89         | 0.52         |      | n/a             | Lesotho                | n/a           | n/a          |
| 31   | Iceland                           | 484.49 | 59.05         | 0.51         |      | n/a             | Madagascar             | n/a           | n/a          |
| 32   | Lithuania                         | 483.94 | 58.83         | 0.49         |      | n/a             | Malawi                 | n/a           | n/a          |
| 33   | Croatia                           | 482.35 | 58.20         | 0.48         |      | n/a             | Mali                   | n/a           | n/a          |
| 34   | Sweden                            | 482.13 | 58.11         | 0.46         | ○    | n/a             | Malta                  | n/a           | n/a          |
| 35   | Russian Federation                | 481.20 | 57.74         | 0.44         |      | n/a             | Mauritius              | n/a           | n/a          |
| 36   | Israel                            | 474.12 | 54.93         | 0.43         | ○    | n/a             | Moldova, Rep.          | n/a           | n/a          |
| 37   | Slovakia                          | 471.87 | 54.03         | 0.41         |      | n/a             | Mongolia               | n/a           | n/a          |
| 38   | United Arab Emirates              | 468.74 | 52.79         | 0.39         |      | n/a             | Morocco                | n/a           | n/a          |
| 39   | Greece                            | 465.63 | 51.55         | 0.38         |      | n/a             | Mozambique             | n/a           | n/a          |
| 40   | Turkey                            | 462.30 | 50.23         | 0.36         |      | n/a             | Myanmar                | n/a           | n/a          |
| 41   | Serbia                            | 446.60 | 43.98         | 0.34         |      | n/a             | Namibia                | n/a           | n/a          |
| 42   | Bulgaria                          | 440.44 | 41.54         | 0.33         |      | n/a             | Nepal                  | n/a           | n/a          |
| 43   | Romania                           | 440.31 | 41.48         | 0.31         |      | n/a             | Nicaragua              | n/a           | n/a          |
| 44   | Thailand                          | 437.32 | 40.29         | 0.30         |      | n/a             | Niger                  | n/a           | n/a          |
| 45   | Chile                             | 436.32 | 39.90         | 0.28         | ○    | n/a             | Nigeria                | n/a           | n/a          |
| 46   | Costa Rica                        | 425.63 | 35.64         | 0.26         |      | n/a             | Oman                   | n/a           | n/a          |
| 47   | Mexico                            | 417.25 | 32.31         | 0.25         |      | n/a             | Pakistan               | n/a           | n/a          |
| 48   | Kazakhstan                        | 416.41 | 31.98         | 0.23         |      | n/a             | Panama                 | n/a           | n/a          |
| 49   | Montenegro                        | 413.95 | 31.00         | 0.21         | ○    | n/a             | Paraguay               | n/a           | n/a          |
| 50   | Venezuela, Bolivarian Rep. (2010) | 413.44 | 30.80         | 0.20         |      | n/a             | Philippines            | n/a           | n/a          |
| 51   | Malaysia                          | 412.74 | 30.52         | 0.18         | ○    | n/a             | Rwanda                 | n/a           | n/a          |
| 52   | Uruguay                           | 412.16 | 30.29         | 0.16         | ○    | n/a             | Saudi Arabia           | n/a           | n/a          |
| 53   | Brazil                            | 402.10 | 26.29         | 0.15         | ○    | n/a             | Senegal                | n/a           | n/a          |
| 54   | Jordan                            | 398.00 | 24.66         | 0.13         | ○    | n/a             | Seychelles             | n/a           | n/a          |
| 55   | Argentina                         | 396.68 | 24.13         | 0.11         | ○    | n/a             | South Africa           | n/a           | n/a          |
| 56   | Tunisia                           | 396.65 | 24.12         | 0.10         | ○    | n/a             | Sri Lanka              | n/a           | n/a          |
| 57   | Albania                           | 395.22 | 23.55         | 0.08         | ○    | n/a             | Sudan                  | n/a           | n/a          |
| 58   | Colombia                          | 392.86 | 22.61         | 0.07         | ○    | n/a             | Swaziland              | n/a           | n/a          |
| 59   | Indonesia                         | 384.38 | 19.24         | 0.05         | ○    | n/a             | Tajikistan             | n/a           | n/a          |
| 60   | Qatar                             | 382.53 | 18.50         | 0.03         | ○    | n/a             | Tanzania, United Rep.  | n/a           | n/a          |
| 61   | Peru                              | 375.12 | 15.56         | 0.02         | ○    | n/a             | TFYR of Macedonia      | n/a           | n/a          |
| 62   | India (2010)                      | 336.00 | 0.00          | 0.00         | ○    | n/a             | Togo                   | n/a           | n/a          |
| n/a  | Algeria                           | n/a    | n/a           | n/a          |      | n/a             | Trinidad and Tobago    | n/a           | n/a          |
| n/a  | Angola                            | n/a    | n/a           | n/a          |      | n/a             | Uganda                 | n/a           | n/a          |
| n/a  | Armenia                           | n/a    | n/a           | n/a          |      | n/a             | Ukraine                | n/a           | n/a          |
| n/a  | Azerbaijan                        | n/a    | n/a           | n/a          |      | n/a             | Uzbekistan             | n/a           | n/a          |
| n/a  | Bahrain                           | n/a    | n/a           | n/a          |      | n/a             | Viet Nam               | n/a           | n/a          |
| n/a  | Bangladesh                        | n/a    | n/a           | n/a          |      | n/a             | Yemen                  | n/a           | n/a          |
| n/a  | Barbados                          | n/a    | n/a           | n/a          |      | n/a             | Zambia                 | n/a           | n/a          |
| n/a  | Belarus                           | n/a    | n/a           | n/a          |      | n/a             | Zimbabwe               | n/a           | n/a          |
| n/a  | Benin                             | n/a    | n/a           | n/a          |      |                 |                        |               |              |
| n/a  | Bhutan                            | n/a    | n/a           | n/a          |      |                 |                        |               |              |
| n/a  | Bolivia, Plurinational St.        | n/a    | n/a           | n/a          |      |                 |                        |               |              |

SOURCE: OECD Programme for International Student Assessment (PISA) (2010–2012)  
 NOTE: ● indicates a strength; ○ a weakness.



# 2.1.5 Pupil-teacher ratio, secondary

## Pupil-teacher ratio, secondary | 2011

II: Data Tables

| Rank | Country/Economy                 | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   |
|------|---------------------------------|-------|---------------|--------------|---|------|-----------------------------------|-------|---------------|--------------|---|
| 1    | Portugal (2010)                 | 7.35  | 100.00        | 1.00         | ● | 74   | Mexico                            | 17.68 | 70.07         | 0.36         |   |
| 2    | Georgia (2009)                  | 7.57  | 99.36         | 0.99         | ● | 75   | Hong Kong (China) (2005)          | 17.76 | 69.84         | 0.35         | ○ |
| 3    | Greece (2007)                   | 7.88  | 98.45         | 0.98         | ● | 76   | Bolivia, Plurinational St. (2007) | 18.17 | 68.65         | 0.34         |   |
| 4    | Malta                           | 7.95  | 98.26         | 0.97         | ● | 77   | Uganda (2008)                     | 18.54 | 67.56         | 0.33         |   |
| 5    | Croatia                         | 8.00  | 98.11         | 0.96         | ● | 78   | Morocco (2004)                    | 18.73 | 67.03         | 0.32         |   |
| 6    | Kuwait (2009)                   | 8.17  | 97.60         | 0.96         | ● | 79   | Bhutan (2012)                     | 19.89 | 63.66         | 0.32         |   |
| 7    | Latvia                          | 8.33  | 97.15         | 0.95         | ● | 80   | Thailand                          | 19.91 | 63.60         | 0.31         |   |
| 8    | Russian Federation (2009)       | 8.47  | 96.76         | 0.94         | ● | 81   | Chile (2012)                      | 20.04 | 63.21         | 0.30         | ○ |
| 9    | Luxembourg (2010)               | 8.50  | 96.67         | 0.93         |   | 82   | Guyana (2012)                     | 20.29 | 62.49         | 0.29         |   |
| 10   | Lithuania                       | 8.56  | 96.48         | 0.92         | ● | 83   | Cameroon (2012)                   | 21.43 | 59.18         | 0.28         |   |
| 11   | Kazakhstan (2012)               | 8.60  | 96.37         | 0.91         | ● | 84   | Rwanda (2012)                     | 22.91 | 54.89         | 0.27         |   |
| 12   | Poland (2012)                   | 8.66  | 96.19         | 0.90         | ● | 85   | Benin (2004)                      | 23.93 | 51.94         | 0.26         |   |
| 13   | Estonia (2010)                  | 8.76  | 95.90         | 0.89         |   | 86   | El Salvador                       | 24.35 | 50.74         | 0.25         |   |
| 14   | Paraguay                        | 8.87  | 95.59         | 0.89         | ● | 87   | Namibia (2007)                    | 24.62 | 49.94         | 0.25         |   |
| 15   | Slovenia                        | 8.96  | 95.32         | 0.88         |   | 88   | Lesotho (2012)                    | 24.69 | 49.74         | 0.24         |   |
| 16   | Serbia (2012)                   | 9.07  | 95.00         | 0.87         | ● | 89   | Mali                              | 24.72 | 49.66         | 0.23         |   |
| 17   | Lebanon                         | 9.31  | 94.32         | 0.86         | ● | 90   | South Africa (2009)               | 25.05 | 48.71         | 0.22         | ○ |
| 18   | Finland                         | 9.50  | 93.75         | 0.85         |   | 91   | Colombia (2012)                   | 25.40 | 47.70         | 0.21         | ○ |
| 19   | Sweden                          | 9.51  | 93.73         | 0.84         |   | 92   | India                             | 25.92 | 46.18         | 0.20         |   |
| 20   | Austria (2012)                  | 9.54  | 93.65         | 0.83         |   | 93   | Togo                              | 26.25 | 45.24         | 0.19         |   |
| 21   | Moldova, Rep. (2012)            | 9.57  | 93.55         | 0.82         |   | 94   | Burkina Faso (2012)               | 26.33 | 44.98         | 0.18         |   |
| 22   | Cyprus                          | 9.73  | 93.10         | 0.82         |   | 95   | Tanzania, United Rep. (2012)      | 26.39 | 44.81         | 0.18         |   |
| 23   | Qatar (2012)                    | 9.73  | 93.10         | 0.81         |   | 96   | Fiji                              | 26.47 | 44.60         | 0.17         |   |
| 24   | Israel (2009)                   | 9.76  | 93.00         | 0.80         |   | 97   | Senegal                           | 27.35 | 42.03         | 0.16         |   |
| 25   | Bahrain (2012)                  | 9.82  | 92.84         | 0.79         |   | 98   | Angola                            | 27.42 | 41.84         | 0.15         |   |
| 26   | Hungary                         | 10.03 | 92.23         | 0.78         |   | 99   | Madagascar (2012)                 | 27.64 | 41.21         | 0.14         |   |
| 27   | Brunei Darussalam (2012)        | 10.09 | 92.05         | 0.77         | ● | 100  | Cambodia (2007)                   | 28.92 | 37.48         | 0.13         |   |
| 28   | Italy (2007)                    | 10.10 | 92.02         | 0.76         |   | 101  | Dominican Republic (2012)         | 29.18 | 36.75         | 0.12         | ○ |
| 29   | Argentina (2008)                | 10.90 | 89.71         | 0.75         |   | 102  | Nepal (2013)                      | 29.18 | 36.74         | 0.11         |   |
| 30   | Czech Republic (2012)           | 11.19 | 88.86         | 0.75         |   | 103  | Kenya (2009)                      | 29.68 | 35.29         | 0.11         | ○ |
| 31   | Uruguay (2010)                  | 11.32 | 88.49         | 0.74         | ● | 104  | Burundi (2012)                    | 29.71 | 35.20         | 0.10         |   |
| 32   | Saudi Arabia (2009)             | 11.32 | 88.49         | 0.73         |   | 105  | Bangladesh                        | 30.62 | 32.55         | 0.09         |   |
| 33   | Slovakia (2012)                 | 11.35 | 88.42         | 0.72         |   | 106  | Nicaragua (2010)                  | 30.83 | 31.95         | 0.08         | ○ |
| 34   | Spain (2012)                    | 11.35 | 88.40         | 0.71         |   | 107  | Mozambique (2012)                 | 33.07 | 25.45         | 0.07         | ○ |
| 35   | Ecuador (2012)                  | 11.52 | 87.91         | 0.70         | ● | 108  | Nigeria (2010)                    | 33.08 | 25.43         | 0.06         |   |
| 36   | Seychelles                      | 11.79 | 87.13         | 0.69         |   | 109  | Guinea                            | 33.14 | 25.27         | 0.05         |   |
| 37   | Japan                           | 11.79 | 87.11         | 0.68         |   | 110  | Myanmar (2010)                    | 34.08 | 22.54         | 0.04         |   |
| 38   | TFYR of Macedonia (2010)        | 11.91 | 86.77         | 0.68         |   | 111  | Niger                             | 34.68 | 20.80         | 0.04         |   |
| 39   | Egypt (2009)                    | 12.13 | 86.13         | 0.67         | ● | 112  | Philippines (2009)                | 34.81 | 20.41         | 0.03         | ○ |
| 40   | Bulgaria                        | 12.30 | 85.65         | 0.66         |   | 113  | Ethiopia (2012)                   | 39.70 | 6.25          | 0.02         | ○ |
| 41   | France (2012)                   | 12.83 | 84.10         | 0.65         |   | 114  | Malawi (2012)                     | 41.52 | 0.97          | 0.01         | ○ |
| 42   | Germany                         | 12.88 | 83.97         | 0.64         |   | 115  | Pakistan (2004)                   | 41.86 | 0.00          | 0.00         | ○ |
| 43   | Romania                         | 12.96 | 83.73         | 0.63         |   | n/a  | Algeria                           | n/a   | n/a           | n/a          |   |
| 44   | Uzbekistan                      | 13.28 | 82.82         | 0.62         | ● | n/a  | Armenia                           | n/a   | n/a           | n/a          |   |
| 45   | Netherlands                     | 13.57 | 81.96         | 0.61         |   | n/a  | Australia                         | n/a   | n/a           | n/a          |   |
| 46   | Malaysia                        | 13.58 | 81.94         | 0.61         |   | n/a  | Azerbaijan                        | n/a   | n/a           | n/a          |   |
| 47   | Tunisia                         | 13.62 | 81.81         | 0.60         |   | n/a  | Belarus                           | n/a   | n/a           | n/a          |   |
| 48   | Botswana (2007)                 | 13.88 | 81.07         | 0.59         |   | n/a  | Belgium                           | n/a   | n/a           | n/a          |   |
| 49   | Panama (2012)                   | 14.18 | 80.19         | 0.58         |   | n/a  | Bosnia and Herzegovina            | n/a   | n/a           | n/a          |   |
| 50   | United Kingdom (2008)           | 14.27 | 79.94         | 0.57         | ○ | n/a  | Canada                            | n/a   | n/a           | n/a          |   |
| 51   | United Arab Emirates (2012)     | 14.30 | 79.84         | 0.56         |   | n/a  | Côte d'Ivoire                     | n/a   | n/a           | n/a          |   |
| 52   | New Zealand                     | 14.37 | 79.65         | 0.55         |   | n/a  | Denmark                           | n/a   | n/a           | n/a          |   |
| 53   | Mongolia (2010)                 | 14.49 | 79.29         | 0.54         |   | n/a  | Gambia                            | n/a   | n/a           | n/a          |   |
| 54   | Guatemala                       | 14.49 | 79.29         | 0.54         |   | n/a  | Honduras                          | n/a   | n/a           | n/a          |   |
| 55   | China (2012)                    | 14.50 | 79.26         | 0.53         |   | n/a  | Iceland                           | n/a   | n/a           | n/a          |   |
| 56   | Barbados (2006)                 | 14.58 | 79.03         | 0.52         |   | n/a  | Iran, Islamic Rep.                | n/a   | n/a           | n/a          |   |
| 57   | United States of America (2012) | 14.66 | 78.80         | 0.51         |   | n/a  | Ireland                           | n/a   | n/a           | n/a          |   |
| 58   | Mauritius (2012)                | 14.71 | 78.67         | 0.50         |   | n/a  | Jordan                            | n/a   | n/a           | n/a          |   |
| 59   | Indonesia                       | 14.77 | 78.50         | 0.49         |   | n/a  | Montenegro                        | n/a   | n/a           | n/a          |   |
| 60   | Albania (2012)                  | 14.89 | 78.13         | 0.48         |   | n/a  | Norway                            | n/a   | n/a           | n/a          |   |
| 61   | Singapore (2009)                | 14.91 | 78.08         | 0.47         | ○ | n/a  | Oman                              | n/a   | n/a           | n/a          |   |
| 62   | Costa Rica                      | 14.92 | 78.05         | 0.46         |   | n/a  | Sudan                             | n/a   | n/a           | n/a          |   |
| 63   | Kyrgyzstan (2010)               | 15.21 | 77.22         | 0.46         |   | n/a  | Switzerland                       | n/a   | n/a           | n/a          |   |
| 64   | Tajikistan                      | 15.44 | 76.55         | 0.45         |   | n/a  | Trinidad and Tobago               | n/a   | n/a           | n/a          |   |
| 65   | Yemen                           | 16.09 | 74.68         | 0.44         | ● | n/a  | Turkey                            | n/a   | n/a           | n/a          |   |
| 66   | Korea, Rep.                     | 16.16 | 74.45         | 0.43         |   | n/a  | Ukraine                           | n/a   | n/a           | n/a          |   |
| 67   | Swaziland                       | 16.40 | 73.78         | 0.42         |   | n/a  | Venezuela, Bolivarian Rep.        | n/a   | n/a           | n/a          |   |
| 68   | Brazil (2010)                   | 16.66 | 73.00         | 0.41         |   | n/a  | Viet Nam                          | n/a   | n/a           | n/a          |   |
| 69   | Peru (2012)                     | 16.75 | 72.75         | 0.40         |   | n/a  | Zambia                            | n/a   | n/a           | n/a          |   |
| 70   | Cabo Verde (2012)               | 16.79 | 72.62         | 0.39         |   | n/a  | Zimbabwe                          | n/a   | n/a           | n/a          |   |
| 71   | Jamaica                         | 16.81 | 72.58         | 0.39         |   |      |                                   |       |               |              |   |
| 72   | Sri Lanka (2012)                | 17.28 | 71.21         | 0.38         |   |      |                                   |       |               |              |   |
| 73   | Ghana (2013)                    | 17.53 | 70.49         | 0.37         |   |      |                                   |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

# 2.2.1 Tertiary enrolment

## School enrolment, tertiary (% gross) | 2011

| Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy              | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|-------|---------------|--------------|---|------|------------------------------|-------|---------------|--------------|---|
| 1    | Korea, Rep. (2012)                | 98.47 | 100.00        | 1.00         | ● | 74   | Algeria (2012)               | 31.46 | 31.39         | 0.45         | ● |
| 2    | Finland                           | 95.54 | 97.00         | 0.99         | ● | 75   | Jamaica (2012)               | 30.82 | 30.73         | 0.44         |   |
| 3    | United States of America          | 95.33 | 96.79         | 0.98         | ● | 76   | Egypt                        | 28.75 | 28.61         | 0.44         |   |
| 4    | Belarus (2012)                    | 91.45 | 92.81         | 0.98         | ● | 77   | Philippines (2009)           | 28.20 | 28.04         | 0.43         |   |
| 5    | Greece (2007)                     | 91.39 | 92.75         | 0.97         | ● | 78   | Oman                         | 28.14 | 27.98         | 0.42         |   |
| 6    | Slovenia (2012)                   | 86.02 | 87.26         | 0.96         | ● | 79   | Georgia (2012)               | 27.93 | 27.77         | 0.41         |   |
| 7    | Australia                         | 83.24 | 84.41         | 0.95         | ● | 80   | Mexico                       | 27.69 | 27.52         | 0.41         |   |
| 8    | Spain                             | 82.62 | 83.76         | 0.95         | ● | 81   | Indonesia                    | 27.20 | 27.02         | 0.40         |   |
| 9    | Iceland                           | 80.94 | 82.05         | 0.94         |   | 82   | China (2012)                 | 26.70 | 26.51         | 0.39         |   |
| 10   | New Zealand                       | 80.78 | 81.89         | 0.93         |   | 83   | El Salvador (2012)           | 25.45 | 25.23         | 0.38         |   |
| 11   | Ukraine (2012)                    | 79.70 | 80.78         | 0.92         | ● | 84   | Viet Nam (2012)              | 24.60 | 24.36         | 0.38         |   |
| 12   | Venezuela, Bolivarian Rep. (2009) | 77.91 | 78.95         | 0.92         | ● | 85   | Brunei Darussalam (2012)     | 24.34 | 24.09         | 0.37         |   |
| 13   | Lithuania                         | 76.60 | 77.61         | 0.91         | ● | 86   | India                        | 23.27 | 23.00         | 0.36         |   |
| 14   | Netherlands                       | 76.42 | 77.42         | 0.90         |   | 87   | Tajikistan (2012)            | 22.47 | 22.18         | 0.35         |   |
| 15   | Russian Federation (2009)         | 75.47 | 76.45         | 0.89         | ● | 88   | Kuwait (2004)                | 22.30 | 22.00         | 0.35         |   |
| 16   | Argentina (2010)                  | 74.83 | 75.79         | 0.89         | ● | 89   | Cabo Verde (2012)            | 20.61 | 20.27         | 0.34         |   |
| 17   | Chile (2012)                      | 74.39 | 75.34         | 0.88         | ● | 90   | Azerbaijan (2012)            | 20.44 | 20.09         | 0.33         |   |
| 18   | Sweden                            | 73.95 | 74.89         | 0.87         |   | 91   | Honduras (2012)              | 20.40 | 20.05         | 0.32         |   |
| 19   | Denmark (2010)                    | 73.58 | 74.51         | 0.86         |   | 92   | Luxembourg (2010)            | 18.21 | 17.81         | 0.32         | ○ |
| 20   | Ireland                           | 73.47 | 74.40         | 0.86         |   | 93   | Guatemala (2007)             | 17.88 | 17.47         | 0.31         |   |
| 21   | Poland (2012)                     | 73.19 | 74.12         | 0.85         | ● | 94   | Sri Lanka (2012)             | 16.97 | 16.54         | 0.30         |   |
| 22   | Norway                            | 73.09 | 74.01         | 0.84         |   | 95   | Morocco                      | 16.16 | 15.71         | 0.29         |   |
| 23   | Estonia (2010)                    | 71.65 | 72.54         | 0.83         |   | 96   | Cambodia                     | 15.83 | 15.38         | 0.29         |   |
| 24   | Austria                           | 71.00 | 71.87         | 0.83         |   | 97   | Nepal                        | 14.49 | 14.00         | 0.28         |   |
| 25   | Belgium                           | 69.26 | 70.09         | 0.82         |   | 98   | Myanmar                      | 13.81 | 13.31         | 0.27         |   |
| 26   | Latvia                            | 67.28 | 68.07         | 0.81         |   | 99   | Bangladesh                   | 13.15 | 12.63         | 0.26         |   |
| 27   | Portugal (2010)                   | 65.95 | 66.70         | 0.80         |   | 100  | Guyana (2012)                | 12.91 | 12.39         | 0.26         |   |
| 28   | Czech Republic                    | 64.58 | 65.30         | 0.80         |   | 101  | Benin                        | 12.37 | 11.83         | 0.25         |   |
| 29   | Italy                             | 63.86 | 64.56         | 0.79         |   | 102  | Ghana (2012)                 | 12.20 | 11.66         | 0.24         |   |
| 30   | Uruguay (2010)                    | 63.15 | 63.83         | 0.78         | ● | 103  | Qatar (2012)                 | 12.15 | 11.60         | 0.23         |   |
| 31   | Israel (2009)                     | 62.38 | 63.04         | 0.77         |   | 104  | Trinidad and Tobago (2004)   | 11.95 | 11.41         | 0.23         |   |
| 32   | Fiji                              | 61.93 | 62.58         | 0.77         | ● | 105  | Cameroon                     | 11.91 | 11.36         | 0.22         |   |
| 33   | United Kingdom                    | 61.17 | 61.80         | 0.76         |   | 106  | Lesotho (2012)               | 10.83 | 10.25         | 0.21         |   |
| 34   | Mongolia (2012)                   | 61.10 | 61.73         | 0.75         |   | 107  | Nigeria (2005)               | 10.41 | 9.82          | 0.20         |   |
| 35   | Barbados                          | 60.84 | 61.47         | 0.74         |   | 108  | Togo (2012)                  | 10.31 | 9.73          | 0.20         |   |
| 36   | Turkey                            | 60.68 | 61.31         | 0.74         |   | 109  | Yemen                        | 10.29 | 9.70          | 0.19         |   |
| 37   | Hong Kong (China) (2012)          | 60.13 | 60.73         | 0.73         |   | 110  | Guinea (2012)                | 9.93  | 9.34          | 0.18         |   |
| 38   | Japan                             | 59.92 | 60.53         | 0.72         |   | 111  | Pakistan (2012)              | 9.53  | 8.92          | 0.17         |   |
| 39   | Bulgaria                          | 59.63 | 60.22         | 0.71         |   | 112  | Bhutan (2012)                | 9.43  | 8.82          | 0.17         |   |
| 40   | Hungary                           | 59.51 | 60.10         | 0.71         |   | 113  | Namibia (2008)               | 9.33  | 8.72          | 0.16         |   |
| 41   | Croatia                           | 58.81 | 59.38         | 0.70         |   | 114  | Uganda                       | 9.06  | 8.44          | 0.15         |   |
| 42   | France                            | 57.06 | 57.60         | 0.69         |   | 115  | Uzbekistan                   | 8.87  | 8.25          | 0.14         |   |
| 43   | Germany                           | 56.53 | 57.05         | 0.68         |   | 116  | Côte d'Ivoire (2010)         | 8.36  | 7.73          | 0.14         |   |
| 44   | Montenegro (2010)                 | 55.53 | 56.03         | 0.68         |   | 117  | Senegal (2010)               | 7.63  | 6.98          | 0.13         |   |
| 45   | Albania (2012)                    | 55.50 | 56.00         | 0.67         |   | 118  | Angola                       | 7.50  | 6.84          | 0.12         |   |
| 46   | Iran, Islamic Rep. (2012)         | 55.16 | 55.65         | 0.66         | ● | 119  | Mali (2012)                  | 7.47  | 6.82          | 0.11         |   |
| 47   | Slovakia                          | 55.07 | 55.56         | 0.65         |   | 120  | Botswana (2006)              | 7.43  | 6.78          | 0.11         | ○ |
| 48   | Switzerland                       | 54.34 | 54.81         | 0.65         |   | 121  | Rwanda (2012)                | 6.90  | 6.23          | 0.10         |   |
| 49   | Serbia (2012)                     | 52.38 | 52.80         | 0.64         |   | 122  | Swaziland                    | 5.96  | 5.27          | 0.09         | ○ |
| 50   | Romania                           | 51.60 | 52.00         | 0.63         |   | 123  | Zimbabwe (2012)              | 5.94  | 5.25          | 0.08         |   |
| 51   | Thailand (2012)                   | 51.40 | 51.80         | 0.62         |   | 124  | Mozambique                   | 4.85  | 4.13          | 0.08         |   |
| 52   | Saudi Arabia (2012)               | 50.94 | 51.32         | 0.62         |   | 125  | Burkina Faso (2012)          | 4.56  | 3.84          | 0.07         |   |
| 53   | Costa Rica (2012)                 | 46.74 | 47.03         | 0.61         |   | 126  | Gambia (2008)                | 4.47  | 3.74          | 0.06         | ○ |
| 54   | Cyprus                            | 46.54 | 46.82         | 0.60         |   | 127  | Madagascar (2012)            | 4.09  | 3.35          | 0.05         |   |
| 55   | Lebanon (2012)                    | 46.26 | 46.54         | 0.59         |   | 128  | Kenya (2009)                 | 4.05  | 3.31          | 0.05         | ○ |
| 56   | Armenia (2012)                    | 46.04 | 46.31         | 0.59         |   | 129  | Tanzania, United Rep. (2012) | 3.92  | 3.18          | 0.04         | ○ |
| 57   | Colombia (2012)                   | 45.02 | 45.27         | 0.58         |   | 130  | Burundi (2010)               | 3.17  | 2.41          | 0.03         | ○ |
| 58   | Kazakhstan (2012)                 | 44.53 | 44.76         | 0.57         |   | 131  | Ethiopia (2005)              | 2.79  | 2.02          | 0.02         | ○ |
| 59   | Peru (2010)                       | 42.64 | 42.83         | 0.56         |   | 132  | Niger (2012)                 | 1.75  | 0.96          | 0.02         | ○ |
| 60   | Panama                            | 41.78 | 41.95         | 0.56         |   | 133  | Seychelles (2012)            | 1.39  | 0.59          | 0.01         | ○ |
| 61   | Kyrgyzstan                        | 41.35 | 41.50         | 0.55         |   | 134  | Malawi                       | 0.81  | 0.00          | 0.00         | ○ |
| 62   | TFYR of Macedonia                 | 40.76 | 40.90         | 0.54         |   | n/a  | Brazil                       | n/a   | n/a           | n/a          |   |
| 63   | Moldova, Rep. (2012)              | 40.11 | 40.24         | 0.53         |   | n/a  | Canada                       | n/a   | n/a           | n/a          |   |
| 64   | Jordan                            | 39.94 | 40.06         | 0.53         |   | n/a  | Dominican Republic           | n/a   | n/a           | n/a          |   |
| 65   | Mauritius (2012)                  | 39.86 | 39.99         | 0.52         |   | n/a  | Nicaragua                    | n/a   | n/a           | n/a          |   |
| 66   | Malta                             | 39.44 | 39.56         | 0.51         |   | n/a  | Singapore                    | n/a   | n/a           | n/a          |   |
| 67   | Ecuador (2008)                    | 38.92 | 39.02         | 0.50         |   | n/a  | South Africa                 | n/a   | n/a           | n/a          |   |
| 68   | Bosnia and Herzegovina (2012)     | 37.74 | 37.81         | 0.50         |   | n/a  | Sudan                        | n/a   | n/a           | n/a          |   |
| 69   | Bolivia, Plurinational St. (2007) | 37.69 | 37.76         | 0.49         |   | n/a  | United Arab Emirates         | n/a   | n/a           | n/a          |   |
| 70   | Malaysia                          | 35.97 | 36.00         | 0.48         |   | n/a  | Zambia                       | n/a   | n/a           | n/a          |   |
| 71   | Tunisia (2012)                    | 35.20 | 35.21         | 0.47         |   |      |                              |       |               |              |   |
| 72   | Paraguay (2010)                   | 34.51 | 34.51         | 0.47         |   |      |                              |       |               |              |   |
| 73   | Bahrain (2012)                    | 33.46 | 33.43         | 0.46         |   |      |                              |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

## 2.2.2 Graduates in science and engineering

Tertiary graduates in science, engineering, manufacturing, and construction (% of total tertiary graduates) | 2011

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy                 | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|---------------------------------|-------|---------------|--------------|---|
| 1    | Thailand (2010)            | 53.22 | 100.00        | 1.00         | ● | 74   | Belgium                         | 16.53 | 27.46         | 0.29         | ○ |
| 2    | Iran, Islamic Rep. (2012)  | 47.22 | 88.14         | 0.99         | ● | 75   | Hungary                         | 16.52 | 27.44         | 0.28         |   |
| 3    | Tunisia (2012)             | 42.38 | 78.57         | 0.98         | ● | 76   | Azerbaijan (2012)               | 16.21 | 26.82         | 0.27         |   |
| 4    | Oman (2010)                | 38.94 | 71.77         | 0.97         | ● | 77   | Jordan                          | 16.12 | 26.65         | 0.26         |   |
| 5    | Myanmar                    | 38.66 | 71.22         | 0.96         | ● | 78   | Armenia (2010)                  | 15.92 | 26.24         | 0.25         |   |
| 6    | Malaysia                   | 37.68 | 69.27         | 0.95         | ● | 79   | Latvia                          | 15.69 | 25.80         | 0.24         | ○ |
| 7    | Morocco (2010)             | 34.91 | 63.79         | 0.94         | ● | 80   | Kyrgyzstan (2012)               | 15.64 | 25.69         | 0.23         |   |
| 8    | Hong Kong (China) (2006)   | 34.67 | 63.32         | 0.93         |   | 81   | Iceland (2010)                  | 15.64 | 25.69         | 0.22         | ○ |
| 9    | Qatar (2012)               | 33.57 | 61.15         | 0.92         | ● | 82   | Uruguay (2010)                  | 15.60 | 25.62         | 0.21         | ○ |
| 10   | Luxembourg (2008)          | 32.54 | 59.12         | 0.91         |   | 83   | Bangladesh                      | 15.57 | 25.55         | 0.20         |   |
| 11   | Korea, Rep. (2012)         | 31.06 | 56.19         | 0.90         |   | 84   | United States of America (2010) | 15.47 | 25.36         | 0.19         | ○ |
| 12   | Trinidad and Tobago (2004) | 30.38 | 54.85         | 0.89         | ● | 85   | Ethiopia (2010)                 | 15.23 | 24.90         | 0.18         |   |
| 13   | Saudi Arabia (2012)        | 28.95 | 52.02         | 0.88         | ● | 86   | Barbados                        | 14.99 | 24.40         | 0.17         | ○ |
| 14   | Russian Federation (2009)  | 28.11 | 50.35         | 0.87         | ● | 87   | Ghana (2012)                    | 14.18 | 22.80         | 0.17         |   |
| 15   | Finland                    | 27.75 | 49.64         | 0.86         |   | 88   | Honduras (2012)                 | 14.13 | 22.72         | 0.16         |   |
| 16   | Greece (2010)              | 27.54 | 49.22         | 0.85         | ● | 89   | Netherlands                     | 13.73 | 21.91         | 0.15         | ○ |
| 17   | Belarus (2012)             | 27.17 | 48.50         | 0.84         | ● | 90   | Argentina (2010)                | 13.51 | 21.48         | 0.14         | ○ |
| 18   | Austria                    | 27.12 | 48.39         | 0.83         |   | 91   | Guyana (2012)                   | 13.44 | 21.35         | 0.13         |   |
| 19   | Germany                    | 26.91 | 47.97         | 0.83         |   | 92   | Ecuador (2008)                  | 12.81 | 20.10         | 0.12         |   |
| 20   | Mexico                     | 26.80 | 47.77         | 0.82         | ● | 93   | Benin                           | 12.67 | 19.83         | 0.11         |   |
| 21   | France (2009)              | 26.06 | 46.30         | 0.81         |   | 94   | Lesotho (2012)                  | 12.55 | 19.59         | 0.10         |   |
| 22   | Sweden                     | 25.81 | 45.81         | 0.80         |   | 95   | Cambodia (2008)                 | 12.49 | 19.47         | 0.09         |   |
| 23   | Ukraine (2012)             | 25.57 | 45.33         | 0.79         | ● | 96   | Brazil (2012)                   | 11.96 | 18.42         | 0.08         | ○ |
| 24   | Tajikistan (2012)          | 25.50 | 45.20         | 0.78         | ● | 97   | Costa Rica                      | 11.90 | 18.30         | 0.07         | ○ |
| 25   | Spain                      | 25.30 | 44.79         | 0.77         |   | 98   | Nepal                           | 11.78 | 18.06         | 0.06         | ○ |
| 26   | Seychelles                 | 25.00 | 44.20         | 0.76         | ● | 99   | Burundi (2010)                  | 9.58  | 13.72         | 0.05         |   |
| 27   | Algeria                    | 24.95 | 44.11         | 0.75         | ● | 100  | Uganda (2004)                   | 9.53  | 13.62         | 0.04         | ○ |
| 28   | Serbia (2012)              | 24.80 | 43.80         | 0.74         |   | 101  | Mozambique                      | 8.90  | 12.37         | 0.03         | ○ |
| 29   | Slovenia (2012)            | 24.74 | 43.69         | 0.73         |   | 102  | Niger (2008)                    | 4.28  | 3.23          | 0.02         | ○ |
| 30   | Portugal                   | 24.61 | 43.43         | 0.72         |   | 103  | Swaziland (2006)                | 2.71  | 0.14          | 0.01         | ○ |
| 31   | Viet Nam (2012)            | 24.05 | 42.32         | 0.71         |   | 104  | Namibia (2008)                  | 2.64  | 0.00          | 0.00         | ○ |
| 32   | Lebanon (2012)             | 23.35 | 40.94         | 0.70         |   | n/a  | Angola                          | n/a   | n/a           | n/a          |   |
| 33   | Zimbabwe (2012)            | 23.28 | 40.80         | 0.69         | ● | n/a  | Bhutan                          | n/a   | n/a           | n/a          |   |
| 34   | Ireland (2010)             | 23.20 | 40.65         | 0.68         |   | n/a  | Bolivia, Plurinational St.      | n/a   | n/a           | n/a          |   |
| 35   | Indonesia (2010)           | 22.77 | 39.79         | 0.67         |   | n/a  | Bosnia and Herzegovina          | n/a   | n/a           | n/a          |   |
| 36   | Rwanda (2012)              | 22.45 | 39.17         | 0.66         |   | n/a  | Botswana                        | n/a   | n/a           | n/a          |   |
| 37   | United Kingdom             | 22.35 | 38.96         | 0.65         | ○ | n/a  | Cabo Verde                      | n/a   | n/a           | n/a          |   |
| 38   | Turkey                     | 22.26 | 38.78         | 0.64         |   | n/a  | Canada                          | n/a   | n/a           | n/a          |   |
| 39   | Panama                     | 22.03 | 38.34         | 0.63         |   | n/a  | China                           | n/a   | n/a           | n/a          |   |
| 40   | Czech Republic             | 21.79 | 37.87         | 0.62         |   | n/a  | Côte d'Ivoire                   | n/a   | n/a           | n/a          |   |
| 41   | Italy                      | 21.68 | 37.64         | 0.61         |   | n/a  | Dominican Republic              | n/a   | n/a           | n/a          |   |
| 42   | El Salvador (2012)         | 21.54 | 37.36         | 0.60         |   | n/a  | Egypt                           | n/a   | n/a           | n/a          |   |
| 43   | Lithuania                  | 21.47 | 37.22         | 0.59         |   | n/a  | Fiji                            | n/a   | n/a           | n/a          |   |
| 44   | Colombia (2012)            | 21.45 | 37.19         | 0.58         |   | n/a  | Guinea                          | n/a   | n/a           | n/a          |   |
| 45   | TFYR of Macedonia          | 21.24 | 36.78         | 0.57         |   | n/a  | India                           | n/a   | n/a           | n/a          |   |
| 46   | Uzbekistan                 | 21.14 | 36.56         | 0.56         | ● | n/a  | Israel                          | n/a   | n/a           | n/a          |   |
| 47   | Cameroon (2010)            | 21.02 | 36.34         | 0.55         | ● | n/a  | Jamaica                         | n/a   | n/a           | n/a          |   |
| 48   | Georgia (2012)             | 20.74 | 35.79         | 0.54         |   | n/a  | Kazakhstan                      | n/a   | n/a           | n/a          |   |
| 49   | Slovakia (2012)            | 20.61 | 35.52         | 0.53         |   | n/a  | Kenya                           | n/a   | n/a           | n/a          |   |
| 50   | Estonia (2010)             | 20.55 | 35.41         | 0.52         |   | n/a  | Kuwait                          | n/a   | n/a           | n/a          |   |
| 51   | Madagascar (2012)          | 20.47 | 35.25         | 0.51         |   | n/a  | Malawi                          | n/a   | n/a           | n/a          |   |
| 52   | Mauritius (2012)           | 20.44 | 35.18         | 0.50         |   | n/a  | Mali                            | n/a   | n/a           | n/a          |   |
| 53   | Japan                      | 20.28 | 34.87         | 0.50         |   | n/a  | Moldova, Rep.                   | n/a   | n/a           | n/a          |   |
| 54   | Romania                    | 20.18 | 34.67         | 0.49         |   | n/a  | Montenegro                      | n/a   | n/a           | n/a          |   |
| 55   | Denmark                    | 20.16 | 34.64         | 0.48         | ○ | n/a  | Nicaragua                       | n/a   | n/a           | n/a          |   |
| 56   | Croatia (2010)             | 20.11 | 34.54         | 0.47         |   | n/a  | Nigeria                         | n/a   | n/a           | n/a          |   |
| 57   | Gambia (2004)              | 20.00 | 34.32         | 0.46         |   | n/a  | Pakistan                        | n/a   | n/a           | n/a          |   |
| 58   | Burkina Faso (2012)        | 19.94 | 34.20         | 0.45         |   | n/a  | Paraguay                        | n/a   | n/a           | n/a          |   |
| 59   | Switzerland (2010)         | 19.78 | 33.89         | 0.44         | ○ | n/a  | Peru                            | n/a   | n/a           | n/a          |   |
| 60   | Chile (2012)               | 19.18 | 32.69         | 0.43         |   | n/a  | Philippines                     | n/a   | n/a           | n/a          |   |
| 61   | Bulgaria                   | 19.07 | 32.47         | 0.42         |   | n/a  | Senegal                         | n/a   | n/a           | n/a          |   |
| 62   | Malta                      | 18.34 | 31.04         | 0.41         | ○ | n/a  | Singapore                       | n/a   | n/a           | n/a          |   |
| 63   | Brunei Darussalam (2012)   | 18.26 | 30.87         | 0.40         |   | n/a  | South Africa                    | n/a   | n/a           | n/a          |   |
| 64   | New Zealand                | 18.25 | 30.86         | 0.39         | ○ | n/a  | Sudan                           | n/a   | n/a           | n/a          |   |
| 65   | Bahrain (2006)             | 17.91 | 30.19         | 0.38         |   | n/a  | Tanzania, United Rep.           | n/a   | n/a           | n/a          |   |
| 66   | Mongolia                   | 17.59 | 29.55         | 0.37         |   | n/a  | Togo                            | n/a   | n/a           | n/a          |   |
| 67   | Albania (2012)             | 17.24 | 28.87         | 0.36         |   | n/a  | United Arab Emirates            | n/a   | n/a           | n/a          |   |
| 68   | Cyprus                     | 17.21 | 28.81         | 0.35         |   | n/a  | Venezuela, Bolivarian Rep.      | n/a   | n/a           | n/a          |   |
| 69   | Poland (2012)              | 16.81 | 28.02         | 0.34         |   | n/a  | Yemen                           | n/a   | n/a           | n/a          |   |
| 70   | Norway                     | 16.79 | 27.97         | 0.33         | ○ | n/a  | Zambia                          | n/a   | n/a           | n/a          |   |
| 71   | Guatemala (2007)           | 16.76 | 27.92         | 0.32         |   |      |                                 |       |               |              |   |
| 72   | Sri Lanka (2012)           | 16.70 | 27.80         | 0.31         |   |      |                                 |       |               |              |   |
| 73   | Australia (2010)           | 16.58 | 27.56         | 0.30         | ○ |      |                                 |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

## 2.2.3 Tertiary inbound mobility

### Tertiary inbound mobility ratio (%) | 2011

| Rank | Country/Economy               | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   |
|------|-------------------------------|-------|---------------|--------------|---|------|-----------------------------------|-------|---------------|--------------|---|
| 1    | Australia                     | 19.83 | 100.00        | 0.96         | ● | 74   | Russian Federation (2009)         | 1.39  | 6.96          | 0.35         |   |
| 1    | Cyprus                        | 27.99 | 100.00        | 0.96         | ● | 75   | Cameroon                          | 1.39  | 6.94          | 0.34         |   |
| 1    | Fiji (2004)                   | 32.94 | 100.00        | 0.96         | ● | 76   | Kazakhstan (2012)                 | 1.38  | 6.90          | 0.33         |   |
| 1    | Luxembourg (2010)             | 41.41 | 100.00        | 0.96         | ● | 77   | Albania (2012)                    | 1.30  | 6.51          | 0.32         |   |
| 1    | Qatar (2012)                  | 41.43 | 100.00        | 0.96         | ● | 78   | Côte d'Ivoire (2010)              | 1.26  | 6.31          | 0.31         |   |
| 1    | United Arab Emirates (2009)   | 39.77 | 100.00        | 0.96         | ● | 79   | Poland (2012)                     | 1.17  | 5.86          | 0.30         | ○ |
| 7    | Austria                       | 19.50 | 98.35         | 0.95         | ● | 80   | Malawi (2010)                     | 1.14  | 5.68          | 0.29         |   |
| 8    | Singapore (2013)              | 19.17 | 96.65         | 0.94         |   | 81   | Cabo Verde (2012)                 | 1.13  | 5.64          | 0.29         |   |
| 9    | United Kingdom                | 16.85 | 84.97         | 0.93         |   | 82   | Guinea (2012)                     | 0.92  | 4.59          | 0.28         |   |
| 10   | Switzerland                   | 16.22 | 81.80         | 0.92         |   | 83   | Honduras (2012)                   | 0.90  | 4.51          | 0.27         |   |
| 11   | New Zealand                   | 15.58 | 78.56         | 0.91         |   | 84   | Swaziland                         | 0.89  | 4.43          | 0.26         |   |
| 12   | Barbados                      | 13.80 | 69.57         | 0.90         | ● | 85   | Thailand (2012)                   | 0.84  | 4.17          | 0.25         |   |
| 13   | Lebanon (2012)                | 12.82 | 64.61         | 0.89         | ● | 86   | Turkey                            | 0.82  | 4.06          | 0.24         |   |
| 14   | France                        | 11.87 | 59.84         | 0.88         |   | 87   | Rwanda (2012)                     | 0.76  | 3.80          | 0.23         |   |
| 15   | Ireland                       | 10.71 | 53.97         | 0.88         |   | 88   | Tanzania, United Rep. (2004)      | 0.64  | 3.18          | 0.22         |   |
| 16   | Namibia (2008)                | 10.17 | 51.26         | 0.87         | ● | 89   | Mongolia (2012)                   | 0.61  | 3.02          | 0.21         |   |
| 17   | Jordan                        | 9.93  | 50.06         | 0.86         | ● | 90   | Algeria                           | 0.55  | 2.72          | 0.21         |   |
| 18   | Czech Republic                | 8.53  | 42.97         | 0.85         |   | 91   | Tunisia (2012)                    | 0.53  | 2.63          | 0.20         |   |
| 19   | Bahrain (2012)                | 8.48  | 42.75         | 0.84         | ● | 92   | Mali                              | 0.53  | 2.61          | 0.19         |   |
| 20   | Belgium                       | 8.19  | 41.27         | 0.83         |   | 93   | Lesotho (2012)                    | 0.50  | 2.46          | 0.18         |   |
| 21   | Sweden                        | 7.88  | 39.70         | 0.82         |   | 94   | Croatia                           | 0.45  | 2.21          | 0.17         | ○ |
| 22   | Hong Kong (China) (2012)      | 7.82  | 39.40         | 0.81         |   | 95   | El Salvador (2012)                | 0.41  | 1.99          | 0.16         |   |
| 23   | Denmark (2010)                | 7.54  | 37.98         | 0.80         |   | 96   | Guyana (2012)                     | 0.38  | 1.89          | 0.15         |   |
| 24   | Germany                       | 7.52  | 37.89         | 0.79         |   | 97   | Zimbabwe (2012)                   | 0.37  | 1.84          | 0.14         |   |
| 25   | Norway                        | 7.24  | 36.47         | 0.79         |   | 98   | Mozambique                        | 0.35  | 1.71          | 0.13         |   |
| 26   | Kyrgyzstan (2010)             | 6.30  | 31.75         | 0.78         | ● | 99   | Chile (2012)                      | 0.31  | 1.51          | 0.13         | ○ |
| 27   | Burundi (2010)                | 6.19  | 31.20         | 0.77         | ● | 100  | China (2012)                      | 0.27  | 1.33          | 0.12         | ○ |
| 28   | Malaysia                      | 6.14  | 30.93         | 0.76         |   | 101  | Brazil                            | 0.21  | 1.00          | 0.11         | ○ |
| 29   | Bosnia and Herzegovina (2012) | 5.88  | 29.62         | 0.75         | ● | 102  | Viet Nam (2012)                   | 0.18  | 0.84          | 0.10         | ○ |
| 30   | Iceland                       | 5.83  | 29.37         | 0.74         |   | 103  | Sri Lanka (2012)                  | 0.14  | 0.65          | 0.09         | ○ |
| 31   | Trinidad and Tobago (2004)    | 5.78  | 29.14         | 0.73         | ● | 104  | Uzbekistan                        | 0.14  | 0.64          | 0.08         |   |
| 32   | Niger (2012)                  | 5.43  | 27.33         | 0.72         | ● | 105  | Indonesia (2010)                  | 0.13  | 0.60          | 0.07         | ○ |
| 33   | Uganda                        | 5.19  | 26.15         | 0.71         | ● | 106  | India                             | 0.10  | 0.47          | 0.06         | ○ |
| 34   | Finland                       | 5.09  | 25.65         | 0.71         |   | 107  | Iran, Islamic Rep. (2012)         | 0.10  | 0.47          | 0.05         | ○ |
| 35   | Netherlands                   | 4.92  | 24.77         | 0.70         |   | 108  | Philippines (2008)                | 0.10  | 0.46          | 0.04         | ○ |
| 36   | Hungary                       | 4.31  | 21.70         | 0.69         |   | 109  | Bangladesh (2009)                 | 0.10  | 0.46          | 0.04         | ○ |
| 37   | Yemen                         | 4.26  | 21.44         | 0.68         | ● | 110  | Venezuela, Bolivarian Rep. (2008) | 0.09  | 0.41          | 0.03         | ○ |
| 38   | Brunei Darussalam (2012)      | 4.25  | 21.38         | 0.67         |   | 111  | Cambodia (2006)                   | 0.07  | 0.31          | 0.02         | ○ |
| 39   | Greece (2010)                 | 4.18  | 21.04         | 0.66         |   | 112  | Nepal                             | 0.03  | 0.09          | 0.01         | ○ |
| 40   | Botswana (2005)               | 4.16  | 20.95         | 0.65         |   | 113  | Myanmar                           | 0.01  | 0.00          | 0.00         | ○ |
| 41   | Malta                         | 4.11  | 20.71         | 0.64         |   | n/a  | Angola                            | n/a   | n/a           | n/a          |   |
| 42   | Japan                         | 3.90  | 19.64         | 0.63         |   | n/a  | Argentina                         | n/a   | n/a           | n/a          |   |
| 43   | Slovakia                      | 3.87  | 19.45         | 0.63         |   | n/a  | Benin                             | n/a   | n/a           | n/a          |   |
| 44   | Saudi Arabia (2012)           | 3.86  | 19.43         | 0.62         |   | n/a  | Bhutan                            | n/a   | n/a           | n/a          |   |
| 45   | Serbia (2012)                 | 3.86  | 19.40         | 0.61         |   | n/a  | Bolivia, Plurinational St.        | n/a   | n/a           | n/a          |   |
| 46   | Italy                         | 3.74  | 18.82         | 0.60         |   | n/a  | Canada                            | n/a   | n/a           | n/a          |   |
| 47   | Bulgaria                      | 3.63  | 18.25         | 0.59         |   | n/a  | Colombia                          | n/a   | n/a           | n/a          |   |
| 48   | Armenia (2012)                | 3.43  | 17.28         | 0.58         |   | n/a  | Dominican Republic                | n/a   | n/a           | n/a          |   |
| 49   | United States of America      | 3.38  | 16.99         | 0.57         |   | n/a  | Ecuador                           | n/a   | n/a           | n/a          |   |
| 50   | Spain                         | 3.21  | 16.15         | 0.56         |   | n/a  | Ethiopia                          | n/a   | n/a           | n/a          |   |
| 51   | Ghana (2012)                  | 3.09  | 15.55         | 0.55         |   | n/a  | Gambia                            | n/a   | n/a           | n/a          |   |
| 52   | Burkina Faso (2012)           | 2.96  | 14.89         | 0.54         | ● | n/a  | Guatemala                         | n/a   | n/a           | n/a          |   |
| 53   | Portugal (2010)               | 2.88  | 14.46         | 0.54         |   | n/a  | Israel                            | n/a   | n/a           | n/a          |   |
| 54   | TFYR of Macedonia             | 2.61  | 13.12         | 0.53         |   | n/a  | Jamaica                           | n/a   | n/a           | n/a          |   |
| 55   | Azerbaijan (2012)             | 2.50  | 12.58         | 0.52         |   | n/a  | Kenya                             | n/a   | n/a           | n/a          |   |
| 56   | Oman                          | 2.36  | 11.87         | 0.51         |   | n/a  | Kuwait                            | n/a   | n/a           | n/a          |   |
| 57   | Mauritius (2012)              | 2.30  | 11.56         | 0.50         |   | n/a  | Mexico                            | n/a   | n/a           | n/a          |   |
| 58   | Slovenia (2012)               | 2.27  | 11.38         | 0.49         |   | n/a  | Montenegro                        | n/a   | n/a           | n/a          |   |
| 59   | Belarus (2012)                | 2.06  | 10.36         | 0.48         |   | n/a  | Nicaragua                         | n/a   | n/a           | n/a          |   |
| 60   | Morocco (2010)                | 1.93  | 9.68          | 0.47         |   | n/a  | Nigeria                           | n/a   | n/a           | n/a          |   |
| 61   | Latvia                        | 1.91  | 9.56          | 0.46         |   | n/a  | Pakistan                          | n/a   | n/a           | n/a          |   |
| 62   | Egypt (2010)                  | 1.85  | 9.30          | 0.46         |   | n/a  | Panama                            | n/a   | n/a           | n/a          |   |
| 63   | Romania                       | 1.84  | 9.25          | 0.45         |   | n/a  | Paraguay                          | n/a   | n/a           | n/a          |   |
| 64   | Ukraine (2012)                | 1.82  | 9.15          | 0.44         |   | n/a  | Peru                              | n/a   | n/a           | n/a          |   |
| 65   | Estonia (2010)                | 1.78  | 8.95          | 0.43         | ○ | n/a  | Senegal                           | n/a   | n/a           | n/a          |   |
| 66   | Korea, Rep. (2012)            | 1.77  | 8.89          | 0.42         |   | n/a  | Seychelles                        | n/a   | n/a           | n/a          |   |
| 67   | Madagascar (2012)             | 1.74  | 8.71          | 0.41         |   | n/a  | South Africa                      | n/a   | n/a           | n/a          |   |
| 68   | Georgia (2012)                | 1.68  | 8.43          | 0.40         |   | n/a  | Sudan                             | n/a   | n/a           | n/a          |   |
| 69   | Lithuania                     | 1.61  | 8.05          | 0.39         |   | n/a  | Uruguay                           | n/a   | n/a           | n/a          |   |
| 70   | Tajikistan (2012)             | 1.60  | 8.03          | 0.38         |   | n/a  | Zambia                            | n/a   | n/a           | n/a          |   |
| 71   | Moldova, Rep. (2012)          | 1.55  | 7.77          | 0.38         |   |      |                                   |       |               |              |   |
| 72   | Costa Rica (2004)             | 1.43  | 7.19          | 0.37         |   |      |                                   |       |               |              |   |
| 73   | Togo (2007)                   | 1.41  | 7.08          | 0.36         |   |      |                                   |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

## 2.3.1

## Researchers

Researchers, headcounts (per million population) | 2011

| Rank | Country/Economy                    | Value     | Score (0–100) | Percent rank |   | Rank | Country/Economy                        | Value  | Score (0–100) | Percent rank |   |
|------|------------------------------------|-----------|---------------|--------------|---|------|--|--------|---------------|--------------|---|
| 1    | Finland.....                       | 10,678.81 | 100.00        | 1.00         | ● | 74   | Mexico.....                            | 386.43 | 3.53          | 0.38         |   |
| 2    | Iceland.....                       | 10,402.05 | 97.41         | 0.99         | ● | 75   | Sudan (2005).....                      | 354.84 | 3.23          | 0.37         | ● |
| 3    | Denmark.....                       | 10,182.76 | 95.35         | 0.98         | ● | 76   | Colombia.....                          | 346.36 | 3.15          | 0.36         |   |
| 4    | Portugal.....                      | 9,477.12  | 88.74         | 0.97         | ● | 77   | Namibia (2010).....                    | 343.28 | 3.13          | 0.36         |   |
| 5    | Norway.....                        | 9,219.31  | 86.32         | 0.97         | ● | 78   | Venezuela, Bolivarian Rep. (2012)..... | 342.38 | 3.12          | 0.35         |   |
| 6    | Sweden.....                        | 8,470.66  | 79.30         | 0.96         |   | 79   | Kenya (2010).....                      | 318.07 | 2.89          | 0.34         |   |
| 7    | Austria.....                       | 7,780.13  | 72.83         | 0.95         | ● | 80   | Pakistan.....                          | 294.91 | 2.67          | 0.33         |   |
| 8    | Korea, Rep.....                    | 7,698.66  | 72.07         | 0.94         |   | 81   | Cabo Verde.....                        | 260.93 | 2.35          | 0.32         |   |
| 9    | Singapore.....                     | 7,321.20  | 68.53         | 0.93         |   | 82   | Sri Lanka (2010).....                  | 248.67 | 2.24          | 0.31         |   |
| 10   | Japan.....                         | 7,011.39  | 65.63         | 0.92         |   | 83   | Cameroon (2008).....                   | 232.81 | 2.09          | 0.31         |   |
| 11   | United Kingdom.....                | 6,872.19  | 64.32         | 0.92         |   | 84   | Bolivia, Plurinational St. (2010)..... | 211.98 | 1.90          | 0.30         |   |
| 12   | New Zealand.....                   | 6,366.22  | 59.58         | 0.91         |   | 85   | Tajikistan.....                        | 200.26 | 1.79          | 0.29         |   |
| 13   | Germany.....                       | 6,279.93  | 58.77         | 0.90         |   | 86   | Zimbabwe (2012).....                   | 199.57 | 1.78          | 0.28         |   |
| 14   | Slovenia.....                      | 6,069.01  | 56.79         | 0.89         |   | 87   | Paraguay.....                          | 195.19 | 1.74          | 0.27         |   |
| 15   | Switzerland (2008).....            | 5,994.20  | 56.09         | 0.88         |   | 88   | Nepal (2010).....                      | 190.83 | 1.70          | 0.26         |   |
| 16   | Luxembourg (2009).....             | 5,924.32  | 55.44         | 0.87         |   | 89   | Peru (2004).....                       | 181.18 | 1.61          | 0.25         |   |
| 17   | Estonia.....                       | 5,906.54  | 55.27         | 0.86         |   | 90   | Ecuador (2008).....                    | 180.74 | 1.60          | 0.25         |   |
| 18   | Belgium.....                       | 5,742.63  | 53.73         | 0.86         |   | 91   | Indonesia (2009).....                  | 173.24 | 1.53          | 0.24         |   |
| 19   | Lithuania.....                     | 5,702.40  | 53.36         | 0.85         | ● | 92   | Seychelles (2005).....                 | 160.75 | 1.41          | 0.23         |   |
| 20   | France.....                        | 5,327.93  | 49.85         | 0.84         |   | 93   | Angola.....                            | 148.41 | 1.30          | 0.22         |   |
| 21   | Netherlands.....                   | 4,979.63  | 46.58         | 0.83         |   | 94   | Côte d'Ivoire (2005).....              | 137.81 | 1.20          | 0.21         |   |
| 22   | Ireland.....                       | 4,893.16  | 45.77         | 0.82         |   | 95   | Panama (2010).....                     | 136.21 | 1.18          | 0.20         |   |
| 23   | Spain.....                         | 4,735.21  | 44.29         | 0.81         |   | 96   | Kuwait.....                            | 131.53 | 1.14          | 0.19         |   |
| 24   | Slovakia (2012).....               | 4,603.40  | 43.06         | 0.81         |   | 97   | Philippines (2007).....                | 129.28 | 1.12          | 0.19         |   |
| 25   | Czech Republic (2012).....         | 4,442.46  | 41.55         | 0.80         |   | 98   | Malawi (2010).....                     | 122.75 | 1.06          | 0.18         |   |
| 26   | Greece.....                        | 4,068.78  | 38.04         | 0.79         |   | 99   | Nigeria (2007).....                    | 119.74 | 1.03          | 0.17         |   |
| 27   | Hungary.....                       | 3,695.89  | 34.55         | 0.78         |   | 100  | Benin (2007).....                      | 114.84 | 0.98          | 0.16         |   |
| 28   | Latvia.....                        | 3,557.95  | 33.26         | 0.77         |   | 101  | Madagascar.....                        | 109.05 | 0.93          | 0.15         |   |
| 29   | Hong Kong (China) (2010).....      | 3,471.16  | 32.44         | 0.76         |   | 102  | Ghana (2010).....                      | 104.77 | 0.89          | 0.14         |   |
| 30   | Tunisia (2008).....                | 3,194.83  | 29.85         | 0.75         | ● | 103  | El Salvador (2012).....                | 96.07  | 0.81          | 0.14         |   |
| 31   | Malta.....                         | 2,985.77  | 27.89         | 0.75         |   | 104  | Togo (2010).....                       | 90.07  | 0.75          | 0.13         |   |
| 32   | Croatia.....                       | 2,649.05  | 24.74         | 0.74         |   | 105  | Ethiopia (2010).....                   | 83.62  | 0.69          | 0.12         |   |
| 33   | Poland.....                        | 2,636.41  | 24.62         | 0.73         |   | 106  | Uganda (2010).....                     | 83.06  | 0.69          | 0.11         |   |
| 34   | Russian Federation (2012).....     | 2,602.65  | 24.30         | 0.72         |   | 107  | Burkina Faso (2010).....               | 73.62  | 0.60          | 0.10         |   |
| 35   | Malaysia.....                      | 2,564.49  | 23.95         | 0.71         |   | 108  | Tanzania, United Rep. (2010).....      | 68.97  | 0.55          | 0.09         |   |
| 36   | Italy.....                         | 2,496.27  | 23.31         | 0.70         |   | 109  | Mozambique (2010).....                 | 66.26  | 0.53          | 0.08         |   |
| 37   | Montenegro.....                    | 2,490.96  | 23.26         | 0.69         |   | 110  | Mali (2010).....                       | 64.21  | 0.51          | 0.08         |   |
| 38   | Belarus.....                       | 2,081.18  | 19.42         | 0.69         |   | 111  | Nicaragua (2004).....                  | 60.52  | 0.48          | 0.07         | ○ |
| 39   | Bulgaria.....                      | 2,017.42  | 18.82         | 0.68         |   | 112  | Rwanda (2009).....                     | 53.56  | 0.41          | 0.06         | ○ |
| 40   | Argentina.....                     | 1,941.91  | 18.11         | 0.67         |   | 113  | Zambia (2008).....                     | 49.13  | 0.37          | 0.05         | ○ |
| 41   | Jordan (2008).....                 | 1,913.32  | 17.84         | 0.66         |   | 114  | Saudi Arabia (2009).....               | 47.43  | 0.35          | 0.04         | ○ |
| 42   | Turkey.....                        | 1,881.39  | 17.54         | 0.65         |   | 115  | Guatemala.....                         | 40.87  | 0.29          | 0.03         | ○ |
| 43   | Costa Rica.....                    | 1,867.58  | 17.41         | 0.64         |   | 116  | Burundi.....                           | 39.73  | 0.28          | 0.03         |   |
| 44   | Georgia (2005).....                | 1,812.61  | 16.90         | 0.64         |   | 117  | Gambia.....                            | 34.58  | 0.23          | 0.02         | ○ |
| 45   | Cyprus.....                        | 1,734.87  | 16.17         | 0.63         |   | 118  | Lesotho.....                           | 20.69  | 0.10          | 0.01         | ○ |
| 46   | Ukraine.....                       | 1,536.55  | 14.31         | 0.62         |   | 119  | Niger (2005).....                      | 9.78   | 0.00          | 0.00         | ○ |
| 47   | Armenia.....                       | 1,503.99  | 14.01         | 0.61         |   | n/a  | Australia.....                         | n/a    | n/a           | n/a          |   |
| 48   | Iran, Islamic Rep. (2008).....     | 1,483.74  | 13.82         | 0.60         |   | n/a  | Bahrain.....                           | n/a    | n/a           | n/a          |   |
| 49   | Serbia.....                        | 1,417.99  | 13.20         | 0.59         |   | n/a  | Bangladesh.....                        | n/a    | n/a           | n/a          |   |
| 50   | China.....                         | 1,392.75  | 12.96         | 0.58         |   | n/a  | Barbados.....                          | n/a    | n/a           | n/a          |   |
| 51   | Azerbaijan.....                    | 1,292.16  | 12.02         | 0.58         |   | n/a  | Bhutan.....                            | n/a    | n/a           | n/a          |   |
| 52   | Brazil (2010).....                 | 1,202.79  | 11.18         | 0.57         |   | n/a  | Cambodia.....                          | n/a    | n/a           | n/a          |   |
| 53   | Romania.....                       | 1,168.74  | 10.86         | 0.56         |   | n/a  | Canada.....                            | n/a    | n/a           | n/a          |   |
| 54   | Egypt.....                         | 1,146.08  | 10.65         | 0.55         |   | n/a  | Dominican Republic.....                | n/a    | n/a           | n/a          |   |
| 55   | Morocco.....                       | 1,145.75  | 10.65         | 0.54         |   | n/a  | Fiji.....                              | n/a    | n/a           | n/a          |   |
| 56   | Uzbekistan.....                    | 1,097.27  | 10.19         | 0.53         |   | n/a  | Guinea.....                            | n/a    | n/a           | n/a          |   |
| 57   | Moldova, Rep.....                  | 951.76    | 8.83          | 0.53         |   | n/a  | Guyana.....                            | n/a    | n/a           | n/a          |   |
| 58   | Botswana (2005).....               | 923.34    | 8.56          | 0.52         |   | n/a  | Honduras.....                          | n/a    | n/a           | n/a          |   |
| 59   | TFYR of Macedonia (2009).....      | 854.53    | 7.92          | 0.51         |   | n/a  | India.....                             | n/a    | n/a           | n/a          |   |
| 60   | Bosnia and Herzegovina (2007)..... | 763.31    | 7.06          | 0.50         |   | n/a  | Israel.....                            | n/a    | n/a           | n/a          |   |
| 61   | Trinidad and Tobago.....           | 758.39    | 7.02          | 0.49         |   | n/a  | Jamaica.....                           | n/a    | n/a           | n/a          |   |
| 62   | South Africa (2010).....           | 736.62    | 6.81          | 0.48         |   | n/a  | Lebanon.....                           | n/a    | n/a           | n/a          |   |
| 63   | Uruguay (2012).....                | 734.55    | 6.79          | 0.47         |   | n/a  | Mauritius.....                         | n/a    | n/a           | n/a          |   |
| 64   | Kazakhstan.....                    | 713.63    | 6.60          | 0.47         |   | n/a  | Myanmar.....                           | n/a    | n/a           | n/a          |   |
| 65   | Brunei Darussalam (2004).....      | 676.28    | 6.25          | 0.46         |   | n/a  | Qatar.....                             | n/a    | n/a           | n/a          |   |
| 66   | Mongolia.....                      | 653.18    | 6.03          | 0.45         |   | n/a  | Swaziland.....                         | n/a    | n/a           | n/a          |   |
| 67   | Senegal (2010).....                | 630.86    | 5.82          | 0.44         |   | n/a  | United Arab Emirates.....              | n/a    | n/a           | n/a          |   |
| 68   | Thailand (2009).....               | 580.98    | 5.35          | 0.43         |   | n/a  | United States of America.....          | n/a    | n/a           | n/a          |   |
| 69   | Chile (2010).....                  | 551.17    | 5.07          | 0.42         |   | n/a  | Viet Nam.....                          | n/a    | n/a           | n/a          |   |
| 70   | Albania (2008).....                | 545.21    | 5.02          | 0.42         |   | n/a  | Yemen.....                             | n/a    | n/a           | n/a          |   |
| 71   | Oman.....                          | 478.05    | 4.39          | 0.41         |   |      |  |        |               |              |   |
| 72   | Kyrgyzstan.....                    | 411.59    | 3.77          | 0.40         |   |      |  |        |               |              |   |
| 73   | Algeria (2005).....                | 406.50    | 3.72          | 0.39         |   |      |  |        |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

## 2.3.2 Gross expenditure on R&D (GERD)

GERD: Gross expenditure on R&D (% of GDP) | 2011

| Rank | Country/Economy                 | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   |
|------|---------------------------------|-------|---------------|--------------|---|------|-----------------------------------|-------|---------------|--------------|---|
| 1    | Korea, Rep. (2012)              | 4.36  | 100.00        | 1.00         | ● | 74   | Pakistan                          | 0.33  | 7.28          | 0.37         |   |
| 2    | Israel (2012)                   | 3.93  | 90.07         | 0.99         | ● | 75   | Nepal (2010)                      | 0.30  | 6.66          | 0.36         |   |
| 3    | Finland (2012)                  | 3.55  | 81.37         | 0.98         |   | 76   | Seychelles (2005)                 | 0.30  | 6.66          | 0.35         |   |
| 4    | Sweden (2012)                   | 3.41  | 78.12         | 0.97         | ● | 77   | Sudan (2005)                      | 0.30  | 6.57          | 0.34         |   |
| 5    | Japan (2012)                    | 3.34  | 76.64         | 0.97         | ● | 78   | Mongolia                          | 0.27  | 6.01          | 0.34         |   |
| 6    | Denmark (2012)                  | 2.99  | 68.45         | 0.96         |   | 79   | Armenia                           | 0.27  | 5.92          | 0.33         |   |
| 7    | Germany (2012)                  | 2.92  | 66.89         | 0.95         | ● | 80   | Togo (2010)                       | 0.25  | 5.54          | 0.32         |   |
| 8    | Switzerland (2008)              | 2.87  | 65.77         | 0.94         |   | 81   | Thailand (2009)                   | 0.25  | 5.47          | 0.31         |   |
| 9    | Austria (2013)                  | 2.85  | 65.40         | 0.93         | ● | 82   | Ethiopia (2010)                   | 0.25  | 5.36          | 0.30         |   |
| 10   | Slovenia (2012)                 | 2.80  | 64.14         | 0.92         | ● | 83   | Ecuador (2008)                    | 0.23  | 4.95          | 0.29         |   |
| 11   | United States of America (2012) | 2.79  | 63.96         | 0.91         |   | 84   | Nigeria (2007)                    | 0.22  | 4.74          | 0.28         |   |
| 12   | Iceland                         | 2.40  | 54.93         | 0.91         |   | 85   | TFYR of Macedonia (2010)          | 0.22  | 4.72          | 0.28         | ○ |
| 13   | Australia (2010)                | 2.39  | 54.61         | 0.90         |   | 86   | Azerbaijan                        | 0.21  | 4.56          | 0.27         |   |
| 14   | France (2012)                   | 2.26  | 51.78         | 0.89         |   | 87   | Burkina Faso (2009)               | 0.20  | 4.32          | 0.26         |   |
| 15   | Belgium (2012)                  | 2.24  | 51.17         | 0.88         |   | 88   | Panama (2010)                     | 0.20  | 4.20          | 0.25         |   |
| 16   | Singapore                       | 2.23  | 51.02         | 0.87         |   | 89   | Georgia (2005)                    | 0.18  | 3.77          | 0.24         |   |
| 17   | Estonia (2012)                  | 2.18  | 49.92         | 0.86         |   | 90   | Colombia (2012)                   | 0.17  | 3.68          | 0.23         |   |
| 18   | Netherlands (2012)              | 2.16  | 49.34         | 0.85         |   | 91   | Kazakhstan                        | 0.16  | 3.32          | 0.22         |   |
| 19   | China (2012)                    | 1.98  | 45.35         | 0.84         |   | 92   | Bolivia, Plurinational St. (2009) | 0.16  | 3.32          | 0.22         |   |
| 20   | Czech Republic (2012)           | 1.88  | 43.01         | 0.84         |   | 93   | Sri Lanka (2010)                  | 0.16  | 3.31          | 0.21         |   |
| 21   | United Kingdom (2012)           | 1.72  | 39.38         | 0.83         |   | 94   | Kyrgyzstan                        | 0.16  | 3.30          | 0.20         |   |
| 22   | Ireland (2012)                  | 1.72  | 39.38         | 0.82         |   | 95   | Albania (2008)                    | 0.15  | 3.23          | 0.19         |   |
| 23   | Canada (2012)                   | 1.69  | 38.56         | 0.81         |   | 96   | Peru (2004)                       | 0.15  | 3.14          | 0.18         |   |
| 24   | Norway (2012)                   | 1.66  | 37.82         | 0.80         |   | 97   | Namibia (2010)                    | 0.14  | 3.03          | 0.17         |   |
| 25   | Luxembourg (2010)               | 1.51  | 34.35         | 0.79         |   | 98   | Gambia                            | 0.13  | 2.77          | 0.16         |   |
| 26   | Portugal (2012)                 | 1.50  | 34.12         | 0.78         |   | 99   | Oman                              | 0.13  | 2.75          | 0.16         |   |
| 27   | Spain (2012)                    | 1.30  | 29.66         | 0.78         |   | 100  | Tajikistan                        | 0.12  | 2.50          | 0.15         |   |
| 28   | Hungary (2012)                  | 1.30  | 29.55         | 0.77         |   | 101  | Burundi                           | 0.12  | 2.50          | 0.14         |   |
| 29   | New Zealand                     | 1.27  | 28.96         | 0.76         |   | 102  | Philippines (2007)                | 0.11  | 2.23          | 0.13         | ○ |
| 30   | Italy (2012)                    | 1.27  | 28.84         | 0.75         |   | 103  | Madagascar                        | 0.11  | 2.14          | 0.12         |   |
| 31   | Brazil                          | 1.21  | 27.55         | 0.74         |   | 104  | Kuwait                            | 0.09  | 1.89          | 0.11         | ○ |
| 32   | Russian Federation (2012)       | 1.12  | 25.44         | 0.73         |   | 105  | Indonesia (2009)                  | 0.08  | 1.62          | 0.10         |   |
| 33   | Tunisia (2009)                  | 1.10  | 25.07         | 0.72         | ● | 106  | Angola                            | 0.07  | 1.40          | 0.09         |   |
| 34   | Malaysia                        | 1.07  | 24.22         | 0.72         |   | 107  | Saudi Arabia (2009)               | 0.07  | 1.39          | 0.09         | ○ |
| 35   | Kenya (2010)                    | 0.98  | 22.17         | 0.71         |   | 108  | Cabo Verde                        | 0.07  | 1.38          | 0.08         | ○ |
| 36   | Lithuania (2012)                | 0.90  | 20.46         | 0.70         |   | 109  | Algeria (2005)                    | 0.07  | 1.22          | 0.07         |   |
| 37   | Poland (2012)                   | 0.90  | 20.41         | 0.69         |   | 110  | Paraguay                          | 0.05  | 0.97          | 0.06         | ○ |
| 38   | Turkey                          | 0.86  | 19.49         | 0.68         |   | 111  | Guatemala                         | 0.05  | 0.81          | 0.05         | ○ |
| 39   | Malta (2012)                    | 0.84  | 19.09         | 0.67         |   | 112  | Trinidad and Tobago               | 0.04  | 0.71          | 0.04         | ○ |
| 40   | Slovakia (2012)                 | 0.82  | 18.65         | 0.66         |   | 113  | Honduras (2004)                   | 0.04  | 0.66          | 0.03         | ○ |
| 41   | India                           | 0.81  | 18.33         | 0.66         |   | 114  | Brunei Darussalam (2004)          | 0.04  | 0.56          | 0.03         | ○ |
| 42   | Serbia                          | 0.78  | 17.60         | 0.65         |   | 115  | El Salvador                       | 0.03  | 0.42          | 0.02         | ○ |
| 43   | South Africa (2010)             | 0.76  | 17.23         | 0.64         |   | 116  | Bosnia and Herzegovina (2009)     | 0.02  | 0.20          | 0.01         | ○ |
| 44   | Croatia (2012)                  | 0.75  | 17.00         | 0.63         |   | 117  | Lesotho                           | 0.01  | 0.00          | 0.00         | ○ |
| 45   | Hong Kong (China) (2010)        | 0.75  | 16.95         | 0.62         |   | n/a  | Bahrain                           | n/a   | n/a           | n/a          |   |
| 46   | Iran, Islamic Rep. (2008)       | 0.75  | 16.94         | 0.61         | ● | n/a  | Bangladesh                        | n/a   | n/a           | n/a          |   |
| 47   | Ukraine                         | 0.74  | 16.66         | 0.60         |   | n/a  | Barbados                          | n/a   | n/a           | n/a          |   |
| 48   | Morocco (2010)                  | 0.73  | 16.59         | 0.59         |   | n/a  | Benin                             | n/a   | n/a           | n/a          |   |
| 49   | Belarus                         | 0.70  | 15.83         | 0.59         |   | n/a  | Bhutan                            | n/a   | n/a           | n/a          |   |
| 50   | Greece (2012)                   | 0.69  | 15.59         | 0.58         |   | n/a  | Cambodia                          | n/a   | n/a           | n/a          |   |
| 51   | Mali (2010)                     | 0.66  | 14.93         | 0.57         | ● | n/a  | Cameroon                          | n/a   | n/a           | n/a          |   |
| 52   | Latvia (2012)                   | 0.66  | 14.86         | 0.56         |   | n/a  | Côte d'Ivoire                     | n/a   | n/a           | n/a          |   |
| 53   | Argentina                       | 0.65  | 14.59         | 0.55         |   | n/a  | Dominican Republic                | n/a   | n/a           | n/a          |   |
| 54   | Bulgaria (2012)                 | 0.64  | 14.42         | 0.54         |   | n/a  | Fiji                              | n/a   | n/a           | n/a          |   |
| 55   | Uganda (2010)                   | 0.56  | 12.55         | 0.53         |   | n/a  | Guinea                            | n/a   | n/a           | n/a          |   |
| 56   | Senegal (2010)                  | 0.54  | 12.15         | 0.53         |   | n/a  | Guyana                            | n/a   | n/a           | n/a          |   |
| 57   | Botswana (2005)                 | 0.53  | 11.97         | 0.52         |   | n/a  | Jamaica                           | n/a   | n/a           | n/a          |   |
| 58   | Tanzania, United Rep. (2010)    | 0.52  | 11.58         | 0.51         |   | n/a  | Lebanon                           | n/a   | n/a           | n/a          |   |
| 59   | United Arab Emirates            | 0.49  | 10.96         | 0.50         |   | n/a  | Malawi                            | n/a   | n/a           | n/a          |   |
| 60   | Romania (2012)                  | 0.49  | 10.96         | 0.49         |   | n/a  | Myanmar                           | n/a   | n/a           | n/a          |   |
| 61   | Costa Rica                      | 0.48  | 10.67         | 0.48         |   | n/a  | Nicaragua                         | n/a   | n/a           | n/a          |   |
| 62   | Cyprus (2012)                   | 0.47  | 10.46         | 0.47         |   | n/a  | Niger                             | n/a   | n/a           | n/a          |   |
| 63   | Mozambique (2010)               | 0.46  | 10.35         | 0.47         |   | n/a  | Qatar                             | n/a   | n/a           | n/a          |   |
| 64   | Jordan (2008)                   | 0.43  | 9.71          | 0.46         |   | n/a  | Rwanda                            | n/a   | n/a           | n/a          |   |
| 65   | Uruguay                         | 0.43  | 9.61          | 0.45         |   | n/a  | Swaziland                         | n/a   | n/a           | n/a          |   |
| 66   | Mexico                          | 0.43  | 9.57          | 0.44         |   | n/a  | Uzbekistan                        | n/a   | n/a           | n/a          |   |
| 67   | Egypt                           | 0.43  | 9.57          | 0.43         |   | n/a  | Venezuela, Bolivarian Rep.        | n/a   | n/a           | n/a          |   |
| 68   | Chile (2010)                    | 0.42  | 9.31          | 0.42         |   | n/a  | Viet Nam                          | n/a   | n/a           | n/a          |   |
| 69   | Montenegro                      | 0.41  | 9.11          | 0.41         |   | n/a  | Yemen                             | n/a   | n/a           | n/a          |   |
| 70   | Moldova, Rep.                   | 0.40  | 9.03          | 0.41         |   | n/a  | Zimbabwe                          | n/a   | n/a           | n/a          |   |
| 71   | Ghana (2010)                    | 0.38  | 8.37          | 0.40         |   |      |                                   |       |               |              |   |
| 72   | Mauritius (2005)                | 0.37  | 8.27          | 0.39         |   |      |                                   |       |               |              |   |
| 73   | Zambia (2008)                   | 0.34  | 7.54          | 0.38         |   |      |                                   |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–13)

NOTE: ● indicates a strength; ○ a weakness.



## 2.3.3 QS university ranking average score top 3 universities

Average score of the top 3 universities at the QS world university ranking | 2013

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | United Kingdom             | 98.90 | 98.90         | 1.00         | ● | 70   | Barbados                   | 0.00  | 0.00          | 0.00         | ○ |
| 2    | United States of America   | 98.67 | 98.67         | 0.99         | ● | 70   | Benin                      | 0.00  | 0.00          | 0.00         | ○ |
| 3    | Canada                     | 87.10 | 87.10         | 0.99         | ● | 70   | Bhutan                     | 0.00  | 0.00          | 0.00         | ○ |
| 4    | Switzerland                | 86.17 | 86.17         | 0.98         |   | 70   | Bolivia, Plurinational St. | 0.00  | 0.00          | 0.00         | ○ |
| 5    | Australia                  | 85.80 | 85.80         | 0.97         | ● | 70   | Bosnia and Herzegovina     | 0.00  | 0.00          | 0.00         | ○ |
| 6    | Hong Kong (China)          | 85.10 | 85.10         | 0.96         |   | 70   | Botswana                   | 0.00  | 0.00          | 0.00         | ○ |
| 7    | Japan                      | 82.23 | 82.23         | 0.96         |   | 70   | Brunei Darussalam          | 0.00  | 0.00          | 0.00         | ○ |
| 8    | France                     | 78.27 | 78.27         | 0.95         | ● | 70   | Burkina Faso               | 0.00  | 0.00          | 0.00         | ○ |
| 9    | Germany                    | 77.40 | 77.40         | 0.94         |   | 70   | Burundi                    | 0.00  | 0.00          | 0.00         | ○ |
| 10   | China                      | 76.83 | 76.83         | 0.94         | ● | 70   | Cabo Verde                 | 0.00  | 0.00          | 0.00         | ○ |
| 11   | Korea, Rep.                | 75.80 | 75.80         | 0.93         |   | 70   | Cambodia                   | 0.00  | 0.00          | 0.00         | ○ |
| 12   | Netherlands                | 73.97 | 73.97         | 0.92         |   | 70   | Cameroon                   | 0.00  | 0.00          | 0.00         | ○ |
| 13   | Denmark                    | 70.87 | 70.87         | 0.92         |   | 70   | Costa Rica                 | 0.00  | 0.00          | 0.00         | ○ |
| 14   | Sweden                     | 70.33 | 70.33         | 0.91         |   | 70   | Côte d'Ivoire              | 0.00  | 0.00          | 0.00         | ○ |
| 15   | Belgium                    | 66.00 | 66.00         | 0.90         |   | 70   | Cyprus                     | 0.00  | 0.00          | 0.00         | ○ |
| 16   | Ireland                    | 62.30 | 62.30         | 0.89         |   | 70   | Dominican Republic         | 0.00  | 0.00          | 0.00         | ○ |
| 17   | Finland                    | 59.37 | 59.37         | 0.89         |   | 70   | Ecuador                    | 0.00  | 0.00          | 0.00         | ○ |
| 18   | Norway                     | 58.27 | 58.27         | 0.88         |   | 70   | El Salvador                | 0.00  | 0.00          | 0.00         | ○ |
| 19   | New Zealand                | 58.07 | 58.07         | 0.87         |   | 70   | Ethiopia                   | 0.00  | 0.00          | 0.00         | ○ |
| 20   | Singapore                  | 56.83 | 56.83         | 0.87         |   | 70   | Fiji                       | 0.00  | 0.00          | 0.00         | ○ |
| 21   | Israel                     | 56.03 | 56.03         | 0.86         |   | 70   | Gambia                     | 0.00  | 0.00          | 0.00         | ○ |
| 22   | Spain                      | 54.57 | 54.57         | 0.85         |   | 70   | Georgia                    | 0.00  | 0.00          | 0.00         | ○ |
| 23   | Brazil                     | 51.53 | 51.53         | 0.85         | ● | 70   | Ghana                      | 0.00  | 0.00          | 0.00         | ○ |
| 24   | Italy                      | 51.30 | 51.30         | 0.84         |   | 70   | Guatemala                  | 0.00  | 0.00          | 0.00         | ○ |
| 25   | Russian Federation         | 49.27 | 49.27         | 0.83         |   | 70   | Guinea                     | 0.00  | 0.00          | 0.00         | ○ |
| 26   | Austria                    | 47.40 | 47.40         | 0.82         |   | 70   | Guyana                     | 0.00  | 0.00          | 0.00         | ○ |
| 27   | India                      | 45.73 | 45.73         | 0.82         | ● | 70   | Honduras                   | 0.00  | 0.00          | 0.00         | ○ |
| 28   | Chile                      | 45.20 | 45.20         | 0.80         |   | 70   | Iceland                    | 0.00  | 0.00          | 0.00         | ○ |
| 28   | Malaysia                   | 45.20 | 45.20         | 0.80         |   | 70   | Jamaica                    | 0.00  | 0.00          | 0.00         | ○ |
| 30   | South Africa               | 44.47 | 44.47         | 0.80         | ● | 70   | Kenya                      | 0.00  | 0.00          | 0.00         | ○ |
| 31   | Saudi Arabia               | 43.47 | 43.47         | 0.79         |   | 70   | Kyrgyzstan                 | 0.00  | 0.00          | 0.00         | ○ |
| 32   | Argentina                  | 42.73 | 42.73         | 0.78         | ● | 70   | Latvia                     | 0.00  | 0.00          | 0.00         | ○ |
| 33   | Mexico                     | 41.03 | 41.03         | 0.77         | ● | 70   | Lesotho                    | 0.00  | 0.00          | 0.00         | ○ |
| 34   | Colombia                   | 39.13 | 39.13         | 0.77         |   | 70   | Luxembourg                 | 0.00  | 0.00          | 0.00         | ○ |
| 35   | Thailand                   | 37.33 | 37.33         | 0.76         |   | 70   | Madagascar                 | 0.00  | 0.00          | 0.00         | ○ |
| 36   | Portugal                   | 36.43 | 36.43         | 0.75         |   | 70   | Malawi                     | 0.00  | 0.00          | 0.00         | ○ |
| 37   | Czech Republic             | 33.97 | 33.97         | 0.75         |   | 70   | Mali                       | 0.00  | 0.00          | 0.00         | ○ |
| 38   | Kazakhstan                 | 33.37 | 33.37         | 0.74         | ● | 70   | Malta                      | 0.00  | 0.00          | 0.00         | ○ |
| 39   | Poland                     | 31.93 | 31.93         | 0.73         |   | 70   | Mauritius                  | 0.00  | 0.00          | 0.00         | ○ |
| 40   | Indonesia                  | 31.57 | 31.57         | 0.73         | ● | 70   | Moldova, Rep.              | 0.00  | 0.00          | 0.00         | ○ |
| 41   | Turkey                     | 30.37 | 30.37         | 0.72         |   | 70   | Mongolia                   | 0.00  | 0.00          | 0.00         | ○ |
| 42   | United Arab Emirates       | 28.77 | 28.77         | 0.71         |   | 70   | Montenegro                 | 0.00  | 0.00          | 0.00         | ○ |
| 43   | Greece                     | 28.33 | 28.33         | 0.70         |   | 70   | Morocco                    | 0.00  | 0.00          | 0.00         | ○ |
| 44   | Egypt                      | 28.23 | 28.23         | 0.70         | ● | 70   | Mozambique                 | 0.00  | 0.00          | 0.00         | ○ |
| 45   | Philippines                | 28.03 | 28.03         | 0.69         | ● | 70   | Myanmar                    | 0.00  | 0.00          | 0.00         | ○ |
| 46   | Hungary                    | 24.13 | 24.13         | 0.68         |   | 70   | Namibia                    | 0.00  | 0.00          | 0.00         | ○ |
| 47   | Venezuela, Bolivarian Rep. | 23.87 | 23.87         | 0.68         | ● | 70   | Nepal                      | 0.00  | 0.00          | 0.00         | ○ |
| 48   | Ukraine                    | 22.90 | 22.90         | 0.67         |   | 70   | Nicaragua                  | 0.00  | 0.00          | 0.00         | ○ |
| 49   | Lebanon                    | 22.73 | 22.73         | 0.66         |   | 70   | Niger                      | 0.00  | 0.00          | 0.00         | ○ |
| 50   | Peru                       | 20.60 | 20.60         | 0.65         |   | 70   | Nigeria                    | 0.00  | 0.00          | 0.00         | ○ |
| 51   | Estonia                    | 19.97 | 19.97         | 0.65         |   | 70   | Panama                     | 0.00  | 0.00          | 0.00         | ○ |
| 52   | Pakistan                   | 19.57 | 19.57         | 0.64         | ● | 70   | Paraguay                   | 0.00  | 0.00          | 0.00         | ○ |
| 53   | Azerbaijan                 | 19.23 | 19.23         | 0.63         |   | 70   | Rwanda                     | 0.00  | 0.00          | 0.00         | ○ |
| 54   | Lithuania                  | 17.57 | 17.57         | 0.63         |   | 70   | Senegal                    | 0.00  | 0.00          | 0.00         | ○ |
| 55   | Romania                    | 16.10 | 16.10         | 0.62         |   | 70   | Seychelles                 | 0.00  | 0.00          | 0.00         | ○ |
| 56   | Iran, Islamic Rep.         | 15.43 | 15.43         | 0.61         | ● | 70   | Slovakia                   | 0.00  | 0.00          | 0.00         | ○ |
| 57   | Jordan                     | 12.97 | 12.97         | 0.61         |   | 70   | Sudan                      | 0.00  | 0.00          | 0.00         | ○ |
| 58   | Belarus                    | 11.83 | 11.83         | 0.60         |   | 70   | Swaziland                  | 0.00  | 0.00          | 0.00         | ○ |
| 59   | Oman                       | 9.37  | 9.37          | 0.59         |   | 70   | Tajikistan                 | 0.00  | 0.00          | 0.00         | ○ |
| 60   | Qatar                      | 8.33  | 8.33          | 0.58         |   | 70   | Tanzania, United Rep.      | 0.00  | 0.00          | 0.00         | ○ |
| 61   | Slovenia                   | 8.10  | 8.10          | 0.58         |   | 70   | TFYR of Macedonia          | 0.00  | 0.00          | 0.00         | ○ |
| 62   | Croatia                    | 7.70  | 7.70          | 0.57         |   | 70   | Togo                       | 0.00  | 0.00          | 0.00         | ○ |
| 63   | Uruguay                    | 7.20  | 7.20          | 0.56         |   | 70   | Trinidad and Tobago        | 0.00  | 0.00          | 0.00         | ○ |
| 64   | Bulgaria                   | 6.73  | 6.73          | 0.56         |   | 70   | Tunisia                    | 0.00  | 0.00          | 0.00         | ○ |
| 65   | Bahrain                    | 6.03  | 6.03          | 0.55         |   | 70   | Uganda                     | 0.00  | 0.00          | 0.00         | ○ |
| 66   | Bangladesh                 | 5.70  | 5.70          | 0.54         | ● | 70   | Uzbekistan                 | 0.00  | 0.00          | 0.00         | ○ |
| 67   | Kuwait                     | 4.90  | 4.90          | 0.54         |   | 70   | Viet Nam                   | 0.00  | 0.00          | 0.00         | ○ |
| 68   | Sri Lanka                  | 4.57  | 4.57          | 0.53         |   | 70   | Yemen                      | 0.00  | 0.00          | 0.00         | ○ |
| 69   | Serbia                     | 3.93  | 3.93          | 0.52         |   | 70   | Zambia                     | 0.00  | 0.00          | 0.00         | ○ |
| 70   | Albania                    | 0.00  | 0.00          | 0.00         | ○ | 70   | Zimbabwe                   | 0.00  | 0.00          | 0.00         | ○ |
| 70   | Algeria                    | 0.00  | 0.00          | 0.00         | ○ |      |                            |       |               |              |   |
| 70   | Angola                     | 0.00  | 0.00          | 0.00         | ○ |      |                            |       |               |              |   |
| 70   | Armenia                    | 0.00  | 0.00          | 0.00         | ○ |      |                            |       |               |              |   |

SOURCE: QS Quacquarelli Symonds Ltd, QS World University Ranking 2013/2014, Top Universities

NOTE: ● indicates a strength; ○ a weakness.

# 3.1.1 ICT access

## ICT access index | 2012

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Hong Kong (China)        | 9.18  | 91.80         | 1.00         | ● | 74   | China                      | 4.36  | 43.60         | 0.46         |   |
| 2    | Luxembourg               | 8.93  | 89.30         | 0.99         | ● | 75   | Colombia                   | 4.35  | 43.50         | 0.45         |   |
| 3    | Iceland                  | 8.77  | 87.70         | 0.99         | ● | 76   | Ecuador                    | 4.34  | 43.40         | 0.44         |   |
| 4    | Switzerland              | 8.73  | 87.30         | 0.98         |   | 77   | Egypt                      | 4.20  | 42.00         | 0.43         |   |
| 5    | Germany                  | 8.51  | 85.10         | 0.97         | ● | 78   | South Africa               | 4.14  | 41.40         | 0.43         |   |
| 6    | United Kingdom           | 8.46  | 84.60         | 0.96         |   | 79   | Venezuela, Bolivarian Rep. | 4.13  | 41.30         | 0.42         |   |
| 7    | Sweden                   | 8.37  | 83.70         | 0.96         |   | 80   | Mexico                     | 4.11  | 41.10         | 0.41         |   |
| 8    | Singapore                | 8.31  | 83.10         | 0.95         |   | 81   | Mongolia                   | 4.04  | 40.40         | 0.40         |   |
| 9    | Korea, Rep.              | 8.28  | 82.80         | 0.93         |   | 81   | Viet Nam                   | 4.04  | 40.40         | 0.40         |   |
| 9    | Malta                    | 8.28  | 82.80         | 0.93         |   | 83   | Thailand                   | 4.00  | 40.00         | 0.39         |   |
| 9    | Netherlands              | 8.28  | 82.80         | 0.93         |   | 84   | El Salvador                | 3.95  | 39.50         | 0.37         |   |
| 12   | Denmark                  | 8.18  | 81.80         | 0.92         |   | 84   | Tunisia                    | 3.95  | 39.50         | 0.37         |   |
| 13   | Austria                  | 7.96  | 79.60         | 0.91         |   | 86   | Jamaica                    | 3.93  | 39.30         | 0.37         |   |
| 14   | France                   | 7.95  | 79.50         | 0.90         | ● | 87   | Fiji                       | 3.86  | 38.60         | 0.36         |   |
| 15   | Japan                    | 7.73  | 77.30         | 0.90         |   | 88   | Peru                       | 3.85  | 38.50         | 0.35         |   |
| 16   | Norway                   | 7.72  | 77.20         | 0.89         |   | 89   | Albania                    | 3.73  | 37.30         | 0.34         |   |
| 17   | New Zealand              | 7.69  | 76.90         | 0.88         |   | 90   | Indonesia                  | 3.62  | 36.20         | 0.34         |   |
| 18   | Belgium                  | 7.67  | 76.70         | 0.87         |   | 91   | Algeria                    | 3.60  | 36.00         | 0.32         |   |
| 19   | Finland                  | 7.66  | 76.60         | 0.87         |   | 91   | Paraguay                   | 3.60  | 36.00         | 0.32         |   |
| 20   | Canada                   | 7.65  | 76.50         | 0.86         |   | 93   | Botswana                   | 3.58  | 35.80         | 0.31         |   |
| 21   | Australia                | 7.64  | 76.40         | 0.85         |   | 94   | Cabo Verde                 | 3.46  | 34.60         | 0.31         |   |
| 22   | Ireland                  | 7.59  | 75.90         | 0.84         |   | 95   | Philippines                | 3.41  | 34.10         | 0.30         |   |
| 23   | Israel                   | 7.57  | 75.70         | 0.84         |   | 96   | Sri Lanka                  | 3.36  | 33.60         | 0.29         |   |
| 24   | United Arab Emirates     | 7.31  | 73.10         | 0.83         |   | 97   | Dominican Republic         | 3.35  | 33.50         | 0.28         |   |
| 25   | Barbados                 | 7.29  | 72.90         | 0.82         |   | 98   | Bolivia, Plurinational St. | 3.27  | 32.70         | 0.28         |   |
| 26   | Estonia                  | 7.27  | 72.70         | 0.81         |   | 99   | Guyana                     | 3.18  | 31.80         | 0.27         |   |
| 27   | Bahrain                  | 7.25  | 72.50         | 0.81         |   | 100  | Cambodia                   | 3.14  | 31.40         | 0.26         |   |
| 28   | United States of America | 7.24  | 72.40         | 0.80         |   | 101  | Namibia                    | 3.09  | 30.90         | 0.25         |   |
| 29   | Slovenia                 | 7.23  | 72.30         | 0.79         |   | 102  | Honduras                   | 3.05  | 30.50         | 0.25         |   |
| 30   | Italy                    | 7.15  | 71.50         | 0.78         |   | 103  | Nicaragua                  | 2.99  | 29.90         | 0.24         |   |
| 31   | Qatar                    | 7.10  | 71.00         | 0.78         |   | 104  | Kenya                      | 2.73  | 27.30         | 0.23         |   |
| 32   | Spain                    | 7.05  | 70.50         | 0.77         |   | 105  | Bhutan                     | 2.68  | 26.80         | 0.22         |   |
| 33   | Portugal                 | 7.00  | 70.00         | 0.76         |   | 106  | Sudan                      | 2.62  | 26.20         | 0.22         |   |
| 34   | Saudi Arabia             | 6.76  | 67.60         | 0.75         |   | 107  | Senegal                    | 2.59  | 25.90         | 0.21         |   |
| 35   | Russian Federation       | 6.73  | 67.30         | 0.75         |   | 108  | Côte d'Ivoire              | 2.58  | 25.80         | 0.20         |   |
| 36   | Greece                   | 6.69  | 66.90         | 0.74         |   | 109  | Pakistan                   | 2.56  | 25.60         | 0.19         |   |
| 37   | Croatia                  | 6.66  | 66.60         | 0.73         |   | 110  | Zimbabwe                   | 2.54  | 25.40         | 0.19         |   |
| 38   | Czech Republic           | 6.60  | 66.00         | 0.72         |   | 111  | India                      | 2.50  | 25.00         | 0.18         |   |
| 38   | Kazakhstan               | 6.60  | 66.00         | 0.72         |   | 112  | Mali                       | 2.44  | 24.40         | 0.17         |   |
| 40   | Brunei Darussalam        | 6.55  | 65.50         | 0.71         |   | 113  | Swaziland                  | 2.43  | 24.30         | 0.16         |   |
| 41   | Lithuania                | 6.47  | 64.70         | 0.70         |   | 114  | Gambia                     | 2.42  | 24.20         | 0.16         |   |
| 42   | Hungary                  | 6.46  | 64.60         | 0.69         |   | 115  | Ghana                      | 2.40  | 24.00         | 0.15         |   |
| 42   | Poland                   | 6.46  | 64.60         | 0.69         |   | 116  | Uzbekistan                 | 2.38  | 23.80         | 0.14         |   |
| 44   | Cyprus                   | 6.45  | 64.50         | 0.68         |   | 117  | Benin                      | 2.36  | 23.60         | 0.13         |   |
| 45   | Belarus                  | 6.41  | 64.10         | 0.67         |   | 118  | Lesotho                    | 2.26  | 22.60         | 0.13         |   |
| 46   | Uruguay                  | 6.38  | 63.80         | 0.66         |   | 119  | Zambia                     | 2.12  | 21.20         | 0.12         |   |
| 47   | Bulgaria                 | 6.33  | 63.30         | 0.66         |   | 120  | Yemen                      | 2.09  | 20.90         | 0.11         |   |
| 48   | Slovakia                 | 6.28  | 62.80         | 0.65         |   | 121  | Bangladesh                 | 2.03  | 20.30         | 0.10         |   |
| 49   | Latvia                   | 6.25  | 62.50         | 0.64         |   | 122  | Nigeria                    | 1.99  | 19.90         | 0.10         |   |
| 50   | Seychelles               | 6.10  | 61.00         | 0.63         |   | 123  | Rwanda                     | 1.96  | 19.60         | 0.09         | ○ |
| 51   | Malaysia                 | 6.09  | 60.90         | 0.63         |   | 124  | Uganda                     | 1.95  | 19.50         | 0.08         | ○ |
| 52   | Lebanon                  | 6.04  | 60.40         | 0.62         |   | 125  | Burkina Faso               | 1.87  | 18.70         | 0.06         | ○ |
| 53   | Argentina                | 5.88  | 58.80         | 0.61         |   | 125  | Cameroon                   | 1.87  | 18.70         | 0.06         | ○ |
| 54   | Serbia                   | 5.82  | 58.20         | 0.60         |   | 125  | Tanzania, United Rep.      | 1.87  | 18.70         | 0.06         | ○ |
| 55   | Moldova, Rep.            | 5.81  | 58.10         | 0.59         |   | 128  | Angola                     | 1.83  | 18.30         | 0.05         |   |
| 55   | Romania                  | 5.81  | 58.10         | 0.59         |   | 129  | Malawi                     | 1.72  | 17.20         | 0.04         | ○ |
| 57   | Oman                     | 5.74  | 57.40         | 0.58         |   | 130  | Guinea                     | 1.71  | 17.10         | 0.04         |   |
| 58   | Trinidad and Tobago      | 5.67  | 56.70         | 0.57         |   | 131  | Mozambique                 | 1.69  | 16.90         | 0.03         | ○ |
| 59   | Chile                    | 5.65  | 56.50         | 0.56         |   | 132  | Niger                      | 1.65  | 16.50         | 0.02         |   |
| 59   | TFYR of Macedonia        | 5.65  | 56.50         | 0.56         |   | 133  | Ethiopia                   | 1.64  | 16.40         | 0.01         | ○ |
| 61   | Costa Rica               | 5.53  | 55.30         | 0.55         |   | 134  | Myanmar                    | 1.62  | 16.20         | 0.01         |   |
| 62   | Panama                   | 5.51  | 55.10         | 0.54         |   | 135  | Madagascar                 | 1.48  | 14.80         | 0.00         | ○ |
| 63   | Brazil                   | 5.49  | 54.90         | 0.54         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 64   | Ukraine                  | 5.27  | 52.70         | 0.53         |   | n/a  | Guatemala                  | n/a   | n/a           | n/a          |   |
| 65   | Azerbaijan               | 5.17  | 51.70         | 0.51         |   | n/a  | Kuwait                     | n/a   | n/a           | n/a          |   |
| 65   | Mauritius                | 5.17  | 51.70         | 0.51         |   | n/a  | Kyrgyzstan                 | n/a   | n/a           | n/a          |   |
| 67   | Turkey                   | 5.11  | 51.10         | 0.51         |   | n/a  | Montenegro                 | n/a   | n/a           | n/a          |   |
| 68   | Georgia                  | 5.06  | 50.60         | 0.50         |   | n/a  | Nepal                      | n/a   | n/a           | n/a          |   |
| 69   | Jordan                   | 4.95  | 49.50         | 0.49         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 70   | Bosnia and Herzegovina   | 4.83  | 48.30         | 0.49         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 71   | Iran, Islamic Rep.       | 4.68  | 46.80         | 0.48         |   |      |                            |       |               |              |   |
| 72   | Morocco                  | 4.67  | 46.70         | 0.47         |   |      |                            |       |               |              |   |
| 73   | Armenia                  | 4.52  | 45.20         | 0.46         |   |      |                            |       |               |              |   |

SOURCE: International Telecommunication Union, *Measuring the Information Society 2013*, ICT Development Index 2013

NOTE: ● indicates a strength; ○ a weakness.

# 3.1.2 ICT use

## ICT use index | 2012

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Sweden                   | 8.25  | 82.50         | 1.00         | ● | 74   | Dominican Republic         | 2.27  | 22.70         | 0.45         |   |
| 2    | Korea, Rep.              | 8.22  | 82.20         | 0.99         | ● | 74   | Moldova, Rep.              | 2.27  | 22.70         | 0.45         |   |
| 3    | Denmark                  | 8.15  | 81.50         | 0.99         | ● | 76   | Colombia                   | 2.26  | 22.60         | 0.44         |   |
| 4    | Finland                  | 8.05  | 80.50         | 0.97         |   | 77   | Mexico                     | 2.23  | 22.30         | 0.43         |   |
| 4    | Norway                   | 8.05  | 80.50         | 0.97         | ● | 78   | Ecuador                    | 2.22  | 22.20         | 0.42         |   |
| 6    | Japan                    | 7.51  | 75.10         | 0.96         | ● | 78   | Viet Nam                   | 2.22  | 22.20         | 0.42         |   |
| 7    | Iceland                  | 7.50  | 75.00         | 0.96         |   | 80   | Cabo Verde                 | 2.12  | 21.20         | 0.41         |   |
| 8    | Australia                | 7.46  | 74.60         | 0.95         | ● | 81   | Venezuela, Bolivarian Rep. | 2.00  | 20.00         | 0.40         |   |
| 9    | Netherlands              | 7.32  | 73.20         | 0.94         |   | 82   | Fiji                       | 1.99  | 19.90         | 0.40         |   |
| 10   | Luxembourg               | 7.29  | 72.90         | 0.93         |   | 83   | Uzbekistan                 | 1.95  | 19.50         | 0.39         |   |
| 11   | Singapore                | 7.25  | 72.50         | 0.93         |   | 84   | Jordan                     | 1.92  | 19.20         | 0.38         |   |
| 12   | United Kingdom           | 7.19  | 71.90         | 0.92         |   | 85   | Jamaica                    | 1.84  | 18.40         | 0.37         |   |
| 13   | United States of America | 6.76  | 67.60         | 0.91         |   | 86   | Tunisia                    | 1.82  | 18.20         | 0.37         |   |
| 14   | New Zealand              | 6.72  | 67.20         | 0.90         |   | 87   | Ukraine                    | 1.76  | 17.60         | 0.36         |   |
| 15   | Hong Kong (China)        | 6.62  | 66.20         | 0.90         |   | 88   | Nigeria                    | 1.72  | 17.20         | 0.35         |   |
| 16   | France                   | 6.60  | 66.00         | 0.89         |   | 89   | Ghana                      | 1.71  | 17.10         | 0.34         |   |
| 17   | Switzerland              | 6.54  | 65.40         | 0.88         |   | 90   | Indonesia                  | 1.64  | 16.40         | 0.33         |   |
| 18   | Estonia                  | 6.52  | 65.20         | 0.87         |   | 90   | Mongolia                   | 1.64  | 16.40         | 0.33         |   |
| 19   | Canada                   | 6.38  | 63.80         | 0.87         |   | 92   | Peru                       | 1.63  | 16.30         | 0.32         |   |
| 20   | Ireland                  | 6.08  | 60.80         | 0.86         |   | 93   | Zimbabwe                   | 1.59  | 15.90         | 0.31         |   |
| 21   | Germany                  | 6.05  | 60.50         | 0.85         |   | 94   | Namibia                    | 1.55  | 15.50         | 0.31         |   |
| 22   | Malta                    | 6.04  | 60.40         | 0.84         |   | 95   | Philippines                | 1.46  | 14.60         | 0.30         |   |
| 23   | Austria                  | 5.97  | 59.70         | 0.84         |   | 96   | Bolivia, Plurinational St. | 1.42  | 14.20         | 0.29         |   |
| 24   | Israel                   | 5.86  | 58.60         | 0.83         |   | 97   | Guyana                     | 1.36  | 13.60         | 0.28         |   |
| 25   | Qatar                    | 5.79  | 57.90         | 0.82         |   | 98   | Sudan                      | 1.26  | 12.60         | 0.28         |   |
| 26   | Belgium                  | 5.75  | 57.50         | 0.81         |   | 99   | El Salvador                | 1.25  | 12.50         | 0.27         |   |
| 27   | Spain                    | 5.52  | 55.20         | 0.81         |   | 100  | Thailand                   | 1.23  | 12.30         | 0.26         |   |
| 28   | Latvia                   | 5.45  | 54.50         | 0.80         |   | 101  | Paraguay                   | 1.17  | 11.70         | 0.25         |   |
| 29   | United Arab Emirates     | 5.18  | 51.80         | 0.79         |   | 102  | Kenya                      | 1.15  | 11.50         | 0.25         |   |
| 30   | Czech Republic           | 5.17  | 51.70         | 0.78         |   | 103  | Iran, Islamic Rep.         | 1.14  | 11.40         | 0.24         |   |
| 31   | Barbados                 | 5.00  | 50.00         | 0.78         |   | 104  | Swaziland                  | 1.11  | 11.10         | 0.23         |   |
| 32   | Croatia                  | 4.99  | 49.90         | 0.77         | ● | 105  | Bhutan                     | 1.05  | 10.50         | 0.22         |   |
| 33   | Slovenia                 | 4.94  | 49.40         | 0.76         |   | 106  | Botswana                   | 1.00  | 10.00         | 0.22         |   |
| 34   | Italy                    | 4.89  | 48.90         | 0.75         |   | 107  | Sri Lanka                  | 0.87  | 8.70          | 0.21         |   |
| 35   | Poland                   | 4.84  | 48.40         | 0.75         |   | 108  | Honduras                   | 0.81  | 8.10          | 0.20         |   |
| 36   | Slovakia                 | 4.79  | 47.90         | 0.74         |   | 109  | Senegal                    | 0.80  | 8.00          | 0.19         |   |
| 37   | Bahrain                  | 4.75  | 47.50         | 0.73         |   | 110  | Uganda                     | 0.75  | 7.50          | 0.19         |   |
| 38   | Greece                   | 4.65  | 46.50         | 0.72         |   | 111  | Algeria                    | 0.68  | 6.80          | 0.18         |   |
| 39   | Hungary                  | 4.48  | 44.80         | 0.72         |   | 112  | India                      | 0.65  | 6.50          | 0.17         |   |
| 40   | Portugal                 | 4.45  | 44.50         | 0.71         |   | 113  | Angola                     | 0.62  | 6.20          | 0.16         |   |
| 41   | Russian Federation       | 4.34  | 43.40         | 0.70         |   | 113  | Yemen                      | 0.62  | 6.20          | 0.16         |   |
| 42   | Cyprus                   | 4.23  | 42.30         | 0.69         |   | 115  | Nicaragua                  | 0.58  | 5.80          | 0.15         |   |
| 43   | Bulgaria                 | 4.20  | 42.00         | 0.69         |   | 116  | Tanzania, United Rep.      | 0.49  | 4.90          | 0.14         |   |
| 44   | Belarus                  | 4.13  | 41.30         | 0.68         |   | 117  | Lesotho                    | 0.48  | 4.80          | 0.13         |   |
| 45   | Oman                     | 4.07  | 40.70         | 0.67         |   | 117  | Zambia                     | 0.48  | 4.80          | 0.13         |   |
| 46   | Uruguay                  | 3.84  | 38.40         | 0.66         |   | 119  | Gambia                     | 0.46  | 4.60          | 0.12         |   |
| 47   | Lithuania                | 3.76  | 37.60         | 0.66         |   | 120  | Cambodia                   | 0.41  | 4.10          | 0.11         |   |
| 48   | Azerbaijan               | 3.72  | 37.20         | 0.65         | ● | 121  | Pakistan                   | 0.38  | 3.80          | 0.10         |   |
| 49   | Kazakhstan               | 3.71  | 37.10         | 0.64         |   | 121  | Rwanda                     | 0.38  | 3.80          | 0.10         |   |
| 50   | Chile                    | 3.67  | 36.70         | 0.62         |   | 123  | Malawi                     | 0.26  | 2.60          | 0.09         |   |
| 50   | Saudi Arabia             | 3.67  | 36.70         | 0.62         |   | 124  | Bangladesh                 | 0.24  | 2.40          | 0.08         |   |
| 50   | TFYR of Macedonia        | 3.67  | 36.70         | 0.62         |   | 125  | Mozambique                 | 0.23  | 2.30          | 0.07         |   |
| 53   | Lebanon                  | 3.54  | 35.40         | 0.61         |   | 126  | Cameroon                   | 0.19  | 1.90          | 0.07         | ○ |
| 54   | Serbia                   | 3.52  | 35.20         | 0.60         |   | 127  | Benin                      | 0.14  | 1.40          | 0.06         |   |
| 55   | Brazil                   | 3.41  | 34.10         | 0.60         |   | 128  | Burkina Faso               | 0.13  | 1.30          | 0.05         | ○ |
| 56   | Romania                  | 3.34  | 33.40         | 0.59         |   | 129  | Mali                       | 0.10  | 1.00          | 0.04         |   |
| 57   | Bosnia and Herzegovina   | 3.19  | 31.90         | 0.58         |   | 130  | Côte d'Ivoire              | 0.09  | 0.90          | 0.04         | ○ |
| 58   | Argentina                | 3.16  | 31.60         | 0.57         |   | 131  | Ethiopia                   | 0.07  | 0.70          | 0.01         | ○ |
| 59   | Malaysia                 | 3.11  | 31.10         | 0.57         |   | 131  | Madagascar                 | 0.07  | 0.70          | 0.01         | ○ |
| 60   | Costa Rica               | 3.06  | 30.60         | 0.56         |   | 131  | Niger                      | 0.07  | 0.70          | 0.01         | ○ |
| 61   | Trinidad and Tobago      | 2.83  | 28.30         | 0.55         |   | 134  | Guinea                     | 0.05  | 0.50          | 0.01         | ○ |
| 62   | Georgia                  | 2.82  | 28.20         | 0.54         |   | 135  | Myanmar                    | 0.04  | 0.40          | 0.00         | ○ |
| 63   | Albania                  | 2.71  | 27.10         | 0.54         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 64   | China                    | 2.70  | 27.00         | 0.53         |   | n/a  | Guatemala                  | n/a   | n/a           | n/a          |   |
| 65   | Mauritius                | 2.69  | 26.90         | 0.52         |   | n/a  | Kuwait                     | n/a   | n/a           | n/a          |   |
| 66   | Turkey                   | 2.63  | 26.30         | 0.51         |   | n/a  | Kyrgyzstan                 | n/a   | n/a           | n/a          |   |
| 67   | Armenia                  | 2.60  | 26.00         | 0.51         |   | n/a  | Montenegro                 | n/a   | n/a           | n/a          |   |
| 68   | Brunei Darussalam        | 2.53  | 25.30         | 0.50         |   | n/a  | Nepal                      | n/a   | n/a           | n/a          |   |
| 69   | Seychelles               | 2.52  | 25.20         | 0.49         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 70   | Egypt                    | 2.51  | 25.10         | 0.49         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 71   | Panama                   | 2.46  | 24.60         | 0.48         |   |      |                            |       |               |              |   |
| 72   | South Africa             | 2.35  | 23.50         | 0.47         |   |      |                            |       |               |              |   |
| 73   | Morocco                  | 2.28  | 22.80         | 0.46         |   |      |                            |       |               |              |   |

SOURCE: International Telecommunication Union, *Measuring the Information Society 2013*, ICT Development Index 2013

NOTE: ● indicates a strength; ○ a weakness.

# 3.1.3

## Government's online service Government's online service index | 2012

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Korea, Rep.              | 1.00  | 100.00        | 0.99         | ● | 74   | Trinidad and Tobago        | 0.48  | 48.37         | 0.48         |   |
| 1    | Singapore                | 1.00  | 100.00        | 0.99         | ● | 74   | Venezuela, Bolivarian Rep. | 0.48  | 48.37         | 0.48         |   |
| 1    | United States of America | 1.00  | 100.00        | 0.99         | ● | 76   | Lebanon                    | 0.48  | 47.71         | 0.46         |   |
| 4    | United Kingdom           | 0.97  | 97.39         | 0.98         | ● | 76   | Tunisia                    | 0.48  | 47.71         | 0.46         |   |
| 5    | Netherlands              | 0.96  | 96.08         | 0.97         | ● | 78   | Ethiopia                   | 0.47  | 47.06         | 0.45         |   |
| 6    | Canada                   | 0.89  | 88.89         | 0.96         | ● | 79   | Guatemala                  | 0.46  | 46.41         | 0.43         |   |
| 7    | Finland                  | 0.88  | 88.24         | 0.96         |   | 79   | Panama                     | 0.46  | 46.41         | 0.43         |   |
| 8    | France                   | 0.88  | 87.58         | 0.95         | ● | 79   | Turkey                     | 0.46  | 46.41         | 0.43         |   |
| 9    | Australia                | 0.86  | 86.27         | 0.92         |   | 82   | Ecuador                    | 0.46  | 45.75         | 0.41         |   |
| 9    | Bahrain                  | 0.86  | 86.27         | 0.92         | ● | 82   | Paraguay                   | 0.46  | 45.75         | 0.41         |   |
| 9    | Japan                    | 0.86  | 86.27         | 0.92         |   | 82   | South Africa               | 0.46  | 45.75         | 0.41         |   |
| 9    | United Arab Emirates     | 0.86  | 86.27         | 0.92         | ● | 85   | TFYR of Macedonia          | 0.45  | 45.10         | 0.40         |   |
| 13   | Denmark                  | 0.86  | 85.62         | 0.91         |   | 86   | Bangladesh                 | 0.44  | 44.44         | 0.40         |   |
| 13   | Norway                   | 0.86  | 85.62         | 0.91         |   | 87   | Cabo Verde                 | 0.44  | 43.79         | 0.39         |   |
| 15   | Israel                   | 0.85  | 84.97         | 0.90         |   | 88   | Kenya                      | 0.43  | 43.14         | 0.38         |   |
| 16   | Colombia                 | 0.84  | 84.31         | 0.89         | ● | 88   | Mauritius                  | 0.43  | 43.14         | 0.38         |   |
| 16   | Sweden                   | 0.84  | 84.31         | 0.89         |   | 90   | Albania                    | 0.42  | 42.48         | 0.35         |   |
| 18   | Estonia                  | 0.82  | 82.35         | 0.88         |   | 90   | Kyrgyzstan                 | 0.42  | 42.48         | 0.35         |   |
| 19   | Saudi Arabia             | 0.80  | 79.74         | 0.87         | ● | 90   | Ukraine                    | 0.42  | 42.48         | 0.35         |   |
| 20   | Malaysia                 | 0.79  | 79.08         | 0.87         |   | 90   | Viet Nam                   | 0.42  | 42.48         | 0.35         |   |
| 21   | Kazakhstan               | 0.78  | 78.43         | 0.85         | ● | 94   | Belarus                    | 0.41  | 41.18         | 0.33         |   |
| 21   | New Zealand              | 0.78  | 78.43         | 0.85         |   | 94   | Bolivia, Plurinational St. | 0.41  | 41.18         | 0.33         |   |
| 23   | Spain                    | 0.76  | 75.82         | 0.84         |   | 96   | Jordan                     | 0.39  | 39.22         | 0.33         |   |
| 24   | Chile                    | 0.75  | 75.16         | 0.83         |   | 97   | Honduras                   | 0.38  | 37.91         | 0.31         |   |
| 24   | Germany                  | 0.75  | 75.16         | 0.83         |   | 97   | Sri Lanka                  | 0.38  | 37.91         | 0.31         |   |
| 26   | Austria                  | 0.75  | 74.51         | 0.82         |   | 99   | Barbados                   | 0.37  | 37.25         | 0.30         |   |
| 27   | Qatar                    | 0.74  | 73.86         | 0.82         |   | 99   | Bosnia and Herzegovina     | 0.37  | 37.25         | 0.30         |   |
| 28   | Mexico                   | 0.73  | 73.20         | 0.81         | ● | 101  | Azerbaijan                 | 0.37  | 36.60         | 0.28         |   |
| 29   | Lithuania                | 0.70  | 69.93         | 0.79         |   | 101  | Mozambique                 | 0.37  | 36.60         | 0.28         |   |
| 29   | Luxembourg               | 0.70  | 69.93         | 0.79         |   | 101  | Pakistan                   | 0.37  | 36.60         | 0.28         |   |
| 31   | Hungary                  | 0.69  | 68.63         | 0.79         |   | 104  | Botswana                   | 0.36  | 35.95         | 0.26         |   |
| 32   | Brazil                   | 0.67  | 67.32         | 0.77         |   | 104  | Fiji                       | 0.36  | 35.95         | 0.26         |   |
| 32   | El Salvador              | 0.67  | 67.32         | 0.77         | ● | 106  | Bhutan                     | 0.35  | 35.29         | 0.25         |   |
| 32   | Switzerland              | 0.67  | 67.32         | 0.77         |   | 106  | Tanzania, United Rep.      | 0.35  | 35.29         | 0.25         |   |
| 35   | Oman                     | 0.67  | 66.67         | 0.75         | ● | 108  | Senegal                    | 0.35  | 34.64         | 0.24         |   |
| 35   | Slovenia                 | 0.67  | 66.67         | 0.75         |   | 109  | Rwanda                     | 0.34  | 33.99         | 0.23         |   |
| 37   | Russian Federation       | 0.66  | 66.01         | 0.74         |   | 110  | Angola                     | 0.33  | 33.33         | 0.21         |   |
| 38   | Portugal                 | 0.65  | 65.36         | 0.74         |   | 110  | Côte d'Ivoire              | 0.33  | 33.33         | 0.21         |   |
| 39   | Belgium                  | 0.65  | 64.71         | 0.73         |   | 110  | Seychelles                 | 0.33  | 33.33         | 0.21         | ○ |
| 40   | Croatia                  | 0.64  | 64.05         | 0.72         |   | 113  | Armenia                    | 0.33  | 32.68         | 0.21         | ○ |
| 41   | Malta                    | 0.61  | 61.44         | 0.72         |   | 114  | Gambia                     | 0.32  | 32.03         | 0.18         |   |
| 42   | Egypt                    | 0.60  | 60.13         | 0.70         | ● | 114  | Madagascar                 | 0.32  | 32.03         | 0.18         |   |
| 42   | Georgia                  | 0.60  | 60.13         | 0.70         |   | 114  | Mali                       | 0.32  | 32.03         | 0.18         |   |
| 44   | Brunei Darussalam        | 0.59  | 59.48         | 0.70         |   | 117  | Nicaragua                  | 0.31  | 31.37         | 0.17         |   |
| 45   | Latvia                   | 0.59  | 58.82         | 0.68         |   | 117  | Zambia                     | 0.31  | 31.37         | 0.17         |   |
| 45   | Mongolia                 | 0.59  | 58.82         | 0.68         |   | 119  | Jamaica                    | 0.31  | 30.72         | 0.16         |   |
| 47   | Kuwait                   | 0.58  | 58.17         | 0.67         |   | 120  | Cameroon                   | 0.30  | 30.07         | 0.13         |   |
| 48   | Greece                   | 0.58  | 57.52         | 0.65         |   | 120  | Ghana                      | 0.30  | 30.07         | 0.13         |   |
| 48   | Italy                    | 0.58  | 57.52         | 0.65         |   | 120  | Lesotho                    | 0.30  | 30.07         | 0.13         |   |
| 48   | Serbia                   | 0.58  | 57.52         | 0.65         |   | 120  | Namibia                    | 0.30  | 30.07         | 0.13         | ○ |
| 51   | Cyprus                   | 0.56  | 56.21         | 0.65         |   | 120  | Zimbabwe                   | 0.30  | 30.07         | 0.13         |   |
| 52   | Uruguay                  | 0.55  | 54.90         | 0.64         |   | 125  | Burkina Faso               | 0.29  | 29.41         | 0.11         |   |
| 53   | Czech Republic           | 0.54  | 54.25         | 0.62         |   | 125  | Uganda                     | 0.29  | 29.41         | 0.11         |   |
| 53   | Iceland                  | 0.54  | 54.25         | 0.62         |   | 127  | Nepal                      | 0.29  | 28.76         | 0.11         |   |
| 53   | Morocco                  | 0.54  | 54.25         | 0.62         |   | 128  | Algeria                    | 0.25  | 25.49         | 0.09         |   |
| 56   | Dominican Republic       | 0.54  | 53.59         | 0.59         |   | 128  | Guyana                     | 0.25  | 25.49         | 0.09         | ○ |
| 56   | India                    | 0.54  | 53.59         | 0.59         |   | 128  | Sudan                      | 0.25  | 25.49         | 0.09         |   |
| 56   | Ireland                  | 0.54  | 53.59         | 0.59         |   | 131  | Tajikistan                 | 0.24  | 24.18         | 0.08         |   |
| 56   | Poland                   | 0.54  | 53.59         | 0.59         |   | 132  | Nigeria                    | 0.22  | 22.22         | 0.07         |   |
| 60   | Argentina                | 0.53  | 52.94         | 0.57         |   | 133  | Malawi                     | 0.22  | 21.57         | 0.06         | ○ |
| 60   | China                    | 0.53  | 52.94         | 0.57         |   | 134  | Benin                      | 0.20  | 19.61         | 0.05         | ○ |
| 62   | Moldova, Rep.            | 0.52  | 51.63         | 0.55         |   | 134  | Niger                      | 0.20  | 19.61         | 0.05         |   |
| 62   | Peru                     | 0.52  | 51.63         | 0.55         |   | 136  | Cambodia                   | 0.19  | 18.95         | 0.04         |   |
| 62   | Romania                  | 0.52  | 51.63         | 0.55         |   | 137  | Yemen                      | 0.18  | 17.65         | 0.04         |   |
| 65   | Montenegro               | 0.51  | 50.98         | 0.54         |   | 138  | Burundi                    | 0.15  | 15.03         | 0.03         |   |
| 65   | Thailand                 | 0.51  | 50.98         | 0.54         |   | 139  | Swaziland                  | 0.14  | 14.38         | 0.02         | ○ |
| 67   | Slovakia                 | 0.50  | 50.33         | 0.53         |   | 140  | Togo                       | 0.14  | 13.73         | 0.01         | ○ |
| 68   | Costa Rica               | 0.50  | 49.67         | 0.50         |   | 141  | Myanmar                    | 0.10  | 10.46         | 0.01         |   |
| 68   | Indonesia                | 0.50  | 49.67         | 0.50         |   | 142  | Guinea                     | 0.00  | 0.00          | 0.00         | ○ |
| 68   | Philippines              | 0.50  | 49.67         | 0.50         |   | n/a  | Hong Kong (China)          | n/a   | n/a           | n/a          |   |
| 68   | Uzbekistan               | 0.50  | 49.67         | 0.50         |   |      |                            |       |               |              |   |
| 72   | Bulgaria                 | 0.49  | 49.02         | 0.49         |   |      |                            |       |               |              |   |
| 72   | Iran, Islamic Rep.       | 0.49  | 49.02         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: United Nations Public Administration Network, e-Government Survey 2012  
NOTE: ● indicates a strength; ○ a weakness.

# 3.1.4 Online e-participation

## E-participation Index | 2012

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy        | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|------------------------|-------|---------------|--------------|---|
| 1    | Korea, Rep.                | 1.00  | 100.00        | 0.99         | ● | 73   | Iran, Islamic Rep.     | 0.18  | 18.42         | 0.45         |   |
| 1    | Netherlands                | 1.00  | 100.00        | 0.99         | ● | 73   | Kuwait                 | 0.18  | 18.42         | 0.45         |   |
| 3    | Kazakhstan                 | 0.95  | 94.74         | 0.98         | ● | 73   | Nigeria                | 0.18  | 18.42         | 0.45         |   |
| 3    | Singapore                  | 0.95  | 94.74         | 0.98         |   | 73   | Poland                 | 0.18  | 18.42         | 0.45         |   |
| 5    | United Kingdom             | 0.92  | 92.11         | 0.96         | ● | 73   | Uruguay                | 0.18  | 18.42         | 0.45         |   |
| 5    | United States of America   | 0.92  | 92.11         | 0.96         |   | 79   | Burkina Faso           | 0.16  | 15.79         | 0.42         |   |
| 7    | Israel                     | 0.89  | 89.47         | 0.96         | ● | 79   | Iceland                | 0.16  | 15.79         | 0.42         |   |
| 8    | Australia                  | 0.76  | 76.32         | 0.94         |   | 79   | Paraguay               | 0.16  | 15.79         | 0.42         |   |
| 8    | Estonia                    | 0.76  | 76.32         | 0.94         | ● | 79   | South Africa           | 0.16  | 15.79         | 0.42         |   |
| 8    | Germany                    | 0.76  | 76.32         | 0.94         |   | 79   | Ukraine                | 0.16  | 15.79         | 0.42         |   |
| 11   | Colombia                   | 0.74  | 73.68         | 0.91         | ● | 84   | Azerbaijan             | 0.13  | 13.16         | 0.35         |   |
| 11   | Finland                    | 0.74  | 73.68         | 0.91         |   | 84   | Belgium                | 0.13  | 13.16         | 0.35         | ○ |
| 11   | Japan                      | 0.74  | 73.68         | 0.91         |   | 84   | Côte d'Ivoire          | 0.13  | 13.16         | 0.35         |   |
| 11   | United Arab Emirates       | 0.74  | 73.68         | 0.91         | ● | 84   | Honduras               | 0.13  | 13.16         | 0.35         |   |
| 15   | Canada                     | 0.68  | 68.42         | 0.88         |   | 84   | Ireland                | 0.13  | 13.16         | 0.35         | ○ |
| 15   | Egypt                      | 0.68  | 68.42         | 0.88         | ● | 84   | Mozambique             | 0.13  | 13.16         | 0.35         |   |
| 15   | Norway                     | 0.68  | 68.42         | 0.88         |   | 84   | Nicaragua              | 0.13  | 13.16         | 0.35         |   |
| 15   | Sweden                     | 0.68  | 68.42         | 0.88         |   | 84   | Pakistan               | 0.13  | 13.16         | 0.35         |   |
| 19   | Bahrain                    | 0.66  | 65.79         | 0.86         | ● | 84   | Slovakia               | 0.13  | 13.16         | 0.35         |   |
| 19   | Chile                      | 0.66  | 65.79         | 0.86         | ● | 84   | TFYR of Macedonia      | 0.13  | 13.16         | 0.35         |   |
| 19   | Russian Federation         | 0.66  | 65.79         | 0.86         | ● | 94   | Albania                | 0.11  | 10.53         | 0.32         |   |
| 22   | Qatar                      | 0.63  | 63.16         | 0.84         |   | 94   | Ghana                  | 0.11  | 10.53         | 0.32         |   |
| 22   | Saudi Arabia               | 0.63  | 63.16         | 0.84         | ● | 94   | Jordan                 | 0.11  | 10.53         | 0.32         |   |
| 24   | Mongolia                   | 0.61  | 60.53         | 0.84         | ● | 94   | Viet Nam               | 0.11  | 10.53         | 0.32         |   |
| 25   | France                     | 0.58  | 57.89         | 0.82         |   | 98   | Bangladesh             | 0.08  | 7.89          | 0.23         |   |
| 25   | Mexico                     | 0.58  | 57.89         | 0.82         | ● | 98   | Belarus                | 0.08  | 7.89          | 0.23         |   |
| 25   | New Zealand                | 0.58  | 57.89         | 0.82         |   | 98   | Benin                  | 0.08  | 7.89          | 0.23         |   |
| 28   | Denmark                    | 0.55  | 55.26         | 0.80         |   | 98   | Cyprus                 | 0.08  | 7.89          | 0.23         |   |
| 28   | El Salvador                | 0.55  | 55.26         | 0.80         | ● | 98   | Fiji                   | 0.08  | 7.89          | 0.23         |   |
| 30   | Lithuania                  | 0.53  | 52.63         | 0.79         |   | 98   | Mauritius              | 0.08  | 7.89          | 0.23         | ○ |
| 31   | Brazil                     | 0.50  | 50.00         | 0.77         | ● | 98   | Romania                | 0.08  | 7.89          | 0.23         | ○ |
| 31   | Malaysia                   | 0.50  | 50.00         | 0.77         |   | 98   | Seychelles             | 0.08  | 7.89          | 0.23         | ○ |
| 31   | Spain                      | 0.50  | 50.00         | 0.77         |   | 98   | Sri Lanka              | 0.08  | 7.89          | 0.23         |   |
| 34   | Brunei Darussalam          | 0.47  | 47.37         | 0.76         | ● | 98   | Sudan                  | 0.08  | 7.89          | 0.23         |   |
| 34   | Dominican Republic         | 0.47  | 47.37         | 0.76         | ● | 98   | Tanzania, United Rep.  | 0.08  | 7.89          | 0.23         |   |
| 36   | Hungary                    | 0.45  | 44.74         | 0.74         |   | 98   | Trinidad and Tobago    | 0.08  | 7.89          | 0.23         |   |
| 36   | Oman                       | 0.45  | 44.74         | 0.74         | ● | 98   | Uganda                 | 0.08  | 7.89          | 0.23         |   |
| 38   | Luxembourg                 | 0.39  | 39.47         | 0.72         |   | 111  | Algeria                | 0.05  | 5.26          | 0.19         |   |
| 38   | Moldova, Rep.              | 0.39  | 39.47         | 0.72         |   | 111  | Kenya                  | 0.05  | 5.26          | 0.19         |   |
| 38   | Morocco                    | 0.39  | 39.47         | 0.72         | ● | 111  | Swaziland              | 0.05  | 5.26          | 0.19         |   |
| 38   | Peru                       | 0.39  | 39.47         | 0.72         |   | 111  | Togo                   | 0.05  | 5.26          | 0.19         |   |
| 42   | Austria                    | 0.37  | 36.84         | 0.70         |   | 111  | Turkey                 | 0.05  | 5.26          | 0.19         | ○ |
| 42   | Portugal                   | 0.37  | 36.84         | 0.70         |   | 116  | Angola                 | 0.03  | 2.63          | 0.10         |   |
| 42   | Tunisia                    | 0.37  | 36.84         | 0.70         |   | 116  | Barbados               | 0.03  | 2.63          | 0.10         | ○ |
| 45   | Ethiopia                   | 0.34  | 34.21         | 0.67         | ● | 116  | Bhutan                 | 0.03  | 2.63          | 0.10         |   |
| 45   | Greece                     | 0.34  | 34.21         | 0.67         |   | 116  | Botswana               | 0.03  | 2.63          | 0.10         | ○ |
| 45   | Switzerland                | 0.34  | 34.21         | 0.67         |   | 116  | Bulgaria               | 0.03  | 2.63          | 0.10         | ○ |
| 48   | Costa Rica                 | 0.32  | 31.58         | 0.64         |   | 116  | Cameroon               | 0.03  | 2.63          | 0.10         |   |
| 48   | Lebanon                    | 0.32  | 31.58         | 0.64         |   | 116  | Lesotho                | 0.03  | 2.63          | 0.10         |   |
| 48   | Montenegro                 | 0.32  | 31.58         | 0.64         |   | 116  | Madagascar             | 0.03  | 2.63          | 0.10         |   |
| 48   | Panama                     | 0.32  | 31.58         | 0.64         |   | 116  | Namibia                | 0.03  | 2.63          | 0.10         | ○ |
| 48   | Thailand                   | 0.32  | 31.58         | 0.64         |   | 116  | Nepal                  | 0.03  | 2.63          | 0.10         |   |
| 53   | Argentina                  | 0.29  | 28.95         | 0.62         |   | 116  | Rwanda                 | 0.03  | 2.63          | 0.10         |   |
| 53   | Croatia                    | 0.29  | 28.95         | 0.62         |   | 116  | Zambia                 | 0.03  | 2.63          | 0.10         |   |
| 53   | Kyrgyzstan                 | 0.29  | 28.95         | 0.62         |   | 116  | Zimbabwe               | 0.03  | 2.63          | 0.10         |   |
| 56   | Czech Republic             | 0.26  | 26.32         | 0.59         |   | 129  | Armenia                | 0.00  | 0.00          | 0.00         | ○ |
| 56   | Italy                      | 0.26  | 26.32         | 0.59         |   | 129  | Bosnia and Herzegovina | 0.00  | 0.00          | 0.00         | ○ |
| 56   | Malta                      | 0.26  | 26.32         | 0.59         |   | 129  | Burundi                | 0.00  | 0.00          | 0.00         | ○ |
| 56   | Venezuela, Bolivarian Rep. | 0.26  | 26.32         | 0.59         | ● | 129  | Cambodia               | 0.00  | 0.00          | 0.00         | ○ |
| 60   | Cabo Verde                 | 0.24  | 23.68         | 0.55         |   | 129  | Gambia                 | 0.00  | 0.00          | 0.00         | ○ |
| 60   | Ecuador                    | 0.24  | 23.68         | 0.55         |   | 129  | Guinea                 | 0.00  | 0.00          | 0.00         | ○ |
| 60   | Guatemala                  | 0.24  | 23.68         | 0.55         |   | 129  | Guyana                 | 0.00  | 0.00          | 0.00         | ○ |
| 60   | Serbia                     | 0.24  | 23.68         | 0.55         |   | 129  | Jamaica                | 0.00  | 0.00          | 0.00         | ○ |
| 60   | Uzbekistan                 | 0.24  | 23.68         | 0.55         |   | 129  | Malawi                 | 0.00  | 0.00          | 0.00         | ○ |
| 65   | Bolivia, Plurinational St. | 0.21  | 21.05         | 0.50         |   | 129  | Mali                   | 0.00  | 0.00          | 0.00         | ○ |
| 65   | China                      | 0.21  | 21.05         | 0.50         |   | 129  | Myanmar                | 0.00  | 0.00          | 0.00         | ○ |
| 65   | Georgia                    | 0.21  | 21.05         | 0.50         |   | 129  | Niger                  | 0.00  | 0.00          | 0.00         | ○ |
| 65   | Indonesia                  | 0.21  | 21.05         | 0.50         |   | 129  | Niger                  | 0.00  | 0.00          | 0.00         | ○ |
| 65   | Latvia                     | 0.21  | 21.05         | 0.50         |   | 129  | Tajikistan             | 0.00  | 0.00          | 0.00         | ○ |
| 65   | Philippines                | 0.21  | 21.05         | 0.50         |   | 129  | Yemen                  | 0.00  | 0.00          | 0.00         | ○ |
| 65   | Senegal                    | 0.21  | 21.05         | 0.50         |   | n/a  | Hong Kong (China)      | n/a   | n/a           | n/a          |   |
| 65   | Slovenia                   | 0.21  | 21.05         | 0.50         |   |      |                        |       |               |              |   |
| 73   | India                      | 0.18  | 18.42         | 0.45         |   |      |                        |       |               |              |   |

SOURCE: United Nations Public Administration Network, e-Government Survey 2012

NOTE: ● indicates a strength; ○ a weakness.

# 3.2.1 Electricity output

## Electricity output (kWh per capita) | 2011

| Rank | Country/Economy                 | Value     | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value    | Score (0–100) | Percent rank |   |
|------|---------------------------------|-----------|---------------|--------------|---|------|----------------------------|----------|---------------|--------------|---|
| 1    | Iceland (2012)                  | 54,840.63 | 100.00        | 0.98         | ● | 74   | Thailand                   | 2,243.76 | 10.94         | 0.41         |   |
| 1    | Kuwait                          | 20,374.82 | 100.00        | 0.98         | ● | 75   | Azerbaijan                 | 2,213.09 | 10.79         | 0.40         |   |
| 1    | Norway (2012)                   | 29,237.65 | 100.00        | 0.98         | ● | 76   | Panama                     | 2,200.84 | 10.73         | 0.39         |   |
| 4    | Canada (2012)                   | 18,547.92 | 91.03         | 0.98         | ● | 77   | Costa Rica                 | 2,078.86 | 10.13         | 0.38         |   |
| 5    | Sweden (2012)                   | 17,358.87 | 85.19         | 0.97         | ● | 78   | Egypt                      | 1,897.09 | 9.24          | 0.37         |   |
| 6    | Qatar                           | 16,433.16 | 80.64         | 0.96         | ● | 79   | Jamaica                    | 1,897.05 | 9.24          | 0.37         |   |
| 7    | United States of America (2012) | 13,589.23 | 66.67         | 0.95         |   | 80   | Uzbekistan                 | 1,785.96 | 8.69          | 0.36         |   |
| 8    | Finland (2012)                  | 13,007.76 | 63.81         | 0.94         |   | 81   | Mongolia                   | 1,697.50 | 8.26          | 0.35         |   |
| 9    | United Arab Emirates            | 12,564.89 | 61.64         | 0.93         | ● | 82   | Moldova, Rep.              | 1,625.28 | 7.90          | 0.34         |   |
| 10   | Australia (2012)                | 10,929.81 | 53.61         | 0.93         |   | 83   | Tunisia                    | 1,511.72 | 7.34          | 0.33         |   |
| 11   | Korea, Rep. (2012)              | 10,576.62 | 51.87         | 0.92         |   | 84   | Algeria                    | 1,423.68 | 6.91          | 0.33         |   |
| 12   | Bahrain                         | 10,474.24 | 51.37         | 0.91         | ● | 85   | Ecuador                    | 1,381.46 | 6.70          | 0.32         |   |
| 13   | New Zealand (2012)              | 9,946.52  | 48.78         | 0.90         |   | 86   | Peru                       | 1,334.12 | 6.47          | 0.31         |   |
| 14   | Brunei Darussalam               | 9,085.37  | 44.55         | 0.89         | ● | 87   | Lithuania                  | 1,326.88 | 6.43          | 0.30         |   |
| 15   | Estonia (2012)                  | 8,929.85  | 43.78         | 0.89         |   | 88   | Colombia                   | 1,317.32 | 6.39          | 0.29         |   |
| 16   | Saudi Arabia                    | 8,905.88  | 43.66         | 0.88         | ● | 89   | Albania                    | 1,291.61 | 6.26          | 0.28         |   |
| 17   | Singapore                       | 8,880.12  | 43.54         | 0.87         |   | 90   | Dominican Republic         | 1,289.76 | 6.25          | 0.28         |   |
| 18   | Paraguay                        | 8,771.08  | 43.00         | 0.86         | ● | 91   | Viet Nam                   | 1,129.09 | 5.46          | 0.27         |   |
| 19   | Switzerland (2012)              | 8,573.14  | 42.03         | 0.85         |   | 92   | El Salvador                | 931.78   | 4.49          | 0.26         |   |
| 20   | France (2012)                   | 8,506.37  | 41.70         | 0.85         |   | 93   | Honduras                   | 918.30   | 4.43          | 0.25         |   |
| 21   | Czech Republic (2012)           | 8,264.03  | 40.51         | 0.84         |   | 94   | Zambia                     | 849.70   | 4.09          | 0.24         |   |
| 22   | Japan (2012)                    | 8,060.63  | 39.51         | 0.83         |   | 95   | India                      | 847.63   | 4.08          | 0.24         |   |
| 23   | Israel (2012)                   | 7,675.60  | 37.62         | 0.82         |   | 96   | Morocco                    | 770.75   | 3.70          | 0.23         |   |
| 24   | Oman                            | 7,675.09  | 37.62         | 0.81         | ● | 97   | Indonesia                  | 752.63   | 3.61          | 0.22         |   |
| 25   | Austria (2012)                  | 7,665.76  | 37.57         | 0.80         |   | 98   | Philippines                | 729.32   | 3.50          | 0.21         |   |
| 26   | Slovenia (2012)                 | 7,537.38  | 36.94         | 0.80         |   | 99   | Bolivia, Plurinational St. | 715.76   | 3.43          | 0.20         |   |
| 27   | Germany (2012)                  | 7,483.40  | 36.68         | 0.79         |   | 100  | Mozambique                 | 703.30   | 3.37          | 0.20         |   |
| 28   | Russian Federation              | 7,419.16  | 36.36         | 0.78         |   | 101  | Zimbabwe                   | 700.00   | 3.36          | 0.19         |   |
| 29   | Belgium (2012)                  | 6,999.28  | 34.30         | 0.77         |   | 102  | Nicaragua                  | 651.62   | 3.12          | 0.18         |   |
| 30   | Bulgaria                        | 6,687.57  | 32.77         | 0.76         |   | 103  | Namibia                    | 616.38   | 2.94          | 0.17         |   |
| 31   | Trinidad and Tobago             | 6,568.15  | 32.18         | 0.76         | ● | 104  | Sri Lanka                  | 558.03   | 2.66          | 0.16         | ○ |
| 32   | Spain (2012)                    | 6,369.42  | 31.20         | 0.75         |   | 105  | Guatemala                  | 551.90   | 2.63          | 0.15         |   |
| 33   | Cyprus                          | 6,161.25  | 30.18         | 0.74         |   | 106  | Pakistan                   | 538.94   | 2.56          | 0.15         |   |
| 34   | Netherlands (2012)              | 6,098.63  | 29.87         | 0.73         |   | 107  | Ghana                      | 448.54   | 2.12          | 0.14         |   |
| 35   | Ireland (2012)                  | 5,992.16  | 29.35         | 0.72         |   | 108  | Côte d'Ivoire              | 302.68   | 1.40          | 0.13         |   |
| 36   | United Kingdom (2012)           | 5,697.86  | 27.91         | 0.72         |   | 109  | Cameroon                   | 299.35   | 1.39          | 0.12         |   |
| 37   | Hong Kong (China)               | 5,520.51  | 27.03         | 0.71         |   | 110  | Bangladesh                 | 292.78   | 1.36          | 0.11         |   |
| 38   | Denmark (2012)                  | 5,438.82  | 26.63         | 0.70         |   | 111  | Angola                     | 288.02   | 1.33          | 0.11         |   |
| 39   | Serbia                          | 5,237.47  | 25.64         | 0.69         |   | 112  | Yemen                      | 250.24   | 1.15          | 0.10         |   |
| 40   | Kazakhstan                      | 5,228.62  | 25.60         | 0.68         |   | 113  | Senegal                    | 236.02   | 1.08          | 0.09         | ○ |
| 41   | Malta                           | 5,223.81  | 25.58         | 0.67         |   | 114  | Sudan                      | 192.70   | 0.86          | 0.08         |   |
| 42   | Slovakia (2012)                 | 5,184.07  | 25.38         | 0.67         |   | 115  | Kenya                      | 188.63   | 0.84          | 0.07         | ○ |
| 43   | Luxembourg (2012)               | 5,173.58  | 25.33         | 0.66         |   | 116  | Botswana                   | 183.25   | 0.82          | 0.07         | ○ |
| 44   | South Africa                    | 5,130.97  | 25.12         | 0.65         |   | 117  | Nigeria                    | 166.39   | 0.73          | 0.06         | ○ |
| 45   | Greece (2012)                   | 5,080.76  | 24.87         | 0.64         |   | 118  | Myanmar                    | 151.57   | 0.66          | 0.05         | ○ |
| 46   | Italy (2012)                    | 4,871.19  | 23.84         | 0.63         |   | 119  | Tanzania, United Rep.      | 114.71   | 0.48          | 0.04         | ○ |
| 47   | Malaysia                        | 4,507.62  | 22.06         | 0.63         |   | 120  | Nepal                      | 108.63   | 0.45          | 0.03         | ○ |
| 48   | Portugal (2012)                 | 4,279.70  | 20.94         | 0.62         |   | 121  | Cambodia                   | 73.58    | 0.28          | 0.02         | ○ |
| 49   | Ukraine                         | 4,264.87  | 20.87         | 0.61         |   | 122  | Ethiopia                   | 60.91    | 0.22          | 0.02         | ○ |
| 50   | Montenegro                      | 4,215.87  | 20.63         | 0.60         |   | 123  | Togo                       | 22.56    | 0.03          | 0.01         | ○ |
| 51   | Poland (2012)                   | 4,202.91  | 20.56         | 0.59         |   | 124  | Benin                      | 16.92    | 0.00          | 0.00         | ○ |
| 52   | Venezuela, Bolivarian Rep.      | 4,168.68  | 20.39         | 0.59         |   | n/a  | Barbados                   | n/a      | n/a           | n/a          |   |
| 53   | Bosnia and Herzegovina          | 4,074.67  | 19.93         | 0.58         |   | n/a  | Bhutan                     | n/a      | n/a           | n/a          |   |
| 54   | Chile (2012)                    | 3,921.16  | 19.18         | 0.57         |   | n/a  | Burkina Faso               | n/a      | n/a           | n/a          |   |
| 55   | Lebanon                         | 3,841.55  | 18.79         | 0.56         |   | n/a  | Burundi                    | n/a      | n/a           | n/a          |   |
| 56   | China                           | 3,508.38  | 17.15         | 0.55         |   | n/a  | Cabo Verde                 | n/a      | n/a           | n/a          |   |
| 57   | Hungary (2012)                  | 3,461.57  | 16.92         | 0.54         |   | n/a  | Fiji                       | n/a      | n/a           | n/a          |   |
| 58   | Belarus                         | 3,399.37  | 16.61         | 0.54         |   | n/a  | Gambia                     | n/a      | n/a           | n/a          |   |
| 59   | TFYR of Macedonia               | 3,337.86  | 16.31         | 0.53         |   | n/a  | Guinea                     | n/a      | n/a           | n/a          |   |
| 60   | Iran, Islamic Rep.              | 3,204.61  | 15.66         | 0.52         |   | n/a  | Guyana                     | n/a      | n/a           | n/a          |   |
| 61   | Turkey (2012)                   | 3,194.15  | 15.61         | 0.51         |   | n/a  | Lesotho                    | n/a      | n/a           | n/a          |   |
| 62   | Argentina                       | 3,177.70  | 15.53         | 0.50         |   | n/a  | Madagascar                 | n/a      | n/a           | n/a          |   |
| 63   | Uruguay                         | 3,069.44  | 14.99         | 0.50         |   | n/a  | Malawi                     | n/a      | n/a           | n/a          |   |
| 64   | Romania                         | 2,898.50  | 14.15         | 0.49         |   | n/a  | Mali                       | n/a      | n/a           | n/a          |   |
| 65   | Kyrgyzstan                      | 2,751.00  | 13.43         | 0.48         |   | n/a  | Mauritius                  | n/a      | n/a           | n/a          |   |
| 66   | Latvia                          | 2,745.05  | 13.40         | 0.47         |   | n/a  | Niger                      | n/a      | n/a           | n/a          |   |
| 67   | Brazil                          | 2,703.95  | 13.20         | 0.46         |   | n/a  | Rwanda                     | n/a      | n/a           | n/a          |   |
| 68   | Mexico (2012)                   | 2,687.13  | 13.12         | 0.46         |   | n/a  | Seychelles                 | n/a      | n/a           | n/a          |   |
| 69   | Croatia                         | 2,426.76  | 11.84         | 0.45         |   | n/a  | Swaziland                  | n/a      | n/a           | n/a          |   |
| 70   | Armenia                         | 2,397.74  | 11.69         | 0.44         |   | n/a  | Uganda                     | n/a      | n/a           | n/a          |   |
| 71   | Jordan                          | 2,370.06  | 11.56         | 0.43         |   |      |                            |          |               |              |   |
| 72   | Tajikistan                      | 2,323.64  | 11.33         | 0.42         |   |      |                            |          |               |              |   |
| 73   | Georgia                         | 2,270.38  | 11.07         | 0.41         |   |      |                            |          |               |              |   |

SOURCE: International Energy Agency, *World Energy Balances* online data service  
NOTE: ● indicates a strength; ○ a weakness.



# 3.2.2 Logistics performance

## Logistics Performance Index | 2012

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Singapore                | 4.13  | 100.00        | 1.00         | ● | 74   | Malawi                     | 2.81  | 47.62         | 0.46         |   |
| 2    | Hong Kong (China)        | 4.12  | 99.60         | 0.99         | ● | 75   | Guatemala                  | 2.80  | 47.22         | 0.45         |   |
| 3    | Finland                  | 4.05  | 96.83         | 0.99         |   | 75   | Serbia                     | 2.80  | 47.22         | 0.45         |   |
| 4    | Germany                  | 4.03  | 96.03         | 0.98         | ● | 77   | Latvia                     | 2.78  | 46.43         | 0.44         |   |
| 5    | Denmark                  | 4.02  | 95.63         | 0.96         |   | 78   | Albania                    | 2.77  | 46.03         | 0.43         |   |
| 5    | Netherlands              | 4.02  | 95.63         | 0.96         |   | 78   | Georgia                    | 2.77  | 46.03         | 0.43         |   |
| 7    | Belgium                  | 3.98  | 94.05         | 0.96         | ● | 80   | Ecuador                    | 2.76  | 45.63         | 0.42         |   |
| 8    | Japan                    | 3.93  | 92.06         | 0.94         |   | 81   | Costa Rica                 | 2.75  | 45.24         | 0.40         |   |
| 8    | United States of America | 3.93  | 92.06         | 0.94         |   | 81   | Sri Lanka                  | 2.75  | 45.24         | 0.40         |   |
| 10   | United Kingdom           | 3.90  | 90.87         | 0.93         |   | 83   | Bangladesh (2010)          | 2.74  | 44.84         | 0.40         |   |
| 11   | Austria                  | 3.89  | 90.48         | 0.93         | ● | 84   | Côte d'Ivoire              | 2.73  | 44.44         | 0.39         |   |
| 12   | Canada                   | 3.85  | 88.89         | 0.90         |   | 85   | Madagascar                 | 2.72  | 44.05         | 0.38         |   |
| 12   | France                   | 3.85  | 88.89         | 0.90         | ● | 86   | Dominican Republic         | 2.70  | 43.25         | 0.38         |   |
| 12   | Sweden                   | 3.85  | 88.89         | 0.90         |   | 87   | Kazakhstan                 | 2.69  | 42.86         | 0.36         |   |
| 15   | Luxembourg               | 3.82  | 87.70         | 0.90         |   | 87   | Niger                      | 2.69  | 42.86         | 0.36         |   |
| 16   | Switzerland              | 3.80  | 86.90         | 0.89         |   | 89   | Namibia                    | 2.65  | 41.27         | 0.35         |   |
| 17   | United Arab Emirates     | 3.78  | 86.11         | 0.88         |   | 89   | Zanzania, United Rep.      | 2.65  | 41.27         | 0.35         |   |
| 18   | Australia                | 3.73  | 84.13         | 0.88         |   | 91   | Belarus                    | 2.61  | 39.68         | 0.33         |   |
| 19   | Korea, Rep.              | 3.70  | 82.94         | 0.86         |   | 91   | Bolivia, Plurinational St. | 2.61  | 39.68         | 0.33         |   |
| 19   | Spain                    | 3.70  | 82.94         | 0.86         |   | 93   | El Salvador                | 2.60  | 39.29         | 0.32         |   |
| 21   | Norway                   | 3.68  | 82.14         | 0.85         |   | 94   | Lebanon                    | 2.58  | 38.49         | 0.30         |   |
| 22   | Italy                    | 3.67  | 81.75         | 0.84         |   | 94   | Russian Federation         | 2.58  | 38.49         | 0.30         |   |
| 22   | South Africa             | 3.67  | 81.75         | 0.84         | ● | 94   | Togo                       | 2.58  | 38.49         | 0.30         |   |
| 24   | China                    | 3.52  | 75.79         | 0.82         |   | 97   | Armenia                    | 2.56  | 37.70         | 0.27         |   |
| 24   | Ireland                  | 3.52  | 75.79         | 0.82         |   | 97   | Cambodia                   | 2.56  | 37.70         | 0.27         |   |
| 26   | Turkey                   | 3.51  | 75.40         | 0.82         | ● | 97   | Jordan                     | 2.56  | 37.70         | 0.27         |   |
| 27   | Portugal                 | 3.50  | 75.00         | 0.81         |   | 97   | TFYR of Macedonia          | 2.56  | 37.70         | 0.27         | ○ |
| 28   | Malaysia                 | 3.49  | 74.60         | 0.80         |   | 101  | Zimbabwe                   | 2.55  | 37.30         | 0.26         |   |
| 29   | Poland                   | 3.43  | 72.22         | 0.79         |   | 102  | Nicaragua (2010)           | 2.54  | 36.90         | 0.26         |   |
| 30   | New Zealand              | 3.42  | 71.83         | 0.79         |   | 103  | Cameroon                   | 2.53  | 36.51         | 0.24         |   |
| 31   | Israel (2010)            | 3.41  | 71.43         | 0.78         |   | 103  | Honduras                   | 2.53  | 36.51         | 0.24         |   |
| 32   | Iceland                  | 3.39  | 70.63         | 0.77         |   | 105  | Bhutan                     | 2.52  | 36.11         | 0.24         |   |
| 33   | Qatar                    | 3.32  | 67.86         | 0.76         |   | 106  | Ghana                      | 2.51  | 35.71         | 0.23         |   |
| 34   | Slovenia                 | 3.29  | 66.67         | 0.76         |   | 107  | Iran, Islamic Rep.         | 2.49  | 34.92         | 0.21         |   |
| 35   | Cyprus                   | 3.24  | 64.68         | 0.75         |   | 107  | Senegal                    | 2.49  | 34.92         | 0.21         |   |
| 36   | Bulgaria                 | 3.21  | 63.49         | 0.74         |   | 107  | Venezuela, Bolivarian Rep. | 2.49  | 34.92         | 0.21         |   |
| 37   | Saudi Arabia             | 3.18  | 62.30         | 0.73         |   | 110  | Azerbaijan                 | 2.48  | 34.52         | 0.18         |   |
| 37   | Thailand                 | 3.18  | 62.30         | 0.73         |   | 110  | Guinea                     | 2.48  | 34.52         | 0.18         |   |
| 39   | Chile                    | 3.17  | 61.90         | 0.71         |   | 110  | Paraguay                   | 2.48  | 34.52         | 0.18         |   |
| 39   | Hungary                  | 3.17  | 61.90         | 0.71         |   | 113  | Gambia                     | 2.46  | 33.73         | 0.17         |   |
| 39   | Tunisia                  | 3.17  | 61.90         | 0.71         |   | 113  | Uzbekistan                 | 2.46  | 33.73         | 0.17         |   |
| 42   | Croatia                  | 3.16  | 61.51         | 0.69         |   | 115  | Montenegro                 | 2.45  | 33.33         | 0.15         | ○ |
| 42   | Malta                    | 3.16  | 61.51         | 0.69         |   | 115  | Nigeria                    | 2.45  | 33.33         | 0.15         |   |
| 44   | Czech Republic           | 3.14  | 60.71         | 0.68         |   | 117  | Kenya                      | 2.43  | 32.54         | 0.15         |   |
| 45   | Brazil                   | 3.13  | 60.32         | 0.68         |   | 118  | Fiji                       | 2.42  | 32.14         | 0.13         | ○ |
| 46   | India                    | 3.08  | 58.33         | 0.67         |   | 118  | Jamaica                    | 2.42  | 32.14         | 0.13         | ○ |
| 47   | Mexico                   | 3.06  | 57.54         | 0.66         |   | 120  | Algeria                    | 2.41  | 31.75         | 0.13         |   |
| 48   | Argentina                | 3.05  | 57.14         | 0.65         |   | 121  | Myanmar                    | 2.37  | 30.16         | 0.12         |   |
| 48   | Bahrain                  | 3.05  | 57.14         | 0.65         |   | 122  | Kyrgyzstan                 | 2.35  | 29.37         | 0.11         |   |
| 50   | Morocco                  | 3.03  | 56.35         | 0.63         |   | 123  | Guyana                     | 2.33  | 28.57         | 0.10         | ○ |
| 50   | Slovakia                 | 3.03  | 56.35         | 0.63         |   | 123  | Moldova, Rep.              | 2.33  | 28.57         | 0.10         | ○ |
| 52   | Philippines              | 3.02  | 55.95         | 0.63         |   | 125  | Burkina Faso               | 2.32  | 28.17         | 0.09         |   |
| 53   | Romania                  | 3.00  | 55.16         | 0.61         |   | 126  | Mozambique (2010)          | 2.29  | 26.98         | 0.08         |   |
| 53   | Viet Nam                 | 3.00  | 55.16         | 0.61         |   | 127  | Angola                     | 2.28  | 26.59         | 0.06         |   |
| 55   | Bosnia and Herzegovina   | 2.99  | 54.76         | 0.60         |   | 127  | Tajikistan                 | 2.28  | 26.59         | 0.06         |   |
| 56   | Egypt                    | 2.98  | 54.37         | 0.59         |   | 127  | Zambia (2010)              | 2.28  | 26.59         | 0.06         | ○ |
| 56   | Uruguay                  | 2.98  | 54.37         | 0.59         |   | 130  | Mali (2010)                | 2.27  | 26.19         | 0.04         |   |
| 58   | Lithuania                | 2.95  | 53.17         | 0.58         |   | 130  | Rwanda                     | 2.27  | 26.19         | 0.04         | ○ |
| 59   | Indonesia                | 2.94  | 52.78         | 0.57         |   | 132  | Mongolia                   | 2.25  | 25.40         | 0.04         | ○ |
| 59   | Peru                     | 2.94  | 52.78         | 0.57         |   | 133  | Ethiopia                   | 2.24  | 25.00         | 0.02         | ○ |
| 61   | Panama                   | 2.93  | 52.38         | 0.56         |   | 133  | Lesotho                    | 2.24  | 25.00         | 0.02         | ○ |
| 62   | Oman                     | 2.89  | 50.79         | 0.54         |   | 135  | Sudan                      | 2.10  | 19.44         | 0.01         | ○ |
| 62   | Yemen                    | 2.89  | 50.79         | 0.54         | ● | 136  | Nepal                      | 2.04  | 17.06         | 0.01         | ○ |
| 64   | Colombia                 | 2.87  | 50.00         | 0.54         |   | 137  | Burundi                    | 1.61  | 0.00          | 0.00         | ○ |
| 65   | Estonia                  | 2.86  | 49.60         | 0.53         |   | n/a  | Barbados                   | n/a   | n/a           | n/a          |   |
| 66   | Benin                    | 2.85  | 49.21         | 0.51         | ● | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |   |
| 66   | Ukraine                  | 2.85  | 49.21         | 0.51         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 68   | Botswana                 | 2.84  | 48.81         | 0.51         |   | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 69   | Greece                   | 2.83  | 48.41         | 0.49         |   | n/a  | Swaziland                  | n/a   | n/a           | n/a          |   |
| 69   | Kuwait                   | 2.83  | 48.41         | 0.49         |   | n/a  | Trinidad and Tobago        | n/a   | n/a           | n/a          |   |
| 69   | Pakistan                 | 2.83  | 48.41         | 0.49         |   |      |                            |       |               |              |   |
| 72   | Mauritius                | 2.82  | 48.02         | 0.47         |   |      |                            |       |               |              |   |
| 72   | Uganda (2010)            | 2.82  | 48.02         | 0.47         |   |      |                            |       |               |              |   |

SOURCE: World Bank and Turku School of Economics, *Logistics Performance Index 2014*; Arvis et al., 2014, *Connecting to Compete 2014: Trade Logistics in the Global Economy*

NOTE: ● indicates a strength; ○ a weakness.

# 3.2.3 Gross capital formation

## Gross capital formation (% of GDP) | 2013

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Mongolia                   | 56.46 | 100.00        | 1.00         | ● | 74   | Austria                    | 21.90 | 27.38         | 0.48         | ○ |
| 2    | China                      | 48.89 | 84.09         | 0.99         | ● | 75   | Luxembourg                 | 21.34 | 26.21         | 0.48         | ○ |
| 3    | Mozambique                 | 48.72 | 83.74         | 0.99         | ● | 76   | Costa Rica                 | 21.33 | 26.18         | 0.47         | ○ |
| 4    | Bhutan                     | 47.69 | 81.58         | 0.98         | ● | 77   | Belgium                    | 21.26 | 26.04         | 0.46         | ○ |
| 5    | Algeria                    | 43.33 | 72.41         | 0.97         | ● | 78   | Jamaica                    | 21.19 | 25.89         | 0.45         | ○ |
| 6    | Belarus                    | 39.50 | 64.37         | 0.96         | ● | 79   | Bulgaria                   | 21.16 | 25.83         | 0.45         | ○ |
| 7    | Lesotho                    | 38.94 | 63.20         | 0.96         | ● | 80   | Switzerland                | 20.98 | 25.45         | 0.44         | ○ |
| 8    | Botswana                   | 38.30 | 61.83         | 0.95         | ● | 81   | Montenegro                 | 20.98 | 25.45         | 0.43         | ○ |
| 9    | Seychelles                 | 38.02 | 61.26         | 0.94         | ● | 82   | Kenya                      | 20.93 | 25.34         | 0.43         | ○ |
| 10   | Tanzania, United Rep.      | 36.66 | 58.39         | 0.94         | ● | 83   | Namibia                    | 20.84 | 25.17         | 0.42         | ○ |
| 11   | Iran, Islamic Rep.         | 36.19 | 57.41         | 0.93         | ● | 84   | Japan                      | 20.68 | 24.81         | 0.41         | ○ |
| 12   | Niger                      | 36.01 | 57.03         | 0.92         | ● | 85   | Croatia                    | 20.53 | 24.51         | 0.40         | ○ |
| 13   | Cabo Verde                 | 35.78 | 56.54         | 0.91         | ● | 86   | Togo                       | 20.52 | 24.48         | 0.40         | ○ |
| 14   | India                      | 35.02 | 54.94         | 0.91         | ● | 87   | New Zealand                | 20.39 | 24.21         | 0.39         | ○ |
| 15   | Indonesia                  | 34.58 | 54.03         | 0.90         | ● | 88   | Ghana                      | 20.35 | 24.12         | 0.38         | ○ |
| 16   | Morocco                    | 34.30 | 53.43         | 0.89         | ● | 89   | Sudan                      | 20.29 | 24.00         | 0.38         | ● |
| 17   | Sri Lanka                  | 33.71 | 52.21         | 0.89         | ● | 90   | Poland                     | 20.16 | 23.72         | 0.37         | ○ |
| 18   | Ethiopia                   | 32.58 | 49.83         | 0.88         | ● | 91   | Serbia                     | 20.05 | 23.50         | 0.36         | ○ |
| 19   | Nepal                      | 31.78 | 48.14         | 0.87         | ● | 92   | Turkey                     | 20.01 | 23.41         | 0.35         | ○ |
| 20   | Uzbekistan                 | 30.80 | 46.09         | 0.87         | ● | 93   | Uruguay                    | 19.68 | 22.72         | 0.35         | ○ |
| 21   | Senegal                    | 30.29 | 45.01         | 0.86         | ● | 94   | France                     | 19.58 | 22.52         | 0.34         | ○ |
| 22   | Thailand                   | 30.03 | 44.46         | 0.85         | ● | 95   | Burundi                    | 19.57 | 22.49         | 0.33         | ○ |
| 23   | Nicaragua                  | 29.92 | 44.23         | 0.84         | ● | 96   | United States of America   | 19.37 | 22.07         | 0.33         | ○ |
| 24   | Qatar                      | 29.51 | 43.38         | 0.84         | ● | 97   | Cameroon                   | 19.33 | 21.98         | 0.32         | ○ |
| 25   | Panama                     | 28.56 | 41.38         | 0.83         | ● | 98   | Bolivia, Plurinational St. | 19.29 | 21.90         | 0.31         | ○ |
| 26   | Australia                  | 28.49 | 41.23         | 0.82         | ● | 99   | South Africa               | 19.22 | 21.76         | 0.30         | ○ |
| 27   | Saudi Arabia               | 28.29 | 40.81         | 0.82         | ● | 100  | Guinea                     | 19.22 | 21.75         | 0.30         | ○ |
| 28   | Ecuador                    | 28.17 | 40.57         | 0.81         | ● | 101  | Brazil                     | 19.17 | 21.64         | 0.29         | ○ |
| 29   | Oman                       | 27.97 | 40.14         | 0.80         | ● | 102  | Finland                    | 19.02 | 21.33         | 0.28         | ○ |
| 30   | Peru                       | 27.89 | 39.98         | 0.79         | ● | 103  | Benin                      | 18.97 | 21.22         | 0.28         | ○ |
| 31   | Bangladesh                 | 27.64 | 39.45         | 0.79         | ● | 104  | Lebanon                    | 18.80 | 20.87         | 0.27         | ○ |
| 32   | Jordan                     | 27.31 | 38.76         | 0.78         | ● | 105  | Sweden                     | 18.68 | 20.62         | 0.26         | ○ |
| 33   | Uganda                     | 27.21 | 38.53         | 0.77         | ● | 106  | Israel                     | 18.61 | 20.48         | 0.26         | ○ |
| 34   | Malaysia                   | 27.11 | 38.33         | 0.77         | ● | 107  | Philippines                | 18.59 | 20.43         | 0.25         | ○ |
| 35   | Estonia                    | 26.99 | 38.09         | 0.76         | ● | 108  | Lithuania                  | 18.12 | 19.44         | 0.24         | ○ |
| 36   | Kyrgyzstan                 | 26.97 | 38.03         | 0.75         | ● | 109  | Slovakia                   | 18.03 | 19.25         | 0.23         | ○ |
| 37   | Korea, Rep.                | 26.84 | 37.75         | 0.74         | ● | 110  | Spain                      | 18.01 | 19.22         | 0.23         | ○ |
| 38   | Singapore                  | 26.40 | 36.84         | 0.74         | ● | 111  | Côte d'Ivoire              | 17.88 | 18.94         | 0.22         | ○ |
| 39   | Norway                     | 26.33 | 36.69         | 0.73         | ● | 112  | Germany                    | 17.56 | 18.28         | 0.21         | ○ |
| 40   | Hong Kong (China)          | 26.32 | 36.68         | 0.72         | ● | 113  | Italy                      | 17.42 | 17.98         | 0.21         | ○ |
| 41   | Romania                    | 26.06 | 36.13         | 0.72         | ● | 114  | Denmark                    | 17.41 | 17.95         | 0.20         | ○ |
| 42   | Bahrain                    | 25.94 | 35.88         | 0.71         | ● | 115  | Gambia                     | 17.29 | 17.70         | 0.19         | ○ |
| 43   | Zimbabwe                   | 25.91 | 35.81         | 0.70         | ● | 116  | Burkina Faso               | 17.12 | 17.34         | 0.18         | ○ |
| 44   | Zambia                     | 25.68 | 35.32         | 0.70         | ● | 117  | Hungary                    | 16.73 | 16.53         | 0.18         | ○ |
| 45   | Latvia                     | 25.68 | 35.32         | 0.69         | ● | 118  | Tajikistan                 | 16.61 | 16.28         | 0.17         | ○ |
| 46   | Chile                      | 25.67 | 35.30         | 0.68         | ● | 119  | Paraguay                   | 16.56 | 16.17         | 0.16         | ○ |
| 47   | Russian Federation         | 25.40 | 34.73         | 0.67         | ● | 120  | Kuwait                     | 16.43 | 15.89         | 0.16         | ○ |
| 48   | Guyana                     | 25.33 | 34.58         | 0.67         | ● | 121  | Ukraine                    | 16.20 | 15.42         | 0.15         | ○ |
| 49   | Mauritius                  | 25.07 | 34.04         | 0.66         | ● | 122  | Slovenia                   | 16.18 | 15.37         | 0.14         | ○ |
| 50   | United Arab Emirates       | 24.85 | 33.59         | 0.65         | ● | 123  | Bosnia and Herzegovina     | 16.08 | 15.15         | 0.13         | ○ |
| 51   | Honduras                   | 24.71 | 33.28         | 0.65         | ● | 124  | Netherlands                | 15.66 | 14.28         | 0.13         | ○ |
| 52   | Azerbaijan                 | 24.67 | 33.20         | 0.64         | ● | 125  | Egypt                      | 15.58 | 14.11         | 0.12         | ○ |
| 53   | Nigeria                    | 24.60 | 33.06         | 0.63         | ● | 126  | Dominican Republic         | 15.27 | 13.45         | 0.11         | ○ |
| 54   | Tunisia                    | 24.56 | 32.98         | 0.62         | ● | 127  | Brunei Darussalam          | 15.20 | 13.31         | 0.11         | ○ |
| 55   | Madagascar                 | 24.48 | 32.81         | 0.62         | ● | 128  | Portugal                   | 14.74 | 12.34         | 0.10         | ○ |
| 56   | Armenia                    | 24.45 | 32.75         | 0.61         | ● | 129  | Guatemala                  | 14.56 | 11.96         | 0.09         | ○ |
| 57   | Canada                     | 24.28 | 32.39         | 0.60         | ● | 130  | Barbados                   | 14.26 | 11.33         | 0.09         | ○ |
| 58   | Argentina                  | 24.25 | 32.32         | 0.60         | ● | 131  | Pakistan                   | 14.22 | 11.26         | 0.08         | ○ |
| 59   | Rwanda                     | 24.20 | 32.21         | 0.59         | ● | 132  | United Kingdom             | 14.04 | 10.86         | 0.07         | ○ |
| 60   | Mexico                     | 24.17 | 32.15         | 0.58         | ● | 133  | El Salvador                | 14.03 | 10.85         | 0.06         | ○ |
| 61   | Moldova, Rep.              | 24.15 | 32.11         | 0.57         | ● | 134  | Trinidad and Tobago        | 13.99 | 10.76         | 0.06         | ○ |
| 62   | Viet Nam                   | 24.00 | 31.79         | 0.57         | ● | 135  | Angola                     | 13.84 | 10.44         | 0.05         | ○ |
| 63   | Venezuela, Bolivarian Rep. | 23.95 | 31.69         | 0.56         | ● | 136  | Iceland                    | 13.59 | 9.93          | 0.04         | ○ |
| 64   | Colombia                   | 23.73 | 31.24         | 0.55         | ● | 137  | Greece                     | 13.19 | 9.09          | 0.04         | ○ |
| 65   | Georgia                    | 23.56 | 30.87         | 0.55         | ● | 138  | Malta                      | 12.62 | 7.89          | 0.03         | ○ |
| 66   | Cambodia                   | 23.50 | 30.75         | 0.54         | ● | 139  | Ireland                    | 11.01 | 4.50          | 0.02         | ○ |
| 67   | Albania                    | 23.42 | 30.58         | 0.53         | ● | 140  | Cyprus                     | 10.46 | 3.34          | 0.01         | ○ |
| 68   | Fiji                       | 23.35 | 30.44         | 0.52         | ● | 141  | Swaziland                  | 10.45 | 3.32          | 0.01         | ○ |
| 69   | Myanmar                    | 23.32 | 30.37         | 0.52         | ● | 142  | Yemen                      | 8.87  | 0.00          | 0.00         | ○ |
| 70   | Kazakhstan                 | 22.99 | 29.67         | 0.51         | ● | n/a  | TFYR of Macedonia          | n/a   | n/a           | n/a          | ○ |
| 71   | Czech Republic             | 22.66 | 28.99         | 0.50         | ● |      |                            |       |               |              |   |
| 72   | Mali                       | 22.25 | 28.11         | 0.50         | ● |      |                            |       |               |              |   |
| 73   | Malawi                     | 22.00 | 27.59         | 0.49         | ● |      |                            |       |               |              |   |

SOURCE: International Monetary Fund, *World Economic Outlook 2013* database

NOTE: ● indicates a strength; ○ a weakness.

## 3.3.1

## GDP per unit of energy use

GDP per unit of energy use (2005 PPP\$ per kg of oil equivalent) | 2011

| Rank | Country/Economy                 | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|---------------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Hong Kong (China)               | 21.19 | 100.00        | 1.00         | ● | 74   | Montenegro                 | 5.61  | 25.06         | 0.41         |   |
| 2    | Colombia                        | 13.16 | 61.36         | 0.99         | ● | 75   | Cambodia                   | 5.59  | 24.93         | 0.40         |   |
| 3    | Peru                            | 12.90 | 60.14         | 0.98         | ● | 76   | Sudan                      | 5.51  | 24.57         | 0.39         | ● |
| 4    | Ireland (2012)                  | 12.63 | 58.81         | 0.98         | ● | 77   | Malaysia                   | 5.39  | 23.97         | 0.38         | ○ |
| 5    | Switzerland (2012)              | 12.35 | 57.45         | 0.97         |   | 78   | Myanmar                    | 5.34  | 23.72         | 0.37         | ● |
| 6    | Panama                          | 12.11 | 56.30         | 0.96         | ● | 79   | Korea, Rep. (2012)         | 5.32  | 23.64         | 0.37         | ○ |
| 7    | Botswana                        | 11.93 | 55.47         | 0.95         | ● | 80   | India                      | 5.31  | 23.57         | 0.36         |   |
| 8    | Dominican Republic              | 11.78 | 54.73         | 0.94         | ● | 81   | Finland (2012)             | 5.14  | 22.80         | 0.35         | ○ |
| 9    | Albania                         | 11.63 | 54.00         | 0.93         | ● | 82   | Pakistan                   | 5.05  | 22.35         | 0.34         |   |
| 10   | Malta                           | 11.24 | 52.11         | 0.93         | ● | 83   | United Arab Emirates       | 5.05  | 22.34         | 0.33         | ○ |
| 11   | Costa Rica                      | 10.91 | 50.52         | 0.92         | ● | 84   | Canada (2012)              | 4.97  | 21.96         | 0.33         | ○ |
| 12   | United Kingdom (2012)           | 10.75 | 49.79         | 0.91         |   | 85   | Brunei Darussalam          | 4.84  | 21.35         | 0.32         |   |
| 13   | Denmark (2012)                  | 10.60 | 49.08         | 0.90         |   | 86   | Indonesia                  | 4.75  | 20.88         | 0.31         |   |
| 14   | Uruguay                         | 10.12 | 46.75         | 0.89         | ● | 87   | Venezuela, Bolivarian Rep. | 4.69  | 20.64         | 0.30         |   |
| 15   | Italy (2012)                    | 10.11 | 46.70         | 0.89         | ● | 88   | Jordan                     | 4.61  | 20.23         | 0.29         |   |
| 16   | Portugal (2012)                 | 10.06 | 46.46         | 0.88         | ● | 89   | Bulgaria                   | 4.59  | 20.12         | 0.28         |   |
| 17   | Sri Lanka                       | 9.87  | 45.55         | 0.87         | ● | 90   | Thailand                   | 4.45  | 19.48         | 0.28         |   |
| 18   | Spain (2012)                    | 9.84  | 45.41         | 0.86         |   | 91   | Serbia                     | 4.41  | 19.26         | 0.27         |   |
| 19   | Austria (2012)                  | 9.32  | 42.89         | 0.85         |   | 92   | Estonia (2012)             | 4.38  | 19.14         | 0.26         | ○ |
| 20   | Tunisia                         | 9.28  | 42.68         | 0.85         | ● | 93   | Qatar                      | 4.38  | 19.13         | 0.25         |   |
| 21   | Germany (2012)                  | 9.26  | 42.60         | 0.84         |   | 94   | Viet Nam                   | 4.32  | 18.85         | 0.24         |   |
| 22   | Greece (2012)                   | 9.08  | 41.75         | 0.83         |   | 95   | Belarus                    | 4.24  | 18.43         | 0.24         |   |
| 23   | Israel (2012)                   | 8.95  | 41.13         | 0.82         |   | 96   | Kuwait                     | 4.15  | 18.03         | 0.23         |   |
| 24   | Japan (2012)                    | 8.88  | 40.78         | 0.81         |   | 97   | Bosnia and Herzegovina     | 4.02  | 17.40         | 0.22         |   |
| 25   | Cyprus                          | 8.86  | 40.67         | 0.80         |   | 98   | Ghana                      | 3.91  | 16.86         | 0.21         |   |
| 26   | Turkey (2012)                   | 8.79  | 40.33         | 0.80         | ● | 99   | Iran, Islamic Rep.         | 3.90  | 16.79         | 0.20         |   |
| 27   | Namibia                         | 8.76  | 40.18         | 0.79         | ● | 100  | Kyrgyzstan                 | 3.77  | 16.17         | 0.20         |   |
| 28   | Luxembourg (2012)               | 8.70  | 39.93         | 0.78         |   | 101  | China                      | 3.65  | 15.63         | 0.19         |   |
| 29   | El Salvador                     | 8.70  | 39.89         | 0.77         | ● | 102  | South Africa               | 3.46  | 14.71         | 0.18         | ○ |
| 30   | Ecuador                         | 8.67  | 39.78         | 0.76         | ● | 103  | Benin                      | 3.45  | 14.67         | 0.17         |   |
| 31   | Lebanon                         | 8.65  | 39.67         | 0.76         |   | 104  | Mongolia                   | 3.25  | 13.68         | 0.16         |   |
| 32   | Philippines                     | 8.53  | 39.10         | 0.75         | ● | 105  | Nepal                      | 3.24  | 13.65         | 0.15         |   |
| 33   | Chile (2012)                    | 8.51  | 39.00         | 0.74         |   | 106  | Saudi Arabia               | 3.22  | 13.53         | 0.15         | ○ |
| 34   | Croatia                         | 8.33  | 38.15         | 0.73         |   | 107  | Moldova, Rep.              | 3.18  | 13.34         | 0.14         | ○ |
| 35   | Morocco                         | 8.31  | 38.01         | 0.72         | ● | 108  | Kenya                      | 3.11  | 13.02         | 0.13         |   |
| 35   | Singapore                       | 8.31  | 38.01         | 0.72         |   | 109  | Nigeria                    | 3.07  | 12.82         | 0.12         |   |
| 37   | Norway (2012)                   | 8.01  | 36.57         | 0.71         |   | 110  | Tanzania, United Rep.      | 2.89  | 11.94         | 0.11         |   |
| 38   | Mexico (2012)                   | 7.92  | 36.18         | 0.70         |   | 111  | Bahrain                    | 2.88  | 11.92         | 0.11         | ○ |
| 39   | Argentina                       | 7.89  | 36.00         | 0.69         |   | 112  | Russian Federation         | 2.88  | 11.89         | 0.10         | ○ |
| 40   | Netherlands (2012)              | 7.84  | 35.79         | 0.68         |   | 113  | Oman                       | 2.85  | 11.76         | 0.09         | ○ |
| 41   | France (2012)                   | 7.78  | 35.49         | 0.67         |   | 114  | Côte d'Ivoire              | 2.84  | 11.69         | 0.08         | ○ |
| 42   | Angola                          | 7.55  | 34.39         | 0.67         | ● | 115  | Kazakhstan                 | 2.45  | 9.85          | 0.07         | ○ |
| 43   | Bangladesh                      | 7.55  | 34.36         | 0.66         | ● | 116  | Ethiopia                   | 2.44  | 9.77          | 0.07         |   |
| 44   | Brazil                          | 7.49  | 34.06         | 0.65         |   | 117  | Ukraine                    | 2.30  | 9.12          | 0.06         | ○ |
| 45   | Lithuania                       | 7.42  | 33.74         | 0.64         |   | 118  | Zambia                     | 2.28  | 9.01          | 0.05         | ○ |
| 46   | Poland (2012)                   | 7.30  | 33.20         | 0.63         |   | 119  | Togo                       | 2.06  | 7.97          | 0.04         | ○ |
| 47   | Hungary (2012)                  | 7.22  | 32.76         | 0.63         |   | 120  | Mozambique                 | 2.02  | 7.76          | 0.03         | ○ |
| 48   | Yemen                           | 7.06  | 32.00         | 0.62         | ● | 121  | Iceland (2012)             | 1.81  | 6.75          | 0.02         | ○ |
| 49   | Slovenia (2012)                 | 7.05  | 31.98         | 0.61         |   | 122  | Uzbekistan                 | 1.78  | 6.63          | 0.02         | ○ |
| 50   | Latvia                          | 7.00  | 31.72         | 0.60         |   | 123  | Trinidad and Tobago        | 1.43  | 4.90          | 0.01         | ○ |
| 51   | Slovakia (2012)                 | 6.91  | 31.30         | 0.59         |   | 124  | Zimbabwe                   | 0.41  | 0.00          | 0.00         | ○ |
| 52   | Sweden (2012)                   | 6.85  | 31.00         | 0.59         | ○ | n/a  | Barbados                   | n/a   | n/a           | n/a          |   |
| 53   | Paraguay                        | 6.57  | 29.66         | 0.58         | ● | n/a  | Bhutan                     | n/a   | n/a           | n/a          |   |
| 54   | Algeria                         | 6.57  | 29.66         | 0.57         | ● | n/a  | Burkina Faso               | n/a   | n/a           | n/a          |   |
| 55   | Romania                         | 6.51  | 29.37         | 0.56         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 56   | Nicaragua                       | 6.50  | 29.33         | 0.55         | ● | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 57   | Azerbaijan                      | 6.49  | 29.27         | 0.54         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 58   | Belgium (2012)                  | 6.35  | 28.62         | 0.54         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 59   | United States of America (2012) | 6.34  | 28.56         | 0.53         |   | n/a  | Guinea                     | n/a   | n/a           | n/a          |   |
| 60   | Guatemala                       | 6.32  | 28.44         | 0.52         |   | n/a  | Guyana                     | n/a   | n/a           | n/a          |   |
| 61   | Senegal                         | 6.31  | 28.40         | 0.51         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |   |
| 62   | TFYR of Macedonia               | 6.25  | 28.12         | 0.50         |   | n/a  | Madagascar                 | n/a   | n/a           | n/a          |   |
| 63   | Cameroon                        | 6.21  | 27.91         | 0.50         | ● | n/a  | Malawi                     | n/a   | n/a           | n/a          |   |
| 64   | Jamaica                         | 6.16  | 27.68         | 0.49         |   | n/a  | Mali                       | n/a   | n/a           | n/a          |   |
| 65   | New Zealand (2012)              | 6.13  | 27.57         | 0.48         | ○ | n/a  | Mauritius                  | n/a   | n/a           | n/a          |   |
| 66   | Australia (2012)                | 6.12  | 27.51         | 0.47         | ○ | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 67   | Georgia                         | 6.11  | 27.46         | 0.46         |   | n/a  | Rwanda                     | n/a   | n/a           | n/a          |   |
| 68   | Tajikistan                      | 5.98  | 26.81         | 0.46         |   | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 69   | Bolivia, Plurinational St.      | 5.90  | 26.42         | 0.44         |   | n/a  | Swaziland                  | n/a   | n/a           | n/a          |   |
| 69   | Egypt                           | 5.90  | 26.42         | 0.44         |   | n/a  | Uganda                     | n/a   | n/a           | n/a          |   |
| 71   | Honduras                        | 5.85  | 26.19         | 0.43         |   |      |                            |       |               |              |   |
| 72   | Armenia                         | 5.84  | 26.14         | 0.42         |   |      |                            |       |               |              |   |
| 73   | Czech Republic (2012)           | 5.83  | 26.12         | 0.41         |   |      |                            |       |               |              |   |

SOURCE: International Energy Agency, *World Energy Balances* online data service

NOTE: ● indicates a strength; ○ a weakness.

# 3.3.2 Environmental performance

## Environmental Performance Index | 2014

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Switzerland              | 87.67 | 87.67         | 1.00         | ● | 74   | Bahrain                    | 51.83 | 51.83         | 0.48         |   |
| 2    | Luxembourg               | 83.29 | 83.29         | 0.99         | ● | 75   | Iran, Islamic Rep.         | 51.08 | 51.08         | 0.47         |   |
| 3    | Australia                | 82.40 | 82.40         | 0.99         | ● | 76   | Kazakhstan                 | 51.07 | 51.07         | 0.46         |   |
| 4    | Singapore                | 81.78 | 81.78         | 0.98         |   | 77   | Colombia                   | 50.77 | 50.77         | 0.46         |   |
| 5    | Czech Republic           | 81.47 | 81.47         | 0.97         | ● | 78   | Romania                    | 50.52 | 50.52         | 0.45         |   |
| 6    | Germany                  | 80.47 | 80.47         | 0.96         | ● | 79   | Bolivia, Plurinational St. | 50.48 | 50.48         | 0.44         |   |
| 7    | Spain                    | 79.79 | 79.79         | 0.96         | ● | 80   | TFYR of Macedonia          | 50.41 | 50.41         | 0.44         |   |
| 8    | Austria                  | 78.32 | 78.32         | 0.95         | ● | 81   | Nicaragua                  | 50.32 | 50.32         | 0.43         |   |
| 9    | Sweden                   | 78.09 | 78.09         | 0.94         |   | 82   | Lebanon                    | 50.15 | 50.15         | 0.42         |   |
| 10   | Norway                   | 78.04 | 78.04         | 0.94         |   | 83   | Algeria                    | 50.08 | 50.08         | 0.41         | ● |
| 11   | Netherlands              | 77.75 | 77.75         | 0.93         |   | 84   | Argentina                  | 49.55 | 49.55         | 0.41         |   |
| 12   | United Kingdom           | 77.35 | 77.35         | 0.92         |   | 85   | Zimbabwe                   | 49.54 | 49.54         | 0.40         |   |
| 13   | Denmark                  | 76.92 | 76.92         | 0.91         |   | 86   | Ukraine                    | 49.01 | 49.01         | 0.39         |   |
| 14   | Iceland                  | 76.50 | 76.50         | 0.91         |   | 87   | Honduras                   | 48.87 | 48.87         | 0.39         |   |
| 15   | Slovenia                 | 76.43 | 76.43         | 0.90         |   | 88   | Guatemala                  | 48.06 | 48.06         | 0.38         |   |
| 16   | New Zealand              | 76.41 | 76.41         | 0.89         |   | 89   | Oman                       | 47.75 | 47.75         | 0.37         |   |
| 17   | Portugal                 | 75.80 | 75.80         | 0.89         | ● | 90   | Botswana                   | 47.60 | 47.60         | 0.36         |   |
| 18   | Finland                  | 75.72 | 75.72         | 0.88         |   | 91   | Georgia                    | 47.23 | 47.23         | 0.36         |   |
| 19   | Ireland                  | 74.67 | 74.67         | 0.87         |   | 92   | Bhutan                     | 46.86 | 46.86         | 0.35         |   |
| 20   | Estonia                  | 74.66 | 74.66         | 0.86         |   | 93   | Bosnia and Herzegovina     | 45.79 | 45.79         | 0.34         |   |
| 21   | Slovakia                 | 74.45 | 74.45         | 0.86         | ● | 94   | Barbados                   | 45.50 | 45.50         | 0.34         |   |
| 22   | Italy                    | 74.36 | 74.36         | 0.85         | ● | 95   | Peru                       | 45.05 | 45.05         | 0.33         |   |
| 23   | Greece                   | 73.28 | 73.28         | 0.84         | ● | 96   | Mongolia                   | 44.67 | 44.67         | 0.32         |   |
| 24   | Canada                   | 73.14 | 73.14         | 0.84         |   | 97   | Indonesia                  | 44.36 | 44.36         | 0.31         |   |
| 25   | United Arab Emirates     | 72.91 | 72.91         | 0.83         |   | 98   | Cabo Verde                 | 44.07 | 44.07         | 0.31         |   |
| 26   | Japan                    | 72.35 | 72.35         | 0.82         |   | 99   | Philippines                | 44.02 | 44.02         | 0.30         |   |
| 27   | France                   | 71.05 | 71.05         | 0.81         |   | 100  | El Salvador                | 43.79 | 43.79         | 0.29         |   |
| 28   | Hungary                  | 70.28 | 70.28         | 0.81         |   | 101  | Namibia                    | 43.71 | 43.71         | 0.29         |   |
| 29   | Chile                    | 69.93 | 69.93         | 0.80         |   | 102  | Uzbekistan                 | 43.23 | 43.23         | 0.28         |   |
| 30   | Poland                   | 69.53 | 69.53         | 0.79         |   | 103  | China                      | 43.00 | 43.00         | 0.27         |   |
| 31   | Serbia                   | 69.13 | 69.13         | 0.79         | ● | 104  | Zambia                     | 41.72 | 41.72         | 0.26         |   |
| 32   | Belarus                  | 67.69 | 67.69         | 0.78         |   | 105  | Senegal                    | 40.83 | 40.83         | 0.26         |   |
| 33   | United States of America | 67.52 | 67.52         | 0.77         |   | 106  | Kyrgyzstan                 | 40.63 | 40.63         | 0.25         |   |
| 34   | Malta                    | 67.42 | 67.42         | 0.76         |   | 107  | Burkina Faso               | 40.52 | 40.52         | 0.24         |   |
| 35   | Saudi Arabia             | 66.66 | 66.66         | 0.76         |   | 108  | Malawi                     | 40.06 | 40.06         | 0.24         |   |
| 36   | Belgium                  | 66.61 | 66.61         | 0.75         |   | 109  | Côte d'Ivoire              | 39.72 | 39.72         | 0.23         |   |
| 37   | Brunei Darussalam        | 66.49 | 66.49         | 0.74         |   | 110  | Ethiopia                   | 39.43 | 39.43         | 0.22         |   |
| 38   | Cyprus                   | 66.23 | 66.23         | 0.74         |   | 111  | Paraguay                   | 39.25 | 39.25         | 0.21         |   |
| 39   | Israel                   | 65.78 | 65.78         | 0.73         |   | 112  | Nigeria                    | 39.20 | 39.20         | 0.21         |   |
| 40   | Latvia                   | 64.05 | 64.05         | 0.72         |   | 113  | Uganda                     | 39.18 | 39.18         | 0.20         |   |
| 41   | Bulgaria                 | 64.01 | 64.01         | 0.71         |   | 114  | Viet Nam                   | 38.17 | 38.17         | 0.19         |   |
| 42   | Kuwait                   | 63.94 | 63.94         | 0.71         | ● | 115  | Guyana                     | 38.07 | 38.07         | 0.19         |   |
| 43   | Korea, Rep.              | 63.79 | 63.79         | 0.70         |   | 116  | Swaziland                  | 37.35 | 37.35         | 0.18         |   |
| 44   | Qatar                    | 63.03 | 63.03         | 0.69         |   | 117  | Nepal                      | 37.00 | 37.00         | 0.17         |   |
| 45   | Croatia                  | 62.23 | 62.23         | 0.69         |   | 118  | Kenya                      | 36.99 | 36.99         | 0.16         |   |
| 46   | Armenia                  | 61.67 | 61.67         | 0.68         |   | 119  | Cameroon                   | 36.68 | 36.68         | 0.16         |   |
| 47   | Lithuania                | 61.26 | 61.26         | 0.67         |   | 120  | Niger                      | 36.28 | 36.28         | 0.15         |   |
| 48   | Egypt                    | 61.11 | 61.11         | 0.66         |   | 121  | Tanzania, United Rep.      | 36.19 | 36.19         | 0.14         |   |
| 49   | Malaysia                 | 59.31 | 59.31         | 0.66         |   | 122  | Cambodia                   | 35.44 | 35.44         | 0.14         |   |
| 50   | Tunisia                  | 58.99 | 58.99         | 0.65         |   | 123  | Rwanda                     | 35.41 | 35.41         | 0.13         |   |
| 51   | Ecuador                  | 58.54 | 58.54         | 0.64         |   | 124  | Pakistan                   | 34.58 | 34.58         | 0.12         |   |
| 52   | Costa Rica               | 58.53 | 58.53         | 0.64         |   | 125  | Benin                      | 32.42 | 32.42         | 0.11         |   |
| 53   | Jamaica                  | 58.26 | 58.26         | 0.63         |   | 126  | Ghana                      | 32.07 | 32.07         | 0.11         |   |
| 54   | Mauritius                | 58.09 | 58.09         | 0.62         |   | 127  | Tajikistan                 | 31.34 | 31.34         | 0.10         |   |
| 55   | Panama                   | 56.84 | 56.84         | 0.61         |   | 128  | India                      | 31.23 | 31.23         | 0.09         | ○ |
| 56   | Jordan                   | 55.78 | 55.78         | 0.61         |   | 129  | Yemen                      | 30.16 | 30.16         | 0.09         |   |
| 57   | Seychelles               | 55.56 | 55.56         | 0.60         |   | 130  | Mozambique                 | 29.97 | 29.97         | 0.08         |   |
| 58   | Montenegro               | 55.52 | 55.52         | 0.59         |   | 131  | Gambia                     | 29.30 | 29.30         | 0.07         |   |
| 59   | Azerbaijan               | 55.47 | 55.47         | 0.59         |   | 132  | Angola                     | 28.69 | 28.69         | 0.06         |   |
| 60   | Mexico                   | 55.03 | 55.03         | 0.58         |   | 133  | Guinea                     | 28.03 | 28.03         | 0.06         |   |
| 61   | Turkey                   | 54.91 | 54.91         | 0.57         |   | 134  | Togo                       | 27.91 | 27.91         | 0.05         | ○ |
| 62   | Albania                  | 54.73 | 54.73         | 0.56         |   | 135  | Myanmar                    | 27.44 | 27.44         | 0.04         |   |
| 63   | Sri Lanka                | 53.88 | 53.88         | 0.56         |   | 136  | Madagascar                 | 26.70 | 26.70         | 0.04         | ○ |
| 64   | Uruguay                  | 53.61 | 53.61         | 0.55         |   | 137  | Burundi                    | 25.78 | 25.78         | 0.03         |   |
| 65   | South Africa             | 53.51 | 53.51         | 0.54         |   | 138  | Bangladesh                 | 25.61 | 25.61         | 0.02         | ○ |
| 66   | Russian Federation       | 53.45 | 53.45         | 0.54         |   | 139  | Sudan                      | 24.64 | 24.64         | 0.01         | ○ |
| 67   | Moldova, Rep.            | 53.36 | 53.36         | 0.53         |   | 140  | Lesotho                    | 20.81 | 20.81         | 0.01         | ○ |
| 68   | Dominican Republic       | 53.24 | 53.24         | 0.52         |   | 141  | Mali                       | 18.43 | 18.43         | 0.00         | ○ |
| 69   | Fiji                     | 53.08 | 53.08         | 0.51         |   | n/a  | Hong Kong (China)          | n/a   | n/a           | n/a          |   |
| 70   | Brazil                   | 52.97 | 52.97         | 0.51         |   | n/a  | Venezuela, Bolivarian Rep. | n/a   | n/a           | n/a          |   |
| 71   | Thailand                 | 52.83 | 52.83         | 0.50         |   |      |                            |       |               |              |   |
| 72   | Trinidad and Tobago      | 52.28 | 52.28         | 0.49         |   |      |                            |       |               |              |   |
| 73   | Morocco                  | 51.89 | 51.89         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: Yale University and Columbia University *Environmental Performance Index* 2014

NOTE: ● indicates a strength; ○ a weakness.

## 3.3.3

## ISO 14001 environmental certificates

ISO 14001 Environmental management systems—Requirements with guidance for use: Number of certificates issued (per billion PPP\$ GDP) | 2012

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Czech Republic             | 14.86 | 100.00        | 0.99         | ● | 74   | Kuwait                     | 0.66  | 4.40          | 0.43         |   |
| 1    | Romania                    | 31.80 | 100.00        | 0.99         | ● | 75   | Mauritius                  | 0.65  | 4.32          | 0.42         |   |
| 3    | Spain                      | 14.03 | 94.42         | 0.98         | ● | 76   | Iran, Islamic Rep.         | 0.61  | 4.06          | 0.41         |   |
| 4    | Bulgaria                   | 13.58 | 91.41         | 0.98         | ● | 77   | Mexico                     | 0.61  | 4.04          | 0.41         |   |
| 5    | Estonia                    | 13.54 | 91.14         | 0.97         | ● | 78   | Azerbaijan                 | 0.59  | 3.88          | 0.40         |   |
| 6    | Slovakia                   | 10.93 | 73.53         | 0.96         | ● | 79   | Moldova, Rep.              | 0.58  | 3.86          | 0.39         |   |
| 7    | Italy                      | 10.87 | 73.12         | 0.95         | ● | 80   | Mozambique                 | 0.58  | 3.83          | 0.38         |   |
| 8    | Lithuania                  | 10.57 | 71.13         | 0.95         | ● | 81   | Barbados                   | 0.57  | 3.81          | 0.38         |   |
| 9    | Serbia                     | 10.50 | 70.63         | 0.94         | ● | 82   | Zambia                     | 0.51  | 3.35          | 0.37         |   |
| 10   | Sweden                     | 10.09 | 67.86         | 0.93         |   | 83   | Ukraine                    | 0.50  | 3.31          | 0.36         |   |
| 11   | Croatia                    | 9.80  | 65.92         | 0.92         | ● | 84   | Cabo Verde                 | 0.46  | 3.06          | 0.35         |   |
| 12   | TFYR of Macedonia          | 9.43  | 63.46         | 0.91         | ● | 85   | Honduras                   | 0.45  | 2.98          | 0.34         |   |
| 13   | Hungary                    | 8.87  | 59.68         | 0.91         | ● | 86   | Russian Federation         | 0.44  | 2.89          | 0.34         |   |
| 14   | Denmark                    | 8.43  | 56.71         | 0.90         |   | 87   | Kenya                      | 0.43  | 2.81          | 0.33         |   |
| 15   | Switzerland                | 7.69  | 51.75         | 0.89         |   | 88   | Malawi                     | 0.43  | 2.80          | 0.32         |   |
| 16   | China                      | 7.47  | 50.24         | 0.88         |   | 89   | Algeria                    | 0.41  | 2.73          | 0.31         |   |
| 17   | Slovenia                   | 7.34  | 49.36         | 0.88         |   | 90   | Tanzania, United Rep.      | 0.41  | 2.70          | 0.30         |   |
| 18   | Korea, Rep.                | 7.19  | 48.32         | 0.87         |   | 91   | Jamaica                    | 0.41  | 2.67          | 0.30         |   |
| 19   | United Kingdom             | 6.87  | 46.18         | 0.86         |   | 92   | Côte d'Ivoire              | 0.38  | 2.47          | 0.29         |   |
| 20   | Finland                    | 6.75  | 45.38         | 0.85         |   | 93   | Namibia                    | 0.36  | 2.34          | 0.28         |   |
| 21   | Latvia                     | 6.43  | 43.22         | 0.84         |   | 94   | United States of America   | 0.35  | 2.30          | 0.27         | ○ |
| 22   | Japan                      | 6.07  | 40.81         | 0.84         |   | 95   | Dominican Republic         | 0.32  | 2.08          | 0.27         |   |
| 23   | Bosnia and Herzegovina     | 5.51  | 37.06         | 0.83         | ● | 96   | Botswana                   | 0.31  | 2.02          | 0.26         |   |
| 24   | Singapore                  | 5.12  | 34.40         | 0.82         |   | 97   | Niger                      | 0.31  | 2.01          | 0.25         |   |
| 25   | Portugal                   | 4.85  | 32.57         | 0.81         |   | 98   | El Salvador                | 0.30  | 1.98          | 0.24         |   |
| 26   | Thailand                   | 4.70  | 31.60         | 0.80         |   | 99   | Paraguay                   | 0.30  | 1.94          | 0.23         |   |
| 27   | Bahrain                    | 4.27  | 28.68         | 0.80         |   | 100  | Togo                       | 0.29  | 1.90          | 0.23         |   |
| 28   | Malaysia                   | 3.85  | 25.88         | 0.79         |   | 101  | Panama                     | 0.28  | 1.85          | 0.22         |   |
| 29   | France                     | 3.56  | 23.93         | 0.78         |   | 102  | Cambodia                   | 0.27  | 1.78          | 0.21         |   |
| 30   | United Arab Emirates       | 3.45  | 23.15         | 0.77         |   | 103  | Morocco                    | 0.27  | 1.73          | 0.20         |   |
| 31   | Chile                      | 3.41  | 22.88         | 0.77         |   | 104  | Senegal                    | 0.27  | 1.73          | 0.20         |   |
| 32   | Austria                    | 3.06  | 20.51         | 0.76         |   | 105  | Guinea                     | 0.25  | 1.62          | 0.19         |   |
| 33   | Norway                     | 3.01  | 20.18         | 0.75         |   | 106  | Lebanon                    | 0.24  | 1.55          | 0.18         | ○ |
| 34   | Netherlands                | 3.00  | 20.12         | 0.74         |   | 107  | Venezuela, Bolivarian Rep. | 0.23  | 1.51          | 0.17         |   |
| 35   | Hong Kong (China)          | 2.90  | 19.46         | 0.73         |   | 108  | Nicaragua                  | 0.23  | 1.47          | 0.16         |   |
| 36   | Colombia                   | 2.90  | 19.45         | 0.73         |   | 109  | Cameroon                   | 0.22  | 1.41          | 0.16         |   |
| 37   | Israel                     | 2.72  | 18.24         | 0.72         |   | 110  | Saudi Arabia               | 0.21  | 1.35          | 0.15         | ○ |
| 38   | Poland                     | 2.54  | 17.05         | 0.71         |   | 111  | Armenia                    | 0.21  | 1.32          | 0.14         | ○ |
| 39   | Belgium                    | 2.47  | 16.56         | 0.70         |   | 112  | Ghana                      | 0.21  | 1.32          | 0.13         |   |
| 40   | Greece                     | 2.40  | 16.09         | 0.70         |   | 113  | Belarus                    | 0.20  | 1.28          | 0.13         | ○ |
| 41   | Viet Nam                   | 2.31  | 15.46         | 0.69         |   | 114  | Guatemala                  | 0.19  | 1.24          | 0.12         |   |
| 42   | Iceland                    | 2.28  | 15.32         | 0.68         |   | 115  | Guyana                     | 0.16  | 1.03          | 0.11         |   |
| 43   | Ireland                    | 2.23  | 14.98         | 0.67         |   | 116  | Uganda                     | 0.16  | 1.00          | 0.10         | ○ |
| 44   | Germany                    | 2.22  | 14.89         | 0.66         |   | 117  | Georgia                    | 0.15  | 0.96          | 0.09         | ○ |
| 45   | Montenegro                 | 2.22  | 14.86         | 0.66         |   | 118  | Rwanda                     | 0.13  | 0.83          | 0.09         | ○ |
| 46   | Uruguay                    | 2.18  | 14.63         | 0.65         |   | 119  | Mongolia                   | 0.13  | 0.83          | 0.08         | ○ |
| 47   | Australia                  | 2.08  | 13.95         | 0.64         |   | 120  | Benin                      | 0.13  | 0.80          | 0.07         |   |
| 48   | Malta                      | 2.06  | 13.78         | 0.63         |   | 121  | Burkina Faso               | 0.12  | 0.76          | 0.06         | ○ |
| 49   | Argentina                  | 1.72  | 11.55         | 0.63         |   | 122  | Nigeria                    | 0.10  | 0.60          | 0.05         | ○ |
| 50   | New Zealand                | 1.67  | 11.15         | 0.62         |   | 123  | Madagascar                 | 0.09  | 0.57          | 0.05         | ○ |
| 51   | South Africa               | 1.63  | 10.90         | 0.61         |   | 124  | Mali                       | 0.06  | 0.32          | 0.04         |   |
| 52   | Turkey                     | 1.47  | 9.80          | 0.60         |   | 125  | Myanmar                    | 0.05  | 0.27          | 0.03         |   |
| 53   | Brazil                     | 1.42  | 9.47          | 0.59         |   | 126  | Sudan                      | 0.05  | 0.25          | 0.02         | ○ |
| 54   | Zimbabwe                   | 1.40  | 9.33          | 0.59         | ● | 127  | Angola                     | 0.03  | 0.16          | 0.02         | ○ |
| 55   | Costa Rica                 | 1.38  | 9.25          | 0.58         |   | 128  | Yemen (2010)               | 0.02  | 0.05          | 0.01         | ○ |
| 56   | Cyprus                     | 1.37  | 9.16          | 0.57         |   | 129  | Ethiopia                   | 0.01  | 0.00          | 0.00         | ○ |
| 57   | Philippines                | 1.34  | 8.96          | 0.56         |   | n/a  | Bangladesh                 | n/a   | n/a           | n/a          |   |
| 58   | Luxembourg                 | 1.22  | 8.14          | 0.55         |   | n/a  | Bhutan                     | n/a   | n/a           | n/a          |   |
| 59   | Canada                     | 1.21  | 8.06          | 0.55         | ○ | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 60   | Swaziland                  | 1.13  | 7.57          | 0.54         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 61   | Egypt                      | 1.11  | 7.41          | 0.53         |   | n/a  | India                      | n/a   | n/a           | n/a          |   |
| 62   | Brunei Darussalam          | 1.11  | 7.41          | 0.52         |   | n/a  | Kazakhstan                 | n/a   | n/a           | n/a          |   |
| 63   | Jordan                     | 1.10  | 7.33          | 0.52         |   | n/a  | Kyrgyzstan                 | n/a   | n/a           | n/a          |   |
| 64   | Ecuador                    | 1.01  | 6.74          | 0.51         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |   |
| 65   | Peru                       | 0.91  | 6.09          | 0.50         |   | n/a  | Nepal                      | n/a   | n/a           | n/a          |   |
| 66   | Indonesia                  | 0.86  | 5.73          | 0.49         |   | n/a  | Pakistan                   | n/a   | n/a           | n/a          |   |
| 67   | Qatar                      | 0.83  | 5.53          | 0.48         |   | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 68   | Bolivia, Plurinational St. | 0.81  | 5.36          | 0.48         |   | n/a  | Sri Lanka                  | n/a   | n/a           | n/a          |   |
| 69   | Tunisia                    | 0.77  | 5.12          | 0.47         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 70   | Albania                    | 0.73  | 4.87          | 0.46         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 71   | Oman                       | 0.73  | 4.85          | 0.45         |   |      |                            |       |               |              |   |
| 72   | Fiji                       | 0.70  | 4.68          | 0.45         |   |      |                            |       |               |              |   |
| 73   | Trinidad and Tobago        | 0.68  | 4.54          | 0.44         |   |      |                            |       |               |              |   |

SOURCE: International Organization for Standardization, *The ISO Survey of Certifications, 2012*; International Monetary Fund *World Economic Outlook 2013* (2010–12)

NOTE: ● indicates a strength; ○ a weakness.

# 4.1.1

## Ease of getting credit Ease of getting credit (distance to frontier) | 2013

| Rank | Country/Economy          | Value  | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|--------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Malaysia                 | 100.00 | 100.00        | 0.99         | ● | 69   | Colombia                   | 62.50 | 62.50         | 0.44         |   |
| 1    | United Kingdom           | 100.00 | 100.00        | 0.99         | ● | 69   | Netherlands                | 62.50 | 62.50         | 0.44         | ○ |
| 3    | Australia                | 93.75  | 93.75         | 0.92         |   | 69   | Norway                     | 62.50 | 62.50         | 0.44         | ○ |
| 3    | Georgia                  | 93.75  | 93.75         | 0.92         | ● | 69   | Pakistan                   | 62.50 | 62.50         | 0.44         |   |
| 3    | Hong Kong (China)        | 93.75  | 93.75         | 0.92         |   | 69   | Sri Lanka                  | 62.50 | 62.50         | 0.44         |   |
| 3    | Latvia                   | 93.75  | 93.75         | 0.92         | ● | 69   | Thailand                   | 62.50 | 62.50         | 0.44         |   |
| 3    | Montenegro               | 93.75  | 93.75         | 0.92         | ● | 69   | Uruguay                    | 62.50 | 62.50         | 0.44         |   |
| 3    | New Zealand              | 93.75  | 93.75         | 0.92         |   | 81   | Bangladesh                 | 56.25 | 56.25         | 0.34         |   |
| 3    | Poland                   | 93.75  | 93.75         | 0.92         | ● | 81   | Barbados                   | 56.25 | 56.25         | 0.34         |   |
| 3    | Singapore                | 93.75  | 93.75         | 0.92         | ● | 81   | Costa Rica                 | 56.25 | 56.25         | 0.34         |   |
| 3    | TFYR of Macedonia        | 93.75  | 93.75         | 0.92         | ● | 81   | Dominican Republic         | 56.25 | 56.25         | 0.34         |   |
| 3    | United States of America | 93.75  | 93.75         | 0.92         |   | 81   | Ecuador                    | 56.25 | 56.25         | 0.34         |   |
| 13   | Albania                  | 87.50  | 87.50         | 0.82         | ● | 81   | Egypt                      | 56.25 | 56.25         | 0.34         |   |
| 13   | Guatemala                | 87.50  | 87.50         | 0.82         | ● | 81   | Greece                     | 56.25 | 56.25         | 0.34         |   |
| 13   | Honduras                 | 87.50  | 87.50         | 0.82         | ● | 81   | Indonesia                  | 56.25 | 56.25         | 0.34         |   |
| 13   | Ireland                  | 87.50  | 87.50         | 0.82         |   | 81   | Iran, Islamic Rep.         | 56.25 | 56.25         | 0.34         |   |
| 13   | Israel                   | 87.50  | 87.50         | 0.82         |   | 81   | Kazakhstan                 | 56.25 | 56.25         | 0.34         |   |
| 13   | Kenya                    | 87.50  | 87.50         | 0.82         | ● | 81   | Oman                       | 56.25 | 56.25         | 0.34         |   |
| 13   | Korea, Rep.              | 87.50  | 87.50         | 0.82         |   | 81   | Paraguay                   | 56.25 | 56.25         | 0.34         |   |
| 13   | Kyrgyzstan               | 87.50  | 87.50         | 0.82         | ● | 81   | Philippines                | 56.25 | 56.25         | 0.34         |   |
| 13   | Moldova, Rep.            | 87.50  | 87.50         | 0.82         |   | 81   | Turkey                     | 56.25 | 56.25         | 0.34         |   |
| 13   | Nigeria                  | 87.50  | 87.50         | 0.82         | ● | 81   | United Arab Emirates       | 56.25 | 56.25         | 0.34         |   |
| 13   | Romania                  | 87.50  | 87.50         | 0.82         | ● | 96   | Belarus                    | 50.00 | 50.00         | 0.23         |   |
| 13   | Rwanda                   | 87.50  | 87.50         | 0.82         | ● | 96   | Bhutan                     | 50.00 | 50.00         | 0.23         |   |
| 13   | Ukraine                  | 87.50  | 87.50         | 0.82         | ● | 96   | Brazil                     | 50.00 | 50.00         | 0.23         |   |
| 13   | Zambia                   | 87.50  | 87.50         | 0.82         | ● | 96   | Cabo Verde                 | 50.00 | 50.00         | 0.23         |   |
| 27   | Austria                  | 81.25  | 81.25         | 0.73         |   | 96   | Cameroon                   | 50.00 | 50.00         | 0.23         |   |
| 27   | Bulgaria                 | 81.25  | 81.25         | 0.73         |   | 96   | Ethiopia                   | 50.00 | 50.00         | 0.23         |   |
| 27   | Canada                   | 81.25  | 81.25         | 0.73         |   | 96   | Italy                      | 50.00 | 50.00         | 0.23         | ○ |
| 27   | Denmark                  | 81.25  | 81.25         | 0.73         |   | 96   | Jamaica                    | 50.00 | 50.00         | 0.23         |   |
| 27   | Germany                  | 81.25  | 81.25         | 0.73         |   | 96   | Lebanon                    | 50.00 | 50.00         | 0.23         |   |
| 27   | Ghana                    | 81.25  | 81.25         | 0.73         | ● | 96   | Morocco                    | 50.00 | 50.00         | 0.23         |   |
| 27   | India                    | 81.25  | 81.25         | 0.73         |   | 96   | Nicaragua                  | 50.00 | 50.00         | 0.23         |   |
| 27   | Japan                    | 81.25  | 81.25         | 0.73         |   | 96   | Portugal                   | 50.00 | 50.00         | 0.23         | ○ |
| 27   | Lithuania                | 81.25  | 81.25         | 0.73         |   | 96   | Russian Federation         | 50.00 | 50.00         | 0.23         | ○ |
| 27   | Peru                     | 81.25  | 81.25         | 0.73         | ● | 96   | Slovenia                   | 50.00 | 50.00         | 0.23         | ○ |
| 27   | South Africa             | 81.25  | 81.25         | 0.73         |   | 96   | Tunisia                    | 50.00 | 50.00         | 0.23         |   |
| 27   | Switzerland              | 81.25  | 81.25         | 0.73         |   | 96   | Zimbabwe                   | 50.00 | 50.00         | 0.23         |   |
| 27   | Trinidad and Tobago      | 81.25  | 81.25         | 0.73         | ● | 112  | Algeria                    | 43.75 | 43.75         | 0.10         |   |
| 40   | Armenia                  | 75.00  | 75.00         | 0.64         |   | 112  | Angola                     | 43.75 | 43.75         | 0.10         |   |
| 40   | Cambodia                 | 75.00  | 75.00         | 0.64         | ● | 112  | Bahrain                    | 43.75 | 43.75         | 0.10         | ○ |
| 40   | Croatia                  | 75.00  | 75.00         | 0.64         |   | 112  | Benin                      | 43.75 | 43.75         | 0.10         |   |
| 40   | Estonia                  | 75.00  | 75.00         | 0.64         |   | 112  | Bolivia, Plurinational St. | 43.75 | 43.75         | 0.10         | ○ |
| 40   | Finland                  | 75.00  | 75.00         | 0.64         |   | 112  | Burkina Faso               | 43.75 | 43.75         | 0.10         |   |
| 40   | Iceland                  | 75.00  | 75.00         | 0.64         |   | 112  | Côte d'Ivoire              | 43.75 | 43.75         | 0.10         |   |
| 40   | Mauritius                | 75.00  | 75.00         | 0.64         |   | 112  | Kuwait                     | 43.75 | 43.75         | 0.10         | ○ |
| 40   | Mexico                   | 75.00  | 75.00         | 0.64         |   | 112  | Malawi                     | 43.75 | 43.75         | 0.10         |   |
| 40   | Serbia                   | 75.00  | 75.00         | 0.64         |   | 112  | Mali                       | 43.75 | 43.75         | 0.10         |   |
| 40   | Slovakia                 | 75.00  | 75.00         | 0.64         |   | 112  | Mozambique                 | 43.75 | 43.75         | 0.10         |   |
| 40   | Sweden                   | 75.00  | 75.00         | 0.64         |   | 112  | Niger                      | 43.75 | 43.75         | 0.10         |   |
| 40   | Uganda                   | 75.00  | 75.00         | 0.64         | ● | 112  | Qatar                      | 43.75 | 43.75         | 0.10         | ○ |
| 40   | Viet Nam                 | 75.00  | 75.00         | 0.64         |   | 112  | Senegal                    | 43.75 | 43.75         | 0.10         | ○ |
| 53   | Azerbaijan               | 68.75  | 68.75         | 0.53         |   | 112  | Tanzania, United Rep.      | 43.75 | 43.75         | 0.10         |   |
| 53   | Brunei Darussalam        | 68.75  | 68.75         | 0.53         |   | 112  | Togo                       | 43.75 | 43.75         | 0.10         |   |
| 53   | Chile                    | 68.75  | 68.75         | 0.53         |   | 112  | Uzbekistan                 | 43.75 | 43.75         | 0.10         |   |
| 53   | Cyprus                   | 68.75  | 68.75         | 0.53         |   | 112  | Venezuela, Bolivarian Rep. | 43.75 | 43.75         | 0.10         |   |
| 53   | Czech Republic           | 68.75  | 68.75         | 0.53         |   | 130  | Guinea                     | 37.50 | 37.50         | 0.08         |   |
| 53   | El Salvador              | 68.75  | 68.75         | 0.53         |   | 130  | Lesotho                    | 37.50 | 37.50         | 0.08         | ○ |
| 53   | Fiji                     | 68.75  | 68.75         | 0.53         |   | 130  | Tajikistan                 | 37.50 | 37.50         | 0.08         |   |
| 53   | France                   | 68.75  | 68.75         | 0.53         |   | 133  | Gambia                     | 31.25 | 31.25         | 0.07         | ○ |
| 53   | Hungary                  | 68.75  | 68.75         | 0.53         |   | 134  | Burundi                    | 25.00 | 25.00         | 0.01         | ○ |
| 53   | Mongolia                 | 68.75  | 68.75         | 0.53         |   | 134  | Guyana                     | 25.00 | 25.00         | 0.01         | ○ |
| 53   | Namibia                  | 68.75  | 68.75         | 0.53         |   | 134  | Jordan                     | 25.00 | 25.00         | 0.01         | ○ |
| 53   | Nepal                    | 68.75  | 68.75         | 0.53         | ● | 134  | Luxembourg                 | 25.00 | 25.00         | 0.01         | ○ |
| 53   | Panama                   | 68.75  | 68.75         | 0.53         |   | 134  | Myanmar                    | 25.00 | 25.00         | 0.01         | ○ |
| 53   | Saudi Arabia             | 68.75  | 68.75         | 0.53         |   | 134  | Seychelles                 | 25.00 | 25.00         | 0.01         | ○ |
| 53   | Spain                    | 68.75  | 68.75         | 0.53         |   | 134  | Sudan                      | 25.00 | 25.00         | 0.01         | ○ |
| 53   | Swaziland                | 68.75  | 68.75         | 0.53         |   | 134  | Yemen                      | 25.00 | 25.00         | 0.01         | ○ |
| 69   | Argentina                | 62.50  | 62.50         | 0.44         |   | 142  | Madagascar                 | 18.75 | 18.75         | 0.00         | ○ |
| 69   | Belgium                  | 62.50  | 62.50         | 0.44         | ○ | 142  | Malta                      | 18.75 | 18.75         | 0.00         | ○ |
| 69   | Bosnia and Herzegovina   | 62.50  | 62.50         | 0.44         |   |      |                            |       |               |              |   |
| 69   | Botswana                 | 62.50  | 62.50         | 0.44         |   |      |                            |       |               |              |   |
| 69   | China                    | 62.50  | 62.50         | 0.44         |   |      |                            |       |               |              |   |

SOURCE: World Bank, Ease of Doing Business Index 2014, *Doing Business 2014*

NOTE: ● indicates a strength; ○ a weakness.



# 4.1.2 Domestic credit to private sector

## Domestic credit to private sector (% of GDP) | 2012

| Rank | Country/Economy          | Value  | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|--------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Cyprus                   | 302.25 | 100.00        | 1.00         | ● | 74   | Slovakia (2008)            | 44.99 | 13.57         | 0.48         |   |
| 2    | Denmark                  | 205.79 | 67.60         | 0.99         | ● | 75   | Romania                    | 44.97 | 13.56         | 0.48         |   |
| 3    | Netherlands              | 200.24 | 65.73         | 0.99         | ● | 76   | Zimbabwe (2006)            | 44.48 | 13.40         | 0.47         |   |
| 4    | Hong Kong (China)        | 198.07 | 65.00         | 0.98         |   | 77   | Bolivia, Plurinational St. | 44.22 | 13.31         | 0.46         |   |
| 5    | United States of America | 192.42 | 63.10         | 0.97         |   | 78   | Armenia                    | 42.93 | 12.88         | 0.45         |   |
| 6    | Spain                    | 188.83 | 61.89         | 0.96         | ● | 79   | Paraguay                   | 41.32 | 12.34         | 0.45         |   |
| 7    | Ireland                  | 186.12 | 60.99         | 0.96         | ● | 80   | Oman                       | 41.20 | 12.30         | 0.44         |   |
| 8    | Portugal                 | 184.16 | 60.33         | 0.95         | ● | 81   | Guyana                     | 41.00 | 12.23         | 0.43         |   |
| 9    | United Kingdom           | 178.72 | 58.50         | 0.94         |   | 82   | El Salvador                | 40.12 | 11.93         | 0.43         |   |
| 10   | Japan                    | 176.72 | 57.83         | 0.94         |   | 83   | Cambodia                   | 38.72 | 11.46         | 0.42         |   |
| 11   | Switzerland              | 176.14 | 57.63         | 0.93         |   | 84   | Albania                    | 38.35 | 11.34         | 0.41         |   |
| 12   | Luxembourg               | 165.38 | 54.02         | 0.92         |   | 85   | Moldova, Rep.              | 38.06 | 11.24         | 0.40         |   |
| 13   | South Africa             | 151.07 | 49.21         | 0.91         | ● | 86   | Saudi Arabia               | 37.61 | 11.09         | 0.40         |   |
| 14   | New Zealand (2010)       | 149.03 | 48.53         | 0.91         |   | 87   | Kazakhstan                 | 37.24 | 10.97         | 0.39         |   |
| 15   | Korea, Rep.              | 147.97 | 48.17         | 0.90         |   | 88   | Kenya                      | 36.59 | 10.75         | 0.38         |   |
| 16   | Thailand                 | 147.61 | 48.05         | 0.89         | ● | 89   | Qatar                      | 36.05 | 10.57         | 0.38         |   |
| 17   | Sweden                   | 138.47 | 44.98         | 0.89         |   | 90   | Indonesia                  | 34.90 | 10.18         | 0.37         |   |
| 18   | China                    | 131.60 | 42.67         | 0.88         |   | 91   | Georgia                    | 34.47 | 10.04         | 0.36         |   |
| 19   | Canada (2008)            | 128.25 | 41.54         | 0.87         |   | 92   | Philippines                | 33.40 | 9.68          | 0.35         |   |
| 20   | Malta                    | 127.90 | 41.42         | 0.87         |   | 93   | Botswana                   | 31.96 | 9.19          | 0.35         |   |
| 21   | Italy                    | 124.49 | 40.28         | 0.86         | ● | 94   | Guatemala                  | 31.76 | 9.13          | 0.34         |   |
| 22   | Australia                | 123.32 | 39.89         | 0.85         |   | 95   | Brunei Darussalam          | 31.45 | 9.02          | 0.33         |   |
| 23   | Greece                   | 120.71 | 39.01         | 0.84         | ● | 96   | Sri Lanka                  | 31.07 | 8.89          | 0.33         |   |
| 24   | Singapore                | 120.57 | 38.96         | 0.84         |   | 97   | Togo                       | 30.91 | 8.84          | 0.32         |   |
| 25   | Malaysia                 | 118.23 | 38.18         | 0.83         |   | 98   | Trinidad and Tobago        | 30.65 | 8.75          | 0.31         |   |
| 26   | Austria                  | 116.98 | 37.76         | 0.82         |   | 99   | Egypt                      | 29.74 | 8.45          | 0.30         |   |
| 27   | France                   | 115.96 | 37.41         | 0.82         |   | 100  | Senegal                    | 29.61 | 8.40          | 0.30         |   |
| 28   | Viet Nam                 | 104.30 | 33.50         | 0.81         | ● | 101  | Jamaica                    | 28.85 | 8.15          | 0.29         |   |
| 29   | Germany                  | 101.94 | 32.70         | 0.80         |   | 102  | Ecuador (2011)             | 28.31 | 7.96          | 0.28         |   |
| 30   | Mauritius                | 100.72 | 32.29         | 0.79         |   | 103  | Mexico                     | 27.69 | 7.76          | 0.28         |   |
| 31   | Finland                  | 98.24  | 31.46         | 0.79         |   | 104  | Peru                       | 27.28 | 7.62          | 0.27         |   |
| 32   | Iceland                  | 96.78  | 30.97         | 0.78         |   | 105  | Nicaragua                  | 26.91 | 7.49          | 0.26         |   |
| 33   | Lebanon                  | 92.20  | 29.43         | 0.77         | ● | 106  | Seychelles                 | 25.32 | 6.96          | 0.26         |   |
| 34   | Belgium                  | 92.17  | 29.42         | 0.77         |   | 107  | Mozambique                 | 25.28 | 6.95          | 0.25         |   |
| 35   | Panama                   | 89.61  | 28.56         | 0.76         |   | 108  | Venezuela, Bolivarian Rep. | 25.26 | 6.94          | 0.24         |   |
| 36   | Israel (2011)            | 89.46  | 28.51         | 0.75         |   | 109  | Swaziland                  | 25.04 | 6.87          | 0.23         |   |
| 37   | Slovenia                 | 87.42  | 27.82         | 0.74         |   | 110  | Uruguay                    | 24.09 | 6.55          | 0.23         |   |
| 38   | Norway (2006)            | 86.19  | 27.41         | 0.74         |   | 111  | Benin                      | 23.96 | 6.50          | 0.22         |   |
| 39   | Barbados (2009)          | 80.57  | 25.52         | 0.73         |   | 112  | Angola                     | 23.52 | 6.36          | 0.21         |   |
| 40   | Estonia                  | 79.26  | 25.08         | 0.72         |   | 113  | Dominican Republic         | 23.14 | 6.23          | 0.21         |   |
| 41   | Fiji                     | 78.41  | 24.80         | 0.72         | ● | 114  | Belarus                    | 22.61 | 6.05          | 0.20         |   |
| 42   | Tunisia                  | 75.18  | 23.71         | 0.71         | ● | 115  | Burkina Faso               | 22.14 | 5.89          | 0.19         |   |
| 43   | Morocco                  | 73.34  | 23.10         | 0.70         | ● | 116  | Mali                       | 20.89 | 5.47          | 0.18         |   |
| 44   | Chile                    | 73.28  | 23.07         | 0.70         |   | 117  | Nigeria                    | 20.84 | 5.46          | 0.18         |   |
| 45   | Jordan                   | 72.36  | 22.77         | 0.69         |   | 118  | Malawi                     | 20.61 | 5.38          | 0.17         |   |
| 46   | Bulgaria                 | 71.87  | 22.60         | 0.68         |   | 119  | Azerbaijan                 | 20.09 | 5.20          | 0.16         |   |
| 47   | Bahrain                  | 70.03  | 21.98         | 0.67         |   | 120  | Burundi                    | 19.47 | 5.00          | 0.16         |   |
| 48   | Brazil                   | 68.37  | 21.43         | 0.67         |   | 121  | Lesotho                    | 18.80 | 4.77          | 0.15         |   |
| 49   | Croatia                  | 67.99  | 21.30         | 0.66         |   | 122  | Argentina                  | 18.54 | 4.68          | 0.14         | ○ |
| 50   | Latvia                   | 67.75  | 21.21         | 0.65         |   | 123  | Côte d'Ivoire              | 18.29 | 4.60          | 0.13         |   |
| 51   | Bosnia and Herzegovina   | 62.34  | 19.40         | 0.65         |   | 124  | Tanzania, United Rep.      | 17.86 | 4.45          | 0.13         |   |
| 52   | Ukraine                  | 62.04  | 19.30         | 0.64         |   | 125  | Ethiopia (2008)            | 17.85 | 4.45          | 0.12         |   |
| 53   | Kuwait (2011)            | 61.71  | 19.19         | 0.63         |   | 126  | Pakistan                   | 16.44 | 3.98          | 0.11         |   |
| 54   | Cabo Verde               | 59.39  | 18.41         | 0.62         | ● | 127  | Uganda                     | 16.32 | 3.94          | 0.11         |   |
| 55   | United Arab Emirates     | 59.07  | 18.30         | 0.62         |   | 128  | Ghana                      | 16.12 | 3.87          | 0.10         |   |
| 56   | Czech Republic           | 56.91  | 17.57         | 0.61         |   | 129  | Gambia                     | 15.55 | 3.68          | 0.09         |   |
| 57   | Hungary                  | 56.36  | 17.39         | 0.60         |   | 130  | Kyrgyzstan (2007)          | 15.05 | 3.51          | 0.09         |   |
| 58   | Nepal                    | 55.06  | 16.95         | 0.60         | ● | 131  | Cameroon                   | 14.98 | 3.49          | 0.08         | ○ |
| 59   | Turkey                   | 54.40  | 16.73         | 0.59         |   | 132  | Niger                      | 14.91 | 3.46          | 0.07         |   |
| 60   | Serbia                   | 53.91  | 16.57         | 0.58         |   | 133  | Zambia                     | 14.76 | 3.41          | 0.06         | ○ |
| 61   | Poland                   | 53.78  | 16.52         | 0.57         |   | 134  | Algeria                    | 14.29 | 3.26          | 0.06         |   |
| 62   | Montenegro               | 52.70  | 16.16         | 0.57         |   | 135  | Tajikistan                 | 12.96 | 2.81          | 0.05         | ○ |
| 63   | Mongolia                 | 52.32  | 16.03         | 0.56         |   | 136  | Iran, Islamic Rep. (2011)  | 12.85 | 2.77          | 0.04         | ○ |
| 64   | Honduras                 | 51.85  | 15.87         | 0.55         | ● | 137  | Sudan                      | 12.84 | 2.77          | 0.04         |   |
| 65   | India                    | 51.49  | 15.75         | 0.55         |   | 138  | Rwanda (2005)              | 11.21 | 2.22          | 0.03         | ○ |
| 66   | Lithuania                | 51.30  | 15.69         | 0.54         |   | 139  | Madagascar                 | 10.95 | 2.13          | 0.02         | ○ |
| 67   | Bangladesh               | 49.60  | 15.12         | 0.53         |   | 140  | Guinea (2011)              | 9.13  | 1.52          | 0.01         | ○ |
| 68   | Costa Rica               | 49.10  | 14.95         | 0.52         |   | 141  | Myanmar (2004)             | 4.74  | 0.05          | 0.01         |   |
| 69   | Colombia                 | 48.91  | 14.89         | 0.52         |   | 142  | Yemen                      | 4.60  | 0.00          | 0.00         | ○ |
| 70   | Russian Federation       | 48.53  | 14.76         | 0.51         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 71   | Namibia                  | 48.42  | 14.72         | 0.50         |   |      |                            |       |               |              |   |
| 72   | TFYR of Macedonia        | 47.55  | 14.43         | 0.50         |   |      |                            |       |               |              |   |
| 73   | Bhutan                   | 47.45  | 14.40         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: International Monetary Fund (with World Bank and OECD GDP estimates), extracted from World Bank *World Development Indicators* database

NOTE: ● indicates a strength; ○ a weakness.

# 4.1.3

## Microfinance institutions' gross loan portfolio

Microfinance institutions: Gross loan portfolio (% of GDP) | 2012

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank | Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |
|------|----------------------------|-------|---------------|--------------|------|-----------------------------------|-------|---------------|--------------|
| 1    | Bolivia, Plurinational St. | 13.73 | 100.00        | 0.96         | 74   | Brazil                            | 0.07  | 0.93          | 0.19         |
| 1    | Cambodia                   | 15.31 | 100.00        | 0.96         | 75   | Mali                              | 0.06  | 0.79          | 0.18         |
| 1    | Gambia                     | 14.31 | 100.00        | 0.96         | 76   | Poland                            | 0.05  | 0.66          | 0.17         |
| 1    | Mongolia                   | 17.27 | 100.00        | 0.96         | 77   | Egypt                             | 0.05  | 0.61          | 0.16         |
| 1    | Tajikistan                 | 7.98  | 100.00        | 0.96         | 78   | Venezuela, Bolivarian Rep. (2011) | 0.05  | 0.60          | 0.14         |
| 6    | Bhutan                     | 6.25  | 78.30         | 0.94         | 79   | Bulgaria                          | 0.03  | 0.35          | 0.13         |
| 7    | Kyrgyzstan                 | 5.94  | 74.34         | 0.93         | 80   | Zambia                            | 0.02  | 0.27          | 0.12         |
| 8    | Togo                       | 5.75  | 72.00         | 0.92         | 81   | Namibia (2011)                    | 0.02  | 0.27          | 0.11         |
| 9    | Peru                       | 5.00  | 62.64         | 0.91         | 82   | Fiji                              | 0.02  | 0.20          | 0.10         |
| 10   | Paraguay                   | 4.87  | 61.03         | 0.90         | 83   | Uruguay (2011)                    | 0.02  | 0.19          | 0.09         |
| 11   | Georgia                    | 4.72  | 59.18         | 0.89         | 84   | Russian Federation                | 0.02  | 0.19          | 0.08         |
| 12   | Kenya                      | 4.56  | 57.07         | 0.88         | 85   | Angola (2011)                     | 0.01  | 0.15          | 0.07         |
| 13   | Armenia                    | 4.04  | 50.63         | 0.87         | 86   | Yemen                             | 0.01  | 0.15          | 0.06         |
| 14   | Viet Nam                   | 3.78  | 47.36         | 0.86         | 87   | Argentina                         | 0.01  | 0.12          | 0.04         |
| 15   | Azerbaijan                 | 3.70  | 46.38         | 0.84         | 88   | Turkey                            | 0.00  | 0.03          | 0.03         |
| 16   | Ecuador                    | 3.31  | 41.46         | 0.83         | 89   | Croatia (2010)                    | 0.00  | 0.01          | 0.02         |
| 17   | Bosnia and Herzegovina     | 3.09  | 38.64         | 0.82         | 90   | Hungary (2007)                    | 0.00  | 0.01          | 0.01         |
| 18   | Senegal                    | 2.94  | 36.88         | 0.81         | 91   | Thailand (2011)                   | 0.00  | 0.00          | 0.00         |
| 19   | TFYR of Macedonia          | 2.92  | 36.53         | 0.80         | n/a  | Algeria                           | n/a   | n/a           | n/a          |
| 20   | Nicaragua                  | 2.71  | 33.92         | 0.79         | n/a  | Australia                         | n/a   | n/a           | n/a          |
| 21   | Albania                    | 2.54  | 31.85         | 0.78         | n/a  | Austria                           | n/a   | n/a           | n/a          |
| 22   | Moldova, Rep.              | 2.40  | 30.02         | 0.77         | n/a  | Bahrain                           | n/a   | n/a           | n/a          |
| 23   | Benin                      | 2.32  | 29.03         | 0.76         | n/a  | Barbados                          | n/a   | n/a           | n/a          |
| 24   | Bangladesh                 | 2.18  | 27.35         | 0.74         | n/a  | Belarus                           | n/a   | n/a           | n/a          |
| 25   | Honduras                   | 2.00  | 25.00         | 0.73         | n/a  | Belgium                           | n/a   | n/a           | n/a          |
| 26   | Colombia                   | 1.83  | 22.89         | 0.72         | n/a  | Botswana                          | n/a   | n/a           | n/a          |
| 27   | Serbia                     | 1.83  | 22.86         | 0.71         | n/a  | Brunei Darussalam                 | n/a   | n/a           | n/a          |
| 28   | El Salvador                | 1.79  | 22.42         | 0.70         | n/a  | Cabo Verde                        | n/a   | n/a           | n/a          |
| 29   | Burkina Faso               | 1.71  | 21.41         | 0.69         | n/a  | Canada                            | n/a   | n/a           | n/a          |
| 30   | Swaziland (2011)           | 1.65  | 20.72         | 0.68         | n/a  | Cyprus                            | n/a   | n/a           | n/a          |
| 31   | Ethiopia                   | 1.31  | 16.40         | 0.67         | n/a  | Czech Republic                    | n/a   | n/a           | n/a          |
| 32   | Burundi                    | 1.26  | 15.73         | 0.66         | n/a  | Denmark                           | n/a   | n/a           | n/a          |
| 33   | Rwanda                     | 1.25  | 15.64         | 0.64         | n/a  | Estonia                           | n/a   | n/a           | n/a          |
| 34   | Indonesia                  | 1.25  | 15.62         | 0.63         | n/a  | Finland                           | n/a   | n/a           | n/a          |
| 35   | Dominican Republic         | 1.13  | 14.19         | 0.62         | n/a  | France                            | n/a   | n/a           | n/a          |
| 36   | Sri Lanka                  | 1.06  | 13.31         | 0.61         | n/a  | Germany                           | n/a   | n/a           | n/a          |
| 37   | Uganda                     | 0.99  | 12.39         | 0.60         | n/a  | Greece                            | n/a   | n/a           | n/a          |
| 38   | Panama                     | 0.93  | 11.60         | 0.59         | n/a  | Hong Kong (China)                 | n/a   | n/a           | n/a          |
| 39   | South Africa               | 0.89  | 11.15         | 0.58         | n/a  | Iceland                           | n/a   | n/a           | n/a          |
| 40   | Uzbekistan                 | 0.87  | 10.90         | 0.57         | n/a  | Iran, Islamic Rep.                | n/a   | n/a           | n/a          |
| 41   | Cameroon                   | 0.86  | 10.82         | 0.56         | n/a  | Ireland                           | n/a   | n/a           | n/a          |
| 42   | Nepal                      | 0.80  | 10.08         | 0.54         | n/a  | Israel                            | n/a   | n/a           | n/a          |
| 43   | Jordan                     | 0.73  | 9.10          | 0.53         | n/a  | Italy                             | n/a   | n/a           | n/a          |
| 44   | Chile                      | 0.70  | 8.82          | 0.52         | n/a  | Japan                             | n/a   | n/a           | n/a          |
| 45   | Madagascar                 | 0.67  | 8.34          | 0.51         | n/a  | Korea, Rep.                       | n/a   | n/a           | n/a          |
| 46   | Jamaica                    | 0.66  | 8.31          | 0.50         | n/a  | Kuwait                            | n/a   | n/a           | n/a          |
| 47   | Montenegro                 | 0.65  | 8.19          | 0.49         | n/a  | Latvia                            | n/a   | n/a           | n/a          |
| 48   | Morocco                    | 0.53  | 6.64          | 0.48         | n/a  | Lesotho                           | n/a   | n/a           | n/a          |
| 49   | Nigeria                    | 0.44  | 5.47          | 0.47         | n/a  | Lithuania                         | n/a   | n/a           | n/a          |
| 50   | Guatemala                  | 0.42  | 5.23          | 0.46         | n/a  | Luxembourg                        | n/a   | n/a           | n/a          |
| 51   | Tanzania, United Rep.      | 0.42  | 5.22          | 0.44         | n/a  | Malta                             | n/a   | n/a           | n/a          |
| 52   | Guyana                     | 0.39  | 4.82          | 0.43         | n/a  | Mauritius                         | n/a   | n/a           | n/a          |
| 53   | Malawi                     | 0.33  | 4.07          | 0.42         | n/a  | Myanmar                           | n/a   | n/a           | n/a          |
| 54   | Mexico                     | 0.32  | 4.06          | 0.41         | n/a  | Netherlands                       | n/a   | n/a           | n/a          |
| 55   | India                      | 0.24  | 3.05          | 0.40         | n/a  | New Zealand                       | n/a   | n/a           | n/a          |
| 56   | Philippines                | 0.24  | 3.00          | 0.39         | n/a  | Norway                            | n/a   | n/a           | n/a          |
| 57   | Guinea                     | 0.21  | 2.65          | 0.38         | n/a  | Oman                              | n/a   | n/a           | n/a          |
| 58   | Zimbabwe                   | 0.20  | 2.45          | 0.37         | n/a  | Portugal                          | n/a   | n/a           | n/a          |
| 59   | Romania                    | 0.19  | 2.40          | 0.36         | n/a  | Qatar                             | n/a   | n/a           | n/a          |
| 60   | Tunisia                    | 0.19  | 2.38          | 0.34         | n/a  | Saudi Arabia                      | n/a   | n/a           | n/a          |
| 61   | Côte d'Ivoire              | 0.18  | 2.31          | 0.33         | n/a  | Seychelles                        | n/a   | n/a           | n/a          |
| 62   | China                      | 0.18  | 2.28          | 0.32         | n/a  | Singapore                         | n/a   | n/a           | n/a          |
| 63   | Kazakhstan                 | 0.18  | 2.25          | 0.31         | n/a  | Slovakia                          | n/a   | n/a           | n/a          |
| 64   | Costa Rica                 | 0.14  | 1.81          | 0.30         | n/a  | Slovenia                          | n/a   | n/a           | n/a          |
| 65   | Ghana                      | 0.13  | 1.66          | 0.29         | n/a  | Spain                             | n/a   | n/a           | n/a          |
| 66   | Malaysia (2011)            | 0.13  | 1.65          | 0.28         | n/a  | Sweden                            | n/a   | n/a           | n/a          |
| 67   | Ukraine                    | 0.12  | 1.47          | 0.27         | n/a  | Switzerland                       | n/a   | n/a           | n/a          |
| 68   | Lebanon                    | 0.11  | 1.40          | 0.26         | n/a  | United Arab Emirates              | n/a   | n/a           | n/a          |
| 69   | Pakistan                   | 0.11  | 1.31          | 0.24         | n/a  | United Kingdom                    | n/a   | n/a           | n/a          |
| 70   | Sudan (2011)               | 0.10  | 1.26          | 0.23         | n/a  | United States of America          | n/a   | n/a           | n/a          |
| 71   | Mozambique                 | 0.09  | 1.14          | 0.22         |      |                                   |       |               |              |
| 72   | Niger                      | 0.09  | 1.11          | 0.21         |      |                                   |       |               |              |
| 73   | Trinidad and Tobago        | 0.08  | 0.94          | 0.20         |      |                                   |       |               |              |

SOURCE: Microfinance Information Exchange, *Mix Market database*; International Monetary Fund *World Economic Outlook 2013 database* (current US\$ GDP)

NOTE: ● indicates a strength; ○ a weakness.

## 4.2.1

## Ease of protecting investors

Ease of protecting investors (distance to frontier) | 2013

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | New Zealand              | 96.67 | 96.67         | 1.00         | ● | 66   | Malawi                     | 53.33 | 53.33         | 0.44         |   |
| 2    | Singapore                | 93.33 | 93.33         | 0.99         | ● | 66   | Moldova, Rep.              | 53.33 | 53.33         | 0.44         |   |
| 3    | Hong Kong (China)        | 90.00 | 90.00         | 0.99         | ● | 66   | Namibia                    | 53.33 | 53.33         | 0.44         |   |
| 4    | Canada                   | 86.67 | 86.67         | 0.97         | ● | 66   | Nepal                      | 53.33 | 53.33         | 0.44         |   |
| 4    | Malaysia                 | 86.67 | 86.67         | 0.97         | ● | 66   | Panama                     | 53.33 | 53.33         | 0.44         |   |
| 6    | Colombia                 | 83.33 | 83.33         | 0.94         | ● | 66   | Serbia                     | 53.33 | 53.33         | 0.44         |   |
| 6    | Ireland                  | 83.33 | 83.33         | 0.94         | ● | 66   | Zambia                     | 53.33 | 53.33         | 0.44         |   |
| 6    | Israel                   | 83.33 | 83.33         | 0.94         | ● | 81   | Algeria                    | 50.00 | 50.00         | 0.33         |   |
| 6    | United States of America | 83.33 | 83.33         | 0.94         | ● | 81   | Argentina                  | 50.00 | 50.00         | 0.33         |   |
| 10   | South Africa             | 80.00 | 80.00         | 0.93         | ● | 81   | Austria                    | 50.00 | 50.00         | 0.33         | ○ |
| 10   | United Kingdom           | 80.00 | 80.00         | 0.93         | ● | 81   | Belarus                    | 50.00 | 50.00         | 0.33         |   |
| 12   | Mauritius                | 76.67 | 76.67         | 0.92         | ● | 81   | China                      | 50.00 | 50.00         | 0.33         |   |
| 12   | Thailand                 | 76.67 | 76.67         | 0.92         | ● | 81   | Czech Republic             | 50.00 | 50.00         | 0.33         | ○ |
| 14   | Albania                  | 73.33 | 73.33         | 0.90         | ● | 81   | Dominican Republic         | 50.00 | 50.00         | 0.33         |   |
| 14   | Slovenia                 | 73.33 | 73.33         | 0.90         | ● | 81   | Germany                    | 50.00 | 50.00         | 0.33         | ○ |
| 16   | Belgium                  | 70.00 | 70.00         | 0.87         | ● | 81   | Kenya                      | 50.00 | 50.00         | 0.33         |   |
| 16   | Georgia                  | 70.00 | 70.00         | 0.87         | ● | 81   | Lebanon                    | 50.00 | 50.00         | 0.33         |   |
| 16   | Japan                    | 70.00 | 70.00         | 0.87         | ● | 81   | Lesotho                    | 50.00 | 50.00         | 0.33         |   |
| 16   | Peru                     | 70.00 | 70.00         | 0.87         | ● | 81   | Oman                       | 50.00 | 50.00         | 0.33         |   |
| 16   | TFYR of Macedonia        | 70.00 | 70.00         | 0.87         | ● | 81   | Spain                      | 50.00 | 50.00         | 0.33         | ○ |
| 21   | Armenia                  | 66.67 | 66.67         | 0.79         | ● | 81   | Tanzania, United Rep.      | 50.00 | 50.00         | 0.33         |   |
| 21   | Azerbaijan               | 66.67 | 66.67         | 0.79         | ● | 81   | United Arab Emirates       | 50.00 | 50.00         | 0.33         | ○ |
| 21   | Bangladesh               | 66.67 | 66.67         | 0.79         | ● | 81   | Uruguay                    | 50.00 | 50.00         | 0.33         |   |
| 21   | Kazakhstan               | 66.67 | 66.67         | 0.79         | ● | 97   | Bahrain                    | 46.67 | 46.67         | 0.27         |   |
| 21   | Kyrgyzstan               | 66.67 | 66.67         | 0.79         | ● | 97   | Bosnia and Herzegovina     | 46.67 | 46.67         | 0.27         |   |
| 21   | Mongolia                 | 66.67 | 66.67         | 0.79         | ● | 97   | Brunei Darussalam          | 46.67 | 46.67         | 0.27         |   |
| 21   | Norway                   | 66.67 | 66.67         | 0.79         | ● | 97   | Morocco                    | 46.67 | 46.67         | 0.27         |   |
| 21   | Rwanda                   | 66.67 | 66.67         | 0.79         | ● | 97   | Netherlands                | 46.67 | 46.67         | 0.27         | ○ |
| 21   | Saudi Arabia             | 66.67 | 66.67         | 0.79         | ● | 97   | Russian Federation         | 46.67 | 46.67         | 0.27         |   |
| 21   | Tajikistan               | 66.67 | 66.67         | 0.79         | ● | 97   | Slovakia                   | 46.67 | 46.67         | 0.27         | ○ |
| 21   | Trinidad and Tobago      | 66.67 | 66.67         | 0.79         | ● | 97   | Uganda                     | 46.67 | 46.67         | 0.27         |   |
| 32   | Burundi                  | 63.33 | 63.33         | 0.72         | ● | 105  | Cameroon                   | 43.33 | 43.33         | 0.22         |   |
| 32   | Chile                    | 63.33 | 63.33         | 0.72         | ● | 105  | Hungary                    | 43.33 | 43.33         | 0.22         | ○ |
| 32   | Cyprus                   | 63.33 | 63.33         | 0.72         | ● | 105  | Luxembourg                 | 43.33 | 43.33         | 0.22         | ○ |
| 32   | Denmark                  | 63.33 | 63.33         | 0.72         | ● | 105  | Philippines                | 43.33 | 43.33         | 0.22         |   |
| 32   | Ghana                    | 63.33 | 63.33         | 0.72         | ● | 105  | Qatar                      | 43.33 | 43.33         | 0.22         |   |
| 32   | India                    | 63.33 | 63.33         | 0.72         | ● | 105  | Swaziland                  | 43.33 | 43.33         | 0.22         |   |
| 32   | Montenegro               | 63.33 | 63.33         | 0.72         | ● | 105  | Ukraine                    | 43.33 | 43.33         | 0.22         |   |
| 32   | Pakistan                 | 63.33 | 63.33         | 0.72         | ● | 105  | Zimbabwe                   | 43.33 | 43.33         | 0.22         |   |
| 32   | Sweden                   | 63.33 | 63.33         | 0.72         | ● | 113  | Bolivia, Plurinational St. | 40.00 | 40.00         | 0.18         |   |
| 32   | Turkey                   | 63.33 | 63.33         | 0.72         | ● | 113  | Cabo Verde                 | 40.00 | 40.00         | 0.18         |   |
| 42   | Botswana                 | 60.00 | 60.00         | 0.63         | ● | 113  | Ecuador                    | 40.00 | 40.00         | 0.18         |   |
| 42   | Bulgaria                 | 60.00 | 60.00         | 0.63         | ● | 113  | Nicaragua                  | 40.00 | 40.00         | 0.18         |   |
| 42   | Fiji                     | 60.00 | 60.00         | 0.63         | ● | 113  | Uzbekistan                 | 40.00 | 40.00         | 0.18         |   |
| 42   | Iceland                  | 60.00 | 60.00         | 0.63         | ● | 113  | Yemen                      | 40.00 | 40.00         | 0.18         |   |
| 42   | Indonesia                | 60.00 | 60.00         | 0.63         | ● | 119  | Bhutan                     | 36.67 | 36.67         | 0.13         |   |
| 42   | Italy                    | 60.00 | 60.00         | 0.63         | ● | 119  | Burkina Faso               | 36.67 | 36.67         | 0.13         |   |
| 42   | Korea, Rep.              | 60.00 | 60.00         | 0.63         | ● | 119  | Egypt                      | 36.67 | 36.67         | 0.13         |   |
| 42   | Mozambique               | 60.00 | 60.00         | 0.63         | ● | 119  | Iran, Islamic Rep.         | 36.67 | 36.67         | 0.13         |   |
| 42   | Poland                   | 60.00 | 60.00         | 0.63         | ● | 119  | Mali                       | 36.67 | 36.67         | 0.13         |   |
| 42   | Portugal                 | 60.00 | 60.00         | 0.63         | ● | 119  | Togo                       | 36.67 | 36.67         | 0.13         |   |
| 42   | Romania                  | 60.00 | 60.00         | 0.63         | ● | 125  | Benin                      | 33.33 | 33.33         | 0.08         |   |
| 42   | Sri Lanka                | 60.00 | 60.00         | 0.63         | ● | 125  | Côte d'Ivoire              | 33.33 | 33.33         | 0.08         | ○ |
| 42   | Tunisia                  | 60.00 | 60.00         | 0.63         | ● | 125  | Croatia                    | 33.33 | 33.33         | 0.08         | ○ |
| 55   | Australia                | 56.67 | 56.67         | 0.55         | ○ | 125  | Ethiopia                   | 33.33 | 33.33         | 0.08         |   |
| 55   | Estonia                  | 56.67 | 56.67         | 0.55         | ○ | 125  | Guatemala                  | 33.33 | 33.33         | 0.08         | ○ |
| 55   | Finland                  | 56.67 | 56.67         | 0.55         | ○ | 125  | Niger                      | 33.33 | 33.33         | 0.08         |   |
| 55   | Latvia                   | 56.67 | 56.67         | 0.55         | ○ | 125  | Sudan                      | 33.33 | 33.33         | 0.08         |   |
| 55   | Lithuania                | 56.67 | 56.67         | 0.55         | ○ | 125  | Viet Nam                   | 33.33 | 33.33         | 0.08         | ○ |
| 55   | Madagascar               | 56.67 | 56.67         | 0.55         | ○ | 133  | Barbados                   | 30.00 | 30.00         | 0.03         | ○ |
| 55   | Malta                    | 56.67 | 56.67         | 0.55         | ○ | 133  | Costa Rica                 | 30.00 | 30.00         | 0.03         | ○ |
| 55   | Mexico                   | 56.67 | 56.67         | 0.55         | ○ | 133  | El Salvador                | 30.00 | 30.00         | 0.03         | ○ |
| 55   | Nigeria                  | 56.67 | 56.67         | 0.55         | ○ | 133  | Honduras                   | 30.00 | 30.00         | 0.03         | ○ |
| 55   | Paraguay                 | 56.67 | 56.67         | 0.55         | ○ | 133  | Jordan                     | 30.00 | 30.00         | 0.03         | ○ |
| 55   | Seychelles               | 56.67 | 56.67         | 0.55         | ○ | 133  | Senegal                    | 30.00 | 30.00         | 0.03         | ○ |
| 66   | Angola                   | 53.33 | 53.33         | 0.44         | ● | 133  | Switzerland                | 30.00 | 30.00         | 0.03         | ○ |
| 66   | Brazil                   | 53.33 | 53.33         | 0.44         | ● | 140  | Gambia                     | 26.67 | 26.67         | 0.01         | ○ |
| 66   | Cambodia                 | 53.33 | 53.33         | 0.44         | ○ | 140  | Guinea                     | 26.67 | 26.67         | 0.01         | ○ |
| 66   | France                   | 53.33 | 53.33         | 0.44         | ○ | 142  | Myanmar                    | 23.33 | 23.33         | 0.00         | ○ |
| 66   | Greece                   | 53.33 | 53.33         | 0.44         | ○ | 142  | Venezuela, Bolivarian Rep. | 23.33 | 23.33         | 0.00         | ○ |
| 66   | Guyana                   | 53.33 | 53.33         | 0.44         | ○ |      |                            |       |               |              |   |
| 66   | Jamaica                  | 53.33 | 53.33         | 0.44         | ○ |      |                            |       |               |              |   |
| 66   | Kuwait                   | 53.33 | 53.33         | 0.44         | ○ |      |                            |       |               |              |   |

SOURCE: World Bank, Ease of Doing Business Index 2014, *Doing Business 2014*

NOTE: ● indicates a strength; ○ a weakness.

# 4.2.2 Market capitalization

## Market capitalization of listed companies (% of GDP) | 2012

| Rank | Country/Economy             | Value  | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------|--------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Hong Kong (China)           | 420.93 | 100.00        | 0.99         | ● | 74   | Czech Republic             | 18.99 | 10.94         | 0.32         | ○ |
| 1    | Switzerland                 | 170.68 | 100.00        | 0.99         | ● | 75   | Pakistan                   | 18.89 | 10.88         | 0.31         |   |
| 3    | South Africa                | 159.33 | 93.33         | 0.98         | ● | 76   | Greece                     | 17.90 | 10.30         | 0.30         |   |
| 4    | Malaysia                    | 156.94 | 91.93         | 0.97         | ● | 77   | Malawi                     | 17.67 | 10.17         | 0.29         |   |
| 5    | Singapore                   | 150.75 | 88.30         | 0.96         |   | 78   | Hungary                    | 16.80 | 9.65          | 0.28         | ○ |
| 6    | Barbados (2011)             | 124.05 | 72.62         | 0.95         | ● | 79   | Bolivia, Plurinational St. | 16.44 | 9.44          | 0.27         |   |
| 7    | United Kingdom              | 123.99 | 72.59         | 0.94         |   | 80   | Bangladesh                 | 15.12 | 8.67          | 0.26         |   |
| 8    | Luxembourg                  | 123.15 | 72.09         | 0.93         |   | 81   | Zambia                     | 14.53 | 8.32          | 0.25         |   |
| 9    | United States of America    | 119.02 | 69.67         | 0.93         |   | 82   | Slovenia                   | 14.24 | 8.15          | 0.24         | ○ |
| 10   | Chile                       | 116.78 | 68.35         | 0.92         | ● | 83   | Bulgaria                   | 13.06 | 7.46          | 0.23         | ○ |
| 11   | Canada                      | 110.69 | 64.78         | 0.91         |   | 84   | Mongolia                   | 12.59 | 7.18          | 0.22         |   |
| 12   | Zimbabwe                    | 109.27 | 63.94         | 0.90         | ● | 85   | Ukraine                    | 11.75 | 6.69          | 0.21         |   |
| 13   | Sweden                      | 106.62 | 62.39         | 0.89         |   | 86   | Fiji                       | 11.66 | 6.63          | 0.21         |   |
| 14   | Philippines                 | 105.55 | 61.76         | 0.88         | ● | 87   | Kazakhstan                 | 11.65 | 6.63          | 0.20         |   |
| 15   | Thailand                    | 104.77 | 61.30         | 0.87         |   | 88   | Estonia                    | 10.67 | 6.05          | 0.19         | ○ |
| 16   | Korea, Rep.                 | 104.50 | 61.15         | 0.86         |   | 89   | Namibia                    | 10.19 | 5.77          | 0.18         |   |
| 17   | Montenegro                  | 90.43  | 52.88         | 0.85         | ● | 90   | Romania                    | 9.40  | 5.31          | 0.17         | ○ |
| 18   | Bahrain (2010)              | 89.03  | 52.06         | 0.84         | ● | 91   | Lithuania                  | 9.38  | 5.30          | 0.16         | ○ |
| 19   | Jordan                      | 86.41  | 50.52         | 0.83         | ● | 92   | Cyprus                     | 8.68  | 4.89          | 0.15         | ○ |
| 20   | Australia                   | 84.60  | 49.46         | 0.82         |   | 93   | Ghana                      | 8.51  | 4.79          | 0.14         |   |
| 21   | Netherlands                 | 84.30  | 49.29         | 0.81         |   | 94   | Argentina                  | 7.21  | 4.02          | 0.13         | ○ |
| 22   | Spain                       | 73.75  | 43.09         | 0.80         |   | 95   | Ecuador                    | 6.99  | 3.90          | 0.12         |   |
| 23   | Qatar (2011)                | 72.50  | 42.36         | 0.79         |   | 96   | Swaziland (2007)           | 6.65  | 3.69          | 0.11         |   |
| 24   | Denmark                     | 71.56  | 41.80         | 0.79         |   | 97   | Venezuela, Bolivarian Rep. | 6.62  | 3.67          | 0.10         |   |
| 25   | Colombia                    | 70.87  | 41.40         | 0.78         | ● | 98   | Tanzania, United Rep.      | 6.38  | 3.54          | 0.09         |   |
| 26   | France                      | 69.78  | 40.76         | 0.77         |   | 99   | Georgia                    | 5.96  | 3.29          | 0.08         | ○ |
| 27   | India                       | 68.60  | 40.06         | 0.76         | ● | 100  | TFYR of Macedonia          | 5.79  | 3.19          | 0.07         | ○ |
| 28   | Mauritius                   | 67.60  | 39.48         | 0.75         |   | 101  | Slovakia                   | 5.03  | 2.74          | 0.07         | ○ |
| 29   | Finland                     | 63.47  | 37.05         | 0.74         |   | 102  | Costa Rica                 | 4.46  | 2.41          | 0.06         | ○ |
| 30   | Trinidad and Tobago         | 63.23  | 36.91         | 0.73         | ● | 103  | Uzbekistan (2006)          | 4.20  | 2.26          | 0.05         | ○ |
| 31   | Belgium                     | 62.03  | 36.21         | 0.72         |   | 104  | Latvia                     | 3.93  | 2.10          | 0.04         | ○ |
| 32   | Japan                       | 61.76  | 36.05         | 0.71         |   | 105  | Paraguay                   | 3.77  | 2.01          | 0.03         | ○ |
| 33   | Israel (2011)               | 59.68  | 34.83         | 0.70         |   | 106  | Kyrgyzstan                 | 2.55  | 1.29          | 0.02         | ○ |
| 34   | Saudi Arabia (2011)         | 58.75  | 34.28         | 0.69         |   | 107  | Armenia                    | 1.33  | 0.57          | 0.01         | ○ |
| 35   | Kuwait (2011)               | 57.12  | 33.33         | 0.68         |   | 108  | Uruguay                    | 0.36  | 0.00          | 0.00         | ○ |
| 36   | Brazil                      | 54.60  | 31.84         | 0.67         |   | n/a  | Albania                    | n/a   | n/a           | n/a          |   |
| 37   | Morocco                     | 54.41  | 31.74         | 0.66         |   | n/a  | Algeria                    | n/a   | n/a           | n/a          |   |
| 38   | Ireland                     | 51.83  | 30.22         | 0.65         |   | n/a  | Angola                     | n/a   | n/a           | n/a          |   |
| 39   | New Zealand (2010)          | 51.39  | 29.97         | 0.64         |   | n/a  | Azerbaijan                 | n/a   | n/a           | n/a          |   |
| 40   | Norway                      | 50.62  | 29.51         | 0.64         |   | n/a  | Belarus                    | n/a   | n/a           | n/a          |   |
| 41   | Peru                        | 49.13  | 28.64         | 0.63         |   | n/a  | Benin                      | n/a   | n/a           | n/a          |   |
| 42   | Indonesia                   | 45.19  | 26.32         | 0.62         |   | n/a  | Bhutan                     | n/a   | n/a           | n/a          |   |
| 43   | El Salvador                 | 45.16  | 26.31         | 0.61         |   | n/a  | Bosnia and Herzegovina     | n/a   | n/a           | n/a          |   |
| 44   | China                       | 44.94  | 26.18         | 0.60         |   | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |   |
| 45   | Mexico                      | 44.60  | 25.98         | 0.59         |   | n/a  | Burkina Faso               | n/a   | n/a           | n/a          |   |
| 46   | Germany                     | 43.72  | 25.46         | 0.58         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 47   | Russian Federation          | 43.41  | 25.28         | 0.57         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 48   | Jamaica                     | 43.06  | 25.07         | 0.56         |   | n/a  | Cambodia                   | n/a   | n/a           | n/a          |   |
| 49   | Malta                       | 41.63  | 24.23         | 0.55         |   | n/a  | Cameroon                   | n/a   | n/a           | n/a          |   |
| 50   | Kenya                       | 39.73  | 23.12         | 0.54         |   | n/a  | Dominican Republic         | n/a   | n/a           | n/a          |   |
| 51   | Turkey                      | 39.12  | 22.76         | 0.53         |   | n/a  | Ethiopia                   | n/a   | n/a           | n/a          |   |
| 52   | Croatia                     | 38.20  | 22.22         | 0.52         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 53   | Uganda                      | 36.69  | 21.33         | 0.51         |   | n/a  | Guatemala                  | n/a   | n/a           | n/a          |   |
| 54   | Poland                      | 36.29  | 21.09         | 0.50         |   | n/a  | Guinea                     | n/a   | n/a           | n/a          |   |
| 55   | Panama                      | 34.60  | 20.10         | 0.50         |   | n/a  | Honduras                   | n/a   | n/a           | n/a          |   |
| 56   | Botswana                    | 31.83  | 18.48         | 0.49         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |   |
| 57   | Côte d'Ivoire               | 31.72  | 18.41         | 0.48         | ● | n/a  | Madagascar                 | n/a   | n/a           | n/a          |   |
| 58   | Portugal                    | 30.84  | 17.90         | 0.47         |   | n/a  | Mali                       | n/a   | n/a           | n/a          |   |
| 59   | Sri Lanka                   | 28.69  | 16.63         | 0.46         |   | n/a  | Moldova, Rep.              | n/a   | n/a           | n/a          |   |
| 60   | Oman (2011)                 | 27.47  | 15.92         | 0.45         |   | n/a  | Mozambique                 | n/a   | n/a           | n/a          |   |
| 61   | Austria                     | 26.53  | 15.37         | 0.44         | ○ | n/a  | Myanmar                    | n/a   | n/a           | n/a          |   |
| 62   | Lebanon                     | 23.97  | 13.87         | 0.43         |   | n/a  | Nicaragua                  | n/a   | n/a           | n/a          |   |
| 63   | Italy                       | 23.86  | 13.80         | 0.42         |   | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 64   | Viet Nam                    | 23.25  | 13.44         | 0.41         |   | n/a  | Rwanda                     | n/a   | n/a           | n/a          |   |
| 65   | Egypt                       | 22.55  | 13.03         | 0.40         |   | n/a  | Senegal                    | n/a   | n/a           | n/a          |   |
| 66   | Nigeria                     | 21.47  | 12.40         | 0.39         |   | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 67   | Guyana                      | 21.43  | 12.37         | 0.38         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |   |
| 68   | Nepal                       | 21.43  | 12.37         | 0.37         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 69   | Iran, Islamic Rep. (2011)   | 20.86  | 12.04         | 0.36         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 70   | Iceland                     | 20.68  | 11.93         | 0.36         | ○ | n/a  | Yemen                      | n/a   | n/a           | n/a          |   |
| 71   | Serbia                      | 19.87  | 11.46         | 0.35         |   |      |                            |       |               |              |   |
| 72   | United Arab Emirates (2011) | 19.80  | 11.41         | 0.34         | ○ |      |                            |       |               |              |   |
| 73   | Tunisia                     | 19.46  | 11.22         | 0.33         |   |      |                            |       |               |              |   |

SOURCE: Standard and Poor's and World Bank and OECD GDP estimates; extracted from World Bank *World Development Indicators* database (2005–12)

NOTE: ● indicates a strength; ○ a weakness.

## 4.2.3 Total value of stocks traded

### Stocks traded, total value (% of GDP) | 2012

| Rank | Country/Economy             | Value  | Score (0–100) | Percent rank | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |
|------|-----------------------------|--------|---------------|--------------|------|----------------------------|-------|---------------|--------------|
| 1    | Hong Kong (China)           | 467.00 | 100.00        | 0.97         | 74   | Bulgaria                   | 0.71  | 0.69          | 0.32         |
| 1    | Korea, Rep.                 | 134.02 | 100.00        | 0.97         | 75   | Ukraine                    | 0.68  | 0.67          | 0.31         |
| 1    | United Kingdom              | 102.19 | 100.00        | 0.97         | 76   | Côte d'Ivoire              | 0.66  | 0.64          | 0.31         |
| 1    | United States of America    | 136.28 | 100.00        | 0.97         | 77   | Kazakhstan                 | 0.55  | 0.54          | 0.30         |
| 5    | Switzerland                 | 101.39 | 99.22         | 0.96         | 78   | Malta                      | 0.49  | 0.48          | 0.29         |
| 6    | South Africa                | 81.13  | 79.39         | 0.95         | 79   | Barbados (2011)            | 0.49  | 0.48          | 0.28         |
| 7    | Spain                       | 79.82  | 78.11         | 0.94         | 80   | Trinidad and Tobago        | 0.48  | 0.47          | 0.27         |
| 8    | Sweden                      | 71.55  | 70.02         | 0.94         | 81   | Lithuania                  | 0.40  | 0.39          | 0.26         |
| 9    | China                       | 70.82  | 69.30         | 0.93         | 82   | Mongolia                   | 0.40  | 0.39          | 0.25         |
| 10   | Australia                   | 69.16  | 67.68         | 0.92         | 83   | Malawi                     | 0.38  | 0.37          | 0.24         |
| 11   | Canada                      | 66.32  | 64.89         | 0.91         | 84   | TFYR of Macedonia          | 0.32  | 0.31          | 0.23         |
| 12   | Thailand                    | 62.77  | 61.42         | 0.90         | 85   | Panama                     | 0.31  | 0.30          | 0.22         |
| 13   | Japan                       | 60.50  | 59.20         | 0.89         | 86   | Argentina                  | 0.31  | 0.30          | 0.21         |
| 14   | Netherlands                 | 57.15  | 55.92         | 0.88         | 87   | Nepal                      | 0.25  | 0.25          | 0.20         |
| 15   | Singapore                   | 56.95  | 55.73         | 0.87         | 88   | Moldova, Rep. (2009)       | 0.24  | 0.23          | 0.19         |
| 16   | Saudi Arabia (2011)         | 50.80  | 49.70         | 0.86         | 89   | El Salvador                | 0.22  | 0.21          | 0.19         |
| 17   | Finland                     | 50.39  | 49.31         | 0.85         | 90   | Paraguay                   | 0.21  | 0.20          | 0.18         |
| 18   | Turkey                      | 44.16  | 43.21         | 0.84         | 91   | Luxembourg                 | 0.20  | 0.20          | 0.17         |
| 19   | Israel (2011)               | 43.44  | 42.51         | 0.83         | 92   | Uzbekistan (2011)          | 0.18  | 0.18          | 0.16         |
| 20   | France                      | 43.12  | 42.19         | 0.82         | 93   | Slovakia                   | 0.18  | 0.18          | 0.15         |
| 21   | Malaysia                    | 41.02  | 40.14         | 0.81         | 94   | Fiji                       | 0.17  | 0.16          | 0.14         |
| 22   | Italy                       | 37.73  | 36.92         | 0.81         | 95   | Namibia                    | 0.16  | 0.16          | 0.13         |
| 23   | Brazil                      | 37.05  | 36.25         | 0.80         | 96   | Ecuador                    | 0.16  | 0.16          | 0.12         |
| 24   | Russian Federation          | 36.34  | 35.56         | 0.79         | 97   | Ghana                      | 0.13  | 0.13          | 0.11         |
| 25   | Germany                     | 36.05  | 35.27         | 0.78         | 98   | Latvia                     | 0.11  | 0.11          | 0.10         |
| 26   | India                       | 33.80  | 33.07         | 0.77         | 99   | Tanzania, United Rep.      | 0.09  | 0.09          | 0.09         |
| 27   | Denmark                     | 33.58  | 32.86         | 0.76         | 100  | Kyrgyzstan                 | 0.09  | 0.08          | 0.08         |
| 28   | Norway                      | 26.59  | 26.02         | 0.75         | 101  | Costa Rica                 | 0.07  | 0.07          | 0.07         |
| 29   | Belgium                     | 21.35  | 20.89         | 0.74         | 102  | Bolivia, Plurinational St. | 0.07  | 0.07          | 0.06         |
| 30   | Chile                       | 17.42  | 17.04         | 0.73         | 103  | Uganda                     | 0.06  | 0.05          | 0.06         |
| 31   | Zimbabwe                    | 14.89  | 14.57         | 0.72         | 104  | Guyana (2008)              | 0.04  | 0.04          | 0.05         |
| 32   | Philippines                 | 13.86  | 13.56         | 0.71         | 105  | Georgia                    | 0.01  | 0.01          | 0.04         |
| 33   | Poland                      | 13.73  | 13.43         | 0.70         | 106  | Armenia                    | 0.01  | 0.01          | 0.03         |
| 34   | Qatar (2011)                | 13.37  | 13.08         | 0.69         | 107  | Venezuela, Bolivarian Rep. | 0.01  | 0.01          | 0.02         |
| 35   | New Zealand (2010)          | 12.84  | 12.56         | 0.69         | 108  | Uruguay                    | 0.00  | 0.00          | 0.01         |
| 36   | Portugal                    | 12.53  | 12.26         | 0.68         | 109  | Swaziland (2006)           | 0.00  | 0.00          | 0.00         |
| 37   | Kuwait (2011)               | 12.12  | 11.85         | 0.67         | n/a  | Albania                    | n/a   | n/a           | n/a          |
| 38   | Austria                     | 11.81  | 11.56         | 0.66         | n/a  | Algeria                    | n/a   | n/a           | n/a          |
| 39   | Bangladesh                  | 10.85  | 10.62         | 0.65         | n/a  | Angola                     | n/a   | n/a           | n/a          |
| 40   | Indonesia                   | 10.44  | 10.22         | 0.64         | n/a  | Azerbaijan                 | n/a   | n/a           | n/a          |
| 41   | Mexico                      | 10.04  | 9.82          | 0.63         | n/a  | Belarus                    | n/a   | n/a           | n/a          |
| 42   | Jordan                      | 8.92   | 8.73          | 0.62         | n/a  | Benin                      | n/a   | n/a           | n/a          |
| 43   | Hungary                     | 8.67   | 8.48          | 0.61         | n/a  | Bhutan                     | n/a   | n/a           | n/a          |
| 44   | Egypt                       | 7.84   | 7.67          | 0.60         | n/a  | Bosnia and Herzegovina     | n/a   | n/a           | n/a          |
| 45   | Colombia                    | 7.03   | 6.88          | 0.59         | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |
| 46   | Greece                      | 5.96   | 5.83          | 0.58         | n/a  | Burkina Faso               | n/a   | n/a           | n/a          |
| 47   | Ireland                     | 5.76   | 5.64          | 0.57         | n/a  | Burundi                    | n/a   | n/a           | n/a          |
| 48   | Czech Republic              | 5.22   | 5.11          | 0.56         | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |
| 49   | Pakistan                    | 5.18   | 5.06          | 0.56         | n/a  | Cambodia                   | n/a   | n/a           | n/a          |
| 50   | Iceland                     | 5.02   | 4.91          | 0.55         | n/a  | Cameroon                   | n/a   | n/a           | n/a          |
| 51   | United Arab Emirates (2011) | 4.39   | 4.30          | 0.54         | n/a  | Dominican Republic         | n/a   | n/a           | n/a          |
| 52   | Iran, Islamic Rep. (2011)   | 3.90   | 3.82          | 0.53         | n/a  | Ethiopia                   | n/a   | n/a           | n/a          |
| 53   | Morocco                     | 3.62   | 3.54          | 0.52         | n/a  | Gambia                     | n/a   | n/a           | n/a          |
| 54   | Oman (2011)                 | 3.59   | 3.51          | 0.51         | n/a  | Guatemala                  | n/a   | n/a           | n/a          |
| 55   | Mauritius                   | 2.82   | 2.76          | 0.50         | n/a  | Guinea                     | n/a   | n/a           | n/a          |
| 56   | Sri Lanka                   | 2.82   | 2.76          | 0.49         | n/a  | Honduras                   | n/a   | n/a           | n/a          |
| 57   | Tunisia                     | 2.74   | 2.68          | 0.48         | n/a  | Lesotho                    | n/a   | n/a           | n/a          |
| 58   | Kenya                       | 2.71   | 2.65          | 0.47         | n/a  | Madagascar                 | n/a   | n/a           | n/a          |
| 59   | Peru                        | 2.53   | 2.47          | 0.46         | n/a  | Mali                       | n/a   | n/a           | n/a          |
| 60   | Viet Nam                    | 2.38   | 2.33          | 0.45         | n/a  | Mozambique                 | n/a   | n/a           | n/a          |
| 61   | Nigeria                     | 1.60   | 1.56          | 0.44         | n/a  | Myanmar                    | n/a   | n/a           | n/a          |
| 62   | Jamaica                     | 1.39   | 1.35          | 0.44         | n/a  | Nicaragua                  | n/a   | n/a           | n/a          |
| 63   | Cyprus                      | 1.26   | 1.23          | 0.43         | n/a  | Niger                      | n/a   | n/a           | n/a          |
| 64   | Romania                     | 1.26   | 1.23          | 0.42         | n/a  | Rwanda                     | n/a   | n/a           | n/a          |
| 65   | Bahrain (2010)              | 1.25   | 1.22          | 0.41         | n/a  | Senegal                    | n/a   | n/a           | n/a          |
| 66   | Montenegro                  | 1.01   | 0.99          | 0.40         | n/a  | Seychelles                 | n/a   | n/a           | n/a          |
| 67   | Lebanon                     | 0.95   | 0.93          | 0.39         | n/a  | Sudan                      | n/a   | n/a           | n/a          |
| 68   | Zambia                      | 0.95   | 0.92          | 0.38         | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |
| 69   | Slovenia                    | 0.88   | 0.86          | 0.37         | n/a  | Togo                       | n/a   | n/a           | n/a          |
| 70   | Croatia                     | 0.87   | 0.85          | 0.36         | n/a  | Yemen                      | n/a   | n/a           | n/a          |
| 71   | Estonia                     | 0.82   | 0.80          | 0.35         |      |                            |       |               |              |
| 72   | Botswana                    | 0.79   | 0.77          | 0.34         |      |                            |       |               |              |
| 73   | Serbia                      | 0.77   | 0.75          | 0.33         |      |                            |       |               |              |

SOURCE: Standard and Poor's and World Bank and OECD GDP estimates, World Bank World Development Indicators database (2005–12)

NOTE: ● indicates a strength; ○ a weakness.

# 4.2.4 Venture capital deals

Venture capital per investment location: Number of deals (per trillion PPP\$ GDP) | 2013

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |  |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|--|
| 1    | Canada                   | 0.67  | 100.00        | 0.94         | ● | n/a  | Azerbaijan                 | n/a   | n/a           | n/a          |  |
| 1    | Ireland                  | 0.70  | 100.00        | 0.94         | ● | n/a  | Bahrain                    | n/a   | n/a           | n/a          |  |
| 1    | Israel                   | 0.97  | 100.00        | 0.94         | ● | n/a  | Bangladesh                 | n/a   | n/a           | n/a          |  |
| 1    | Switzerland              | 0.44  | 100.00        | 0.94         | ● | n/a  | Barbados                   | n/a   | n/a           | n/a          |  |
| 1    | United States of America | 0.74  | 100.00        | 0.94         | ● | n/a  | Belarus                    | n/a   | n/a           | n/a          |  |
| 6    | Finland                  | 0.42  | 95.83         | 0.93         |   | n/a  | Benin                      | n/a   | n/a           | n/a          |  |
| 7    | United Kingdom           | 0.36  | 81.34         | 0.91         |   | n/a  | Bhutan                     | n/a   | n/a           | n/a          |  |
| 8    | Singapore                | 0.34  | 75.77         | 0.90         |   | n/a  | Bolivia, Plurinational St. | n/a   | n/a           | n/a          |  |
| 9    | Sweden                   | 0.32  | 72.07         | 0.89         |   | n/a  | Bosnia and Herzegovina     | n/a   | n/a           | n/a          |  |
| 10   | France                   | 0.31  | 70.54         | 0.87         |   | n/a  | Botswana                   | n/a   | n/a           | n/a          |  |
| 11   | Rwanda                   | 0.31  | 68.76         | 0.86         | ● | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |  |
| 12   | Estonia                  | 0.30  | 67.66         | 0.84         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |  |
| 13   | Denmark                  | 0.25  | 55.28         | 0.83         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |  |
| 14   | Germany                  | 0.23  | 52.60         | 0.81         |   | n/a  | Cambodia                   | n/a   | n/a           | n/a          |  |
| 15   | Belgium                  | 0.19  | 42.47         | 0.80         |   | n/a  | Cameroon                   | n/a   | n/a           | n/a          |  |
| 16   | Lithuania                | 0.16  | 36.43         | 0.79         |   | n/a  | Costa Rica                 | n/a   | n/a           | n/a          |  |
| 17   | Spain                    | 0.15  | 34.54         | 0.77         |   | n/a  | Côte d'Ivoire              | n/a   | n/a           | n/a          |  |
| 18   | Norway                   | 0.15  | 32.38         | 0.76         |   | n/a  | Cyprus                     | n/a   | n/a           | n/a          |  |
| 19   | Austria                  | 0.14  | 31.46         | 0.74         |   | n/a  | Dominican Republic         | n/a   | n/a           | n/a          |  |
| 20   | Netherlands              | 0.11  | 24.82         | 0.73         |   | n/a  | Ecuador                    | n/a   | n/a           | n/a          |  |
| 21   | Kenya                    | 0.11  | 24.78         | 0.71         |   | n/a  | El Salvador                | n/a   | n/a           | n/a          |  |
| 22   | Latvia                   | 0.10  | 22.75         | 0.70         |   | n/a  | Ethiopia                   | n/a   | n/a           | n/a          |  |
| 23   | Australia                | 0.10  | 21.67         | 0.69         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |  |
| 24   | India                    | 0.10  | 21.44         | 0.67         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |  |
| 25   | New Zealand              | 0.10  | 21.08         | 0.66         |   | n/a  | Georgia                    | n/a   | n/a           | n/a          |  |
| 26   | Uruguay                  | 0.09  | 19.55         | 0.64         |   | n/a  | Guatemala                  | n/a   | n/a           | n/a          |  |
| 27   | Iceland                  | 0.08  | 16.70         | 0.63         |   | n/a  | Guinea                     | n/a   | n/a           | n/a          |  |
| 28   | Luxembourg               | 0.07  | 15.34         | 0.61         |   | n/a  | Guyana                     | n/a   | n/a           | n/a          |  |
| 29   | Jordan                   | 0.05  | 10.72         | 0.60         |   | n/a  | Honduras                   | n/a   | n/a           | n/a          |  |
| 30   | Armenia                  | 0.05  | 10.39         | 0.59         |   | n/a  | Iran, Islamic Rep.         | n/a   | n/a           | n/a          |  |
| 31   | United Arab Emirates     | 0.05  | 10.31         | 0.57         |   | n/a  | Jamaica                    | n/a   | n/a           | n/a          |  |
| 32   | Bulgaria                 | 0.05  | 10.23         | 0.56         |   | n/a  | Kazakhstan                 | n/a   | n/a           | n/a          |  |
| 33   | Madagascar               | 0.05  | 9.68          | 0.54         |   | n/a  | Kuwait                     | n/a   | n/a           | n/a          |  |
| 34   | Japan                    | 0.04  | 9.07          | 0.53         |   | n/a  | Kyrgyzstan                 | n/a   | n/a           | n/a          |  |
| 35   | Malaysia                 | 0.04  | 8.89          | 0.51         |   | n/a  | Lebanon                    | n/a   | n/a           | n/a          |  |
| 36   | Chile                    | 0.04  | 8.17          | 0.50         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |  |
| 37   | Burkina Faso             | 0.04  | 7.94          | 0.49         | ● | n/a  | Malawi                     | n/a   | n/a           | n/a          |  |
| 38   | Philippines              | 0.04  | 7.87          | 0.47         |   | n/a  | Mali                       | n/a   | n/a           | n/a          |  |
| 39   | Portugal                 | 0.04  | 7.77          | 0.46         |   | n/a  | Malta                      | n/a   | n/a           | n/a          |  |
| 40   | Hong Kong (China)        | 0.03  | 7.11          | 0.44         |   | n/a  | Mauritius                  | n/a   | n/a           | n/a          |  |
| 41   | Ghana                    | 0.03  | 6.91          | 0.43         |   | n/a  | Moldova, Rep.              | n/a   | n/a           | n/a          |  |
| 42   | China                    | 0.03  | 6.86          | 0.41         |   | n/a  | Mongolia                   | n/a   | n/a           | n/a          |  |
| 43   | Russian Federation       | 0.03  | 6.03          | 0.40         |   | n/a  | Montenegro                 | n/a   | n/a           | n/a          |  |
| 44   | Brazil                   | 0.03  | 5.84          | 0.39         |   | n/a  | Mozambique                 | n/a   | n/a           | n/a          |  |
| 45   | Korea, Rep.              | 0.03  | 5.51          | 0.37         |   | n/a  | Myanmar                    | n/a   | n/a           | n/a          |  |
| 46   | Tanzania, United Rep.    | 0.03  | 5.10          | 0.36         |   | n/a  | Namibia                    | n/a   | n/a           | n/a          |  |
| 47   | Hungary                  | 0.02  | 3.99          | 0.34         |   | n/a  | Nepal                      | n/a   | n/a           | n/a          |  |
| 48   | Uganda                   | 0.02  | 3.55          | 0.33         |   | n/a  | Nicaragua                  | n/a   | n/a           | n/a          |  |
| 49   | Mexico                   | 0.01  | 2.69          | 0.31         |   | n/a  | Niger                      | n/a   | n/a           | n/a          |  |
| 50   | Italy                    | 0.01  | 2.64          | 0.30         | ○ | n/a  | Oman                       | n/a   | n/a           | n/a          |  |
| 51   | Croatia                  | 0.01  | 2.27          | 0.29         | ○ | n/a  | Panama                     | n/a   | n/a           | n/a          |  |
| 52   | Czech Republic           | 0.01  | 1.75          | 0.27         | ○ | n/a  | Paraguay                   | n/a   | n/a           | n/a          |  |
| 53   | Argentina                | 0.01  | 1.72          | 0.26         |   | n/a  | Peru                       | n/a   | n/a           | n/a          |  |
| 54   | Qatar                    | 0.01  | 1.67          | 0.24         |   | n/a  | Saudi Arabia               | n/a   | n/a           | n/a          |  |
| 55   | Poland                   | 0.01  | 1.60          | 0.23         | ○ | n/a  | Senegal                    | n/a   | n/a           | n/a          |  |
| 56   | Tunisia                  | 0.01  | 1.46          | 0.21         |   | n/a  | Serbia                     | n/a   | n/a           | n/a          |  |
| 57   | Uzbekistan               | 0.01  | 1.39          | 0.20         |   | n/a  | Seychelles                 | n/a   | n/a           | n/a          |  |
| 58   | Nigeria                  | 0.01  | 1.27          | 0.19         |   | n/a  | Slovakia                   | n/a   | n/a           | n/a          |  |
| 59   | Colombia                 | 0.01  | 1.11          | 0.17         | ○ | n/a  | Slovenia                   | n/a   | n/a           | n/a          |  |
| 60   | Sri Lanka                | 0.01  | 1.06          | 0.16         | ○ | n/a  | Sudan                      | n/a   | n/a           | n/a          |  |
| 61   | Romania                  | 0.01  | 0.99          | 0.14         | ○ | n/a  | Swaziland                  | n/a   | n/a           | n/a          |  |
| 62   | Turkey                   | 0.01  | 0.73          | 0.13         | ○ | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |  |
| 63   | Morocco                  | 0.01  | 0.63          | 0.11         | ○ | n/a  | TFYR of Macedonia          | n/a   | n/a           | n/a          |  |
| 64   | Egypt                    | 0.01  | 0.60          | 0.10         | ○ | n/a  | Togo                       | n/a   | n/a           | n/a          |  |
| 65   | Pakistan                 | 0.01  | 0.55          | 0.09         |   | n/a  | Trinidad and Tobago        | n/a   | n/a           | n/a          |  |
| 66   | South Africa             | 0.01  | 0.51          | 0.07         | ○ | n/a  | Ukraine                    | n/a   | n/a           | n/a          |  |
| 67   | Indonesia                | 0.00  | 0.43          | 0.06         | ○ | n/a  | Venezuela, Bolivarian Rep. | n/a   | n/a           | n/a          |  |
| 68   | Thailand                 | 0.00  | 0.38          | 0.04         | ○ | n/a  | Yemen                      | n/a   | n/a           | n/a          |  |
| 69   | Greece                   | 0.00  | 0.22          | 0.03         | ○ | n/a  | Zambia                     | n/a   | n/a           | n/a          |  |
| 70   | Algeria                  | 0.00  | 0.17          | 0.01         | ○ | n/a  | Zimbabwe                   | n/a   | n/a           | n/a          |  |
| 71   | Viet Nam                 | 0.00  | 0.00          | 0.00         | ○ |      |                            |       |               |              |  |
| n/a  | Albania                  | n/a   | n/a           | n/a          |   |      |                            |       |               |              |  |
| n/a  | Angola                   | n/a   | n/a           | n/a          |   |      |                            |       |               |              |  |

SOURCE: Thomson Reuters, Thomson One Banker Private Equity database; International Monetary Fund World Economic Outlook 2013 database (PPP\$ GDP)

NOTE: ● indicates a strength; ○ a weakness.



# 4.3.1 Applied tariff rate, weighted mean

Tariff rate, applied, weighted mean, all products (%) | 2011

| Rank | Country/Economy             | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Hong Kong (China)           | 0.00  | 100.00        | 0.99         | ● | 73   | Ecuador                    | 4.10  | 85.52         | 0.48         |   |
| 1    | Singapore (2010)            | 0.00  | 100.00        | 0.99         | ● | 75   | Brunei Darussalam (2010)   | 4.12  | 85.45         | 0.48         |   |
| 1    | Switzerland                 | 0.00  | 100.00        | 0.99         | ● | 76   | Kuwait (2009)              | 4.13  | 85.42         | 0.47         |   |
| 4    | Norway                      | 0.45  | 98.41         | 0.98         | ● | 77   | Swaziland                  | 4.24  | 85.03         | 0.46         |   |
| 5    | Mauritius                   | 0.68  | 97.60         | 0.97         | ● | 78   | South Africa               | 4.46  | 84.25         | 0.45         |   |
| 6    | Georgia                     | 0.72  | 97.46         | 0.96         | ● | 79   | Paraguay                   | 4.47  | 84.22         | 0.45         |   |
| 7    | Canada (2010)               | 0.86  | 96.96         | 0.96         | ● | 80   | Mozambique (2010)          | 4.75  | 83.23         | 0.44         |   |
| 8    | Iceland                     | 1.04  | 96.33         | 0.95         |   | 81   | Philippines (2010)         | 4.77  | 83.16         | 0.43         |   |
| 9    | Namibia                     | 1.05  | 96.29         | 0.94         | ● | 82   | Lebanon (2007)             | 4.81  | 83.02         | 0.43         |   |
| 10   | Austria                     | 1.09  | 96.15         | 0.75         |   | 83   | Thailand (2009)            | 4.92  | 82.63         | 0.42         |   |
| 10   | Belgium                     | 1.09  | 96.15         | 0.75         |   | 84   | Mongolia                   | 5.13  | 81.89         | 0.41         |   |
| 10   | Bulgaria                    | 1.09  | 96.15         | 0.75         |   | 85   | Jordan (2009)              | 5.18  | 81.71         | 0.40         |   |
| 10   | Cyprus                      | 1.09  | 96.15         | 0.75         |   | 86   | Russian Federation         | 5.20  | 81.64         | 0.40         |   |
| 10   | Czech Republic              | 1.09  | 96.15         | 0.75         |   | 87   | El Salvador (2010)         | 5.49  | 80.61         | 0.39         |   |
| 10   | Denmark                     | 1.09  | 96.15         | 0.75         |   | 88   | Argentina                  | 5.57  | 80.33         | 0.38         |   |
| 10   | Estonia                     | 1.09  | 96.15         | 0.75         |   | 89   | Colombia                   | 5.60  | 80.23         | 0.38         |   |
| 10   | Finland                     | 1.09  | 96.15         | 0.75         |   | 90   | Viet Nam (2010)            | 5.66  | 80.01         | 0.37         |   |
| 10   | France                      | 1.09  | 96.15         | 0.75         |   | 91   | Bahrain                    | 5.69  | 79.91         | 0.36         |   |
| 10   | Germany                     | 1.09  | 96.15         | 0.75         |   | 92   | Sri Lanka                  | 5.70  | 79.87         | 0.35         |   |
| 10   | Greece                      | 1.09  | 96.15         | 0.75         |   | 93   | Tajikistan (2010)          | 5.86  | 79.31         | 0.35         |   |
| 10   | Hungary                     | 1.09  | 96.15         | 0.75         |   | 94   | Serbia (2005)              | 6.03  | 78.71         | 0.34         |   |
| 10   | Ireland                     | 1.09  | 96.15         | 0.75         |   | 95   | Kenya                      | 6.08  | 78.53         | 0.33         |   |
| 10   | Italy                       | 1.09  | 96.15         | 0.75         |   | 96   | Dominican Republic (2010)  | 6.09  | 78.50         | 0.33         |   |
| 10   | Latvia                      | 1.09  | 96.15         | 0.75         |   | 97   | Madagascar                 | 6.12  | 78.39         | 0.32         |   |
| 10   | Lithuania                   | 1.09  | 96.15         | 0.75         |   | 98   | Rwanda                     | 6.13  | 78.35         | 0.31         |   |
| 10   | Luxembourg                  | 1.09  | 96.15         | 0.75         |   | 99   | Malawi                     | 6.16  | 78.25         | 0.30         |   |
| 10   | Malta                       | 1.09  | 96.15         | 0.75         |   | 100  | Honduras (2009)            | 6.46  | 77.19         | 0.30         |   |
| 10   | Netherlands                 | 1.09  | 96.15         | 0.75         |   | 101  | Guyana                     | 6.50  | 77.05         | 0.29         |   |
| 10   | Poland                      | 1.09  | 96.15         | 0.75         |   | 102  | Burundi                    | 6.59  | 76.73         | 0.28         |   |
| 10   | Portugal                    | 1.09  | 96.15         | 0.75         |   | 103  | Tanzania, United Rep.      | 6.61  | 76.66         | 0.28         |   |
| 10   | Romania                     | 1.09  | 96.15         | 0.75         |   | 104  | Côte d'Ivoire              | 6.79  | 76.02         | 0.27         |   |
| 10   | Slovakia                    | 1.09  | 96.15         | 0.75         |   | 105  | Uzbekistan (2009)          | 6.93  | 75.53         | 0.26         |   |
| 10   | Slovenia                    | 1.09  | 96.15         | 0.75         |   | 106  | Morocco (2009)             | 7.13  | 74.82         | 0.26         |   |
| 10   | Spain                       | 1.09  | 96.15         | 0.75         |   | 107  | Uganda                     | 7.31  | 74.19         | 0.25         |   |
| 10   | Sweden                      | 1.09  | 96.15         | 0.75         |   | 108  | Angola (2009)              | 7.44  | 73.73         | 0.24         |   |
| 10   | United Kingdom              | 1.09  | 96.15         | 0.75         |   | 109  | Jamaica                    | 7.45  | 73.69         | 0.23         |   |
| 37   | Albania                     | 1.26  | 95.55         | 0.74         | ● | 110  | Panama (2009)              | 7.61  | 73.13         | 0.23         |   |
| 38   | Croatia                     | 1.29  | 95.44         | 0.73         |   | 111  | Brazil                     | 7.86  | 72.25         | 0.22         |   |
| 38   | Japan                       | 1.29  | 95.44         | 0.73         |   | 112  | Egypt (2009)               | 8.05  | 71.57         | 0.21         |   |
| 40   | Peru                        | 1.51  | 94.67         | 0.72         |   | 113  | India (2009)               | 8.18  | 71.12         | 0.21         |   |
| 41   | Bosnia and Herzegovina      | 1.53  | 94.60         | 0.72         | ● | 114  | Mali                       | 8.40  | 70.34         | 0.20         |   |
| 42   | United States of America    | 1.58  | 94.42         | 0.71         |   | 115  | Senegal                    | 8.42  | 70.27         | 0.19         |   |
| 43   | New Zealand (2010)          | 1.62  | 94.28         | 0.70         |   | 116  | Ghana (2009)               | 8.58  | 69.70         | 0.18         |   |
| 44   | Belarus                     | 1.80  | 93.64         | 0.70         |   | 117  | Burkina Faso               | 8.60  | 69.63         | 0.18         |   |
| 45   | Australia                   | 1.81  | 93.61         | 0.69         |   | 118  | Algeria (2009)             | 8.61  | 69.60         | 0.17         |   |
| 46   | Ukraine                     | 1.91  | 93.26         | 0.68         |   | 119  | Venezuela, Bolivarian Rep. | 8.63  | 69.53         | 0.16         |   |
| 47   | TFYR of Macedonia           | 2.04  | 92.80         | 0.67         |   | 120  | Korea, Rep. (2010)         | 8.71  | 69.24         | 0.16         | ○ |
| 48   | Mexico (2010)               | 2.19  | 92.27         | 0.67         |   | 121  | Pakistan (2009)            | 9.53  | 66.35         | 0.15         |   |
| 49   | Armenia (2008)              | 2.27  | 91.98         | 0.66         |   | 122  | Niger                      | 9.68  | 65.82         | 0.14         |   |
| 50   | Guatemala                   | 2.28  | 91.95         | 0.65         | ● | 123  | Fiji                       | 9.89  | 65.08         | 0.13         | ○ |
| 51   | Nicaragua (2010)            | 2.30  | 91.88         | 0.65         | ● | 124  | Cambodia (2008)            | 9.91  | 65.01         | 0.13         |   |
| 52   | Kyrgyzstan                  | 2.42  | 91.45         | 0.64         |   | 125  | Trinidad and Tobago (2008) | 10.03 | 64.58         | 0.12         |   |
| 53   | Moldova, Rep. (2010)        | 2.46  | 91.31         | 0.63         |   | 126  | Cabo Verde                 | 10.20 | 63.98         | 0.11         | ○ |
| 54   | Indonesia                   | 2.59  | 90.85         | 0.62         |   | 127  | Ethiopia                   | 10.41 | 63.24         | 0.11         |   |
| 55   | Zambia                      | 2.69  | 90.50         | 0.62         |   | 128  | Nigeria (2010)             | 10.55 | 62.75         | 0.10         |   |
| 56   | Turkey                      | 2.74  | 90.32         | 0.61         |   | 129  | Lesotho                    | 10.66 | 62.36         | 0.09         |   |
| 57   | Costa Rica (2010)           | 3.09  | 89.09         | 0.60         |   | 130  | Togo                       | 11.08 | 60.88         | 0.09         |   |
| 58   | Oman (2009)                 | 3.17  | 88.81         | 0.60         |   | 131  | Guinea (2010)              | 11.91 | 57.94         | 0.08         |   |
| 59   | Myanmar (2008)              | 3.18  | 88.77         | 0.59         | ● | 132  | Cameroon                   | 11.93 | 57.87         | 0.07         | ○ |
| 60   | Kazakhstan                  | 3.40  | 87.99         | 0.58         |   | 133  | Nepal                      | 12.04 | 57.49         | 0.06         | ○ |
| 61   | Montenegro                  | 3.47  | 87.75         | 0.57         |   | 134  | Gambia                     | 12.49 | 55.90         | 0.06         | ○ |
| 62   | Israel (2009)               | 3.54  | 87.50         | 0.57         |   | 135  | Bangladesh (2008)          | 13.00 | 54.10         | 0.05         | ○ |
| 63   | Botswana                    | 3.64  | 87.15         | 0.56         |   | 136  | Sudan                      | 14.73 | 47.99         | 0.04         |   |
| 64   | Bolivia, Plurinational St.  | 3.68  | 87.01         | 0.55         | ● | 137  | Barbados (2007)            | 14.77 | 47.85         | 0.04         | ○ |
| 65   | United Arab Emirates (2009) | 3.73  | 86.83         | 0.55         |   | 138  | Benin                      | 14.96 | 47.18         | 0.03         | ○ |
| 66   | Uruguay                     | 3.75  | 86.76         | 0.54         |   | 139  | Tunisia (2008)             | 15.95 | 43.68         | 0.02         | ○ |
| 67   | Qatar (2009)                | 3.76  | 86.72         | 0.53         |   | 140  | Bhutan (2007)              | 17.75 | 37.32         | 0.01         | ○ |
| 68   | Yemen                       | 3.82  | 86.51         | 0.52         | ● | 141  | Iran, Islamic Rep.         | 21.77 | 23.13         | 0.01         | ○ |
| 69   | Saudi Arabia (2009)         | 3.87  | 86.33         | 0.52         |   | 142  | Seychelles (2007)          | 28.32 | 0.00          | 0.00         | ○ |
| 70   | Azerbaijan                  | 3.89  | 86.26         | 0.51         |   | n/a  | Zimbabwe                   | n/a   | n/a           | n/a          |   |
| 71   | Malaysia (2009)             | 3.95  | 86.05         | 0.50         |   |      |                            |       |               |              |   |
| 72   | Chile (2010)                | 4.02  | 85.81         | 0.50         |   |      |                            |       |               |              |   |
| 73   | China                       | 4.10  | 85.52         | 0.48         |   |      |                            |       |               |              |   |

SOURCE: World Bank, based on WITS, UNCTAD TRAINS, and UN COMTRADE; extracted from World Bank *World Development Indicators* database (2005–12)

NOTE: ● indicates a strength; ○ a weakness.

# 4.3.2

## Market access for non-agricultural exports

Non-agricultural market access: Five major export markets weighted actual applied tariff (%) | 2011

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|--------------------------|-------|---------------|--------------|---|
| 1    | Botswana                   | 0.00  | 100.00        | 0.96         | ● | 74   | Fiji                     | 0.97  | 89.84         | 0.47         |   |
| 1    | Burundi                    | 0.00  | 100.00        | 0.96         | ● | 75   | Uruguay                  | 0.97  | 89.82         | 0.47         |   |
| 1    | Jamaica                    | 0.00  | 100.00        | 0.96         | ● | 76   | Iran, Islamic Rep.       | 0.99  | 89.62         | 0.46         |   |
| 1    | Kenya                      | 0.00  | 100.00        | 0.96         | ● | 77   | Saudi Arabia             | 1.11  | 88.34         | 0.45         |   |
| 1    | Malawi                     | 0.00  | 100.00        | 0.96         | ● | 78   | Egypt                    | 1.15  | 87.94         | 0.45         |   |
| 1    | Moldova, Rep.              | 0.00  | 100.00        | 0.96         | ● | 79   | Thailand                 | 1.18  | 87.63         | 0.44         |   |
| 1    | Rwanda                     | 0.00  | 100.00        | 0.96         | ● | 80   | United States of America | 1.19  | 87.50         | 0.43         | ○ |
| 8    | Guyana                     | 0.00  | 99.97         | 0.95         | ● | 81   | Kyrgyzstan               | 1.21  | 87.24         | 0.42         |   |
| 9    | Azerbaijan                 | 0.01  | 99.94         | 0.94         | ● | 82   | Qatar                    | 1.23  | 87.01         | 0.42         |   |
| 10   | Gambia                     | 0.01  | 99.88         | 0.94         | ● | 83   | Turkey                   | 1.25  | 86.81         | 0.41         |   |
| 11   | Angola                     | 0.01  | 99.88         | 0.93         | ● | 84   | Montenegro               | 1.40  | 85.29         | 0.40         |   |
| 12   | Mauritius                  | 0.02  | 99.84         | 0.92         | ● | 85   | South Africa             | 1.51  | 84.13         | 0.40         |   |
| 13   | Costa Rica                 | 0.02  | 99.82         | 0.91         | ● | 86   | Kuwait                   | 1.51  | 84.07         | 0.39         |   |
| 14   | Bosnia and Herzegovina     | 0.03  | 99.72         | 0.91         | ● | 87   | Indonesia                | 1.60  | 83.21         | 0.38         |   |
| 15   | Honduras                   | 0.03  | 99.71         | 0.90         | ● | 88   | Uzbekistan               | 1.60  | 83.19         | 0.37         |   |
| 16   | Sudan                      | 0.03  | 99.67         | 0.89         | ● | 89   | India                    | 1.76  | 81.52         | 0.37         |   |
| 17   | Barbados                   | 0.04  | 99.62         | 0.88         | ● | 90   | Bahrain                  | 1.92  | 79.75         | 0.36         |   |
| 18   | Burkina Faso               | 0.04  | 99.55         | 0.88         | ● | 91   | Ghana                    | 1.93  | 79.68         | 0.35         |   |
| 19   | Albania                    | 0.05  | 99.52         | 0.87         | ● | 92   | Switzerland              | 2.08  | 78.17         | 0.35         | ○ |
| 20   | Nigeria                    | 0.05  | 99.50         | 0.86         | ● | 93   | Jordan                   | 2.33  | 75.51         | 0.34         |   |
| 21   | Mozambique                 | 0.05  | 99.49         | 0.86         | ● | 94   | China                    | 2.59  | 72.78         | 0.33         |   |
| 22   | Ethiopia                   | 0.05  | 99.47         | 0.85         | ● | 95   | Guinea                   | 3.07  | 67.67         | 0.32         | ● |
| 23   | Uganda                     | 0.05  | 99.47         | 0.84         | ● | 96   | Hong Kong (China)        | 3.30  | 65.28         | 0.32         | ○ |
| 24   | Lesotho                    | 0.06  | 99.34         | 0.83         | ● | 97   | Austria                  | 3.34  | 64.88         | 0.12         | ○ |
| 25   | TFYR of Macedonia          | 0.07  | 99.21         | 0.83         | ● | 97   | Belgium                  | 3.34  | 64.88         | 0.12         | ○ |
| 26   | Trinidad and Tobago        | 0.08  | 99.14         | 0.82         | ● | 97   | Bulgaria                 | 3.34  | 64.88         | 0.12         | ○ |
| 27   | Zimbabwe                   | 0.08  | 99.11         | 0.81         | ● | 97   | Cyprus                   | 3.34  | 64.88         | 0.12         | ○ |
| 28   | Colombia                   | 0.09  | 99.02         | 0.81         | ● | 97   | Czech Republic           | 3.34  | 64.88         | 0.12         | ○ |
| 29   | Cameroon                   | 0.10  | 98.90         | 0.80         | ● | 97   | Denmark                  | 3.34  | 64.88         | 0.12         | ○ |
| 30   | Mexico                     | 0.13  | 98.63         | 0.79         | ● | 97   | Estonia                  | 3.34  | 64.88         | 0.12         | ○ |
| 31   | Venezuela, Bolivarian Rep. | 0.13  | 98.62         | 0.78         | ● | 97   | Finland                  | 3.34  | 64.88         | 0.12         | ○ |
| 32   | Tanzania, United Rep.      | 0.15  | 98.41         | 0.78         | ● | 97   | France                   | 3.34  | 64.88         | 0.12         | ○ |
| 33   | Peru                       | 0.18  | 98.08         | 0.77         | ● | 97   | Germany                  | 3.34  | 64.88         | 0.12         | ○ |
| 34   | Canada                     | 0.20  | 97.91         | 0.76         | ● | 97   | Greece                   | 3.34  | 64.88         | 0.12         | ○ |
| 35   | Bolivia, Plurinational St. | 0.22  | 97.71         | 0.76         | ● | 97   | Hungary                  | 3.34  | 64.88         | 0.12         | ○ |
| 36   | Russian Federation         | 0.23  | 97.60         | 0.75         | ● | 97   | Ireland                  | 3.34  | 64.88         | 0.12         | ○ |
| 37   | Argentina                  | 0.23  | 97.56         | 0.74         | ● | 97   | Italy                    | 3.34  | 64.88         | 0.12         | ○ |
| 38   | Chile                      | 0.25  | 97.32         | 0.73         | ● | 97   | Latvia                   | 3.34  | 64.88         | 0.12         | ○ |
| 39   | Mongolia                   | 0.26  | 97.27         | 0.73         | ● | 97   | Lithuania                | 3.34  | 64.88         | 0.12         | ○ |
| 40   | Ecuador                    | 0.28  | 97.06         | 0.72         | ● | 97   | Luxembourg               | 3.34  | 64.88         | 0.12         | ○ |
| 41   | Kazakhstan                 | 0.29  | 96.97         | 0.71         | ● | 97   | Malta                    | 3.34  | 64.88         | 0.12         | ○ |
| 42   | Yemen                      | 0.30  | 96.88         | 0.71         | ● | 97   | Netherlands              | 3.34  | 64.88         | 0.12         | ○ |
| 43   | Nicaragua                  | 0.30  | 96.80         | 0.70         | ● | 97   | Poland                   | 3.34  | 64.88         | 0.12         | ○ |
| 44   | Tunisia                    | 0.33  | 96.49         | 0.69         | ● | 97   | Portugal                 | 3.34  | 64.88         | 0.12         | ○ |
| 45   | Brazil                     | 0.34  | 96.41         | 0.68         | ● | 97   | Romania                  | 3.34  | 64.88         | 0.12         | ○ |
| 46   | Nepal                      | 0.38  | 96.04         | 0.68         | ● | 97   | Slovakia                 | 3.34  | 64.88         | 0.12         | ○ |
| 47   | Cabo Verde                 | 0.39  | 95.88         | 0.67         | ● | 97   | Slovenia                 | 3.34  | 64.88         | 0.12         | ○ |
| 48   | Malaysia                   | 0.44  | 95.38         | 0.66         | ● | 97   | Spain                    | 3.34  | 64.88         | 0.12         | ○ |
| 49   | Norway                     | 0.47  | 95.04         | 0.65         | ● | 97   | Sweden                   | 3.34  | 64.88         | 0.12         | ○ |
| 50   | Croatia                    | 0.47  | 95.03         | 0.65         | ● | 97   | United Kingdom           | 3.34  | 64.88         | 0.12         | ○ |
| 51   | Zambia                     | 0.48  | 94.91         | 0.64         | ● | 124  | Senegal                  | 3.56  | 62.52         | 0.12         |   |
| 52   | Niger                      | 0.50  | 94.73         | 0.63         | ● | 125  | Tajikistan               | 3.64  | 61.76         | 0.11         |   |
| 53   | New Zealand                | 0.52  | 94.53         | 0.63         | ● | 126  | United Arab Emirates     | 3.70  | 61.11         | 0.10         | ○ |
| 54   | El Salvador                | 0.55  | 94.23         | 0.62         | ● | 127  | Bangladesh               | 3.78  | 60.22         | 0.09         |   |
| 55   | Georgia                    | 0.61  | 93.56         | 0.61         | ● | 128  | Mali                     | 3.84  | 59.60         | 0.09         |   |
| 56   | Australia                  | 0.62  | 93.50         | 0.60         | ● | 129  | Japan                    | 3.96  | 58.31         | 0.08         | ○ |
| 57   | Dominican Republic         | 0.64  | 93.30         | 0.60         | ● | 130  | Korea, Rep.              | 4.52  | 52.42         | 0.07         | ○ |
| 58   | Guatemala                  | 0.66  | 93.02         | 0.59         | ● | 131  | Panama                   | 4.64  | 51.23         | 0.06         | ○ |
| 59   | Armenia                    | 0.67  | 92.93         | 0.58         | ● | 132  | Viet Nam                 | 5.13  | 46.02         | 0.06         | ○ |
| 60   | Singapore                  | 0.71  | 92.56         | 0.58         | ● | 133  | Swaziland                | 5.56  | 41.52         | 0.05         | ○ |
| 61   | Brunei Darussalam          | 0.71  | 92.55         | 0.57         | ● | 134  | Togo                     | 5.82  | 38.76         | 0.04         | ○ |
| 62   | Israel                     | 0.72  | 92.44         | 0.56         | ● | 135  | Pakistan                 | 6.78  | 28.72         | 0.04         | ○ |
| 63   | Namibia                    | 0.74  | 92.26         | 0.55         | ● | 136  | Benin                    | 6.95  | 26.91         | 0.03         | ○ |
| 64   | Oman                       | 0.74  | 92.18         | 0.55         | ● | 137  | Belarus                  | 7.03  | 26.06         | 0.02         | ○ |
| 65   | Ukraine                    | 0.75  | 92.10         | 0.54         | ● | 138  | Sri Lanka                | 7.29  | 23.29         | 0.01         | ○ |
| 66   | Morocco                    | 0.77  | 91.88         | 0.53         | ● | 139  | Cambodia                 | 8.26  | 13.11         | 0.01         | ○ |
| 67   | Madagascar                 | 0.78  | 91.74         | 0.53         | ● | 140  | Serbia                   | 9.51  | 0.00          | 0.00         | ○ |
| 68   | Philippines                | 0.81  | 91.50         | 0.52         | ● | n/a  | Algeria                  | n/a   | n/a           | n/a          |   |
| 69   | Côte d'Ivoire              | 0.86  | 90.93         | 0.51         | ● | n/a  | Bhutan                   | n/a   | n/a           | n/a          |   |
| 70   | Myanmar                    | 0.89  | 90.65         | 0.50         | ● | n/a  | Lebanon                  | n/a   | n/a           | n/a          |   |
| 71   | Seychelles                 | 0.89  | 90.63         | 0.50         | ● |      |                          |       |               |              |   |
| 72   | Iceland                    | 0.95  | 90.00         | 0.49         | ● |      |                          |       |               |              |   |
| 73   | Paraguay                   | 0.96  | 89.92         | 0.48         | ● |      |                          |       |               |              |   |

SOURCE: World Trade Organization, International Trade Centre, and United Nations Conference on Trade and Development, *World Tariff Profiles 2013* (2010–11)

NOTE: ● indicates a strength; ○ a weakness.

## 4.3.3 Intensity of local competition

Average answer to the survey question: In your country, how intense is competition in the local markets? [1 = not intense at all; 7 = extremely intense] | 2013

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Japan                    | 6.24  | 87.33         | 1.00         | ● | 74   | Cambodia                   | 4.90  | 65.00         | 0.45         |   |
| 2    | United Kingdom           | 6.04  | 84.00         | 0.99         | ● | 74   | Portugal                   | 4.90  | 65.00         | 0.45         |   |
| 3    | Malta                    | 6.01  | 83.50         | 0.99         | ● | 76   | Pakistan                   | 4.89  | 64.83         | 0.44         |   |
| 4    | Netherlands              | 6.00  | 83.33         | 0.98         | ● | 77   | Tunisia                    | 4.87  | 64.50         | 0.44         |   |
| 5    | Belgium                  | 5.97  | 82.83         | 0.97         | ● | 78   | Madagascar                 | 4.85  | 64.17         | 0.42         |   |
| 6    | Hong Kong (China)        | 5.92  | 82.00         | 0.96         |   | 78   | Zimbabwe                   | 4.85  | 64.17         | 0.42         |   |
| 7    | Korea, Rep.              | 5.89  | 81.50         | 0.96         |   | 80   | Iceland                    | 4.84  | 64.00         | 0.41         | ○ |
| 8    | Germany                  | 5.86  | 81.00         | 0.95         | ● | 81   | Gambia                     | 4.81  | 63.50         | 0.41         |   |
| 9    | Austria                  | 5.83  | 80.50         | 0.93         | ● | 82   | TFYR of Macedonia          | 4.80  | 63.33         | 0.40         |   |
| 9    | Czech Republic           | 5.83  | 80.50         | 0.93         | ● | 83   | Finland                    | 4.78  | 63.00         | 0.39         | ○ |
| 11   | Australia                | 5.82  | 80.33         | 0.92         |   | 84   | Greece                     | 4.75  | 62.50         | 0.39         |   |
| 11   | United States of America | 5.82  | 80.33         | 0.92         |   | 85   | Benin                      | 4.74  | 62.33         | 0.36         |   |
| 13   | Turkey                   | 5.79  | 79.83         | 0.91         | ● | 85   | Rwanda                     | 4.74  | 62.33         | 0.36         |   |
| 14   | Qatar                    | 5.76  | 79.33         | 0.90         |   | 85   | Trinidad and Tobago        | 4.74  | 62.33         | 0.36         |   |
| 15   | United Arab Emirates     | 5.71  | 78.50         | 0.90         | ● | 88   | Botswana                   | 4.73  | 62.17         | 0.35         |   |
| 16   | Saudi Arabia             | 5.69  | 78.17         | 0.89         | ● | 88   | Cameroon                   | 4.73  | 62.17         | 0.35         |   |
| 17   | Singapore                | 5.64  | 77.33         | 0.88         |   | 90   | Lesotho                    | 4.72  | 62.00         | 0.34         |   |
| 18   | Sri Lanka                | 5.61  | 76.83         | 0.87         | ● | 91   | Bhutan                     | 4.69  | 61.50         | 0.33         |   |
| 18   | Switzerland              | 5.61  | 76.83         | 0.87         |   | 91   | Israel                     | 4.69  | 61.50         | 0.33         | ○ |
| 20   | Estonia                  | 5.59  | 76.50         | 0.86         |   | 93   | Myanmar                    | 4.61  | 60.17         | 0.32         |   |
| 21   | Sweden                   | 5.57  | 76.17         | 0.85         |   | 94   | Mongolia                   | 4.60  | 60.00         | 0.31         |   |
| 22   | India                    | 5.55  | 75.83         | 0.84         | ● | 95   | Namibia                    | 4.59  | 59.83         | 0.30         |   |
| 23   | Lebanon                  | 5.54  | 75.67         | 0.84         | ● | 95   | Seychelles                 | 4.59  | 59.83         | 0.30         |   |
| 24   | France                   | 5.52  | 75.33         | 0.83         |   | 97   | Armenia                    | 4.58  | 59.67         | 0.28         |   |
| 25   | Denmark                  | 5.48  | 74.67         | 0.81         |   | 97   | Bulgaria                   | 4.58  | 59.67         | 0.28         | ○ |
| 25   | Spain                    | 5.48  | 74.67         | 0.81         |   | 99   | Honduras                   | 4.56  | 59.33         | 0.27         |   |
| 27   | Slovakia                 | 5.47  | 74.50         | 0.81         |   | 100  | El Salvador                | 4.55  | 59.17         | 0.27         |   |
| 28   | Mauritius                | 5.46  | 74.33         | 0.80         |   | 101  | Ukraine                    | 4.54  | 59.00         | 0.26         |   |
| 29   | Malaysia                 | 5.44  | 74.00         | 0.79         |   | 102  | Croatia                    | 4.52  | 58.67         | 0.25         | ○ |
| 29   | New Zealand              | 5.44  | 74.00         | 0.79         |   | 103  | Kuwait                     | 4.51  | 58.50         | 0.24         |   |
| 31   | Canada                   | 5.43  | 73.83         | 0.78         |   | 103  | Nepal                      | 4.51  | 58.50         | 0.24         |   |
| 32   | Latvia                   | 5.40  | 73.33         | 0.77         |   | 105  | Mali                       | 4.50  | 58.33         | 0.23         |   |
| 33   | Kenya                    | 5.39  | 73.17         | 0.76         | ● | 106  | Ecuador                    | 4.49  | 58.17         | 0.21         |   |
| 34   | Chile                    | 5.38  | 73.00         | 0.75         |   | 106  | Russian Federation         | 4.49  | 58.17         | 0.21         | ○ |
| 34   | Lithuania                | 5.38  | 73.00         | 0.75         |   | 108  | Uruguay                    | 4.46  | 57.67         | 0.21         | ○ |
| 36   | Poland                   | 5.35  | 72.50         | 0.74         |   | 109  | Romania                    | 4.40  | 56.67         | 0.20         | ○ |
| 37   | Norway                   | 5.34  | 72.33         | 0.73         |   | 110  | Burkina Faso               | 4.39  | 56.50         | 0.19         |   |
| 38   | Bahrain                  | 5.33  | 72.17         | 0.73         |   | 111  | Swaziland                  | 4.36  | 56.00         | 0.18         |   |
| 39   | Thailand                 | 5.32  | 72.00         | 0.72         |   | 111  | Yemen                      | 4.36  | 56.00         | 0.18         |   |
| 40   | Ireland                  | 5.29  | 71.50         | 0.71         |   | 113  | Kazakhstan                 | 4.35  | 55.83         | 0.16         | ○ |
| 41   | Hungary                  | 5.28  | 71.33         | 0.70         |   | 113  | Moldova, Rep.              | 4.35  | 55.83         | 0.16         | ○ |
| 42   | Jordan                   | 5.27  | 71.17         | 0.70         |   | 115  | Iran, Islamic Rep.         | 4.34  | 55.67         | 0.16         |   |
| 43   | China                    | 5.26  | 71.00         | 0.68         |   | 116  | Cabo Verde                 | 4.32  | 55.33         | 0.14         | ○ |
| 43   | South Africa             | 5.26  | 71.00         | 0.68         |   | 116  | Georgia                    | 4.32  | 55.33         | 0.14         | ○ |
| 45   | Cyprus                   | 5.25  | 70.83         | 0.67         |   | 118  | Kyrgyzstan                 | 4.28  | 54.67         | 0.13         |   |
| 46   | Slovenia                 | 5.23  | 70.50         | 0.66         |   | 119  | Malawi                     | 4.27  | 54.50         | 0.13         |   |
| 46   | Zambia                   | 5.23  | 70.50         | 0.66         | ● | 120  | Mozambique                 | 4.20  | 53.33         | 0.12         |   |
| 48   | Barbados                 | 5.21  | 70.17         | 0.64         |   | 121  | Tanzania, United Rep.      | 4.18  | 53.00         | 0.11         |   |
| 48   | Viet Nam                 | 5.21  | 70.17         | 0.64         |   | 122  | Azerbaijan                 | 4.17  | 52.83         | 0.10         | ○ |
| 50   | Costa Rica               | 5.20  | 70.00         | 0.61         |   | 123  | Egypt                      | 4.06  | 51.00         | 0.09         | ○ |
| 50   | Guatemala                | 5.20  | 70.00         | 0.61         |   | 123  | Guinea                     | 4.06  | 51.00         | 0.09         |   |
| 50   | Jamaica                  | 5.20  | 70.00         | 0.61         |   | 125  | Ethiopia                   | 4.03  | 50.50         | 0.08         |   |
| 50   | Oman                     | 5.20  | 70.00         | 0.61         |   | 126  | Argentina                  | 4.01  | 50.17         | 0.07         | ○ |
| 54   | Paraguay                 | 5.18  | 69.67         | 0.61         | ● | 127  | Montenegro                 | 3.87  | 47.83         | 0.07         | ○ |
| 55   | Senegal                  | 5.13  | 68.83         | 0.60         | ● | 128  | Nicaragua                  | 3.84  | 47.33         | 0.06         | ○ |
| 56   | Luxembourg               | 5.12  | 68.67         | 0.59         |   | 129  | Bolivia, Plurinational St. | 3.83  | 47.17         | 0.04         | ○ |
| 56   | Morocco                  | 5.12  | 68.67         | 0.59         |   | 129  | Serbia                     | 3.83  | 47.17         | 0.04         | ○ |
| 58   | Peru                     | 5.10  | 68.33         | 0.58         |   | 131  | Algeria                    | 3.56  | 42.67         | 0.04         | ○ |
| 59   | Brunei Darussalam        | 5.08  | 68.00         | 0.57         |   | 132  | Albania                    | 3.42  | 40.33         | 0.02         | ○ |
| 60   | Philippines              | 5.07  | 67.83         | 0.56         |   | 132  | Bosnia and Herzegovina     | 3.42  | 40.33         | 0.02         | ○ |
| 61   | Colombia                 | 5.06  | 67.67         | 0.56         |   | 134  | Burundi                    | 3.29  | 38.17         | 0.01         | ○ |
| 62   | Mexico                   | 5.05  | 67.50         | 0.55         |   | 135  | Venezuela, Bolivarian Rep. | 3.04  | 34.00         | 0.01         | ○ |
| 63   | Indonesia                | 5.03  | 67.17         | 0.54         |   | 136  | Angola                     | 2.82  | 30.33         | 0.00         | ○ |
| 64   | Ghana                    | 5.02  | 67.00         | 0.53         |   | n/a  | Belarus                    | n/a   | n/a           | n/a          |   |
| 64   | Uganda                   | 5.02  | 67.00         | 0.53         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 66   | Guyana                   | 4.99  | 66.50         | 0.52         |   | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 67   | Brazil                   | 4.98  | 66.33         | 0.51         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |   |
| 68   | Côte d'Ivoire            | 4.97  | 66.17         | 0.50         | ● | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 68   | Panama                   | 4.97  | 66.17         | 0.50         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 70   | Italy                    | 4.95  | 65.83         | 0.49         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 71   | Bangladesh               | 4.93  | 65.50         | 0.48         |   |      |                            |       |               |              |   |
| 72   | Dominican Republic       | 4.92  | 65.33         | 0.47         |   |      |                            |       |               |              |   |
| 73   | Nigeria                  | 4.91  | 65.17         | 0.47         |   |      |                            |       |               |              |   |

SOURCE: World Economic Forum, *Executive Opinion Survey 2013–2014*

NOTE: ● indicates a strength; ○ a weakness.

# 5.1.1

## Employment in knowledge-intensive services

Employment in knowledge-intensive services (% of workforce) | 2012

| Rank | Country/Economy                 | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   |
|------|---------------------------------|-------|---------------|--------------|---|------|-----------------------------------|-------|---------------|--------------|---|
| 1    | Luxembourg                      | 57.18 | 100.00        | 1.00         | ● | 74   | Pakistan (2008)                   | 19.48 | 33.19         | 0.33         |   |
| 2    | Singapore (2008)                | 51.02 | 89.09         | 0.99         | ● | 75   | Algeria (2004)                    | 19.10 | 32.52         | 0.32         |   |
| 3    | Switzerland                     | 49.84 | 86.99         | 0.98         |   | 76   | Sri Lanka (2010)                  | 19.06 | 32.45         | 0.31         |   |
| 4    | Sweden                          | 47.58 | 82.99         | 0.97         | ● | 77   | Kuwait (2005)                     | 18.71 | 31.82         | 0.30         |   |
| 5    | United Kingdom                  | 47.20 | 82.32         | 0.96         |   | 78   | Venezuela, Bolivarian Rep.        | 18.59 | 31.62         | 0.29         |   |
| 6    | Iceland                         | 46.87 | 81.74         | 0.95         |   | 79   | Kyrgyzstan                        | 17.56 | 29.79         | 0.28         |   |
| 7    | Norway                          | 45.96 | 80.12         | 0.94         |   | 80   | Dominican Republic                | 17.33 | 29.38         | 0.28         |   |
| 8    | Netherlands                     | 45.92 | 80.05         | 0.94         |   | 81   | Botswana (2006)                   | 17.10 | 28.98         | 0.27         |   |
| 9    | Denmark                         | 45.18 | 78.73         | 0.93         |   | 82   | Yemen (2005)                      | 16.97 | 28.74         | 0.26         |   |
| 10   | France                          | 44.75 | 77.98         | 0.92         | ● | 83   | Namibia (2004)                    | 16.95 | 28.71         | 0.25         |   |
| 11   | Belgium                         | 44.60 | 77.70         | 0.91         |   | 84   | Colombia (2010)                   | 16.82 | 28.47         | 0.24         |   |
| 12   | Finland                         | 43.90 | 76.47         | 0.90         |   | 85   | Bhutan (2010)                     | 16.48 | 27.89         | 0.23         |   |
| 13   | Canada                          | 43.80 | 76.29         | 0.89         |   | 86   | Albania (2009)                    | 16.08 | 27.17         | 0.22         |   |
| 14   | Germany                         | 43.51 | 75.78         | 0.88         |   | 87   | Ethiopia (2011)                   | 15.85 | 26.77         | 0.21         |   |
| 15   | New Zealand (2008)              | 42.92 | 74.73         | 0.87         |   | 88   | Paraguay                          | 15.43 | 26.02         | 0.20         |   |
| 16   | Australia (2008)                | 42.87 | 74.64         | 0.86         |   | 89   | Iran, Islamic Rep. (2009)         | 15.32 | 25.83         | 0.19         |   |
| 17   | Russian Federation              | 42.79 | 74.51         | 0.85         | ● | 90   | Peru                              | 15.26 | 25.72         | 0.18         |   |
| 18   | Lithuania                       | 42.78 | 74.48         | 0.84         | ● | 91   | Bolivia, Plurinational St. (2009) | 15.25 | 25.71         | 0.17         |   |
| 19   | Israel                          | 42.39 | 73.79         | 0.83         |   | 92   | Nicaragua (2006)                  | 14.82 | 24.95         | 0.17         |   |
| 20   | Estonia                         | 41.82 | 72.78         | 0.83         |   | 93   | Mexico                            | 14.74 | 24.80         | 0.16         | ○ |
| 21   | Slovenia                        | 41.37 | 71.99         | 0.82         |   | 94   | Ecuador                           | 14.65 | 24.64         | 0.15         |   |
| 22   | Ireland                         | 41.21 | 71.70         | 0.81         |   | 95   | Honduras (2005)                   | 12.83 | 21.42         | 0.14         | ○ |
| 23   | Malta                           | 39.69 | 69.00         | 0.80         |   | 96   | El Salvador                       | 11.94 | 19.84         | 0.13         |   |
| 24   | Latvia                          | 39.48 | 68.63         | 0.79         |   | 97   | Thailand                          | 10.94 | 18.07         | 0.12         | ○ |
| 25   | Austria                         | 38.51 | 66.92         | 0.78         |   | 98   | Guatemala                         | 9.45  | 15.41         | 0.11         |   |
| 26   | Czech Republic                  | 37.29 | 64.76         | 0.77         |   | 99   | Indonesia (2010)                  | 8.59  | 13.89         | 0.10         |   |
| 27   | Montenegro                      | 37.21 | 64.62         | 0.76         | ● | 100  | Viet Nam (2004)                   | 7.41  | 11.80         | 0.09         | ○ |
| 28   | United States of America (2008) | 36.30 | 62.99         | 0.75         |   | 101  | China (2005)                      | 7.37  | 11.74         | 0.08         | ○ |
| 29   | Hong Kong (China) (2010)        | 36.22 | 62.85         | 0.74         |   | 102  | Bangladesh (2005)                 | 7.33  | 11.66         | 0.07         | ○ |
| 30   | United Arab Emirates (2008)     | 36.09 | 62.63         | 0.73         |   | 103  | Zambia (2010)                     | 7.28  | 11.58         | 0.06         | ○ |
| 31   | Belarus (2009)                  | 35.88 | 62.27         | 0.72         |   | 104  | Morocco (2008)                    | 6.79  | 10.70         | 0.06         | ○ |
| 32   | Hungary                         | 35.44 | 61.47         | 0.72         |   | 105  | Zimbabwe (2011)                   | 6.61  | 10.39         | 0.05         |   |
| 33   | Poland                          | 35.09 | 60.85         | 0.71         |   | 106  | Uganda (2009)                     | 4.36  | 6.40          | 0.04         | ○ |
| 34   | Cyprus                          | 34.97 | 60.65         | 0.70         |   | 107  | Madagascar (2010)                 | 2.85  | 3.73          | 0.03         | ○ |
| 35   | Italy                           | 34.52 | 59.85         | 0.69         |   | 108  | Tanzania, United Rep. (2006)      | 2.57  | 3.23          | 0.02         | ○ |
| 36   | Egypt                           | 33.99 | 58.91         | 0.68         | ● | 109  | Cambodia (2004)                   | 2.52  | 3.14          | 0.01         | ○ |
| 37   | Ukraine                         | 33.82 | 58.61         | 0.67         |   | 110  | Guinea (2010)                     | 0.75  | 0.00          | 0.00         | ○ |
| 38   | Slovakia                        | 32.93 | 57.03         | 0.66         |   | n/a  | Angola                            | n/a   | n/a           | n/a          |   |
| 39   | Spain                           | 32.48 | 56.24         | 0.65         |   | n/a  | Armenia                           | n/a   | n/a           | n/a          |   |
| 40   | Croatia                         | 32.25 | 55.82         | 0.64         |   | n/a  | Benin                             | n/a   | n/a           | n/a          |   |
| 41   | Lebanon (2007)                  | 31.86 | 55.13         | 0.63         |   | n/a  | Bosnia and Herzegovina            | n/a   | n/a           | n/a          |   |
| 42   | Moldova, Rep.                   | 31.34 | 54.21         | 0.62         |   | n/a  | Brunei Darussalam                 | n/a   | n/a           | n/a          |   |
| 43   | Greece                          | 31.09 | 53.76         | 0.61         |   | n/a  | Burkina Faso                      | n/a   | n/a           | n/a          |   |
| 44   | Portugal                        | 30.99 | 53.59         | 0.61         |   | n/a  | Burundi                           | n/a   | n/a           | n/a          |   |
| 45   | Serbia                          | 30.43 | 52.59         | 0.60         |   | n/a  | Cabo Verde                        | n/a   | n/a           | n/a          |   |
| 46   | Barbados (2004)                 | 30.30 | 52.37         | 0.59         |   | n/a  | Cameroon                          | n/a   | n/a           | n/a          |   |
| 47   | TFYR of Macedonia               | 29.64 | 51.20         | 0.58         |   | n/a  | Côte d'Ivoire                     | n/a   | n/a           | n/a          |   |
| 48   | Bulgaria                        | 29.56 | 51.06         | 0.57         |   | n/a  | Fiji                              | n/a   | n/a           | n/a          |   |
| 49   | Kazakhstan (2010)               | 29.27 | 50.54         | 0.56         |   | n/a  | Gambia                            | n/a   | n/a           | n/a          |   |
| 50   | Malaysia (2010)                 | 27.53 | 47.46         | 0.55         |   | n/a  | Ghana                             | n/a   | n/a           | n/a          |   |
| 51   | Seychelles (2011)               | 26.25 | 45.19         | 0.54         |   | n/a  | Guyana                            | n/a   | n/a           | n/a          |   |
| 52   | South Africa                    | 25.28 | 43.48         | 0.53         |   | n/a  | India                             | n/a   | n/a           | n/a          |   |
| 53   | Trinidad and Tobago (2010)      | 25.01 | 43.00         | 0.52         |   | n/a  | Jordan                            | n/a   | n/a           | n/a          |   |
| 54   | Argentina (2010)                | 25.00 | 42.97         | 0.51         |   | n/a  | Kenya                             | n/a   | n/a           | n/a          |   |
| 55   | Japan                           | 24.93 | 42.85         | 0.50         |   | n/a  | Lesotho                           | n/a   | n/a           | n/a          |   |
| 56   | Panama                          | 24.39 | 41.90         | 0.50         |   | n/a  | Malawi                            | n/a   | n/a           | n/a          |   |
| 57   | Azerbaijan (2010)               | 24.22 | 41.60         | 0.49         |   | n/a  | Mali                              | n/a   | n/a           | n/a          |   |
| 58   | Qatar (2007)                    | 24.19 | 41.54         | 0.48         |   | n/a  | Mozambique                        | n/a   | n/a           | n/a          |   |
| 59   | Chile                           | 24.06 | 41.31         | 0.47         |   | n/a  | Myanmar                           | n/a   | n/a           | n/a          |   |
| 60   | Mongolia (2010)                 | 24.04 | 41.28         | 0.46         |   | n/a  | Nepal                             | n/a   | n/a           | n/a          |   |
| 61   | Costa Rica                      | 23.86 | 40.96         | 0.45         |   | n/a  | Niger                             | n/a   | n/a           | n/a          |   |
| 62   | Uruguay (2011)                  | 23.13 | 39.65         | 0.44         |   | n/a  | Nigeria                           | n/a   | n/a           | n/a          |   |
| 63   | Saudi Arabia (2008)             | 22.88 | 39.23         | 0.43         |   | n/a  | Oman                              | n/a   | n/a           | n/a          |   |
| 64   | Philippines                     | 22.46 | 38.48         | 0.42         |   | n/a  | Rwanda                            | n/a   | n/a           | n/a          |   |
| 65   | Georgia (2007)                  | 22.25 | 38.10         | 0.41         |   | n/a  | Senegal                           | n/a   | n/a           | n/a          |   |
| 66   | Romania                         | 22.20 | 38.01         | 0.40         |   | n/a  | Sudan                             | n/a   | n/a           | n/a          |   |
| 67   | Korea, Rep. (2010)              | 21.54 | 36.85         | 0.39         |   | n/a  | Swaziland                         | n/a   | n/a           | n/a          |   |
| 68   | Tunisia                         | 20.94 | 35.78         | 0.39         |   | n/a  | Tajikistan                        | n/a   | n/a           | n/a          |   |
| 69   | Bahrain (2008)                  | 20.73 | 35.42         | 0.38         |   | n/a  | Togo                              | n/a   | n/a           | n/a          |   |
| 70   | Brazil                          | 20.50 | 35.01         | 0.37         |   | n/a  | Uzbekistan                        | n/a   | n/a           | n/a          |   |
| 71   | Mauritius                       | 20.37 | 34.78         | 0.36         |   |      |                                   |       |               |              |   |
| 72   | Turkey                          | 20.21 | 34.49         | 0.35         |   |      |                                   |       |               |              |   |
| 73   | Jamaica (2008)                  | 20.11 | 34.32         | 0.34         |   |      |                                   |       |               |              |   |

SOURCE: International Labour Organization, LABORSTA Database of Labor Statistics (2004–08), and ILOSTAT Database of Labor Statistics Beta version (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

# 5.1.2 Firms offering formal training

## Firms offering formal training (% of firms) | 2009

| Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|-------|---------------|--------------|---|------|--------------------------|-------|---------------|--------------|---|
| 1    | China (2012)                      | 79.20 | 100.00        | 1.00         | ● | 74   | Jamaica (2010)           | 26.10 | 28.92         | 0.30         |   |
| 2    | Thailand (2006)                   | 75.30 | 94.78         | 0.99         | ● | 75   | Romania                  | 25.90 | 28.65         | 0.30         |   |
| 3    | Ireland (2005)                    | 73.20 | 91.97         | 0.98         | ● | 76   | Nigeria (2007)           | 25.70 | 28.38         | 0.29         |   |
| 4    | Czech Republic                    | 69.60 | 87.15         | 0.97         | ● | 77   | Gambia (2006)            | 25.60 | 28.25         | 0.28         |   |
| 5    | Estonia                           | 69.30 | 86.75         | 0.96         | ● | 78   | Montenegro               | 25.20 | 27.71         | 0.27         | ○ |
| 6    | Bosnia and Herzegovina            | 67.50 | 84.34         | 0.95         | ● | 79   | Burkina Faso             | 24.90 | 27.31         | 0.26         |   |
| 7    | Mongolia                          | 61.00 | 75.64         | 0.94         | ● | 80   | Morocco (2007)           | 24.70 | 27.04         | 0.25         |   |
| 8    | Poland                            | 60.50 | 74.97         | 0.93         | ● | 81   | Ukraine (2008)           | 24.60 | 26.91         | 0.24         |   |
| 9    | El Salvador (2010)                | 60.40 | 74.83         | 0.92         | ● | 82   | Cameroon                 | 24.50 | 26.77         | 0.23         |   |
| 10   | Argentina (2010)                  | 58.10 | 71.75         | 0.90         | ● | 83   | Cabo Verde               | 24.10 | 26.24         | 0.22         |   |
| 10   | Fiji                              | 58.10 | 71.75         | 0.90         | ● | 84   | Jordan (2006)            | 23.90 | 25.97         | 0.21         | ○ |
| 12   | Peru (2010)                       | 57.00 | 70.28         | 0.90         | ● | 85   | Ethiopia (2011)          | 23.00 | 24.77         | 0.20         |   |
| 13   | Colombia (2010)                   | 56.70 | 69.88         | 0.89         | ● | 86   | Burundi (2006)           | 22.10 | 23.56         | 0.19         |   |
| 14   | Ecuador (2010)                    | 56.40 | 69.48         | 0.88         | ● | 87   | Mozambique (2007)        | 22.00 | 23.43         | 0.18         |   |
| 15   | Dominican Republic (2010)         | 55.90 | 68.81         | 0.87         | ● | 88   | Egypt (2008)             | 21.70 | 23.03         | 0.17         |   |
| 16   | Lesotho                           | 54.40 | 66.80         | 0.86         | ● | 89   | Côte d'Ivoire            | 21.30 | 22.49         | 0.16         |   |
| 17   | Bolivia, Plurinational St. (2010) | 54.10 | 66.40         | 0.85         | ● | 90   | Tajikistan (2008)        | 21.20 | 22.36         | 0.15         |   |
| 18   | Guyana (2010)                     | 53.40 | 65.46         | 0.84         | ● | 91   | Guinea (2006)            | 21.10 | 22.22         | 0.14         |   |
| 19   | Barbados (2010)                   | 53.10 | 65.06         | 0.83         | ● | 92   | Greece (2005)            | 20.00 | 20.75         | 0.13         | ○ |
| 20   | Brazil                            | 52.70 | 64.52         | 0.82         | ● | 93   | Albania (2007)           | 19.90 | 20.62         | 0.11         |   |
| 21   | Lebanon                           | 52.40 | 64.12         | 0.81         | ● | 93   | Senegal (2007)           | 19.90 | 20.62         | 0.11         |   |
| 22   | Rwanda (2011)                     | 52.30 | 63.99         | 0.80         | ● | 95   | TFYR of Macedonia        | 19.00 | 19.41         | 0.10         | ○ |
| 23   | Botswana (2010)                   | 51.80 | 63.32         | 0.79         | ● | 96   | Algeria (2007)           | 17.30 | 17.14         | 0.10         |   |
| 24   | Paraguay (2010)                   | 51.70 | 63.19         | 0.78         | ● | 97   | India (2006)             | 15.90 | 15.26         | 0.09         | ○ |
| 25   | Spain (2005)                      | 51.30 | 62.65         | 0.77         | ● | 98   | Georgia (2008)           | 14.90 | 13.92         | 0.08         | ○ |
| 26   | Swaziland (2006)                  | 51.00 | 62.25         | 0.76         | ● | 99   | Hungary                  | 14.60 | 13.52         | 0.07         | ○ |
| 27   | Malaysia (2007)                   | 50.10 | 61.04         | 0.75         | ● | 100  | Sri Lanka (2011)         | 13.10 | 11.51         | 0.06         | ○ |
| 28   | Costa Rica (2010)                 | 48.90 | 59.44         | 0.74         | ● | 101  | Azerbaijan               | 10.50 | 8.03          | 0.05         | ○ |
| 29   | Slovenia                          | 48.60 | 59.04         | 0.73         | ● | 102  | Uzbekistan (2008)        | 9.60  | 6.83          | 0.04         | ○ |
| 30   | Cambodia (2007)                   | 48.40 | 58.77         | 0.72         | ● | 103  | Panama (2010)            | 8.60  | 5.49          | 0.03         | ○ |
| 31   | Belarus (2013)                    | 47.70 | 57.83         | 0.71         | ● | 104  | Yemen (2010)             | 7.30  | 3.75          | 0.02         | ○ |
| 32   | Malawi                            | 47.60 | 57.70         | 0.70         | ● | 105  | Indonesia                | 4.80  | 0.40          | 0.01         | ○ |
| 33   | Lithuania                         | 46.80 | 56.63         | 0.70         | ● | 106  | Pakistan (2007)          | 4.50  | 0.00          | 0.00         | ○ |
| 34   | Chile (2010)                      | 45.90 | 55.42         | 0.69         | ● | n/a  | Australia                | n/a   | n/a           | n/a          |   |
| 35   | Mexico (2010)                     | 45.10 | 54.35         | 0.68         | ● | n/a  | Austria                  | n/a   | n/a           | n/a          |   |
| 36   | Namibia (2006)                    | 44.50 | 53.55         | 0.67         | ● | n/a  | Bahrain                  | n/a   | n/a           | n/a          |   |
| 37   | Russian Federation (2012)         | 44.30 | 53.28         | 0.66         | ● | n/a  | Bangladesh               | n/a   | n/a           | n/a          |   |
| 38   | Guatemala (2010)                  | 43.60 | 52.34         | 0.64         | ● | n/a  | Belgium                  | n/a   | n/a           | n/a          |   |
| 38   | Viet Nam                          | 43.60 | 52.34         | 0.64         | ● | n/a  | Brunei Darussalam        | n/a   | n/a           | n/a          |   |
| 40   | Kazakhstan                        | 41.70 | 49.80         | 0.63         | ● | n/a  | Canada                   | n/a   | n/a           | n/a          |   |
| 41   | Latvia                            | 41.40 | 49.40         | 0.62         | ● | n/a  | Cyprus                   | n/a   | n/a           | n/a          |   |
| 42   | Korea, Rep. (2005)                | 39.50 | 46.85         | 0.61         | ● | n/a  | Denmark                  | n/a   | n/a           | n/a          |   |
| 43   | Venezuela, Bolivarian Rep. (2010) | 39.00 | 46.18         | 0.60         | ● | n/a  | Finland                  | n/a   | n/a           | n/a          |   |
| 44   | South Africa (2007)               | 38.70 | 45.78         | 0.59         | ● | n/a  | France                   | n/a   | n/a           | n/a          |   |
| 45   | Mali (2010)                       | 36.70 | 43.11         | 0.58         | ● | n/a  | Hong Kong (China)        | n/a   | n/a           | n/a          |   |
| 46   | Tanzania, United Rep. (2006)      | 36.50 | 42.84         | 0.57         | ● | n/a  | Iceland                  | n/a   | n/a           | n/a          |   |
| 47   | Niger                             | 36.10 | 42.30         | 0.56         | ● | n/a  | Iran, Islamic Rep.       | n/a   | n/a           | n/a          |   |
| 48   | Serbia                            | 35.80 | 41.90         | 0.55         | ● | n/a  | Israel                   | n/a   | n/a           | n/a          |   |
| 49   | Germany (2005)                    | 35.40 | 41.37         | 0.54         | ● | n/a  | Italy                    | n/a   | n/a           | n/a          |   |
| 50   | Nicaragua (2010)                  | 35.20 | 41.10         | 0.53         | ● | n/a  | Japan                    | n/a   | n/a           | n/a          |   |
| 51   | Uganda (2006)                     | 35.00 | 40.83         | 0.52         | ● | n/a  | Kenya                    | n/a   | n/a           | n/a          |   |
| 52   | Honduras (2010)                   | 33.80 | 39.22         | 0.50         | ● | n/a  | Kuwait                   | n/a   | n/a           | n/a          |   |
| 52   | Slovakia                          | 33.80 | 39.22         | 0.50         | ● | n/a  | Luxembourg               | n/a   | n/a           | n/a          |   |
| 54   | Zimbabwe (2011)                   | 33.00 | 38.15         | 0.50         | ● | n/a  | Malta                    | n/a   | n/a           | n/a          |   |
| 55   | Moldova, Rep.                     | 32.40 | 37.35         | 0.49         | ● | n/a  | Myanmar                  | n/a   | n/a           | n/a          |   |
| 56   | Togo                              | 32.30 | 37.22         | 0.47         | ● | n/a  | Netherlands              | n/a   | n/a           | n/a          |   |
| 56   | Uruguay (2010)                    | 32.30 | 37.22         | 0.47         | ● | n/a  | New Zealand              | n/a   | n/a           | n/a          |   |
| 58   | Nepal (2013)                      | 31.90 | 36.68         | 0.45         | ● | n/a  | Norway                   | n/a   | n/a           | n/a          |   |
| 58   | Portugal (2005)                   | 31.90 | 36.68         | 0.45         | ● | n/a  | Oman                     | n/a   | n/a           | n/a          |   |
| 60   | Trinidad and Tobago (2010)        | 31.50 | 36.14         | 0.44         | ● | n/a  | Qatar                    | n/a   | n/a           | n/a          |   |
| 61   | Ghana (2007)                      | 31.10 | 35.61         | 0.41         | ● | n/a  | Saudi Arabia             | n/a   | n/a           | n/a          |   |
| 61   | Philippines                       | 31.10 | 35.61         | 0.41         | ● | n/a  | Seychelles               | n/a   | n/a           | n/a          |   |
| 61   | Zambia (2007)                     | 31.10 | 35.61         | 0.41         | ● | n/a  | Singapore                | n/a   | n/a           | n/a          |   |
| 64   | Bulgaria                          | 30.80 | 35.21         | 0.40         | ● | n/a  | Sudan                    | n/a   | n/a           | n/a          |   |
| 65   | Armenia                           | 30.40 | 34.67         | 0.39         | ● | n/a  | Sweden                   | n/a   | n/a           | n/a          |   |
| 66   | Bhutan                            | 29.90 | 34.00         | 0.38         | ● | n/a  | Switzerland              | n/a   | n/a           | n/a          |   |
| 67   | Kyrgyzstan                        | 29.70 | 33.73         | 0.36         | ● | n/a  | Tunisia                  | n/a   | n/a           | n/a          |   |
| 67   | Turkey (2008)                     | 29.70 | 33.73         | 0.36         | ● | n/a  | United Arab Emirates     | n/a   | n/a           | n/a          |   |
| 69   | Croatia (2007)                    | 28.90 | 32.66         | 0.35         | ○ | n/a  | United Kingdom           | n/a   | n/a           | n/a          |   |
| 70   | Mauritius                         | 28.80 | 32.53         | 0.34         | ○ | n/a  | United States of America | n/a   | n/a           | n/a          |   |
| 71   | Madagascar                        | 27.40 | 30.66         | 0.33         | ○ |      |                          |       |               |              |   |
| 72   | Angola (2010)                     | 26.90 | 29.99         | 0.32         | ● |      |                          |       |               |              |   |
| 73   | Benin                             | 26.80 | 29.85         | 0.31         | ● |      |                          |       |               |              |   |

SOURCE: International Finance Corporation and World Bank, *Enterprise Surveys* (2005–13)

NOTE: ● indicates a strength; ○ a weakness.

# 5.1.3

## GERD performed by business enterprise

GERD: Performed by business enterprise (% of GDP) | 2012

| Rank | Country/Economy             | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Israel                      | 3.32  | 100.00        | 1.00         | ● | 74   | Oman (2011)                | 0.03  | 0.95          | 0.15         | ○ |
| 2    | Korea, Rep. (2011)          | 3.09  | 93.24         | 0.99         | ● | 75   | TFYR of Macedonia (2010)   | 0.03  | 0.75          | 0.14         | ○ |
| 3    | Japan (2011)                | 2.61  | 78.64         | 0.98         | ● | 76   | Ecuador (2008)             | 0.02  | 0.58          | 0.13         | ○ |
| 4    | Finland                     | 2.44  | 73.54         | 0.97         |   | 77   | Mongolia (2011)            | 0.02  | 0.56          | 0.12         | ○ |
| 5    | Sweden                      | 2.31  | 69.66         | 0.95         |   | 78   | Namibia (2010)             | 0.02  | 0.55          | 0.10         | ○ |
| 6    | Switzerland                 | 2.17  | 65.32         | 0.94         |   | 79   | Mali (2007)                | 0.01  | 0.22          | 0.09         | ○ |
| 7    | Slovenia                    | 2.16  | 65.20         | 0.93         | ● | 80   | Zambia (2008)              | 0.01  | 0.20          | 0.08         | ○ |
| 8    | Denmark                     | 1.96  | 59.15         | 0.92         |   | 81   | Indonesia (2008)           | 0.00  | 0.12          | 0.07         | ○ |
| 9    | Germany                     | 1.95  | 58.91         | 0.91         |   | 82   | Senegal (2010)             | 0.00  | 0.05          | 0.06         | ○ |
| 10   | Austria                     | 1.95  | 58.84         | 0.90         |   | 83   | Trinidad and Tobago (2009) | 0.00  | 0.03          | 0.05         | ○ |
| 11   | United States of America    | 1.95  | 58.80         | 0.88         |   | 84   | Ghana (2010)               | 0.00  | 0.01          | 0.03         | ○ |
| 12   | Belgium                     | 1.52  | 45.71         | 0.87         |   | 85   | Paraguay (2011)            | 0.00  | 0.01          | 0.02         | ○ |
| 13   | China                       | 1.51  | 45.54         | 0.86         |   | 86   | Panama (2010)              | 0.00  | 0.01          | 0.01         | ○ |
| 14   | France                      | 1.45  | 43.80         | 0.85         |   | 87   | Guatemala (2011)           | 0.00  | 0.00          | 0.00         | ○ |
| 15   | Singapore (2011)            | 1.39  | 41.78         | 0.84         |   | n/a  | Albania                    | n/a   | n/a           | n/a          |   |
| 16   | Australia (2011)            | 1.31  | 39.36         | 0.83         |   | n/a  | Algeria                    | n/a   | n/a           | n/a          |   |
| 17   | Iceland (2011)              | 1.26  | 38.05         | 0.81         |   | n/a  | Angola                     | n/a   | n/a           | n/a          |   |
| 18   | Estonia                     | 1.25  | 37.80         | 0.80         |   | n/a  | Armenia                    | n/a   | n/a           | n/a          |   |
| 19   | Netherlands                 | 1.22  | 36.82         | 0.79         |   | n/a  | Bahrain                    | n/a   | n/a           | n/a          |   |
| 20   | Ireland                     | 1.20  | 36.09         | 0.78         |   | n/a  | Bangladesh                 | n/a   | n/a           | n/a          |   |
| 21   | United Kingdom              | 1.09  | 32.97         | 0.77         |   | n/a  | Barbados                   | n/a   | n/a           | n/a          |   |
| 22   | Czech Republic              | 1.01  | 30.42         | 0.76         |   | n/a  | Benin                      | n/a   | n/a           | n/a          |   |
| 23   | Luxembourg                  | 1.00  | 30.15         | 0.74         |   | n/a  | Bhutan                     | n/a   | n/a           | n/a          |   |
| 24   | Canada                      | 0.88  | 26.62         | 0.73         |   | n/a  | Bolivia, Plurinational St. | n/a   | n/a           | n/a          |   |
| 25   | Norway                      | 0.87  | 26.15         | 0.72         |   | n/a  | Bosnia and Herzegovina     | n/a   | n/a           | n/a          |   |
| 26   | Hungary                     | 0.85  | 25.66         | 0.71         |   | n/a  | Brazil                     | n/a   | n/a           | n/a          |   |
| 27   | Portugal                    | 0.70  | 21.20         | 0.70         |   | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |   |
| 28   | Italy                       | 0.69  | 20.81         | 0.69         |   | n/a  | Burkina Faso               | n/a   | n/a           | n/a          |   |
| 29   | Spain                       | 0.69  | 20.79         | 0.67         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 30   | Russian Federation          | 0.65  | 19.67         | 0.66         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 31   | Malaysia (2011)             | 0.60  | 18.20         | 0.65         |   | n/a  | Cambodia                   | n/a   | n/a           | n/a          |   |
| 32   | New Zealand (2011)          | 0.58  | 17.42         | 0.64         |   | n/a  | Cameroon                   | n/a   | n/a           | n/a          |   |
| 33   | Malta                       | 0.51  | 15.25         | 0.63         |   | n/a  | Côte d'Ivoire              | n/a   | n/a           | n/a          |   |
| 34   | Belarus (2011)              | 0.49  | 14.76         | 0.62         |   | n/a  | Dominican Republic         | n/a   | n/a           | n/a          |   |
| 35   | Ukraine (2011)              | 0.41  | 12.37         | 0.60         |   | n/a  | Egypt                      | n/a   | n/a           | n/a          |   |
| 36   | Bulgaria                    | 0.39  | 11.66         | 0.59         |   | n/a  | El Salvador                | n/a   | n/a           | n/a          |   |
| 37   | South Africa (2010)         | 0.38  | 11.40         | 0.58         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 38   | Turkey (2011)               | 0.37  | 11.19         | 0.57         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 39   | Croatia                     | 0.34  | 10.39         | 0.56         |   | n/a  | Georgia                    | n/a   | n/a           | n/a          |   |
| 40   | Slovakia                    | 0.34  | 10.26         | 0.55         |   | n/a  | Guinea                     | n/a   | n/a           | n/a          |   |
| 41   | Poland                      | 0.33  | 10.09         | 0.53         |   | n/a  | Guyana                     | n/a   | n/a           | n/a          |   |
| 42   | Hong Kong (China) (2010)    | 0.32  | 9.79          | 0.52         |   | n/a  | Honduras                   | n/a   | n/a           | n/a          |   |
| 43   | India (2011)                | 0.29  | 8.65          | 0.51         |   | n/a  | Jamaica                    | n/a   | n/a           | n/a          |   |
| 44   | Lithuania                   | 0.24  | 7.23          | 0.50         |   | n/a  | Jordan                     | n/a   | n/a           | n/a          |   |
| 45   | Greece                      | 0.24  | 7.13          | 0.49         |   | n/a  | Kuwait                     | n/a   | n/a           | n/a          |   |
| 46   | Tunisia (2009)              | 0.22  | 6.65          | 0.48         |   | n/a  | Lebanon                    | n/a   | n/a           | n/a          |   |
| 47   | Morocco (2010)              | 0.22  | 6.62          | 0.47         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |   |
| 48   | Uganda (2010)               | 0.19  | 5.85          | 0.45         |   | n/a  | Madagascar                 | n/a   | n/a           | n/a          |   |
| 49   | Romania                     | 0.19  | 5.74          | 0.44         |   | n/a  | Malawi                     | n/a   | n/a           | n/a          |   |
| 50   | Mexico (2011)               | 0.17  | 5.04          | 0.43         |   | n/a  | Mauritius                  | n/a   | n/a           | n/a          |   |
| 51   | Chile (2010)                | 0.16  | 4.86          | 0.42         |   | n/a  | Mozambique                 | n/a   | n/a           | n/a          |   |
| 52   | Argentina (2011)            | 0.16  | 4.80          | 0.41         |   | n/a  | Myanmar                    | n/a   | n/a           | n/a          |   |
| 53   | Latvia                      | 0.15  | 4.48          | 0.40         | ○ | n/a  | Nepal                      | n/a   | n/a           | n/a          |   |
| 54   | United Arab Emirates (2011) | 0.14  | 4.22          | 0.38         |   | n/a  | Nicaragua                  | n/a   | n/a           | n/a          |   |
| 55   | Thailand (2009)             | 0.10  | 3.11          | 0.37         |   | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 56   | Sudan (2005)                | 0.10  | 3.03          | 0.36         |   | n/a  | Nigeria                    | n/a   | n/a           | n/a          |   |
| 57   | Montenegro (2011)           | 0.09  | 2.74          | 0.35         |   | n/a  | Pakistan                   | n/a   | n/a           | n/a          |   |
| 58   | Kenya (2010)                | 0.08  | 2.54          | 0.34         |   | n/a  | Qatar                      | n/a   | n/a           | n/a          |   |
| 59   | Botswana (2005)             | 0.08  | 2.50          | 0.33         |   | n/a  | Rwanda                     | n/a   | n/a           | n/a          |   |
| 60   | Kazakhstan (2011)           | 0.08  | 2.44          | 0.31         |   | n/a  | Saudi Arabia               | n/a   | n/a           | n/a          |   |
| 61   | Iran, Islamic Rep. (2008)   | 0.08  | 2.39          | 0.30         |   | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 62   | Moldova, Rep. (2011)        | 0.08  | 2.31          | 0.29         |   | n/a  | Swaziland                  | n/a   | n/a           | n/a          |   |
| 63   | Costa Rica (2011)           | 0.08  | 2.27          | 0.28         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 64   | Serbia (2011)               | 0.07  | 2.20          | 0.27         |   | n/a  | Tanzania, United Rep.      | n/a   | n/a           | n/a          |   |
| 65   | Sri Lanka (2010)            | 0.07  | 2.06          | 0.26         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 66   | Cyprus                      | 0.06  | 1.95          | 0.24         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 67   | Philippines (2007)          | 0.06  | 1.88          | 0.23         |   | n/a  | Venezuela, Bolivarian Rep. | n/a   | n/a           | n/a          |   |
| 68   | Uruguay (2011)              | 0.06  | 1.85          | 0.22         |   | n/a  | Viet Nam                   | n/a   | n/a           | n/a          |   |
| 69   | Colombia                    | 0.05  | 1.36          | 0.21         | ○ | n/a  | Yemen                      | n/a   | n/a           | n/a          |   |
| 70   | Peru (2004)                 | 0.04  | 1.31          | 0.20         |   | n/a  | Zimbabwe                   | n/a   | n/a           | n/a          |   |
| 71   | Ethiopia (2010)             | 0.04  | 1.15          | 0.19         |   |      |                            |       |               |              |   |
| 72   | Azerbaijan (2011)           | 0.04  | 1.13          | 0.17         |   |      |                            |       |               |              |   |
| 73   | Kyrgyzstan (2011)           | 0.04  | 1.10          | 0.16         |   |      |                            |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–12)

NOTE: ● indicates a strength; ○ a weakness.



## 5.1.4

## GERD performed by business enterprise

GERD: Performed by business enterprise (% of total GERD) | 2012

II: Data Tables

| Rank | Country/Economy             | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Israel                      | 84.45 | 100.00        | 1.00         | ● | 74   | Iran, Islamic Rep. (2008)  | 10.61 | 12.41         | 0.14         |   |
| 2    | Slovenia                    | 77.22 | 91.43         | 0.99         | ● | 75   | Serbia (2011)              | 9.38  | 10.95         | 0.13         | ○ |
| 3    | Japan (2011)                | 76.96 | 91.12         | 0.98         | ● | 76   | Kenya (2010)               | 8.66  | 10.09         | 0.12         | ○ |
| 4    | Korea, Rep. (2011)          | 76.53 | 90.61         | 0.96         |   | 77   | Ecuador (2008)             | 8.53  | 9.94          | 0.11         | ○ |
| 5    | China                       | 76.15 | 90.16         | 0.95         | ● | 78   | Mongolia (2011)            | 6.78  | 7.87          | 0.09         | ○ |
| 6    | Switzerland (2008)          | 73.50 | 87.01         | 0.94         |   | 79   | Mali (2007)                | 2.97  | 3.35          | 0.08         |   |
| 7    | Belarus (2011)              | 69.87 | 82.71         | 0.93         | ● | 80   | Trinidad and Tobago (2009) | 2.18  | 2.41          | 0.07         | ○ |
| 8    | United States of America    | 69.83 | 82.66         | 0.92         |   | 81   | Zambia (2008)              | 2.02  | 2.21          | 0.06         | ○ |
| 9    | Ireland                     | 69.42 | 82.17         | 0.91         |   | 82   | Paraguay (2011)            | 0.79  | 0.76          | 0.05         | ○ |
| 10   | Austria                     | 68.78 | 81.42         | 0.89         |   | 83   | Senegal (2010)             | 0.34  | 0.22          | 0.04         | ○ |
| 11   | Finland                     | 68.72 | 81.35         | 0.88         |   | 84   | Guatemala (2011)           | 0.34  | 0.22          | 0.02         | ○ |
| 12   | Sweden                      | 67.79 | 80.24         | 0.87         |   | 85   | Panama (2010)              | 0.19  | 0.05          | 0.01         | ○ |
| 13   | Belgium                     | 67.78 | 80.23         | 0.86         |   | 86   | Ghana (2010)               | 0.15  | 0.00          | 0.00         | ○ |
| 14   | Luxembourg (2010)           | 67.61 | 80.03         | 0.85         |   | n/a  | Albania                    | n/a   | n/a           | n/a          |   |
| 15   | Germany                     | 66.92 | 79.20         | 0.84         |   | n/a  | Algeria                    | n/a   | n/a           | n/a          |   |
| 16   | Denmark                     | 65.66 | 77.71         | 0.82         |   | n/a  | Angola                     | n/a   | n/a           | n/a          |   |
| 17   | Hungary                     | 65.63 | 77.67         | 0.81         |   | n/a  | Armenia                    | n/a   | n/a           | n/a          |   |
| 18   | France                      | 64.19 | 75.97         | 0.80         |   | n/a  | Bahrain                    | n/a   | n/a           | n/a          |   |
| 19   | United Kingdom              | 63.42 | 75.06         | 0.79         |   | n/a  | Bangladesh                 | n/a   | n/a           | n/a          |   |
| 20   | Singapore (2011)            | 62.14 | 73.53         | 0.78         |   | n/a  | Barbados                   | n/a   | n/a           | n/a          |   |
| 21   | Bulgaria                    | 60.50 | 71.60         | 0.76         |   | n/a  | Benin                      | n/a   | n/a           | n/a          |   |
| 22   | Malta                       | 60.02 | 71.03         | 0.75         |   | n/a  | Bhutan                     | n/a   | n/a           | n/a          |   |
| 23   | Australia (2010)            | 58.41 | 69.11         | 0.74         |   | n/a  | Bolivia, Plurinational St. | n/a   | n/a           | n/a          |   |
| 24   | Russian Federation          | 58.34 | 69.03         | 0.73         |   | n/a  | Bosnia and Herzegovina     | n/a   | n/a           | n/a          |   |
| 25   | Estonia                     | 57.45 | 67.97         | 0.72         |   | n/a  | Brazil                     | n/a   | n/a           | n/a          |   |
| 26   | Philippines (2007)          | 56.95 | 67.38         | 0.71         | ● | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |   |
| 27   | Malaysia (2011)             | 56.67 | 67.04         | 0.69         |   | n/a  | Burkina Faso               | n/a   | n/a           | n/a          |   |
| 28   | Netherlands                 | 56.60 | 66.97         | 0.68         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 29   | Ukraine (2011)              | 55.71 | 65.91         | 0.67         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 30   | Italy                       | 54.52 | 64.50         | 0.66         |   | n/a  | Cambodia                   | n/a   | n/a           | n/a          |   |
| 31   | Czech Republic              | 53.61 | 63.41         | 0.65         |   | n/a  | Cameroon                   | n/a   | n/a           | n/a          |   |
| 32   | Spain                       | 52.98 | 62.67         | 0.64         |   | n/a  | Côte d'Ivoire              | n/a   | n/a           | n/a          |   |
| 33   | Iceland (2011)              | 52.59 | 62.20         | 0.62         |   | n/a  | Dominican Republic         | n/a   | n/a           | n/a          |   |
| 34   | Norway                      | 52.37 | 61.94         | 0.61         |   | n/a  | Egypt                      | n/a   | n/a           | n/a          |   |
| 35   | Canada                      | 52.28 | 61.84         | 0.60         |   | n/a  | El Salvador                | n/a   | n/a           | n/a          |   |
| 36   | Kazakhstan (2011)           | 51.59 | 61.03         | 0.59         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 37   | South Africa (2010)         | 49.66 | 58.74         | 0.58         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 38   | Portugal                    | 47.01 | 55.59         | 0.56         |   | n/a  | Georgia                    | n/a   | n/a           | n/a          |   |
| 39   | Croatia                     | 45.85 | 54.21         | 0.55         |   | n/a  | Guinea                     | n/a   | n/a           | n/a          |   |
| 40   | New Zealand (2011)          | 45.45 | 53.73         | 0.54         |   | n/a  | Guyana                     | n/a   | n/a           | n/a          |   |
| 41   | Sri Lanka (2010)            | 43.75 | 51.72         | 0.53         |   | n/a  | Honduras                   | n/a   | n/a           | n/a          |   |
| 42   | Hong Kong (China) (2010)    | 43.32 | 51.21         | 0.52         |   | n/a  | Indonesia                  | n/a   | n/a           | n/a          |   |
| 43   | Turkey (2011)               | 43.19 | 51.05         | 0.51         |   | n/a  | Jamaica                    | n/a   | n/a           | n/a          |   |
| 44   | Slovakia                    | 41.35 | 48.87         | 0.49         |   | n/a  | Jordan                     | n/a   | n/a           | n/a          |   |
| 45   | Thailand (2009)             | 41.21 | 48.71         | 0.48         |   | n/a  | Kuwait                     | n/a   | n/a           | n/a          |   |
| 46   | Mexico (2011)               | 39.01 | 46.10         | 0.47         |   | n/a  | Lebanon                    | n/a   | n/a           | n/a          |   |
| 47   | Romania                     | 38.97 | 46.05         | 0.46         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |   |
| 48   | Chile (2010)                | 38.69 | 45.71         | 0.45         |   | n/a  | Madagascar                 | n/a   | n/a           | n/a          |   |
| 49   | Poland                      | 37.21 | 43.97         | 0.44         |   | n/a  | Malawi                     | n/a   | n/a           | n/a          |   |
| 50   | India (2011)                | 35.46 | 41.89         | 0.42         |   | n/a  | Mauritius                  | n/a   | n/a           | n/a          |   |
| 51   | Uganda (2010)               | 34.77 | 41.07         | 0.41         |   | n/a  | Mozambique                 | n/a   | n/a           | n/a          |   |
| 52   | Greece                      | 34.29 | 40.49         | 0.40         |   | n/a  | Myanmar                    | n/a   | n/a           | n/a          |   |
| 53   | Sudan (2005)                | 33.71 | 39.81         | 0.39         | ● | n/a  | Nepal                      | n/a   | n/a           | n/a          |   |
| 54   | Morocco (2010)              | 29.94 | 35.34         | 0.38         |   | n/a  | Nicaragua                  | n/a   | n/a           | n/a          |   |
| 55   | Peru (2004)                 | 29.17 | 34.43         | 0.36         |   | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 56   | United Arab Emirates (2011) | 28.62 | 33.77         | 0.35         |   | n/a  | Nigeria                    | n/a   | n/a           | n/a          |   |
| 57   | Lithuania                   | 26.59 | 31.37         | 0.34         |   | n/a  | Pakistan                   | n/a   | n/a           | n/a          |   |
| 58   | Colombia                    | 26.17 | 30.87         | 0.33         |   | n/a  | Qatar                      | n/a   | n/a           | n/a          |   |
| 59   | Argentina (2011)            | 24.63 | 29.04         | 0.32         |   | n/a  | Rwanda                     | n/a   | n/a           | n/a          |   |
| 60   | Oman (2011)                 | 23.93 | 28.21         | 0.31         |   | n/a  | Saudi Arabia               | n/a   | n/a           | n/a          |   |
| 61   | Kyrgyzstan (2011)           | 23.33 | 27.49         | 0.29         |   | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 62   | Latvia                      | 22.60 | 26.63         | 0.28         | ○ | n/a  | Swaziland                  | n/a   | n/a           | n/a          |   |
| 63   | Montenegro (2011)           | 22.28 | 26.26         | 0.27         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 64   | Tunisia (2009)              | 20.03 | 23.58         | 0.26         |   | n/a  | Tanzania, United Rep.      | n/a   | n/a           | n/a          |   |
| 65   | Moldova, Rep. (2011)        | 18.98 | 22.34         | 0.25         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 66   | Azerbaijan (2011)           | 17.79 | 20.93         | 0.24         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 67   | Costa Rica (2011)           | 15.85 | 18.62         | 0.22         | ○ | n/a  | Venezuela, Bolivarian Rep. | n/a   | n/a           | n/a          |   |
| 68   | Botswana (2005)             | 15.57 | 18.29         | 0.21         |   | n/a  | Viet Nam                   | n/a   | n/a           | n/a          |   |
| 69   | Ethiopia (2010)             | 15.53 | 18.25         | 0.20         |   | n/a  | Yemen                      | n/a   | n/a           | n/a          |   |
| 70   | Uruguay (2011)              | 14.30 | 16.78         | 0.19         | ○ | n/a  | Zimbabwe                   | n/a   | n/a           | n/a          |   |
| 71   | Cyprus                      | 13.89 | 16.30         | 0.18         | ○ |      |                            |       |               |              |   |
| 72   | Namibia (2010)              | 12.82 | 15.03         | 0.16         | ○ |      |                            |       |               |              |   |
| 73   | TFYR of Macedonia (2010)    | 11.50 | 13.46         | 0.15         | ○ |      |                            |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

# 5.1.5

## GMAT test takers

Number of test takers of the Graduate Management Admission Test (GMAT) by citizenship (scaled by million population 20–34 years old) | 2013

| Rank | Country/Economy          | Value    | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|----------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | United States of America | 1,376.26 | 100.00        | 1.00         | ● | 74   | Viet Nam                   | 51.56 | 36.39         | 0.48         |   |
| 2    | Hong Kong (China)        | 1,326.10 | 99.25         | 0.99         | ● | 75   | Belarus                    | 50.54 | 36.05         | 0.48         |   |
| 3    | Israel                   | 1,112.77 | 95.72         | 0.99         | ● | 76   | Mexico                     | 50.29 | 35.96         | 0.47         |   |
| 4    | Canada                   | 893.14   | 91.29         | 0.98         | ● | 77   | Venezuela, Bolivarian Rep. | 48.16 | 35.22         | 0.46         |   |
| 5    | Lebanon                  | 804.84   | 89.20         | 0.97         | ● | 78   | Malaysia                   | 45.88 | 34.39         | 0.45         |   |
| 6    | Singapore                | 783.13   | 88.65         | 0.96         |   | 79   | Ecuador                    | 41.36 | 32.64         | 0.45         |   |
| 7    | Iceland                  | 586.57   | 82.86         | 0.96         | ● | 80   | Ukraine                    | 40.97 | 32.48         | 0.44         |   |
| 8    | Greece                   | 534.23   | 80.99         | 0.95         | ● | 81   | Bhutan                     | 39.04 | 31.68         | 0.43         |   |
| 9    | Kuwait                   | 510.25   | 80.07         | 0.94         | ● | 82   | Honduras                   | 38.05 | 31.25         | 0.43         |   |
| 10   | Korea, Rep.              | 433.43   | 76.82         | 0.94         |   | 83   | Czech Republic             | 37.27 | 30.92         | 0.42         |   |
| 11   | Barbados                 | 390.07   | 74.72         | 0.93         | ● | 84   | Cameroon                   | 37.21 | 30.89         | 0.41         | ● |
| 12   | Sweden                   | 346.74   | 72.39         | 0.92         |   | 85   | Argentina                  | 36.98 | 30.79         | 0.40         |   |
| 13   | Finland                  | 337.99   | 71.88         | 0.91         |   | 86   | Botswana                   | 35.63 | 30.18         | 0.40         |   |
| 14   | Netherlands              | 319.12   | 70.75         | 0.91         |   | 87   | Egypt                      | 35.20 | 29.98         | 0.39         |   |
| 15   | Bulgaria                 | 318.65   | 70.72         | 0.90         | ● | 88   | Azerbaijan                 | 34.74 | 29.77         | 0.38         |   |
| 16   | Switzerland              | 312.67   | 70.34         | 0.89         |   | 89   | Nigeria                    | 34.16 | 29.50         | 0.38         |   |
| 17   | France                   | 300.61   | 69.57         | 0.89         |   | 90   | Swaziland                  | 33.59 | 29.23         | 0.37         |   |
| 18   | Saudi Arabia             | 293.34   | 69.08         | 0.88         | ● | 91   | Zimbabwe                   | 33.26 | 29.07         | 0.36         |   |
| 19   | Norway                   | 290.36   | 68.88         | 0.87         |   | 92   | Morocco                    | 33.04 | 28.96         | 0.35         |   |
| 20   | Portugal                 | 288.06   | 68.73         | 0.87         |   | 93   | Poland                     | 32.74 | 28.81         | 0.35         |   |
| 21   | Germany                  | 269.97   | 67.45         | 0.86         |   | 94   | Qatar                      | 32.10 | 28.50         | 0.34         |   |
| 22   | Ireland                  | 253.89   | 66.24         | 0.85         |   | 95   | Oman                       | 31.69 | 28.30         | 0.33         |   |
| 23   | Luxembourg               | 233.58   | 64.61         | 0.84         |   | 96   | Brazil                     | 31.65 | 28.28         | 0.33         |   |
| 24   | Jamaica                  | 210.42   | 62.57         | 0.84         | ● | 97   | Bosnia and Herzegovina     | 30.59 | 27.74         | 0.32         |   |
| 25   | Austria                  | 198.34   | 61.42         | 0.83         |   | 98   | Cabo Verde                 | 28.16 | 26.45         | 0.31         |   |
| 26   | Italy                    | 187.42   | 60.32         | 0.82         |   | 99   | Namibia                    | 26.67 | 25.62         | 0.30         |   |
| 27   | Bahrain                  | 177.34   | 59.25         | 0.82         |   | 100  | Kyrgyzstan                 | 26.63 | 25.59         | 0.30         |   |
| 28   | Belgium                  | 172.29   | 58.69         | 0.81         |   | 101  | Dominican Republic         | 26.56 | 25.55         | 0.29         |   |
| 29   | Cyprus                   | 170.62   | 58.50         | 0.80         |   | 102  | TFYR of Macedonia          | 26.36 | 25.43         | 0.28         | ○ |
| 30   | New Zealand              | 165.28   | 57.89         | 0.79         |   | 103  | El Salvador                | 25.70 | 25.05         | 0.28         |   |
| 31   | Australia                | 159.61   | 57.22         | 0.79         |   | 104  | Gambia                     | 25.63 | 25.01         | 0.27         |   |
| 32   | Mauritius                | 156.93   | 56.89         | 0.78         |   | 105  | United Arab Emirates       | 25.40 | 24.87         | 0.26         | ○ |
| 33   | China                    | 154.19   | 56.55         | 0.77         |   | 106  | Côte d'Ivoire              | 25.32 | 24.83         | 0.26         |   |
| 34   | Latvia                   | 152.97   | 56.40         | 0.77         |   | 107  | Sri Lanka                  | 23.62 | 23.79         | 0.25         |   |
| 35   | Trinidad and Tobago      | 150.53   | 56.09         | 0.76         | ● | 108  | Guatemala                  | 23.48 | 23.70         | 0.24         |   |
| 36   | Montenegro               | 149.88   | 56.01         | 0.75         | ● | 109  | Tunisia                    | 21.50 | 22.42         | 0.23         |   |
| 37   | Albania                  | 147.90   | 55.76         | 0.74         | ● | 110  | Pakistan                   | 19.29 | 20.88         | 0.23         |   |
| 38   | Estonia                  | 144.75   | 55.34         | 0.74         |   | 111  | Fiji                       | 18.12 | 20.02         | 0.22         |   |
| 39   | Mongolia                 | 138.22   | 54.46         | 0.73         |   | 112  | Philippines                | 15.54 | 17.99         | 0.21         |   |
| 40   | Seychelles (2010)        | 130.31   | 53.34         | 0.72         | ● | 113  | Indonesia                  | 14.31 | 16.93         | 0.21         |   |
| 41   | Japan                    | 128.01   | 53.00         | 0.72         |   | 114  | Senegal                    | 14.13 | 16.77         | 0.20         |   |
| 42   | United Kingdom           | 124.48   | 52.47         | 0.71         |   | 115  | Bolivia, Plurinational St. | 13.33 | 16.05         | 0.19         |   |
| 43   | Jordan                   | 118.97   | 51.61         | 0.70         |   | 116  | Nicaragua                  | 12.84 | 15.60         | 0.18         |   |
| 44   | Thailand                 | 118.52   | 51.54         | 0.70         |   | 117  | Benin                      | 11.65 | 14.45         | 0.18         |   |
| 45   | Brunei Darussalam        | 114.45   | 50.88         | 0.69         |   | 118  | Lesotho                    | 11.56 | 14.37         | 0.17         |   |
| 46   | Spain                    | 114.07   | 50.82         | 0.68         |   | 119  | Rwanda                     | 11.02 | 13.82         | 0.16         |   |
| 47   | Chile                    | 114.06   | 50.82         | 0.67         |   | 120  | Uzbekistan                 | 10.77 | 13.56         | 0.16         |   |
| 48   | Lithuania                | 110.19   | 50.17         | 0.67         |   | 121  | Uganda                     | 10.26 | 13.02         | 0.15         |   |
| 49   | Malta                    | 109.42   | 50.04         | 0.66         |   | 122  | Paraguay                   | 9.54  | 12.25         | 0.14         |   |
| 50   | Denmark                  | 106.28   | 49.49         | 0.65         |   | 123  | Bangladesh                 | 9.42  | 12.12         | 0.13         |   |
| 51   | Hungary                  | 104.95   | 49.25         | 0.65         |   | 124  | Togo                       | 8.89  | 11.52         | 0.13         |   |
| 52   | Guyana                   | 99.10    | 48.18         | 0.64         | ● | 125  | Zambia                     | 8.39  | 10.94         | 0.12         |   |
| 53   | Croatia                  | 97.05    | 47.79         | 0.63         |   | 126  | Burkina Faso               | 7.41  | 9.75          | 0.11         |   |
| 54   | Slovenia                 | 93.93    | 47.19         | 0.62         |   | 127  | Burundi                    | 6.30  | 8.32          | 0.11         |   |
| 55   | Armenia                  | 85.48    | 45.44         | 0.62         |   | 128  | Tajikistan                 | 5.47  | 7.17          | 0.10         |   |
| 56   | Moldova, Rep.            | 81.51    | 44.57         | 0.61         |   | 129  | Mali                       | 5.33  | 6.98          | 0.09         |   |
| 57   | India                    | 78.71    | 43.93         | 0.60         |   | 130  | Malawi                     | 5.27  | 6.89          | 0.09         |   |
| 58   | Georgia                  | 74.41    | 42.91         | 0.60         |   | 131  | Angola                     | 5.09  | 6.63          | 0.08         |   |
| 59   | Serbia                   | 73.66    | 42.73         | 0.59         |   | 132  | Tanzania, United Rep.      | 5.06  | 6.59          | 0.07         | ○ |
| 60   | Slovakia                 | 71.82    | 42.27         | 0.58         |   | 133  | Yemen                      | 4.57  | 5.86          | 0.06         |   |
| 61   | Turkey                   | 71.14    | 42.09         | 0.57         |   | 134  | Guinea                     | 4.02  | 5.01          | 0.06         |   |
| 62   | Peru                     | 69.89    | 41.78         | 0.57         |   | 135  | Myanmar                    | 2.99  | 3.31          | 0.05         |   |
| 63   | Nepal                    | 68.56    | 41.43         | 0.56         | ● | 136  | Ethiopia                   | 2.97  | 3.28          | 0.04         |   |
| 64   | Panama                   | 67.44    | 41.13         | 0.55         |   | 137  | Algeria                    | 2.79  | 2.96          | 0.04         | ○ |
| 65   | Uruguay                  | 66.16    | 40.79         | 0.55         |   | 138  | Cambodia                   | 2.51  | 2.48          | 0.03         | ○ |
| 66   | Colombia                 | 65.59    | 40.63         | 0.54         |   | 139  | Madagascar                 | 2.48  | 2.41          | 0.02         | ○ |
| 67   | Romania                  | 61.56    | 39.51         | 0.53         |   | 140  | Sudan                      | 1.67  | 0.91          | 0.01         | ○ |
| 68   | Ghana                    | 61.39    | 39.46         | 0.52         |   | 141  | Niger                      | 1.47  | 0.53          | 0.01         | ○ |
| 69   | Costa Rica               | 59.28    | 38.84         | 0.52         |   | 142  | Mozambique                 | 1.21  | 0.00          | 0.00         | ○ |
| 70   | Russian Federation       | 58.63    | 38.64         | 0.51         |   | n/a  | Iran, Islamic Rep.         | n/a   | n/a           | n/a          |   |
| 71   | Kazakhstan               | 56.78    | 38.08         | 0.50         |   |      |                            |       |               |              |   |
| 72   | South Africa             | 53.53    | 37.05         | 0.50         |   |      |                            |       |               |              |   |
| 73   | Kenya                    | 51.89    | 36.51         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: Graduate Management Admission Council; United Nations, *World Population Prospects: The 2012 Revision* (population data) (2004–13)

NOTE: ● indicates a strength; ○ a weakness.

## 5.2.1

## University/industry research collaboration

Average answer to the survey question: In your country, to what extent do business and universities collaborate on research and development (R&D)? [1 = do not collaborate at all; 7 = collaborate extensively] | 2013

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Switzerland                | 5.84  | 80.67         | 1.00         | ● | 74   | Croatia                    | 3.46  | 41.00         | 0.46         |   |
| 2    | Finland                    | 5.82  | 80.33         | 0.99         | ● | 75   | Ukraine                    | 3.44  | 40.67         | 0.45         |   |
| 3    | United States of America   | 5.74  | 79.00         | 0.99         | ● | 76   | Ghana                      | 3.43  | 40.50         | 0.44         |   |
| 4    | Singapore                  | 5.62  | 77.00         | 0.98         |   | 76   | Kazakhstan                 | 3.43  | 40.50         | 0.44         |   |
| 5    | United Kingdom             | 5.58  | 76.33         | 0.97         | ● | 78   | Seychelles                 | 3.42  | 40.33         | 0.43         |   |
| 6    | Belgium                    | 5.53  | 75.50         | 0.96         | ● | 79   | TFYR of Macedonia          | 3.38  | 39.67         | 0.41         |   |
| 7    | Qatar                      | 5.47  | 74.50         | 0.96         | ● | 79   | Venezuela, Bolivarian Rep. | 3.38  | 39.67         | 0.41         |   |
| 8    | Israel                     | 5.40  | 73.33         | 0.95         | ● | 81   | Azerbaijan                 | 3.36  | 39.33         | 0.40         |   |
| 9    | Germany                    | 5.39  | 73.17         | 0.94         |   | 81   | Jordan                     | 3.36  | 39.33         | 0.40         |   |
| 10   | Sweden                     | 5.34  | 72.33         | 0.93         |   | 83   | Honduras                   | 3.34  | 39.00         | 0.39         |   |
| 11   | Netherlands                | 5.25  | 70.83         | 0.93         |   | 83   | Viet Nam                   | 3.34  | 39.00         | 0.39         |   |
| 12   | Ireland                    | 5.20  | 70.00         | 0.92         |   | 85   | Romania                    | 3.33  | 38.83         | 0.38         |   |
| 13   | Norway                     | 5.08  | 68.00         | 0.91         |   | 86   | Iran, Islamic Rep.         | 3.32  | 38.67         | 0.36         |   |
| 14   | Australia                  | 5.06  | 67.67         | 0.90         |   | 86   | Nicaragua                  | 3.32  | 38.67         | 0.36         |   |
| 15   | Malaysia                   | 5.02  | 67.00         | 0.90         |   | 88   | Dominican Republic         | 3.31  | 38.50         | 0.36         |   |
| 16   | Japan                      | 4.96  | 66.00         | 0.89         |   | 89   | Nigeria                    | 3.29  | 38.17         | 0.34         |   |
| 17   | Canada                     | 4.93  | 65.50         | 0.88         |   | 89   | Slovakia                   | 3.29  | 38.17         | 0.34         |   |
| 18   | Luxembourg                 | 4.90  | 65.00         | 0.87         |   | 91   | Mauritius                  | 3.28  | 38.00         | 0.33         |   |
| 19   | New Zealand                | 4.87  | 64.50         | 0.87         |   | 92   | Madagascar                 | 3.27  | 37.83         | 0.32         |   |
| 20   | Hong Kong (China)          | 4.86  | 64.33         | 0.86         |   | 92   | Mozambique                 | 3.27  | 37.83         | 0.32         |   |
| 21   | Denmark                    | 4.81  | 63.50         | 0.85         |   | 94   | El Salvador                | 3.25  | 37.50         | 0.30         |   |
| 22   | Austria                    | 4.79  | 63.17         | 0.84         |   | 94   | Pakistan                   | 3.25  | 37.50         | 0.30         |   |
| 22   | United Arab Emirates       | 4.79  | 63.17         | 0.84         |   | 96   | Burkina Faso               | 3.24  | 37.33         | 0.30         |   |
| 24   | Iceland                    | 4.77  | 62.83         | 0.83         |   | 97   | Botswana                   | 3.23  | 37.17         | 0.28         |   |
| 25   | Korea, Rep.                | 4.68  | 61.33         | 0.82         |   | 97   | Senegal                    | 3.23  | 37.17         | 0.28         |   |
| 26   | Portugal                   | 4.60  | 60.00         | 0.81         |   | 99   | Trinidad and Tobago        | 3.22  | 37.00         | 0.27         |   |
| 27   | Lithuania                  | 4.56  | 59.33         | 0.81         |   | 100  | Cabo Verde                 | 3.21  | 36.83         | 0.27         |   |
| 28   | South Africa               | 4.54  | 59.00         | 0.80         | ● | 101  | Serbia                     | 3.19  | 36.50         | 0.26         | ○ |
| 29   | Indonesia                  | 4.49  | 58.17         | 0.79         | ● | 102  | Armenia                    | 3.16  | 36.00         | 0.24         | ○ |
| 30   | Saudi Arabia               | 4.47  | 57.83         | 0.79         |   | 102  | Cambodia                   | 3.16  | 36.00         | 0.24         |   |
| 31   | France                     | 4.46  | 57.67         | 0.78         |   | 102  | Swaziland                  | 3.16  | 36.00         | 0.24         |   |
| 32   | China                      | 4.41  | 56.83         | 0.76         |   | 105  | Peru                       | 3.14  | 35.67         | 0.23         |   |
| 32   | Costa Rica                 | 4.41  | 56.83         | 0.76         | ● | 106  | Lebanon                    | 3.13  | 35.50         | 0.22         | ○ |
| 32   | Czech Republic             | 4.41  | 56.83         | 0.76         |   | 107  | Malawi                     | 3.10  | 35.00         | 0.21         |   |
| 35   | Estonia                    | 4.39  | 56.50         | 0.75         |   | 108  | Zimbabwe                   | 3.08  | 34.67         | 0.21         |   |
| 36   | Bosnia and Herzegovina     | 4.32  | 55.33         | 0.74         | ● | 109  | Mongolia                   | 3.05  | 34.17         | 0.19         |   |
| 37   | Barbados                   | 4.28  | 54.67         | 0.73         |   | 109  | Tunisia                    | 3.05  | 34.17         | 0.19         | ○ |
| 37   | Kenya                      | 4.28  | 54.67         | 0.73         |   | 111  | Bulgaria                   | 3.04  | 34.00         | 0.17         | ○ |
| 39   | Chile                      | 4.27  | 54.50         | 0.72         |   | 111  | Cameroon                   | 3.04  | 34.00         | 0.17         |   |
| 40   | Hungary                    | 4.26  | 54.33         | 0.71         |   | 111  | Morocco                    | 3.04  | 34.00         | 0.17         | ○ |
| 41   | Panama                     | 4.25  | 54.17         | 0.70         |   | 114  | Sri Lanka                  | 3.02  | 33.67         | 0.16         | ○ |
| 42   | Mexico                     | 4.08  | 51.33         | 0.70         |   | 115  | Greece                     | 3.01  | 33.50         | 0.16         |   |
| 43   | India                      | 4.00  | 50.00         | 0.67         |   | 116  | Kuwait                     | 2.97  | 32.83         | 0.15         | ○ |
| 43   | Montenegro                 | 4.00  | 50.00         | 0.67         |   | 117  | Bahrain                    | 2.93  | 32.17         | 0.14         |   |
| 43   | Oman                       | 4.00  | 50.00         | 0.67         |   | 118  | Mali                       | 2.89  | 31.50         | 0.13         |   |
| 46   | Brazil                     | 3.98  | 49.67         | 0.66         |   | 119  | Côte d'Ivoire              | 2.81  | 30.17         | 0.13         |   |
| 46   | Spain                      | 3.98  | 49.67         | 0.66         |   | 120  | Paraguay                   | 2.76  | 29.33         | 0.12         |   |
| 48   | Ecuador                    | 3.94  | 49.00         | 0.65         | ● | 121  | Nepal                      | 2.75  | 29.17         | 0.11         |   |
| 49   | Thailand                   | 3.92  | 48.67         | 0.64         |   | 122  | Lesotho                    | 2.72  | 28.67         | 0.10         |   |
| 50   | Turkey                     | 3.86  | 47.67         | 0.64         |   | 123  | Benin                      | 2.68  | 28.00         | 0.08         |   |
| 51   | Colombia                   | 3.85  | 47.50         | 0.63         |   | 123  | Bhutan                     | 2.68  | 28.00         | 0.08         | ○ |
| 52   | Cyprus                     | 3.79  | 46.50         | 0.62         |   | 123  | Moldova, Rep.              | 2.68  | 28.00         | 0.08         | ○ |
| 53   | Malta                      | 3.77  | 46.17         | 0.61         |   | 126  | Georgia                    | 2.67  | 27.83         | 0.07         | ○ |
| 53   | Slovenia                   | 3.77  | 46.17         | 0.61         |   | 127  | Egypt                      | 2.65  | 27.50         | 0.07         | ○ |
| 55   | Guatemala                  | 3.75  | 45.83         | 0.60         |   | 128  | Bangladesh                 | 2.62  | 27.00         | 0.06         | ○ |
| 56   | Uganda                     | 3.73  | 45.50         | 0.59         |   | 129  | Albania                    | 2.58  | 26.33         | 0.05         | ○ |
| 57   | Italy                      | 3.71  | 45.17         | 0.58         |   | 130  | Burundi                    | 2.52  | 25.33         | 0.04         |   |
| 57   | Rwanda                     | 3.71  | 45.17         | 0.58         |   | 131  | Kyrgyzstan                 | 2.22  | 20.33         | 0.04         | ○ |
| 59   | Argentina                  | 3.70  | 45.00         | 0.57         |   | 132  | Guinea                     | 2.19  | 19.83         | 0.03         |   |
| 60   | Guyana                     | 3.66  | 44.33         | 0.56         |   | 133  | Angola                     | 2.18  | 19.67         | 0.02         | ○ |
| 61   | Gambia                     | 3.65  | 44.17         | 0.56         | ● | 134  | Yemen                      | 2.12  | 18.67         | 0.01         | ○ |
| 62   | Russian Federation         | 3.64  | 44.00         | 0.55         |   | 135  | Algeria                    | 2.11  | 18.50         | 0.01         | ○ |
| 63   | Brunei Darussalam          | 3.61  | 43.50         | 0.54         |   | 136  | Myanmar                    | 2.06  | 17.67         | 0.00         | ○ |
| 64   | Jamaica                    | 3.60  | 43.33         | 0.52         |   | n/a  | Belarus                    | n/a   | n/a           | n/a          |   |
| 64   | Latvia                     | 3.60  | 43.33         | 0.52         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 64   | Uruguay                    | 3.60  | 43.33         | 0.52         |   | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 67   | Philippines                | 3.58  | 43.00         | 0.51         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |   |
| 68   | Bolivia, Plurinational St. | 3.55  | 42.50         | 0.50         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 68   | Zambia                     | 3.55  | 42.50         | 0.50         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 70   | Poland                     | 3.54  | 42.33         | 0.49         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 71   | Namibia                    | 3.52  | 42.00         | 0.48         |   |      |                            |       |               |              |   |
| 72   | Tanzania, United Rep.      | 3.51  | 41.83         | 0.47         |   |      |                            |       |               |              |   |
| 73   | Ethiopia                   | 3.49  | 41.50         | 0.47         |   |      |                            |       |               |              |   |

SOURCE: World Economic Forum, *Executive Opinion Survey 2013–2014*

NOTE: ● indicates a strength; ○ a weakness.

## 5.2.2 State of cluster development

Average answer to the to the survey question on the role of clusters in the economy: In your country, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)? [1 = nonexistent; 7 = widespread in many fields] | 2013

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Italy                    | 5.49  | 74.83         | 1.00         | ● | 74   | Mali                       | 3.69  | 44.83         | 0.45         |   |
| 2    | United Arab Emirates     | 5.45  | 74.17         | 0.99         | ● | 74   | Tunisia                    | 3.69  | 44.83         | 0.45         |   |
| 3    | Germany                  | 5.38  | 73.00         | 0.99         | ● | 76   | Estonia                    | 3.68  | 44.67         | 0.44         | ○ |
| 4    | Switzerland              | 5.28  | 71.33         | 0.98         |   | 77   | Malawi                     | 3.67  | 44.50         | 0.44         |   |
| 5    | United States of America | 5.23  | 70.50         | 0.97         |   | 78   | Ghana                      | 3.65  | 44.17         | 0.42         |   |
| 6    | Japan                    | 5.22  | 70.33         | 0.96         | ● | 78   | Namibia                    | 3.65  | 44.17         | 0.42         |   |
| 7    | Singapore                | 5.20  | 70.00         | 0.96         |   | 80   | Armenia                    | 3.63  | 43.83         | 0.41         |   |
| 8    | Netherlands              | 5.17  | 69.50         | 0.95         |   | 81   | Swaziland                  | 3.62  | 43.67         | 0.41         |   |
| 9    | Qatar                    | 5.16  | 69.33         | 0.94         | ● | 82   | Dominican Republic         | 3.61  | 43.50         | 0.40         |   |
| 10   | Hong Kong (China)        | 5.13  | 68.83         | 0.93         |   | 83   | Lesotho                    | 3.60  | 43.33         | 0.39         |   |
| 11   | Finland                  | 5.08  | 68.00         | 0.93         |   | 84   | Botswana                   | 3.58  | 43.00         | 0.39         |   |
| 12   | United Kingdom           | 5.06  | 67.67         | 0.92         |   | 85   | Bolivia, Plurinational St. | 3.55  | 42.50         | 0.38         |   |
| 13   | Malaysia                 | 5.04  | 67.33         | 0.91         |   | 86   | Kuwait                     | 3.54  | 42.33         | 0.37         |   |
| 14   | Norway                   | 5.01  | 66.83         | 0.90         |   | 87   | Tanzania, United Rep.      | 3.52  | 42.00         | 0.36         |   |
| 15   | India                    | 4.88  | 64.67         | 0.90         | ● | 87   | Trinidad and Tobago        | 3.52  | 42.00         | 0.36         |   |
| 16   | Austria                  | 4.85  | 64.17         | 0.89         |   | 89   | Cameroon                   | 3.51  | 41.83         | 0.35         |   |
| 17   | Canada                   | 4.84  | 64.00         | 0.88         |   | 90   | Slovenia                   | 3.50  | 41.67         | 0.33         |   |
| 18   | Sweden                   | 4.83  | 63.83         | 0.87         |   | 90   | TFYR of Macedonia          | 3.50  | 41.67         | 0.33         |   |
| 19   | Belgium                  | 4.81  | 63.50         | 0.87         |   | 92   | Romania                    | 3.48  | 41.33         | 0.33         |   |
| 20   | Ireland                  | 4.80  | 63.33         | 0.86         |   | 93   | Bhutan                     | 3.47  | 41.17         | 0.32         |   |
| 21   | Luxembourg               | 4.74  | 62.33         | 0.85         |   | 94   | Uruguay                    | 3.46  | 41.00         | 0.31         |   |
| 22   | Saudi Arabia             | 4.69  | 61.50         | 0.84         | ● | 95   | Iran, Islamic Rep.         | 3.44  | 40.67         | 0.30         |   |
| 23   | China                    | 4.61  | 60.17         | 0.84         |   | 95   | Nicaragua                  | 3.44  | 40.67         | 0.30         |   |
| 24   | Brazil                   | 4.53  | 58.83         | 0.83         | ● | 97   | Mozambique                 | 3.43  | 40.50         | 0.29         |   |
| 25   | Jordan                   | 4.50  | 58.33         | 0.82         | ● | 98   | Peru                       | 3.42  | 40.33         | 0.28         |   |
| 26   | Korea, Rep.              | 4.46  | 57.67         | 0.81         |   | 99   | Latvia                     | 3.41  | 40.17         | 0.27         | ○ |
| 27   | Indonesia                | 4.43  | 57.17         | 0.81         | ● | 99   | Poland                     | 3.41  | 40.17         | 0.27         | ○ |
| 28   | Turkey                   | 4.42  | 57.00         | 0.80         | ● | 101  | Senegal                    | 3.39  | 39.83         | 0.25         |   |
| 29   | France                   | 4.41  | 56.83         | 0.79         |   | 101  | Uganda                     | 3.39  | 39.83         | 0.25         |   |
| 30   | Bahrain                  | 4.35  | 55.83         | 0.79         |   | 103  | Nepal                      | 3.38  | 39.67         | 0.24         |   |
| 31   | Thailand                 | 4.34  | 55.67         | 0.78         |   | 104  | Bulgaria                   | 3.33  | 38.83         | 0.24         | ○ |
| 32   | Denmark                  | 4.30  | 55.00         | 0.77         |   | 105  | Lithuania                  | 3.31  | 38.50         | 0.23         | ○ |
| 33   | Mexico                   | 4.28  | 54.67         | 0.76         |   | 106  | Hungary                    | 3.27  | 37.83         | 0.22         | ○ |
| 34   | Australia                | 4.27  | 54.50         | 0.75         |   | 107  | Cabo Verde                 | 3.26  | 37.67         | 0.21         |   |
| 34   | Oman                     | 4.27  | 54.50         | 0.75         | ● | 108  | Croatia                    | 3.23  | 37.17         | 0.20         | ○ |
| 36   | Brunei Darussalam        | 4.18  | 53.00         | 0.74         |   | 108  | Georgia                    | 3.23  | 37.17         | 0.20         |   |
| 37   | Israel                   | 4.17  | 52.83         | 0.73         |   | 110  | Argentina                  | 3.22  | 37.00         | 0.19         |   |
| 38   | Portugal                 | 4.16  | 52.67         | 0.73         |   | 110  | Lebanon                    | 3.22  | 37.00         | 0.19         | ○ |
| 39   | South Africa             | 4.15  | 52.50         | 0.71         |   | 112  | Algeria                    | 3.19  | 36.50         | 0.18         |   |
| 39   | Spain                    | 4.15  | 52.50         | 0.71         |   | 113  | Guinea                     | 3.17  | 36.17         | 0.16         |   |
| 41   | Cambodia                 | 4.14  | 52.33         | 0.70         | ● | 113  | Montenegro                 | 3.17  | 36.17         | 0.16         | ○ |
| 41   | Czech Republic           | 4.14  | 52.33         | 0.70         |   | 115  | Paraguay                   | 3.16  | 36.00         | 0.16         |   |
| 43   | Costa Rica               | 4.12  | 52.00         | 0.68         |   | 116  | Angola                     | 3.09  | 34.83         | 0.15         |   |
| 43   | Guatemala                | 4.12  | 52.00         | 0.68         | ● | 117  | Ethiopia                   | 3.06  | 34.33         | 0.13         |   |
| 45   | Egypt                    | 4.09  | 51.50         | 0.67         | ● | 117  | Russian Federation         | 3.06  | 34.33         | 0.13         | ○ |
| 45   | Zambia                   | 4.09  | 51.50         | 0.67         | ● | 119  | Kazakhstan                 | 3.05  | 34.17         | 0.13         | ○ |
| 47   | Chile                    | 4.08  | 51.33         | 0.66         |   | 120  | Madagascar                 | 2.99  | 33.17         | 0.12         |   |
| 48   | El Salvador              | 4.07  | 51.17         | 0.65         | ● | 121  | Greece                     | 2.98  | 33.00         | 0.11         | ○ |
| 49   | Cyprus                   | 4.06  | 51.00         | 0.64         |   | 122  | Serbia                     | 2.96  | 32.67         | 0.10         | ○ |
| 50   | Kenya                    | 4.05  | 50.83         | 0.64         |   | 122  | Zimbabwe                   | 2.96  | 32.67         | 0.10         |   |
| 51   | Mauritius                | 4.04  | 50.67         | 0.63         |   | 124  | Côte d'Ivoire              | 2.93  | 32.17         | 0.09         | ○ |
| 52   | Iceland                  | 4.03  | 50.50         | 0.61         |   | 125  | Benin                      | 2.88  | 31.33         | 0.08         |   |
| 52   | Philippines              | 4.03  | 50.50         | 0.61         |   | 126  | Ukraine                    | 2.87  | 31.17         | 0.07         | ○ |
| 54   | Jamaica                  | 4.02  | 50.33         | 0.61         |   | 127  | Burkina Faso               | 2.85  | 30.83         | 0.07         |   |
| 55   | Panama                   | 4.00  | 50.00         | 0.60         |   | 128  | Yemen                      | 2.82  | 30.33         | 0.06         |   |
| 56   | Guyana                   | 3.98  | 49.67         | 0.59         |   | 129  | Mongolia                   | 2.80  | 30.00         | 0.05         | ○ |
| 57   | Morocco                  | 3.97  | 49.50         | 0.59         |   | 130  | Burundi                    | 2.75  | 29.17         | 0.04         |   |
| 58   | Sri Lanka                | 3.96  | 49.33         | 0.58         |   | 131  | Kyrgyzstan                 | 2.70  | 28.33         | 0.04         | ○ |
| 59   | Pakistan                 | 3.95  | 49.17         | 0.57         | ● | 132  | Venezuela, Bolivarian Rep. | 2.66  | 27.67         | 0.03         |   |
| 60   | Honduras                 | 3.94  | 49.00         | 0.56         | ● | 133  | Albania                    | 2.49  | 24.83         | 0.02         | ○ |
| 61   | Malta                    | 3.91  | 48.50         | 0.56         |   | 134  | Myanmar                    | 2.45  | 24.17         | 0.01         |   |
| 62   | Nigeria                  | 3.90  | 48.33         | 0.55         | ● | 135  | Moldova, Rep.              | 2.33  | 22.17         | 0.01         | ○ |
| 63   | Bangladesh               | 3.89  | 48.17         | 0.54         | ● | 136  | Bosnia and Herzegovina     | 1.96  | 16.00         | 0.00         | ○ |
| 64   | Seychelles               | 3.88  | 48.00         | 0.53         |   | n/a  | Belarus                    | n/a   | n/a           | n/a          |   |
| 64   | Viet Nam                 | 3.88  | 48.00         | 0.53         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 66   | Ecuador                  | 3.85  | 47.50         | 0.52         |   | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 67   | Rwanda                   | 3.84  | 47.33         | 0.50         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |   |
| 67   | Slovakia                 | 3.84  | 47.33         | 0.50         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 69   | Gambia                   | 3.83  | 47.17         | 0.50         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 70   | New Zealand              | 3.81  | 46.83         | 0.49         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 71   | Colombia                 | 3.79  | 46.50         | 0.48         |   |      |                            |       |               |              |   |
| 72   | Azerbaijan               | 3.78  | 46.33         | 0.47         |   |      |                            |       |               |              |   |
| 73   | Barbados                 | 3.77  | 46.17         | 0.47         |   |      |                            |       |               |              |   |

SOURCE: World Economic Forum, *Executive Opinion Survey 2013–2014*

NOTE: ● indicates a strength; ○ a weakness.

## 5.2.3 GERD financed by abroad

GERD: Financed by abroad (% of total GERD) | 2011

| Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Mozambique (2010)                 | 78.14 | 100.00        | 1.00         | ● | 74   | Morocco (2010)             | 1.71  | 2.16          | 0.21         |   |
| 2    | Burkina Faso (2009)               | 59.61 | 76.27         | 0.99         | ● | 75   | Zambia (2008)              | 1.62  | 2.04          | 0.20         |   |
| 3    | Uganda (2010)                     | 57.30 | 73.33         | 0.98         | ● | 76   | Australia (2008)           | 1.61  | 2.03          | 0.18         | ○ |
| 4    | Guatemala                         | 52.35 | 66.99         | 0.97         | ● | 77   | Namibia (2010)             | 1.53  | 1.94          | 0.17         |   |
| 5    | Latvia (2012)                     | 50.39 | 64.48         | 0.96         | ● | 78   | Kuwait (2009)              | 1.18  | 1.48          | 0.16         | ○ |
| 6    | Panama (2010)                     | 49.52 | 63.36         | 0.95         | ● | 79   | Nigeria (2007)             | 1.04  | 1.30          | 0.15         |   |
| 7    | Israel (2010)                     | 47.34 | 60.57         | 0.93         |   | 80   | Thailand (2009)            | 1.00  | 1.25          | 0.14         | ○ |
| 8    | Kenya (2010)                      | 47.14 | 60.32         | 0.92         | ● | 81   | China (2012)               | 0.97  | 1.22          | 0.13         | ○ |
| 9    | Bulgaria                          | 43.93 | 56.21         | 0.91         | ● | 82   | Pakistan                   | 0.90  | 1.12          | 0.12         |   |
| 10   | Tanzania, United Rep. (2010)      | 42.00 | 53.74         | 0.90         | ● | 83   | Kyrgyzstan                 | 0.87  | 1.09          | 0.11         |   |
| 11   | Senegal (2010)                    | 40.53 | 51.86         | 0.89         | ● | 84   | Mexico                     | 0.69  | 0.86          | 0.10         | ○ |
| 12   | Burundi (2008)                    | 39.92 | 51.07         | 0.88         | ● | 85   | Turkey                     | 0.69  | 0.85          | 0.09         | ○ |
| 13   | Lithuania (2012)                  | 33.33 | 42.64         | 0.87         | ● | 86   | Tajikistan (2006)          | 0.65  | 0.80          | 0.08         |   |
| 14   | Ghana (2010)                      | 31.22 | 39.93         | 0.86         | ● | 87   | Argentina                  | 0.52  | 0.64          | 0.07         | ○ |
| 15   | Ethiopia (2010)                   | 29.96 | 38.32         | 0.85         | ● | 88   | Ecuador (2008)             | 0.50  | 0.61          | 0.05         | ○ |
| 16   | Czech Republic (2012)             | 25.92 | 33.16         | 0.84         |   | 89   | Japan                      | 0.48  | 0.58          | 0.04         | ○ |
| 17   | Ukraine                           | 25.84 | 33.05         | 0.83         | ● | 90   | Malaysia                   | 0.31  | 0.36          | 0.03         | ○ |
| 18   | Luxembourg (2010)                 | 20.71 | 26.48         | 0.82         |   | 91   | Kazakhstan                 | 0.27  | 0.32          | 0.02         | ○ |
| 19   | Ireland (2012)                    | 20.41 | 26.09         | 0.80         |   | 92   | Korea, Rep.                | 0.22  | 0.26          | 0.01         | ○ |
| 20   | United Kingdom (2012)             | 19.69 | 25.17         | 0.79         |   | 93   | Azerbaijan (2010)          | 0.02  | 0.00          | 0.00         | ○ |
| 21   | Slovakia (2012)                   | 18.65 | 23.85         | 0.78         |   | n/a  | Algeria                    | n/a   | n/a           | n/a          |   |
| 22   | El Salvador                       | 18.06 | 23.08         | 0.77         | ● | n/a  | Angola                     | n/a   | n/a           | n/a          |   |
| 23   | Malta (2012)                      | 17.33 | 22.16         | 0.76         |   | n/a  | Bahrain                    | n/a   | n/a           | n/a          |   |
| 24   | Paraguay                          | 16.86 | 21.55         | 0.75         | ● | n/a  | Bangladesh                 | n/a   | n/a           | n/a          |   |
| 25   | Gambia                            | 15.90 | 20.32         | 0.74         | ● | n/a  | Barbados                   | n/a   | n/a           | n/a          |   |
| 26   | Greece (2012)                     | 15.77 | 20.15         | 0.73         |   | n/a  | Benin                      | n/a   | n/a           | n/a          |   |
| 27   | Chile (2010)                      | 15.73 | 20.11         | 0.72         |   | n/a  | Bhutan                     | n/a   | n/a           | n/a          |   |
| 28   | Hungary (2012)                    | 15.40 | 19.68         | 0.71         |   | n/a  | Bosnia and Herzegovina     | n/a   | n/a           | n/a          |   |
| 29   | Montenegro                        | 15.29 | 19.54         | 0.70         |   | n/a  | Botswana                   | n/a   | n/a           | n/a          |   |
| 30   | Austria (2013)                    | 15.21 | 19.44         | 0.68         |   | n/a  | Brazil                     | n/a   | n/a           | n/a          |   |
| 31   | Tunisia (2009)                    | 14.95 | 19.10         | 0.67         |   | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |   |
| 32   | Romania (2012)                    | 14.44 | 18.46         | 0.66         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 33   | Croatia (2012)                    | 14.37 | 18.36         | 0.65         |   | n/a  | Cambodia                   | n/a   | n/a           | n/a          |   |
| 34   | Cyprus                            | 14.07 | 17.99         | 0.64         |   | n/a  | Cameroon                   | n/a   | n/a           | n/a          |   |
| 35   | Poland (2012)                     | 13.35 | 17.06         | 0.63         |   | n/a  | Côte d'Ivoire              | n/a   | n/a           | n/a          |   |
| 36   | Belgium                           | 12.96 | 16.56         | 0.62         |   | n/a  | Dominican Republic         | n/a   | n/a           | n/a          |   |
| 37   | South Africa (2010)               | 12.07 | 15.42         | 0.61         |   | n/a  | Egypt                      | n/a   | n/a           | n/a          |   |
| 38   | Togo (2010)                       | 11.68 | 14.92         | 0.60         | ● | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 39   | Sweden                            | 11.08 | 14.16         | 0.59         | ○ | n/a  | Georgia                    | n/a   | n/a           | n/a          |   |
| 40   | Netherlands                       | 10.89 | 13.92         | 0.58         | ○ | n/a  | Guinea                     | n/a   | n/a           | n/a          |   |
| 41   | Madagascar (2009)                 | 10.58 | 13.52         | 0.57         | ● | n/a  | Guyana                     | n/a   | n/a           | n/a          |   |
| 42   | Estonia (2012)                    | 9.99  | 12.77         | 0.55         |   | n/a  | Honduras                   | n/a   | n/a           | n/a          |   |
| 43   | Moldova, Rep.                     | 9.36  | 11.95         | 0.54         |   | n/a  | India                      | n/a   | n/a           | n/a          |   |
| 44   | Italy                             | 9.06  | 11.57         | 0.53         |   | n/a  | Indonesia                  | n/a   | n/a           | n/a          |   |
| 45   | Mali (2010)                       | 8.81  | 11.25         | 0.52         | ● | n/a  | Iran, Islamic Rep.         | n/a   | n/a           | n/a          |   |
| 46   | Finland (2012)                    | 8.81  | 11.24         | 0.51         | ○ | n/a  | Jamaica                    | n/a   | n/a           | n/a          |   |
| 47   | Belarus                           | 8.74  | 11.17         | 0.50         |   | n/a  | Jordan                     | n/a   | n/a           | n/a          |   |
| 48   | Slovenia (2012)                   | 8.57  | 10.95         | 0.49         |   | n/a  | Lebanon                    | n/a   | n/a           | n/a          |   |
| 49   | Iceland                           | 8.37  | 10.68         | 0.48         |   | n/a  | Malawi                     | n/a   | n/a           | n/a          |   |
| 50   | Norway                            | 7.79  | 9.94          | 0.47         | ○ | n/a  | Mauritius                  | n/a   | n/a           | n/a          |   |
| 51   | France                            | 7.69  | 9.81          | 0.46         | ○ | n/a  | Myanmar                    | n/a   | n/a           | n/a          |   |
| 52   | Albania (2008)                    | 7.37  | 9.40          | 0.45         |   | n/a  | Nepal                      | n/a   | n/a           | n/a          |   |
| 53   | Denmark (2012)                    | 7.23  | 9.23          | 0.43         | ○ | n/a  | Nicaragua                  | n/a   | n/a           | n/a          |   |
| 54   | Spain                             | 6.68  | 8.52          | 0.42         | ○ | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 55   | Costa Rica                        | 6.54  | 8.35          | 0.41         |   | n/a  | Oman                       | n/a   | n/a           | n/a          |   |
| 56   | Uruguay                           | 6.53  | 8.33          | 0.40         |   | n/a  | Peru                       | n/a   | n/a           | n/a          |   |
| 57   | New Zealand                       | 6.32  | 8.07          | 0.39         | ○ | n/a  | Qatar                      | n/a   | n/a           | n/a          |   |
| 58   | Switzerland (2008)                | 5.95  | 7.59          | 0.38         | ○ | n/a  | Rwanda                     | n/a   | n/a           | n/a          |   |
| 59   | Portugal                          | 5.88  | 7.50          | 0.37         | ○ | n/a  | Saudi Arabia               | n/a   | n/a           | n/a          |   |
| 60   | Canada (2012)                     | 5.80  | 7.39          | 0.36         | ○ | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 61   | Serbia                            | 5.48  | 6.99          | 0.35         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |   |
| 62   | Singapore                         | 5.01  | 6.38          | 0.34         | ○ | n/a  | Swaziland                  | n/a   | n/a           | n/a          |   |
| 63   | Hong Kong (China) (2010)          | 4.92  | 6.27          | 0.33         | ○ | n/a  | TFYR of Macedonia          | n/a   | n/a           | n/a          |   |
| 64   | Germany                           | 4.18  | 5.33          | 0.32         | ○ | n/a  | Trinidad and Tobago        | n/a   | n/a           | n/a          |   |
| 65   | Philippines (2007)                | 4.12  | 5.25          | 0.30         |   | n/a  | United Arab Emirates       | n/a   | n/a           | n/a          |   |
| 66   | Russian Federation (2012)         | 3.97  | 5.05          | 0.29         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 67   | Mongolia                          | 3.85  | 4.90          | 0.28         |   | n/a  | Venezuela, Bolivarian Rep. | n/a   | n/a           | n/a          |   |
| 68   | United States of America (2012)   | 3.80  | 4.83          | 0.27         | ○ | n/a  | Viet Nam                   | n/a   | n/a           | n/a          |   |
| 69   | Colombia (2012)                   | 3.51  | 4.46          | 0.26         |   | n/a  | Yemen                      | n/a   | n/a           | n/a          |   |
| 70   | Lesotho                           | 3.45  | 4.38          | 0.25         |   | n/a  | Zimbabwe                   | n/a   | n/a           | n/a          |   |
| 71   | Armenia                           | 3.35  | 4.26          | 0.24         |   |      |                            |       |               |              |   |
| 72   | Sri Lanka (2010)                  | 2.72  | 3.46          | 0.23         |   |      |                            |       |               |              |   |
| 73   | Bolivia, Plurinational St. (2009) | 1.86  | 2.35          | 0.22         |   |      |                            |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database* (2006–13)

NOTE: ● indicates a strength; ○ a weakness.

# 5.2.4

## Joint venture/strategic alliance deals

Joint ventures/strategic alliances: Number of deals, fractional counting (per trillion PPP\$ GDP) | 2013

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Bahrain                  | .040  | 100.00        | 0.96         | ● | 74   | Lithuania                  | .001  | 6.97          | 0.31         |   |
| 1    | Jordan                   | .028  | 100.00        | 0.96         | ● | 75   | Spain                      | .001  | 6.75          | 0.30         | ○ |
| 1    | Oman                     | .024  | 100.00        | 0.96         | ● | 76   | Portugal                   | .001  | 6.74          | 0.29         | ○ |
| 1    | United Arab Emirates     | .032  | 100.00        | 0.96         | ● | 77   | Bulgaria                   | .001  | 6.72          | 0.28         | ○ |
| 1    | Zimbabwe                 | .020  | 100.00        | 0.96         | ● | 78   | Turkey                     | .001  | 5.90          | 0.27         |   |
| 6    | Qatar                    | .015  | 73.88         | 0.95         | ● | 79   | Romania                    | .001  | 5.48          | 0.26         |   |
| 7    | Barbados                 | .014  | 71.21         | 0.94         | ● | 80   | Kazakhstan                 | .001  | 4.67          | 0.25         |   |
| 8    | Hong Kong (China)        | .014  | 70.22         | 0.93         |   | 81   | Azerbaijan                 | .001  | 4.52          | 0.25         |   |
| 9    | Singapore                | .014  | 68.27         | 0.92         |   | 82   | Bangladesh                 | .001  | 4.16          | 0.24         |   |
| 10   | Bhutan                   | .013  | 63.47         | 0.92         | ● | 83   | Georgia                    | .001  | 4.12          | 0.23         |   |
| 11   | Luxembourg               | .012  | 58.36         | 0.91         |   | 84   | Uruguay                    | .001  | 3.98          | 0.22         |   |
| 12   | Kuwait                   | .012  | 57.50         | 0.90         | ● | 85   | Uzbekistan                 | .001  | 3.98          | 0.21         |   |
| 13   | Greece                   | .011  | 55.52         | 0.89         | ● | 86   | Ecuador                    | .001  | 3.77          | 0.20         |   |
| 14   | Ireland                  | .010  | 47.44         | 0.88         |   | 87   | Morocco                    | .001  | 3.70          | 0.19         | ○ |
| 15   | Myanmar                  | .009  | 46.21         | 0.87         | ● | 88   | Argentina                  | .001  | 3.64          | 0.18         |   |
| 16   | Cyprus                   | .009  | 45.98         | 0.86         | ● | 89   | Nigeria                    | .001  | 3.63          | 0.17         |   |
| 17   | Switzerland              | .009  | 44.72         | 0.85         |   | 90   | Costa Rica                 | .001  | 3.61          | 0.16         | ○ |
| 18   | Canada                   | .009  | 44.39         | 0.84         |   | 91   | Nepal                      | .001  | 3.50          | 0.15         |   |
| 19   | Mongolia                 | .009  | 43.75         | 0.83         |   | 92   | Brazil                     | .001  | 3.11          | 0.14         | ○ |
| 20   | Malta                    | .009  | 43.32         | 0.82         |   | 93   | Algeria                    | .001  | 2.75          | 0.13         |   |
| 21   | Saudi Arabia             | .008  | 42.01         | 0.81         |   | 94   | Ghana                      | .001  | 2.30          | 0.12         |   |
| 22   | Kyrgyzstan               | .007  | 34.64         | 0.80         | ● | 95   | Poland                     | .001  | 2.30          | 0.11         | ○ |
| 23   | Denmark                  | .007  | 34.37         | 0.79         |   | 96   | Mexico                     | .001  | 2.24          | 0.10         | ○ |
| 24   | United Kingdom           | .007  | 33.32         | 0.78         |   | 97   | Yemen                      | .001  | 2.19          | 0.09         |   |
| 25   | Israel                   | .006  | 31.23         | 0.77         |   | 98   | Hungary                    | .001  | 2.07          | 0.08         | ○ |
| 26   | Rwanda                   | .006  | 30.19         | 0.76         |   | 99   | Dominican Republic         | .000  | 2.01          | 0.08         | ○ |
| 27   | Australia                | .006  | 29.53         | 0.75         |   | 100  | Venezuela, Bolivarian Rep. | .000  | 1.98          | 0.07         |   |
| 28   | Zambia                   | .006  | 29.10         | 0.75         | ● | 101  | Pakistan                   | .000  | 1.93          | 0.06         | ○ |
| 29   | Malaysia                 | .006  | 27.97         | 0.74         |   | 102  | Tunisia                    | .000  | 1.83          | 0.05         | ○ |
| 30   | Norway                   | .005  | 27.10         | 0.73         |   | 103  | Ukraine                    | .000  | 1.75          | 0.04         | ○ |
| 31   | Sweden                   | .005  | 26.72         | 0.72         |   | 104  | Czech Republic             | .000  | 1.27          | 0.03         | ○ |
| 32   | New Zealand              | .005  | 26.59         | 0.71         |   | 105  | Peru                       | .000  | 0.25          | 0.02         | ○ |
| 33   | Mozambique               | .005  | 26.28         | 0.70         | ● | 106  | Iran, Islamic Rep.         | .000  | 0.11          | 0.01         | ○ |
| 34   | Philippines              | .005  | 25.71         | 0.69         | ● | 107  | Colombia                   | .000  | 0.00          | 0.00         | ○ |
| 35   | Egypt                    | .005  | 25.24         | 0.68         | ● | n/a  | Albania                    | n/a   | n/a           | n/a          |   |
| 36   | Finland                  | .005  | 24.78         | 0.67         |   | n/a  | Benin                      | n/a   | n/a           | n/a          |   |
| 37   | United States of America | .005  | 24.24         | 0.66         |   | n/a  | Bolivia, Plurinational St. | n/a   | n/a           | n/a          |   |
| 38   | Armenia                  | .005  | 23.88         | 0.65         |   | n/a  | Bosnia and Herzegovina     | n/a   | n/a           | n/a          |   |
| 39   | Lebanon                  | .004  | 21.64         | 0.64         |   | n/a  | Burkina Faso               | n/a   | n/a           | n/a          |   |
| 40   | Serbia                   | .004  | 21.36         | 0.63         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 41   | Thailand                 | .004  | 19.54         | 0.62         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 42   | Netherlands              | .004  | 18.81         | 0.61         | ○ | n/a  | Cameroon                   | n/a   | n/a           | n/a          |   |
| 43   | Croatia                  | .004  | 17.72         | 0.60         |   | n/a  | Côte d'Ivoire              | n/a   | n/a           | n/a          |   |
| 44   | Nicaragua                | .004  | 17.54         | 0.59         | ● | n/a  | El Salvador                | n/a   | n/a           | n/a          |   |
| 45   | Japan                    | .003  | 16.44         | 0.58         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 46   | France                   | .003  | 14.93         | 0.58         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 47   | Cambodia                 | .003  | 14.30         | 0.57         | ● | n/a  | Guatemala                  | n/a   | n/a           | n/a          |   |
| 48   | Botswana                 | .003  | 14.29         | 0.56         |   | n/a  | Guinea                     | n/a   | n/a           | n/a          |   |
| 49   | South Africa             | .003  | 14.27         | 0.55         |   | n/a  | Guyana                     | n/a   | n/a           | n/a          |   |
| 50   | Slovenia                 | .003  | 12.85         | 0.54         |   | n/a  | Honduras                   | n/a   | n/a           | n/a          |   |
| 51   | Mali                     | .003  | 12.80         | 0.53         | ● | n/a  | Iceland                    | n/a   | n/a           | n/a          |   |
| 52   | Tajikistan               | .003  | 12.73         | 0.52         | ● | n/a  | Jamaica                    | n/a   | n/a           | n/a          |   |
| 53   | Kenya                    | .002  | 12.00         | 0.51         |   | n/a  | Latvia                     | n/a   | n/a           | n/a          |   |
| 54   | India                    | .002  | 11.89         | 0.50         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |   |
| 55   | Belarus                  | .002  | 11.20         | 0.49         |   | n/a  | Madagascar                 | n/a   | n/a           | n/a          |   |
| 56   | Angola                   | .002  | 10.95         | 0.48         | ● | n/a  | Malawi                     | n/a   | n/a           | n/a          |   |
| 57   | Brunei Darussalam        | .002  | 10.80         | 0.47         |   | n/a  | Moldova, Rep.              | n/a   | n/a           | n/a          |   |
| 58   | Viet Nam                 | .002  | 10.71         | 0.46         |   | n/a  | Montenegro                 | n/a   | n/a           | n/a          |   |
| 59   | Germany                  | .002  | 10.70         | 0.45         | ○ | n/a  | Namibia                    | n/a   | n/a           | n/a          |   |
| 60   | Sudan                    | .002  | 10.68         | 0.44         | ● | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 61   | Chile                    | .002  | 10.50         | 0.43         |   | n/a  | Panama                     | n/a   | n/a           | n/a          |   |
| 62   | Russian Federation       | .002  | 10.27         | 0.42         |   | n/a  | Paraguay                   | n/a   | n/a           | n/a          |   |
| 63   | Austria                  | .002  | 10.18         | 0.42         | ○ | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 64   | Belgium                  | .002  | 9.84          | 0.41         | ○ | n/a  | Slovakia                   | n/a   | n/a           | n/a          |   |
| 65   | Sri Lanka                | .002  | 9.47          | 0.40         |   | n/a  | Swaziland                  | n/a   | n/a           | n/a          |   |
| 66   | Korea, Rep.              | .002  | 9.22          | 0.39         |   | n/a  | Tanzania, United Rep.      | n/a   | n/a           | n/a          |   |
| 67   | China                    | .002  | 8.97          | 0.38         |   | n/a  | TFYR of Macedonia          | n/a   | n/a           | n/a          |   |
| 68   | Senegal                  | .002  | 8.58          | 0.37         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 69   | Estonia                  | .002  | 7.90          | 0.36         | ○ | n/a  | Trinidad and Tobago        | n/a   | n/a           | n/a          |   |
| 70   | Italy                    | .002  | 7.66          | 0.35         | ○ | n/a  | Uganda                     | n/a   | n/a           | n/a          |   |
| 71   | Indonesia                | .002  | 7.63          | 0.34         |   |      |                            |       |               |              |   |
| 72   | Mauritius                | .002  | 7.51          | 0.33         |   |      |                            |       |               |              |   |
| 73   | Ethiopia                 | .002  | 7.31          | 0.32         |   |      |                            |       |               |              |   |

SOURCE: Thomson Reuters, Thomson One Banker Private Equity, SDC Platinum database; International Monetary Fund World Economic Outlook 2013 database (PPP\$ GDP)  
NOTE: ● indicates a strength; ○ a weakness.



## 5.2.5 Patent families filed in at least three offices

Number of patent families filed by residents in at least three offices (per billion PPP\$ GDP) | 2010

| Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Japan                             | 5.35  | 100.00        | 1.00         | ● | 74   | El Salvador (2009)         | 0.02  | 5.33          | 0.36         |   |
| 2    | Korea, Rep.                       | 5.00  | 98.35         | 0.99         | ● | 75   | Ecuador                    | 0.02  | 5.24          | 0.35         |   |
| 3    | Barbados                          | 4.81  | 97.36         | 0.98         | ● | 76   | Kenya (2004)               | 0.02  | 4.97          | 0.34         |   |
| 4    | Switzerland                       | 4.57  | 96.14         | 0.97         |   | 77   | Bulgaria                   | 0.02  | 4.65          | 0.33         |   |
| 5    | Finland                           | 3.33  | 88.39         | 0.96         |   | 78   | Costa Rica (2009)          | 0.02  | 4.64          | 0.32         |   |
| 6    | Israel                            | 2.87  | 84.77         | 0.96         | ● | 79   | Tunisia                    | 0.02  | 4.56          | 0.32         |   |
| 7    | Germany                           | 2.82  | 84.33         | 0.95         | ● | 80   | Sri Lanka                  | 0.02  | 4.32          | 0.31         |   |
| 8    | Luxembourg                        | 2.76  | 83.77         | 0.94         |   | 81   | South Africa               | 0.02  | 3.92          | 0.30         | ○ |
| 9    | Sweden                            | 2.49  | 81.33         | 0.93         |   | 82   | Guatemala (2007)           | 0.02  | 3.64          | 0.29         |   |
| 10   | France                            | 1.59  | 70.62         | 0.92         | ● | 83   | Dominican Republic (2006)  | 0.02  | 3.59          | 0.28         |   |
| 11   | United States of America          | 1.59  | 70.59         | 0.91         |   | 84   | India                      | 0.01  | 3.39          | 0.27         |   |
| 12   | Netherlands                       | 1.53  | 69.64         | 0.90         |   | 85   | Uzbekistan (2008)          | 0.01  | 3.24          | 0.26         |   |
| 13   | Austria                           | 1.50  | 69.25         | 0.89         |   | 86   | Thailand                   | 0.01  | 3.17          | 0.25         |   |
| 14   | Seychelles                        | 1.47  | 68.68         | 0.89         | ● | 87   | Philippines                | 0.01  | 3.17          | 0.25         |   |
| 15   | Denmark                           | 1.23  | 64.67         | 0.88         |   | 88   | Myanmar (2008)             | 0.01  | 2.99          | 0.24         |   |
| 16   | Singapore                         | 1.11  | 62.26         | 0.87         |   | 89   | Azerbaijan (2009)          | 0.01  | 2.75          | 0.23         |   |
| 17   | Belgium                           | 1.10  | 62.07         | 0.86         |   | 90   | Colombia                   | 0.01  | 2.70          | 0.22         |   |
| 18   | Canada                            | 1.00  | 59.92         | 0.85         |   | 91   | Venezuela, Bolivarian Rep. | 0.01  | 2.68          | 0.21         |   |
| 19   | United Kingdom                    | 1.00  | 59.81         | 0.84         |   | 92   | Chile                      | 0.01  | 2.57          | 0.20         | ○ |
| 20   | Australia                         | 0.95  | 58.66         | 0.83         |   | 93   | Ukraine                    | 0.01  | 2.33          | 0.19         | ○ |
| 21   | Malta                             | 0.86  | 56.37         | 0.82         |   | 94   | Kuwait                     | 0.01  | 1.84          | 0.18         |   |
| 22   | Norway                            | 0.83  | 55.71         | 0.82         |   | 95   | Belarus                    | 0.01  | 1.82          | 0.18         | ○ |
| 23   | Ireland                           | 0.75  | 53.38         | 0.81         |   | 96   | Morocco (2009)             | 0.01  | 1.66          | 0.17         | ○ |
| 24   | Italy                             | 0.65  | 50.37         | 0.80         |   | 97   | Viet Nam                   | 0.01  | 1.65          | 0.16         |   |
| 25   | Estonia                           | 0.49  | 44.10         | 0.79         |   | 98   | Kazakhstan (2006)          | 0.01  | 1.59          | 0.15         | ○ |
| 26   | Cyprus                            | 0.48  | 43.75         | 0.78         |   | 99   | Egypt                      | 0.00  | 0.98          | 0.14         |   |
| 27   | New Zealand                       | 0.36  | 38.14         | 0.77         |   | 100  | Algeria                    | 0.00  | 0.98          | 0.13         |   |
| 28   | Hong Kong (China)                 | 0.31  | 35.16         | 0.76         |   | 101  | Peru                       | 0.00  | 0.88          | 0.12         | ○ |
| 29   | Burundi (2004)                    | 0.30  | 34.52         | 0.75         | ● | 102  | Nigeria                    | 0.00  | 0.65          | 0.11         |   |
| 30   | Spain                             | 0.22  | 29.25         | 0.75         |   | 103  | Pakistan (2006)            | 0.00  | 0.61          | 0.11         |   |
| 31   | Slovenia                          | 0.20  | 26.94         | 0.74         |   | 104  | Iran, Islamic Rep. (2009)  | 0.00  | 0.28          | 0.10         |   |
| 32   | Swaziland (2006)                  | 0.19  | 26.74         | 0.73         | ● | 105  | Indonesia                  | 0.00  | 0.24          | 0.09         | ○ |
| 33   | Montenegro (2006)                 | 0.18  | 25.58         | 0.72         |   | 106  | Bangladesh                 | 0.00  | 0.00          | 0.00         | ○ |
| 34   | Hungary                           | 0.17  | 24.78         | 0.71         |   | 106  | Benin                      | 0.00  | 0.00          | 0.00         | ○ |
| 35   | Iceland                           | 0.17  | 24.75         | 0.70         |   | 106  | Botswana                   | 0.00  | 0.00          | 0.00         | ○ |
| 36   | China                             | 0.17  | 24.71         | 0.69         |   | 106  | Côte d'Ivoire              | 0.00  | 0.00          | 0.00         | ○ |
| 37   | Czech Republic                    | 0.14  | 21.70         | 0.68         |   | 106  | Ghana                      | 0.00  | 0.00          | 0.00         | ○ |
| 38   | Trinidad and Tobago (2007)        | 0.12  | 19.41         | 0.68         |   | 106  | Jamaica                    | 0.00  | 0.00          | 0.00         | ○ |
| 39   | Mauritius                         | 0.11  | 18.55         | 0.67         |   | 106  | Kyrgyzstan                 | 0.00  | 0.00          | 0.00         | ○ |
| 40   | Portugal                          | 0.11  | 17.85         | 0.66         |   | 106  | Nicaragua                  | 0.00  | 0.00          | 0.00         | ○ |
| 41   | Niger (2008)                      | 0.10  | 17.36         | 0.65         | ● | 106  | TFYR of Macedonia          | 0.00  | 0.00          | 0.00         | ○ |
| 42   | Mongolia (2009)                   | 0.10  | 16.94         | 0.64         |   | 106  | Zimbabwe                   | 0.00  | 0.00          | 0.00         | ○ |
| 43   | Panama (2009)                     | 0.10  | 16.94         | 0.63         |   | n/a  | Angola                     | n/a   | n/a           | n/a          |   |
| 44   | Guinea (2009)                     | 0.10  | 16.68         | 0.62         | ● | n/a  | Bhutan                     | n/a   | n/a           | n/a          |   |
| 45   | Latvia (2009)                     | 0.09  | 16.46         | 0.61         |   | n/a  | Bosnia and Herzegovina     | n/a   | n/a           | n/a          |   |
| 46   | Slovakia                          | 0.09  | 16.18         | 0.61         |   | n/a  | Burkina Faso               | n/a   | n/a           | n/a          |   |
| 47   | Croatia                           | 0.09  | 16.13         | 0.60         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 48   | Moldova, Rep.                     | 0.09  | 16.09         | 0.59         |   | n/a  | Cambodia                   | n/a   | n/a           | n/a          |   |
| 49   | Poland                            | 0.08  | 14.87         | 0.58         |   | n/a  | Ethiopia                   | n/a   | n/a           | n/a          |   |
| 50   | Namibia                           | 0.07  | 12.92         | 0.57         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 51   | Uruguay                           | 0.06  | 12.29         | 0.56         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 52   | Albania (2004)                    | 0.06  | 12.25         | 0.55         |   | n/a  | Guyana                     | n/a   | n/a           | n/a          |   |
| 53   | Armenia                           | 0.06  | 11.62         | 0.54         |   | n/a  | Honduras                   | n/a   | n/a           | n/a          |   |
| 54   | Jordan                            | 0.06  | 11.20         | 0.54         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |   |
| 55   | Brunei Darussalam                 | 0.05  | 10.04         | 0.53         |   | n/a  | Madagascar                 | n/a   | n/a           | n/a          |   |
| 56   | Georgia (2009)                    | 0.05  | 9.75          | 0.52         |   | n/a  | Malawi                     | n/a   | n/a           | n/a          |   |
| 57   | Russian Federation                | 0.04  | 8.73          | 0.51         |   | n/a  | Mali                       | n/a   | n/a           | n/a          |   |
| 58   | Oman (2005)                       | 0.04  | 8.16          | 0.50         |   | n/a  | Mozambique                 | n/a   | n/a           | n/a          |   |
| 59   | Brazil                            | 0.04  | 8.10          | 0.49         |   | n/a  | Nepal                      | n/a   | n/a           | n/a          |   |
| 60   | Bahrain (2008)                    | 0.04  | 7.79          | 0.48         |   | n/a  | Paraguay                   | n/a   | n/a           | n/a          |   |
| 61   | Greece                            | 0.04  | 7.64          | 0.47         |   | n/a  | Qatar                      | n/a   | n/a           | n/a          |   |
| 62   | Lithuania                         | 0.04  | 7.49          | 0.46         |   | n/a  | Rwanda                     | n/a   | n/a           | n/a          |   |
| 63   | United Arab Emirates              | 0.04  | 7.45          | 0.46         |   | n/a  | Senegal                    | n/a   | n/a           | n/a          |   |
| 64   | Lebanon                           | 0.03  | 7.27          | 0.45         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |   |
| 65   | Argentina                         | 0.03  | 6.73          | 0.44         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 66   | Saudi Arabia                      | 0.03  | 6.64          | 0.43         |   | n/a  | Tanzania, United Rep.      | n/a   | n/a           | n/a          |   |
| 67   | Turkey                            | 0.03  | 6.11          | 0.42         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 68   | Malaysia                          | 0.03  | 6.09          | 0.41         |   | n/a  | Uganda                     | n/a   | n/a           | n/a          |   |
| 69   | Romania                           | 0.03  | 6.01          | 0.40         |   | n/a  | Yemen                      | n/a   | n/a           | n/a          |   |
| 70   | Serbia (2009)                     | 0.03  | 5.95          | 0.39         |   | n/a  | Zambia                     | n/a   | n/a           | n/a          |   |
| 71   | Cameroon (2006)                   | 0.03  | 5.90          | 0.39         |   |      |                            |       |               |              |   |
| 72   | Bolivia, Plurinational St. (2006) | 0.03  | 5.87          | 0.38         |   |      |                            |       |               |              |   |
| 73   | Mexico                            | 0.02  | 5.36          | 0.37         |   |      |                            |       |               |              |   |

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP\$ GDP) (2006–12)

NOTE: ● indicates a strength; ○ a weakness.

# 5.3.1

## Royalties and license fees payments

Royalties and license fees, payments (% of total trade) | 2012

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|-----------------------------------|-------|---------------|--------------|---|
| 1    | Ireland                    | 20.44 | 100.00        | 0.98         | ● | 74   | Madagascar (2011)                 | 0.25  | 7.87          | 0.42         |   |
| 1    | Singapore                  | 3.15  | 100.00        | 0.98         | ● | 75   | Latvia                            | 0.25  | 7.75          | 0.41         |   |
| 1    | Switzerland (2011)         | 5.54  | 100.00        | 0.98         | ● | 76   | Bolivia, Plurinational St. (2011) | 0.23  | 7.35          | 0.40         |   |
| 4    | Netherlands                | 3.12  | 98.93         | 0.98         | ● | 77   | Mauritius                         | 0.23  | 7.25          | 0.40         |   |
| 5    | Argentina                  | 2.43  | 77.04         | 0.97         | ● | 78   | Belarus                           | 0.21  | 6.73          | 0.39         |   |
| 6    | Japan                      | 2.07  | 65.61         | 0.96         |   | 79   | Cameroon (2010)                   | 0.19  | 6.11          | 0.38         |   |
| 7    | Guyana (2010)              | 2.02  | 64.04         | 0.95         | ● | 80   | Uruguay                           | 0.19  | 6.08          | 0.37         |   |
| 8    | Canada                     | 1.91  | 60.57         | 0.94         |   | 81   | Kazakhstan                        | 0.19  | 5.99          | 0.37         |   |
| 9    | South Africa               | 1.77  | 56.02         | 0.94         | ● | 82   | Iran, Islamic Rep. (2010)         | 0.19  | 5.86          | 0.36         |   |
| 10   | New Zealand                | 1.76  | 55.87         | 0.93         |   | 83   | Botswana                          | 0.18  | 5.81          | 0.35         |   |
| 11   | United States of America   | 1.72  | 54.44         | 0.92         |   | 84   | Uganda                            | 0.18  | 5.81          | 0.34         |   |
| 12   | Russian Federation         | 1.47  | 46.53         | 0.91         | ● | 85   | Slovakia                          | 0.17  | 5.47          | 0.33         |   |
| 13   | Finland                    | 1.35  | 42.83         | 0.90         |   | 86   | Côte d'Ivoire (2010)              | 0.15  | 4.77          | 0.33         |   |
| 14   | Australia                  | 1.33  | 42.14         | 0.90         |   | 87   | Panama                            | 0.15  | 4.74          | 0.32         |   |
| 15   | Thailand                   | 1.32  | 41.99         | 0.89         | ● | 88   | Benin (2010)                      | 0.15  | 4.64          | 0.31         |   |
| 16   | Korea, Rep.                | 1.31  | 41.44         | 0.88         |   | 89   | Kyrgyzstan (2011)                 | 0.15  | 4.61          | 0.30         |   |
| 17   | Iceland (2011)             | 1.26  | 40.08         | 0.87         |   | 90   | Senegal (2010)                    | 0.14  | 4.44          | 0.29         |   |
| 18   | Brazil                     | 1.26  | 39.97         | 0.87         | ● | 91   | Burundi (2011)                    | 0.14  | 4.41          | 0.29         |   |
| 19   | Slovenia                   | 1.24  | 39.19         | 0.86         |   | 92   | Morocco                           | 0.14  | 4.29          | 0.28         |   |
| 20   | Malta                      | 1.17  | 37.19         | 0.85         |   | 93   | Algeria (2011)                    | 0.14  | 4.27          | 0.27         |   |
| 21   | Israel                     | 1.17  | 36.97         | 0.84         |   | 94   | Brunei Darussalam (2009)          | 0.13  | 4.11          | 0.26         |   |
| 22   | Croatia                    | 1.16  | 36.85         | 0.83         | ● | 95   | Mozambique                        | 0.13  | 4.02          | 0.25         |   |
| 23   | Denmark                    | 1.13  | 35.82         | 0.83         |   | 96   | Cambodia                          | 0.12  | 3.90          | 0.25         |   |
| 24   | Hungary                    | 1.09  | 34.51         | 0.82         |   | 97   | Kenya (2011)                      | 0.12  | 3.75          | 0.24         |   |
| 25   | France                     | 1.09  | 34.51         | 0.81         |   | 98   | Montenegro (2011)                 | 0.12  | 3.74          | 0.23         | ○ |
| 26   | Italy                      | 1.05  | 33.27         | 0.80         |   | 99   | Mongolia                          | 0.12  | 3.72          | 0.22         |   |
| 27   | United Kingdom             | 1.04  | 32.92         | 0.79         |   | 100  | Lithuania                         | 0.11  | 3.50          | 0.21         | ○ |
| 28   | Poland                     | 1.01  | 32.16         | 0.79         |   | 101  | Niger (2009)                      | 0.11  | 3.44          | 0.21         |   |
| 29   | Sweden                     | 0.98  | 31.11         | 0.78         |   | 102  | Bosnia and Herzegovina            | 0.11  | 3.39          | 0.20         |   |
| 30   | Serbia                     | 0.95  | 30.00         | 0.77         |   | 103  | Togo (2010)                       | 0.11  | 3.34          | 0.19         |   |
| 31   | Chile                      | 0.94  | 29.84         | 0.76         |   | 104  | Seychelles (2011)                 | 0.10  | 3.26          | 0.18         | ○ |
| 32   | Barbados (2010)            | 0.91  | 28.84         | 0.75         |   | 105  | Azerbaijan                        | 0.10  | 3.25          | 0.17         |   |
| 33   | Indonesia                  | 0.85  | 26.92         | 0.75         | ● | 106  | Georgia                           | 0.10  | 3.16          | 0.17         | ○ |
| 34   | China                      | 0.83  | 26.35         | 0.74         |   | 107  | Lebanon (2011)                    | 0.09  | 2.68          | 0.16         | ○ |
| 35   | India                      | 0.80  | 25.43         | 0.73         |   | 108  | Namibia                           | 0.08  | 2.61          | 0.15         |   |
| 36   | Austria                    | 0.77  | 24.25         | 0.72         |   | 109  | Mali (2010)                       | 0.07  | 2.04          | 0.14         |   |
| 37   | Jamaica                    | 0.76  | 24.13         | 0.71         | ● | 110  | Zambia (2011)                     | 0.06  | 1.98          | 0.13         |   |
| 38   | Ukraine                    | 0.76  | 23.94         | 0.71         |   | 111  | Tunisia (2011)                    | 0.05  | 1.55          | 0.13         | ○ |
| 39   | Colombia                   | 0.75  | 23.82         | 0.70         |   | 112  | Fiji (2010)                       | 0.05  | 1.51          | 0.12         | ○ |
| 40   | Guatemala                  | 0.75  | 23.76         | 0.69         | ● | 113  | Yemen (2011)                      | 0.05  | 1.46          | 0.11         |   |
| 41   | Germany                    | 0.73  | 23.14         | 0.68         |   | 114  | Guinea (2011)                     | 0.04  | 1.14          | 0.10         |   |
| 42   | Philippines                | 0.72  | 22.73         | 0.67         | ● | 115  | Bangladesh (2011)                 | 0.03  | 1.00          | 0.10         |   |
| 43   | Swaziland (2010)           | 0.70  | 22.17         | 0.67         | ● | 116  | Ethiopia                          | 0.03  | 0.81          | 0.09         |   |
| 44   | Luxembourg                 | 0.67  | 21.20         | 0.66         |   | 117  | Paraguay (2011)                   | 0.02  | 0.59          | 0.08         | ○ |
| 45   | Belgium                    | 0.65  | 20.62         | 0.65         |   | 118  | Malawi (2011)                     | 0.02  | 0.59          | 0.07         | ○ |
| 46   | Romania                    | 0.62  | 19.75         | 0.64         |   | 119  | Sudan (2011)                      | 0.01  | 0.41          | 0.06         |   |
| 47   | Malaysia                   | 0.62  | 19.63         | 0.63         |   | 120  | Nicaragua                         | 0.01  | 0.35          | 0.06         | ○ |
| 48   | Greece                     | 0.57  | 17.94         | 0.63         |   | 121  | Cabo Verde                        | 0.01  | 0.20          | 0.05         | ○ |
| 49   | Czech Republic             | 0.55  | 17.41         | 0.62         |   | 122  | Bhutan                            | 0.01  | 0.17          | 0.04         | ○ |
| 50   | Portugal                   | 0.55  | 17.32         | 0.61         |   | 123  | Angola (2011)                     | 0.01  | 0.14          | 0.03         |   |
| 51   | El Salvador                | 0.53  | 16.83         | 0.60         |   | 124  | Rwanda (2011)                     | 0.01  | 0.14          | 0.02         | ○ |
| 52   | Spain                      | 0.53  | 16.75         | 0.60         |   | 125  | Burkina Faso (2010)               | 0.01  | 0.12          | 0.02         | ○ |
| 53   | Peru (2011)                | 0.46  | 14.56         | 0.59         |   | 126  | Tanzania, United Rep. (2011)      | 0.00  | 0.09          | 0.01         | ○ |
| 54   | Bulgaria                   | 0.46  | 14.55         | 0.58         |   | 127  | Tajikistan (2011)                 | 0.00  | 0.00          | 0.00         | ○ |
| 55   | Costa Rica                 | 0.46  | 14.54         | 0.57         |   | n/a  | Armenia                           | n/a   | n/a           | n/a          |   |
| 56   | Venezuela, Bolivarian Rep. | 0.45  | 14.31         | 0.56         |   | n/a  | Bahrain                           | n/a   | n/a           | n/a          |   |
| 57   | TFYR of Macedonia          | 0.45  | 14.29         | 0.56         |   | n/a  | Gambia                            | n/a   | n/a           | n/a          |   |
| 58   | Albania                    | 0.45  | 14.21         | 0.55         |   | n/a  | Ghana                             | n/a   | n/a           | n/a          |   |
| 59   | Egypt (2011)               | 0.43  | 13.65         | 0.54         |   | n/a  | Jordan                            | n/a   | n/a           | n/a          |   |
| 60   | Pakistan                   | 0.43  | 13.56         | 0.53         |   | n/a  | Kuwait                            | n/a   | n/a           | n/a          |   |
| 61   | Dominican Republic (2011)  | 0.42  | 13.33         | 0.52         |   | n/a  | Mexico                            | n/a   | n/a           | n/a          |   |
| 62   | Moldova, Rep.              | 0.41  | 12.86         | 0.52         |   | n/a  | Myanmar                           | n/a   | n/a           | n/a          |   |
| 63   | Hong Kong (China) (2011)   | 0.38  | 12.10         | 0.51         |   | n/a  | Nepal                             | n/a   | n/a           | n/a          |   |
| 64   | Honduras                   | 0.36  | 11.32         | 0.50         | ● | n/a  | Oman                              | n/a   | n/a           | n/a          |   |
| 65   | Trinidad and Tobago (2011) | 0.34  | 10.63         | 0.49         |   | n/a  | Qatar                             | n/a   | n/a           | n/a          |   |
| 66   | Ecuador                    | 0.33  | 10.58         | 0.48         |   | n/a  | Saudi Arabia                      | n/a   | n/a           | n/a          |   |
| 67   | Turkey                     | 0.33  | 10.35         | 0.48         |   | n/a  | Sri Lanka                         | n/a   | n/a           | n/a          |   |
| 68   | Norway                     | 0.32  | 10.27         | 0.47         |   | n/a  | United Arab Emirates              | n/a   | n/a           | n/a          |   |
| 69   | Cyprus (2011)              | 0.31  | 9.93          | 0.46         | ○ | n/a  | Uzbekistan                        | n/a   | n/a           | n/a          |   |
| 70   | Nigeria                    | 0.29  | 9.15          | 0.45         |   | n/a  | Viet Nam                          | n/a   | n/a           | n/a          |   |
| 71   | Estonia                    | 0.28  | 8.84          | 0.44         | ○ |      |                                   |       |               |              |   |
| 72   | Lesotho (2011)             | 0.27  | 8.66          | 0.44         |   |      |                                   |       |               |              |   |
| 73   | Zimbabwe (2011)            | 0.26  | 8.29          | 0.43         |   |      |                                   |       |               |              |   |

SOURCE: World Trade Organization, *Trade in Commercial Services* database, based on the International Monetary Fund *Balance of Payments* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

## 5.3.2 High-tech imports

### High-tech net imports (% of total trade) | 2012

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy             | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|-----------------------------|-------|---------------|--------------|---|
| 1    | Hong Kong (China)          | 41.79 | 100.00        | 0.99         | ● | 74   | Namibia                     | 6.68  | 23.42         | 0.42         |   |
| 1    | Malaysia                   | 22.09 | 100.00        | 0.99         | ● | 75   | Tanzania, United Rep.       | 6.63  | 23.20         | 0.41         |   |
| 3    | Costa Rica                 | 21.78 | 98.46         | 0.98         | ● | 76   | Georgia                     | 6.56  | 22.84         | 0.40         |   |
| 4    | Panama (2011)              | 21.31 | 96.12         | 0.98         | ● | 77   | Egypt                       | 6.46  | 22.33         | 0.39         |   |
| 5    | Singapore                  | 20.08 | 90.02         | 0.97         |   | 78   | Portugal                    | 6.45  | 22.30         | 0.38         | ○ |
| 6    | Paraguay                   | 19.93 | 89.28         | 0.96         | ● | 79   | Latvia                      | 6.44  | 22.23         | 0.38         | ○ |
| 7    | Viet Nam                   | 18.90 | 84.15         | 0.95         | ● | 80   | Honduras                    | 6.39  | 22.00         | 0.37         |   |
| 8    | China                      | 18.30 | 81.18         | 0.94         | ● | 81   | TFYR of Macedonia           | 6.17  | 20.89         | 0.36         |   |
| 9    | Mexico                     | 16.88 | 74.14         | 0.94         | ● | 82   | Ireland                     | 6.05  | 20.29         | 0.35         | ○ |
| 10   | Czech Republic             | 16.20 | 70.77         | 0.93         | ● | 83   | Spain                       | 6.02  | 20.15         | 0.34         | ○ |
| 11   | United States of America   | 15.94 | 69.43         | 0.92         |   | 84   | Bhutan (2011)               | 6.01  | 20.10         | 0.34         |   |
| 12   | Kenya (2010)               | 15.46 | 67.05         | 0.91         | ● | 85   | Dominican Republic          | 6.01  | 20.09         | 0.33         |   |
| 13   | Thailand                   | 14.53 | 62.47         | 0.90         | ● | 86   | Norway                      | 5.89  | 19.52         | 0.32         | ○ |
| 14   | Hungary                    | 14.12 | 60.41         | 0.90         | ● | 87   | Ethiopia                    | 5.88  | 19.44         | 0.31         |   |
| 15   | Slovakia                   | 13.60 | 57.84         | 0.89         | ● | 88   | Iceland                     | 5.82  | 19.16         | 0.30         | ○ |
| 16   | Malawi (2011)              | 13.23 | 55.98         | 0.88         | ● | 89   | Saudi Arabia                | 5.80  | 19.06         | 0.30         | ○ |
| 17   | Japan                      | 13.21 | 55.88         | 0.87         |   | 90   | Bosnia and Herzegovina      | 5.74  | 18.76         | 0.29         |   |
| 18   | Colombia                   | 13.04 | 55.06         | 0.86         | ● | 91   | Algeria                     | 5.68  | 18.49         | 0.28         |   |
| 19   | Malta                      | 12.95 | 54.60         | 0.86         |   | 92   | Slovenia                    | 5.67  | 18.40         | 0.27         | ○ |
| 20   | Korea, Rep.                | 12.21 | 50.92         | 0.85         |   | 93   | United Arab Emirates (2008) | 5.46  | 17.36         | 0.26         | ○ |
| 21   | Netherlands                | 12.21 | 50.91         | 0.84         |   | 94   | Jordan                      | 5.39  | 17.01         | 0.26         | ○ |
| 22   | Estonia                    | 11.98 | 49.75         | 0.83         |   | 95   | Kazakhstan                  | 5.32  | 16.70         | 0.25         |   |
| 23   | France                     | 11.94 | 49.56         | 0.82         |   | 96   | Kyrgyzstan                  | 5.26  | 16.36         | 0.24         |   |
| 24   | Brazil                     | 11.34 | 46.60         | 0.82         | ● | 97   | Mauritius                   | 5.25  | 16.34         | 0.23         | ○ |
| 25   | United Kingdom             | 10.85 | 44.16         | 0.81         |   | 98   | Sri Lanka                   | 4.97  | 14.92         | 0.22         |   |
| 26   | Argentina                  | 10.60 | 42.92         | 0.80         | ● | 99   | Mongolia (2007)             | 4.95  | 14.84         | 0.22         |   |
| 27   | Rwanda                     | 10.16 | 40.72         | 0.79         | ● | 100  | Trinidad and Tobago (2010)  | 4.93  | 14.72         | 0.21         |   |
| 28   | Australia                  | 10.06 | 40.22         | 0.78         |   | 101  | Niger                       | 4.89  | 14.52         | 0.20         |   |
| 29   | Canada                     | 10.04 | 40.15         | 0.78         |   | 102  | Togo                        | 4.87  | 14.42         | 0.19         |   |
| 30   | Cabo Verde                 | 9.95  | 39.71         | 0.77         | ● | 103  | Burkina Faso (2011)         | 4.84  | 14.28         | 0.18         |   |
| 31   | Burundi (2010)             | 9.81  | 38.99         | 0.76         | ● | 104  | Côte d'Ivoire               | 4.71  | 13.65         | 0.18         |   |
| 32   | New Zealand                | 9.79  | 38.88         | 0.75         |   | 105  | Luxembourg                  | 4.62  | 13.20         | 0.17         | ○ |
| 33   | South Africa               | 9.76  | 38.73         | 0.74         |   | 106  | Cyprus                      | 4.58  | 13.02         | 0.16         | ○ |
| 34   | Chile                      | 9.70  | 38.47         | 0.74         |   | 107  | Lithuania                   | 4.53  | 12.73         | 0.15         | ○ |
| 35   | Sweden                     | 9.65  | 38.19         | 0.73         |   | 108  | Montenegro                  | 4.48  | 12.49         | 0.14         | ○ |
| 36   | Germany                    | 9.57  | 37.82         | 0.72         |   | 109  | Zambia (2011)               | 4.31  | 11.68         | 0.14         |   |
| 37   | Israel                     | 9.46  | 37.24         | 0.71         |   | 110  | Madagascar                  | 4.27  | 11.44         | 0.13         |   |
| 38   | Indonesia                  | 9.42  | 37.03         | 0.70         |   | 111  | Bahrain (2011)              | 4.24  | 11.30         | 0.12         | ○ |
| 39   | Romania                    | 9.26  | 36.28         | 0.70         |   | 112  | Belarus                     | 4.15  | 10.87         | 0.11         | ○ |
| 40   | Tunisia (2011)             | 9.25  | 36.22         | 0.69         |   | 113  | Brunei Darussalam           | 4.07  | 10.44         | 0.10         | ○ |
| 41   | Belgium                    | 9.18  | 35.83         | 0.68         |   | 114  | Gambia (2011)               | 3.99  | 10.06         | 0.10         |   |
| 42   | Ecuador                    | 9.10  | 35.48         | 0.67         | ● | 115  | Azerbaijan                  | 3.98  | 9.99          | 0.09         | ○ |
| 43   | Poland                     | 8.94  | 34.66         | 0.66         |   | 116  | Senegal                     | 3.82  | 9.23          | 0.08         | ○ |
| 44   | Nepal (2011)               | 8.93  | 34.62         | 0.66         | ● | 117  | Iran, Islamic Rep. (2011)   | 3.55  | 7.89          | 0.07         |   |
| 45   | El Salvador                | 8.86  | 34.25         | 0.65         | ● | 118  | Jamaica                     | 3.43  | 7.29          | 0.06         | ○ |
| 46   | Guatemala                  | 8.56  | 32.79         | 0.64         | ● | 119  | Oman                        | 3.39  | 7.09          | 0.06         | ○ |
| 47   | Bulgaria                   | 8.49  | 32.45         | 0.63         |   | 120  | Albania                     | 3.36  | 6.91          | 0.05         | ○ |
| 48   | Fiji                       | 8.49  | 32.43         | 0.62         |   | 121  | Mozambique                  | 3.04  | 5.32          | 0.04         | ○ |
| 49   | Uganda                     | 8.47  | 32.34         | 0.62         | ● | 122  | Nigeria                     | 3.03  | 5.32          | 0.03         | ○ |
| 50   | Guyana                     | 8.44  | 32.19         | 0.61         |   | 123  | Lebanon (2011)              | 2.72  | 3.76          | 0.02         | ○ |
| 51   | Peru                       | 8.37  | 31.85         | 0.60         |   | 124  | Yemen                       | 2.55  | 2.91          | 0.02         |   |
| 52   | Turkey                     | 8.36  | 31.79         | 0.59         |   | 125  | Cambodia                    | 2.27  | 1.54          | 0.01         | ○ |
| 53   | Austria                    | 8.32  | 31.58         | 0.58         |   | 126  | Myanmar (2010)              | 1.96  | 0.00          | 0.00         | ○ |
| 54   | Mali                       | 8.16  | 30.80         | 0.58         | ● | n/a  | Angola                      | n/a   | n/a           | n/a          |   |
| 55   | Uruguay                    | 8.07  | 30.32         | 0.57         |   | n/a  | Bangladesh                  | n/a   | n/a           | n/a          |   |
| 56   | Switzerland                | 7.97  | 29.86         | 0.56         |   | n/a  | Barbados                    | n/a   | n/a           | n/a          |   |
| 57   | Pakistan                   | 7.80  | 29.01         | 0.55         | ● | n/a  | Benin                       | n/a   | n/a           | n/a          |   |
| 58   | Sudan (2011)               | 7.79  | 28.96         | 0.54         | ● | n/a  | Botswana                    | n/a   | n/a           | n/a          |   |
| 59   | Russian Federation         | 7.47  | 27.36         | 0.54         |   | n/a  | Cameroon                    | n/a   | n/a           | n/a          |   |
| 60   | Italy                      | 7.46  | 27.29         | 0.53         |   | n/a  | Guinea                      | n/a   | n/a           | n/a          |   |
| 61   | Finland                    | 7.37  | 26.89         | 0.52         | ○ | n/a  | Kuwait                      | n/a   | n/a           | n/a          |   |
| 62   | Serbia                     | 7.18  | 25.91         | 0.51         |   | n/a  | Lesotho                     | n/a   | n/a           | n/a          |   |
| 63   | Zimbabwe                   | 7.12  | 25.62         | 0.50         |   | n/a  | Morocco                     | n/a   | n/a           | n/a          |   |
| 64   | Moldova, Rep.              | 7.00  | 25.04         | 0.50         |   | n/a  | Philippines                 | n/a   | n/a           | n/a          |   |
| 65   | Nicaragua                  | 6.98  | 24.94         | 0.49         |   | n/a  | Qatar                       | n/a   | n/a           | n/a          |   |
| 66   | Bolivia, Plurinational St. | 6.94  | 24.73         | 0.48         |   | n/a  | Seychelles                  | n/a   | n/a           | n/a          |   |
| 67   | Ghana                      | 6.88  | 24.41         | 0.47         |   | n/a  | Swaziland                   | n/a   | n/a           | n/a          |   |
| 68   | Armenia                    | 6.86  | 24.31         | 0.46         |   | n/a  | Tajikistan                  | n/a   | n/a           | n/a          |   |
| 69   | Croatia                    | 6.78  | 23.94         | 0.46         |   | n/a  | Uzbekistan                  | n/a   | n/a           | n/a          |   |
| 70   | Denmark                    | 6.77  | 23.87         | 0.45         | ○ | n/a  | Venezuela, Bolivarian Rep.  | n/a   | n/a           | n/a          |   |
| 71   | Greece                     | 6.75  | 23.81         | 0.44         |   |      |                             |       |               |              |   |
| 72   | Ukraine                    | 6.71  | 23.59         | 0.43         |   |      |                             |       |               |              |   |
| 73   | India                      | 6.69  | 23.46         | 0.42         |   |      |                             |       |               |              |   |

SOURCE: United Nations, COMTRADE database; Eurostat 'High-technology' aggregations based on SITC Rev. 4, April 2009 (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

# 5.3.3

## Communications, computer and information services imports

Communications, computer and information services imports (% of total trade) | 2012

| Rank | Country/Economy                 | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   |
|------|---------------------------------|-------|---------------|--------------|---|------|-----------------------------------|-------|---------------|--------------|---|
| 1    | Fiji (2010)                     | 4.52  | 100.00        | 1.00         | ● | 74   | Colombia                          | 0.71  | 14.82         | 0.47         |   |
| 2    | Gambia (2009)                   | 3.23  | 71.20         | 0.99         | ● | 75   | India                             | 0.71  | 14.71         | 0.46         |   |
| 3    | Finland                         | 3.17  | 69.73         | 0.99         |   | 76   | Bolivia, Plurinational St. (2011) | 0.69  | 14.43         | 0.45         |   |
| 4    | Luxembourg                      | 2.71  | 59.48         | 0.98         | ● | 77   | Saudi Arabia                      | 0.69  | 14.28         | 0.45         |   |
| 5    | Guyana (2010)                   | 2.60  | 57.07         | 0.97         | ● | 78   | Indonesia                         | 0.68  | 14.16         | 0.44         |   |
| 6    | Sweden                          | 2.57  | 56.36         | 0.96         |   | 79   | Nigeria                           | 0.68  | 14.06         | 0.43         |   |
| 7    | Mali (2010)                     | 2.45  | 53.66         | 0.96         | ● | 80   | Costa Rica                        | 0.66  | 13.74         | 0.42         |   |
| 8    | Ethiopia                        | 2.39  | 52.34         | 0.95         | ● | 81   | Honduras                          | 0.65  | 13.49         | 0.42         |   |
| 9    | Benin (2010)                    | 2.23  | 48.69         | 0.94         | ● | 82   | Nicaragua                         | 0.64  | 13.27         | 0.41         |   |
| 10   | Burkina Faso (2010)             | 2.16  | 47.13         | 0.93         | ● | 83   | El Salvador                       | 0.64  | 13.18         | 0.40         |   |
| 11   | Senegal (2010)                  | 2.05  | 44.70         | 0.93         | ● | 84   | Iran, Islamic Rep. (2010)         | 0.61  | 12.57         | 0.39         |   |
| 12   | Barbados (2010)                 | 1.86  | 40.53         | 0.92         | ● | 85   | Singapore (2008)                  | 0.60  | 12.33         | 0.39         | ○ |
| 13   | Slovenia                        | 1.84  | 40.10         | 0.91         | ● | 86   | Australia                         | 0.60  | 12.25         | 0.38         | ○ |
| 14   | Belgium                         | 1.83  | 39.82         | 0.91         |   | 87   | Japan                             | 0.59  | 12.10         | 0.37         | ○ |
| 15   | Croatia                         | 1.82  | 39.52         | 0.90         | ● | 88   | Guinea (2011)                     | 0.59  | 12.10         | 0.36         | ● |
| 16   | United Kingdom                  | 1.79  | 39.02         | 0.89         |   | 89   | Ukraine                           | 0.54  | 11.06         | 0.36         |   |
| 17   | Montenegro (2011)               | 1.76  | 38.30         | 0.88         | ● | 90   | Namibia (2011)                    | 0.54  | 10.96         | 0.35         |   |
| 18   | Serbia (2011)                   | 1.76  | 38.19         | 0.88         | ● | 91   | Venezuela, Bolivarian Rep.        | 0.54  | 10.91         | 0.34         |   |
| 19   | Italy                           | 1.74  | 37.84         | 0.87         | ● | 92   | Lithuania                         | 0.53  | 10.84         | 0.34         |   |
| 20   | Germany                         | 1.70  | 37.00         | 0.86         |   | 93   | Lesotho (2011)                    | 0.52  | 10.51         | 0.33         |   |
| 21   | Denmark                         | 1.70  | 36.85         | 0.85         |   | 94   | Cambodia                          | 0.51  | 10.43         | 0.32         |   |
| 22   | Malta                           | 1.70  | 36.84         | 0.85         |   | 95   | Bhutan                            | 0.50  | 10.13         | 0.31         |   |
| 23   | Estonia                         | 1.69  | 36.78         | 0.84         |   | 96   | Philippines                       | 0.50  | 10.11         | 0.31         |   |
| 24   | Niger (2010)                    | 1.69  | 36.77         | 0.83         | ● | 97   | Dominican Republic (2011)         | 0.50  | 10.04         | 0.30         |   |
| 25   | Norway                          | 1.68  | 36.55         | 0.82         |   | 98   | Hong Kong (China) (2011)          | 0.48  | 9.76          | 0.29         | ○ |
| 26   | Moldova, Rep.                   | 1.68  | 36.49         | 0.82         |   | 99   | Azerbaijan                        | 0.47  | 9.55          | 0.28         |   |
| 27   | Madagascar (2011)               | 1.67  | 36.35         | 0.81         | ● | 100  | Kenya (2011)                      | 0.47  | 9.36          | 0.28         |   |
| 28   | Jamaica                         | 1.66  | 35.95         | 0.80         | ● | 101  | Kyrgyzstan                        | 0.44  | 8.77          | 0.27         |   |
| 29   | Brazil                          | 1.64  | 35.48         | 0.80         | ● | 102  | Georgia                           | 0.44  | 8.77          | 0.26         |   |
| 30   | Togo (2010)                     | 1.59  | 34.37         | 0.79         | ● | 103  | Guatemala                         | 0.43  | 8.48          | 0.26         |   |
| 31   | Nepal (2011)                    | 1.56  | 33.88         | 0.78         | ● | 104  | South Africa                      | 0.43  | 8.48          | 0.25         | ○ |
| 32   | Iceland (2011)                  | 1.56  | 33.71         | 0.77         |   | 105  | Tunisia (2011)                    | 0.40  | 7.95          | 0.24         |   |
| 33   | Netherlands                     | 1.54  | 33.33         | 0.77         |   | 106  | Slovakia                          | 0.40  | 7.92          | 0.23         | ○ |
| 34   | Burundi (2011)                  | 1.52  | 32.89         | 0.76         | ● | 107  | Morocco (2011)                    | 0.40  | 7.89          | 0.23         |   |
| 35   | Cabo Verde                      | 1.47  | 31.67         | 0.75         | ● | 108  | Uruguay                           | 0.39  | 7.74          | 0.22         |   |
| 36   | New Zealand                     | 1.44  | 31.07         | 0.74         |   | 109  | Sri Lanka                         | 0.39  | 7.56          | 0.21         |   |
| 37   | Czech Republic                  | 1.42  | 30.57         | 0.74         |   | 110  | Belarus                           | 0.39  | 7.55          | 0.20         |   |
| 38   | Qatar                           | 1.42  | 30.57         | 0.73         |   | 111  | Malawi (2011)                     | 0.38  | 7.54          | 0.20         |   |
| 39   | Cyprus                          | 1.42  | 30.57         | 0.72         |   | 112  | Botswana                          | 0.37  | 7.32          | 0.19         |   |
| 40   | Greece                          | 1.41  | 30.53         | 0.72         |   | 113  | Tanzania, United Rep. (2011)      | 0.35  | 6.69          | 0.18         |   |
| 41   | Latvia                          | 1.41  | 30.43         | 0.71         |   | 114  | Korea, Rep.                       | 0.33  | 6.23          | 0.18         | ○ |
| 42   | Lebanon (2011)                  | 1.38  | 29.83         | 0.70         |   | 115  | Israel                            | 0.32  | 6.03          | 0.17         | ○ |
| 43   | United States of America (2011) | 1.38  | 29.82         | 0.69         |   | 116  | Kazakhstan                        | 0.32  | 6.03          | 0.16         | ○ |
| 44   | Austria                         | 1.37  | 29.52         | 0.69         |   | 117  | Kuwait (2011)                     | 0.30  | 5.68          | 0.15         | ○ |
| 45   | TFYR of Macedonia               | 1.34  | 28.85         | 0.68         |   | 118  | Bahrain (2011)                    | 0.30  | 5.56          | 0.15         | ○ |
| 46   | France                          | 1.31  | 28.18         | 0.67         |   | 119  | Yemen (2011)                      | 0.29  | 5.51          | 0.14         |   |
| 47   | Spain                           | 1.29  | 27.75         | 0.66         |   | 120  | Cameroon (2010)                   | 0.29  | 5.43          | 0.13         |   |
| 48   | Argentina                       | 1.29  | 27.74         | 0.66         |   | 121  | Brunei Darussalam (2009)          | 0.27  | 5.00          | 0.12         | ○ |
| 49   | Tajikistan (2011)               | 1.24  | 26.54         | 0.65         | ● | 122  | Sudan                             | 0.26  | 4.76          | 0.12         |   |
| 50   | Portugal                        | 1.22  | 26.10         | 0.64         |   | 123  | China                             | 0.26  | 4.69          | 0.11         | ○ |
| 51   | Albania                         | 1.19  | 25.53         | 0.64         |   | 124  | Algeria (2011)                    | 0.21  | 3.73          | 0.10         |   |
| 52   | Romania                         | 1.17  | 25.09         | 0.63         |   | 125  | Zambia (2011)                     | 0.21  | 3.66          | 0.09         |   |
| 53   | Mauritius                       | 1.16  | 24.81         | 0.62         |   | 126  | Zimbabwe (2011)                   | 0.21  | 3.57          | 0.09         |   |
| 54   | Uganda                          | 1.15  | 24.54         | 0.61         |   | 127  | Switzerland                       | 0.20  | 3.37          | 0.08         | ○ |
| 55   | Poland                          | 1.14  | 24.47         | 0.61         |   | 128  | Panama                            | 0.20  | 3.34          | 0.07         | ○ |
| 56   | Malaysia                        | 1.11  | 23.76         | 0.60         |   | 129  | Thailand                          | 0.19  | 3.14          | 0.07         | ○ |
| 57   | Russian Federation              | 1.10  | 23.59         | 0.59         |   | 130  | Swaziland (2008)                  | 0.18  | 2.95          | 0.06         | ○ |
| 58   | Ireland                         | 1.09  | 23.22         | 0.58         |   | 131  | Turkey                            | 0.17  | 2.67          | 0.05         | ○ |
| 59   | Hungary                         | 1.07  | 22.81         | 0.58         |   | 132  | Oman                              | 0.16  | 2.48          | 0.04         | ○ |
| 60   | Mongolia                        | 1.06  | 22.69         | 0.57         |   | 133  | Bangladesh (2011)                 | 0.10  | 1.08          | 0.04         | ○ |
| 61   | Pakistan                        | 1.01  | 21.45         | 0.56         | ● | 134  | Seychelles (2011)                 | 0.08  | 0.67          | 0.03         | ○ |
| 62   | Mozambique                      | 1.01  | 21.41         | 0.55         |   | 135  | Ecuador                           | 0.06  | 0.33          | 0.02         | ○ |
| 63   | Canada (2011)                   | 1.00  | 21.34         | 0.55         | ○ | 136  | Paraguay (2011)                   | 0.05  | 0.03          | 0.01         | ○ |
| 64   | Rwanda (2011)                   | 0.91  | 19.19         | 0.54         |   | 137  | Viet Nam                          | 0.05  | 0.01          | 0.01         | ○ |
| 65   | Bosnia and Herzegovina          | 0.89  | 18.83         | 0.53         |   | 138  | Mexico                            | 0.05  | 0.00          | 0.00         | ○ |
| 66   | Trinidad and Tobago (2011)      | 0.88  | 18.69         | 0.53         |   | n/a  | Ghana                             | n/a   | n/a           | n/a          |   |
| 67   | Bulgaria                        | 0.87  | 18.48         | 0.52         |   | n/a  | Jordan                            | n/a   | n/a           | n/a          |   |
| 68   | Chile                           | 0.83  | 17.54         | 0.51         |   | n/a  | Myanmar                           | n/a   | n/a           | n/a          |   |
| 69   | Egypt (2011)                    | 0.82  | 17.37         | 0.50         |   | n/a  | United Arab Emirates              | n/a   | n/a           | n/a          |   |
| 70   | Peru (2011)                     | 0.80  | 16.79         | 0.50         |   | n/a  | Uzbekistan                        | n/a   | n/a           | n/a          |   |
| 71   | Côte d'Ivoire (2010)            | 0.78  | 16.30         | 0.49         | ● |      |                                   |       |               |              |   |
| 72   | Angola (2011)                   | 0.72  | 15.01         | 0.48         | ● |      |                                   |       |               |              |   |
| 73   | Armenia                         | 0.71  | 14.88         | 0.47         |   |      |                                   |       |               |              |   |

SOURCE: World Trade Organization, *Trade in Commercial Services* database, based on the International Monetary Fund *Balance of Payments* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

# 5.3.4 Foreign direct investment net inflows

## Foreign direct investment (FDI), net inflows (% of GDP) | 2011

| Rank | Country/Economy               | Value | Score (0–100) | Percent rank | Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |
|------|-------------------------------|-------|---------------|--------------|------|-----------------------------------|-------|---------------|--------------|
| 1    | Hong Kong (China)             | 38.65 | 100.00        | 0.98         | 74   | Canada (2012)                     | 2.50  | 22.95         | 0.48         |
| 1    | Luxembourg                    | 31.02 | 100.00        | 0.98         | 75   | Trinidad and Tobago               | 2.44  | 22.73         | 0.48         |
| 1    | Mongolia                      | 53.81 | 100.00        | 0.98         | 76   | Mauritius                         | 2.43  | 22.68         | 0.47         |
| 1    | Singapore (2012)              | 20.62 | 100.00        | 0.98         | 77   | Swaziland                         | 2.39  | 22.49         | 0.46         |
| 5    | Guinea                        | 18.76 | 92.09         | 0.97         | 78   | Thailand (2012)                   | 2.35  | 22.35         | 0.45         |
| 6    | Niger                         | 16.85 | 83.95         | 0.96         | 79   | Moldova, Rep. (2012)              | 2.33  | 22.25         | 0.45         |
| 7    | Mozambique                    | 16.54 | 82.66         | 0.96         | 80   | United Kingdom (2012)             | 2.28  | 22.04         | 0.44         |
| 8    | Ireland (2012)                | 15.66 | 78.90         | 0.95         | 81   | Belarus (2012)                    | 2.28  | 22.03         | 0.43         |
| 9    | Seychelles                    | 13.09 | 68.00         | 0.94         | 82   | Guatemala                         | 2.27  | 21.98         | 0.43         |
| 10   | Montenegro                    | 12.40 | 65.03         | 0.94         | 83   | Indonesia (2012)                  | 2.26  | 21.95         | 0.42         |
| 11   | Chile (2012)                  | 11.31 | 60.40         | 0.93         | 84   | Croatia (2012)                    | 2.26  | 21.95         | 0.41         |
| 12   | Kyrgyzstan                    | 11.19 | 59.91         | 0.92         | 85   | United Arab Emirates              | 2.20  | 21.71         | 0.40         |
| 13   | Zambia                        | 10.32 | 56.21         | 0.91         | 86   | Botswana (2012)                   | 2.03  | 20.97         | 0.40         |
| 14   | Albania (2012)                | 9.64  | 53.34         | 0.91         | 87   | Senegal                           | 1.98  | 20.76         | 0.39         |
| 15   | Panama (2012)                 | 9.33  | 52.00         | 0.90         | 88   | Ethiopia                          | 1.98  | 20.74         | 0.38         |
| 16   | Madagascar                    | 9.15  | 51.26         | 0.89         | 89   | India                             | 1.72  | 19.65         | 0.38         |
| 17   | Lebanon                       | 8.67  | 49.19         | 0.89         | 90   | Saudi Arabia (2012)               | 1.71  | 19.63         | 0.37         |
| 18   | Uganda (2012)                 | 8.66  | 49.14         | 0.88         | 91   | Rwanda                            | 1.67  | 19.45         | 0.36         |
| 19   | Ghana                         | 8.14  | 46.96         | 0.87         | 92   | Mali                              | 1.67  | 19.44         | 0.35         |
| 20   | Nicaragua (2012)              | 7.71  | 45.11         | 0.87         | 93   | Malawi                            | 1.64  | 19.33         | 0.35         |
| 21   | Azerbaijan (2012)             | 7.70  | 45.08         | 0.86         | 94   | Benin                             | 1.62  | 19.25         | 0.34         |
| 22   | Namibia                       | 7.68  | 44.97         | 0.85         | 95   | Sri Lanka                         | 1.62  | 19.21         | 0.33         |
| 23   | Barbados                      | 7.64  | 44.80         | 0.84         | 96   | Lithuania (2012)                  | 1.60  | 19.14         | 0.33         |
| 24   | Estonia (2012)                | 7.40  | 43.80         | 0.84         | 97   | Turkey (2012)                     | 1.59  | 19.11         | 0.32         |
| 25   | Brunei Darussalam             | 7.39  | 43.74         | 0.83         | 98   | Paraguay                          | 1.58  | 19.08         | 0.31         |
| 26   | Kazakhstan                    | 7.10  | 42.50         | 0.82         | 99   | Norway                            | 1.48  | 18.65         | 0.30         |
| 27   | Cambodia                      | 7.03  | 42.22         | 0.82         | 100  | South Africa                      | 1.47  | 18.57         | 0.30         |
| 28   | Hungary (2012)                | 6.77  | 41.11         | 0.81         | 101  | Switzerland (2012)                | 1.46  | 18.57         | 0.29         |
| 29   | Portugal (2012)               | 6.49  | 39.92         | 0.80         | 102  | Togo                              | 1.46  | 18.55         | 0.28         |
| 30   | Guyana                        | 6.42  | 39.62         | 0.79         | 103  | Côte d'Ivoire                     | 1.43  | 18.42         | 0.28         |
| 31   | Serbia                        | 6.24  | 38.86         | 0.79         | 104  | Cameroon                          | 1.42  | 18.39         | 0.27         |
| 32   | Viet Nam                      | 6.01  | 37.88         | 0.78         | 105  | Romania                           | 1.40  | 18.30         | 0.26         |
| 33   | Honduras                      | 5.89  | 37.37         | 0.77         | 106  | Algeria                           | 1.37  | 18.17         | 0.26         |
| 34   | Czech Republic (2012)         | 5.41  | 35.33         | 0.77         | 107  | United States of America (2012)   | 1.31  | 17.92         | 0.25         |
| 35   | Fiji                          | 5.35  | 35.09         | 0.76         | 108  | Jamaica                           | 1.20  | 17.43         | 0.24         |
| 36   | Costa Rica                    | 5.25  | 34.66         | 0.75         | 109  | Greece (2012)                     | 1.15  | 17.24         | 0.23         |
| 37   | Lesotho                       | 5.23  | 34.59         | 0.74         | 110  | Oman                              | 1.13  | 17.13         | 0.23         |
| 38   | Jordan                        | 5.09  | 33.99         | 0.74         | 111  | Philippines (2012)                | 1.12  | 17.10         | 0.22         |
| 39   | Georgia (2012)                | 4.98  | 33.51         | 0.73         | 112  | Mexico (2012)                     | 1.07  | 16.91         | 0.21         |
| 40   | Armenia (2012)                | 4.93  | 33.32         | 0.72         | 113  | El Salvador                       | 1.07  | 16.89         | 0.21         |
| 41   | Sudan                         | 4.77  | 32.63         | 0.72         | 114  | Bangladesh                        | 1.02  | 16.67         | 0.20         |
| 42   | Australia                     | 4.77  | 32.60         | 0.71         | 115  | Kenya                             | 0.98  | 16.50         | 0.19         |
| 43   | Malta (2012)                  | 4.72  | 32.41         | 0.70         | 116  | Tunisia                           | 0.93  | 16.30         | 0.18         |
| 44   | Uruguay                       | 4.69  | 32.27         | 0.70         | 117  | Bhutan                            | 0.89  | 16.15         | 0.18         |
| 45   | Peru                          | 4.66  | 32.13         | 0.69         | 118  | Ecuador                           | 0.83  | 15.89         | 0.17         |
| 46   | Tanzania, United Rep.         | 4.59  | 31.85         | 0.68         | 119  | Iran, Islamic Rep.                | 0.81  | 15.78         | 0.16         |
| 47   | Ukraine                       | 4.41  | 31.09         | 0.67         | 120  | Germany (2012)                    | 0.80  | 15.75         | 0.16         |
| 48   | Cyprus                        | 4.32  | 30.70         | 0.67         | 121  | Finland (2012)                    | 0.74  | 15.49         | 0.15         |
| 49   | Israel                        | 4.29  | 30.58         | 0.66         | 122  | Sweden (2012)                     | 0.74  | 15.47         | 0.14         |
| 50   | Colombia (2012)               | 4.28  | 30.53         | 0.65         | 123  | Poland (2012)                     | 0.61  | 14.92         | 0.13         |
| 51   | Malaysia                      | 4.17  | 30.06         | 0.65         | 124  | Venezuela, Bolivarian Rep. (2012) | 0.58  | 14.80         | 0.13         |
| 52   | Dominican Republic            | 4.12  | 29.87         | 0.64         | 125  | Austria (2012)                    | 0.54  | 14.62         | 0.12         |
| 53   | Bulgaria (2012)               | 4.01  | 29.39         | 0.63         | 126  | Nepal                             | 0.50  | 14.45         | 0.11         |
| 54   | Zimbabwe                      | 4.01  | 29.38         | 0.62         | 127  | Korea, Rep. (2012)                | 0.44  | 14.23         | 0.11         |
| 55   | Gambia                        | 4.01  | 29.38         | 0.62         | 128  | Denmark (2012)                    | 0.40  | 14.06         | 0.10         |
| 56   | Slovakia                      | 3.81  | 28.54         | 0.61         | 129  | Italy (2012)                      | 0.40  | 14.05         | 0.09         |
| 57   | Iceland (2012)                | 3.75  | 28.28         | 0.60         | 130  | Pakistan (2012)                   | 0.37  | 13.91         | 0.09         |
| 58   | Bosnia and Herzegovina (2012) | 3.71  | 28.13         | 0.60         | 131  | Kuwait                            | 0.25  | 13.40         | 0.08         |
| 59   | Nigeria                       | 3.62  | 27.75         | 0.59         | 132  | Tajikistan                        | 0.17  | 13.07         | 0.07         |
| 60   | Bolivia, Plurinational St.    | 3.59  | 27.59         | 0.58         | 133  | Burundi                           | 0.14  | 12.95         | 0.06         |
| 61   | Brazil (2012)                 | 3.38  | 26.71         | 0.57         | 134  | Burkina Faso                      | 0.07  | 12.65         | 0.06         |
| 62   | TFYR of Macedonia (2012)      | 3.38  | 26.69         | 0.57         | 135  | Japan                             | 0.00  | 12.35         | 0.05         |
| 63   | Latvia (2012)                 | 3.24  | 26.10         | 0.56         | 136  | Slovenia (2012)                   | -0.02 | 12.25         | 0.04         |
| 64   | Uzbekistan                    | 3.10  | 25.50         | 0.55         | 137  | Qatar                             | -0.05 | 12.13         | 0.04         |
| 65   | China (2012)                  | 3.03  | 25.23         | 0.55         | 138  | Egypt                             | -0.20 | 11.47         | 0.03         |
| 66   | Cabo Verde (2012)             | 2.80  | 24.25         | 0.54         | 139  | Belgium (2012)                    | -0.40 | 10.66         | 0.02         |
| 67   | New Zealand                   | 2.70  | 23.80         | 0.53         | 140  | Netherlands (2012)                | -1.08 | 7.75          | 0.01         |
| 68   | Bahrain                       | 2.69  | 23.77         | 0.52         | 141  | Yemen                             | -2.25 | 2.79          | 0.01         |
| 69   | Spain (2012)                  | 2.68  | 23.75         | 0.52         | 142  | Angola                            | -2.90 | 0.00          | 0.00         |
| 70   | Argentina (2012)              | 2.67  | 23.68         | 0.51         | n/a  | Myanmar                           | n/a   | n/a           | n/a          |
| 71   | Russian Federation (2012)     | 2.55  | 23.19         | 0.50         |      |                                   |       |               |              |
| 72   | Morocco                       | 2.54  | 23.15         | 0.50         |      |                                   |       |               |              |
| 73   | France (2012)                 | 2.50  | 22.97         | 0.49         |      |                                   |       |               |              |

SOURCE: International Monetary Fund (with World Bank and OECD GDP estimates), extracted from World Bank *World Development Indicators* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

# 6.1.1

## National office resident patent applications

Number of patent applications filed by residents at the national patent office (per billion PPP\$ GDP) | 2012

| Rank | Country/Economy           | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   |
|------|---------------------------|-------|---------------|--------------|---|------|-----------------------------------|-------|---------------|--------------|---|
| 1    | China                     | 43.66 | 100.00        | 0.97         | ● | 74   | Côte d'Ivoire                     | 0.65  | 3.85          | 0.33         |   |
| 1    | Japan                     | 62.73 | 100.00        | 0.97         | ● | 75   | Yemen                             | 0.62  | 3.64          | 0.32         |   |
| 1    | Korea, Rep.               | 92.72 | 100.00        | 0.97         | ● | 76   | Indonesia (2011)                  | 0.48  | 2.80          | 0.31         |   |
| 1    | United States of America  | 16.55 | 100.00        | 0.97         | ● | 77   | Paraguay (2010)                   | 0.48  | 2.78          | 0.30         |   |
| 5    | Germany                   | 14.72 | 88.95         | 0.96         | ● | 78   | Hong Kong (China)                 | 0.47  | 2.73          | 0.29         | ○ |
| 6    | Belarus                   | 11.57 | 69.90         | 0.95         | ● | 79   | Algeria                           | 0.44  | 2.54          | 0.28         |   |
| 7    | Russian Federation        | 11.54 | 69.74         | 0.94         | ● | 80   | Colombia                          | 0.43  | 2.49          | 0.28         |   |
| 8    | New Zealand               | 10.89 | 65.77         | 0.94         |   | 81   | Saudi Arabia (2011)               | 0.42  | 2.44          | 0.27         | ○ |
| 9    | Mongolia (2010)           | 10.02 | 60.52         | 0.93         | ● | 82   | Panama (2011)                     | 0.42  | 2.44          | 0.26         |   |
| 10   | Finland                   | 8.75  | 52.82         | 0.92         |   | 83   | Uruguay                           | 0.41  | 2.38          | 0.25         |   |
| 11   | Kyrgyzstan                | 8.37  | 50.56         | 0.91         | ● | 84   | Philippines                       | 0.39  | 2.24          | 0.24         |   |
| 12   | Slovenia (2011)           | 8.15  | 49.18         | 0.90         |   | 85   | Zambia                            | 0.30  | 1.69          | 0.23         |   |
| 13   | Iran, Islamic Rep. (2006) | 7.96  | 48.08         | 0.89         | ● | 86   | Bangladesh                        | 0.22  | 1.24          | 0.22         |   |
| 14   | Moldova, Rep.             | 7.73  | 46.69         | 0.88         | ● | 87   | Honduras                          | 0.21  | 1.19          | 0.21         |   |
| 15   | Ukraine                   | 7.51  | 45.35         | 0.87         | ● | 88   | Ethiopia (2007)                   | 0.19  | 1.08          | 0.20         |   |
| 16   | Armenia                   | 7.05  | 42.54         | 0.86         | ● | 89   | Madagascar                        | 0.19  | 1.04          | 0.19         |   |
| 17   | Denmark                   | 6.75  | 40.74         | 0.85         |   | 90   | Dominican Republic                | 0.18  | 1.02          | 0.18         |   |
| 18   | United Kingdom            | 6.65  | 40.11         | 0.84         |   | 91   | Pakistan                          | 0.18  | 0.96          | 0.17         |   |
| 19   | Kazakhstan (2011)         | 6.61  | 39.92         | 0.83         | ● | 92   | Cyprus                            | 0.17  | 0.94          | 0.17         | ○ |
| 20   | France                    | 6.50  | 39.21         | 0.83         |   | 93   | Tajikistan                        | 0.17  | 0.94          | 0.16         |   |
| 21   | Austria                   | 6.36  | 38.41         | 0.82         |   | 94   | Costa Rica                        | 0.17  | 0.94          | 0.15         | ○ |
| 22   | Sweden                    | 5.94  | 35.84         | 0.81         |   | 95   | Uganda (2007)                     | 0.17  | 0.93          | 0.14         |   |
| 23   | Poland                    | 5.57  | 33.57         | 0.80         |   | 96   | Peru                              | 0.17  | 0.91          | 0.13         | ○ |
| 24   | Georgia                   | 5.29  | 31.91         | 0.79         |   | 97   | Nicaragua                         | 0.15  | 0.82          | 0.12         |   |
| 25   | Latvia                    | 5.23  | 31.57         | 0.78         |   | 98   | Barbados (2008)                   | 0.15  | 0.79          | 0.11         | ○ |
| 26   | Montenegro                | 5.13  | 30.91         | 0.77         | ● | 99   | Mauritius (2008)                  | 0.12  | 0.64          | 0.10         | ○ |
| 27   | Israel                    | 5.06  | 30.49         | 0.76         |   | 100  | Albania (2011)                    | 0.12  | 0.63          | 0.09         | ○ |
| 28   | Italy                     | 4.65  | 28.06         | 0.75         |   | 101  | Burkina Faso (2010)               | 0.10  | 0.49          | 0.08         |   |
| 29   | Switzerland               | 4.12  | 24.84         | 0.74         |   | 102  | Bahrain                           | 0.09  | 0.45          | 0.07         | ○ |
| 30   | Turkey                    | 4.00  | 24.09         | 0.73         |   | 103  | Guatemala                         | 0.09  | 0.45          | 0.06         | ○ |
| 31   | Romania                   | 3.77  | 22.68         | 0.72         |   | 104  | Venezuela, Bolivarian Rep. (2011) | 0.09  | 0.44          | 0.06         |   |
| 32   | Norway                    | 3.68  | 22.18         | 0.72         |   | 105  | Bosnia and Herzegovina            | 0.06  | 0.29          | 0.05         | ○ |
| 33   | Hungary                   | 3.57  | 21.52         | 0.71         |   | 106  | Sudan (2007)                      | 0.04  | 0.14          | 0.04         |   |
| 34   | Netherlands               | 3.41  | 20.55         | 0.70         |   | 107  | Trinidad and Tobago (2008)        | 0.04  | 0.13          | 0.03         | ○ |
| 35   | Singapore                 | 3.35  | 20.15         | 0.69         |   | 108  | Ecuador (2010)                    | 0.03  | 0.09          | 0.02         | ○ |
| 36   | Canada                    | 3.20  | 19.23         | 0.68         |   | 109  | Cambodia                          | 0.03  | 0.07          | 0.01         | ○ |
| 37   | Czech Republic            | 3.06  | 18.39         | 0.67         |   | 110  | Qatar                             | 0.02  | 0.00          | 0.00         | ○ |
| 38   | Iceland                   | 2.91  | 17.54         | 0.66         |   | n/a  | Angola                            | n/a   | n/a           | n/a          |   |
| 39   | Croatia                   | 2.80  | 16.83         | 0.65         |   | n/a  | Benin                             | n/a   | n/a           | n/a          |   |
| 40   | Australia                 | 2.73  | 16.44         | 0.64         |   | n/a  | Bhutan                            | n/a   | n/a           | n/a          |   |
| 41   | Rwanda                    | 2.66  | 16.01         | 0.63         |   | n/a  | Bolivia, Plurinational St.        | n/a   | n/a           | n/a          |   |
| 42   | Ireland                   | 2.64  | 15.84         | 0.62         |   | n/a  | Botswana                          | n/a   | n/a           | n/a          |   |
| 43   | Luxembourg                | 2.60  | 15.65         | 0.61         |   | n/a  | Brunei Darussalam                 | n/a   | n/a           | n/a          |   |
| 44   | Portugal                  | 2.54  | 15.28         | 0.61         |   | n/a  | Burundi                           | n/a   | n/a           | n/a          |   |
| 45   | Uzbekistan                | 2.48  | 14.89         | 0.60         | ● | n/a  | Cabo Verde                        | n/a   | n/a           | n/a          |   |
| 46   | Serbia                    | 2.47  | 14.83         | 0.59         |   | n/a  | Cameroon                          | n/a   | n/a           | n/a          |   |
| 47   | Bulgaria                  | 2.39  | 14.33         | 0.58         |   | n/a  | El Salvador                       | n/a   | n/a           | n/a          |   |
| 48   | Spain                     | 2.35  | 14.14         | 0.57         |   | n/a  | Fiji                              | n/a   | n/a           | n/a          |   |
| 49   | Greece                    | 2.29  | 13.77         | 0.56         |   | n/a  | Gambia                            | n/a   | n/a           | n/a          |   |
| 50   | Malaysia                  | 2.25  | 13.53         | 0.55         |   | n/a  | Ghana                             | n/a   | n/a           | n/a          |   |
| 51   | Brazil                    | 2.06  | 12.37         | 0.54         |   | n/a  | Guinea                            | n/a   | n/a           | n/a          |   |
| 52   | India                     | 2.03  | 12.16         | 0.53         |   | n/a  | Guyana                            | n/a   | n/a           | n/a          |   |
| 53   | Belgium                   | 1.82  | 10.89         | 0.52         |   | n/a  | Kuwait                            | n/a   | n/a           | n/a          |   |
| 54   | TFYR of Macedonia (2011)  | 1.74  | 10.41         | 0.51         |   | n/a  | Lebanon                           | n/a   | n/a           | n/a          |   |
| 55   | Lithuania                 | 1.69  | 10.16         | 0.50         |   | n/a  | Lesotho                           | n/a   | n/a           | n/a          |   |
| 56   | Sri Lanka (2011)          | 1.68  | 10.07         | 0.50         |   | n/a  | Malawi                            | n/a   | n/a           | n/a          |   |
| 57   | Kenya                     | 1.64  | 9.82          | 0.49         |   | n/a  | Mali                              | n/a   | n/a           | n/a          |   |
| 58   | Thailand                  | 1.58  | 9.47          | 0.48         |   | n/a  | Myanmar                           | n/a   | n/a           | n/a          |   |
| 59   | Azerbaijan                | 1.50  | 9.00          | 0.47         |   | n/a  | Namibia                           | n/a   | n/a           | n/a          |   |
| 60   | Slovakia                  | 1.29  | 7.69          | 0.46         |   | n/a  | Nepal                             | n/a   | n/a           | n/a          |   |
| 61   | Egypt                     | 1.28  | 7.64          | 0.45         |   | n/a  | Niger                             | n/a   | n/a           | n/a          |   |
| 62   | Jordan                    | 1.26  | 7.50          | 0.44         |   | n/a  | Nigeria                           | n/a   | n/a           | n/a          |   |
| 63   | Morocco                   | 1.17  | 6.96          | 0.43         |   | n/a  | Oman                              | n/a   | n/a           | n/a          |   |
| 64   | Viet Nam                  | 1.14  | 6.78          | 0.42         |   | n/a  | Senegal                           | n/a   | n/a           | n/a          |   |
| 65   | Chile                     | 1.06  | 6.32          | 0.41         |   | n/a  | Seychelles                        | n/a   | n/a           | n/a          |   |
| 66   | South Africa              | 1.06  | 6.29          | 0.40         |   | n/a  | Swaziland                         | n/a   | n/a           | n/a          |   |
| 67   | Mozambique (2007)         | 1.05  | 6.25          | 0.39         |   | n/a  | Tanzania, United Rep.             | n/a   | n/a           | n/a          |   |
| 68   | Argentina                 | 1.00  | 5.95          | 0.39         |   | n/a  | Togo                              | n/a   | n/a           | n/a          |   |
| 69   | Malta                     | 0.98  | 5.85          | 0.38         | ○ | n/a  | United Arab Emirates              | n/a   | n/a           | n/a          |   |
| 70   | Tunisia (2008)            | 0.83  | 4.94          | 0.37         |   | n/a  | Zimbabwe                          | n/a   | n/a           | n/a          |   |
| 71   | Jamaica (2011)            | 0.82  | 4.86          | 0.36         |   |      |                                   |       |               |              |   |
| 72   | Mexico                    | 0.72  | 4.26          | 0.35         |   |      |                                   |       |               |              |   |
| 73   | Estonia                   | 0.69  | 4.06          | 0.34         | ○ |      |                                   |       |               |              |   |

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP\$ GDP) (2006–12)  
NOTE: ● indicates a strength; ○ a weakness.



# 6.1.2 Patent Cooperation Treaty resident applications

Number of international patent applications filed by residents at the Patent Cooperation Treaty (per billion PPP\$ GDP) | 2012

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy              | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|------------------------------|-------|---------------|--------------|---|
| 1    | Barbados                 | 23.70 | 100.00        | 1.00         | ● | 74   | Belarus                      | 0.10  | 2.79          | 0.35         |   |
| 2    | Finland                  | 11.98 | 79.73         | 0.99         | ● | 75   | Guinea (2010)                | 0.09  | 2.70          | 0.35         | ● |
| 3    | Switzerland              | 11.68 | 78.98         | 0.98         | ● | 76   | TFYR of Macedonia            | 0.09  | 2.68          | 0.34         |   |
| 4    | Japan                    | 9.54  | 73.17         | 0.97         | ● | 77   | Romania                      | 0.09  | 2.67          | 0.33         |   |
| 5    | Sweden                   | 9.31  | 72.49         | 0.96         |   | 78   | Mali (2004)                  | 0.09  | 2.66          | 0.32         |   |
| 6    | Korea, Rep.              | 7.42  | 66.09         | 0.96         |   | 79   | Costa Rica                   | 0.09  | 2.48          | 0.31         |   |
| 7    | Denmark                  | 6.82  | 63.79         | 0.95         |   | 80   | Benin (2008)                 | 0.08  | 2.27          | 0.30         |   |
| 8    | Luxembourg               | 6.40  | 62.06         | 0.94         |   | 81   | Egypt                        | 0.08  | 2.24          | 0.29         |   |
| 9    | Germany                  | 5.92  | 59.96         | 0.93         |   | 82   | Mongolia (2011)              | 0.08  | 2.22          | 0.28         |   |
| 10   | Netherlands              | 5.85  | 59.63         | 0.92         |   | 83   | Nicaragua                    | 0.08  | 2.21          | 0.27         |   |
| 11   | Israel                   | 5.27  | 56.87         | 0.91         |   | 84   | Kenya                        | 0.07  | 1.96          | 0.27         |   |
| 12   | Seychelles               | 3.92  | 49.26         | 0.90         | ● | 85   | Cameroon (2011)              | 0.06  | 1.87          | 0.26         |   |
| 13   | Austria                  | 3.72  | 47.96         | 0.89         |   | 86   | Bahrain                      | 0.06  | 1.78          | 0.25         |   |
| 14   | France                   | 3.51  | 46.51         | 0.88         |   | 87   | Tunisia                      | 0.06  | 1.70          | 0.24         |   |
| 15   | Iceland                  | 3.39  | 45.67         | 0.88         |   | 88   | Burkina Faso (2008)          | 0.06  | 1.62          | 0.23         |   |
| 16   | United States of America | 3.18  | 44.14         | 0.87         |   | 89   | Kazakhstan                   | 0.05  | 1.55          | 0.22         |   |
| 17   | Belgium                  | 2.95  | 42.38         | 0.86         |   | 90   | Azerbaijan                   | 0.05  | 1.54          | 0.21         |   |
| 18   | Norway                   | 2.44  | 38.08         | 0.85         |   | 91   | Oman (2010)                  | 0.05  | 1.51          | 0.20         |   |
| 19   | New Zealand              | 2.32  | 36.99         | 0.84         |   | 92   | Zambia (2010)                | 0.05  | 1.48          | 0.19         |   |
| 20   | Singapore                | 2.19  | 35.74         | 0.83         |   | 93   | Philippines                  | 0.04  | 1.27          | 0.19         |   |
| 21   | United Kingdom           | 2.12  | 34.99         | 0.82         |   | 94   | Uganda (2011)                | 0.04  | 1.22          | 0.18         |   |
| 22   | Cyprus                   | 2.10  | 34.80         | 0.81         |   | 95   | Dominican Republic           | 0.04  | 1.22          | 0.17         | ○ |
| 23   | Ireland                  | 2.09  | 34.71         | 0.81         |   | 96   | Viet Nam                     | 0.04  | 1.15          | 0.16         |   |
| 24   | Slovenia                 | 2.01  | 33.91         | 0.80         |   | 97   | Senegal                      | 0.04  | 1.13          | 0.15         |   |
| 25   | Canada                   | 1.87  | 32.44         | 0.79         |   | 98   | Trinidad and Tobago          | 0.04  | 1.13          | 0.14         |   |
| 26   | Australia                | 1.78  | 31.39         | 0.78         |   | 99   | Botswana (2010)              | 0.04  | 1.06          | 0.13         |   |
| 27   | Malta                    | 1.61  | 29.45         | 0.77         |   | 100  | Peru                         | 0.03  | 1.01          | 0.12         | ○ |
| 28   | Italy                    | 1.58  | 29.10         | 0.76         |   | 101  | Honduras (2009)              | 0.03  | 0.93          | 0.12         | ○ |
| 29   | China                    | 1.52  | 28.36         | 0.75         |   | 102  | Côte d'Ivoire                | 0.03  | 0.75          | 0.11         |   |
| 30   | Spain                    | 1.23  | 24.52         | 0.74         |   | 103  | Nigeria                      | 0.02  | 0.74          | 0.10         |   |
| 31   | Estonia                  | 1.17  | 23.73         | 0.73         |   | 104  | Sudan (2011)                 | 0.02  | 0.69          | 0.09         |   |
| 32   | Latvia                   | 0.98  | 20.86         | 0.73         |   | 105  | El Salvador (2011)           | 0.02  | 0.67          | 0.08         | ○ |
| 33   | Namibia                  | 0.83  | 18.52         | 0.72         | ● | 106  | Tanzania, United Rep. (2008) | 0.02  | 0.56          | 0.07         | ○ |
| 34   | Hungary                  | 0.83  | 18.50         | 0.71         |   | 107  | Algeria                      | 0.01  | 0.44          | 0.06         |   |
| 35   | Malaysia                 | 0.58  | 14.04         | 0.70         |   | 108  | Guatemala                    | 0.01  | 0.39          | 0.05         | ○ |
| 36   | Czech Republic           | 0.57  | 13.85         | 0.69         |   | 109  | Ghana                        | 0.01  | 0.36          | 0.04         | ○ |
| 37   | South Africa             | 0.55  | 13.27         | 0.68         |   | 110  | Indonesia                    | 0.01  | 0.33          | 0.04         | ○ |
| 38   | Portugal                 | 0.53  | 12.93         | 0.67         |   | 111  | Uzbekistan                   | 0.01  | 0.29          | 0.03         | ○ |
| 39   | Turkey                   | 0.48  | 12.00         | 0.66         |   | 112  | Angola (2010)                | 0.01  | 0.28          | 0.02         | ○ |
| 40   | Lithuania                | 0.47  | 11.67         | 0.65         |   | 113  | Iran, Islamic Rep.           | 0.00  | 0.06          | 0.01         | ○ |
| 41   | Russian Federation       | 0.44  | 11.08         | 0.65         |   | 114  | Togo (2013)                  | 0.00  | 0.00          | 0.00         | ○ |
| 42   | Armenia                  | 0.41  | 10.50         | 0.64         |   | n/a  | Argentina                    | n/a   | n/a           | n/a          |   |
| 43   | Croatia                  | 0.39  | 9.96          | 0.63         |   | n/a  | Bangladesh                   | n/a   | n/a           | n/a          |   |
| 44   | Chile                    | 0.37  | 9.63          | 0.62         |   | n/a  | Bhutan                       | n/a   | n/a           | n/a          |   |
| 45   | Ukraine                  | 0.36  | 9.40          | 0.61         |   | n/a  | Bolivia, Plurinational St.   | n/a   | n/a           | n/a          |   |
| 46   | Greece                   | 0.34  | 8.98          | 0.60         |   | n/a  | Burundi                      | n/a   | n/a           | n/a          |   |
| 47   | Saudi Arabia             | 0.33  | 8.71          | 0.59         |   | n/a  | Cabo Verde                   | n/a   | n/a           | n/a          |   |
| 48   | Swaziland (2011)         | 0.32  | 8.55          | 0.58         | ● | n/a  | Cambodia                     | n/a   | n/a           | n/a          |   |
| 49   | Slovakia                 | 0.32  | 8.49          | 0.58         |   | n/a  | Ethiopia                     | n/a   | n/a           | n/a          |   |
| 50   | Bulgaria                 | 0.32  | 8.48          | 0.57         |   | n/a  | Fiji                         | n/a   | n/a           | n/a          |   |
| 51   | Poland                   | 0.32  | 8.40          | 0.56         |   | n/a  | Gambia                       | n/a   | n/a           | n/a          |   |
| 52   | Kyrgyzstan               | 0.30  | 8.08          | 0.55         |   | n/a  | Guyana                       | n/a   | n/a           | n/a          |   |
| 53   | Zimbabwe (2011)          | 0.30  | 7.90          | 0.54         |   | n/a  | Hong Kong (China)            | n/a   | n/a           | n/a          |   |
| 54   | Ecuador                  | 0.29  | 7.85          | 0.53         |   | n/a  | Jamaica                      | n/a   | n/a           | n/a          |   |
| 55   | Qatar                    | 0.29  | 7.65          | 0.52         |   | n/a  | Jordan                       | n/a   | n/a           | n/a          |   |
| 56   | Bosnia and Herzegovina   | 0.29  | 7.63          | 0.51         |   | n/a  | Kuwait                       | n/a   | n/a           | n/a          |   |
| 57   | Panama                   | 0.28  | 7.59          | 0.50         |   | n/a  | Lebanon                      | n/a   | n/a           | n/a          |   |
| 58   | Montenegro (2011)        | 0.28  | 7.51          | 0.50         |   | n/a  | Lesotho                      | n/a   | n/a           | n/a          |   |
| 59   | India                    | 0.28  | 7.47          | 0.49         |   | n/a  | Malawi                       | n/a   | n/a           | n/a          |   |
| 60   | Serbia                   | 0.26  | 6.95          | 0.48         |   | n/a  | Mauritius                    | n/a   | n/a           | n/a          |   |
| 61   | Brazil                   | 0.25  | 6.85          | 0.47         |   | n/a  | Mozambique                   | n/a   | n/a           | n/a          |   |
| 62   | Moldova, Rep.            | 0.25  | 6.77          | 0.46         |   | n/a  | Myanmar                      | n/a   | n/a           | n/a          |   |
| 63   | Morocco                  | 0.23  | 6.31          | 0.45         |   | n/a  | Nepal                        | n/a   | n/a           | n/a          |   |
| 64   | Georgia                  | 0.23  | 6.25          | 0.44         |   | n/a  | Pakistan                     | n/a   | n/a           | n/a          |   |
| 65   | United Arab Emirates     | 0.20  | 5.52          | 0.43         |   | n/a  | Paraguay                     | n/a   | n/a           | n/a          |   |
| 66   | Niger                    | 0.15  | 4.35          | 0.42         |   | n/a  | Rwanda                       | n/a   | n/a           | n/a          |   |
| 67   | Colombia                 | 0.14  | 4.10          | 0.42         |   | n/a  | Tajikistan                   | n/a   | n/a           | n/a          |   |
| 68   | Brunei Darussalam        | 0.14  | 3.94          | 0.41         |   | n/a  | Uruguay                      | n/a   | n/a           | n/a          |   |
| 69   | Albania                  | 0.12  | 3.32          | 0.40         |   | n/a  | Venezuela, Bolivarian Rep.   | n/a   | n/a           | n/a          |   |
| 70   | Sri Lanka                | 0.11  | 3.22          | 0.39         |   | n/a  | Yemen                        | n/a   | n/a           | n/a          |   |
| 71   | Mexico                   | 0.11  | 3.06          | 0.38         |   |      |                              |       |               |              |   |
| 72   | Thailand                 | 0.10  | 3.00          | 0.37         |   |      |                              |       |               |              |   |
| 73   | Madagascar (2011)        | 0.10  | 2.83          | 0.36         |   |      |                              |       |               |              |   |

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP\$ GDP) (2006–12)  
NOTE: ● indicates a strength; ○ a weakness.

# 6.1.3

## National office utility model applications

Number of utility model applications filed by residents at the national patent office (per billion PPP\$ GDP) | 2012

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |
|------|----------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|
| 1    | Belarus                    | 7.63  | 100.00        | 0.93         | ● | n/a  | Burundi                    | n/a   | n/a           | n/a          |
| 1    | China                      | 59.90 | 100.00        | 0.93         | ● | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |
| 1    | Moldova, Rep.              | 14.22 | 100.00        | 0.93         | ● | n/a  | Cambodia                   | n/a   | n/a           | n/a          |
| 1    | Mongolia (2010)            | 11.57 | 100.00        | 0.93         | ● | n/a  | Cameroon                   | n/a   | n/a           | n/a          |
| 1    | Ukraine                    | 30.22 | 100.00        | 0.93         | ● | n/a  | Canada                     | n/a   | n/a           | n/a          |
| 6    | Korea, Rep.                | 7.45  | 97.65         | 0.92         |   | n/a  | Côte d'Ivoire              | n/a   | n/a           | n/a          |
| 7    | Czech Republic             | 6.32  | 82.79         | 0.90         |   | n/a  | Cyprus                     | n/a   | n/a           | n/a          |
| 8    | Russian Federation         | 5.42  | 70.92         | 0.88         | ● | n/a  | Dominican Republic         | n/a   | n/a           | n/a          |
| 9    | Tajikistan                 | 3.93  | 51.25         | 0.87         | ● | n/a  | Egypt                      | n/a   | n/a           | n/a          |
| 10   | Germany                    | 3.77  | 49.16         | 0.85         |   | n/a  | El Salvador                | n/a   | n/a           | n/a          |
| 11   | Turkey                     | 3.36  | 43.71         | 0.83         | ● | n/a  | Fiji                       | n/a   | n/a           | n/a          |
| 12   | Finland                    | 2.29  | 29.59         | 0.82         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |
| 13   | Slovakia                   | 2.28  | 29.54         | 0.80         |   | n/a  | Ghana                      | n/a   | n/a           | n/a          |
| 14   | Thailand                   | 2.20  | 28.47         | 0.78         |   | n/a  | Guinea                     | n/a   | n/a           | n/a          |
| 15   | Estonia                    | 2.17  | 27.98         | 0.77         |   | n/a  | Guyana                     | n/a   | n/a           | n/a          |
| 16   | Armenia                    | 1.96  | 25.21         | 0.75         | ● | n/a  | Iceland                    | n/a   | n/a           | n/a          |
| 17   | Bulgaria                   | 1.86  | 23.95         | 0.73         |   | n/a  | India                      | n/a   | n/a           | n/a          |
| 18   | Georgia                    | 1.83  | 23.51         | 0.72         |   | n/a  | Iran, Islamic Rep.         | n/a   | n/a           | n/a          |
| 19   | Spain                      | 1.75  | 22.51         | 0.70         |   | n/a  | Ireland                    | n/a   | n/a           | n/a          |
| 20   | Uzbekistan                 | 1.67  | 21.41         | 0.68         | ● | n/a  | Israel                     | n/a   | n/a           | n/a          |
| 21   | Philippines                | 1.63  | 20.98         | 0.67         |   | n/a  | Jamaica                    | n/a   | n/a           | n/a          |
| 22   | Austria                    | 1.47  | 18.75         | 0.65         |   | n/a  | Jordan                     | n/a   | n/a           | n/a          |
| 23   | Italy                      | 1.42  | 18.09         | 0.63         |   | n/a  | Kuwait                     | n/a   | n/a           | n/a          |
| 24   | Japan                      | 1.38  | 17.56         | 0.62         |   | n/a  | Latvia                     | n/a   | n/a           | n/a          |
| 25   | Kyrgyzstan                 | 1.29  | 16.49         | 0.60         |   | n/a  | Lebanon                    | n/a   | n/a           | n/a          |
| 26   | Australia                  | 1.25  | 15.96         | 0.58         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |
| 27   | Brazil                     | 1.24  | 15.72         | 0.57         |   | n/a  | Lithuania                  | n/a   | n/a           | n/a          |
| 28   | Hong Kong (China)          | 1.21  | 15.40         | 0.55         |   | n/a  | Luxembourg                 | n/a   | n/a           | n/a          |
| 29   | Hungary                    | 1.19  | 15.09         | 0.53         |   | n/a  | Madagascar                 | n/a   | n/a           | n/a          |
| 30   | Poland                     | 1.19  | 15.08         | 0.52         |   | n/a  | Malawi                     | n/a   | n/a           | n/a          |
| 31   | Ethiopia (2007)            | 1.17  | 14.80         | 0.50         |   | n/a  | Mali                       | n/a   | n/a           | n/a          |
| 32   | Croatia                    | 1.08  | 13.71         | 0.48         |   | n/a  | Malta                      | n/a   | n/a           | n/a          |
| 33   | Serbia                     | 0.96  | 12.13         | 0.47         |   | n/a  | Mauritius                  | n/a   | n/a           | n/a          |
| 34   | Kenya                      | 0.91  | 11.38         | 0.45         |   | n/a  | Montenegro                 | n/a   | n/a           | n/a          |
| 35   | Rwanda                     | 0.80  | 9.96          | 0.43         |   | n/a  | Morocco                    | n/a   | n/a           | n/a          |
| 36   | Denmark                    | 0.77  | 9.62          | 0.42         | ○ | n/a  | Myanmar                    | n/a   | n/a           | n/a          |
| 37   | Uruguay                    | 0.71  | 8.77          | 0.40         |   | n/a  | Namibia                    | n/a   | n/a           | n/a          |
| 38   | Viet Nam                   | 0.59  | 7.23          | 0.38         |   | n/a  | Nepal                      | n/a   | n/a           | n/a          |
| 39   | Colombia                   | 0.51  | 6.13          | 0.37         |   | n/a  | Netherlands                | n/a   | n/a           | n/a          |
| 40   | Kazakhstan (2011)          | 0.36  | 4.23          | 0.35         |   | n/a  | New Zealand                | n/a   | n/a           | n/a          |
| 41   | Peru                       | 0.36  | 4.16          | 0.33         |   | n/a  | Nicaragua                  | n/a   | n/a           | n/a          |
| 42   | Chile                      | 0.35  | 4.04          | 0.32         | ○ | n/a  | Niger                      | n/a   | n/a           | n/a          |
| 43   | Mexico                     | 0.30  | 3.35          | 0.30         |   | n/a  | Nigeria                    | n/a   | n/a           | n/a          |
| 44   | Portugal                   | 0.26  | 2.88          | 0.28         |   | n/a  | Norway                     | n/a   | n/a           | n/a          |
| 45   | Honduras                   | 0.24  | 2.57          | 0.27         |   | n/a  | Oman                       | n/a   | n/a           | n/a          |
| 46   | Romania                    | 0.22  | 2.38          | 0.25         | ○ | n/a  | Pakistan                   | n/a   | n/a           | n/a          |
| 47   | Indonesia (2011)           | 0.21  | 2.22          | 0.23         |   | n/a  | Paraguay                   | n/a   | n/a           | n/a          |
| 48   | Zimbabwe (2008)            | 0.20  | 2.11          | 0.22         |   | n/a  | Qatar                      | n/a   | n/a           | n/a          |
| 49   | Argentina                  | 0.20  | 2.09          | 0.20         |   | n/a  | Saudi Arabia               | n/a   | n/a           | n/a          |
| 50   | Guatemala                  | 0.19  | 1.96          | 0.18         |   | n/a  | Senegal                    | n/a   | n/a           | n/a          |
| 51   | Slovenia (2010)            | 0.16  | 1.53          | 0.17         | ○ | n/a  | Seychelles                 | n/a   | n/a           | n/a          |
| 52   | Burkina Faso (2010)        | 0.14  | 1.33          | 0.15         |   | n/a  | Singapore                  | n/a   | n/a           | n/a          |
| 53   | Ecuador (2010)             | 0.14  | 1.29          | 0.13         |   | n/a  | South Africa               | n/a   | n/a           | n/a          |
| 54   | Azerbaijan (2011)          | 0.14  | 1.28          | 0.12         | ○ | n/a  | Sri Lanka                  | n/a   | n/a           | n/a          |
| 55   | Mozambique (2007)          | 0.12  | 0.96          | 0.10         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |
| 56   | Costa Rica                 | 0.10  | 0.77          | 0.08         | ○ | n/a  | Swaziland                  | n/a   | n/a           | n/a          |
| 57   | Panama (2011)              | 0.10  | 0.74          | 0.07         | ○ | n/a  | Sweden                     | n/a   | n/a           | n/a          |
| 58   | Malaysia                   | 0.09  | 0.65          | 0.05         | ○ | n/a  | Switzerland                | n/a   | n/a           | n/a          |
| 59   | France                     | 0.07  | 0.34          | 0.03         | ○ | n/a  | Tanzania, United Rep.      | n/a   | n/a           | n/a          |
| 60   | Greece                     | 0.05  | 0.14          | 0.02         | ○ | n/a  | TFYR of Macedonia          | n/a   | n/a           | n/a          |
| 61   | Albania (2009)             | 0.04  | 0.00          | 0.00         | ○ | n/a  | Togo                       | n/a   | n/a           | n/a          |
| n/a  | Algeria                    | n/a   | n/a           | n/a          |   | n/a  | Trinidad and Tobago        | n/a   | n/a           | n/a          |
| n/a  | Angola                     | n/a   | n/a           | n/a          |   | n/a  | Tunisia                    | n/a   | n/a           | n/a          |
| n/a  | Bahrain                    | n/a   | n/a           | n/a          |   | n/a  | Uganda                     | n/a   | n/a           | n/a          |
| n/a  | Bangladesh                 | n/a   | n/a           | n/a          |   | n/a  | United Arab Emirates       | n/a   | n/a           | n/a          |
| n/a  | Barbados                   | n/a   | n/a           | n/a          |   | n/a  | United Kingdom             | n/a   | n/a           | n/a          |
| n/a  | Belgium                    | n/a   | n/a           | n/a          |   | n/a  | United States of America   | n/a   | n/a           | n/a          |
| n/a  | Benin                      | n/a   | n/a           | n/a          |   | n/a  | Venezuela, Bolivarian Rep. | n/a   | n/a           | n/a          |
| n/a  | Bhutan                     | n/a   | n/a           | n/a          |   | n/a  | Yemen                      | n/a   | n/a           | n/a          |
| n/a  | Bolivia, Plurinational St. | n/a   | n/a           | n/a          |   | n/a  | Zambia                     | n/a   | n/a           | n/a          |
| n/a  | Bosnia and Herzegovina     | n/a   | n/a           | n/a          |   |      |                            |       |               |              |
| n/a  | Botswana                   | n/a   | n/a           | n/a          |   |      |                            |       |               |              |
| n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |   |      |                            |       |               |              |

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP\$ GDP) (2007–12)  
NOTE: ● indicates a strength; ○ a weakness.

# 6.1.4 Scientific and technical publications

## Number of scientific and technical journal articles (per billion PPP\$ GDP) | 2013

II: Data Tables

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Iceland                  | 67.50 | 100.00        | 1.00         | ● | 74   | India                      | 9.84  | 14.15         | 0.48         |   |
| 2    | Switzerland              | 67.19 | 99.55         | 0.99         | ● | 75   | Barbados                   | 9.71  | 13.96         | 0.48         |   |
| 3    | Denmark                  | 67.13 | 99.45         | 0.99         | ● | 76   | Bosnia and Herzegovina     | 9.55  | 13.72         | 0.47         |   |
| 4    | Slovenia                 | 64.00 | 94.79         | 0.98         | ● | 77   | Burkina Faso               | 9.54  | 13.71         | 0.46         |   |
| 5    | Serbia                   | 60.35 | 89.36         | 0.97         | ● | 78   | Cabo Verde                 | 9.45  | 13.57         | 0.45         |   |
| 6    | New Zealand              | 58.39 | 86.45         | 0.96         | ● | 79   | Saudi Arabia               | 9.30  | 13.35         | 0.45         |   |
| 7    | Sweden                   | 57.61 | 85.29         | 0.96         |   | 80   | Zambia                     | 9.27  | 13.30         | 0.44         |   |
| 8    | Finland                  | 55.45 | 82.07         | 0.95         |   | 81   | Madagascar                 | 9.26  | 13.29         | 0.43         |   |
| 9    | Estonia                  | 53.13 | 78.61         | 0.94         | ● | 82   | Thailand                   | 9.16  | 13.14         | 0.43         |   |
| 10   | Portugal                 | 50.06 | 74.04         | 0.94         | ● | 83   | Tanzania, United Rep.      | 8.98  | 12.87         | 0.42         |   |
| 11   | Netherlands              | 48.55 | 71.79         | 0.93         |   | 84   | Morocco                    | 8.45  | 12.08         | 0.41         |   |
| 12   | Australia                | 48.00 | 70.98         | 0.92         |   | 85   | Togo                       | 8.30  | 11.86         | 0.40         | ● |
| 13   | Cyprus                   | 44.92 | 66.39         | 0.91         | ● | 86   | Namibia                    | 7.31  | 10.38         | 0.40         |   |
| 14   | Belgium                  | 44.02 | 65.04         | 0.91         |   | 87   | Rwanda                     | 7.27  | 10.33         | 0.39         |   |
| 15   | United Kingdom           | 43.04 | 63.58         | 0.90         |   | 88   | Mali                       | 7.20  | 10.22         | 0.38         |   |
| 16   | Israel                   | 42.93 | 63.42         | 0.89         |   | 89   | Algeria                    | 7.09  | 10.06         | 0.38         |   |
| 17   | Croatia                  | 40.58 | 59.92         | 0.89         | ● | 90   | Ethiopia                   | 7.05  | 10.00         | 0.37         |   |
| 18   | Norway                   | 38.81 | 57.28         | 0.88         |   | 91   | Ghana                      | 6.86  | 9.71          | 0.36         |   |
| 19   | Canada                   | 37.40 | 55.19         | 0.87         |   | 92   | Belarus                    | 6.82  | 9.66          | 0.35         |   |
| 20   | Spain                    | 36.67 | 54.11         | 0.87         | ● | 93   | Swaziland                  | 6.71  | 9.49          | 0.35         |   |
| 21   | Greece                   | 36.21 | 53.41         | 0.86         | ● | 94   | Bhutan                     | 6.69  | 9.46          | 0.34         |   |
| 22   | Ireland                  | 36.16 | 53.34         | 0.85         |   | 95   | Costa Rica                 | 6.51  | 9.20          | 0.33         |   |
| 23   | Austria                  | 35.73 | 52.70         | 0.84         |   | 96   | Kyrgyzstan                 | 6.43  | 9.08          | 0.33         |   |
| 24   | Zimbabwe                 | 35.49 | 52.34         | 0.84         | ● | 97   | Colombia                   | 6.14  | 8.64          | 0.32         |   |
| 25   | Czech Republic           | 34.83 | 51.37         | 0.83         |   | 98   | Trinidad and Tobago        | 6.12  | 8.61          | 0.31         |   |
| 26   | Armenia                  | 33.77 | 49.78         | 0.82         | ● | 99   | Niger                      | 6.01  | 8.45          | 0.30         |   |
| 27   | Singapore                | 32.26 | 47.54         | 0.82         |   | 100  | Mexico                     | 5.86  | 8.23          | 0.30         |   |
| 28   | Italy                    | 31.00 | 45.65         | 0.81         |   | 101  | Botswana                   | 5.85  | 8.22          | 0.29         |   |
| 29   | Hungary                  | 30.71 | 45.23         | 0.80         |   | 102  | Viet Nam                   | 5.82  | 8.17          | 0.28         |   |
| 30   | Korea, Rep.              | 29.47 | 43.39         | 0.79         |   | 103  | Panama                     | 5.61  | 7.85          | 0.28         |   |
| 31   | Germany                  | 29.14 | 42.90         | 0.79         |   | 104  | Lesotho                    | 5.39  | 7.53          | 0.27         |   |
| 32   | Gambia                   | 29.09 | 42.82         | 0.78         | ● | 105  | Jamaica                    | 5.37  | 7.50          | 0.26         |   |
| 33   | France                   | 28.54 | 42.00         | 0.77         |   | 106  | Oman                       | 5.32  | 7.43          | 0.26         |   |
| 34   | Jordan                   | 28.39 | 41.77         | 0.77         | ● | 107  | Albania                    | 5.20  | 7.25          | 0.25         |   |
| 35   | Romania                  | 27.13 | 39.90         | 0.76         |   | 108  | United Arab Emirates       | 5.13  | 7.14          | 0.24         | ○ |
| 36   | Poland                   | 26.64 | 39.17         | 0.75         |   | 109  | Mozambique                 | 5.04  | 7.01          | 0.23         |   |
| 37   | Lithuania                | 26.44 | 38.87         | 0.74         |   | 110  | Cambodia                   | 4.89  | 6.79          | 0.23         |   |
| 38   | Tunisia                  | 26.27 | 38.62         | 0.74         | ● | 111  | Mauritius                  | 4.63  | 6.40          | 0.22         | ○ |
| 39   | Iran, Islamic Rep.       | 24.75 | 36.35         | 0.73         | ● | 112  | Bahrain                    | 4.29  | 5.89          | 0.21         |   |
| 40   | Fiji                     | 24.49 | 35.97         | 0.72         | ● | 113  | Côte d'Ivoire              | 4.26  | 5.84          | 0.21         |   |
| 41   | Montenegro               | 23.15 | 33.98         | 0.72         |   | 114  | Qatar                      | 4.26  | 5.84          | 0.20         |   |
| 42   | Slovakia                 | 21.85 | 32.04         | 0.71         |   | 115  | Azerbaijan                 | 4.20  | 5.76          | 0.19         |   |
| 43   | Malawi                   | 20.78 | 30.44         | 0.70         | ● | 116  | Kuwait                     | 4.14  | 5.67          | 0.18         |   |
| 44   | Turkey                   | 20.76 | 30.41         | 0.70         |   | 117  | Bangladesh                 | 4.00  | 5.46          | 0.18         |   |
| 45   | United States of America | 20.51 | 30.04         | 0.69         |   | 118  | Bolivia, Plurinational St. | 3.81  | 5.17          | 0.17         |   |
| 46   | Bulgaria                 | 19.88 | 29.10         | 0.68         |   | 119  | Sri Lanka                  | 3.69  | 5.00          | 0.16         |   |
| 47   | Georgia                  | 19.31 | 28.25         | 0.67         |   | 120  | Nigeria                    | 3.68  | 4.98          | 0.16         |   |
| 48   | Luxembourg               | 19.17 | 28.05         | 0.67         |   | 121  | Brunei Darussalam          | 3.55  | 4.79          | 0.15         | ○ |
| 49   | Malta                    | 19.02 | 27.82         | 0.66         |   | 122  | Tajikistan                 | 3.53  | 4.75          | 0.14         |   |
| 50   | Moldova, Rep.            | 18.93 | 27.69         | 0.65         |   | 123  | Sudan                      | 3.15  | 4.19          | 0.13         |   |
| 51   | Seychelles               | 17.47 | 25.52         | 0.65         |   | 124  | Burundi                    | 2.96  | 3.90          | 0.13         |   |
| 52   | Chile                    | 17.07 | 24.92         | 0.64         |   | 125  | Guinea                     | 2.94  | 3.89          | 0.12         |   |
| 53   | Malaysia                 | 16.87 | 24.63         | 0.63         |   | 126  | Yemen                      | 2.78  | 3.64          | 0.11         |   |
| 54   | Kenya                    | 15.84 | 23.09         | 0.62         |   | 127  | Uzbekistan                 | 2.75  | 3.60          | 0.11         |   |
| 55   | South Africa             | 15.82 | 23.06         | 0.62         |   | 128  | Ecuador                    | 2.67  | 3.47          | 0.10         | ○ |
| 56   | China                    | 15.76 | 22.97         | 0.61         |   | 129  | Venezuela, Bolivarian Rep. | 2.33  | 2.97          | 0.09         |   |
| 57   | Japan                    | 15.74 | 22.94         | 0.60         |   | 130  | Nicaragua                  | 2.26  | 2.87          | 0.09         | ○ |
| 58   | Benin                    | 15.26 | 22.22         | 0.60         | ● | 131  | Philippines                | 2.14  | 2.69          | 0.08         | ○ |
| 59   | Brazil                   | 14.86 | 21.63         | 0.59         |   | 132  | Guyana                     | 2.12  | 2.66          | 0.07         | ○ |
| 60   | Latvia                   | 14.84 | 21.61         | 0.58         |   | 133  | Peru                       | 2.11  | 2.65          | 0.06         | ○ |
| 61   | Lebanon                  | 14.45 | 21.01         | 0.57         |   | 134  | Kazakhstan                 | 2.09  | 2.61          | 0.06         | ○ |
| 62   | Ukraine                  | 13.94 | 20.26         | 0.57         |   | 135  | Guatemala                  | 1.62  | 1.91          | 0.05         | ○ |
| 63   | Uganda                   | 13.61 | 19.77         | 0.56         |   | 136  | Paraguay                   | 1.37  | 1.55          | 0.04         | ○ |
| 64   | Egypt                    | 13.56 | 19.69         | 0.55         |   | 137  | Honduras                   | 1.35  | 1.51          | 0.04         | ○ |
| 65   | Senegal                  | 13.06 | 18.95         | 0.55         |   | 138  | Indonesia                  | 1.15  | 1.21          | 0.03         | ○ |
| 66   | TFYR of Macedonia        | 12.77 | 18.51         | 0.54         |   | 139  | El Salvador                | 0.74  | 0.60          | 0.02         | ○ |
| 67   | Uruguay                  | 12.69 | 18.39         | 0.53         |   | 140  | Dominican Republic         | 0.66  | 0.49          | 0.01         | ○ |
| 68   | Mongolia                 | 12.39 | 17.95         | 0.52         |   | 141  | Myanmar                    | 0.54  | 0.31          | 0.01         |   |
| 69   | Cameroon                 | 12.23 | 17.71         | 0.52         | ● | 142  | Angola                     | 0.33  | 0.00          | 0.00         | ○ |
| 70   | Russian Federation       | 10.74 | 15.49         | 0.51         |   | n/a  | Hong Kong (China)          | n/a   | n/a           | n/a          |   |
| 71   | Pakistan                 | 10.63 | 15.32         | 0.50         |   |      |                            |       |               |              |   |
| 72   | Argentina                | 10.27 | 14.79         | 0.50         |   |      |                            |       |               |              |   |
| 73   | Nepal                    | 10.20 | 14.69         | 0.49         | ● |      |                            |       |               |              |   |

SOURCE: Thomson Reuters, Web of Science, SCl and SSCI; International Monetary Fund *World Economic Outlook 2013* (PPP\$ GDP)

NOTE: ● indicates a strength; ○ a weakness.

# 6.1.5

## Citable documents H index

The H index is the economy's number of published articles (H) that have received at least H citations in the period 1996–2013 | 2013

| Rank | Country/Economy            | Value    | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|----------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Germany                    | 740.00   | 100.00        | 0.99         | ● | 74   | Latvia                     | 85.00 | 10.03         | 0.48         |   |
| 1    | United Kingdom             | 851.00   | 100.00        | 0.99         | ● | 74   | Tunisia                    | 85.00 | 10.03         | 0.48         |   |
| 1    | United States of America   | 1,380.00 | 100.00        | 0.99         | ● | 76   | Ecuador                    | 83.00 | 9.75          | 0.46         |   |
| 4    | France                     | 681.00   | 91.90         | 0.98         | ● | 76   | Kuwait                     | 83.00 | 9.75          | 0.46         |   |
| 5    | Canada                     | 658.00   | 88.74         | 0.97         | ● | 78   | Jordan                     | 82.00 | 9.62          | 0.46         |   |
| 6    | Japan                      | 635.00   | 85.58         | 0.96         | ● | 79   | Gambia                     | 80.00 | 9.34          | 0.44         |   |
| 7    | Italy                      | 588.00   | 79.12         | 0.96         | ● | 79   | Luxembourg                 | 80.00 | 9.34          | 0.44         |   |
| 8    | Netherlands                | 576.00   | 77.47         | 0.95         |   | 79   | Malawi                     | 80.00 | 9.34          | 0.44         |   |
| 9    | Switzerland                | 569.00   | 76.51         | 0.94         |   | 82   | Algeria                    | 78.00 | 9.07          | 0.42         | ● |
| 10   | Australia                  | 514.00   | 68.96         | 0.94         |   | 82   | Georgia                    | 78.00 | 9.07          | 0.42         |   |
| 11   | Sweden                     | 511.00   | 68.54         | 0.93         |   | 84   | Senegal                    | 75.00 | 8.65          | 0.42         |   |
| 12   | Spain                      | 476.00   | 63.74         | 0.92         | ● | 85   | Ethiopia                   | 73.00 | 8.38          | 0.40         |   |
| 13   | Belgium                    | 454.00   | 60.71         | 0.92         | ● | 85   | Ghana                      | 73.00 | 8.38          | 0.40         |   |
| 14   | Denmark                    | 427.00   | 57.01         | 0.91         |   | 87   | Cameroon                   | 72.00 | 8.24          | 0.39         | ● |
| 15   | Israel                     | 414.00   | 55.22         | 0.90         |   | 87   | Zimbabwe                   | 72.00 | 8.24          | 0.39         |   |
| 16   | China                      | 385.00   | 51.24         | 0.89         |   | 89   | Nepal                      | 71.00 | 8.10          | 0.38         |   |
| 17   | Austria                    | 378.00   | 50.27         | 0.89         |   | 90   | Côte d'Ivoire              | 68.00 | 7.69          | 0.36         |   |
| 18   | Finland                    | 372.00   | 49.45         | 0.88         |   | 90   | Serbia                     | 68.00 | 7.69          | 0.36         |   |
| 19   | Korea, Rep.                | 333.00   | 44.09         | 0.87         |   | 90   | Zambia                     | 68.00 | 7.69          | 0.36         |   |
| 20   | Norway                     | 327.00   | 43.27         | 0.87         |   | 93   | Oman                       | 63.00 | 7.01          | 0.35         |   |
| 21   | Russian Federation         | 325.00   | 42.99         | 0.86         | ● | 94   | Burkina Faso               | 62.00 | 6.87          | 0.34         |   |
| 22   | Brazil                     | 305.00   | 40.25         | 0.85         | ● | 94   | TFYR of Macedonia          | 62.00 | 6.87          | 0.34         |   |
| 23   | Poland                     | 302.00   | 39.84         | 0.85         |   | 96   | Bolivia, Plurinational St. | 61.00 | 6.73          | 0.32         |   |
| 24   | India                      | 301.00   | 39.70         | 0.84         | ● | 96   | Trinidad and Tobago        | 61.00 | 6.73          | 0.32         |   |
| 25   | Hong Kong (China)          | 292.00   | 38.46         | 0.83         |   | 98   | Malta                      | 60.00 | 6.59          | 0.31         | ○ |
| 26   | New Zealand                | 282.00   | 37.09         | 0.82         |   | 98   | Moldova, Rep.              | 60.00 | 6.59          | 0.31         |   |
| 27   | Ireland                    | 271.00   | 35.58         | 0.82         |   | 100  | Botswana                   | 57.00 | 6.18          | 0.30         |   |
| 28   | Singapore                  | 268.00   | 35.16         | 0.81         |   | 100  | Jamaica                    | 57.00 | 6.18          | 0.30         |   |
| 29   | Greece                     | 266.00   | 34.89         | 0.80         |   | 102  | Madagascar                 | 56.00 | 6.04          | 0.29         |   |
| 30   | Hungary                    | 254.00   | 33.24         | 0.80         |   | 103  | Mali                       | 55.00 | 5.91          | 0.27         |   |
| 31   | Czech Republic             | 239.00   | 31.18         | 0.79         |   | 103  | Mongolia                   | 55.00 | 5.91          | 0.27         |   |
| 32   | Portugal                   | 234.00   | 30.49         | 0.78         |   | 103  | Namibia                    | 55.00 | 5.91          | 0.27         |   |
| 33   | Mexico                     | 232.00   | 30.22         | 0.77         | ● | 106  | Guatemala                  | 53.00 | 5.63          | 0.25         |   |
| 34   | South Africa               | 231.00   | 30.08         | 0.77         |   | 106  | Mozambique                 | 53.00 | 5.63          | 0.25         |   |
| 35   | Argentina                  | 222.00   | 28.85         | 0.76         |   | 106  | Uzbekistan                 | 53.00 | 5.63          | 0.25         |   |
| 36   | Turkey                     | 210.00   | 27.20         | 0.75         |   | 109  | Kazakhstan                 | 52.00 | 5.49          | 0.23         |   |
| 37   | Chile                      | 194.00   | 25.00         | 0.75         |   | 109  | Sudan                      | 52.00 | 5.49          | 0.23         |   |
| 38   | Thailand                   | 167.00   | 21.29         | 0.74         |   | 111  | Barbados                   | 50.00 | 5.22          | 0.22         | ○ |
| 39   | Iceland                    | 160.00   | 20.33         | 0.73         |   | 111  | Qatar                      | 50.00 | 5.22          | 0.22         |   |
| 40   | Slovenia                   | 153.00   | 19.37         | 0.73         |   | 113  | Benin                      | 49.00 | 5.08          | 0.20         |   |
| 41   | Slovakia                   | 148.00   | 18.68         | 0.72         |   | 113  | Cambodia                   | 49.00 | 5.08          | 0.20         |   |
| 42   | Croatia                    | 143.00   | 17.99         | 0.71         |   | 115  | Niger                      | 47.00 | 4.81          | 0.20         |   |
| 43   | Ukraine                    | 142.00   | 17.86         | 0.70         |   | 116  | Azerbaijan                 | 45.00 | 4.53          | 0.18         |   |
| 44   | Bulgaria                   | 138.00   | 17.31         | 0.70         |   | 116  | Nicaragua                  | 45.00 | 4.53          | 0.18         |   |
| 45   | Iran, Islamic Rep.         | 135.00   | 16.90         | 0.68         | ● | 116  | Paraguay                   | 45.00 | 4.53          | 0.18         |   |
| 45   | Romania                    | 135.00   | 16.90         | 0.68         |   | 119  | Bosnia and Herzegovina     | 44.00 | 4.40          | 0.17         |   |
| 47   | Colombia                   | 133.00   | 16.62         | 0.68         |   | 120  | Dominican Republic         | 41.00 | 3.98          | 0.15         | ○ |
| 48   | Egypt                      | 132.00   | 16.48         | 0.67         | ● | 120  | Mauritius                  | 41.00 | 3.98          | 0.15         | ○ |
| 49   | Kenya                      | 131.00   | 16.35         | 0.66         |   | 122  | Brunei Darussalam          | 40.00 | 3.85          | 0.14         | ○ |
| 50   | Estonia                    | 130.00   | 16.21         | 0.65         |   | 122  | Fiji                       | 40.00 | 3.85          | 0.14         |   |
| 50   | Venezuela, Bolivarian Rep. | 130.00   | 16.21         | 0.65         | ● | 124  | Bahrain                    | 39.00 | 3.71          | 0.13         |   |
| 52   | Malaysia                   | 125.00   | 15.52         | 0.64         |   | 124  | Honduras                   | 39.00 | 3.71          | 0.13         | ○ |
| 53   | Saudi Arabia               | 124.00   | 15.38         | 0.63         |   | 126  | Myanmar                    | 38.00 | 3.57          | 0.12         |   |
| 54   | Philippines                | 116.00   | 14.29         | 0.63         |   | 127  | Yemen                      | 37.00 | 3.43          | 0.11         |   |
| 55   | Indonesia                  | 112.00   | 13.74         | 0.62         |   | 128  | Albania                    | 36.00 | 3.30          | 0.10         | ○ |
| 56   | Pakistan                   | 111.00   | 13.60         | 0.61         | ● | 128  | Rwanda                     | 36.00 | 3.30          | 0.10         |   |
| 57   | Lithuania                  | 109.00   | 13.32         | 0.60         |   | 130  | Guinea                     | 34.00 | 3.02          | 0.09         |   |
| 57   | Peru                       | 109.00   | 13.32         | 0.60         |   | 131  | Seychelles                 | 33.00 | 2.88          | 0.08         | ○ |
| 59   | Viet Nam                   | 107.00   | 13.05         | 0.59         |   | 132  | El Salvador                | 31.00 | 2.61          | 0.06         | ○ |
| 60   | Belarus                    | 106.00   | 12.91         | 0.58         |   | 132  | Kyrgyzstan                 | 31.00 | 2.61          | 0.06         | ○ |
| 60   | Panama                     | 106.00   | 12.91         | 0.58         |   | 132  | Togo                       | 31.00 | 2.61          | 0.06         | ○ |
| 62   | Armenia                    | 105.00   | 12.77         | 0.57         |   | 135  | Swaziland                  | 28.00 | 2.20          | 0.06         | ○ |
| 63   | Uruguay                    | 104.00   | 12.64         | 0.56         |   | 136  | Guyana                     | 27.00 | 2.06          | 0.05         | ○ |
| 64   | Costa Rica                 | 103.00   | 12.50         | 0.56         |   | 137  | Angola                     | 25.00 | 1.79          | 0.04         |   |
| 65   | Morocco                    | 99.00    | 11.95         | 0.54         |   | 138  | Burundi                    | 24.00 | 1.65          | 0.04         |   |
| 65   | Uganda                     | 99.00    | 11.95         | 0.54         |   | 139  | Tajikistan                 | 23.00 | 1.51          | 0.03         | ○ |
| 67   | Bangladesh                 | 97.00    | 11.68         | 0.53         |   | 140  | Lesotho                    | 22.00 | 1.37          | 0.02         | ○ |
| 67   | Lebanon                    | 97.00    | 11.68         | 0.53         |   | 141  | Bhutan                     | 18.00 | 0.82          | 0.01         | ○ |
| 69   | Tanzania, United Rep.      | 93.00    | 11.13         | 0.52         |   | 142  | Montenegro                 | 17.00 | 0.69          | 0.01         | ○ |
| 70   | Nigeria                    | 89.00    | 10.58         | 0.51         |   | 143  | Cabo Verde                 | 12.00 | 0.00          | 0.00         | ○ |
| 71   | United Arab Emirates       | 87.00    | 10.30         | 0.51         |   |      |                            |       |               |              |   |
| 72   | Cyprus                     | 86.00    | 10.16         | 0.49         |   |      |                            |       |               |              |   |
| 72   | Sri Lanka                  | 86.00    | 10.16         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: SCImago. (2007). SJR — SCImago Journal & Country Rank. Retrieved February, 2014.

NOTE: ● indicates a strength; ○ a weakness.

## 6.2.1

## Growth rate of GDP per person engaged

Growth rate of GDP per person engaged (constant 1990 PPP\$, 2011 to 2012) | 2012

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy          | Value  | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|--------------------------|--------|---------------|--------------|---|
| 1    | Niger                      | 10.25 | 100.00        | 1.00         | ● | 74   | Senegal                  | 0.62   | 59.94         | 0.37         |   |
| 2    | China                      | 7.37  | 88.04         | 0.99         | ● | 75   | Qatar                    | 0.57   | 59.78         | 0.36         |   |
| 3    | Georgia                    | 6.68  | 85.17         | 0.98         | ● | 76   | Japan                    | 0.50   | 59.46         | 0.35         | ○ |
| 4    | Sri Lanka                  | 6.06  | 82.57         | 0.97         | ● | 77   | United States of America | 0.49   | 59.43         | 0.34         | ○ |
| 5    | Ghana                      | 5.64  | 80.85         | 0.97         | ● | 78   | Argentina                | 0.49   | 59.42         | 0.33         |   |
| 6    | Uzbekistan                 | 5.37  | 79.70         | 0.96         | ● | 79   | Denmark                  | 0.45   | 59.25         | 0.32         | ○ |
| 7    | Côte d'Ivoire              | 5.27  | 79.31         | 0.95         | ● | 80   | Malta                    | 0.41   | 59.10         | 0.31         | ○ |
| 8    | Thailand                   | 4.85  | 77.57         | 0.94         | ● | 81   | TFYR of Macedonia        | 0.40   | 59.07         | 0.30         |   |
| 9    | Belarus                    | 4.83  | 77.47         | 0.93         | ● | 82   | Austria                  | 0.36   | 58.88         | 0.30         | ○ |
| 10   | Myanmar                    | 4.57  | 76.38         | 0.92         | ● | 83   | Portugal                 | 0.36   | 58.88         | 0.29         | ○ |
| 11   | Kazakhstan                 | 4.52  | 76.17         | 0.91         | ● | 84   | Romania                  | 0.35   | 58.83         | 0.28         |   |
| 12   | Tajikistan                 | 4.50  | 76.11         | 0.90         | ● | 85   | Barbados                 | 0.34   | 58.79         | 0.27         | ○ |
| 13   | Mozambique                 | 4.49  | 76.06         | 0.90         | ● | 86   | Uganda                   | 0.28   | 58.53         | 0.26         |   |
| 14   | Peru                       | 4.46  | 75.93         | 0.89         | ● | 87   | Finland                  | 0.22   | 58.31         | 0.25         | ○ |
| 15   | Cambodia                   | 4.31  | 75.30         | 0.88         | ● | 88   | Guatemala                | 0.10   | 57.80         | 0.24         |   |
| 16   | Nigeria                    | 4.25  | 75.08         | 0.87         | ● | 89   | Singapore                | 0.03   | 57.51         | 0.23         | ○ |
| 17   | Chile                      | 4.24  | 75.00         | 0.86         | ● | 90   | Egypt                    | -0.05  | 57.19         | 0.23         |   |
| 18   | Kuwait                     | 4.22  | 74.92         | 0.85         | ● | 91   | Netherlands              | -0.23  | 56.43         | 0.22         | ○ |
| 19   | Indonesia                  | 4.17  | 74.73         | 0.84         | ● | 92   | Belgium                  | -0.24  | 56.40         | 0.21         | ○ |
| 20   | Moldova, Rep.              | 4.04  | 74.19         | 0.83         | ● | 93   | Bosnia and Herzegovina   | -0.24  | 56.39         | 0.20         |   |
| 21   | Ukraine                    | 3.76  | 73.00         | 0.83         | ● | 94   | Switzerland              | -0.25  | 56.37         | 0.19         | ○ |
| 22   | Venezuela, Bolivarian Rep. | 3.68  | 72.67         | 0.82         | ● | 95   | France                   | -0.25  | 56.34         | 0.18         | ○ |
| 23   | Ethiopia                   | 3.67  | 72.66         | 0.81         | ● | 96   | Brazil                   | -0.26  | 56.31         | 0.17         | ○ |
| 24   | India                      | 3.66  | 72.61         | 0.80         | ● | 97   | Germany                  | -0.35  | 55.95         | 0.17         | ○ |
| 25   | Latvia                     | 3.57  | 72.24         | 0.79         | ● | 98   | Kyrgyzstan               | -0.57  | 55.02         | 0.16         |   |
| 26   | Bangladesh                 | 3.55  | 72.13         | 0.78         | ● | 99   | Slovenia                 | -0.59  | 54.93         | 0.15         | ○ |
| 27   | Viet Nam                   | 3.48  | 71.86         | 0.77         | ● | 100  | Jamaica                  | -0.65  | 54.70         | 0.14         | ○ |
| 28   | Saudi Arabia               | 3.47  | 71.83         | 0.77         | ● | 101  | Albania                  | -0.71  | 54.43         | 0.13         |   |
| 29   | Burkina Faso               | 3.40  | 71.54         | 0.76         | ● | 102  | United Kingdom           | -0.74  | 54.31         | 0.12         | ○ |
| 30   | Russian Federation         | 3.39  | 71.47         | 0.75         | ● | 103  | Cyprus                   | -0.80  | 54.07         | 0.11         | ○ |
| 31   | Tanzania, United Rep.      | 3.37  | 71.41         | 0.74         | ● | 104  | Bahrain                  | -1.02  | 53.13         | 0.10         | ○ |
| 32   | Zambia                     | 3.33  | 71.24         | 0.73         | ● | 105  | Czech Republic           | -1.11  | 52.78         | 0.10         | ○ |
| 33   | Armenia                    | 3.29  | 71.06         | 0.72         | ● | 106  | Greece                   | -1.30  | 51.98         | 0.09         | ○ |
| 34   | South Africa               | 3.21  | 70.74         | 0.71         | ● | 107  | Madagascar               | -1.39  | 51.61         | 0.08         |   |
| 35   | Angola                     | 3.15  | 70.48         | 0.70         | ● | 108  | Italy                    | -1.47  | 51.26         | 0.07         | ○ |
| 36   | Costa Rica                 | 3.14  | 70.42         | 0.70         | ● | 109  | Luxembourg               | -1.59  | 50.78         | 0.06         | ○ |
| 37   | Bulgaria                   | 2.71  | 68.67         | 0.69         | ● | 110  | Croatia                  | -1.81  | 49.84         | 0.05         | ○ |
| 38   | Bolivia, Plurinational St. | 2.71  | 68.67         | 0.68         | ● | 111  | Zimbabwe                 | -1.99  | 49.12         | 0.04         | ○ |
| 39   | Uruguay                    | 2.67  | 68.47         | 0.67         | ● | 112  | Hungary                  | -2.14  | 48.50         | 0.03         | ○ |
| 40   | Azerbaijan                 | 2.62  | 68.29         | 0.66         | ● | 113  | Iran, Islamic Rep.       | -2.36  | 47.58         | 0.03         | ○ |
| 41   | Australia                  | 2.61  | 68.22         | 0.65         | ● | 114  | Yemen                    | -5.30  | 35.34         | 0.02         | ○ |
| 42   | Malaysia                   | 2.60  | 68.22         | 0.64         | ● | 115  | Mali                     | -7.32  | 26.94         | 0.01         | ○ |
| 43   | Colombia                   | 2.59  | 68.15         | 0.63         | ● | 116  | Sudan                    | -13.80 | 0.00          | 0.00         | ○ |
| 44   | Jordan                     | 2.56  | 68.02         | 0.63         | ● | n/a  | Benin                    | n/a    | n/a           | n/a          |   |
| 45   | Philippines                | 2.48  | 67.71         | 0.62         | ● | n/a  | Bhutan                   | n/a    | n/a           | n/a          |   |
| 46   | Iceland                    | 2.48  | 67.68         | 0.61         | ● | n/a  | Botswana                 | n/a    | n/a           | n/a          |   |
| 47   | Oman                       | 2.42  | 67.46         | 0.60         | ● | n/a  | Brunei Darussalam        | n/a    | n/a           | n/a          |   |
| 48   | Kenya                      | 2.35  | 67.16         | 0.59         | ● | n/a  | Burundi                  | n/a    | n/a           | n/a          |   |
| 49   | Spain                      | 2.33  | 67.07         | 0.58         | ● | n/a  | Cabo Verde               | n/a    | n/a           | n/a          |   |
| 50   | Lithuania                  | 2.28  | 66.88         | 0.57         | ● | n/a  | El Salvador              | n/a    | n/a           | n/a          |   |
| 51   | Norway                     | 2.21  | 66.58         | 0.57         | ○ | n/a  | Fiji                     | n/a    | n/a           | n/a          |   |
| 52   | Cameroon                   | 2.20  | 66.53         | 0.56         | ● | n/a  | Gambia                   | n/a    | n/a           | n/a          |   |
| 53   | Dominican Republic         | 2.14  | 66.30         | 0.55         | ○ | n/a  | Guinea                   | n/a    | n/a           | n/a          |   |
| 54   | Poland                     | 2.11  | 66.15         | 0.54         | ○ | n/a  | Guyana                   | n/a    | n/a           | n/a          |   |
| 55   | Estonia                    | 1.96  | 65.52         | 0.53         | ○ | n/a  | Honduras                 | n/a    | n/a           | n/a          |   |
| 56   | Ecuador                    | 1.95  | 65.48         | 0.52         | ○ | n/a  | Lebanon                  | n/a    | n/a           | n/a          |   |
| 57   | Tunisia                    | 1.68  | 64.39         | 0.51         | ○ | n/a  | Lesotho                  | n/a    | n/a           | n/a          |   |
| 58   | Hong Kong (China)          | 1.68  | 64.36         | 0.50         | ○ | n/a  | Mauritius                | n/a    | n/a           | n/a          |   |
| 59   | Slovakia                   | 1.59  | 63.98         | 0.50         | ○ | n/a  | Mongolia                 | n/a    | n/a           | n/a          |   |
| 60   | Israel                     | 1.56  | 63.88         | 0.49         | ○ | n/a  | Montenegro               | n/a    | n/a           | n/a          |   |
| 61   | Morocco                    | 1.30  | 62.80         | 0.48         | ○ | n/a  | Namibia                  | n/a    | n/a           | n/a          |   |
| 62   | Trinidad and Tobago        | 1.28  | 62.72         | 0.47         | ○ | n/a  | Nepal                    | n/a    | n/a           | n/a          |   |
| 63   | Malawi                     | 1.12  | 62.05         | 0.46         | ○ | n/a  | Nicaragua                | n/a    | n/a           | n/a          |   |
| 64   | New Zealand                | 1.06  | 61.81         | 0.45         | ○ | n/a  | Panama                   | n/a    | n/a           | n/a          |   |
| 65   | Ireland                    | 1.06  | 61.78         | 0.44         | ○ | n/a  | Paraguay                 | n/a    | n/a           | n/a          |   |
| 66   | Sweden                     | 1.01  | 61.58         | 0.43         | ○ | n/a  | Rwanda                   | n/a    | n/a           | n/a          |   |
| 67   | Canada                     | 0.99  | 61.49         | 0.43         | ○ | n/a  | Serbia                   | n/a    | n/a           | n/a          |   |
| 68   | Turkey                     | 0.98  | 61.45         | 0.42         | ○ | n/a  | Seychelles               | n/a    | n/a           | n/a          |   |
| 69   | Algeria                    | 0.97  | 61.40         | 0.41         | ○ | n/a  | Swaziland                | n/a    | n/a           | n/a          |   |
| 70   | United Arab Emirates       | 0.93  | 61.25         | 0.40         | ○ | n/a  | Togo                     | n/a    | n/a           | n/a          |   |
| 71   | Pakistan                   | 0.93  | 61.24         | 0.39         | ○ |      |                          |        |               |              |   |
| 72   | Korea, Rep.                | 0.80  | 60.72         | 0.38         | ○ |      |                          |        |               |              |   |
| 73   | Mexico                     | 0.75  | 60.49         | 0.37         | ○ |      |                          |        |               |              |   |

SOURCE: International Labour Organization, *Key Indicators of the Labour Market* (KILM) database, Table 17b Labour productivity, special tabulations

NOTE: ● indicates a strength; ○ a weakness.

# 6.2.2

## New business density

New business density (new registrations per thousand population 15–64 years old) | 2012

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Cyprus                     | 22.51 | 100.00        | 0.97         | ● | 74   | Algeria                    | 0.53  | 3.54          | 0.28         |   |
| 1    | Hong Kong (China)          | 28.12 | 100.00        | 0.97         | ● | 75   | Guatemala                  | 0.52  | 3.46          | 0.27         |   |
| 1    | Luxembourg                 | 20.98 | 100.00        | 0.97         | ● | 76   | Sri Lanka                  | 0.51  | 3.42          | 0.26         |   |
| 1    | New Zealand                | 15.07 | 100.00        | 0.97         | ● | 77   | Austria                    | 0.50  | 3.30          | 0.25         | ○ |
| 5    | Panama                     | 14.10 | 93.57         | 0.96         | ● | 78   | El Salvador                | 0.48  | 3.20          | 0.24         |   |
| 6    | Malta                      | 13.61 | 90.31         | 0.95         | ● | 79   | Argentina                  | 0.47  | 3.09          | 0.23         |   |
| 7    | Botswana                   | 12.30 | 81.60         | 0.94         | ● | 80   | Indonesia                  | 0.29  | 1.95          | 0.22         |   |
| 8    | Australia                  | 12.16 | 80.69         | 0.93         |   | 81   | Philippines                | 0.27  | 1.80          | 0.21         |   |
| 9    | Latvia                     | 11.63 | 77.17         | 0.92         | ● | 82   | Senegal                    | 0.27  | 1.77          | 0.20         |   |
| 10   | United Kingdom             | 11.04 | 73.22         | 0.91         |   | 83   | Tajikistan                 | 0.26  | 1.70          | 0.19         |   |
| 11   | Bulgaria                   | 9.03  | 59.89         | 0.90         | ● | 84   | Guinea                     | 0.23  | 1.50          | 0.18         |   |
| 12   | Iceland                    | 8.17  | 54.19         | 0.89         |   | 85   | Bhutan                     | 0.20  | 1.34          | 0.17         |   |
| 13   | Singapore                  | 8.04  | 53.38         | 0.88         |   | 86   | Burkina Faso               | 0.15  | 0.99          | 0.16         |   |
| 14   | Norway                     | 7.83  | 51.93         | 0.87         |   | 87   | India                      | 0.12  | 0.82          | 0.15         |   |
| 15   | Mauritius                  | 7.40  | 49.07         | 0.86         | ● | 88   | Togo                       | 0.12  | 0.81          | 0.14         |   |
| 16   | South Africa               | 6.54  | 43.38         | 0.85         | ● | 89   | Bangladesh                 | 0.09  | 0.61          | 0.13         |   |
| 17   | Sweden                     | 6.41  | 42.52         | 0.84         |   | 90   | Madagascar                 | 0.05  | 0.34          | 0.12         |   |
| 18   | Chile                      | 5.69  | 37.73         | 0.83         | ● | 91   | Pakistan                   | 0.04  | 0.25          | 0.11         |   |
| 19   | Slovakia                   | 5.11  | 33.89         | 0.82         | ● | 92   | Estonia (2007)             | 0.00  | 0.00          | 0.00         | ○ |
| 20   | Georgia                    | 4.86  | 32.26         | 0.81         |   | 92   | Ethiopia (2009)            | 0.00  | 0.00          | 0.00         | ○ |
| 21   | Hungary                    | 4.75  | 31.55         | 0.80         |   | 92   | Kenya (2008)               | 0.00  | 0.00          | 0.00         | ○ |
| 22   | Lithuania                  | 4.71  | 31.26         | 0.79         |   | 92   | Malawi (2009)              | 0.00  | 0.00          | 0.00         | ○ |
| 23   | Ireland                    | 4.50  | 29.86         | 0.78         |   | 92   | Moldova, Rep. (2009)       | 0.00  | 0.00          | 0.00         | ○ |
| 24   | Netherlands                | 4.44  | 29.48         | 0.77         |   | 92   | Montenegro (2011)          | 0.00  | 0.00          | 0.00         | ○ |
| 25   | Slovenia                   | 4.36  | 28.93         | 0.76         |   | 92   | Morocco (2009)             | 0.00  | 0.00          | 0.00         | ○ |
| 26   | Denmark                    | 4.36  | 28.92         | 0.75         |   | 92   | Oman (2009)                | 0.00  | 0.00          | 0.00         | ○ |
| 27   | Russian Federation         | 4.30  | 28.55         | 0.74         |   | 92   | Poland (2009)              | 0.00  | 0.00          | 0.00         | ○ |
| 28   | Peru                       | 3.83  | 25.41         | 0.73         | ● | 92   | Portugal (2010)            | 0.00  | 0.00          | 0.00         | ○ |
| 29   | TFYR of Macedonia          | 3.60  | 23.92         | 0.72         |   | 92   | Tunisia (2011)             | 0.00  | 0.00          | 0.00         | ○ |
| 30   | Costa Rica                 | 3.55  | 23.54         | 0.71         |   | n/a  | Angola                     | n/a   | n/a           | n/a          |   |
| 31   | Uruguay                    | 2.98  | 19.79         | 0.70         |   | n/a  | Bahrain                    | n/a   | n/a           | n/a          |   |
| 32   | Czech Republic             | 2.96  | 19.66         | 0.69         |   | n/a  | Barbados                   | n/a   | n/a           | n/a          |   |
| 33   | Israel                     | 2.96  | 19.65         | 0.68         |   | n/a  | Benin                      | n/a   | n/a           | n/a          |   |
| 34   | France                     | 2.88  | 19.10         | 0.67         |   | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |   |
| 35   | Croatia                    | 2.82  | 18.72         | 0.66         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 36   | Spain                      | 2.71  | 18.01         | 0.65         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 37   | Switzerland                | 2.53  | 16.81         | 0.64         |   | n/a  | Cambodia                   | n/a   | n/a           | n/a          |   |
| 38   | Belgium                    | 2.48  | 16.45         | 0.63         |   | n/a  | Cameroon                   | n/a   | n/a           | n/a          |   |
| 39   | Finland                    | 2.32  | 15.37         | 0.62         |   | n/a  | China                      | n/a   | n/a           | n/a          |   |
| 40   | Malaysia                   | 2.28  | 15.12         | 0.61         |   | n/a  | Côte d'Ivoire              | n/a   | n/a           | n/a          |   |
| 41   | Brazil                     | 2.17  | 14.38         | 0.60         |   | n/a  | Ecuador                    | n/a   | n/a           | n/a          |   |
| 42   | Korea, Rep.                | 2.03  | 13.46         | 0.59         |   | n/a  | Egypt                      | n/a   | n/a           | n/a          |   |
| 43   | Colombia                   | 2.00  | 13.27         | 0.58         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 44   | Italy                      | 1.91  | 12.65         | 0.57         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 45   | Qatar                      | 1.74  | 11.52         | 0.56         |   | n/a  | Ghana                      | n/a   | n/a           | n/a          |   |
| 46   | Kazakhstan                 | 1.71  | 11.37         | 0.55         |   | n/a  | Greece                     | n/a   | n/a           | n/a          |   |
| 47   | Serbia                     | 1.68  | 11.12         | 0.54         |   | n/a  | Guyana                     | n/a   | n/a           | n/a          |   |
| 48   | Armenia                    | 1.55  | 10.28         | 0.53         |   | n/a  | Honduras                   | n/a   | n/a           | n/a          |   |
| 49   | Lesotho                    | 1.49  | 9.86          | 0.52         | ● | n/a  | Iran, Islamic Rep.         | n/a   | n/a           | n/a          |   |
| 50   | United Arab Emirates       | 1.38  | 9.14          | 0.51         |   | n/a  | Kuwait                     | n/a   | n/a           | n/a          |   |
| 51   | Zambia                     | 1.36  | 9.01          | 0.50         |   | n/a  | Lebanon                    | n/a   | n/a           | n/a          |   |
| 52   | Germany                    | 1.29  | 8.55          | 0.50         |   | n/a  | Mali                       | n/a   | n/a           | n/a          |   |
| 53   | Uganda                     | 1.17  | 7.74          | 0.49         |   | n/a  | Mongolia                   | n/a   | n/a           | n/a          |   |
| 54   | Japan                      | 1.15  | 7.64          | 0.48         |   | n/a  | Mozambique                 | n/a   | n/a           | n/a          |   |
| 55   | Belarus                    | 1.14  | 7.56          | 0.47         |   | n/a  | Myanmar                    | n/a   | n/a           | n/a          |   |
| 56   | Jamaica                    | 1.11  | 7.39          | 0.46         |   | n/a  | Nicaragua                  | n/a   | n/a           | n/a          |   |
| 57   | Rwanda                     | 1.07  | 7.12          | 0.45         |   | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 58   | Canada                     | 1.07  | 7.11          | 0.44         | ○ | n/a  | Paraguay                   | n/a   | n/a           | n/a          |   |
| 59   | Dominican Republic         | 1.05  | 6.94          | 0.43         |   | n/a  | Romania                    | n/a   | n/a           | n/a          |   |
| 60   | Jordan                     | 0.98  | 6.51          | 0.42         |   | n/a  | Saudi Arabia               | n/a   | n/a           | n/a          |   |
| 61   | Kyrgyzstan                 | 0.92  | 6.12          | 0.41         |   | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 62   | Ukraine                    | 0.92  | 6.12          | 0.40         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |   |
| 63   | Nigeria                    | 0.91  | 6.01          | 0.39         |   | n/a  | Swaziland                  | n/a   | n/a           | n/a          |   |
| 64   | Mexico                     | 0.88  | 5.82          | 0.38         |   | n/a  | Tanzania, United Rep.      | n/a   | n/a           | n/a          |   |
| 65   | Albania                    | 0.88  | 5.81          | 0.37         |   | n/a  | Trinidad and Tobago        | n/a   | n/a           | n/a          |   |
| 66   | Thailand                   | 0.86  | 5.68          | 0.36         |   | n/a  | United States of America   | n/a   | n/a           | n/a          |   |
| 67   | Namibia                    | 0.85  | 5.67          | 0.35         |   | n/a  | Venezuela, Bolivarian Rep. | n/a   | n/a           | n/a          |   |
| 68   | Turkey                     | 0.79  | 5.22          | 0.34         |   | n/a  | Viet Nam                   | n/a   | n/a           | n/a          |   |
| 69   | Bosnia and Herzegovina     | 0.70  | 4.64          | 0.33         |   | n/a  | Yemen                      | n/a   | n/a           | n/a          |   |
| 70   | Azerbaijan                 | 0.70  | 4.62          | 0.32         |   | n/a  | Zimbabwe                   | n/a   | n/a           | n/a          |   |
| 71   | Nepal                      | 0.66  | 4.37          | 0.31         |   |      |                            |       |               |              |   |
| 72   | Uzbekistan                 | 0.64  | 4.27          | 0.30         |   |      |                            |       |               |              |   |
| 73   | Bolivia, Plurinational St. | 0.56  | 3.73          | 0.29         |   |      |                            |       |               |              |   |

SOURCE: World Bank, *Doing Business 2014, Entrepreneurship* (2007–12)

NOTE: ● indicates a strength; ○ a weakness.



## 6.2.3 Total computer software spending

### Total computer software spending (% of GDP) | 2012

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy        | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|------------------------|-------|---------------|--------------|---|
| 1    | United States of America   | 0.97  | 100.00        | 1.00         | ● | 74   | India                  | 0.15  | 0.00          | 0.00         | ○ |
| 2    | Ireland                    | 0.79  | 77.64         | 0.99         | ● | n/a  | Albania                | n/a   | n/a           | n/a          |   |
| 3    | Switzerland                | 0.77  | 75.68         | 0.97         |   | n/a  | Algeria                | n/a   | n/a           | n/a          |   |
| 4    | Canada                     | 0.75  | 72.62         | 0.96         | ● | n/a  | Angola                 | n/a   | n/a           | n/a          |   |
| 5    | Netherlands                | 0.71  | 68.26         | 0.95         |   | n/a  | Armenia                | n/a   | n/a           | n/a          |   |
| 6    | United Kingdom             | 0.70  | 66.84         | 0.93         |   | n/a  | Azerbaijan             | n/a   | n/a           | n/a          |   |
| 7    | Belgium                    | 0.69  | 65.70         | 0.92         | ● | n/a  | Barbados               | n/a   | n/a           | n/a          |   |
| 8    | Portugal                   | 0.66  | 62.08         | 0.90         | ● | n/a  | Belarus                | n/a   | n/a           | n/a          |   |
| 9    | Turkey                     | 0.65  | 61.02         | 0.89         | ● | n/a  | Benin                  | n/a   | n/a           | n/a          |   |
| 10   | Spain                      | 0.65  | 60.70         | 0.88         | ● | n/a  | Bhutan                 | n/a   | n/a           | n/a          |   |
| 11   | France                     | 0.63  | 58.55         | 0.86         |   | n/a  | Bosnia and Herzegovina | n/a   | n/a           | n/a          |   |
| 12   | Italy                      | 0.61  | 56.48         | 0.85         |   | n/a  | Botswana               | n/a   | n/a           | n/a          |   |
| 13   | Austria                    | 0.61  | 56.32         | 0.84         |   | n/a  | Brunei Darussalam      | n/a   | n/a           | n/a          |   |
| 14   | Denmark                    | 0.61  | 56.21         | 0.82         |   | n/a  | Burkina Faso           | n/a   | n/a           | n/a          |   |
| 15   | Greece                     | 0.61  | 55.96         | 0.81         |   | n/a  | Burundi                | n/a   | n/a           | n/a          |   |
| 16   | Germany                    | 0.61  | 55.63         | 0.79         |   | n/a  | Cabo Verde             | n/a   | n/a           | n/a          |   |
| 17   | Finland                    | 0.60  | 54.88         | 0.78         |   | n/a  | Cambodia               | n/a   | n/a           | n/a          |   |
| 18   | Norway                     | 0.59  | 53.86         | 0.77         |   | n/a  | Côte d'Ivoire          | n/a   | n/a           | n/a          |   |
| 19   | Sweden                     | 0.59  | 53.59         | 0.75         |   | n/a  | Croatia                | n/a   | n/a           | n/a          |   |
| 20   | Zimbabwe                   | 0.48  | 39.88         | 0.74         | ● | n/a  | Cyprus                 | n/a   | n/a           | n/a          |   |
| 21   | Indonesia                  | 0.45  | 36.64         | 0.73         | ● | n/a  | Dominican Republic     | n/a   | n/a           | n/a          |   |
| 22   | Hong Kong (China)          | 0.40  | 30.52         | 0.71         |   | n/a  | El Salvador            | n/a   | n/a           | n/a          |   |
| 23   | Malaysia                   | 0.39  | 28.80         | 0.70         |   | n/a  | Estonia                | n/a   | n/a           | n/a          |   |
| 24   | China                      | 0.37  | 27.25         | 0.68         |   | n/a  | Ethiopia               | n/a   | n/a           | n/a          |   |
| 25   | South Africa               | 0.37  | 27.14         | 0.67         |   | n/a  | Fiji                   | n/a   | n/a           | n/a          |   |
| 26   | Singapore                  | 0.37  | 26.39         | 0.66         |   | n/a  | Gambia                 | n/a   | n/a           | n/a          |   |
| 27   | Bahrain                    | 0.35  | 24.60         | 0.64         |   | n/a  | Georgia                | n/a   | n/a           | n/a          |   |
| 28   | Jamaica                    | 0.35  | 24.44         | 0.63         |   | n/a  | Ghana                  | n/a   | n/a           | n/a          |   |
| 29   | Israel                     | 0.35  | 24.39         | 0.62         |   | n/a  | Guatemala              | n/a   | n/a           | n/a          |   |
| 30   | Korea, Rep.                | 0.34  | 23.91         | 0.60         |   | n/a  | Guinea                 | n/a   | n/a           | n/a          |   |
| 31   | Australia                  | 0.34  | 23.50         | 0.59         |   | n/a  | Guyana                 | n/a   | n/a           | n/a          |   |
| 32   | Thailand                   | 0.34  | 23.31         | 0.58         |   | n/a  | Iceland                | n/a   | n/a           | n/a          |   |
| 33   | Tunisia                    | 0.32  | 21.22         | 0.56         |   | n/a  | Kazakhstan             | n/a   | n/a           | n/a          |   |
| 34   | Czech Republic             | 0.32  | 21.14         | 0.55         |   | n/a  | Kyrgyzstan             | n/a   | n/a           | n/a          |   |
| 35   | Romania                    | 0.32  | 20.62         | 0.53         |   | n/a  | Latvia                 | n/a   | n/a           | n/a          |   |
| 36   | Jordan                     | 0.31  | 19.98         | 0.52         |   | n/a  | Lebanon                | n/a   | n/a           | n/a          |   |
| 37   | Sri Lanka                  | 0.31  | 19.97         | 0.51         |   | n/a  | Lesotho                | n/a   | n/a           | n/a          |   |
| 38   | Hungary                    | 0.31  | 19.96         | 0.49         |   | n/a  | Lithuania              | n/a   | n/a           | n/a          |   |
| 39   | New Zealand                | 0.31  | 19.88         | 0.48         | ○ | n/a  | Luxembourg             | n/a   | n/a           | n/a          |   |
| 40   | Bulgaria                   | 0.31  | 19.76         | 0.47         |   | n/a  | Madagascar             | n/a   | n/a           | n/a          |   |
| 41   | Saudi Arabia               | 0.31  | 19.72         | 0.45         |   | n/a  | Malawi                 | n/a   | n/a           | n/a          |   |
| 42   | Viet Nam                   | 0.31  | 19.67         | 0.44         |   | n/a  | Mali                   | n/a   | n/a           | n/a          |   |
| 43   | Ukraine                    | 0.30  | 18.52         | 0.42         |   | n/a  | Malta                  | n/a   | n/a           | n/a          |   |
| 44   | Costa Rica                 | 0.29  | 17.80         | 0.41         |   | n/a  | Mauritius              | n/a   | n/a           | n/a          |   |
| 45   | Kuwait                     | 0.29  | 17.65         | 0.40         |   | n/a  | Moldova, Rep.          | n/a   | n/a           | n/a          |   |
| 46   | Honduras                   | 0.29  | 17.31         | 0.38         |   | n/a  | Mongolia               | n/a   | n/a           | n/a          |   |
| 47   | Japan                      | 0.29  | 17.23         | 0.37         | ○ | n/a  | Montenegro             | n/a   | n/a           | n/a          |   |
| 48   | Poland                     | 0.29  | 16.88         | 0.36         |   | n/a  | Mozambique             | n/a   | n/a           | n/a          |   |
| 49   | Slovakia                   | 0.28  | 16.61         | 0.34         |   | n/a  | Myanmar                | n/a   | n/a           | n/a          |   |
| 50   | Senegal                    | 0.28  | 15.93         | 0.33         |   | n/a  | Namibia                | n/a   | n/a           | n/a          |   |
| 51   | Chile                      | 0.28  | 15.77         | 0.32         | ○ | n/a  | Nepal                  | n/a   | n/a           | n/a          |   |
| 52   | Brazil                     | 0.28  | 15.76         | 0.30         |   | n/a  | Nicaragua              | n/a   | n/a           | n/a          |   |
| 53   | Philippines                | 0.27  | 15.03         | 0.29         |   | n/a  | Niger                  | n/a   | n/a           | n/a          |   |
| 54   | Kenya                      | 0.27  | 14.71         | 0.27         |   | n/a  | Oman                   | n/a   | n/a           | n/a          |   |
| 55   | Pakistan                   | 0.26  | 14.12         | 0.26         |   | n/a  | Paraguay               | n/a   | n/a           | n/a          |   |
| 56   | Uruguay                    | 0.26  | 14.09         | 0.25         |   | n/a  | Rwanda                 | n/a   | n/a           | n/a          |   |
| 57   | Morocco                    | 0.26  | 14.08         | 0.23         |   | n/a  | Serbia                 | n/a   | n/a           | n/a          |   |
| 58   | Russian Federation         | 0.26  | 13.90         | 0.22         | ○ | n/a  | Seychelles             | n/a   | n/a           | n/a          |   |
| 59   | United Arab Emirates       | 0.26  | 13.61         | 0.21         | ○ | n/a  | Slovenia               | n/a   | n/a           | n/a          |   |
| 60   | Panama                     | 0.26  | 13.23         | 0.19         |   | n/a  | Sudan                  | n/a   | n/a           | n/a          |   |
| 61   | Peru                       | 0.26  | 13.11         | 0.18         |   | n/a  | Swaziland              | n/a   | n/a           | n/a          |   |
| 62   | Bolivia, Plurinational St. | 0.25  | 12.69         | 0.16         | ○ | n/a  | Tajikistan             | n/a   | n/a           | n/a          |   |
| 63   | Argentina                  | 0.25  | 12.27         | 0.15         |   | n/a  | Tanzania, United Rep.  | n/a   | n/a           | n/a          |   |
| 64   | Egypt                      | 0.25  | 11.92         | 0.14         |   | n/a  | TFYR of Macedonia      | n/a   | n/a           | n/a          |   |
| 65   | Colombia                   | 0.24  | 11.72         | 0.12         | ○ | n/a  | Togo                   | n/a   | n/a           | n/a          |   |
| 66   | Iran, Islamic Rep.         | 0.24  | 11.45         | 0.11         |   | n/a  | Trinidad and Tobago    | n/a   | n/a           | n/a          |   |
| 67   | Qatar                      | 0.24  | 11.16         | 0.10         | ○ | n/a  | Uganda                 | n/a   | n/a           | n/a          |   |
| 68   | Mexico                     | 0.23  | 10.48         | 0.08         | ○ | n/a  | Uzbekistan             | n/a   | n/a           | n/a          |   |
| 69   | Venezuela, Bolivarian Rep. | 0.23  | 9.84          | 0.07         | ○ | n/a  | Yemen                  | n/a   | n/a           | n/a          |   |
| 70   | Ecuador                    | 0.23  | 9.70          | 0.05         | ○ | n/a  | Zambia                 | n/a   | n/a           | n/a          |   |
| 71   | Nigeria                    | 0.22  | 8.88          | 0.04         | ○ |      |                        |       |               |              |   |
| 72   | Cameroon                   | 0.19  | 5.24          | 0.03         | ○ |      |                        |       |               |              |   |
| 73   | Bangladesh                 | 0.17  | 2.93          | 0.01         | ○ |      |                        |       |               |              |   |

SOURCE: IHS Global Insight, *Information and Communication Technology Database*; International Monetary Fund *World Economic Outlook 2013* (current US\$ GDP)

NOTE: ● indicates a strength; ○ a weakness.

# 6.2.4 ISO 9001 quality certificates

ISO 9001 Quality management systems - Requirements: Number of certificates issued (per billion PPP\$ GDP) | 2012

| Rank | Country/Economy        | Value | Score (0-100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0-100) | Percent rank |   |
|------|------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Bulgaria               | 59.30 | 100.00        | 0.98         | ● | 74   | Costa Rica                 | 4.05  | 9.21          | 0.48         |   |
| 1    | Italy                  | 75.77 | 100.00        | 0.98         | ● | 75   | Oman                       | 4.01  | 9.12          | 0.48         |   |
| 1    | Romania                | 67.78 | 100.00        | 0.98         | ● | 76   | Luxembourg                 | 3.94  | 8.96          | 0.47         |   |
| 1    | Spain                  | 42.82 | 100.00        | 0.98         | ● | 77   | Seychelles                 | 3.92  | 8.91          | 0.46         |   |
| 5    | Malta                  | 39.50 | 92.21         | 0.97         | ● | 78   | Pakistan                   | 3.90  | 8.86          | 0.45         |   |
| 6    | Serbia                 | 39.40 | 91.98         | 0.96         | ● | 79   | Honduras                   | 3.69  | 8.38          | 0.45         |   |
| 7    | Bosnia and Herzegovina | 39.25 | 91.64         | 0.96         | ● | 80   | Morocco                    | 3.64  | 8.24          | 0.44         |   |
| 8    | Czech Republic         | 37.65 | 87.90         | 0.95         | ● | 81   | Bolivia, Plurinational St. | 3.42  | 7.75          | 0.43         |   |
| 9    | Hungary                | 37.52 | 87.59         | 0.94         | ● | 82   | Ukraine                    | 3.29  | 7.44          | 0.43         |   |
| 10   | Croatia                | 33.70 | 78.65         | 0.94         | ● | 83   | Swaziland                  | 3.24  | 7.32          | 0.42         |   |
| 11   | Slovakia               | 32.83 | 76.60         | 0.93         | ● | 84   | Brunei Darussalam          | 3.24  | 7.31          | 0.41         |   |
| 12   | Switzerland            | 32.17 | 75.05         | 0.92         |   | 85   | Mexico                     | 3.06  | 6.90          | 0.40         |   |
| 13   | Israel                 | 31.96 | 74.56         | 0.91         |   | 86   | Fiji                       | 3.05  | 6.88          | 0.40         |   |
| 14   | Estonia                | 30.25 | 70.57         | 0.91         | ● | 87   | Georgia                    | 3.01  | 6.77          | 0.39         |   |
| 15   | Slovenia               | 28.21 | 65.78         | 0.90         |   | 88   | Peru                       | 2.87  | 6.46          | 0.38         |   |
| 16   | China                  | 27.24 | 63.52         | 0.89         |   | 89   | Iran, Islamic Rep.         | 2.81  | 6.31          | 0.38         |   |
| 17   | Portugal               | 27.22 | 63.46         | 0.89         | ● | 90   | Kuwait                     | 2.79  | 6.26          | 0.37         |   |
| 18   | Malaysia               | 23.74 | 55.33         | 0.88         |   | 91   | Qatar                      | 2.71  | 6.09          | 0.36         |   |
| 19   | TFYR of Macedonia      | 22.29 | 51.92         | 0.87         | ● | 92   | Saudi Arabia               | 2.48  | 5.53          | 0.35         |   |
| 20   | Latvia                 | 21.45 | 49.97         | 0.87         | ● | 93   | Kazakhstan                 | 2.47  | 5.50          | 0.35         |   |
| 21   | Colombia               | 19.88 | 46.27         | 0.86         | ● | 94   | Guatemala                  | 2.33  | 5.18          | 0.34         |   |
| 22   | United Kingdom         | 19.31 | 44.96         | 0.85         |   | 95   | Zimbabwe                   | 2.23  | 4.96          | 0.33         |   |
| 23   | Viet Nam               | 18.27 | 42.52         | 0.84         | ● | 96   | Benin                      | 2.11  | 4.67          | 0.33         |   |
| 24   | Lithuania              | 18.11 | 42.15         | 0.84         | ● | 97   | Guinea                     | 2.08  | 4.59          | 0.32         | ● |
| 25   | Singapore              | 18.01 | 41.90         | 0.83         |   | 98   | Madagascar                 | 1.98  | 4.38          | 0.31         |   |
| 26   | Greece                 | 17.79 | 41.39         | 0.82         |   | 99   | Panama                     | 1.97  | 4.33          | 0.30         |   |
| 27   | Bahrain                | 17.41 | 40.50         | 0.82         |   | 100  | Dominican Republic         | 1.92  | 4.24          | 0.30         |   |
| 28   | Netherlands            | 16.41 | 38.16         | 0.81         |   | 101  | Azerbaijan                 | 1.92  | 4.23          | 0.29         |   |
| 29   | Germany                | 16.36 | 38.03         | 0.80         |   | 102  | Togo                       | 1.89  | 4.16          | 0.28         |   |
| 30   | Korea, Rep.            | 16.09 | 37.41         | 0.79         |   | 103  | Uzbekistan                 | 1.84  | 4.04          | 0.28         |   |
| 31   | Austria                | 14.89 | 34.59         | 0.79         |   | 104  | Senegal                    | 1.83  | 4.01          | 0.27         |   |
| 32   | France                 | 14.13 | 32.83         | 0.78         |   | 105  | Trinidad and Tobago        | 1.82  | 4.00          | 0.26         |   |
| 33   | Montenegro             | 14.13 | 32.82         | 0.77         | ● | 106  | Nicaragua                  | 1.74  | 3.81          | 0.26         |   |
| 34   | Uruguay                | 13.82 | 32.08         | 0.77         | ● | 107  | Namibia                    | 1.72  | 3.77          | 0.25         |   |
| 35   | Thailand               | 13.50 | 31.35         | 0.76         |   | 108  | Mozambique                 | 1.70  | 3.70          | 0.24         |   |
| 36   | Denmark                | 13.35 | 30.98         | 0.75         |   | 109  | Bhutan                     | 1.64  | 3.57          | 0.23         |   |
| 37   | Poland                 | 12.76 | 29.61         | 0.74         |   | 110  | United States of America   | 1.61  | 3.50          | 0.23         | ○ |
| 38   | Cyprus                 | 12.67 | 29.40         | 0.74         |   | 111  | Zambia                     | 1.60  | 3.49          | 0.22         |   |
| 39   | United Arab Emirates   | 12.62 | 29.29         | 0.73         |   | 112  | Algeria                    | 1.57  | 3.40          | 0.21         |   |
| 40   | Sweden                 | 12.58 | 29.19         | 0.72         |   | 113  | Venezuela, Bolivarian Rep. | 1.56  | 3.39          | 0.21         |   |
| 41   | Chile                  | 12.58 | 29.18         | 0.72         |   | 114  | Côte d'Ivoire              | 1.55  | 3.37          | 0.20         |   |
| 42   | Ireland                | 12.49 | 28.97         | 0.71         |   | 115  | Guyana                     | 1.46  | 3.14          | 0.19         |   |
| 43   | Finland                | 12.38 | 28.72         | 0.70         |   | 116  | Malawi                     | 1.42  | 3.05          | 0.18         |   |
| 44   | Mauritius              | 12.01 | 27.85         | 0.70         |   | 117  | Armenia                    | 1.34  | 2.86          | 0.18         | ○ |
| 45   | Brazil                 | 11.07 | 25.65         | 0.69         |   | 118  | Burkina Faso               | 1.26  | 2.69          | 0.17         |   |
| 46   | Japan                  | 11.00 | 25.49         | 0.68         |   | 119  | Nepal                      | 1.22  | 2.60          | 0.16         |   |
| 47   | Moldova, Rep.          | 10.89 | 25.24         | 0.67         |   | 120  | Belarus                    | 1.17  | 2.47          | 0.16         | ○ |
| 48   | Hong Kong (China)      | 10.14 | 23.48         | 0.67         |   | 121  | Jamaica                    | 1.05  | 2.20          | 0.15         | ○ |
| 49   | Australia              | 9.56  | 22.11         | 0.66         |   | 122  | Sudan                      | 0.98  | 2.03          | 0.14         |   |
| 50   | Jordan                 | 9.52  | 22.02         | 0.65         |   | 123  | Gambia                     | 0.88  | 1.79          | 0.13         |   |
| 51   | Belgium                | 9.42  | 21.79         | 0.65         |   | 124  | Bangladesh                 | 0.85  | 1.73          | 0.13         |   |
| 52   | Argentina              | 8.98  | 20.77         | 0.64         |   | 125  | Cameroon                   | 0.76  | 1.51          | 0.12         |   |
| 53   | Lebanon                | 8.30  | 19.18         | 0.63         |   | 126  | Mongolia                   | 0.73  | 1.45          | 0.11         | ○ |
| 54   | New Zealand            | 7.51  | 17.32         | 0.62         |   | 127  | Tanzania, United Rep.      | 0.66  | 1.27          | 0.11         |   |
| 55   | Turkey                 | 7.00  | 16.11         | 0.62         |   | 128  | Ethiopia                   | 0.62  | 1.19          | 0.10         |   |
| 56   | South Africa           | 6.80  | 15.66         | 0.61         |   | 129  | Ghana                      | 0.50  | 0.89          | 0.09         | ○ |
| 57   | Barbados               | 6.32  | 14.53         | 0.60         |   | 130  | Botswana                   | 0.50  | 0.89          | 0.09         | ○ |
| 58   | Ecuador                | 6.31  | 14.50         | 0.60         |   | 131  | Niger                      | 0.46  | 0.81          | 0.08         |   |
| 59   | India                  | 6.24  | 14.33         | 0.59         |   | 132  | Kyrgyzstan                 | 0.46  | 0.80          | 0.07         |   |
| 60   | Kenya                  | 6.13  | 14.09         | 0.58         |   | 133  | Yemen                      | 0.45  | 0.78          | 0.06         |   |
| 61   | Albania                | 5.94  | 13.64         | 0.57         |   | 134  | Myanmar                    | 0.44  | 0.76          | 0.06         |   |
| 62   | Norway                 | 5.80  | 13.31         | 0.57         | ○ | 135  | Cambodia                   | 0.36  | 0.56          | 0.05         |   |
| 63   | Paraguay               | 5.61  | 12.88         | 0.56         |   | 136  | Uganda                     | 0.33  | 0.52          | 0.04         | ○ |
| 64   | Russian Federation     | 5.02  | 11.50         | 0.55         |   | 137  | Angola                     | 0.27  | 0.36          | 0.04         |   |
| 65   | Tunisia                | 4.91  | 11.24         | 0.55         |   | 138  | Lesotho                    | 0.25  | 0.31          | 0.03         | ○ |
| 66   | Canada                 | 4.69  | 10.71         | 0.54         | ○ | 139  | Mali                       | 0.22  | 0.26          | 0.02         | ○ |
| 67   | Philippines            | 4.54  | 10.36         | 0.53         |   | 140  | Tajikistan                 | 0.17  | 0.13          | 0.01         | ○ |
| 68   | Indonesia              | 4.48  | 10.22         | 0.52         |   | 141  | Rwanda                     | 0.13  | 0.04          | 0.01         | ○ |
| 69   | Egypt                  | 4.46  | 10.18         | 0.52         |   | 142  | Nigeria                    | 0.11  | 0.00          | 0.00         | ○ |
| 70   | Iceland                | 4.33  | 9.88          | 0.51         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 71   | Sri Lanka              | 4.24  | 9.65          | 0.50         |   |      |                            |       |               |              |   |
| 72   | Cabo Verde             | 4.17  | 9.49          | 0.50         |   |      |                            |       |               |              |   |
| 73   | El Salvador            | 4.06  | 9.23          | 0.49         |   |      |                            |       |               |              |   |

SOURCE: International Organization for Standardization, *The ISO Survey of Certifications, 2012*; International Monetary Fund *World Economic Outlook 2013* (2010–12)

NOTE: ● indicates a strength; ○ a weakness.

# 6.2.5 High-tech and medium-high-tech output

## High-tech and medium-high-tech output (% of total manufactures output) | 2010

II: Data Tables

| Rank | Country/Economy                 | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy              | Value | Score (0–100) | Percent rank |   |
|------|---------------------------------|-------|---------------|--------------|---|------|------------------------------|-------|---------------|--------------|---|
| 1    | Singapore                       | 70.00 | 100.00        | 1.00         | ● | 74   | Tanzania, United Rep. (2008) | 10.54 | 13.63         | 0.23         |   |
| 2    | Switzerland (2007)              | 63.22 | 90.16         | 0.99         | ● | 75   | Peru                         | 10.02 | 12.88         | 0.22         |   |
| 3    | Ireland (2009)                  | 62.26 | 88.76         | 0.98         | ● | 76   | Kuwait                       | 9.99  | 12.84         | 0.21         |   |
| 4    | Hungary (2009)                  | 56.41 | 80.26         | 0.97         | ● | 77   | Kenya                        | 9.86  | 12.64         | 0.20         |   |
| 5    | Slovakia (2009)                 | 54.87 | 78.03         | 0.96         | ● | 78   | Sri Lanka                    | 8.85  | 11.19         | 0.19         |   |
| 6    | Germany (2009)                  | 53.64 | 76.24         | 0.95         | ● | 79   | Azerbaijan                   | 8.40  | 10.53         | 0.18         |   |
| 7    | Malta (2008)                    | 53.35 | 75.83         | 0.94         | ● | 80   | Moldova, Rep.                | 8.21  | 10.26         | 0.17         | ○ |
| 8    | Japan                           | 51.96 | 73.80         | 0.93         |   | 81   | Malawi (2009)                | 7.94  | 9.86          | 0.16         |   |
| 9    | Korea, Rep. (2008)              | 48.88 | 69.32         | 0.92         |   | 82   | Iceland (2006)               | 7.13  | 8.69          | 0.15         | ○ |
| 10   | Czech Republic (2007)           | 48.77 | 69.16         | 0.91         | ● | 83   | Fiji (2009)                  | 6.87  | 8.31          | 0.14         | ○ |
| 11   | Sweden (2009)                   | 47.76 | 67.69         | 0.89         |   | 84   | Kazakhstan (2007)            | 6.84  | 8.26          | 0.13         | ○ |
| 12   | Slovenia                        | 46.34 | 65.64         | 0.88         |   | 85   | Panama (2005)                | 5.23  | 5.92          | 0.12         | ○ |
| 13   | Finland (2009)                  | 44.97 | 63.65         | 0.87         |   | 86   | Cameroon (2008)              | 5.13  | 5.78          | 0.11         |   |
| 14   | Denmark (2009)                  | 44.75 | 63.33         | 0.86         |   | 87   | Armenia                      | 4.95  | 5.52          | 0.09         | ○ |
| 15   | Thailand (2006)                 | 43.88 | 62.06         | 0.85         |   | 88   | Mongolia (2008)              | 4.21  | 4.44          | 0.08         | ○ |
| 16   | China                           | 43.59 | 61.64         | 0.84         |   | 89   | Mauritius                    | 3.33  | 3.16          | 0.07         | ○ |
| 17   | United States of America (2008) | 43.27 | 61.17         | 0.83         |   | 90   | Kyrgyzstan                   | 3.26  | 3.06          | 0.06         | ○ |
| 18   | France (2009)                   | 42.57 | 60.17         | 0.82         |   | 91   | Yemen (2006)                 | 2.94  | 2.59          | 0.05         |   |
| 19   | Malaysia                        | 41.00 | 57.88         | 0.81         |   | 92   | Luxembourg (2009)            | 2.74  | 2.31          | 0.04         | ○ |
| 20   | Mexico                          | 40.32 | 56.90         | 0.80         | ● | 93   | Madagascar (2006)            | 2.42  | 1.84          | 0.03         | ○ |
| 21   | Brazil                          | 39.57 | 55.81         | 0.79         | ● | 94   | Tajikistan (2008)            | 2.40  | 1.81          | 0.02         | ○ |
| 22   | Austria (2009)                  | 38.10 | 53.67         | 0.78         |   | 95   | Nepal (2008)                 | 1.36  | 0.30          | 0.01         | ○ |
| 23   | United Kingdom (2009)           | 37.95 | 53.45         | 0.77         |   | 96   | Albania                      | 1.15  | 0.00          | 0.00         | ○ |
| 24   | Netherlands (2008)              | 36.69 | 51.62         | 0.76         |   | n/a  | Algeria                      | n/a   | n/a           | n/a          |   |
| 25   | Iran, Islamic Rep. (2009)       | 36.30 | 51.06         | 0.75         | ● | n/a  | Angola                       | n/a   | n/a           | n/a          |   |
| 26   | Italy (2009)                    | 36.23 | 50.95         | 0.74         |   | n/a  | Argentina                    | n/a   | n/a           | n/a          |   |
| 27   | Romania                         | 34.99 | 49.15         | 0.73         |   | n/a  | Bahrain                      | n/a   | n/a           | n/a          |   |
| 28   | Spain (2009)                    | 34.48 | 48.41         | 0.72         |   | n/a  | Bangladesh                   | n/a   | n/a           | n/a          |   |
| 29   | Belgium (2009)                  | 34.21 | 48.02         | 0.71         |   | n/a  | Barbados                     | n/a   | n/a           | n/a          |   |
| 30   | Poland (2009)                   | 33.83 | 47.47         | 0.69         |   | n/a  | Benin                        | n/a   | n/a           | n/a          |   |
| 31   | Israel (2009)                   | 32.86 | 46.05         | 0.68         |   | n/a  | Bhutan                       | n/a   | n/a           | n/a          |   |
| 32   | Indonesia (2009)                | 32.04 | 44.87         | 0.67         |   | n/a  | Bolivia, Plurinational St.   | n/a   | n/a           | n/a          |   |
| 33   | India (2009)                    | 31.76 | 44.46         | 0.66         |   | n/a  | Bosnia and Herzegovina       | n/a   | n/a           | n/a          |   |
| 34   | Estonia                         | 31.40 | 43.93         | 0.65         |   | n/a  | Botswana                     | n/a   | n/a           | n/a          |   |
| 35   | Saudi Arabia (2006)             | 30.36 | 42.43         | 0.64         |   | n/a  | Brunei Darussalam            | n/a   | n/a           | n/a          |   |
| 36   | Belarus (2009)                  | 28.71 | 40.03         | 0.63         |   | n/a  | Burkina Faso                 | n/a   | n/a           | n/a          |   |
| 37   | Canada                          | 28.68 | 39.98         | 0.62         |   | n/a  | Burundi                      | n/a   | n/a           | n/a          |   |
| 38   | South Africa                    | 28.24 | 39.35         | 0.61         |   | n/a  | Cabo Verde                   | n/a   | n/a           | n/a          |   |
| 39   | Morocco                         | 27.43 | 38.17         | 0.60         |   | n/a  | Cambodia                     | n/a   | n/a           | n/a          |   |
| 40   | Turkey (2009)                   | 27.23 | 37.88         | 0.59         |   | n/a  | Côte d'Ivoire                | n/a   | n/a           | n/a          |   |
| 41   | Viet Nam (2008)                 | 26.17 | 36.33         | 0.58         |   | n/a  | Croatia                      | n/a   | n/a           | n/a          |   |
| 42   | Portugal (2009)                 | 24.73 | 34.25         | 0.57         |   | n/a  | Dominican Republic           | n/a   | n/a           | n/a          |   |
| 43   | Trinidad and Tobago (2006)      | 24.11 | 33.35         | 0.56         |   | n/a  | El Salvador                  | n/a   | n/a           | n/a          |   |
| 44   | Russian Federation              | 23.88 | 33.02         | 0.55         |   | n/a  | Ghana                        | n/a   | n/a           | n/a          |   |
| 45   | Pakistan (2006)                 | 23.71 | 32.77         | 0.54         |   | n/a  | Guatemala                    | n/a   | n/a           | n/a          |   |
| 46   | Hong Kong (China)               | 23.51 | 32.48         | 0.53         |   | n/a  | Guinea                       | n/a   | n/a           | n/a          |   |
| 47   | Colombia                        | 22.05 | 30.36         | 0.52         |   | n/a  | Guyana                       | n/a   | n/a           | n/a          |   |
| 48   | Lebanon (2007)                  | 22.00 | 30.28         | 0.51         |   | n/a  | Honduras                     | n/a   | n/a           | n/a          |   |
| 49   | Chile (2008)                    | 21.73 | 29.89         | 0.49         |   | n/a  | Jamaica                      | n/a   | n/a           | n/a          |   |
| 50   | Ukraine                         | 21.67 | 29.81         | 0.48         |   | n/a  | Lesotho                      | n/a   | n/a           | n/a          |   |
| 51   | Norway (2008)                   | 21.65 | 29.77         | 0.47         | ○ | n/a  | Mali                         | n/a   | n/a           | n/a          |   |
| 52   | Egypt                           | 21.36 | 29.35         | 0.46         |   | n/a  | Montenegro                   | n/a   | n/a           | n/a          |   |
| 53   | Qatar                           | 20.78 | 28.51         | 0.45         |   | n/a  | Mozambique                   | n/a   | n/a           | n/a          |   |
| 54   | Australia                       | 20.25 | 27.74         | 0.44         | ○ | n/a  | Myanmar                      | n/a   | n/a           | n/a          |   |
| 55   | Jordan                          | 19.83 | 27.13         | 0.43         |   | n/a  | Namibia                      | n/a   | n/a           | n/a          |   |
| 56   | Serbia                          | 19.77 | 27.04         | 0.42         |   | n/a  | Nicaragua                    | n/a   | n/a           | n/a          |   |
| 57   | Lithuania                       | 19.65 | 26.86         | 0.41         |   | n/a  | Niger                        | n/a   | n/a           | n/a          |   |
| 58   | Bulgaria                        | 18.36 | 25.00         | 0.40         |   | n/a  | Nigeria                      | n/a   | n/a           | n/a          |   |
| 59   | Gambia (2004)                   | 16.81 | 22.74         | 0.39         |   | n/a  | Paraguay                     | n/a   | n/a           | n/a          |   |
| 60   | Philippines (2008)              | 16.28 | 21.97         | 0.38         |   | n/a  | Rwanda                       | n/a   | n/a           | n/a          |   |
| 61   | Senegal                         | 15.28 | 20.52         | 0.37         |   | n/a  | Seychelles                   | n/a   | n/a           | n/a          |   |
| 62   | Latvia                          | 15.20 | 20.40         | 0.36         | ○ | n/a  | Sudan                        | n/a   | n/a           | n/a          |   |
| 63   | New Zealand (2009)              | 15.06 | 20.20         | 0.35         | ○ | n/a  | Swaziland                    | n/a   | n/a           | n/a          |   |
| 64   | Oman                            | 14.87 | 19.93         | 0.34         |   | n/a  | Togo                         | n/a   | n/a           | n/a          |   |
| 65   | Greece (2007)                   | 14.08 | 18.77         | 0.33         |   | n/a  | Uganda                       | n/a   | n/a           | n/a          |   |
| 66   | Ecuador (2008)                  | 13.96 | 18.61         | 0.32         |   | n/a  | United Arab Emirates         | n/a   | n/a           | n/a          |   |
| 67   | Cyprus                          | 13.82 | 18.40         | 0.31         |   | n/a  | Uzbekistan                   | n/a   | n/a           | n/a          |   |
| 68   | TFYR of Macedonia               | 13.75 | 18.30         | 0.29         |   | n/a  | Venezuela, Bolivarian Rep.   | n/a   | n/a           | n/a          |   |
| 69   | Georgia                         | 13.24 | 17.56         | 0.28         |   | n/a  | Zambia                       | n/a   | n/a           | n/a          |   |
| 70   | Tunisia (2006)                  | 11.78 | 15.44         | 0.27         |   | n/a  | Zimbabwe                     | n/a   | n/a           | n/a          |   |
| 71   | Uruguay (2008)                  | 11.65 | 15.25         | 0.26         |   |      |                              |       |               |              |   |
| 72   | Costa Rica                      | 11.59 | 15.15         | 0.25         |   |      |                              |       |               |              |   |
| 73   | Ethiopia (2009)                 | 10.87 | 14.11         | 0.24         |   |      |                              |       |               |              |   |

SOURCE: United Nations Industrial Development Organization, *Industrial Statistics Database INDSTAT4 2012*; OECD, 'ISIC Rev. 3 Tech. Intensity Def.' (2004–10)

NOTE: ● indicates a strength; ○ a weakness.

# 6.3.1

## Royalties and license fees receipts

Royalties and license fees, receipts (% of total trade) | 2012

| Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | United States of America          | 5.08  | 100.00        | 1.00         | ● | 74   | Kyrgyzstan (2011)          | 0.03  | 7.37          | 0.35         |   |
| 2    | Switzerland (2011)                | 4.99  | 99.54         | 0.99         | ● | 75   | Albania                    | 0.03  | 6.93          | 0.35         |   |
| 3    | Netherlands                       | 4.69  | 98.01         | 0.98         | ● | 76   | Senegal (2010)             | 0.03  | 6.42          | 0.34         |   |
| 4    | Finland                           | 3.51  | 90.82         | 0.97         |   | 77   | Fiji (2010)                | 0.03  | 6.39          | 0.33         |   |
| 5    | Guyana (2010)                     | 3.38  | 89.89         | 0.96         | ● | 78   | Indonesia                  | 0.03  | 6.04          | 0.32         |   |
| 6    | Japan                             | 3.31  | 89.33         | 0.96         |   | 79   | Lebanon (2011)             | 0.03  | 5.65          | 0.31         |   |
| 7    | Sweden                            | 2.85  | 85.64         | 0.95         |   | 80   | Cyprus (2011)              | 0.03  | 5.59          | 0.30         |   |
| 8    | Iceland (2011)                    | 2.84  | 85.55         | 0.94         |   | 81   | Costa Rica                 | 0.02  | 5.48          | 0.29         |   |
| 9    | Ireland                           | 2.38  | 81.23         | 0.93         |   | 82   | Mongolia                   | 0.02  | 5.42          | 0.28         |   |
| 10   | Paraguay (2011)                   | 2.37  | 81.15         | 0.92         | ● | 83   | Tajikistan (2011)          | 0.02  | 5.35          | 0.27         |   |
| 11   | Rwanda (2011)                     | 2.07  | 77.82         | 0.91         | ● | 84   | Angola (2008)              | 0.02  | 5.10          | 0.27         | ● |
| 12   | France                            | 1.59  | 71.56         | 0.90         | ● | 85   | Sudan (2011)               | 0.02  | 5.09          | 0.26         |   |
| 13   | Denmark                           | 1.54  | 70.66         | 0.89         |   | 86   | Burkina Faso (2010)        | 0.02  | 4.62          | 0.25         |   |
| 14   | United Kingdom                    | 1.45  | 69.27         | 0.88         |   | 87   | Zimbabwe (2011)            | 0.02  | 4.55          | 0.24         |   |
| 15   | Israel                            | 1.25  | 65.88         | 0.88         |   | 88   | Mauritius                  | 0.02  | 4.53          | 0.23         | ○ |
| 16   | Hungary                           | 0.96  | 59.67         | 0.87         | ● | 89   | Pakistan                   | 0.02  | 3.98          | 0.22         |   |
| 17   | Luxembourg                        | 0.85  | 56.98         | 0.86         |   | 90   | Lithuania                  | 0.01  | 3.37          | 0.21         | ○ |
| 18   | Germany                           | 0.80  | 55.56         | 0.85         |   | 91   | Peru (2011)                | 0.01  | 2.69          | 0.20         |   |
| 19   | Belgium                           | 0.66  | 51.29         | 0.84         |   | 92   | Philippines                | 0.01  | 2.67          | 0.19         |   |
| 20   | Canada                            | 0.65  | 50.77         | 0.83         |   | 93   | Swaziland (2010)           | 0.01  | 2.62          | 0.19         |   |
| 21   | Italy                             | 0.64  | 50.36         | 0.82         |   | 94   | Iran, Islamic Rep. (2010)  | 0.01  | 2.05          | 0.18         |   |
| 22   | Korea, Rep.                       | 0.54  | 46.64         | 0.81         |   | 95   | Mali (2010)                | 0.01  | 1.80          | 0.17         |   |
| 23   | Madagascar (2011)                 | 0.51  | 45.62         | 0.81         | ● | 96   | Guinea (2008)              | 0.01  | 1.49          | 0.16         |   |
| 24   | New Zealand                       | 0.46  | 43.31         | 0.80         |   | 97   | Slovakia                   | 0.01  | 1.35          | 0.15         | ○ |
| 25   | Kenya (2011)                      | 0.44  | 42.29         | 0.79         | ● | 98   | Cameroon (2010)            | 0.01  | 1.26          | 0.14         |   |
| 26   | Yemen (2009)                      | 0.40  | 40.40         | 0.78         | ● | 99   | Morocco                    | 0.00  | 1.09          | 0.13         | ○ |
| 27   | Austria                           | 0.37  | 39.12         | 0.77         |   | 100  | Ethiopia (2010)            | 0.00  | 0.83          | 0.12         |   |
| 28   | Romania                           | 0.33  | 36.83         | 0.76         | ● | 101  | Bangladesh (2011)          | 0.00  | 0.74          | 0.12         |   |
| 29   | Uganda                            | 0.33  | 36.76         | 0.75         | ● | 102  | Botswana                   | 0.00  | 0.73          | 0.11         | ○ |
| 30   | Singapore                         | 0.31  | 35.82         | 0.74         |   | 103  | Algeria (2011)             | 0.00  | 0.67          | 0.10         |   |
| 31   | Spain                             | 0.30  | 34.81         | 0.73         |   | 104  | Trinidad and Tobago (2011) | 0.00  | 0.53          | 0.09         | ○ |
| 32   | Australia                         | 0.27  | 32.82         | 0.73         |   | 105  | Uruguay                    | 0.00  | 0.34          | 0.08         | ○ |
| 33   | Slovenia                          | 0.26  | 31.97         | 0.72         |   | 106  | Côte d'Ivoire (2009)       | 0.00  | 0.29          | 0.07         | ○ |
| 34   | Egypt (2007)                      | 0.25  | 31.72         | 0.71         | ● | 107  | Bhutan                     | 0.00  | 0.26          | 0.06         | ○ |
| 35   | Malta                             | 0.25  | 31.50         | 0.70         |   | 108  | Togo (2010)                | 0.00  | 0.17          | 0.05         |   |
| 36   | Norway                            | 0.21  | 28.72         | 0.69         |   | 109  | Burundi (2011)             | 0.00  | 0.03          | 0.04         |   |
| 37   | Serbia                            | 0.19  | 26.97         | 0.68         |   | 110  | Namibia (2011)             | 0.00  | 0.03          | 0.04         | ○ |
| 38   | Argentina                         | 0.18  | 26.07         | 0.67         |   | 111  | Niger (2007)               | 0.00  | 0.02          | 0.03         |   |
| 39   | Brazil                            | 0.18  | 25.47         | 0.66         |   | 112  | Azerbaijan                 | 0.00  | 0.00          | 0.02         | ○ |
| 40   | Barbados (2010)                   | 0.16  | 24.30         | 0.65         |   | 113  | Cabo Verde                 | 0.00  | 0.00          | 0.01         | ○ |
| 41   | Bosnia and Herzegovina            | 0.16  | 23.66         | 0.65         |   | 114  | Benin (2010)               | 0.00  | 0.00          | 0.00         | ○ |
| 42   | Czech Republic                    | 0.13  | 21.45         | 0.64         |   | n/a  | Armenia                    | n/a   | n/a           | n/a          |   |
| 43   | Colombia                          | 0.13  | 21.42         | 0.63         |   | n/a  | Bahrain                    | n/a   | n/a           | n/a          |   |
| 44   | Seychelles (2011)                 | 0.13  | 21.41         | 0.62         |   | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |   |
| 45   | Guatemala                         | 0.13  | 21.32         | 0.61         |   | n/a  | Dominican Republic         | n/a   | n/a           | n/a          |   |
| 46   | El Salvador                       | 0.13  | 21.22         | 0.60         |   | n/a  | Ecuador                    | n/a   | n/a           | n/a          |   |
| 47   | Ukraine                           | 0.13  | 20.78         | 0.59         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 48   | Russian Federation                | 0.13  | 20.66         | 0.58         |   | n/a  | Ghana                      | n/a   | n/a           | n/a          |   |
| 49   | Croatia                           | 0.12  | 20.18         | 0.58         |   | n/a  | Honduras                   | n/a   | n/a           | n/a          |   |
| 50   | Greece                            | 0.12  | 20.09         | 0.57         |   | n/a  | Jordan                     | n/a   | n/a           | n/a          |   |
| 51   | TFYR of Macedonia                 | 0.11  | 19.07         | 0.56         |   | n/a  | Kazakhstan                 | n/a   | n/a           | n/a          |   |
| 52   | Tunisia (2011)                    | 0.11  | 18.62         | 0.55         |   | n/a  | Kuwait                     | n/a   | n/a           | n/a          |   |
| 53   | Moldova, Rep.                     | 0.10  | 17.27         | 0.54         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |   |
| 54   | Bulgaria                          | 0.10  | 17.25         | 0.53         |   | n/a  | Malawi                     | n/a   | n/a           | n/a          |   |
| 55   | Poland                            | 0.10  | 17.22         | 0.52         |   | n/a  | Mexico                     | n/a   | n/a           | n/a          |   |
| 56   | Thailand                          | 0.09  | 15.86         | 0.51         |   | n/a  | Myanmar                    | n/a   | n/a           | n/a          |   |
| 57   | Hong Kong (China) (2011)          | 0.09  | 15.75         | 0.50         |   | n/a  | Nepal                      | n/a   | n/a           | n/a          |   |
| 58   | Chile                             | 0.08  | 15.23         | 0.50         |   | n/a  | Nicaragua                  | n/a   | n/a           | n/a          |   |
| 59   | Jamaica                           | 0.08  | 14.92         | 0.49         |   | n/a  | Nigeria                    | n/a   | n/a           | n/a          |   |
| 60   | Bolivia, Plurinational St. (2011) | 0.08  | 14.77         | 0.48         |   | n/a  | Oman                       | n/a   | n/a           | n/a          |   |
| 61   | India                             | 0.06  | 12.31         | 0.47         |   | n/a  | Qatar                      | n/a   | n/a           | n/a          |   |
| 62   | Estonia                           | 0.06  | 11.99         | 0.46         |   | n/a  | Saudi Arabia               | n/a   | n/a           | n/a          |   |
| 63   | South Africa                      | 0.06  | 11.60         | 0.45         |   | n/a  | Sri Lanka                  | n/a   | n/a           | n/a          |   |
| 64   | Portugal                          | 0.06  | 11.03         | 0.44         |   | n/a  | Tanzania, United Rep.      | n/a   | n/a           | n/a          |   |
| 65   | Malaysia                          | 0.05  | 10.88         | 0.43         |   | n/a  | Turkey                     | n/a   | n/a           | n/a          |   |
| 66   | Latvia                            | 0.05  | 10.36         | 0.42         |   | n/a  | United Arab Emirates       | n/a   | n/a           | n/a          |   |
| 67   | Mozambique                        | 0.05  | 10.16         | 0.42         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 68   | China                             | 0.05  | 9.95          | 0.41         |   | n/a  | Venezuela, Bolivarian Rep. | n/a   | n/a           | n/a          |   |
| 69   | Georgia                           | 0.04  | 9.25          | 0.40         |   | n/a  | Viet Nam                   | n/a   | n/a           | n/a          |   |
| 70   | Belarus                           | 0.04  | 9.16          | 0.39         |   | n/a  | Zambia                     | n/a   | n/a           | n/a          |   |
| 71   | Panama                            | 0.04  | 8.96          | 0.38         |   |      |                            |       |               |              |   |
| 72   | Cambodia                          | 0.04  | 8.91          | 0.37         |   |      |                            |       |               |              |   |
| 73   | Montenegro (2011)                 | 0.03  | 7.41          | 0.36         |   |      |                            |       |               |              |   |

SOURCE: World Trade Organization, *Trade in Commercial Services* database, based on the International Monetary Fund *Balance of Payments* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

## 6.3.2 High-tech exports

### High-tech net exports (% of total trade) | 2012

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy             | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|-----------------------------|-------|---------------|--------------|---|
| 1    | China                    | 27.81 | 100.00        | 1.00         | ● | 74   | Dominican Republic          | 0.83  | 2.97          | 0.42         |   |
| 2    | Malaysia                 | 26.88 | 96.63         | 0.99         | ● | 75   | Chile                       | 0.63  | 2.25          | 0.41         |   |
| 3    | Singapore                | 26.04 | 93.64         | 0.98         | ● | 76   | Jordan                      | 0.60  | 2.15          | 0.40         |   |
| 4    | Korea, Rep.              | 20.36 | 73.19         | 0.98         | ● | 77   | Moldova, Rep.               | 0.58  | 2.07          | 0.40         |   |
| 5    | Panama (2011)            | 19.37 | 69.66         | 0.97         | ● | 78   | Cyprus                      | 0.56  | 2.00          | 0.39         |   |
| 6    | Viet Nam                 | 17.78 | 63.92         | 0.96         | ● | 79   | Paraguay                    | 0.54  | 1.92          | 0.38         |   |
| 7    | Czech Republic           | 17.15 | 61.66         | 0.95         | ● | 80   | Bolivia, Plurinational St.  | 0.50  | 1.78          | 0.37         |   |
| 8    | Hungary                  | 15.36 | 55.22         | 0.94         | ● | 81   | Iran, Islamic Rep. (2011)   | 0.47  | 1.69          | 0.37         |   |
| 9    | Costa Rica               | 15.27 | 54.92         | 0.94         | ● | 82   | Montenegro                  | 0.45  | 1.60          | 0.36         |   |
| 10   | Malta                    | 14.79 | 53.17         | 0.93         | ● | 83   | Peru                        | 0.41  | 1.47          | 0.35         |   |
| 11   | Mexico                   | 14.68 | 52.77         | 0.92         | ● | 84   | Ghana                       | 0.41  | 1.47          | 0.34         |   |
| 12   | France                   | 14.26 | 51.27         | 0.91         | ● | 85   | Oman                        | 0.38  | 1.36          | 0.33         |   |
| 13   | Thailand                 | 13.63 | 49.00         | 0.90         | ● | 86   | Honduras                    | 0.37  | 1.35          | 0.33         |   |
| 14   | Switzerland              | 13.53 | 48.64         | 0.90         |   | 87   | Zimbabwe                    | 0.37  | 1.33          | 0.32         |   |
| 15   | Japan                    | 13.42 | 48.25         | 0.89         |   | 88   | Sri Lanka                   | 0.34  | 1.23          | 0.31         |   |
| 16   | Israel                   | 13.12 | 47.16         | 0.88         |   | 89   | Kyrgyzstan                  | 0.33  | 1.20          | 0.30         |   |
| 17   | Netherlands              | 12.60 | 45.30         | 0.87         |   | 90   | Mongolia (2007)             | 0.29  | 1.03          | 0.29         |   |
| 18   | Ireland                  | 12.21 | 43.91         | 0.87         |   | 91   | Georgia                     | 0.28  | 0.99          | 0.29         |   |
| 19   | Germany                  | 11.91 | 42.83         | 0.86         |   | 92   | Niger                       | 0.21  | 0.76          | 0.28         |   |
| 20   | Estonia                  | 11.06 | 39.76         | 0.85         |   | 93   | Lebanon (2011)              | 0.21  | 0.75          | 0.27         |   |
| 21   | Sweden                   | 9.51  | 34.18         | 0.84         |   | 94   | Armenia                     | 0.21  | 0.75          | 0.26         |   |
| 22   | United Kingdom           | 9.31  | 33.48         | 0.83         |   | 95   | Ecuador                     | 0.20  | 0.74          | 0.25         |   |
| 23   | Belgium                  | 9.30  | 33.44         | 0.83         |   | 96   | Albania                     | 0.19  | 0.69          | 0.25         |   |
| 24   | Austria                  | 8.30  | 29.85         | 0.82         |   | 97   | Cambodia                    | 0.19  | 0.68          | 0.24         |   |
| 25   | Slovakia                 | 7.54  | 27.11         | 0.81         |   | 98   | Senegal                     | 0.18  | 0.65          | 0.23         |   |
| 26   | United States of America | 6.93  | 24.91         | 0.80         |   | 99   | Fiji                        | 0.18  | 0.65          | 0.22         |   |
| 27   | Denmark                  | 6.11  | 21.96         | 0.79         |   | 100  | Mali                        | 0.17  | 0.63          | 0.21         |   |
| 28   | Finland                  | 5.30  | 19.07         | 0.79         |   | 101  | Hong Kong (China)           | 0.17  | 0.62          | 0.21         | ○ |
| 29   | Romania                  | 5.07  | 18.23         | 0.78         | ● | 102  | Azerbaijan                  | 0.17  | 0.60          | 0.20         |   |
| 30   | Italy                    | 4.97  | 17.88         | 0.77         |   | 103  | Burundi (2010)              | 0.16  | 0.57          | 0.19         |   |
| 31   | Lithuania                | 4.85  | 17.42         | 0.76         |   | 104  | Mauritius                   | 0.16  | 0.57          | 0.18         | ○ |
| 32   | Canada                   | 4.84  | 17.39         | 0.75         |   | 105  | Egypt                       | 0.14  | 0.49          | 0.17         |   |
| 33   | Poland                   | 4.74  | 17.03         | 0.75         |   | 106  | Nicaragua                   | 0.13  | 0.45          | 0.17         |   |
| 34   | Tunisia (2011)           | 4.52  | 16.25         | 0.74         | ● | 107  | Burkina Faso (2011)         | 0.11  | 0.39          | 0.16         |   |
| 35   | Slovenia                 | 4.50  | 16.16         | 0.73         |   | 108  | United Arab Emirates (2008) | 0.09  | 0.32          | 0.15         | ○ |
| 36   | Kazakhstan               | 4.47  | 16.07         | 0.72         |   | 109  | Nigeria                     | 0.09  | 0.32          | 0.14         |   |
| 37   | Latvia                   | 4.42  | 15.89         | 0.71         |   | 110  | Saudi Arabia                | 0.09  | 0.32          | 0.13         | ○ |
| 38   | Croatia                  | 3.77  | 13.54         | 0.71         |   | 111  | Rwanda                      | 0.08  | 0.28          | 0.13         |   |
| 39   | Indonesia                | 3.41  | 12.26         | 0.70         |   | 112  | Jamaica                     | 0.08  | 0.27          | 0.12         | ○ |
| 40   | Spain                    | 3.31  | 11.89         | 0.69         |   | 113  | Ethiopia                    | 0.07  | 0.26          | 0.11         |   |
| 41   | Brazil                   | 3.26  | 11.71         | 0.68         |   | 114  | Nepal (2011)                | 0.07  | 0.24          | 0.10         |   |
| 42   | Norway                   | 3.03  | 10.90         | 0.67         |   | 115  | Sudan                       | 0.07  | 0.24          | 0.10         |   |
| 43   | Bulgaria                 | 2.94  | 10.55         | 0.67         |   | 116  | Madagascar                  | 0.06  | 0.22          | 0.09         |   |
| 44   | Uganda                   | 2.89  | 10.39         | 0.66         | ● | 117  | Togo                        | 0.05  | 0.19          | 0.08         |   |
| 45   | India                    | 2.78  | 10.01         | 0.65         |   | 118  | Trinidad and Tobago (2010)  | 0.03  | 0.11          | 0.07         | ○ |
| 46   | Ukraine                  | 2.75  | 9.89          | 0.64         |   | 119  | Gambia (2011)               | 0.01  | 0.03          | 0.06         | ○ |
| 47   | Zambia (2011)            | 2.67  | 9.59          | 0.63         |   | 120  | Bahrain (2011)              | 0.01  | 0.03          | 0.06         | ○ |
| 48   | El Salvador              | 2.55  | 9.16          | 0.63         |   | 121  | Cabo Verde (2011)           | 0.01  | 0.02          | 0.05         | ○ |
| 49   | Serbia                   | 2.49  | 8.97          | 0.62         |   | 122  | Yemen                       | 0.01  | 0.02          | 0.04         |   |
| 50   | Portugal                 | 2.28  | 8.21          | 0.61         |   | 123  | Guyana                      | 0.00  | 0.01          | 0.03         | ○ |
| 51   | Argentina                | 2.22  | 7.98          | 0.60         |   | 124  | Algeria                     | 0.00  | 0.01          | 0.02         | ○ |
| 52   | Namibia                  | 1.95  | 7.03          | 0.60         |   | 125  | Qatar (2011)                | 0.00  | 0.01          | 0.02         | ○ |
| 53   | TFYR of Macedonia        | 1.91  | 6.86          | 0.59         |   | 126  | Myanmar (2010)              | 0.00  | 0.00          | 0.01         |   |
| 54   | South Africa             | 1.87  | 6.72          | 0.58         |   | 127  | Bhutan (2011)               | 0.00  | 0.00          | 0.00         | ○ |
| 55   | Greece                   | 1.77  | 6.36          | 0.57         |   | n/a  | Angola                      | n/a   | n/a           | n/a          |   |
| 56   | Australia                | 1.72  | 6.17          | 0.56         |   | n/a  | Bangladesh                  | n/a   | n/a           | n/a          |   |
| 57   | Mozambique               | 1.65  | 5.92          | 0.56         |   | n/a  | Barbados                    | n/a   | n/a           | n/a          |   |
| 58   | New Zealand              | 1.60  | 5.74          | 0.55         |   | n/a  | Benin                       | n/a   | n/a           | n/a          |   |
| 59   | Russian Federation       | 1.48  | 5.33          | 0.54         |   | n/a  | Botswana                    | n/a   | n/a           | n/a          |   |
| 60   | Iceland                  | 1.46  | 5.24          | 0.53         |   | n/a  | Cameroon                    | n/a   | n/a           | n/a          |   |
| 61   | Uruguay                  | 1.44  | 5.18          | 0.52         |   | n/a  | Guinea                      | n/a   | n/a           | n/a          |   |
| 62   | Guatemala                | 1.35  | 4.85          | 0.52         |   | n/a  | Kuwait                      | n/a   | n/a           | n/a          |   |
| 63   | Belarus                  | 1.25  | 4.50          | 0.51         |   | n/a  | Lesotho                     | n/a   | n/a           | n/a          |   |
| 64   | Brunei Darussalam        | 1.23  | 4.42          | 0.50         |   | n/a  | Morocco                     | n/a   | n/a           | n/a          |   |
| 65   | Luxembourg               | 1.19  | 4.26          | 0.49         |   | n/a  | Philippines                 | n/a   | n/a           | n/a          |   |
| 66   | Kenya (2010)             | 1.09  | 3.93          | 0.48         |   | n/a  | Seychelles                  | n/a   | n/a           | n/a          |   |
| 67   | Turkey                   | 1.03  | 3.69          | 0.48         |   | n/a  | Swaziland                   | n/a   | n/a           | n/a          |   |
| 68   | Malawi (2011)            | 1.03  | 3.69          | 0.47         |   | n/a  | Tajikistan                  | n/a   | n/a           | n/a          |   |
| 69   | Bosnia and Herzegovina   | 0.96  | 3.45          | 0.46         |   | n/a  | Uzbekistan                  | n/a   | n/a           | n/a          |   |
| 70   | Tanzania, United Rep.    | 0.94  | 3.38          | 0.45         |   | n/a  | Venezuela, Bolivarian Rep.  | n/a   | n/a           | n/a          |   |
| 71   | Côte d'Ivoire            | 0.88  | 3.17          | 0.44         | ● |      |                             |       |               |              |   |
| 72   | Colombia                 | 0.85  | 3.06          | 0.44         |   |      |                             |       |               |              |   |
| 73   | Pakistan                 | 0.84  | 3.02          | 0.43         |   |      |                             |       |               |              |   |

SOURCE: United Nations, COMTRADE database; Eurostat 'High-technology' aggregations based on SITC Rev. 4, April 2009 (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

# 6.3.3

## Communications, computer and information services exports

Communications, computer and information services exports (% of total trade) | 2012

| Rank | Country/Economy           | Value | Score (0–100) | Percent rank | Rank | Country/Economy | Value                             | Score (0–100) | Percent rank |      |
|------|---------------------------|-------|---------------|--------------|------|-----------------|-----------------------------------|---------------|--------------|------|
| 1    | Costa Rica                | 10.50 | 100.00        | 0.97         | ●    | 74              | Iceland (2011)                    | 1.28          | 20.79        | 0.47 |
| 1    | Finland                   | 6.02  | 100.00        | 0.97         |      | 75              | Nicaragua                         | 1.27          | 20.68        | 0.46 |
| 1    | India                     | 9.83  | 100.00        | 0.97         | ●    | 76              | Bosnia and Herzegovina            | 1.22          | 19.87        | 0.45 |
| 1    | Ireland                   | 23.66 | 100.00        | 0.97         | ●    | 77              | United States of America (2011)   | 1.20          | 19.52        | 0.45 |
| 1    | Israel                    | 12.69 | 100.00        | 0.97         | ●    | 78              | Belarus                           | 1.19          | 19.28        | 0.44 |
| 6    | Gambia (2009)             | 5.99  | 99.50         | 0.96         | ●    | 79              | Cyprus                            | 1.17          | 18.98        | 0.43 |
| 7    | Luxembourg                | 4.69  | 77.77         | 0.96         |      | 80              | Malaysia                          | 1.14          | 18.45        | 0.42 |
| 8    | Senegal (2010)            | 4.42  | 73.25         | 0.95         | ●    | 81              | Yemen (2011)                      | 1.04          | 16.82        | 0.42 |
| 9    | Moldova, Rep.             | 4.26  | 70.62         | 0.94         | ●    | 82              | Cambodia                          | 1.00          | 16.05        | 0.41 |
| 10   | Sweden                    | 4.21  | 69.73         | 0.93         |      | 83              | Bolivia, Plurinational St. (2011) | 0.99          | 15.96        | 0.40 |
| 11   | Kuwait                    | 3.95  | 65.45         | 0.93         | ●    | 84              | Swaziland (2010)                  | 0.99          | 15.95        | 0.39 |
| 12   | Mali (2010)               | 3.92  | 64.94         | 0.92         | ●    | 85              | New Zealand                       | 0.97          | 15.66        | 0.39 |
| 13   | Togo (2008)               | 3.80  | 62.95         | 0.91         | ●    | 86              | Côte d'Ivoire (2010)              | 0.91          | 14.60        | 0.38 |
| 14   | Guyana (2010)             | 3.69  | 61.14         | 0.91         | ●    | 87              | Australia                         | 0.88          | 14.14        | 0.37 |
| 15   | Philippines               | 3.59  | 59.43         | 0.90         | ●    | 88              | Slovakia                          | 0.82          | 13.15        | 0.36 |
| 16   | Bahrain (2011)            | 3.40  | 56.29         | 0.89         | ●    | 89              | China                             | 0.76          | 12.11        | 0.36 |
| 17   | Albania                   | 3.32  | 54.97         | 0.88         | ●    | 90              | Niger (2009)                      | 0.71          | 11.21        | 0.35 |
| 18   | United Kingdom            | 3.32  | 54.94         | 0.88         |      | 91              | Georgia                           | 0.70          | 11.15        | 0.34 |
| 19   | Sri Lanka                 | 3.10  | 51.17         | 0.87         | ●    | 92              | Cameroon (2010)                   | 0.70          | 11.12        | 0.34 |
| 20   | Kenya (2011)              | 3.08  | 50.93         | 0.86         | ●    | 93              | Russian Federation                | 0.70          | 11.09        | 0.33 |
| 21   | Morocco (2011)            | 2.78  | 45.89         | 0.85         | ●    | 94              | Burundi (2011)                    | 0.69          | 10.87        | 0.32 |
| 22   | Guatemala                 | 2.78  | 45.84         | 0.85         | ●    | 95              | Seychelles (2011)                 | 0.66          | 10.42        | 0.31 |
| 23   | Armenia                   | 2.68  | 44.22         | 0.84         | ●    | 96              | Singapore (2008)                  | 0.65          | 10.31        | 0.31 |
| 24   | Mauritius                 | 2.57  | 42.30         | 0.83         | ●    | 97              | Fiji (2010)                       | 0.61          | 9.64         | 0.30 |
| 25   | Jamaica (2011)            | 2.55  | 41.95         | 0.82         | ●    | 98              | Indonesia                         | 0.61          | 9.60         | 0.29 |
| 26   | Cabo Verde                | 2.45  | 40.37         | 0.82         | ●    | 99              | Mozambique                        | 0.59          | 9.26         | 0.28 |
| 27   | Burkina Faso (2010)       | 2.40  | 39.58         | 0.81         | ●    | 100             | Lithuania                         | 0.59          | 9.24         | 0.28 |
| 28   | Nepal (2011)              | 2.40  | 39.51         | 0.80         | ●    | 101             | Ecuador                           | 0.55          | 8.54         | 0.27 |
| 29   | El Salvador               | 2.39  | 39.32         | 0.80         | ●    | 102             | Colombia                          | 0.54          | 8.46         | 0.26 |
| 30   | Belgium                   | 2.32  | 38.19         | 0.79         |      | 103             | Hong Kong (China) (2011)          | 0.48          | 7.39         | 0.26 |
| 31   | Argentina                 | 2.29  | 37.67         | 0.78         | ●    | 104             | Tanzania, United Rep. (2011)      | 0.43          | 6.55         | 0.25 |
| 32   | Estonia                   | 2.29  | 37.63         | 0.77         |      | 105             | South Africa                      | 0.42          | 6.42         | 0.24 |
| 33   | TFYR of Macedonia         | 2.28  | 37.49         | 0.77         |      | 106             | Qatar                             | 0.42          | 6.41         | 0.23 |
| 34   | Serbia (2011)             | 2.26  | 37.23         | 0.76         |      | 107             | Chile                             | 0.40          | 6.15         | 0.23 |
| 35   | Croatia                   | 2.21  | 36.40         | 0.75         |      | 108             | Sudan                             | 0.39          | 5.97         | 0.22 |
| 36   | Romania                   | 2.21  | 36.31         | 0.74         |      | 109             | Brunei Darussalam (2009)          | 0.37          | 5.65         | 0.21 |
| 37   | Honduras                  | 2.14  | 35.17         | 0.74         | ●    | 110             | Azerbaijan                        | 0.35          | 5.31         | 0.20 |
| 38   | Austria                   | 2.10  | 34.45         | 0.73         |      | 111             | Lesotho (2011)                    | 0.34          | 5.15         | 0.20 |
| 39   | Tajikistan (2011)         | 2.09  | 34.37         | 0.72         | ●    | 112             | Mongolia                          | 0.34          | 5.03         | 0.19 |
| 40   | Bulgaria                  | 2.04  | 33.55         | 0.72         |      | 113             | Peru (2011)                       | 0.34          | 5.03         | 0.18 |
| 41   | Montenegro (2011)         | 2.03  | 33.26         | 0.71         |      | 114             | Brazil                            | 0.34          | 5.01         | 0.18 |
| 42   | Spain                     | 1.97  | 32.30         | 0.70         |      | 115             | Malawi (2011)                     | 0.33          | 4.92         | 0.17 |
| 43   | Germany                   | 1.87  | 30.67         | 0.69         |      | 116             | Zambia (2011)                     | 0.31          | 4.63         | 0.16 |
| 44   | Ethiopia                  | 1.85  | 30.39         | 0.69         | ●    | 117             | Kyrgyzstan                        | 0.30          | 4.48         | 0.15 |
| 45   | Panama                    | 1.85  | 30.39         | 0.68         |      | 118             | Algeria (2011)                    | 0.30          | 4.33         | 0.15 |
| 46   | Canada (2011)             | 1.84  | 30.08         | 0.67         |      | 119             | Japan                             | 0.24          | 3.42         | 0.14 |
| 47   | Latvia                    | 1.82  | 29.90         | 0.66         |      | 120             | Namibia                           | 0.24          | 3.41         | 0.13 |
| 48   | Barbados (2010)           | 1.81  | 29.63         | 0.66         |      | 121             | Switzerland                       | 0.23          | 3.30         | 0.12 |
| 49   | Netherlands               | 1.81  | 29.63         | 0.65         |      | 122             | Turkey                            | 0.21          | 2.87         | 0.12 |
| 50   | Lebanon (2011)            | 1.70  | 27.75         | 0.64         |      | 123             | Korea, Rep.                       | 0.21          | 2.83         | 0.11 |
| 51   | Benin (2010)              | 1.69  | 27.58         | 0.64         | ●    | 124             | Thailand                          | 0.18          | 2.37         | 0.10 |
| 52   | Czech Republic            | 1.68  | 27.41         | 0.63         |      | 125             | Venezuela, Bolivarian Rep.        | 0.18          | 2.32         | 0.09 |
| 53   | Egypt (2011)              | 1.66  | 27.22         | 0.62         |      | 126             | Oman                              | 0.17          | 2.25         | 0.09 |
| 54   | Slovenia                  | 1.63  | 26.66         | 0.61         |      | 127             | Kazakhstan                        | 0.17          | 2.23         | 0.08 |
| 55   | Tunisia (2011)            | 1.61  | 26.31         | 0.61         |      | 128             | Iran, Islamic Rep. (2010)         | 0.15          | 1.90         | 0.07 |
| 56   | Ukraine                   | 1.60  | 26.19         | 0.60         |      | 129             | Bhutan                            | 0.15          | 1.82         | 0.07 |
| 57   | Guinea (2011)             | 1.58  | 25.84         | 0.59         | ●    | 130             | Paraguay (2011)                   | 0.13          | 1.58         | 0.06 |
| 58   | Denmark                   | 1.56  | 25.55         | 0.58         |      | 131             | Viet Nam                          | 0.11          | 1.31         | 0.05 |
| 59   | Pakistan                  | 1.55  | 25.24         | 0.58         | ●    | 132             | Saudi Arabia                      | 0.10          | 1.13         | 0.04 |
| 60   | Uruguay                   | 1.53  | 25.02         | 0.57         |      | 133             | Botswana                          | 0.10          | 0.99         | 0.04 |
| 61   | Portugal                  | 1.52  | 24.84         | 0.56         |      | 134             | Angola (2011)                     | 0.07          | 0.62         | 0.03 |
| 62   | Bangladesh (2011)         | 1.45  | 23.57         | 0.55         | ●    | 135             | Mexico                            | 0.07          | 0.48         | 0.02 |
| 63   | Malta                     | 1.43  | 23.27         | 0.55         |      | 136             | Trinidad and Tobago (2011)        | 0.06          | 0.43         | 0.01 |
| 64   | Hungary                   | 1.41  | 23.02         | 0.54         |      | 137             | Nigeria                           | 0.06          | 0.37         | 0.01 |
| 65   | Italy                     | 1.38  | 22.47         | 0.53         |      | 138             | Zimbabwe (2011)                   | 0.04          | 0.00         | 0.00 |
| 66   | Greece                    | 1.37  | 22.26         | 0.53         |      | n/a             | Ghana                             | n/a           | n/a          | n/a  |
| 67   | Dominican Republic (2011) | 1.37  | 22.23         | 0.52         |      | n/a             | Jordan                            | n/a           | n/a          | n/a  |
| 68   | Norway                    | 1.32  | 21.54         | 0.51         | ○    | n/a             | Myanmar                           | n/a           | n/a          | n/a  |
| 69   | Poland                    | 1.32  | 21.45         | 0.50         |      | n/a             | United Arab Emirates              | n/a           | n/a          | n/a  |
| 70   | Rwanda (2010)             | 1.31  | 21.37         | 0.50         |      | n/a             | Uzbekistan                        | n/a           | n/a          | n/a  |
| 71   | Madagascar (2011)         | 1.31  | 21.25         | 0.49         |      |                 |                                   |               |              |      |
| 72   | France                    | 1.31  | 21.24         | 0.48         | ○    |                 |                                   |               |              |      |
| 73   | Uganda                    | 1.31  | 21.23         | 0.47         |      |                 |                                   |               |              |      |

SOURCE: World Trade Organization, *Trade in Commercial Services* database, based on the International Monetary Fund *Balance of Payments* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.



## 6.3.4 Foreign direct investment net outflows

### Foreign direct investment (FDI), net outflows (% of GDP) | 2012

| Rank | Country/Economy            | Value  | Score (0–100) | Percent rank |   | Rank | Country/Economy                   | Value  | Score (0–100) | Percent rank |   |
|------|----------------------------|--------|---------------|--------------|---|------|-----------------------------------|--------|---------------|--------------|---|
| 1    | Mauritius                  | 655.23 | 100.00        | 1.00         | ● | 74   | Brazil                            | -0.36  | 49.03         | 0.41         |   |
| 2    | Luxembourg                 | 487.10 | 95.62         | 0.99         | ● | 75   | Poland                            | -0.28  | 48.98         | 0.40         |   |
| 3    | Hong Kong (China)          | 31.90  | 61.64         | 0.98         |   | 76   | Greece                            | -0.27  | 48.98         | 0.40         |   |
| 4    | Ireland                    | 10.12  | 54.12         | 0.98         | ● | 77   | Belarus                           | -0.25  | 48.96         | 0.39         |   |
| 5    | Singapore                  | 8.40   | 53.34         | 0.97         |   | 78   | Argentina                         | -0.22  | 48.94         | 0.38         |   |
| 6    | Chile                      | 7.81   | 53.06         | 0.96         | ● | 79   | Cambodia                          | -0.22  | 48.94         | 0.37         |   |
| 7    | Barbados (2010)            | 7.66   | 52.99         | 0.95         | ● | 80   | Cabo Verde                        | -0.22  | 48.94         | 0.36         |   |
| 8    | Azerbaijan                 | 6.73   | 52.54         | 0.94         | ● | 81   | Côte d'Ivoire (2010)              | -0.19  | 48.93         | 0.35         |   |
| 9    | Malta                      | 6.21   | 52.28         | 0.94         | ● | 82   | Fiji (2010)                       | -0.18  | 48.92         | 0.35         |   |
| 10   | Norway                     | 6.19   | 52.27         | 0.93         |   | 83   | Armenia                           | -0.16  | 48.90         | 0.34         |   |
| 11   | Malaysia                   | 5.53   | 51.94         | 0.92         | ● | 84   | Namibia (2011)                    | -0.16  | 48.90         | 0.33         |   |
| 12   | Kuwait (2011)              | 5.53   | 51.93         | 0.91         | ● | 85   | Brunei Darussalam (2006)          | -0.15  | 48.90         | 0.32         |   |
| 13   | Switzerland                | 5.01   | 51.67         | 0.90         |   | 86   | Sri Lanka                         | -0.14  | 48.89         | 0.31         |   |
| 14   | Estonia                    | 4.87   | 51.59         | 0.90         |   | 87   | Serbia                            | -0.14  | 48.89         | 0.31         |   |
| 15   | Hungary                    | 4.73   | 51.52         | 0.89         | ● | 88   | Lesotho                           | -0.14  | 48.89         | 0.30         |   |
| 16   | Trinidad and Tobago (2011) | 4.50   | 51.40         | 0.88         | ● | 89   | Swaziland (2010)                  | -0.11  | 48.87         | 0.29         |   |
| 17   | Austria                    | 4.45   | 51.37         | 0.87         |   | 90   | Senegal (2010)                    | -0.09  | 48.86         | 0.28         |   |
| 18   | Sweden                     | 3.53   | 50.87         | 0.86         |   | 91   | Honduras                          | -0.08  | 48.86         | 0.27         |   |
| 19   | Qatar (2011)               | 3.52   | 50.87         | 0.85         |   | 92   | Egypt                             | -0.08  | 48.86         | 0.27         |   |
| 20   | Thailand                   | 3.45   | 50.83         | 0.85         |   | 93   | Mozambique                        | -0.06  | 48.84         | 0.26         |   |
| 21   | Finland                    | 3.38   | 50.79         | 0.84         |   | 94   | Romania                           | -0.06  | 48.84         | 0.25         | ○ |
| 22   | Bahrain (2011)             | 3.08   | 50.62         | 0.83         | ● | 95   | Seychelles                        | -0.05  | 48.84         | 0.24         |   |
| 23   | Canada                     | 3.05   | 50.61         | 0.82         |   | 96   | Kenya                             | -0.04  | 48.83         | 0.23         |   |
| 24   | Belgium                    | 2.98   | 50.57         | 0.81         |   | 97   | Pakistan                          | -0.04  | 48.83         | 0.23         |   |
| 25   | United Kingdom             | 2.88   | 50.51         | 0.81         |   | 98   | Algeria                           | -0.04  | 48.83         | 0.22         |   |
| 26   | United States of America   | 2.62   | 50.37         | 0.80         |   | 99   | Burundi (2008)                    | -0.04  | 48.83         | 0.21         |   |
| 27   | Albania                    | 2.60   | 50.35         | 0.79         | ● | 100  | Guinea                            | -0.03  | 48.83         | 0.20         |   |
| 28   | Germany                    | 2.56   | 50.33         | 0.78         |   | 101  | Jordan                            | -0.02  | 48.82         | 0.19         | ○ |
| 29   | Togo (2010)                | 2.40   | 50.24         | 0.77         | ● | 102  | Burkina Faso (2010)               | -0.01  | 48.81         | 0.19         |   |
| 30   | Angola                     | 2.40   | 50.24         | 0.77         | ● | 103  | Ghana                             | -0.00  | 48.81         | 0.18         |   |
| 31   | Russian Federation         | 2.39   | 50.24         | 0.76         |   | 104  | Bolivia, Plurinational St. (2011) | -0.00  | 48.81         | 0.17         |   |
| 32   | Portugal                   | 2.36   | 50.22         | 0.75         |   | 105  | Bangladesh                        | -0.00  | 48.81         | 0.16         |   |
| 33   | Korea, Rep.                | 2.09   | 50.06         | 0.74         |   | 106  | Kyrgyzstan                        | -0.00  | 48.81         | 0.15         |   |
| 34   | Japan                      | 2.07   | 50.05         | 0.73         |   | 107  | Bosnia and Herzegovina            | -0.00  | 48.80         | 0.15         | ○ |
| 35   | Israel (2011)              | 2.06   | 50.05         | 0.73         |   | 108  | Uganda (2011)                     | -0.01  | 48.80         | 0.14         |   |
| 36   | Mexico                     | 1.99   | 50.00         | 0.72         |   | 109  | Guatemala                         | -0.03  | 48.79         | 0.13         |   |
| 37   | TFYR of Macedonia          | 1.92   | 49.97         | 0.71         |   | 110  | Peru                              | -0.03  | 48.79         | 0.12         | ○ |
| 38   | Denmark                    | 1.72   | 49.85         | 0.70         |   | 111  | Botswana                          | -0.07  | 48.76         | 0.11         |   |
| 39   | Costa Rica                 | 1.72   | 49.85         | 0.69         |   | 112  | Colombia                          | -0.08  | 48.75         | 0.10         | ○ |
| 40   | France                     | 1.52   | 49.73         | 0.69         |   | 113  | Jamaica                           | -0.16  | 48.70         | 0.10         | ○ |
| 41   | China                      | 1.42   | 49.67         | 0.68         |   | 114  | El Salvador                       | -0.21  | 48.68         | 0.09         | ○ |
| 42   | Georgia                    | 1.38   | 49.65         | 0.67         |   | 115  | Croatia                           | -0.24  | 48.65         | 0.08         | ○ |
| 43   | Lebanon                    | 1.33   | 49.62         | 0.66         |   | 116  | New Zealand                       | -0.30  | 48.62         | 0.07         | ○ |
| 44   | Kazakhstan                 | 1.32   | 49.61         | 0.65         |   | 117  | Netherlands                       | -0.95  | 48.20         | 0.06         | ○ |
| 45   | Malawi                     | 1.17   | 49.52         | 0.65         | ● | 118  | Slovenia                          | -0.97  | 48.18         | 0.06         | ○ |
| 46   | South Africa               | 1.12   | 49.49         | 0.64         |   | 119  | Cameroon                          | -1.12  | 48.09         | 0.05         | ○ |
| 47   | Bulgaria                   | 1.07   | 49.46         | 0.63         |   | 120  | Cyprus                            | -1.49  | 47.84         | 0.04         | ○ |
| 48   | Panama                     | 1.00   | 49.42         | 0.62         |   | 121  | Slovakia                          | -1.55  | 47.80         | 0.03         | ○ |
| 49   | Australia                  | 0.88   | 49.35         | 0.61         |   | 122  | Benin (2010)                      | -2.15  | 47.39         | 0.02         | ○ |
| 50   | Zambia                     | 0.86   | 49.33         | 0.60         |   | 123  | Niger (2010)                      | -3.57  | 46.38         | 0.02         | ○ |
| 51   | Oman (2011)                | 0.82   | 49.31         | 0.60         |   | 124  | Mali (2010)                       | -3.94  | 46.11         | 0.01         | ○ |
| 52   | Viet Nam                   | 0.77   | 49.28         | 0.59         |   | 125  | Iceland                           | -23.54 | 0.00          | 0.00         | ○ |
| 53   | Philippines                | 0.74   | 49.26         | 0.58         |   | n/a  | Bhutan                            | n/a    | n/a           | n/a          |   |
| 54   | Italy                      | 0.72   | 49.25         | 0.57         |   | n/a  | Ecuador                           | n/a    | n/a           | n/a          |   |
| 55   | Ukraine                    | 0.68   | 49.23         | 0.56         |   | n/a  | Ethiopia                          | n/a    | n/a           | n/a          |   |
| 56   | Czech Republic             | 0.68   | 49.23         | 0.56         |   | n/a  | Gambia                            | n/a    | n/a           | n/a          |   |
| 57   | Lithuania                  | 0.65   | 49.21         | 0.55         |   | n/a  | Guyana                            | n/a    | n/a           | n/a          |   |
| 58   | Montenegro                 | 0.64   | 49.20         | 0.54         |   | n/a  | Iran, Islamic Rep.                | n/a    | n/a           | n/a          |   |
| 59   | Saudi Arabia               | 0.62   | 49.19         | 0.53         |   | n/a  | Madagascar                        | n/a    | n/a           | n/a          |   |
| 60   | Indonesia                  | 0.60   | 49.18         | 0.52         |   | n/a  | Myanmar                           | n/a    | n/a           | n/a          |   |
| 61   | Nigeria                    | 0.59   | 49.17         | 0.52         | ● | n/a  | Nepal                             | n/a    | n/a           | n/a          |   |
| 62   | Latvia                     | 0.57   | 49.16         | 0.51         |   | n/a  | Rwanda                            | n/a    | n/a           | n/a          |   |
| 63   | Turkey                     | 0.52   | 49.13         | 0.50         |   | n/a  | Sudan                             | n/a    | n/a           | n/a          |   |
| 64   | India                      | 0.46   | 49.09         | 0.49         |   | n/a  | Tajikistan                        | n/a    | n/a           | n/a          |   |
| 65   | Dominican Republic         | 0.46   | 49.09         | 0.48         |   | n/a  | Tanzania, United Rep.             | n/a    | n/a           | n/a          |   |
| 66   | Mongolia                   | 0.43   | 49.07         | 0.48         |   | n/a  | Tunisia                           | n/a    | n/a           | n/a          |   |
| 67   | Nicaragua                  | 0.42   | 49.07         | 0.47         |   | n/a  | United Arab Emirates              | n/a    | n/a           | n/a          |   |
| 68   | Moldova, Rep.              | 0.41   | 49.06         | 0.46         |   | n/a  | Uzbekistan                        | n/a    | n/a           | n/a          |   |
| 69   | Venezuela, Bolivarian Rep. | 0.38   | 49.04         | 0.45         |   | n/a  | Yemen                             | n/a    | n/a           | n/a          |   |
| 70   | Uruguay                    | 0.38   | 49.04         | 0.44         |   | n/a  | Zimbabwe                          | n/a    | n/a           | n/a          |   |
| 71   | Morocco                    | 0.37   | 49.04         | 0.44         |   |      |                                   |        |               |              |   |
| 72   | Paraguay                   | 0.36   | 49.03         | 0.43         |   |      |                                   |        |               |              |   |
| 73   | Spain                      | 0.36   | 49.03         | 0.42         | ○ |      |                                   |        |               |              |   |

SOURCE: International Monetary Fund (with World Bank and OECD GDP estimates), extracted from World Bank *World Development Indicators* (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

| Rank | Country/Economy                   | Value  | Score (0–100) | Percent rank |   | Rank | Country/Economy              | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|--------|---------------|--------------|---|------|------------------------------|-------|---------------|--------------|---|
| 1    | Moldova, Rep.                     | 257.80 | 100.00        | 0.98         | ● | 74   | Kazakhstan (2008)            | 28.94 | 11.22         | 0.28         |   |
| 1    | Mongolia (2010)                   | 294.59 | 100.00        | 0.98         | ● | 75   | Malaysia (2011)              | 28.25 | 10.96         | 0.27         | ○ |
| 1    | Paraguay (2010)                   | 347.56 | 100.00        | 0.98         | ● | 76   | Pakistan                     | 28.05 | 10.88         | 0.26         |   |
| 4    | Turkey                            | 174.68 | 67.76         | 0.97         | ● | 77   | Barbados                     | 28.01 | 10.87         | 0.25         | ○ |
| 5    | Bulgaria                          | 145.96 | 56.62         | 0.96         | ● | 78   | Bangladesh                   | 27.39 | 10.62         | 0.24         |   |
| 6    | Luxembourg                        | 135.73 | 52.65         | 0.95         |   | 79   | Zambia                       | 26.72 | 10.36         | 0.23         |   |
| 7    | Iceland                           | 124.64 | 48.35         | 0.94         |   | 80   | Malawi (2006)                | 25.52 | 9.90          | 0.22         |   |
| 8    | China                             | 122.54 | 47.53         | 0.93         |   | 81   | Cambodia                     | 24.79 | 9.62          | 0.21         |   |
| 9    | Belarus                           | 121.70 | 47.21         | 0.92         | ● | 82   | Singapore                    | 21.57 | 8.37          | 0.20         | ○ |
| 10   | New Zealand                       | 121.30 | 47.05         | 0.91         |   | 83   | Nepal (2007)                 | 20.79 | 8.07          | 0.19         |   |
| 11   | Czech Republic                    | 115.23 | 44.70         | 0.90         |   | 84   | United States of America     | 20.30 | 7.88          | 0.18         | ○ |
| 12   | Costa Rica                        | 111.07 | 43.09         | 0.89         | ● | 85   | Kyrgyzstan                   | 17.51 | 6.79          | 0.17         |   |
| 13   | Malta                             | 107.77 | 41.80         | 0.88         |   | 86   | Albania (2011)               | 17.02 | 6.60          | 0.16         |   |
| 14   | Viet Nam                          | 104.40 | 40.50         | 0.87         | ● | 87   | Bosnia and Herzegovina       | 16.95 | 6.57          | 0.15         | ○ |
| 15   | Armenia                           | 102.12 | 39.61         | 0.86         | ● | 88   | Gambia (2007)                | 16.06 | 6.23          | 0.14         |   |
| 16   | Switzerland                       | 101.78 | 39.48         | 0.85         |   | 89   | Tajikistan                   | 15.61 | 6.05          | 0.13         |   |
| 17   | TFYR of Macedonia (2004)          | 96.94  | 37.60         | 0.84         | ● | 90   | Ireland                      | 13.78 | 5.35          | 0.12         | ○ |
| 18   | Madagascar                        | 94.30  | 36.58         | 0.83         | ● | 91   | Algeria                      | 12.76 | 4.95          | 0.11         |   |
| 19   | Portugal                          | 93.75  | 36.37         | 0.82         |   | 92   | Israel                       | 12.37 | 4.80          | 0.10         | ○ |
| 20   | Ukraine                           | 91.69  | 35.57         | 0.81         | ● | 93   | Slovenia                     | 12.32 | 4.78          | 0.09         | ○ |
| 21   | Chile                             | 88.88  | 34.48         | 0.80         |   | 94   | France                       | 10.85 | 4.21          | 0.08         | ○ |
| 22   | Morocco                           | 88.83  | 34.46         | 0.79         | ● | 95   | Sudan                        | 9.96  | 3.86          | 0.07         |   |
| 23   | Korea, Rep.                       | 88.20  | 34.21         | 0.78         |   | 96   | Bahrain                      | 9.39  | 3.64          | 0.06         | ○ |
| 24   | Romania                           | 83.52  | 32.40         | 0.77         | ● | 97   | Rwanda                       | 7.26  | 2.81          | 0.05         | ○ |
| 25   | Argentina                         | 83.20  | 32.27         | 0.76         | ● | 98   | Greece                       | 5.05  | 1.96          | 0.04         | ○ |
| 26   | Cyprus                            | 81.13  | 31.47         | 0.75         |   | 99   | Brunei Darussalam            | 3.93  | 1.52          | 0.03         | ○ |
| 27   | Estonia                           | 81.06  | 31.44         | 0.74         |   | 100  | Tanzania, United Rep. (2007) | 0.96  | 0.37          | 0.02         | ○ |
| 28   | Panama                            | 80.03  | 31.04         | 0.73         |   | 101  | Japan (2009)                 | 0.00  | 0.00          | 0.01         | ○ |
| 29   | Uruguay                           | 77.25  | 29.97         | 0.72         | ● | 102  | Iran, Islamic Rep. (2008)    | 0.00  | 0.00          | 0.00         | ○ |
| 30   | Germany                           | 75.47  | 29.27         | 0.71         |   | n/a  | Angola                       | n/a   | n/a           | n/a          |   |
| 31   | Austria                           | 75.42  | 29.25         | 0.70         |   | n/a  | Benin                        | n/a   | n/a           | n/a          |   |
| 32   | Australia                         | 73.45  | 28.49         | 0.69         |   | n/a  | Bhutan                       | n/a   | n/a           | n/a          |   |
| 33   | Netherlands                       | 70.78  | 27.46         | 0.68         |   | n/a  | Botswana                     | n/a   | n/a           | n/a          |   |
| 34   | Latvia                            | 70.74  | 27.44         | 0.67         |   | n/a  | Burkina Faso                 | n/a   | n/a           | n/a          |   |
| 35   | Finland                           | 69.30  | 26.88         | 0.66         |   | n/a  | Burundi                      | n/a   | n/a           | n/a          |   |
| 36   | Ecuador (2010)                    | 68.84  | 26.70         | 0.65         | ● | n/a  | Cabo Verde                   | n/a   | n/a           | n/a          |   |
| 37   | Hong Kong (China)                 | 68.82  | 26.70         | 0.64         |   | n/a  | Cameroon                     | n/a   | n/a           | n/a          |   |
| 38   | Slovakia                          | 68.15  | 26.44         | 0.63         |   | n/a  | Côte d'Ivoire                | n/a   | n/a           | n/a          |   |
| 39   | Sweden                            | 65.29  | 25.32         | 0.62         | ○ | n/a  | Dominican Republic           | n/a   | n/a           | n/a          |   |
| 40   | Russian Federation                | 64.17  | 24.89         | 0.61         |   | n/a  | Egypt                        | n/a   | n/a           | n/a          |   |
| 41   | Uzbekistan                        | 62.01  | 24.05         | 0.60         | ● | n/a  | El Salvador                  | n/a   | n/a           | n/a          |   |
| 42   | Norway (2009)                     | 59.89  | 23.23         | 0.59         |   | n/a  | Ethiopia                     | n/a   | n/a           | n/a          |   |
| 43   | Jordan                            | 59.79  | 23.19         | 0.58         |   | n/a  | Fiji                         | n/a   | n/a           | n/a          |   |
| 44   | Spain                             | 59.49  | 23.08         | 0.57         |   | n/a  | Ghana                        | n/a   | n/a           | n/a          |   |
| 45   | Lithuania                         | 57.30  | 22.23         | 0.56         |   | n/a  | Guinea                       | n/a   | n/a           | n/a          |   |
| 46   | Croatia                           | 56.58  | 21.95         | 0.55         |   | n/a  | Guyana                       | n/a   | n/a           | n/a          |   |
| 47   | Peru                              | 56.02  | 21.73         | 0.54         |   | n/a  | Indonesia                    | n/a   | n/a           | n/a          |   |
| 48   | Italy                             | 56.01  | 21.73         | 0.53         |   | n/a  | Jamaica                      | n/a   | n/a           | n/a          |   |
| 49   | Denmark                           | 55.88  | 21.68         | 0.52         | ○ | n/a  | Kenya                        | n/a   | n/a           | n/a          |   |
| 50   | Guatemala (2010)                  | 54.04  | 20.96         | 0.51         |   | n/a  | Kuwait                       | n/a   | n/a           | n/a          |   |
| 51   | Hungary                           | 53.51  | 20.75         | 0.50         |   | n/a  | Lebanon                      | n/a   | n/a           | n/a          |   |
| 52   | Poland                            | 53.19  | 20.63         | 0.50         |   | n/a  | Lesotho                      | n/a   | n/a           | n/a          |   |
| 53   | Canada                            | 52.26  | 20.27         | 0.49         | ○ | n/a  | Mali                         | n/a   | n/a           | n/a          |   |
| 54   | Brazil                            | 51.72  | 20.06         | 0.48         |   | n/a  | Mauritius                    | n/a   | n/a           | n/a          |   |
| 55   | Honduras                          | 51.35  | 19.92         | 0.47         |   | n/a  | Montenegro                   | n/a   | n/a           | n/a          |   |
| 56   | United Kingdom                    | 48.74  | 18.91         | 0.46         | ○ | n/a  | Namibia                      | n/a   | n/a           | n/a          |   |
| 57   | Belgium                           | 47.37  | 18.37         | 0.45         | ○ | n/a  | Nicaragua                    | n/a   | n/a           | n/a          |   |
| 58   | Bolivia, Plurinational St. (2007) | 46.76  | 18.14         | 0.44         |   | n/a  | Niger                        | n/a   | n/a           | n/a          |   |
| 59   | Georgia                           | 46.20  | 17.92         | 0.43         |   | n/a  | Nigeria                      | n/a   | n/a           | n/a          |   |
| 60   | Myanmar                           | 43.09  | 16.71         | 0.42         | ● | n/a  | Oman                         | n/a   | n/a           | n/a          |   |
| 61   | Thailand                          | 42.64  | 16.54         | 0.41         |   | n/a  | Qatar                        | n/a   | n/a           | n/a          |   |
| 62   | Mexico                            | 42.27  | 16.39         | 0.40         |   | n/a  | Saudi Arabia                 | n/a   | n/a           | n/a          |   |
| 63   | Seychelles (2011)                 | 41.51  | 16.10         | 0.39         |   | n/a  | Senegal                      | n/a   | n/a           | n/a          |   |
| 64   | Philippines                       | 39.18  | 15.20         | 0.38         |   | n/a  | Swaziland                    | n/a   | n/a           | n/a          |   |
| 65   | Yemen (2011)                      | 39.17  | 15.19         | 0.37         | ● | n/a  | Togo                         | n/a   | n/a           | n/a          |   |
| 66   | Azerbaijan                        | 37.73  | 14.64         | 0.36         |   | n/a  | Trinidad and Tobago          | n/a   | n/a           | n/a          |   |
| 67   | Sri Lanka (2010)                  | 37.71  | 14.63         | 0.35         |   | n/a  | Tunisia                      | n/a   | n/a           | n/a          |   |
| 68   | Colombia                          | 37.39  | 14.50         | 0.34         |   | n/a  | Uganda                       | n/a   | n/a           | n/a          |   |
| 69   | India                             | 37.33  | 14.48         | 0.33         |   | n/a  | United Arab Emirates         | n/a   | n/a           | n/a          |   |
| 70   | South Africa                      | 35.58  | 13.80         | 0.32         |   | n/a  | Zimbabwe                     | n/a   | n/a           | n/a          |   |
| 71   | Serbia                            | 32.32  | 12.54         | 0.31         |   |      |                              |       |               |              |   |
| 72   | Mozambique (2007)                 | 30.19  | 11.71         | 0.30         |   |      |                              |       |               |              |   |
| 73   | Venezuela, Bolivarian Rep. (2011) | 29.89  | 11.59         | 0.29         |   |      |                              |       |               |              |   |

SOURCE: World Intellectual Property Organization, *WIPO Statistics Database*; International Monetary Fund *World Economic Outlook 2013* (PPP\$ GDP) (2004–12)

NOTE: ● indicates a strength; ○ a weakness.

## 7.1.2

## Madrid System trademark applications by country of origin

Number of international trademark applications issued through the Madrid System by country of origin (per billion PPP\$ GDP) | 2012

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Cyprus                   | 8.56  | 100.00        | 0.95         | ● | 74   | Qatar                      | 0.00  | 0.00          | 0.00         | ○ |
| 1    | Iceland                  | 9.53  | 100.00        | 0.95         | ● | 74   | Tajikistan                 | 0.00  | 0.00          | 0.00         | ○ |
| 1    | Luxembourg               | 6.45  | 100.00        | 0.95         | ● | n/a  | Angola                     | n/a   | n/a           | n/a          |   |
| 1    | Moldova, Rep.            | 5.65  | 100.00        | 0.95         | ● | n/a  | Argentina                  | n/a   | n/a           | n/a          |   |
| 1    | Switzerland              | 8.07  | 100.00        | 0.95         | ● | n/a  | Bangladesh                 | n/a   | n/a           | n/a          |   |
| 6    | Slovenia                 | 3.72  | 65.83         | 0.93         | ● | n/a  | Barbados                   | n/a   | n/a           | n/a          |   |
| 7    | Austria                  | 3.20  | 56.57         | 0.92         |   | n/a  | Benin                      | n/a   | n/a           | n/a          |   |
| 8    | Denmark                  | 2.95  | 52.13         | 0.91         |   | n/a  | Bhutan                     | n/a   | n/a           | n/a          |   |
| 9    | Bulgaria                 | 2.74  | 48.39         | 0.89         | ● | n/a  | Bolivia, Plurinational St. | n/a   | n/a           | n/a          |   |
| 10   | Estonia                  | 2.72  | 48.02         | 0.88         |   | n/a  | Brazil                     | n/a   | n/a           | n/a          |   |
| 11   | Latvia                   | 2.44  | 43.17         | 0.86         | ● | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |   |
| 12   | Serbia                   | 2.34  | 41.36         | 0.85         | ● | n/a  | Burkina Faso               | n/a   | n/a           | n/a          |   |
| 13   | TFYR of Macedonia        | 2.31  | 40.89         | 0.84         | ● | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 14   | Finland                  | 2.14  | 37.81         | 0.82         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 15   | Germany                  | 2.07  | 36.54         | 0.81         |   | n/a  | Cambodia                   | n/a   | n/a           | n/a          |   |
| 16   | Belarus                  | 1.98  | 34.93         | 0.80         | ● | n/a  | Cameroon                   | n/a   | n/a           | n/a          |   |
| 17   | France                   | 1.83  | 32.40         | 0.78         |   | n/a  | Canada                     | n/a   | n/a           | n/a          |   |
| 18   | Netherlands              | 1.83  | 32.33         | 0.77         |   | n/a  | Chile                      | n/a   | n/a           | n/a          |   |
| 19   | Croatia                  | 1.81  | 31.92         | 0.76         |   | n/a  | Costa Rica                 | n/a   | n/a           | n/a          |   |
| 20   | Belgium                  | 1.73  | 30.59         | 0.74         |   | n/a  | Côte d'Ivoire              | n/a   | n/a           | n/a          |   |
| 21   | Sweden                   | 1.71  | 30.30         | 0.73         |   | n/a  | Dominican Republic         | n/a   | n/a           | n/a          |   |
| 22   | Lithuania                | 1.60  | 28.32         | 0.72         |   | n/a  | Ecuador                    | n/a   | n/a           | n/a          |   |
| 23   | Czech Republic           | 1.54  | 27.31         | 0.70         |   | n/a  | El Salvador                | n/a   | n/a           | n/a          |   |
| 24   | Italy                    | 1.54  | 27.18         | 0.69         |   | n/a  | Ethiopia                   | n/a   | n/a           | n/a          |   |
| 25   | Hungary                  | 1.32  | 23.29         | 0.68         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 26   | Armenia                  | 1.29  | 22.75         | 0.66         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 27   | Norway                   | 1.16  | 20.52         | 0.65         |   | n/a  | Guatemala                  | n/a   | n/a           | n/a          |   |
| 28   | Australia                | 1.09  | 19.23         | 0.64         |   | n/a  | Guinea                     | n/a   | n/a           | n/a          |   |
| 29   | Turkey                   | 1.08  | 19.02         | 0.62         |   | n/a  | Guyana                     | n/a   | n/a           | n/a          |   |
| 30   | United Kingdom           | 1.00  | 17.64         | 0.61         | ○ | n/a  | Honduras                   | n/a   | n/a           | n/a          |   |
| 31   | Ukraine                  | 0.90  | 15.95         | 0.59         |   | n/a  | Hong Kong (China)          | n/a   | n/a           | n/a          |   |
| 32   | Spain                    | 0.83  | 14.66         | 0.58         |   | n/a  | Indonesia                  | n/a   | n/a           | n/a          |   |
| 33   | Portugal                 | 0.82  | 14.55         | 0.57         |   | n/a  | Jamaica                    | n/a   | n/a           | n/a          |   |
| 34   | Slovakia                 | 0.80  | 14.23         | 0.55         |   | n/a  | Jordan                     | n/a   | n/a           | n/a          |   |
| 35   | Singapore                | 0.74  | 13.09         | 0.54         |   | n/a  | Kuwait                     | n/a   | n/a           | n/a          |   |
| 36   | Israel                   | 0.67  | 11.86         | 0.53         |   | n/a  | Lebanon                    | n/a   | n/a           | n/a          |   |
| 37   | Ireland                  | 0.65  | 11.46         | 0.51         | ○ | n/a  | Lesotho                    | n/a   | n/a           | n/a          |   |
| 38   | Georgia                  | 0.53  | 9.42          | 0.50         |   | n/a  | Malawi                     | n/a   | n/a           | n/a          |   |
| 39   | Russian Federation       | 0.53  | 9.39          | 0.49         |   | n/a  | Malaysia                   | n/a   | n/a           | n/a          |   |
| 40   | Poland                   | 0.50  | 8.77          | 0.47         |   | n/a  | Mali                       | n/a   | n/a           | n/a          |   |
| 41   | Japan                    | 0.46  | 8.09          | 0.46         |   | n/a  | Malta                      | n/a   | n/a           | n/a          |   |
| 42   | Montenegro               | 0.42  | 7.35          | 0.45         |   | n/a  | Mauritius                  | n/a   | n/a           | n/a          |   |
| 43   | Bosnia and Herzegovina   | 0.38  | 6.72          | 0.43         |   | n/a  | Myanmar                    | n/a   | n/a           | n/a          |   |
| 44   | Morocco                  | 0.36  | 6.28          | 0.42         |   | n/a  | Namibia                    | n/a   | n/a           | n/a          |   |
| 45   | Greece                   | 0.35  | 6.13          | 0.41         |   | n/a  | Nepal                      | n/a   | n/a           | n/a          |   |
| 46   | Kazakhstan               | 0.34  | 5.95          | 0.39         |   | n/a  | Nicaragua                  | n/a   | n/a           | n/a          |   |
| 47   | United States of America | 0.33  | 5.91          | 0.38         | ○ | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 48   | Bahrain (2011)           | 0.32  | 5.71          | 0.36         |   | n/a  | Nigeria                    | n/a   | n/a           | n/a          |   |
| 49   | Romania                  | 0.32  | 5.60          | 0.35         |   | n/a  | Pakistan                   | n/a   | n/a           | n/a          |   |
| 50   | Korea, Rep.              | 0.31  | 5.56          | 0.34         | ○ | n/a  | Panama                     | n/a   | n/a           | n/a          |   |
| 51   | Ghana (2011)             | 0.29  | 5.17          | 0.32         |   | n/a  | Paraguay                   | n/a   | n/a           | n/a          |   |
| 52   | New Zealand              | 0.24  | 4.32          | 0.31         | ○ | n/a  | Peru                       | n/a   | n/a           | n/a          |   |
| 53   | Kyrgyzstan               | 0.23  | 4.04          | 0.30         |   | n/a  | Rwanda                     | n/a   | n/a           | n/a          |   |
| 54   | Viet Nam                 | 0.21  | 3.79          | 0.28         |   | n/a  | Saudi Arabia               | n/a   | n/a           | n/a          |   |
| 55   | China                    | 0.18  | 3.14          | 0.27         |   | n/a  | Senegal                    | n/a   | n/a           | n/a          |   |
| 56   | Botswana                 | 0.15  | 2.74          | 0.26         |   | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 57   | Madagascar               | 0.14  | 2.51          | 0.24         |   | n/a  | South Africa               | n/a   | n/a           | n/a          |   |
| 58   | Mongolia                 | 0.13  | 2.35          | 0.23         |   | n/a  | Sri Lanka                  | n/a   | n/a           | n/a          |   |
| 59   | Albania (2013)           | 0.11  | 1.98          | 0.22         |   | n/a  | Swaziland                  | n/a   | n/a           | n/a          |   |
| 60   | Mozambique               | 0.08  | 1.36          | 0.20         |   | n/a  | Tanzania, United Rep.      | n/a   | n/a           | n/a          |   |
| 61   | Algeria                  | 0.07  | 1.23          | 0.19         |   | n/a  | Thailand                   | n/a   | n/a           | n/a          |   |
| 62   | Egypt                    | 0.06  | 1.03          | 0.18         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 63   | Azerbaijan               | 0.05  | 0.92          | 0.16         |   | n/a  | Trinidad and Tobago        | n/a   | n/a           | n/a          |   |
| 64   | Philippines              | 0.05  | 0.84          | 0.15         |   | n/a  | Uganda                     | n/a   | n/a           | n/a          |   |
| 65   | Kenya                    | 0.04  | 0.71          | 0.14         |   | n/a  | United Arab Emirates       | n/a   | n/a           | n/a          |   |
| 66   | Sudan (2009)             | 0.02  | 0.42          | 0.12         |   | n/a  | Uruguay                    | n/a   | n/a           | n/a          |   |
| 67   | Iran, Islamic Rep.       | 0.02  | 0.30          | 0.11         |   | n/a  | Venezuela, Bolivarian Rep. | n/a   | n/a           | n/a          |   |
| 68   | Oman (2011)              | 0.01  | 0.21          | 0.09         | ○ | n/a  | Yemen                      | n/a   | n/a           | n/a          |   |
| 69   | Tunisia (2007)           | 0.01  | 0.21          | 0.08         | ○ | n/a  | Zambia                     | n/a   | n/a           | n/a          |   |
| 70   | Uzbekistan               | 0.01  | 0.17          | 0.07         |   | n/a  | Zimbabwe                   | n/a   | n/a           | n/a          |   |
| 71   | Mexico                   | 0.01  | 0.09          | 0.05         | ○ |      |                            |       |               |              |   |
| 72   | India                    | 0.00  | 0.06          | 0.04         | ○ |      |                            |       |               |              |   |
| 73   | Colombia                 | 0.00  | 0.04          | 0.03         | ○ |      |                            |       |               |              |   |

SOURCE: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 (PPP\$ GDP) (2006–12)

NOTE: ● indicates a strength; ○ a weakness.

# 7.1.3

## ICTs and business model creation

Average answer to the survey question: In your country, to what extent do ICTs enable new business models? [1 = not at all; 7 = to a great extent] | 2013

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Finland                  | 5.83  | 80.50         | 1.00         | ● | 74   | Cambodia                   | 4.28  | 54.67         | 0.45         |   |
| 2    | Korea, Rep.              | 5.70  | 78.33         | 0.99         | ● | 74   | Czech Republic             | 4.28  | 54.67         | 0.45         |   |
| 3    | Sweden                   | 5.69  | 78.17         | 0.99         | ● | 76   | Cabo Verde                 | 4.27  | 54.50         | 0.44         |   |
| 4    | United Arab Emirates     | 5.59  | 76.50         | 0.98         | ● | 77   | Kazakhstan                 | 4.26  | 54.33         | 0.44         |   |
| 5    | Luxembourg               | 5.57  | 76.17         | 0.97         |   | 78   | TFYR of Macedonia          | 4.25  | 54.17         | 0.43         |   |
| 6    | Netherlands              | 5.55  | 75.83         | 0.95         |   | 79   | Paraguay                   | 4.23  | 53.83         | 0.42         |   |
| 6    | Qatar                    | 5.55  | 75.83         | 0.95         | ● | 80   | Ecuador                    | 4.22  | 53.67         | 0.41         |   |
| 6    | United Kingdom           | 5.55  | 75.83         | 0.95         |   | 81   | Slovakia                   | 4.20  | 53.33         | 0.41         |   |
| 9    | Estonia                  | 5.49  | 74.83         | 0.94         | ● | 82   | Jamaica                    | 4.18  | 53.00         | 0.40         |   |
| 10   | Singapore                | 5.48  | 74.67         | 0.93         |   | 83   | Morocco                    | 4.17  | 52.83         | 0.39         |   |
| 11   | Malaysia                 | 5.42  | 73.67         | 0.92         | ● | 83   | Seychelles                 | 4.17  | 52.83         | 0.39         |   |
| 11   | Norway                   | 5.42  | 73.67         | 0.92         |   | 85   | Burkina Faso               | 4.11  | 51.83         | 0.37         |   |
| 13   | Ireland                  | 5.35  | 72.50         | 0.91         |   | 85   | El Salvador                | 4.11  | 51.83         | 0.37         |   |
| 14   | Germany                  | 5.33  | 72.17         | 0.90         |   | 87   | Uganda                     | 4.10  | 51.67         | 0.36         |   |
| 15   | United States of America | 5.28  | 71.33         | 0.90         |   | 88   | Bosnia and Herzegovina     | 4.09  | 51.50         | 0.36         |   |
| 16   | New Zealand              | 5.27  | 71.17         | 0.89         |   | 89   | Mongolia                   | 4.08  | 51.33         | 0.35         |   |
| 17   | Hong Kong (China)        | 5.26  | 71.00         | 0.87         |   | 90   | Guyana                     | 4.07  | 51.17         | 0.34         |   |
| 17   | Switzerland              | 5.26  | 71.00         | 0.87         |   | 91   | Namibia                    | 4.06  | 51.00         | 0.33         |   |
| 19   | Japan                    | 5.24  | 70.67         | 0.87         |   | 92   | Côte d'Ivoire              | 4.04  | 50.67         | 0.32         |   |
| 20   | France                   | 5.21  | 70.17         | 0.86         |   | 92   | Tunisia                    | 4.04  | 50.67         | 0.32         |   |
| 21   | Australia                | 5.15  | 69.17         | 0.84         |   | 94   | Cameroon                   | 4.02  | 50.33         | 0.31         |   |
| 21   | Portugal                 | 5.15  | 69.17         | 0.84         |   | 95   | Pakistan                   | 3.98  | 49.67         | 0.30         |   |
| 23   | Saudi Arabia             | 5.14  | 69.00         | 0.84         |   | 96   | Benin                      | 3.95  | 49.17         | 0.29         |   |
| 24   | Malta                    | 5.13  | 68.83         | 0.83         |   | 96   | Zimbabwe                   | 3.95  | 49.17         | 0.29         |   |
| 25   | Israel                   | 5.12  | 68.67         | 0.82         |   | 98   | Egypt                      | 3.94  | 49.00         | 0.28         |   |
| 26   | Spain                    | 5.10  | 68.33         | 0.81         |   | 99   | Georgia                    | 3.93  | 48.83         | 0.27         |   |
| 27   | Canada                   | 5.06  | 67.67         | 0.81         |   | 100  | Romania                    | 3.92  | 48.67         | 0.27         |   |
| 28   | Chile                    | 5.02  | 67.00         | 0.80         |   | 101  | Bulgaria                   | 3.91  | 48.50         | 0.26         | ○ |
| 29   | Belgium                  | 5.01  | 66.83         | 0.79         |   | 102  | Iran, Islamic Rep.         | 3.90  | 48.33         | 0.24         |   |
| 29   | Iceland                  | 5.01  | 66.83         | 0.79         |   | 102  | Poland                     | 3.90  | 48.33         | 0.24         | ○ |
| 31   | Lithuania                | 4.96  | 66.00         | 0.78         |   | 104  | Bolivia, Plurinational St. | 3.88  | 48.00         | 0.24         |   |
| 32   | Denmark                  | 4.95  | 65.83         | 0.77         |   | 105  | Bhutan                     | 3.87  | 47.83         | 0.21         |   |
| 33   | Rwanda                   | 4.92  | 65.33         | 0.76         |   | 105  | Honduras                   | 3.87  | 47.83         | 0.21         |   |
| 34   | Austria                  | 4.88  | 64.67         | 0.75         |   | 105  | Tanzania, United Rep.      | 3.87  | 47.83         | 0.21         |   |
| 34   | Jordan                   | 4.88  | 64.67         | 0.75         | ● | 108  | Italy                      | 3.84  | 47.33         | 0.21         | ○ |
| 36   | Panama                   | 4.86  | 64.33         | 0.74         |   | 109  | Bangladesh                 | 3.82  | 47.00         | 0.20         |   |
| 37   | Indonesia                | 4.85  | 64.17         | 0.73         | ● | 110  | Russian Federation         | 3.77  | 46.17         | 0.19         | ○ |
| 38   | Viet Nam                 | 4.84  | 64.00         | 0.73         |   | 111  | Madagascar                 | 3.76  | 46.00         | 0.19         |   |
| 39   | India                    | 4.81  | 63.50         | 0.71         |   | 112  | Malawi                     | 3.75  | 45.83         | 0.18         |   |
| 39   | Kenya                    | 4.81  | 63.50         | 0.71         |   | 113  | Argentina                  | 3.74  | 45.67         | 0.16         |   |
| 41   | Azerbaijan               | 4.80  | 63.33         | 0.70         | ● | 113  | Moldova, Rep.              | 3.74  | 45.67         | 0.16         | ○ |
| 41   | Philippines              | 4.80  | 63.33         | 0.70         | ● | 115  | Trinidad and Tobago        | 3.71  | 45.17         | 0.16         |   |
| 43   | Costa Rica               | 4.75  | 62.50         | 0.69         |   | 116  | Albania                    | 3.64  | 44.00         | 0.14         |   |
| 44   | Armenia                  | 4.73  | 62.17         | 0.66         |   | 116  | Botswana                   | 3.64  | 44.00         | 0.14         |   |
| 44   | Bahrain                  | 4.73  | 62.17         | 0.66         |   | 118  | Mozambique                 | 3.63  | 43.83         | 0.13         |   |
| 44   | South Africa             | 4.73  | 62.17         | 0.66         |   | 119  | Serbia                     | 3.57  | 42.83         | 0.13         | ○ |
| 44   | Sri Lanka                | 4.73  | 62.17         | 0.66         | ● | 120  | Ukraine                    | 3.56  | 42.67         | 0.12         | ○ |
| 48   | Oman                     | 4.72  | 62.00         | 0.65         |   | 121  | Nicaragua                  | 3.55  | 42.50         | 0.11         | ○ |
| 49   | Brazil                   | 4.68  | 61.33         | 0.64         |   | 122  | Venezuela, Bolivarian Rep. | 3.52  | 42.00         | 0.10         |   |
| 50   | China                    | 4.64  | 60.67         | 0.64         |   | 123  | Greece                     | 3.50  | 41.67         | 0.09         | ○ |
| 51   | Turkey                   | 4.63  | 60.50         | 0.63         |   | 123  | Swaziland                  | 3.50  | 41.67         | 0.09         | ○ |
| 52   | Senegal                  | 4.60  | 60.00         | 0.62         | ● | 125  | Nepal                      | 3.46  | 41.00         | 0.08         | ○ |
| 53   | Mexico                   | 4.59  | 59.83         | 0.61         |   | 126  | Ethiopia                   | 3.41  | 40.17         | 0.07         |   |
| 53   | Nigeria                  | 4.59  | 59.83         | 0.61         | ● | 127  | Lebanon                    | 3.38  | 39.67         | 0.07         | ○ |
| 55   | Dominican Republic       | 4.58  | 59.67         | 0.60         | ● | 128  | Kuwait                     | 3.32  | 38.67         | 0.06         | ○ |
| 56   | Guatemala                | 4.57  | 59.50         | 0.59         |   | 129  | Guinea                     | 3.28  | 38.00         | 0.05         |   |
| 56   | Mauritius                | 4.57  | 59.50         | 0.59         |   | 130  | Angola                     | 3.27  | 37.83         | 0.04         |   |
| 58   | Uruguay                  | 4.56  | 59.33         | 0.58         |   | 131  | Kyrgyzstan                 | 3.25  | 37.50         | 0.04         | ○ |
| 59   | Colombia                 | 4.55  | 59.17         | 0.56         |   | 132  | Myanmar                    | 3.14  | 35.67         | 0.03         |   |
| 59   | Gambia                   | 4.55  | 59.17         | 0.56         | ● | 133  | Lesotho                    | 3.04  | 34.00         | 0.02         | ○ |
| 61   | Mali                     | 4.54  | 59.00         | 0.56         | ● | 134  | Burundi                    | 2.91  | 31.83         | 0.01         | ○ |
| 62   | Croatia                  | 4.52  | 58.67         | 0.55         |   | 135  | Algeria                    | 2.89  | 31.50         | 0.01         | ○ |
| 63   | Hungary                  | 4.50  | 58.33         | 0.54         |   | 136  | Yemen                      | 2.77  | 29.50         | 0.00         | ○ |
| 64   | Brunei Darussalam        | 4.47  | 57.83         | 0.53         |   | n/a  | Belarus                    | n/a   | n/a           | n/a          |   |
| 65   | Thailand                 | 4.44  | 57.33         | 0.53         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 66   | Latvia                   | 4.39  | 56.50         | 0.52         |   | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 67   | Slovenia                 | 4.37  | 56.17         | 0.51         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |   |
| 68   | Montenegro               | 4.36  | 56.00         | 0.50         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 68   | Zambia                   | 4.36  | 56.00         | 0.50         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 70   | Peru                     | 4.35  | 55.83         | 0.49         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 71   | Barbados                 | 4.33  | 55.50         | 0.48         |   |      |                            |       |               |              |   |
| 72   | Ghana                    | 4.32  | 55.33         | 0.47         |   |      |                            |       |               |              |   |
| 73   | Cyprus                   | 4.29  | 54.83         | 0.47         |   |      |                            |       |               |              |   |

SOURCE: World Economic Forum, *Executive Opinion Survey 2013–2014*

NOTE: ● indicates a strength; ○ a weakness.

## 7.1.4

## ICTs and organizational model creation

Average answer to the survey question: In your country, to what extent do ICTs enable new organizational models (e.g. virtual teams, remote working, telecommuting) within businesses? [1 = not at all; 7 = to a great extent] | 2013

| Rank | Country/Economy          | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Finland                  | 5.74  | 79.00         | 1.00         | ● | 74   | Zambia                     | 4.06  | 51.00         | 0.46         |   |
| 2    | Qatar                    | 5.53  | 75.50         | 0.99         | ● | 75   | Egypt                      | 4.05  | 50.83         | 0.45         |   |
| 3    | Estonia                  | 5.46  | 74.33         | 0.99         | ● | 76   | El Salvador                | 4.04  | 50.67         | 0.44         |   |
| 4    | Sweden                   | 5.44  | 74.00         | 0.98         | ● | 77   | Bosnia and Herzegovina     | 4.03  | 50.50         | 0.43         |   |
| 5    | Netherlands              | 5.41  | 73.50         | 0.97         | ● | 77   | Nigeria                    | 4.03  | 50.50         | 0.43         |   |
| 6    | United Kingdom           | 5.39  | 73.17         | 0.96         |   | 79   | Cyprus                     | 4.02  | 50.33         | 0.42         |   |
| 7    | United States of America | 5.32  | 72.00         | 0.96         |   | 80   | Slovakia                   | 4.01  | 50.17         | 0.41         |   |
| 8    | Norway                   | 5.31  | 71.83         | 0.93         |   | 81   | Cabo Verde                 | 4.00  | 50.00         | 0.41         |   |
| 8    | Singapore                | 5.31  | 71.83         | 0.93         |   | 82   | Paraguay                   | 3.99  | 49.83         | 0.40         |   |
| 8    | United Arab Emirates     | 5.31  | 71.83         | 0.93         | ● | 83   | Thailand                   | 3.98  | 49.67         | 0.39         |   |
| 11   | Malaysia                 | 5.25  | 70.83         | 0.93         | ● | 84   | Tunisia                    | 3.92  | 48.67         | 0.39         |   |
| 12   | Canada                   | 5.14  | 69.00         | 0.92         |   | 85   | Argentina                  | 3.91  | 48.50         | 0.36         |   |
| 13   | Luxembourg               | 5.10  | 68.33         | 0.91         |   | 85   | Ghana                      | 3.91  | 48.50         | 0.36         |   |
| 14   | Ireland                  | 5.09  | 68.17         | 0.90         |   | 85   | TFYR of Macedonia          | 3.91  | 48.50         | 0.36         |   |
| 14   | Korea, Rep.              | 5.09  | 68.17         | 0.90         |   | 88   | Uganda                     | 3.90  | 48.33         | 0.36         |   |
| 16   | Germany                  | 5.07  | 67.83         | 0.89         |   | 89   | Pakistan                   | 3.85  | 47.50         | 0.34         |   |
| 17   | Hong Kong (China)        | 5.06  | 67.67         | 0.88         |   | 89   | Russian Federation         | 3.85  | 47.50         | 0.34         |   |
| 18   | Israel                   | 4.99  | 66.50         | 0.87         |   | 91   | Honduras                   | 3.84  | 47.33         | 0.33         |   |
| 19   | New Zealand              | 4.98  | 66.33         | 0.87         |   | 92   | Poland                     | 3.76  | 46.00         | 0.32         |   |
| 20   | Australia                | 4.94  | 65.67         | 0.84         |   | 92   | Trinidad and Tobago        | 3.76  | 46.00         | 0.32         |   |
| 20   | Iceland                  | 4.94  | 65.67         | 0.84         |   | 94   | Tanzania, United Rep.      | 3.74  | 45.67         | 0.31         |   |
| 20   | Saudi Arabia             | 4.94  | 65.67         | 0.84         | ● | 95   | Bolivia, Plurinational St. | 3.73  | 45.50         | 0.28         |   |
| 23   | Azerbaijan               | 4.89  | 64.83         | 0.84         | ● | 95   | Morocco                    | 3.73  | 45.50         | 0.28         |   |
| 24   | Lithuania                | 4.87  | 64.50         | 0.83         | ● | 95   | Namibia                    | 3.73  | 45.50         | 0.28         |   |
| 25   | Portugal                 | 4.84  | 64.00         | 0.82         |   | 95   | Seychelles                 | 3.73  | 45.50         | 0.28         |   |
| 26   | Denmark                  | 4.82  | 63.67         | 0.81         |   | 99   | Bulgaria                   | 3.72  | 45.33         | 0.27         | ○ |
| 26   | Philippines              | 4.82  | 63.67         | 0.81         | ● | 100  | Côte d'Ivoire              | 3.71  | 45.17         | 0.27         |   |
| 28   | Belgium                  | 4.81  | 63.50         | 0.80         |   | 101  | Senegal                    | 3.70  | 45.00         | 0.26         |   |
| 29   | Switzerland              | 4.79  | 63.17         | 0.79         |   | 102  | Madagascar                 | 3.68  | 44.67         | 0.25         |   |
| 30   | Malta                    | 4.77  | 62.83         | 0.79         |   | 103  | Malawi                     | 3.63  | 43.83         | 0.24         |   |
| 31   | China                    | 4.69  | 61.50         | 0.76         |   | 104  | Cameroon                   | 3.62  | 43.67         | 0.22         |   |
| 31   | Jordan                   | 4.69  | 61.50         | 0.76         | ● | 104  | Iran, Islamic Rep.         | 3.62  | 43.67         | 0.22         |   |
| 31   | Spain                    | 4.69  | 61.50         | 0.76         |   | 104  | Moldova, Rep.              | 3.62  | 43.67         | 0.22         |   |
| 34   | Armenia                  | 4.68  | 61.33         | 0.76         | ● | 107  | Mongolia                   | 3.60  | 43.33         | 0.20         |   |
| 35   | Japan                    | 4.67  | 61.17         | 0.75         |   | 107  | Venezuela, Bolivarian Rep. | 3.60  | 43.33         | 0.20         |   |
| 36   | Chile                    | 4.66  | 61.00         | 0.74         |   | 107  | Zimbabwe                   | 3.60  | 43.33         | 0.20         |   |
| 37   | Costa Rica               | 4.63  | 60.50         | 0.73         |   | 110  | Swaziland                  | 3.59  | 43.17         | 0.19         |   |
| 38   | India                    | 4.60  | 60.00         | 0.73         |   | 111  | Bhutan                     | 3.58  | 43.00         | 0.18         |   |
| 39   | Indonesia                | 4.58  | 59.67         | 0.72         | ● | 111  | Romania                    | 3.58  | 43.00         | 0.18         | ○ |
| 40   | France                   | 4.57  | 59.50         | 0.71         |   | 113  | Nicaragua                  | 3.57  | 42.83         | 0.17         |   |
| 41   | Brazil                   | 4.54  | 59.00         | 0.70         |   | 114  | Georgia                    | 3.54  | 42.33         | 0.16         | ○ |
| 41   | Dominican Republic       | 4.54  | 59.00         | 0.70         | ● | 115  | Bangladesh                 | 3.49  | 41.50         | 0.16         |   |
| 43   | Sri Lanka                | 4.53  | 58.83         | 0.69         | ● | 116  | Burkina Faso               | 3.45  | 40.83         | 0.14         |   |
| 44   | Bahrain                  | 4.52  | 58.67         | 0.68         |   | 116  | Italy                      | 3.45  | 40.83         | 0.14         | ○ |
| 45   | Panama                   | 4.51  | 58.50         | 0.67         |   | 118  | Albania                    | 3.39  | 39.83         | 0.13         |   |
| 46   | Austria                  | 4.49  | 58.17         | 0.66         |   | 118  | Nepal                      | 3.39  | 39.83         | 0.13         |   |
| 46   | Uruguay                  | 4.49  | 58.17         | 0.66         |   | 120  | Mozambique                 | 3.38  | 39.67         | 0.12         |   |
| 48   | Guatemala                | 4.48  | 58.00         | 0.64         | ● | 121  | Botswana                   | 3.36  | 39.33         | 0.11         | ○ |
| 48   | South Africa             | 4.48  | 58.00         | 0.64         |   | 122  | Ukraine                    | 3.34  | 39.00         | 0.10         | ○ |
| 50   | Kenya                    | 4.46  | 57.67         | 0.64         |   | 123  | Greece                     | 3.27  | 37.83         | 0.10         | ○ |
| 51   | Rwanda                   | 4.44  | 57.33         | 0.63         |   | 124  | Ethiopia                   | 3.25  | 37.50         | 0.09         |   |
| 52   | Brunei Darussalam        | 4.42  | 57.00         | 0.62         |   | 125  | Serbia                     | 3.23  | 37.17         | 0.08         | ○ |
| 53   | Peru                     | 4.41  | 56.83         | 0.61         |   | 126  | Benin                      | 3.11  | 35.17         | 0.07         |   |
| 54   | Colombia                 | 4.39  | 56.50         | 0.59         |   | 127  | Kuwait                     | 3.07  | 34.50         | 0.07         | ○ |
| 54   | Mexico                   | 4.39  | 56.50         | 0.59         |   | 128  | Kyrgyzstan                 | 2.96  | 32.67         | 0.05         | ○ |
| 54   | Oman                     | 4.39  | 56.50         | 0.59         |   | 128  | Myanmar                    | 2.96  | 32.67         | 0.05         |   |
| 57   | Viet Nam                 | 4.36  | 56.00         | 0.59         |   | 130  | Angola                     | 2.94  | 32.33         | 0.04         |   |
| 58   | Mauritius                | 4.34  | 55.67         | 0.58         |   | 131  | Lebanon                    | 2.93  | 32.17         | 0.04         | ○ |
| 59   | Turkey                   | 4.33  | 55.50         | 0.57         |   | 132  | Algeria                    | 2.91  | 31.83         | 0.02         | ○ |
| 60   | Cambodia                 | 4.32  | 55.33         | 0.56         | ● | 132  | Yemen                      | 2.91  | 31.83         | 0.02         |   |
| 61   | Jamaica                  | 4.28  | 54.67         | 0.56         |   | 134  | Guinea                     | 2.88  | 31.33         | 0.01         | ○ |
| 62   | Gambia                   | 4.27  | 54.50         | 0.55         | ● | 135  | Lesotho                    | 2.74  | 29.00         | 0.01         | ○ |
| 63   | Latvia                   | 4.25  | 54.17         | 0.54         |   | 136  | Burundi                    | 2.65  | 27.50         | 0.00         | ○ |
| 64   | Croatia                  | 4.24  | 54.00         | 0.53         |   | n/a  | Belarus                    | n/a   | n/a           | n/a          |   |
| 64   | Ecuador                  | 4.24  | 54.00         | 0.53         |   | n/a  | Fiji                       | n/a   | n/a           | n/a          |   |
| 66   | Mali                     | 4.23  | 53.83         | 0.51         |   | n/a  | Niger                      | n/a   | n/a           | n/a          |   |
| 66   | Slovenia                 | 4.23  | 53.83         | 0.51         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |   |
| 68   | Kazakhstan               | 4.19  | 53.17         | 0.50         |   | n/a  | Tajikistan                 | n/a   | n/a           | n/a          |   |
| 69   | Montenegro               | 4.17  | 52.83         | 0.50         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 70   | Czech Republic           | 4.15  | 52.50         | 0.49         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 71   | Guyana                   | 4.13  | 52.17         | 0.47         |   |      |                            |       |               |              |   |
| 71   | Hungary                  | 4.13  | 52.17         | 0.47         |   |      |                            |       |               |              |   |
| 73   | Barbados                 | 4.12  | 52.00         | 0.47         |   |      |                            |       |               |              |   |

SOURCE: World Economic Forum, *Executive Opinion Survey 2013–2014*

NOTE: ● indicates a strength; ○ a weakness.

| Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy              | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|-------|---------------|--------------|---|------|------------------------------|-------|---------------|--------------|---|
| 1    | Luxembourg                        | 3.93  | 100.00        | 0.99         | ● | 74   | Ukraine                      | 0.04  | 2.56          | 0.30         |   |
| 1    | United Kingdom (2011)             | 1.44  | 100.00        | 0.99         | ● | 75   | Guatemala                    | 0.04  | 2.43          | 0.29         |   |
| 3    | Croatia (2011)                    | 1.40  | 97.68         | 0.98         | ● | 76   | Malawi (2011)                | 0.03  | 2.34          | 0.28         |   |
| 4    | Latvia (2011)                     | 1.34  | 93.15         | 0.97         | ● | 77   | Greece (2011)                | 0.03  | 2.25          | 0.27         |   |
| 5    | Serbia                            | 1.22  | 84.85         | 0.96         | ● | 78   | Mauritius                    | 0.03  | 1.88          | 0.26         |   |
| 6    | Poland (2011)                     | 1.06  | 73.63         | 0.95         | ● | 79   | Angola (2011)                | 0.03  | 1.87          | 0.25         |   |
| 7    | Argentina                         | 1.03  | 72.02         | 0.94         | ● | 80   | Mexico                       | 0.02  | 1.37          | 0.24         |   |
| 8    | Hungary                           | 0.99  | 69.00         | 0.93         | ● | 81   | Tanzania, United Rep. (2011) | 0.02  | 1.10          | 0.23         |   |
| 9    | Sweden (2011)                     | 0.99  | 68.79         | 0.92         |   | 82   | Guinea                       | 0.02  | 1.01          | 0.22         |   |
| 10   | Slovenia (2011)                   | 0.91  | 63.70         | 0.91         | ● | 83   | Cabo Verde                   | 0.01  | 0.89          | 0.21         |   |
| 11   | Russian Federation                | 0.84  | 58.48         | 0.90         | ● | 84   | Uruguay (2011)               | 0.01  | 0.78          | 0.20         | ○ |
| 12   | France (2011)                     | 0.81  | 56.56         | 0.89         |   | 85   | Costa Rica                   | 0.01  | 0.67          | 0.19         | ○ |
| 13   | Moldova, Rep.                     | 0.79  | 54.72         | 0.88         | ● | 86   | Azerbaijan                   | 0.01  | 0.63          | 0.18         |   |
| 14   | Bulgaria (2011)                   | 0.77  | 53.72         | 0.88         | ● | 87   | Japan (2011)                 | 0.01  | 0.62          | 0.17         | ○ |
| 15   | Albania                           | 0.71  | 49.53         | 0.87         | ● | 88   | Rwanda                       | 0.01  | 0.60          | 0.16         |   |
| 16   | Cyprus                            | 0.65  | 45.59         | 0.86         | ● | 89   | Venezuela, Bolivarian Rep.   | 0.01  | 0.59          | 0.15         |   |
| 17   | Romania                           | 0.63  | 43.61         | 0.85         | ● | 90   | Togo (2010)                  | 0.01  | 0.51          | 0.14         |   |
| 18   | Denmark (2011)                    | 0.61  | 42.60         | 0.84         |   | 91   | Bosnia and Herzegovina       | 0.01  | 0.46          | 0.13         | ○ |
| 19   | Austria (2011)                    | 0.60  | 41.51         | 0.83         |   | 92   | Swaziland                    | 0.01  | 0.39          | 0.13         |   |
| 20   | Turkey (2011)                     | 0.59  | 41.24         | 0.82         | ● | 93   | Lesotho (2011)               | 0.01  | 0.39          | 0.12         |   |
| 21   | Portugal (2011)                   | 0.59  | 41.16         | 0.81         |   | 94   | Sudan (2011)                 | 0.01  | 0.34          | 0.11         |   |
| 22   | Netherlands (2011)                | 0.53  | 37.11         | 0.80         |   | 95   | Niger (2009)                 | 0.00  | 0.29          | 0.10         |   |
| 23   | Morocco                           | 0.43  | 30.03         | 0.79         | ● | 96   | Lithuania                    | 0.00  | 0.29          | 0.09         | ○ |
| 24   | United States of America (2011)   | 0.41  | 28.27         | 0.78         |   | 97   | Jamaica (2011)               | 0.00  | 0.20          | 0.08         | ○ |
| 25   | Montenegro                        | 0.41  | 28.27         | 0.77         | ● | 98   | Ethiopia                     | 0.00  | 0.17          | 0.07         |   |
| 26   | Malaysia (2009)                   | 0.39  | 27.15         | 0.76         |   | 99   | Paraguay (2011)              | 0.00  | 0.17          | 0.06         | ○ |
| 27   | Ecuador                           | 0.37  | 26.07         | 0.75         | ● | 100  | Bangladesh (2011)            | 0.00  | 0.16          | 0.05         | ○ |
| 28   | Barbados (2010)                   | 0.32  | 21.99         | 0.74         |   | 101  | Mongolia (2011)              | 0.00  | 0.13          | 0.04         | ○ |
| 29   | Italy (2011)                      | 0.32  | 21.97         | 0.73         |   | 102  | El Salvador                  | 0.00  | 0.06          | 0.03         | ○ |
| 30   | Norway                            | 0.31  | 21.37         | 0.72         |   | 103  | Benin (2010)                 | 0.00  | 0.02          | 0.02         | ○ |
| 31   | Egypt                             | 0.30  | 20.96         | 0.71         | ● | 104  | Kenya (2011)                 | 0.00  | 0.01          | 0.01         | ○ |
| 32   | Slovakia                          | 0.28  | 19.79         | 0.70         |   | 105  | Botswana                     | 0.00  | 0.00          | 0.00         | ○ |
| 33   | Korea, Rep.                       | 0.28  | 19.55         | 0.69         |   | n/a  | Bahrain                      | n/a   | n/a           | n/a          |   |
| 34   | Singapore (2011)                  | 0.26  | 17.77         | 0.68         |   | n/a  | Bhutan                       | n/a   | n/a           | n/a          |   |
| 35   | Brazil                            | 0.25  | 17.68         | 0.67         |   | n/a  | Brunei Darussalam            | n/a   | n/a           | n/a          |   |
| 36   | Iceland (2011)                    | 0.25  | 17.53         | 0.66         |   | n/a  | Cambodia                     | n/a   | n/a           | n/a          |   |
| 37   | Spain                             | 0.25  | 17.20         | 0.65         |   | n/a  | Cameroon                     | n/a   | n/a           | n/a          |   |
| 38   | Zambia (2011)                     | 0.24  | 16.61         | 0.64         | ● | n/a  | Chile                        | n/a   | n/a           | n/a          |   |
| 39   | China                             | 0.23  | 15.87         | 0.63         |   | n/a  | Dominican Republic           | n/a   | n/a           | n/a          |   |
| 40   | Finland (2011)                    | 0.23  | 15.71         | 0.63         |   | n/a  | Fiji                         | n/a   | n/a           | n/a          |   |
| 41   | Belarus (2008)                    | 0.22  | 15.43         | 0.62         |   | n/a  | Gambia                       | n/a   | n/a           | n/a          |   |
| 42   | Colombia                          | 0.21  | 14.72         | 0.61         |   | n/a  | Ghana                        | n/a   | n/a           | n/a          |   |
| 43   | Algeria                           | 0.19  | 13.35         | 0.60         | ● | n/a  | Guyana                       | n/a   | n/a           | n/a          |   |
| 44   | New Zealand                       | 0.18  | 12.51         | 0.59         |   | n/a  | Honduras                     | n/a   | n/a           | n/a          |   |
| 45   | Hong Kong (China) (2011)          | 0.18  | 12.40         | 0.58         |   | n/a  | Indonesia                    | n/a   | n/a           | n/a          |   |
| 46   | Malta (2011)                      | 0.17  | 11.88         | 0.57         |   | n/a  | Jordan                       | n/a   | n/a           | n/a          |   |
| 47   | Canada                            | 0.16  | 11.20         | 0.56         |   | n/a  | Kuwait                       | n/a   | n/a           | n/a          |   |
| 48   | Czech Republic                    | 0.15  | 10.10         | 0.55         |   | n/a  | Lebanon                      | n/a   | n/a           | n/a          |   |
| 49   | Uganda                            | 0.14  | 9.73          | 0.54         |   | n/a  | Madagascar                   | n/a   | n/a           | n/a          |   |
| 50   | Belgium                           | 0.14  | 9.62          | 0.53         |   | n/a  | Myanmar                      | n/a   | n/a           | n/a          |   |
| 51   | Ireland                           | 0.13  | 9.20          | 0.52         | ○ | n/a  | Namibia                      | n/a   | n/a           | n/a          |   |
| 52   | Armenia                           | 0.12  | 8.16          | 0.51         |   | n/a  | Nepal                        | n/a   | n/a           | n/a          |   |
| 53   | Israel (2007)                     | 0.10  | 6.98          | 0.50         |   | n/a  | Nicaragua                    | n/a   | n/a           | n/a          |   |
| 54   | Panama                            | 0.09  | 6.26          | 0.49         |   | n/a  | Nigeria                      | n/a   | n/a           | n/a          |   |
| 55   | Pakistan                          | 0.09  | 5.92          | 0.48         |   | n/a  | Oman                         | n/a   | n/a           | n/a          |   |
| 56   | Kyrgyzstan                        | 0.08  | 5.73          | 0.47         |   | n/a  | Qatar                        | n/a   | n/a           | n/a          |   |
| 57   | Mali (2010)                       | 0.08  | 5.69          | 0.46         |   | n/a  | Saudi Arabia                 | n/a   | n/a           | n/a          |   |
| 58   | Burkina Faso (2010)               | 0.08  | 5.64          | 0.45         |   | n/a  | Seychelles                   | n/a   | n/a           | n/a          |   |
| 59   | Estonia                           | 0.08  | 5.54          | 0.44         | ○ | n/a  | South Africa                 | n/a   | n/a           | n/a          |   |
| 60   | Burundi (2011)                    | 0.07  | 4.91          | 0.43         |   | n/a  | Sri Lanka                    | n/a   | n/a           | n/a          |   |
| 61   | Peru (2011)                       | 0.07  | 4.66          | 0.42         |   | n/a  | Switzerland                  | n/a   | n/a           | n/a          |   |
| 62   | Philippines                       | 0.07  | 4.61          | 0.41         |   | n/a  | Tajikistan                   | n/a   | n/a           | n/a          |   |
| 63   | Georgia                           | 0.06  | 4.32          | 0.40         |   | n/a  | TFYR of Macedonia            | n/a   | n/a           | n/a          |   |
| 64   | Australia                         | 0.06  | 4.14          | 0.39         | ○ | n/a  | Thailand                     | n/a   | n/a           | n/a          |   |
| 65   | India                             | 0.06  | 3.99          | 0.38         |   | n/a  | Trinidad and Tobago          | n/a   | n/a           | n/a          |   |
| 66   | Bolivia, Plurinational St. (2011) | 0.05  | 3.74          | 0.38         |   | n/a  | United Arab Emirates         | n/a   | n/a           | n/a          |   |
| 67   | Kazakhstan                        | 0.05  | 3.67          | 0.37         |   | n/a  | Uzbekistan                   | n/a   | n/a           | n/a          |   |
| 68   | Germany                           | 0.05  | 3.63          | 0.36         | ○ | n/a  | Viet Nam                     | n/a   | n/a           | n/a          |   |
| 69   | Côte d'Ivoire (2010)              | 0.05  | 3.37          | 0.35         |   | n/a  | Yemen                        | n/a   | n/a           | n/a          |   |
| 70   | Mozambique                        | 0.05  | 3.28          | 0.34         |   | n/a  | Zimbabwe                     | n/a   | n/a           | n/a          |   |
| 71   | Iran, Islamic Rep. (2008)         | 0.05  | 3.20          | 0.33         |   |      |                              |       |               |              |   |
| 72   | Senegal (2010)                    | 0.04  | 3.06          | 0.32         |   |      |                              |       |               |              |   |
| 73   | Tunisia (2010)                    | 0.04  | 2.89          | 0.31         |   |      |                              |       |               |              |   |

SOURCE: World Trade Organization, *Trade in Commercial Services* database, based on the International Monetary Fund *Balance of Payments* database (2007–12)

NOTE: ● indicates a strength; ○ a weakness.



## 7.2.2

## National feature films produced

Number of national feature films produced (per million population 15–69 years old) | 2011

| Rank | Country/Economy                   | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|-----------------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Bhutan                            | 58.51 | 100.00        | 0.95         | ● | 74   | Lithuania                  | 0.89  | 6.13          | 0.28         |   |
| 1    | Guyana                            | 22.86 | 100.00        | 0.95         | ● | 75   | Costa Rica                 | 0.89  | 6.12          | 0.27         |   |
| 1    | Iceland                           | 57.22 | 100.00        | 0.95         | ● | 76   | Namibia (2005)             | 0.85  | 5.83          | 0.26         |   |
| 1    | Luxembourg                        | 42.88 | 100.00        | 0.95         | ● | 77   | Guinea (2010)              | 0.83  | 5.71          | 0.25         |   |
| 1    | Mauritius                         | 32.65 | 100.00        | 0.95         | ● | 78   | Venezuela, Bolivarian Rep. | 0.81  | 5.55          | 0.25         |   |
| 1    | Switzerland                       | 14.54 | 100.00        | 0.95         | ● | 79   | Niger                      | 0.75  | 5.13          | 0.24         |   |
| 7    | Estonia                           | 14.04 | 96.54         | 0.94         | ● | 80   | Myanmar (2009)             | 0.74  | 5.12          | 0.23         |   |
| 8    | Slovenia                          | 12.48 | 85.84         | 0.93         | ● | 81   | Brazil                     | 0.71  | 4.91          | 0.22         |   |
| 9    | Nigeria                           | 11.16 | 76.75         | 0.92         | ● | 82   | Senegal                    | 0.69  | 4.72          | 0.21         |   |
| 10   | Finland                           | 10.96 | 75.37         | 0.91         |   | 83   | Bangladesh (2009)          | 0.66  | 4.53          | 0.20         |   |
| 11   | Denmark                           | 10.89 | 74.88         | 0.90         |   | 84   | South Africa               | 0.63  | 4.34          | 0.19         | ○ |
| 12   | Norway                            | 10.02 | 68.88         | 0.89         |   | 85   | Colombia                   | 0.56  | 3.87          | 0.18         | ○ |
| 13   | Ireland                           | 10.01 | 68.85         | 0.88         |   | 86   | China                      | 0.56  | 3.84          | 0.17         | ○ |
| 14   | Hong Kong (China)                 | 9.52  | 65.45         | 0.87         |   | 87   | Egypt                      | 0.54  | 3.72          | 0.16         |   |
| 15   | Austria                           | 8.78  | 60.38         | 0.86         |   | 88   | Indonesia                  | 0.51  | 3.52          | 0.15         |   |
| 16   | New Zealand                       | 8.04  | 55.32         | 0.85         |   | 89   | Burkina Faso (2009)        | 0.51  | 3.48          | 0.14         |   |
| 17   | United Kingdom                    | 6.80  | 46.78         | 0.84         |   | 90   | Panama (2010)              | 0.41  | 2.82          | 0.13         | ○ |
| 18   | Mongolia                          | 6.69  | 45.98         | 0.83         | ● | 91   | Peru                       | 0.41  | 2.80          | 0.12         | ○ |
| 19   | Sweden                            | 6.44  | 44.25         | 0.82         |   | 92   | Moldova, Rep. (2009)       | 0.37  | 2.53          | 0.11         | ○ |
| 20   | France                            | 6.20  | 42.65         | 0.81         |   | 93   | Nicaragua (2009)           | 0.28  | 1.93          | 0.10         | ○ |
| 21   | Belgium (2009)                    | 6.16  | 42.35         | 0.80         |   | 94   | El Salvador (2008)         | 0.26  | 1.80          | 0.09         | ○ |
| 22   | Netherlands                       | 6.10  | 41.94         | 0.79         |   | 95   | Pakistan (2009)            | 0.26  | 1.78          | 0.08         | ○ |
| 23   | Spain                             | 5.93  | 40.77         | 0.78         |   | 96   | Honduras (2009)            | 0.22  | 1.54          | 0.07         | ○ |
| 24   | Korea, Rep.                       | 5.79  | 39.82         | 0.77         |   | 97   | Belarus                    | 0.14  | 0.98          | 0.06         | ○ |
| 25   | Czech Republic                    | 5.63  | 38.71         | 0.76         |   | 98   | Mali                       | 0.14  | 0.93          | 0.05         | ○ |
| 26   | Greece                            | 5.45  | 37.50         | 0.75         |   | 99   | Ukraine                    | 0.09  | 0.61          | 0.04         | ○ |
| 27   | Israel                            | 5.30  | 36.43         | 0.75         |   | 100  | Mozambique (2006)          | 0.09  | 0.60          | 0.03         | ○ |
| 28   | Japan                             | 4.96  | 34.09         | 0.74         |   | 101  | Cameroon (2009)            | 0.00  | 0.00          | 0.00         | ○ |
| 29   | Georgia                           | 4.47  | 30.72         | 0.73         |   | 101  | Kyrgyzstan                 | 0.00  | 0.00          | 0.00         | ○ |
| 30   | Lebanon                           | 4.35  | 29.91         | 0.72         |   | 101  | Oman (2009)                | 0.00  | 0.00          | 0.00         | ○ |
| 31   | Bolivia, Plurinational St. (2009) | 4.13  | 28.37         | 0.71         | ● | n/a  | Albania                    | n/a   | n/a           | n/a          |   |
| 32   | Serbia                            | 4.12  | 28.32         | 0.70         |   | n/a  | Algeria                    | n/a   | n/a           | n/a          |   |
| 33   | Latvia                            | 4.00  | 27.47         | 0.69         |   | n/a  | Angola                     | n/a   | n/a           | n/a          |   |
| 34   | Portugal                          | 3.95  | 27.13         | 0.68         |   | n/a  | Bahrain                    | n/a   | n/a           | n/a          |   |
| 35   | Singapore                         | 3.75  | 25.82         | 0.67         |   | n/a  | Barbados                   | n/a   | n/a           | n/a          |   |
| 36   | United States of America          | 3.66  | 25.14         | 0.66         |   | n/a  | Benin                      | n/a   | n/a           | n/a          |   |
| 37   | Argentina                         | 3.61  | 24.85         | 0.65         |   | n/a  | Botswana                   | n/a   | n/a           | n/a          |   |
| 38   | Italy                             | 3.61  | 24.84         | 0.64         |   | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          |   |
| 39   | Cyprus                            | 3.60  | 24.77         | 0.63         |   | n/a  | Burundi                    | n/a   | n/a           | n/a          |   |
| 40   | Germany                           | 3.59  | 24.66         | 0.62         |   | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          |   |
| 41   | Uruguay                           | 3.49  | 24.01         | 0.61         |   | n/a  | Côte d'Ivoire              | n/a   | n/a           | n/a          |   |
| 42   | Canada                            | 3.39  | 23.31         | 0.60         |   | n/a  | Ecuador                    | n/a   | n/a           | n/a          |   |
| 43   | Hungary (2010)                    | 3.24  | 22.30         | 0.59         |   | n/a  | Ethiopia                   | n/a   | n/a           | n/a          |   |
| 44   | Malta                             | 3.16  | 21.73         | 0.58         |   | n/a  | Gambia                     | n/a   | n/a           | n/a          |   |
| 45   | Azerbaijan (2010)                 | 3.01  | 20.73         | 0.57         |   | n/a  | Ghana                      | n/a   | n/a           | n/a          |   |
| 46   | Croatia                           | 2.91  | 19.99         | 0.56         |   | n/a  | Jamaica                    | n/a   | n/a           | n/a          |   |
| 47   | Slovakia                          | 2.88  | 19.82         | 0.55         |   | n/a  | Jordan                     | n/a   | n/a           | n/a          |   |
| 48   | Bulgaria                          | 2.77  | 19.07         | 0.54         |   | n/a  | Kenya                      | n/a   | n/a           | n/a          |   |
| 49   | Australia                         | 2.64  | 18.18         | 0.53         | ○ | n/a  | Kuwait                     | n/a   | n/a           | n/a          |   |
| 50   | TFYR of Macedonia (2010)          | 2.54  | 17.49         | 0.52         |   | n/a  | Lesotho                    | n/a   | n/a           | n/a          |   |
| 51   | Bosnia and Herzegovina            | 2.50  | 17.19         | 0.51         |   | n/a  | Madagascar                 | n/a   | n/a           | n/a          |   |
| 52   | Malaysia                          | 2.43  | 16.74         | 0.50         |   | n/a  | Malawi                     | n/a   | n/a           | n/a          |   |
| 53   | Armenia                           | 2.36  | 16.24         | 0.49         |   | n/a  | Montenegro                 | n/a   | n/a           | n/a          |   |
| 54   | Chile                             | 1.84  | 12.68         | 0.48         |   | n/a  | Nepal                      | n/a   | n/a           | n/a          |   |
| 55   | Poland                            | 1.78  | 12.24         | 0.47         |   | n/a  | Qatar                      | n/a   | n/a           | n/a          |   |
| 56   | Tajikistan (2009)                 | 1.75  | 12.03         | 0.46         |   | n/a  | Rwanda                     | n/a   | n/a           | n/a          |   |
| 57   | Fiji (2009)                       | 1.72  | 11.85         | 0.45         |   | n/a  | Saudi Arabia               | n/a   | n/a           | n/a          |   |
| 58   | India                             | 1.53  | 10.53         | 0.44         |   | n/a  | Seychelles                 | n/a   | n/a           | n/a          |   |
| 59   | Tunisia                           | 1.42  | 9.78          | 0.43         |   | n/a  | Sri Lanka                  | n/a   | n/a           | n/a          |   |
| 60   | Turkey                            | 1.39  | 9.56          | 0.42         |   | n/a  | Sudan                      | n/a   | n/a           | n/a          |   |
| 61   | Iran, Islamic Rep.                | 1.38  | 9.51          | 0.41         |   | n/a  | Swaziland                  | n/a   | n/a           | n/a          |   |
| 62   | Cambodia                          | 1.37  | 9.39          | 0.40         |   | n/a  | Tanzania, United Rep.      | n/a   | n/a           | n/a          |   |
| 63   | Philippines                       | 1.30  | 8.96          | 0.39         |   | n/a  | Togo                       | n/a   | n/a           | n/a          |   |
| 64   | Russian Federation                | 1.30  | 8.95          | 0.38         |   | n/a  | Trinidad and Tobago        | n/a   | n/a           | n/a          |   |
| 65   | Guatemala (2010)                  | 1.26  | 8.63          | 0.37         |   | n/a  | Uganda                     | n/a   | n/a           | n/a          |   |
| 66   | Paraguay (2009)                   | 1.25  | 8.63          | 0.36         |   | n/a  | United Arab Emirates       | n/a   | n/a           | n/a          |   |
| 67   | Viet Nam                          | 1.16  | 7.95          | 0.35         |   | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          |   |
| 68   | Morocco                           | 1.09  | 7.48          | 0.34         |   | n/a  | Yemen                      | n/a   | n/a           | n/a          |   |
| 69   | Kazakhstan (2009)                 | 1.08  | 7.43          | 0.33         |   | n/a  | Zambia                     | n/a   | n/a           | n/a          |   |
| 70   | Romania                           | 1.05  | 7.23          | 0.32         |   | n/a  | Zimbabwe                   | n/a   | n/a           | n/a          |   |
| 71   | Thailand (2010)                   | 0.99  | 6.78          | 0.31         |   |      |                            |       |               |              |   |
| 72   | Dominican Republic (2009)         | 0.94  | 6.48          | 0.30         |   |      |                            |       |               |              |   |
| 73   | Mexico                            | 0.92  | 6.32          | 0.29         |   |      |                            |       |               |              |   |

SOURCE: UNESCO Institute for Statistics, *UIS online database*; United Nations, *World Population Prospects: The 2012 Revision* (population data) (2005–11)

NOTE: ● indicates a strength; ○ a weakness.

# 7.2.3

## Global entertainment and media output

Global entertainment and media output (per thousand population 15–69 years old) | 2012

| Rank | Country/Economy             | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy       | Value | Score (0–100) | Percent rank |
|------|-----------------------------|-------|---------------|--------------|---|------|-----------------------|-------|---------------|--------------|
| 1    | Norway                      | 3.29  | 100.00        | 1.00         | ● | n/a  | Burkina Faso          | n/a   | n/a           | n/a          |
| 2    | Switzerland                 | 2.64  | 80.09         | 0.98         | ● | n/a  | Burundi               | n/a   | n/a           | n/a          |
| 3    | Australia                   | 2.27  | 68.66         | 0.97         | ● | n/a  | Cabo Verde            | n/a   | n/a           | n/a          |
| 4    | United States of America    | 2.21  | 66.86         | 0.95         |   | n/a  | Cambodia              | n/a   | n/a           | n/a          |
| 5    | Japan                       | 2.17  | 65.58         | 0.93         |   | n/a  | Cameroon              | n/a   | n/a           | n/a          |
| 6    | Sweden                      | 2.15  | 65.08         | 0.91         |   | n/a  | Costa Rica            | n/a   | n/a           | n/a          |
| 7    | Denmark                     | 2.04  | 61.68         | 0.90         |   | n/a  | Côte d'Ivoire         | n/a   | n/a           | n/a          |
| 8    | United Kingdom              | 1.94  | 58.55         | 0.88         |   | n/a  | Croatia               | n/a   | n/a           | n/a          |
| 9    | Austria                     | 1.83  | 55.32         | 0.86         |   | n/a  | Cyprus                | n/a   | n/a           | n/a          |
| 10   | Finland                     | 1.80  | 54.33         | 0.84         |   | n/a  | Dominican Republic    | n/a   | n/a           | n/a          |
| 11   | Germany                     | 1.66  | 49.93         | 0.83         |   | n/a  | Ecuador               | n/a   | n/a           | n/a          |
| 12   | Netherlands                 | 1.65  | 49.71         | 0.81         |   | n/a  | El Salvador           | n/a   | n/a           | n/a          |
| 13   | Canada                      | 1.62  | 48.94         | 0.79         |   | n/a  | Estonia               | n/a   | n/a           | n/a          |
| 14   | France                      | 1.58  | 47.58         | 0.78         |   | n/a  | Ethiopia              | n/a   | n/a           | n/a          |
| 15   | Belgium                     | 1.53  | 46.25         | 0.76         |   | n/a  | Fiji                  | n/a   | n/a           | n/a          |
| 16   | New Zealand                 | 1.48  | 44.63         | 0.74         |   | n/a  | Gambia                | n/a   | n/a           | n/a          |
| 17   | Ireland                     | 1.43  | 43.16         | 0.72         |   | n/a  | Georgia               | n/a   | n/a           | n/a          |
| 18   | Hong Kong (China)           | 1.35  | 40.63         | 0.71         |   | n/a  | Ghana                 | n/a   | n/a           | n/a          |
| 19   | Singapore                   | 1.21  | 36.32         | 0.69         |   | n/a  | Guatemala             | n/a   | n/a           | n/a          |
| 20   | Korea, Rep.                 | 1.20  | 36.00         | 0.67         |   | n/a  | Guinea                | n/a   | n/a           | n/a          |
| 21   | Italy                       | 0.99  | 29.68         | 0.66         |   | n/a  | Guyana                | n/a   | n/a           | n/a          |
| 22   | Israel                      | 0.93  | 27.63         | 0.64         |   | n/a  | Honduras              | n/a   | n/a           | n/a          |
| 23   | Portugal                    | 0.89  | 26.50         | 0.62         |   | n/a  | Iceland               | n/a   | n/a           | n/a          |
| 24   | Qatar (2011)                | 0.85  | 25.23         | 0.60         |   | n/a  | Iran, Islamic Rep.    | n/a   | n/a           | n/a          |
| 25   | Spain                       | 0.79  | 23.62         | 0.59         |   | n/a  | Jamaica               | n/a   | n/a           | n/a          |
| 26   | Czech Republic              | 0.57  | 16.78         | 0.57         |   | n/a  | Kazakhstan            | n/a   | n/a           | n/a          |
| 27   | Kuwait (2011)               | 0.57  | 16.70         | 0.55         |   | n/a  | Kyrgyzstan            | n/a   | n/a           | n/a          |
| 28   | Greece                      | 0.56  | 16.42         | 0.53         |   | n/a  | Latvia                | n/a   | n/a           | n/a          |
| 29   | Saudi Arabia                | 0.53  | 15.41         | 0.52         |   | n/a  | Lesotho               | n/a   | n/a           | n/a          |
| 30   | Argentina                   | 0.47  | 13.83         | 0.50         |   | n/a  | Lithuania             | n/a   | n/a           | n/a          |
| 31   | Hungary                     | 0.41  | 11.72         | 0.48         |   | n/a  | Luxembourg            | n/a   | n/a           | n/a          |
| 32   | United Arab Emirates (2011) | 0.37  | 10.63         | 0.47         |   | n/a  | Madagascar            | n/a   | n/a           | n/a          |
| 33   | Malaysia                    | 0.36  | 10.27         | 0.45         |   | n/a  | Malawi                | n/a   | n/a           | n/a          |
| 34   | Poland                      | 0.34  | 9.73          | 0.43         |   | n/a  | Mali                  | n/a   | n/a           | n/a          |
| 35   | South Africa                | 0.31  | 8.86          | 0.41         |   | n/a  | Malta                 | n/a   | n/a           | n/a          |
| 36   | Brazil                      | 0.30  | 8.58          | 0.40         |   | n/a  | Mauritius             | n/a   | n/a           | n/a          |
| 37   | Chile                       | 0.29  | 8.13          | 0.38         |   | n/a  | Moldova, Rep.         | n/a   | n/a           | n/a          |
| 38   | Mexico                      | 0.27  | 7.53          | 0.36         |   | n/a  | Mongolia              | n/a   | n/a           | n/a          |
| 39   | Oman (2011)                 | 0.26  | 7.23          | 0.34         |   | n/a  | Montenegro            | n/a   | n/a           | n/a          |
| 40   | Russian Federation          | 0.24  | 6.57          | 0.33         |   | n/a  | Mozambique            | n/a   | n/a           | n/a          |
| 41   | Bahrain (2011)              | 0.23  | 6.41          | 0.31         |   | n/a  | Myanmar               | n/a   | n/a           | n/a          |
| 42   | Venezuela, Bolivarian Rep.  | 0.20  | 5.57          | 0.29         |   | n/a  | Namibia               | n/a   | n/a           | n/a          |
| 43   | Turkey                      | 0.20  | 5.44          | 0.28         |   | n/a  | Nepal                 | n/a   | n/a           | n/a          |
| 44   | Colombia                    | 0.20  | 5.32          | 0.26         |   | n/a  | Nicaragua             | n/a   | n/a           | n/a          |
| 45   | Lebanon                     | 0.18  | 4.91          | 0.24         |   | n/a  | Niger                 | n/a   | n/a           | n/a          |
| 46   | Thailand                    | 0.17  | 4.60          | 0.22         | ○ | n/a  | Panama                | n/a   | n/a           | n/a          |
| 47   | Romania                     | 0.15  | 3.96          | 0.21         | ○ | n/a  | Paraguay              | n/a   | n/a           | n/a          |
| 48   | Algeria                     | 0.11  | 2.71          | 0.19         |   | n/a  | Peru                  | n/a   | n/a           | n/a          |
| 49   | China                       | 0.11  | 2.68          | 0.17         | ○ | n/a  | Rwanda                | n/a   | n/a           | n/a          |
| 50   | Jordan                      | 0.10  | 2.38          | 0.16         | ○ | n/a  | Senegal               | n/a   | n/a           | n/a          |
| 51   | Philippines                 | 0.08  | 1.89          | 0.14         | ○ | n/a  | Serbia                | n/a   | n/a           | n/a          |
| 52   | Egypt                       | 0.07  | 1.52          | 0.12         | ○ | n/a  | Seychelles            | n/a   | n/a           | n/a          |
| 53   | Indonesia                   | 0.07  | 1.49          | 0.10         |   | n/a  | Slovakia              | n/a   | n/a           | n/a          |
| 54   | Morocco                     | 0.06  | 1.21          | 0.09         | ○ | n/a  | Slovenia              | n/a   | n/a           | n/a          |
| 55   | Kenya                       | 0.06  | 1.20          | 0.07         | ○ | n/a  | Sri Lanka             | n/a   | n/a           | n/a          |
| 56   | Nigeria                     | 0.03  | 0.23          | 0.05         | ○ | n/a  | Sudan                 | n/a   | n/a           | n/a          |
| 57   | Viet Nam                    | 0.03  | 0.20          | 0.03         | ○ | n/a  | Swaziland             | n/a   | n/a           | n/a          |
| 58   | India                       | 0.03  | 0.17          | 0.02         | ○ | n/a  | Tajikistan            | n/a   | n/a           | n/a          |
| 59   | Pakistan                    | 0.02  | 0.00          | 0.00         | ○ | n/a  | Tanzania, United Rep. | n/a   | n/a           | n/a          |
| n/a  | Albania                     | n/a   | n/a           | n/a          |   | n/a  | TFYR of Macedonia     | n/a   | n/a           | n/a          |
| n/a  | Angola                      | n/a   | n/a           | n/a          |   | n/a  | Togo                  | n/a   | n/a           | n/a          |
| n/a  | Armenia                     | n/a   | n/a           | n/a          |   | n/a  | Trinidad and Tobago   | n/a   | n/a           | n/a          |
| n/a  | Azerbaijan                  | n/a   | n/a           | n/a          |   | n/a  | Tunisia               | n/a   | n/a           | n/a          |
| n/a  | Bangladesh                  | n/a   | n/a           | n/a          |   | n/a  | Uganda                | n/a   | n/a           | n/a          |
| n/a  | Barbados                    | n/a   | n/a           | n/a          |   | n/a  | Ukraine               | n/a   | n/a           | n/a          |
| n/a  | Belarus                     | n/a   | n/a           | n/a          |   | n/a  | Uruguay               | n/a   | n/a           | n/a          |
| n/a  | Benin                       | n/a   | n/a           | n/a          |   | n/a  | Uzbekistan            | n/a   | n/a           | n/a          |
| n/a  | Bhutan                      | n/a   | n/a           | n/a          |   | n/a  | Yemen                 | n/a   | n/a           | n/a          |
| n/a  | Bolivia, Plurinational St.  | n/a   | n/a           | n/a          |   | n/a  | Zambia                | n/a   | n/a           | n/a          |
| n/a  | Bosnia and Herzegovina      | n/a   | n/a           | n/a          |   | n/a  | Zimbabwe              | n/a   | n/a           | n/a          |
| n/a  | Botswana                    | n/a   | n/a           | n/a          |   |      |                       |       |               |              |
| n/a  | Brunei Darussalam           | n/a   | n/a           | n/a          |   |      |                       |       |               |              |
| n/a  | Bulgaria                    | n/a   | n/a           | n/a          |   |      |                       |       |               |              |

SOURCE: PwC's Global entertainment and media outlook, 2013–2017; United Nations, World Population Prospects: The 2010 Revision (population data)

NOTE: ● indicates a strength; ○ a weakness.

# 7.2.4 Printing and publishing output

## Printing and publishing manufactures output (% of manufactures total output) | 2010

| Rank | Country/Economy                 | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|---------------------------------|-------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Greece (2007)                   | 0.07  | 100.00        | 0.99         | ● | 74   | Lithuania                  | 0.01  | 11.56         | 0.21         | ○ |
| 1    | Hong Kong (China) (2004)        | 0.18  | 100.00        | 0.99         | ● | 75   | Slovakia (2009)            | 0.01  | 10.98         | 0.20         | ○ |
| 3    | Malta (2008)                    | 0.07  | 92.06         | 0.98         | ● | 76   | Malaysia                   | 0.01  | 10.45         | 0.18         | ○ |
| 4    | Iceland (2006)                  | 0.06  | 89.10         | 0.97         | ● | 77   | Brazil                     | 0.01  | 10.27         | 0.17         | ○ |
| 5    | Australia (2006)                | 0.06  | 85.50         | 0.96         | ● | 78   | Kuwait                     | 0.01  | 9.10          | 0.16         | ○ |
| 6    | Norway (2008)                   | 0.06  | 81.43         | 0.95         | ● | 79   | Azerbaijan                 | 0.01  | 7.59          | 0.15         | ○ |
| 7    | Panama (2005)                   | 0.05  | 73.78         | 0.93         | ● | 80   | Egypt                      | 0.01  | 7.24          | 0.14         | ○ |
| 8    | Netherlands (2008)              | 0.04  | 60.67         | 0.92         | ● | 81   | Chile (2008)               | 0.01  | 6.88          | 0.13         | ○ |
| 9    | Lebanon (2007)                  | 0.04  | 57.96         | 0.91         | ● | 82   | India (2009)               | 0.01  | 6.58          | 0.12         | ○ |
| 10   | Switzerland (2007)              | 0.04  | 52.29         | 0.90         | ● | 83   | China                      | 0.01  | 6.39          | 0.11         | ○ |
| 11   | Mauritius                       | 0.04  | 49.69         | 0.89         | ● | 84   | Tajikistan (2008)          | 0.01  | 6.02          | 0.10         | ○ |
| 12   | Tanzania, United Rep. (2008)    | 0.03  | 46.91         | 0.88         | ● | 85   | Canada                     | 0.00  | 4.94          | 0.09         | ○ |
| 13   | Georgia                         | 0.03  | 46.87         | 0.87         | ● | 86   | Yemen (2006)               | 0.00  | 4.28          | 0.08         | ○ |
| 14   | Mongolia (2008)                 | 0.03  | 44.29         | 0.86         | ● | 87   | Mexico                     | 0.00  | 4.26          | 0.07         | ○ |
| 15   | Cyprus                          | 0.03  | 41.54         | 0.85         | ● | 88   | Oman                       | 0.00  | 3.95          | 0.05         | ○ |
| 16   | TFYR of Macedonia               | 0.03  | 40.34         | 0.84         | ● | 89   | Korea, Rep. (2008)         | 0.00  | 3.24          | 0.04         | ○ |
| 17   | Peru                            | 0.03  | 39.19         | 0.83         | ● | 90   | Philippines (2008)         | 0.00  | 3.20          | 0.03         | ○ |
| 18   | Israel (2009)                   | 0.03  | 38.00         | 0.82         | ● | 91   | Pakistan (2006)            | 0.00  | 2.75          | 0.02         | ○ |
| 19   | Saudi Arabia (2006)             | 0.03  | 37.34         | 0.80         | ● | 92   | Iran, Islamic Rep. (2009)  | 0.00  | 1.98          | 0.01         | ○ |
| 20   | Ethiopia (2009)                 | 0.03  | 37.03         | 0.79         | ● | 93   | Gambia (2004)              | 0.00  | 0.00          | 0.00         | ○ |
| 21   | Moldova, Rep.                   | 0.03  | 36.95         | 0.78         | ● | n/a  | Albania                    | n/a   | n/a           | n/a          | ○ |
| 22   | Estonia                         | 0.03  | 36.70         | 0.77         | ● | n/a  | Algeria                    | n/a   | n/a           | n/a          | ○ |
| 23   | Colombia                        | 0.03  | 36.27         | 0.76         | ● | n/a  | Angola                     | n/a   | n/a           | n/a          | ○ |
| 24   | Costa Rica                      | 0.03  | 36.15         | 0.75         | ● | n/a  | Argentina                  | n/a   | n/a           | n/a          | ○ |
| 25   | Kenya                           | 0.03  | 35.36         | 0.74         | ● | n/a  | Bahrain                    | n/a   | n/a           | n/a          | ○ |
| 26   | Latvia                          | 0.03  | 35.33         | 0.73         | ● | n/a  | Bangladesh                 | n/a   | n/a           | n/a          | ○ |
| 27   | South Africa                    | 0.02  | 32.91         | 0.72         | ● | n/a  | Barbados                   | n/a   | n/a           | n/a          | ○ |
| 28   | United Kingdom (2009)           | 0.02  | 32.68         | 0.71         | ● | n/a  | Belarus                    | n/a   | n/a           | n/a          | ○ |
| 29   | Japan                           | 0.02  | 30.53         | 0.70         | ● | n/a  | Benin                      | n/a   | n/a           | n/a          | ○ |
| 30   | Fiji (2009)                     | 0.02  | 29.73         | 0.68         | ● | n/a  | Bhutan                     | n/a   | n/a           | n/a          | ○ |
| 31   | Czech Republic (2007)           | 0.02  | 29.09         | 0.67         | ● | n/a  | Bolivia, Plurinational St. | n/a   | n/a           | n/a          | ○ |
| 32   | Madagascar (2006)               | 0.02  | 27.80         | 0.66         | ● | n/a  | Bosnia and Herzegovina     | n/a   | n/a           | n/a          | ○ |
| 33   | Spain (2009)                    | 0.02  | 27.31         | 0.65         | ● | n/a  | Botswana                   | n/a   | n/a           | n/a          | ○ |
| 34   | Jordan                          | 0.02  | 25.79         | 0.64         | ● | n/a  | Brunei Darussalam          | n/a   | n/a           | n/a          | ○ |
| 35   | New Zealand (2009)              | 0.02  | 25.35         | 0.63         | ● | n/a  | Burkina Faso               | n/a   | n/a           | n/a          | ○ |
| 36   | Slovenia                        | 0.02  | 25.26         | 0.62         | ● | n/a  | Burundi                    | n/a   | n/a           | n/a          | ○ |
| 37   | Malawi (2009)                   | 0.02  | 25.03         | 0.61         | ● | n/a  | Cabo Verde                 | n/a   | n/a           | n/a          | ○ |
| 38   | United States of America (2008) | 0.02  | 25.00         | 0.60         | ● | n/a  | Cambodia                   | n/a   | n/a           | n/a          | ○ |
| 39   | Portugal (2009)                 | 0.02  | 24.37         | 0.59         | ● | n/a  | Côte d'Ivoire              | n/a   | n/a           | n/a          | ○ |
| 40   | Austria (2009)                  | 0.02  | 24.23         | 0.58         | ○ | n/a  | Croatia                    | n/a   | n/a           | n/a          | ○ |
| 41   | Sri Lanka                       | 0.02  | 24.06         | 0.57         | ○ | n/a  | Dominican Republic         | n/a   | n/a           | n/a          | ○ |
| 42   | Serbia                          | 0.02  | 23.94         | 0.55         | ○ | n/a  | El Salvador                | n/a   | n/a           | n/a          | ○ |
| 43   | Ukraine                         | 0.02  | 23.93         | 0.54         | ○ | n/a  | Ghana                      | n/a   | n/a           | n/a          | ○ |
| 44   | Denmark (2009)                  | 0.02  | 22.81         | 0.53         | ○ | n/a  | Guatemala                  | n/a   | n/a           | n/a          | ○ |
| 45   | Armenia                         | 0.02  | 22.52         | 0.52         | ○ | n/a  | Guinea                     | n/a   | n/a           | n/a          | ○ |
| 46   | Belgium (2009)                  | 0.02  | 22.48         | 0.51         | ○ | n/a  | Guyana                     | n/a   | n/a           | n/a          | ○ |
| 47   | Kazakhstan (2007)               | 0.02  | 22.17         | 0.50         | ○ | n/a  | Honduras                   | n/a   | n/a           | n/a          | ○ |
| 48   | Nepal (2008)                    | 0.02  | 21.71         | 0.49         | ○ | n/a  | Jamaica                    | n/a   | n/a           | n/a          | ○ |
| 49   | Ireland (2009)                  | 0.02  | 21.59         | 0.48         | ○ | n/a  | Lesotho                    | n/a   | n/a           | n/a          | ○ |
| 50   | Sweden (2009)                   | 0.02  | 21.21         | 0.47         | ○ | n/a  | Mali                       | n/a   | n/a           | n/a          | ○ |
| 51   | Italy (2009)                    | 0.02  | 21.11         | 0.46         | ○ | n/a  | Montenegro                 | n/a   | n/a           | n/a          | ○ |
| 52   | Luxembourg (2009)               | 0.02  | 20.49         | 0.45         | ○ | n/a  | Mozambique                 | n/a   | n/a           | n/a          | ○ |
| 53   | France (2009)                   | 0.02  | 20.36         | 0.43         | ○ | n/a  | Myanmar                    | n/a   | n/a           | n/a          | ○ |
| 54   | Finland (2009)                  | 0.02  | 20.32         | 0.42         | ○ | n/a  | Namibia                    | n/a   | n/a           | n/a          | ○ |
| 55   | Ecuador (2008)                  | 0.02  | 20.25         | 0.41         | ○ | n/a  | Nicaragua                  | n/a   | n/a           | n/a          | ○ |
| 56   | Germany (2009)                  | 0.02  | 20.05         | 0.40         | ○ | n/a  | Niger                      | n/a   | n/a           | n/a          | ○ |
| 57   | Senegal                         | 0.01  | 19.49         | 0.39         | ○ | n/a  | Nigeria                    | n/a   | n/a           | n/a          | ○ |
| 58   | Russian Federation              | 0.01  | 17.71         | 0.38         | ○ | n/a  | Paraguay                   | n/a   | n/a           | n/a          | ○ |
| 59   | Bulgaria                        | 0.01  | 17.28         | 0.37         | ○ | n/a  | Rwanda                     | n/a   | n/a           | n/a          | ○ |
| 60   | Cameroon (2008)                 | 0.01  | 16.41         | 0.36         | ○ | n/a  | Seychelles                 | n/a   | n/a           | n/a          | ○ |
| 61   | Viet Nam (2008)                 | 0.01  | 15.96         | 0.35         | ○ | n/a  | Sudan                      | n/a   | n/a           | n/a          | ○ |
| 62   | Romania                         | 0.01  | 15.73         | 0.34         | ○ | n/a  | Swaziland                  | n/a   | n/a           | n/a          | ○ |
| 63   | Qatar                           | 0.01  | 14.87         | 0.33         | ○ | n/a  | Togo                       | n/a   | n/a           | n/a          | ○ |
| 64   | Poland (2009)                   | 0.01  | 14.51         | 0.32         | ○ | n/a  | Tunisia                    | n/a   | n/a           | n/a          | ○ |
| 65   | Thailand (2006)                 | 0.01  | 14.36         | 0.30         | ○ | n/a  | Uganda                     | n/a   | n/a           | n/a          | ○ |
| 66   | Turkey (2009)                   | 0.01  | 14.34         | 0.29         | ○ | n/a  | United Arab Emirates       | n/a   | n/a           | n/a          | ○ |
| 67   | Trinidad and Tobago (2006)      | 0.01  | 13.98         | 0.28         | ○ | n/a  | Uzbekistan                 | n/a   | n/a           | n/a          | ○ |
| 68   | Uruguay (2008)                  | 0.01  | 13.78         | 0.27         | ○ | n/a  | Venezuela, Bolivarian Rep. | n/a   | n/a           | n/a          | ○ |
| 69   | Indonesia (2009)                | 0.01  | 12.77         | 0.26         | ○ | n/a  | Zambia                     | n/a   | n/a           | n/a          | ○ |
| 70   | Morocco                         | 0.01  | 12.71         | 0.25         | ○ | n/a  | Zimbabwe                   | n/a   | n/a           | n/a          | ○ |
| 71   | Hungary (2009)                  | 0.01  | 12.70         | 0.24         | ○ |      |                            |       |               |              |   |
| 72   | Kyrgyzstan                      | 0.01  | 12.64         | 0.23         | ○ |      |                            |       |               |              |   |
| 73   | Singapore                       | 0.01  | 11.85         | 0.22         | ○ |      |                            |       |               |              |   |

SOURCE: United Nations Industrial Development Organization (UNIDO), *Industrial Statistics Database* ISIC Revision 3 (INDSTAT4 2012) (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

# 7.2.5 Creative goods exports

## Creative goods exports (% of total trade) | 2012

| Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   | Rank | Country/Economy             | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|-------|---------------|--------------|---|------|-----------------------------|-------|---------------|--------------|---|
| 1    | China                      | 14.94 | 100.00        | 1.00         | ● | 74   | Zimbabwe                    | 0.28  | 8.60          | 0.42         |   |
| 2    | Czech Republic             | 11.27 | 90.37         | 0.99         | ● | 75   | Fiji                        | 0.28  | 8.59          | 0.41         |   |
| 3    | Mexico                     | 10.63 | 88.41         | 0.98         | ● | 76   | Russian Federation          | 0.26  | 8.03          | 0.40         |   |
| 4    | Malaysia                   | 10.61 | 88.36         | 0.98         | ● | 77   | Chile                       | 0.21  | 6.74          | 0.39         |   |
| 5    | Slovakia                   | 10.27 | 87.24         | 0.97         | ● | 78   | Brazil                      | 0.21  | 6.60          | 0.38         |   |
| 6    | Thailand                   | 10.05 | 86.54         | 0.96         | ● | 79   | Senegal                     | 0.19  | 6.03          | 0.38         |   |
| 7    | Bhutan (2011)              | 7.05  | 74.92         | 0.95         | ● | 80   | Luxembourg                  | 0.18  | 5.80          | 0.37         |   |
| 8    | Hungary                    | 6.92  | 74.29         | 0.94         | ● | 81   | Bosnia and Herzegovina      | 0.18  | 5.70          | 0.36         |   |
| 9    | Netherlands                | 5.88  | 69.13         | 0.94         |   | 82   | Argentina                   | 0.17  | 5.54          | 0.35         |   |
| 10   | Singapore                  | 5.44  | 66.72         | 0.93         |   | 83   | Iceland                     | 0.15  | 4.90          | 0.34         | ○ |
| 11   | Panama (2011)              | 4.73  | 62.46         | 0.92         | ● | 84   | TFYR of Macedonia           | 0.15  | 4.88          | 0.34         |   |
| 12   | Pakistan                   | 4.34  | 59.88         | 0.91         | ● | 85   | Montenegro                  | 0.12  | 3.89          | 0.33         |   |
| 13   | India                      | 4.32  | 59.77         | 0.90         | ● | 86   | Burundi (2010)              | 0.12  | 3.88          | 0.32         |   |
| 14   | Poland                     | 4.22  | 59.09         | 0.90         | ● | 87   | Uganda                      | 0.12  | 3.83          | 0.31         |   |
| 15   | Viet Nam                   | 4.12  | 58.39         | 0.89         | ● | 88   | Saudi Arabia                | 0.11  | 3.61          | 0.30         | ○ |
| 16   | Latvia                     | 3.23  | 51.40         | 0.88         | ● | 89   | Madagascar                  | 0.11  | 3.56          | 0.30         |   |
| 17   | Switzerland                | 3.16  | 50.79         | 0.87         |   | 90   | Uruguay                     | 0.10  | 3.26          | 0.29         |   |
| 18   | United Kingdom             | 2.88  | 48.22         | 0.86         |   | 91   | Honduras                    | 0.10  | 3.25          | 0.28         |   |
| 19   | Tunisia (2011)             | 2.80  | 47.50         | 0.86         | ● | 92   | Kyrgyzstan                  | 0.09  | 2.88          | 0.27         |   |
| 20   | Japan                      | 2.70  | 46.55         | 0.85         |   | 93   | Malawi (2011)               | 0.08  | 2.72          | 0.26         |   |
| 21   | Turkey                     | 2.51  | 44.62         | 0.84         | ● | 94   | Sudan                       | 0.08  | 2.61          | 0.26         |   |
| 22   | Korea, Rep.                | 2.49  | 44.36         | 0.83         |   | 95   | Albania                     | 0.08  | 2.53          | 0.25         |   |
| 23   | Ireland                    | 2.21  | 41.39         | 0.82         |   | 96   | Nigeria                     | 0.07  | 2.34          | 0.24         |   |
| 24   | Italy                      | 2.14  | 40.59         | 0.82         |   | 97   | Moldova, Rep.               | 0.07  | 2.27          | 0.23         |   |
| 25   | Indonesia                  | 2.10  | 40.08         | 0.81         | ● | 98   | United Arab Emirates (2008) | 0.06  | 2.07          | 0.22         | ○ |
| 26   | Portugal                   | 2.04  | 39.37         | 0.80         |   | 99   | Ecuador                     | 0.06  | 2.06          | 0.22         |   |
| 27   | Belgium                    | 2.03  | 39.25         | 0.79         |   | 100  | Georgia                     | 0.06  | 2.01          | 0.21         |   |
| 28   | Romania                    | 1.90  | 37.73         | 0.78         | ● | 101  | Paraguay                    | 0.06  | 2.01          | 0.20         |   |
| 29   | Germany                    | 1.87  | 37.33         | 0.78         |   | 102  | Tanzania, United Rep.       | 0.06  | 1.95          | 0.19         |   |
| 30   | Sweden                     | 1.80  | 36.41         | 0.77         |   | 103  | Trinidad and Tobago (2010)  | 0.06  | 1.92          | 0.18         |   |
| 31   | Israel                     | 1.79  | 36.27         | 0.76         |   | 104  | Jamaica                     | 0.05  | 1.77          | 0.18         |   |
| 32   | Denmark                    | 1.72  | 35.41         | 0.75         |   | 105  | Nicaragua                   | 0.05  | 1.67          | 0.17         |   |
| 33   | United States of America   | 1.71  | 35.25         | 0.74         |   | 106  | Zambia (2011)               | 0.05  | 1.59          | 0.16         |   |
| 34   | France                     | 1.67  | 34.69         | 0.74         |   | 107  | Rwanda                      | 0.03  | 1.16          | 0.15         |   |
| 35   | Lithuania                  | 1.55  | 33.14         | 0.73         |   | 108  | Togo                        | 0.03  | 1.15          | 0.14         |   |
| 36   | Estonia                    | 1.26  | 28.82         | 0.72         |   | 109  | Myanmar (2010)              | 0.03  | 0.99          | 0.14         |   |
| 37   | Austria                    | 1.26  | 28.68         | 0.71         |   | 110  | Burkina Faso (2011)         | 0.03  | 0.92          | 0.13         |   |
| 38   | Malta                      | 1.08  | 25.74         | 0.70         |   | 111  | Cyprus                      | 0.02  | 0.78          | 0.12         | ○ |
| 39   | Dominican Republic         | 0.98  | 24.08         | 0.70         | ● | 112  | Côte d'Ivoire               | 0.02  | 0.77          | 0.11         |   |
| 40   | Spain                      | 0.92  | 22.84         | 0.69         |   | 113  | Ethiopia                    | 0.02  | 0.72          | 0.10         |   |
| 41   | Mauritius                  | 0.91  | 22.75         | 0.68         |   | 114  | Ghana                       | 0.02  | 0.65          | 0.10         | ○ |
| 42   | Bulgaria                   | 0.86  | 21.74         | 0.67         |   | 115  | Mozambique                  | 0.02  | 0.58          | 0.09         |   |
| 43   | Serbia                     | 0.82  | 20.91         | 0.66         |   | 116  | Mongolia (2007)             | 0.01  | 0.41          | 0.08         | ○ |
| 44   | Slovenia                   | 0.79  | 20.38         | 0.66         |   | 117  | Gambia (2011)               | 0.01  | 0.38          | 0.07         |   |
| 45   | Jordan                     | 0.77  | 19.98         | 0.65         |   | 118  | Oman                        | 0.01  | 0.35          | 0.06         | ○ |
| 46   | El Salvador                | 0.75  | 19.60         | 0.64         |   | 119  | Niger                       | 0.01  | 0.34          | 0.06         |   |
| 47   | Finland                    | 0.75  | 19.56         | 0.63         |   | 120  | Guyana                      | 0.01  | 0.34          | 0.05         | ○ |
| 48   | Costa Rica                 | 0.70  | 18.67         | 0.62         |   | 121  | Azerbaijan                  | 0.01  | 0.24          | 0.04         | ○ |
| 49   | Canada                     | 0.67  | 17.90         | 0.62         |   | 122  | Mali                        | 0.01  | 0.23          | 0.03         | ○ |
| 50   | Bolivia, Plurinational St. | 0.66  | 17.79         | 0.61         | ● | 123  | Bahrain (2011)              | 0.01  | 0.16          | 0.02         | ○ |
| 51   | Ukraine                    | 0.66  | 17.67         | 0.60         |   | 124  | Algeria                     | 0.00  | 0.04          | 0.02         | ○ |
| 52   | Australia                  | 0.65  | 17.42         | 0.59         |   | 125  | Qatar (2011)                | 0.00  | 0.01          | 0.01         | ○ |
| 53   | South Africa               | 0.54  | 15.11         | 0.58         |   | 126  | Yemen                       | 0.00  | 0.00          | 0.00         | ○ |
| 54   | Norway                     | 0.54  | 14.98         | 0.58         |   | n/a  | Angola                      | n/a   | n/a           | n/a          |   |
| 55   | Greece                     | 0.53  | 14.97         | 0.57         |   | n/a  | Bangladesh                  | n/a   | n/a           | n/a          |   |
| 56   | Kenya (2010)               | 0.53  | 14.78         | 0.56         |   | n/a  | Barbados                    | n/a   | n/a           | n/a          |   |
| 57   | Guatemala                  | 0.50  | 14.05         | 0.55         |   | n/a  | Benin                       | n/a   | n/a           | n/a          |   |
| 58   | Egypt                      | 0.47  | 13.53         | 0.54         |   | n/a  | Botswana                    | n/a   | n/a           | n/a          |   |
| 59   | Iran, Islamic Rep. (2011)  | 0.47  | 13.48         | 0.54         |   | n/a  | Cabo Verde                  | n/a   | n/a           | n/a          |   |
| 60   | Lebanon (2011)             | 0.46  | 13.14         | 0.53         |   | n/a  | Cameroon                    | n/a   | n/a           | n/a          |   |
| 61   | Belarus                    | 0.45  | 12.99         | 0.52         |   | n/a  | Guinea                      | n/a   | n/a           | n/a          |   |
| 62   | Croatia                    | 0.45  | 12.95         | 0.51         |   | n/a  | Kuwait                      | n/a   | n/a           | n/a          |   |
| 63   | Namibia                    | 0.43  | 12.52         | 0.50         |   | n/a  | Lesotho                     | n/a   | n/a           | n/a          |   |
| 64   | Kazakhstan                 | 0.43  | 12.39         | 0.50         |   | n/a  | Morocco                     | n/a   | n/a           | n/a          |   |
| 65   | Brunei Darussalam          | 0.36  | 10.80         | 0.49         |   | n/a  | Philippines                 | n/a   | n/a           | n/a          |   |
| 66   | Nepal (2011)               | 0.36  | 10.58         | 0.48         |   | n/a  | Seychelles                  | n/a   | n/a           | n/a          |   |
| 67   | New Zealand                | 0.34  | 10.12         | 0.47         | ○ | n/a  | Swaziland                   | n/a   | n/a           | n/a          |   |
| 68   | Cambodia                   | 0.31  | 9.44          | 0.46         |   | n/a  | Tajikistan                  | n/a   | n/a           | n/a          |   |
| 69   | Sri Lanka                  | 0.30  | 9.20          | 0.46         |   | n/a  | Uzbekistan                  | n/a   | n/a           | n/a          |   |
| 70   | Colombia                   | 0.30  | 9.05          | 0.45         |   | n/a  | Venezuela, Bolivarian Rep.  | n/a   | n/a           | n/a          |   |
| 71   | Peru                       | 0.30  | 9.03          | 0.44         |   |      |                             |       |               |              |   |
| 72   | Armenia                    | 0.30  | 9.02          | 0.43         |   |      |                             |       |               |              |   |
| 73   | Hong Kong (China)          | 0.29  | 8.89          | 0.42         | ○ |      |                             |       |               |              |   |

SOURCE: United Nations, COMTRADE database; 2009 UNESCO Framework for Cultural Statistics; World Trade Organization, Trade in Commercial Services (2007–12)

NOTE: ● indicates a strength; ○ a weakness.

## 7.3.1

## Generic top-level domains (gTLDs)

Generic top-level domains gTLDs (per thousand population 15–69 years old) | 2013

| Rank | Country/Economy          | Value  | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|--------------------------|--------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Iceland                  | 100.00 | 100.00        | 0.98         | ● | 74   | Oman                       | 2.99  | 2.99          | 0.49         |   |
| 1    | Luxembourg               | 100.00 | 100.00        | 0.98         | ● | 75   | Mexico                     | 2.90  | 2.90          | 0.48         |   |
| 1    | Seychelles               | 100.00 | 100.00        | 0.98         | ● | 76   | Belarus                    | 2.88  | 2.88          | 0.47         |   |
| 1    | United States of America | 100.00 | 100.00        | 0.98         | ● | 77   | Nicaragua                  | 2.88  | 2.88          | 0.46         |   |
| 5    | Malta                    | 97.54  | 97.54         | 0.97         | ● | 78   | Fiji                       | 2.88  | 2.88          | 0.46         |   |
| 6    | Canada                   | 92.90  | 92.90         | 0.96         | ● | 79   | Moldova, Rep.              | 2.84  | 2.84          | 0.45         |   |
| 7    | Cyprus                   | 90.62  | 90.62         | 0.96         | ● | 80   | Tunisia                    | 2.73  | 2.73          | 0.44         |   |
| 8    | Netherlands              | 89.04  | 89.04         | 0.95         |   | 81   | Bosnia and Herzegovina     | 2.73  | 2.73          | 0.44         |   |
| 9    | Hong Kong (China)        | 84.61  | 84.61         | 0.94         |   | 82   | El Salvador                | 2.57  | 2.57          | 0.43         |   |
| 10   | Australia                | 83.58  | 83.58         | 0.94         |   | 83   | Armenia                    | 2.54  | 2.54          | 0.42         |   |
| 11   | Switzerland              | 77.20  | 77.20         | 0.93         |   | 84   | Iran, Islamic Rep.         | 2.32  | 2.32          | 0.42         |   |
| 12   | United Kingdom           | 76.04  | 76.04         | 0.92         |   | 85   | Venezuela, Bolivarian Rep. | 2.26  | 2.26          | 0.41         |   |
| 13   | Ireland                  | 74.13  | 74.13         | 0.92         |   | 86   | China                      | 2.23  | 2.23          | 0.40         |   |
| 14   | Panama                   | 67.33  | 67.33         | 0.91         | ● | 87   | Paraguay                   | 2.18  | 2.18          | 0.39         |   |
| 15   | Germany                  | 65.67  | 65.67         | 0.90         |   | 88   | Viet Nam                   | 2.12  | 2.12          | 0.39         |   |
| 16   | Norway                   | 60.62  | 60.62         | 0.89         |   | 89   | Bhutan                     | 2.10  | 2.10          | 0.38         |   |
| 17   | Denmark                  | 58.66  | 58.66         | 0.89         |   | 90   | Morocco                    | 2.08  | 2.08          | 0.37         |   |
| 18   | Austria                  | 49.41  | 49.41         | 0.88         |   | 91   | Niger                      | 2.02  | 2.02          | 0.37         |   |
| 19   | Sweden                   | 49.01  | 49.01         | 0.87         |   | 92   | Brazil                     | 2.01  | 2.01          | 0.36         |   |
| 20   | France                   | 48.59  | 48.59         | 0.87         |   | 93   | Georgia                    | 2.01  | 2.01          | 0.35         |   |
| 21   | New Zealand              | 41.12  | 41.12         | 0.86         |   | 94   | Ecuador                    | 1.94  | 1.94          | 0.35         |   |
| 22   | Singapore                | 33.24  | 33.24         | 0.85         |   | 95   | Bolivia, Plurinational St. | 1.94  | 1.94          | 0.34         |   |
| 23   | Israel                   | 32.14  | 32.14         | 0.85         |   | 96   | Indonesia                  | 1.87  | 1.87          | 0.33         |   |
| 24   | Spain                    | 31.01  | 31.01         | 0.84         |   | 97   | Swaziland                  | 1.78  | 1.78          | 0.32         |   |
| 25   | Slovenia                 | 29.07  | 29.07         | 0.83         |   | 98   | Egypt                      | 1.73  | 1.73          | 0.32         |   |
| 26   | Finland                  | 28.79  | 28.79         | 0.82         |   | 99   | Azerbaijan                 | 1.70  | 1.70          | 0.31         |   |
| 27   | Italy                    | 25.06  | 25.06         | 0.82         |   | 100  | Philippines                | 1.54  | 1.54          | 0.30         |   |
| 28   | Bulgaria                 | 23.28  | 23.28         | 0.81         | ● | 101  | Sri Lanka                  | 1.36  | 1.36          | 0.30         |   |
| 29   | Belgium                  | 22.72  | 22.72         | 0.80         |   | 102  | India                      | 1.22  | 1.22          | 0.29         |   |
| 30   | Portugal                 | 21.34  | 21.34         | 0.80         |   | 103  | Botswana                   | 1.15  | 1.15          | 0.28         |   |
| 31   | Japan                    | 20.33  | 20.33         | 0.79         |   | 104  | Senegal                    | 1.06  | 1.06          | 0.27         |   |
| 32   | Mauritius                | 17.51  | 17.51         | 0.78         |   | 105  | Kenya                      | 0.94  | 0.94          | 0.27         |   |
| 33   | Costa Rica               | 15.69  | 15.69         | 0.77         | ● | 106  | Mongolia                   | 0.94  | 0.94          | 0.26         |   |
| 34   | Lithuania                | 15.10  | 15.10         | 0.77         |   | 107  | Ghana                      | 0.82  | 0.82          | 0.25         |   |
| 35   | Czech Republic           | 15.06  | 15.06         | 0.76         |   | 108  | Togo                       | 0.82  | 0.82          | 0.25         |   |
| 36   | Croatia                  | 14.94  | 14.94         | 0.75         |   | 109  | Honduras                   | 0.78  | 0.78          | 0.24         |   |
| 37   | Estonia                  | 14.34  | 14.34         | 0.75         |   | 110  | Benin                      | 0.74  | 0.74          | 0.23         |   |
| 38   | Greece                   | 14.04  | 14.04         | 0.74         |   | 111  | Cabo Verde                 | 0.73  | 0.73          | 0.23         |   |
| 39   | United Arab Emirates     | 13.85  | 13.85         | 0.73         |   | 112  | Cambodia                   | 0.71  | 0.71          | 0.22         |   |
| 40   | Turkey                   | 13.84  | 13.84         | 0.73         |   | 113  | Nigeria                    | 0.71  | 0.71          | 0.21         |   |
| 41   | Brunei Darussalam        | 13.55  | 13.55         | 0.72         |   | 114  | Nepal                      | 0.64  | 0.64          | 0.20         |   |
| 42   | Barbados                 | 12.94  | 12.94         | 0.71         |   | 115  | Pakistan                   | 0.63  | 0.63          | 0.20         |   |
| 43   | Latvia                   | 12.63  | 12.63         | 0.70         |   | 116  | Yemen                      | 0.56  | 0.56          | 0.19         |   |
| 44   | Hungary                  | 12.52  | 12.52         | 0.70         |   | 117  | Kazakhstan                 | 0.53  | 0.53          | 0.18         |   |
| 45   | Kuwait                   | 12.29  | 12.29         | 0.69         | ● | 118  | Zimbabwe                   | 0.53  | 0.53          | 0.18         |   |
| 46   | Lebanon                  | 11.57  | 11.57         | 0.68         |   | 119  | Bangladesh                 | 0.53  | 0.53          | 0.17         |   |
| 47   | Namibia                  | 11.00  | 11.00         | 0.68         | ● | 120  | Kyrgyzstan                 | 0.52  | 0.52          | 0.16         |   |
| 48   | Korea, Rep.              | 10.15  | 10.15         | 0.67         |   | 121  | Serbia                     | 0.49  | 0.49          | 0.15         | ○ |
| 49   | Jordan                   | 9.99   | 9.99          | 0.66         |   | 122  | Côte d'Ivoire              | 0.46  | 0.46          | 0.15         |   |
| 50   | Bahrain                  | 9.21   | 9.21          | 0.65         |   | 123  | Algeria                    | 0.46  | 0.46          | 0.14         |   |
| 51   | Poland                   | 8.67   | 8.67          | 0.65         |   | 124  | Cameroon                   | 0.41  | 0.41          | 0.13         |   |
| 52   | Uruguay                  | 8.41   | 8.41          | 0.64         |   | 125  | Uganda                     | 0.39  | 0.39          | 0.13         |   |
| 53   | Albania                  | 6.79   | 6.79          | 0.63         |   | 126  | Lesotho                    | 0.23  | 0.23          | 0.12         |   |
| 54   | Thailand                 | 6.70   | 6.70          | 0.63         |   | 127  | Malawi                     | 0.23  | 0.23          | 0.11         |   |
| 55   | Guatemala                | 6.68   | 6.68          | 0.62         | ● | 128  | Gambia                     | 0.22  | 0.22          | 0.11         |   |
| 56   | Trinidad and Tobago      | 6.67   | 6.67          | 0.61         |   | 129  | Rwanda                     | 0.20  | 0.20          | 0.10         |   |
| 57   | Malaysia                 | 6.09   | 6.09          | 0.61         |   | 130  | Tanzania, United Rep.      | 0.19  | 0.19          | 0.09         |   |
| 58   | Romania                  | 5.60   | 5.60          | 0.60         |   | 131  | Zambia                     | 0.19  | 0.19          | 0.08         |   |
| 59   | Ukraine                  | 5.08   | 5.08          | 0.59         |   | 132  | Madagascar                 | 0.18  | 0.18          | 0.08         |   |
| 60   | Qatar                    | 4.93   | 4.93          | 0.58         |   | 133  | Sudan                      | 0.18  | 0.18          | 0.07         |   |
| 61   | Peru                     | 4.75   | 4.75          | 0.58         |   | 134  | Mali                       | 0.16  | 0.16          | 0.06         |   |
| 62   | Slovakia                 | 4.47   | 4.47          | 0.57         |   | 135  | Angola                     | 0.12  | 0.12          | 0.06         |   |
| 63   | Saudi Arabia             | 4.42   | 4.42          | 0.56         |   | 136  | Tajikistan                 | 0.11  | 0.11          | 0.05         | ○ |
| 64   | South Africa             | 4.22   | 4.22          | 0.56         |   | 137  | Guinea                     | 0.11  | 0.11          | 0.04         |   |
| 65   | Russian Federation       | 4.07   | 4.07          | 0.55         |   | 138  | Uzbekistan                 | 0.11  | 0.11          | 0.04         | ○ |
| 66   | Colombia                 | 3.80   | 3.80          | 0.54         |   | 139  | Myanmar                    | 0.09  | 0.09          | 0.03         |   |
| 67   | Argentina                | 3.74   | 3.74          | 0.54         |   | 140  | Mozambique                 | 0.07  | 0.07          | 0.02         | ○ |
| 68   | Montenegro               | 3.35   | 3.35          | 0.53         |   | 141  | Burundi                    | 0.05  | 0.05          | 0.01         | ○ |
| 69   | Guyana                   | 3.24   | 3.24          | 0.52         |   | 142  | Burkina Faso               | 0.01  | 0.01          | 0.01         | ○ |
| 70   | Chile                    | 3.22   | 3.22          | 0.51         |   | 143  | Ethiopia                   | 0.00  | 0.00          | 0.00         | ○ |
| 71   | Jamaica                  | 3.19   | 3.19          | 0.51         |   |      |                            |       |               |              |   |
| 72   | TFYR of Macedonia        | 3.19   | 3.19          | 0.50         |   |      |                            |       |               |              |   |
| 73   | Dominican Republic       | 3.14   | 3.14          | 0.49         |   |      |                            |       |               |              |   |

SOURCE: ZookNIC Inc; United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2012 Revision* (population)

NOTE: ● indicates a strength; ○ a weakness.

# 7.3.2

## Country-code top-level domains (ccTLDs)

Country-code top-level domains ccTLDs (per thousand population 15–69 years old) | 2013

| Rank | Country/Economy            | Value  | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value | Score (0–100) | Percent rank |   |
|------|----------------------------|--------|---------------|--------------|---|------|----------------------------|-------|---------------|--------------|---|
| 1    | Montenegro                 | 100.00 | 100.00        | 1.00         | ● | 74   | Brunei Darussalam          | 21.31 | 21.31         | 0.49         |   |
| 2    | Netherlands                | 82.35  | 82.35         | 0.99         | ● | 75   | Peru                       | 20.84 | 20.84         | 0.48         |   |
| 3    | Denmark                    | 77.59  | 77.59         | 0.99         | ● | 76   | Barbados                   | 20.74 | 20.74         | 0.47         |   |
| 4    | Switzerland                | 77.48  | 77.48         | 0.98         |   | 77   | Dominican Republic         | 20.64 | 20.64         | 0.46         |   |
| 5    | Germany                    | 75.32  | 75.32         | 0.97         | ● | 78   | Paraguay                   | 20.32 | 20.32         | 0.46         |   |
| 6    | United Kingdom             | 73.87  | 73.87         | 0.96         | ● | 79   | Panama                     | 20.16 | 20.16         | 0.45         |   |
| 7    | Luxembourg                 | 71.89  | 71.89         | 0.96         |   | 80   | Jamaica                    | 20.00 | 20.00         | 0.44         |   |
| 8    | Iceland                    | 71.56  | 71.56         | 0.95         |   | 81   | Ecuador                    | 19.93 | 19.93         | 0.44         |   |
| 9    | Sweden                     | 71.55  | 71.55         | 0.94         |   | 82   | Albania                    | 19.62 | 19.62         | 0.43         |   |
| 10   | Austria                    | 71.34  | 71.34         | 0.94         | ● | 83   | Azerbaijan                 | 18.64 | 18.64         | 0.42         |   |
| 11   | Belgium                    | 70.36  | 70.36         | 0.93         | ● | 84   | Trinidad and Tobago        | 17.01 | 17.01         | 0.42         |   |
| 12   | New Zealand                | 69.37  | 69.37         | 0.92         |   | 85   | Cabo Verde                 | 16.92 | 16.92         | 0.41         |   |
| 13   | Norway                     | 69.34  | 69.34         | 0.92         |   | 86   | Bhutan                     | 15.24 | 15.24         | 0.40         |   |
| 14   | Australia                  | 68.88  | 68.88         | 0.91         |   | 87   | Nepal                      | 14.93 | 14.93         | 0.39         |   |
| 15   | Czech Republic             | 66.52  | 66.52         | 0.90         |   | 88   | India                      | 14.91 | 14.91         | 0.39         |   |
| 16   | Argentina                  | 62.90  | 62.90         | 0.89         | ● | 89   | Morocco                    | 14.38 | 14.38         | 0.38         |   |
| 17   | Hungary                    | 60.41  | 60.41         | 0.89         | ● | 90   | Nicaragua                  | 13.87 | 13.87         | 0.37         |   |
| 18   | Finland                    | 60.39  | 60.39         | 0.88         |   | 91   | El Salvador                | 13.59 | 13.59         | 0.37         |   |
| 19   | Poland                     | 60.17  | 60.17         | 0.87         | ● | 92   | Saudi Arabia               | 13.31 | 13.31         | 0.36         |   |
| 20   | Canada                     | 59.95  | 59.95         | 0.87         |   | 93   | Swaziland                  | 12.50 | 12.50         | 0.35         |   |
| 21   | Estonia                    | 59.23  | 59.23         | 0.86         |   | 94   | Guatemala                  | 12.38 | 12.38         | 0.35         |   |
| 22   | Portugal                   | 59.07  | 59.07         | 0.85         |   | 95   | Kuwait                     | 12.10 | 12.10         | 0.34         |   |
| 23   | Latvia                     | 58.25  | 58.25         | 0.85         | ● | 96   | Bolivia, Plurinational St. | 12.06 | 12.06         | 0.33         |   |
| 24   | Slovakia                   | 58.06  | 58.06         | 0.84         | ● | 97   | Kyrgyzstan                 | 12.04 | 12.04         | 0.32         |   |
| 25   | Slovenia                   | 58.01  | 58.01         | 0.83         |   | 98   | Honduras                   | 11.57 | 11.57         | 0.32         |   |
| 26   | Lithuania                  | 57.94  | 57.94         | 0.82         |   | 99   | Thailand                   | 10.97 | 10.97         | 0.31         |   |
| 27   | Seychelles                 | 56.21  | 56.21         | 0.82         | ● | 100  | Kenya                      | 10.80 | 10.80         | 0.30         |   |
| 28   | Italy                      | 55.69  | 55.69         | 0.81         |   | 101  | Tajikistan                 | 10.73 | 10.73         | 0.30         |   |
| 29   | France                     | 55.67  | 55.67         | 0.80         |   | 102  | Gambia                     | 10.48 | 10.48         | 0.29         |   |
| 30   | Ireland                    | 55.00  | 55.00         | 0.80         |   | 103  | Philippines                | 10.12 | 10.12         | 0.28         |   |
| 31   | Greece                     | 53.76  | 53.76         | 0.79         |   | 104  | Cameroon                   | 9.51  | 9.51          | 0.27         |   |
| 32   | Spain                      | 53.12  | 53.12         | 0.78         |   | 105  | Lebanon                    | 9.10  | 9.10          | 0.27         |   |
| 33   | Russian Federation         | 51.90  | 51.90         | 0.77         |   | 106  | Jordan                     | 8.67  | 8.67          | 0.26         | ○ |
| 34   | Israel                     | 51.89  | 51.89         | 0.77         |   | 107  | Uzbekistan                 | 8.44  | 8.44          | 0.25         |   |
| 35   | Colombia                   | 51.82  | 51.82         | 0.76         |   | 108  | Tunisia                    | 7.19  | 7.19          | 0.25         |   |
| 36   | Romania                    | 51.46  | 51.46         | 0.75         |   | 109  | Indonesia                  | 6.38  | 6.38          | 0.24         |   |
| 37   | Singapore                  | 48.99  | 48.99         | 0.75         |   | 110  | Oman                       | 6.11  | 6.11          | 0.23         |   |
| 38   | Chile                      | 48.72  | 48.72         | 0.74         |   | 111  | Sri Lanka                  | 6.11  | 6.11          | 0.23         |   |
| 39   | Uruguay                    | 46.07  | 46.07         | 0.73         | ● | 112  | Senegal                    | 5.11  | 5.11          | 0.22         |   |
| 40   | Korea, Rep.                | 45.42  | 45.42         | 0.73         |   | 113  | Lesotho                    | 4.97  | 4.97          | 0.21         |   |
| 41   | Croatia                    | 44.65  | 44.65         | 0.72         |   | 114  | Pakistan                   | 4.39  | 4.39          | 0.20         |   |
| 42   | Hong Kong (China)          | 44.52  | 44.52         | 0.71         |   | 115  | Mozambique                 | 3.47  | 3.47          | 0.20         |   |
| 43   | South Africa               | 43.94  | 43.94         | 0.70         |   | 116  | Tanzania, United Rep.      | 3.42  | 3.42          | 0.19         |   |
| 44   | Brazil                     | 42.98  | 42.98         | 0.70         |   | 117  | Côte d'Ivoire              | 3.33  | 3.33          | 0.18         |   |
| 45   | Ukraine                    | 41.26  | 41.26         | 0.69         |   | 118  | Botswana                   | 3.30  | 3.30          | 0.18         |   |
| 46   | Malta                      | 40.63  | 40.63         | 0.68         |   | 119  | Burundi                    | 3.28  | 3.28          | 0.17         |   |
| 47   | Japan                      | 37.74  | 37.74         | 0.68         |   | 120  | Malawi                     | 2.96  | 2.96          | 0.16         |   |
| 48   | Cyprus                     | 37.41  | 37.41         | 0.67         |   | 121  | Algeria                    | 2.45  | 2.45          | 0.15         |   |
| 49   | Belarus                    | 36.40  | 36.40         | 0.66         |   | 122  | Uganda                     | 2.15  | 2.15          | 0.15         |   |
| 50   | United Arab Emirates       | 35.21  | 35.21         | 0.65         |   | 123  | Cambodia                   | 2.02  | 2.02          | 0.14         |   |
| 51   | Venezuela, Bolivarian Rep. | 34.53  | 34.53         | 0.65         | ● | 124  | Madagascar                 | 1.95  | 1.95          | 0.13         |   |
| 52   | Serbia                     | 34.17  | 34.17         | 0.64         |   | 125  | Namibia                    | 1.92  | 1.92          | 0.13         | ○ |
| 53   | Armenia                    | 32.61  | 32.61         | 0.63         |   | 126  | Zimbabwe                   | 1.80  | 1.80          | 0.12         |   |
| 54   | Malaysia                   | 31.25  | 31.25         | 0.63         |   | 127  | Nigeria                    | 1.66  | 1.66          | 0.11         |   |
| 55   | China                      | 31.16  | 31.16         | 0.62         |   | 128  | Rwanda                     | 1.45  | 1.45          | 0.11         |   |
| 56   | Qatar                      | 31.04  | 31.04         | 0.61         |   | 129  | Egypt                      | 1.42  | 1.42          | 0.10         | ○ |
| 57   | Kazakhstan                 | 30.89  | 30.89         | 0.61         |   | 130  | Yemen                      | 0.86  | 0.86          | 0.09         |   |
| 58   | Moldova, Rep.              | 30.87  | 30.87         | 0.60         |   | 131  | Benin                      | 0.86  | 0.86          | 0.08         |   |
| 59   | Mexico                     | 30.06  | 30.06         | 0.59         |   | 132  | Bangladesh                 | 0.62  | 0.62          | 0.08         |   |
| 60   | Iran, Islamic Rep.         | 30.04  | 30.04         | 0.58         |   | 133  | Angola                     | 0.39  | 0.39          | 0.07         |   |
| 61   | United States of America   | 29.84  | 29.84         | 0.58         |   | 134  | Ethiopia                   | 0.31  | 0.31          | 0.06         |   |
| 62   | Mauritius                  | 29.61  | 29.61         | 0.57         |   | 135  | Guinea                     | 0.27  | 0.27          | 0.06         |   |
| 63   | Viet Nam                   | 27.60  | 27.60         | 0.56         |   | 136  | Myanmar                    | 0.26  | 0.26          | 0.05         |   |
| 64   | Georgia                    | 27.41  | 27.41         | 0.56         |   | 137  | Sudan                      | 0.26  | 0.26          | 0.04         |   |
| 65   | Turkey                     | 27.37  | 27.37         | 0.55         |   | 138  | Niger                      | 0.23  | 0.23          | 0.04         |   |
| 66   | Bulgaria                   | 27.35  | 27.35         | 0.54         |   | 139  | Burkina Faso               | 0.13  | 0.13          | 0.03         | ○ |
| 67   | Fiji                       | 27.15  | 27.15         | 0.54         |   | 140  | Zambia                     | 0.05  | 0.05          | 0.02         | ○ |
| 68   | Guyana                     | 25.80  | 25.80         | 0.53         |   | 141  | Ghana                      | 0.04  | 0.04          | 0.01         | ○ |
| 69   | Bosnia and Herzegovina     | 25.07  | 25.07         | 0.52         |   | 142  | Mali                       | 0.03  | 0.03          | 0.01         | ○ |
| 70   | Mongolia                   | 24.16  | 24.16         | 0.51         |   | 143  | Togo                       | 0.00  | 0.00          | 0.00         | ○ |
| 71   | TFYR of Macedonia          | 23.04  | 23.04         | 0.51         |   |      |                            |       |               |              |   |
| 72   | Costa Rica                 | 22.64  | 22.64         | 0.50         |   |      |                            |       |               |              |   |
| 73   | Bahrain                    | 22.60  | 22.60         | 0.49         |   |      |                            |       |               |              |   |

SOURCE: ZookNIC Inc; United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2012 Revision* (population)

NOTE: ● indicates a strength; ○ a weakness.



## 7.3.3

## Wikipedia monthly edits

Wikipedia monthly page edits (per million population 15–69 years old) | 2013

| Rank | Country/Economy          | Value     | Score (0–100) | Percent rank |   | Rank | Country/Economy            | Value    | Score (0–100) | Percent rank |   |
|------|--------------------------|-----------|---------------|--------------|---|------|----------------------------|----------|---------------|--------------|---|
| 1    | Estonia                  | 58,894.49 | 100.00        | 1.00         | ● | 74   | Trinidad and Tobago        | 2,459.96 | 4.17          | 0.48         |   |
| 2    | Norway                   | 43,209.91 | 73.37         | 0.99         | ● | 75   | Venezuela, Bolivarian Rep. | 2,381.60 | 4.04          | 0.48         |   |
| 3    | Finland                  | 42,876.24 | 72.80         | 0.99         |   | 76   | Mexico                     | 2,306.95 | 3.91          | 0.47         |   |
| 4    | Iceland                  | 42,761.21 | 72.60         | 0.98         | ● | 77   | Panama                     | 2,261.69 | 3.83          | 0.46         |   |
| 5    | Sweden                   | 38,695.25 | 65.70         | 0.97         | ● | 78   | Lebanon                    | 2,259.84 | 3.83          | 0.45         |   |
| 6    | Israel                   | 38,503.33 | 65.37         | 0.96         | ● | 79   | Philippines                | 2,190.87 | 3.71          | 0.45         |   |
| 7    | Netherlands              | 33,562.32 | 56.98         | 0.96         |   | 80   | Jordan                     | 2,151.77 | 3.64          | 0.44         |   |
| 8    | Hong Kong (China)        | 30,069.00 | 51.05         | 0.95         |   | 81   | El Salvador                | 2,043.95 | 3.46          | 0.43         |   |
| 9    | Belgium                  | 29,735.82 | 50.49         | 0.94         | ● | 82   | Paraguay                   | 1,957.28 | 3.31          | 0.43         |   |
| 10   | Luxembourg               | 27,784.58 | 47.17         | 0.94         |   | 83   | Brunei Darussalam          | 1,852.59 | 3.14          | 0.42         |   |
| 11   | United Kingdom           | 27,536.22 | 46.75         | 0.93         |   | 84   | Dominican Republic         | 1,759.97 | 2.98          | 0.41         |   |
| 12   | Malta                    | 27,516.41 | 46.72         | 0.92         |   | 85   | Fiji                       | 1,651.02 | 2.79          | 0.40         |   |
| 13   | France                   | 27,124.11 | 46.05         | 0.91         | ● | 86   | Jamaica                    | 1,541.43 | 2.61          | 0.40         |   |
| 14   | Slovenia                 | 26,997.82 | 45.84         | 0.91         |   | 87   | Honduras                   | 1,398.69 | 2.37          | 0.39         |   |
| 15   | Germany                  | 24,636.86 | 41.83         | 0.90         |   | 88   | Tunisia                    | 1,389.37 | 2.35          | 0.38         |   |
| 16   | Ireland                  | 24,573.80 | 41.72         | 0.89         |   | 89   | Nicaragua                  | 1,360.01 | 2.30          | 0.38         |   |
| 17   | Italy                    | 24,558.72 | 41.69         | 0.89         | ● | 90   | Kyrgyzstan                 | 1,342.61 | 2.27          | 0.37         |   |
| 18   | Switzerland              | 23,126.31 | 39.26         | 0.88         |   | 91   | Sri Lanka                  | 1,282.50 | 2.17          | 0.36         |   |
| 19   | Czech Republic           | 21,838.57 | 37.08         | 0.87         |   | 92   | Guatemala                  | 1,239.66 | 2.10          | 0.35         |   |
| 20   | Latvia                   | 21,760.91 | 36.94         | 0.87         | ● | 93   | Viet Nam                   | 1,142.91 | 1.93          | 0.35         |   |
| 21   | Denmark                  | 21,687.27 | 36.82         | 0.86         |   | 94   | Oman                       | 1,139.35 | 1.93          | 0.34         |   |
| 22   | New Zealand              | 21,448.63 | 36.41         | 0.85         |   | 95   | South Africa               | 1,071.90 | 1.81          | 0.33         |   |
| 23   | Hungary                  | 21,090.52 | 35.80         | 0.84         |   | 96   | Egypt                      | 1,006.16 | 1.70          | 0.33         |   |
| 24   | Canada                   | 20,635.97 | 35.03         | 0.84         |   | 97   | Bolivia, Plurinational St. | 995.06   | 1.68          | 0.32         |   |
| 25   | Australia                | 20,276.21 | 34.42         | 0.83         |   | 98   | Morocco                    | 967.75   | 1.63          | 0.31         |   |
| 26   | Uruguay                  | 20,274.89 | 34.42         | 0.82         | ● | 99   | Seychelles                 | 920.67   | 1.55          | 0.30         |   |
| 27   | Austria                  | 19,348.09 | 32.85         | 0.82         |   | 100  | Namibia                    | 853.57   | 1.44          | 0.30         |   |
| 28   | Spain                    | 19,110.67 | 32.44         | 0.81         |   | 101  | Indonesia                  | 836.88   | 1.41          | 0.29         |   |
| 29   | Bulgaria                 | 18,504.05 | 31.41         | 0.80         |   | 102  | Nepal                      | 751.45   | 1.27          | 0.28         |   |
| 30   | Croatia                  | 17,144.13 | 29.10         | 0.79         | ● | 103  | Algeria                    | 700.51   | 1.18          | 0.28         |   |
| 31   | Lithuania                | 16,213.07 | 27.52         | 0.79         |   | 104  | Cabo Verde                 | 675.64   | 1.14          | 0.27         |   |
| 32   | Serbia                   | 15,063.82 | 25.57         | 0.78         |   | 105  | Guyana                     | 541.44   | 0.91          | 0.26         |   |
| 33   | Armenia                  | 14,960.06 | 25.39         | 0.77         | ● | 106  | India                      | 536.87   | 0.90          | 0.26         |   |
| 34   | TFYR of Macedonia        | 14,509.18 | 24.63         | 0.77         |   | 107  | Pakistan                   | 467.15   | 0.78          | 0.25         |   |
| 35   | Greece                   | 14,207.28 | 24.12         | 0.76         |   | 108  | Bhutan                     | 371.44   | 0.62          | 0.24         |   |
| 36   | Poland                   | 14,002.95 | 23.77         | 0.75         |   | 109  | Cambodia                   | 337.44   | 0.56          | 0.23         |   |
| 37   | United States of America | 13,812.18 | 23.45         | 0.74         |   | 110  | Tajikistan                 | 332.02   | 0.55          | 0.23         |   |
| 38   | Montenegro               | 12,433.82 | 21.10         | 0.74         |   | 111  | Yemen                      | 317.74   | 0.53          | 0.22         |   |
| 39   | Slovakia                 | 12,016.74 | 20.40         | 0.73         |   | 112  | Angola                     | 291.99   | 0.49          | 0.21         |   |
| 40   | Portugal                 | 11,967.62 | 20.31         | 0.72         |   | 113  | Ghana                      | 278.40   | 0.46          | 0.21         |   |
| 41   | Georgia                  | 11,912.30 | 20.22         | 0.72         |   | 114  | Botswana                   | 244.97   | 0.41          | 0.20         |   |
| 42   | Bosnia and Herzegovina   | 11,760.88 | 19.96         | 0.71         | ● | 115  | Bangladesh                 | 238.32   | 0.40          | 0.19         |   |
| 43   | Ukraine                  | 10,862.71 | 18.44         | 0.70         |   | 116  | Kenya                      | 234.33   | 0.39          | 0.18         |   |
| 44   | Cyprus                   | 10,396.96 | 17.65         | 0.70         |   | 117  | China                      | 190.12   | 0.31          | 0.18         |   |
| 45   | Chile                    | 10,125.82 | 17.19         | 0.69         |   | 118  | Uzbekistan                 | 146.67   | 0.24          | 0.17         |   |
| 46   | Japan                    | 9,289.18  | 15.76         | 0.68         |   | 119  | Swaziland                  | 145.07   | 0.24          | 0.16         |   |
| 47   | Russian Federation       | 9,098.54  | 15.44         | 0.67         |   | 120  | Senegal                    | 107.00   | 0.17          | 0.16         |   |
| 48   | Singapore                | 8,573.57  | 14.55         | 0.67         |   | 121  | Zimbabwe                   | 92.34    | 0.15          | 0.15         |   |
| 49   | Belarus                  | 7,714.70  | 13.09         | 0.66         |   | 122  | Rwanda                     | 90.08    | 0.14          | 0.14         |   |
| 50   | Korea, Rep.              | 7,577.28  | 12.86         | 0.65         |   | 123  | Tanzania, United Rep.      | 82.63    | 0.13          | 0.13         |   |
| 51   | Argentina                | 7,140.88  | 12.12         | 0.65         |   | 124  | Mozambique                 | 79.24    | 0.13          | 0.13         |   |
| 52   | Azerbaijan               | 6,203.32  | 10.52         | 0.64         |   | 125  | Sudan                      | 75.78    | 0.12          | 0.12         |   |
| 53   | Albania                  | 5,681.04  | 9.64          | 0.63         |   | 126  | Zambia                     | 74.34    | 0.12          | 0.11         |   |
| 54   | Kuwait                   | 5,220.24  | 8.86          | 0.62         |   | 127  | Cameroon                   | 74.30    | 0.12          | 0.11         |   |
| 55   | Moldova, Rep.            | 4,845.79  | 8.22          | 0.62         |   | 128  | Uganda                     | 70.34    | 0.11          | 0.10         | ○ |
| 56   | Qatar                    | 4,842.34  | 8.21          | 0.61         |   | 129  | Nigeria                    | 62.00    | 0.10          | 0.09         |   |
| 57   | Malaysia                 | 4,707.53  | 7.98          | 0.60         |   | 130  | Gambia                     | 61.64    | 0.10          | 0.09         |   |
| 58   | Mongolia                 | 4,504.56  | 7.64          | 0.60         |   | 131  | Lesotho                    | 43.49    | 0.06          | 0.08         |   |
| 59   | Costa Rica               | 4,284.15  | 7.27          | 0.59         |   | 132  | Madagascar                 | 37.70    | 0.05          | 0.07         |   |
| 60   | Kazakhstan               | 4,267.04  | 7.24          | 0.58         |   | 133  | Togo                       | 36.78    | 0.05          | 0.06         |   |
| 61   | Romania                  | 4,163.91  | 7.06          | 0.57         |   | 134  | Myanmar                    | 35.17    | 0.05          | 0.06         |   |
| 62   | United Arab Emirates     | 3,798.39  | 6.44          | 0.57         |   | 135  | Benin                      | 31.71    | 0.04          | 0.05         | ○ |
| 63   | Turkey                   | 3,514.90  | 5.96          | 0.56         |   | 136  | Ethiopia                   | 28.63    | 0.04          | 0.04         |   |
| 64   | Colombia                 | 3,505.18  | 5.94          | 0.55         |   | 137  | Mali                       | 26.66    | 0.04          | 0.04         | ○ |
| 65   | Brazil                   | 3,464.70  | 5.87          | 0.55         |   | 138  | Malawi                     | 23.91    | 0.03          | 0.03         | ○ |
| 66   | Bahrain                  | 3,226.24  | 5.47          | 0.54         |   | 139  | Burkina Faso               | 17.80    | 0.02          | 0.02         | ○ |
| 67   | Saudi Arabia             | 3,212.55  | 5.45          | 0.53         |   | 140  | Burundi                    | 13.49    | 0.01          | 0.01         | ○ |
| 68   | Peru                     | 3,190.15  | 5.41          | 0.52         |   | 141  | Niger                      | 12.83    | 0.01          | 0.01         | ○ |
| 69   | Barbados                 | 3,174.54  | 5.38          | 0.52         |   | 142  | Guinea                     | 5.33     | 0.00          | 0.00         | ○ |
| 70   | Iran, Islamic Rep.       | 2,736.42  | 4.64          | 0.51         |   | n/a  | Côte d'Ivoire              | n/a      | n/a           | n/a          |   |
| 71   | Mauritius                | 2,545.23  | 4.31          | 0.50         |   |      |                            |          |               |              |   |
| 72   | Ecuador                  | 2,516.35  | 4.26          | 0.50         |   |      |                            |          |               |              |   |
| 73   | Thailand                 | 2,472.01  | 4.19          | 0.49         |   |      |                            |          |               |              |   |

SOURCE: Wikimedia Foundation; United Nations, *World Population Prospects: The 2012 Revision* (population)

NOTE: ● indicates a strength; ○ a weakness.

# 7.3.4

## Video uploads on YouTube

Number of video uploads on YouTube (scaled by population 15–69 years old) | 2013

| Rank | Country/Economy            | Value  | Score (0–100) | Percent rank | Rank | Country/Economy | Value                      | Score (0–100) | Percent rank |
|------|----------------------------|--------|---------------|--------------|------|-----------------|----------------------------|---------------|--------------|
| 1    | United States of America   | 100.00 | 100.00        | 1.00         | ●    | n/a             | Bolivia, Plurinational St. | n/a           | n/a          |
| 2    | Hong Kong (China)          | 96.15  | 96.15         | 0.98         |      | n/a             | Bosnia and Herzegovina     | n/a           | n/a          |
| 3    | Netherlands                | 95.86  | 95.86         | 0.97         |      | n/a             | Botswana                   | n/a           | n/a          |
| 4    | United Kingdom             | 95.56  | 95.56         | 0.95         |      | n/a             | Brunei Darussalam          | n/a           | n/a          |
| 5    | Finland                    | 94.67  | 94.67         | 0.92         |      | n/a             | Bulgaria                   | n/a           | n/a          |
| 5    | Israel                     | 94.67  | 94.67         | 0.92         |      | n/a             | Burkina Faso               | n/a           | n/a          |
| 7    | Canada                     | 92.60  | 92.60         | 0.89         |      | n/a             | Burundi                    | n/a           | n/a          |
| 7    | Sweden                     | 92.60  | 92.60         | 0.89         |      | n/a             | Cabo Verde                 | n/a           | n/a          |
| 9    | Denmark                    | 91.12  | 91.12         | 0.87         |      | n/a             | Cambodia                   | n/a           | n/a          |
| 10   | Ireland                    | 90.68  | 90.68         | 0.86         |      | n/a             | Cameroon                   | n/a           | n/a          |
| 11   | Norway                     | 89.05  | 89.05         | 0.84         |      | n/a             | China                      | n/a           | n/a          |
| 12   | Singapore                  | 88.02  | 88.02         | 0.83         |      | n/a             | Costa Rica                 | n/a           | n/a          |
| 13   | Australia                  | 87.57  | 87.57         | 0.79         |      | n/a             | Côte d'Ivoire              | n/a           | n/a          |
| 13   | France                     | 87.57  | 87.57         | 0.79         |      | n/a             | Croatia                    | n/a           | n/a          |
| 15   | New Zealand                | 87.43  | 87.43         | 0.78         |      | n/a             | Cyprus                     | n/a           | n/a          |
| 16   | Spain                      | 87.28  | 87.28         | 0.76         |      | n/a             | Dominican Republic         | n/a           | n/a          |
| 17   | Belgium                    | 86.69  | 86.69         | 0.75         |      | n/a             | Ecuador                    | n/a           | n/a          |
| 18   | Czech Republic             | 86.24  | 86.24         | 0.73         |      | n/a             | El Salvador                | n/a           | n/a          |
| 19   | Hungary                    | 85.65  | 85.65         | 0.71         |      | n/a             | Estonia                    | n/a           | n/a          |
| 20   | Germany                    | 83.88  | 83.88         | 0.70         |      | n/a             | Ethiopia                   | n/a           | n/a          |
| 21   | Greece                     | 83.73  | 83.73         | 0.67         |      | n/a             | Fiji                       | n/a           | n/a          |
| 21   | Poland                     | 83.73  | 83.73         | 0.67         |      | n/a             | Gambia                     | n/a           | n/a          |
| 23   | Switzerland                | 82.69  | 82.69         | 0.65         |      | n/a             | Georgia                    | n/a           | n/a          |
| 24   | Portugal                   | 82.54  | 82.54         | 0.63         |      | n/a             | Guatemala                  | n/a           | n/a          |
| 25   | Austria                    | 81.66  | 81.66         | 0.62         |      | n/a             | Guinea                     | n/a           | n/a          |
| 26   | Italy                      | 81.51  | 81.51         | 0.59         |      | n/a             | Guyana                     | n/a           | n/a          |
| 26   | Romania                    | 81.51  | 81.51         | 0.59         |      | n/a             | Honduras                   | n/a           | n/a          |
| 28   | Saudi Arabia               | 80.47  | 80.47         | 0.56         |      | n/a             | Iceland                    | n/a           | n/a          |
| 28   | Ukraine                    | 80.47  | 80.47         | 0.56         |      | n/a             | Iran, Islamic Rep.         | n/a           | n/a          |
| 30   | Japan                      | 78.99  | 78.99         | 0.54         |      | n/a             | Jamaica                    | n/a           | n/a          |
| 31   | Chile                      | 78.85  | 78.85         | 0.52         |      | n/a             | Kazakhstan                 | n/a           | n/a          |
| 32   | Korea, Rep.                | 78.55  | 78.55         | 0.51         |      | n/a             | Kyrgyzstan                 | n/a           | n/a          |
| 33   | Russian Federation         | 78.25  | 78.25         | 0.49         |      | n/a             | Latvia                     | n/a           | n/a          |
| 34   | Argentina                  | 77.37  | 77.37         | 0.48         |      | n/a             | Lebanon                    | n/a           | n/a          |
| 35   | Slovakia                   | 76.78  | 76.78         | 0.46         |      | n/a             | Lesotho                    | n/a           | n/a          |
| 36   | Kuwait                     | 76.48  | 76.48         | 0.44         |      | n/a             | Lithuania                  | n/a           | n/a          |
| 37   | Brazil                     | 75.44  | 75.44         | 0.43         |      | n/a             | Luxembourg                 | n/a           | n/a          |
| 38   | Bahrain                    | 74.85  | 74.85         | 0.41         |      | n/a             | Madagascar                 | n/a           | n/a          |
| 39   | United Arab Emirates       | 71.30  | 71.30         | 0.40         |      | n/a             | Malawi                     | n/a           | n/a          |
| 40   | Mexico                     | 70.86  | 70.86         | 0.38         |      | n/a             | Mali                       | n/a           | n/a          |
| 41   | Peru                       | 70.41  | 70.41         | 0.37         |      | n/a             | Malta                      | n/a           | n/a          |
| 42   | Turkey                     | 70.27  | 70.27         | 0.35         |      | n/a             | Mauritius                  | n/a           | n/a          |
| 43   | Thailand                   | 69.53  | 69.53         | 0.33         |      | n/a             | Moldova, Rep.              | n/a           | n/a          |
| 44   | Qatar                      | 68.93  | 68.93         | 0.32         |      | n/a             | Mongolia                   | n/a           | n/a          |
| 45   | Malaysia                   | 68.64  | 68.64         | 0.30         | ○    | n/a             | Montenegro                 | n/a           | n/a          |
| 46   | Colombia                   | 67.31  | 67.31         | 0.29         |      | n/a             | Mozambique                 | n/a           | n/a          |
| 47   | Viet Nam                   | 65.83  | 65.83         | 0.27         |      | n/a             | Myanmar                    | n/a           | n/a          |
| 48   | Philippines                | 65.09  | 65.09         | 0.25         |      | n/a             | Namibia                    | n/a           | n/a          |
| 49   | Jordan                     | 62.13  | 62.13         | 0.24         | ○    | n/a             | Nepal                      | n/a           | n/a          |
| 50   | Egypt                      | 61.69  | 61.69         | 0.22         |      | n/a             | Nicaragua                  | n/a           | n/a          |
| 51   | Venezuela, Bolivarian Rep. | 59.91  | 59.91         | 0.21         |      | n/a             | Niger                      | n/a           | n/a          |
| 52   | Morocco                    | 58.88  | 58.88         | 0.17         | ○    | n/a             | Pakistan                   | n/a           | n/a          |
| 52   | Tunisia                    | 58.88  | 58.88         | 0.17         | ○    | n/a             | Panama                     | n/a           | n/a          |
| 54   | Oman                       | 56.80  | 56.80         | 0.16         |      | n/a             | Paraguay                   | n/a           | n/a          |
| 55   | Indonesia                  | 48.67  | 48.67         | 0.14         |      | n/a             | Rwanda                     | n/a           | n/a          |
| 56   | Algeria                    | 46.01  | 46.01         | 0.13         |      | n/a             | Serbia                     | n/a           | n/a          |
| 57   | South Africa               | 42.46  | 42.46         | 0.11         | ○    | n/a             | Seychelles                 | n/a           | n/a          |
| 58   | India                      | 41.57  | 41.57         | 0.10         | ○    | n/a             | Slovenia                   | n/a           | n/a          |
| 59   | Yemen                      | 36.24  | 36.24         | 0.08         |      | n/a             | Sri Lanka                  | n/a           | n/a          |
| 60   | Senegal                    | 31.07  | 31.07         | 0.06         | ○    | n/a             | Sudan                      | n/a           | n/a          |
| 61   | Kenya                      | 29.88  | 29.88         | 0.05         | ○    | n/a             | Swaziland                  | n/a           | n/a          |
| 62   | Ghana                      | 22.63  | 22.63         | 0.03         | ○    | n/a             | Tajikistan                 | n/a           | n/a          |
| 63   | Uganda                     | 15.68  | 15.68         | 0.02         | ○    | n/a             | Tanzania, United Rep.      | n/a           | n/a          |
| 64   | Nigeria                    | 0.00   | 0.00          | 0.00         | ○    | n/a             | TFYR of Macedonia          | n/a           | n/a          |
| n/a  | Albania                    | n/a    | n/a           | n/a          |      | n/a             | Togo                       | n/a           | n/a          |
| n/a  | Angola                     | n/a    | n/a           | n/a          |      | n/a             | Trinidad and Tobago        | n/a           | n/a          |
| n/a  | Armenia                    | n/a    | n/a           | n/a          |      | n/a             | Uruguay                    | n/a           | n/a          |
| n/a  | Azerbaijan                 | n/a    | n/a           | n/a          |      | n/a             | Uzbekistan                 | n/a           | n/a          |
| n/a  | Bangladesh                 | n/a    | n/a           | n/a          |      | n/a             | Zambia                     | n/a           | n/a          |
| n/a  | Barbados                   | n/a    | n/a           | n/a          |      | n/a             | Zimbabwe                   | n/a           | n/a          |
| n/a  | Belarus                    | n/a    | n/a           | n/a          |      |                 |                            |               |              |
| n/a  | Benin                      | n/a    | n/a           | n/a          |      |                 |                            |               |              |
| n/a  | Bhutan                     | n/a    | n/a           | n/a          |      |                 |                            |               |              |

SOURCE: Google, parent company of YouTube; United Nations, *World Population Prospects: The 2012 Revision* (population data)

NOTE: ● indicates a strength; ○ a weakness.



# Appendix III

Sources and Definitions



## Sources and Definitions

This appendix complements the data tables by providing, for each of the 81 indicators included in the Global Innovation Index (GII), its title, its description, its definition, and its source. For each indicator for each country/economy, the most recent value within the period 2004–13 was used. The single year given next to the description corresponds to the most frequent year for which data were available; when more than one year is considered, the period is indicated at the end of the indicator's source in parenthesis.

Some indicators received special treatment in the computation. A few variables required scaling by some other indicator to be comparable across countries, through division by gross domestic product (GDP) in current US dollars, purchasing power parity GDP in international dollars (PPP\$ GDP), population, total exports, and so on. Details are provided in this appendix. The scaling factor was in each case the value corresponding to the same year of the particular indicator. In addition, 36 indicators that were assigned half weight are singled out with an 'a'. Finally, indicators for which higher scores indicate worse outcomes, commonly known as 'bads', are differentiated with a 'b' (details on the computation can be found in Appendix IV Technical Notes). See also Annex 2 in Chapter 1 for more information regarding the use

of 'n/a' and zero in indicators 4.2.4, 5.2.4, 5.2.5, and 7.3.4.

A total of 56 variables are hard data; 20 are composite indicators from international agencies, distinguished with an asterisk (\*); and 5 are survey questions from the World Economic Forum's Executive Opinion Survey (EOS), singled out with a dagger (†).



## 1 Institutions

### 1.1 Political environment

#### 1.1.1 Political stability and absence of violence/terrorism

Political stability and absence of violence/terrorism index\* | 2012

Index that captures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism. Scores are standardized.

Source: World Bank, *World Governance Indicators, 2013 update*. (<http://info.worldbank.org/governance/wgi/index.aspx#home>)

#### 1.1.2 Government effectiveness

Government effectiveness index\* | 2012

Index that captures perceptions of the quality of public and civil services and the degree of their independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Scores are standardized.

Source: World Bank, *World Governance Indicators, 2013 update*. (<http://info.worldbank.org/governance/wgi/index.aspx#home>)

#### 1.1.3 Press freedom

Press freedom index\*<sup>b</sup> | 2013

Index that captures perceptions on violations of press freedom in the world. It reflects the degree of freedom that journalists and news organizations enjoy in each country and the efforts made by the authorities to respect and ensure respect for this freedom. It is based on events between the start of December 2012 and the end of November 2013.

Source: Reporters Without Borders, *Press Freedom Index 2013*. (<http://en.rsf.org/press-freedom-index-2013,1054.html>)

### 1.2 Regulatory environment

#### 1.2.1 Regulatory quality

Regulatory quality index\*<sup>a</sup> | 2012

Index that captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private-sector development. Scores are standardized.

Source: World Bank, *World Governance Indicators, 2013 update*. (<http://info.worldbank.org/governance/wgi/index.aspx#home>)

#### 1.2.2 Rule of law

Rule of law index\*<sup>a</sup> | 2012

Index that captures perceptions of the extent to which agents have confidence in and abide by the rules of society, in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Scores are standardized.

Source: World Bank, *World Governance Indicators, 2013 update*. (<http://info.worldbank.org/governance/wgi/index.aspx#home>)

#### 1.2.3 Cost of redundancy dismissal

Sum of notice period and severance pay for redundancy dismissal (in salary weeks, averages for workers with 1, 5, and 10 years of tenure, with a minimum threshold of 8 weeks)<sup>b</sup> | 2013

*Doing Business*, in its indicators on employing workers, measures flexibility in the regulation on redundancy in a manner consistent with relevant ILO conventions to strike a better balance between labour market flexibility and social protection (including unemployment protection). The redundancy cost indicator is the sum of the cost of advance notice requirements added to severance payments due when terminating a redundant worker, expressed in weeks of salary. The average value of notice requirements and severance payments applicable to a worker with 1 year of tenure, a worker with 5 years of tenure, and a worker with 10 years of tenure is used to assign the score. If the redundancy cost adds up to 8 or fewer weeks of salary, a value of 8 is assigned but the actual number of weeks is published. If the cost adds up to more than 8 weeks of salary, the score is the number of weeks. One month is recorded as 4 and 1/3 weeks. Assumptions about the worker: the worker earns a salary plus benefits equal to the economy's average wage during the entire period of his employment; has a pay period that is the most common for workers in the economy; is a lawful citizen who belongs to the same race and religion as the majority of the economy's population; resides in the economy's largest business city; and is not a member of a labour union, unless membership is mandatory. Assumptions about the business: the business is a limited liability company; it operates in the economy's largest business city; it is 100% domestically owned; it operates in the manufacturing sector; it has 60 employees; it is subject to collective bargaining agreements in economies where such agreements cover more than half the manufacturing sector and apply even

to firms not party to them; and it abides by every law and regulation but does not grant workers more benefits than mandated by law, regulation, or (if applicable) collective bargaining agreement.

Source: World Bank, *Doing Business 2014, Employing Workers*. (<http://www.doingbusiness.org/reports/global-reports/doing-business-2014>)

### 1.3 Business environment

#### 1.3.1 Ease of starting a business

Ease of starting a business (distance to frontier)\* | 2013

The ranking is the simple average of the percentile rankings on the component indicators of the ease of starting a business index: procedures (number); time (days); cost to complete each procedure (% of income per capita); and paid-in minimum capital (% of income per capita). *Doing Business* records all procedures that are officially required for an entrepreneur to start up and formally operate an industrial or commercial business. These include obtaining all necessary licenses and permits and completing any required notifications, verifications, or inscriptions for the company and employees with relevant authorities. To make the data comparable across economies, *Doing Business* uses a standardized business that is a limited liability company (or its legal equivalent); operates in the economy's largest business city; is 100% domestically owned and has 5 owners (none of whom is a legal entity); has start-up capital of 10 times income per capita, paid in cash; performs general industrial or commercial activities; it is not using heavily polluting production processes; leases the commercial plant or offices and is not a proprietor of real estate; does not qualify for investment incentives or any special benefits; has at least 10 and up to 50 employees 1 month after the commencement of operations, all of them domestic nationals; has a turnover of at least 100 times income per capita; and has a company deed 10 pages long. The distance to frontier measure benchmarks economies to the frontier in regulatory practice, measuring the absolute distance to the best performance on each indicator and showing how much the regulatory environment for local entrepreneurs in each economy has changed over time in absolute terms.

Source: World Bank, *Ease of Doing Business Index 2014, Doing Business 2014*. (<http://www.doingbusiness.org/reports/global-reports/doing-business-2014>)

### 1.3.2 Ease of resolving insolvency

Ease of resolving insolvency (distance to frontier)\* | 2013

The ranking on the ease of resolving insolvency is based on the recovery rate (cents on the dollar). To make the data comparable across economies, several assumptions about the business and the case are used: the recovery rate is recorded as cents on the dollar recouped by creditors through reorganization, liquidation, or debt enforcement (foreclosure) proceedings. The calculation takes into account the outcome: whether the business emerges from the proceedings as a going concern or the assets are sold piecemeal. Then the costs of the proceedings are deducted (1 cent for each percentage point of the value of the debtor's estate). Finally, the value lost as a result of the time the money remains tied up in insolvency proceedings is taken into account, including the loss of value due to depreciation of furniture, etc. The recovery rate is the present value of the remaining proceeds, based on end-2012 lending rates from the International Monetary Fund's *International Financial Statistics*, supplemented with data from central banks and the Economist Intelligence Unit. If an economy had zero cases a year over the past 5 years involving a judicial reorganization, judicial liquidation or debt enforcement procedure (foreclosure), the economy receives a 'no practice' ranking. This means that creditors are unlikely to recover their money through a formal legal process (in or out of court). The recovery rate for 'no practice' economies is zero. Indicators resolving insolvency—time (in years) and cost (% of estate), while also computed by *Doing Business*, are not taken into account for the ranking on the ease of resolving insolvency. Refer to indicator 1.3.1 for details regarding the distance to frontier measure.

Source: World Bank, *Ease of Doing Business Index 2014, Doing Business 2014*. (<http://www.doingbusiness.org/reports/global-reports/doing-business-2014>)

### 1.3.3 Ease of paying taxes

Ease of paying taxes (distance to frontier)\* | 2013

The ranking is the simple average of the percentile rankings on the component indicators of the ease of paying taxes: payments (number per year); time (hours per year); profit tax (%); labour tax and contributions (%); other taxes (%); and total tax rate (% profit). Since 2012, a threshold calculated and adjusted on a yearly basis is applied to the total tax rate. The threshold is equivalent to the

highest total tax rate among the top 15% of economies in the ranking on the total tax rate; this year the threshold is 25.5% (i.e., for all economies with a total tax rate below this threshold, the total tax rate is set at 25.5%). The threshold is not based on any underlying theory, but is intended to mitigate the effect of very low tax rates on the ranking of the ease of paying taxes. To make the data comparable across economies, several assumptions about the business and the taxes and contributions are used. The methodology benefited from discussion with members of the International Tax Dialogue and other stakeholders, which led to a refinement of the survey questions on the time to pay taxes, the collection of additional data on the labour tax wedge for further research, and the introduction of a threshold applied to the total tax rate for the purpose of calculating the ranking on the ease of paying taxes. Refer to indicator 1.3.1 for details regarding the distance to frontier measure.

Source: World Bank, *Ease of Doing Business Index 2014, Doing Business 2014*. (<http://www.doingbusiness.org/reports/global-reports/doing-business-2014>)

(students/households and other private entities).

Source: UNESCO Institute for Statistics, *UIS online database (2004–13)*. (<http://stats.uis.unesco.org>)

### 2.1.3 School life expectancy

School life expectancy, primary to tertiary education (years) | 2011

Total number of years of schooling that a child of a certain age can expect to receive in the future, assuming that the probability of his or her being enrolled in school at any particular age is equal to the current enrolment ratio for that age.

Source: UNESCO Institute for Statistics, *UIS online database (2004–12)*. (<http://stats.uis.unesco.org>)

### 2.1.4 Assessment in reading, mathematics, and science

PISA average scales in reading, mathematics, and science<sup>a</sup> | 2012

The Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA) develops three-yearly surveys that examine 15-year-old students' performance in reading, mathematics, and science. The scores are calculated in each year so that the mean is 500 and the standard deviation 100. The scores for China come from Shanghai; those for India from Himachal Pradesh and Tamil Nadu (average); those for the United Arab Emirates from Dubai; and those for the Bolivarian Republic of Venezuela from Miranda. These scores are those from the GII 2013 report.

Source: OECD Programme for International Student Assessment (PISA) (2010–12). ([www.pisa.oecd.org/](http://www.pisa.oecd.org/))

### 2.1.5 Pupil-teacher ratio, secondary

Pupil-teacher ratio, secondary<sup>a,b</sup> | 2011

The number of pupils enrolled in secondary school divided by the number of secondary school teachers (regardless of their teaching assignment). Where the data are missing for some countries, the ratios for upper-secondary are reported; if these are also missing, the ratios for lower-secondary are reported instead.

Source: UNESCO Institute for Statistics, *UIS online database (2004–13)*. (<http://stats.uis.unesco.org>)

## 2 Human capital and research

### 2.1 Education

#### 2.1.1 Expenditure on education

Government expenditure on education (% of GDP) | 2010

Government operating expenditures in education, including wages and salaries and excluding capital investments in buildings and equipment, as a percentage of gross domestic product (GDP).

Source: UNESCO Institute for Statistics, *UIS online database (2004–13)*. (<http://stats.uis.unesco.org>)

#### 2.1.2 Government expenditure on education per pupil, secondary

Government expenditure per pupil, secondary (% of GDP per capita) | 2010

Government spending on education divided by the total number of secondary students, as a percentage of GDP per capita. Government expenditure (current and capital) includes government spending on educational institutions (both public and private), education administration, and subsidies for private entities

## 2.2 Tertiary education

### 2.2.1 Tertiary enrolment

School enrolment, tertiary (% gross)<sup>a</sup> | 2011

The ratio of total tertiary enrolment, regardless of age, to the population of the age group that officially corresponds to the tertiary level of education. Tertiary education, whether or not to an advanced research qualification, normally requires, as a minimum condition of admission, the successful completion of education at the secondary level.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (<http://stats.uis.unesco.org>)

### 2.2.2 Graduates in science and engineering

Tertiary graduates in engineering, manufacturing, and construction (% of total tertiary graduates) | 2011

The share of all tertiary graduates in manufacturing, engineering, and construction over all tertiary graduates.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (<http://stats.uis.unesco.org>)

### 2.2.3 Tertiary inbound mobility

Tertiary inbound mobility ratio (%<sup>a</sup>) | 2011

The number of students from abroad studying in a given country, as a percentage of the total tertiary enrolment in that country.

Source: UNESCO Institute for Statistics, UIS online database (2004–13). (<http://stats.uis.unesco.org>)

## 2.3 Research and development (R&D)

### 2.3.1 Researchers

Researchers, headcounts (per million population) | 2011

Researchers per million population, head counts. Researchers in R&D are professionals engaged in the conception or creation of new knowledge, products, processes, methods, or systems and in the management of the projects concerned. Postgraduate PhD students (ISCED97 level 6) engaged in R&D are included. The series with full-time equivalents (FTE) also exists, but has a lower country coverage.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (<http://stats.uis.unesco.org>)

### 2.3.2 Gross expenditure on R&D (GERD)

GERD: Gross expenditure on R&D (% of GDP) | 2011

Total domestic intramural expenditure on R&D during a given period as a percentage of GDP. Intramural R&D expenditure

is all expenditure for R&D performed within a statistical unit or sector of the economy during a specific period, whatever the source of funds.

Source: UNESCO Institute for Statistics, UIS online database (2004–13). (<http://stats.uis.unesco.org>)

### 2.3.3 QS university ranking average score of top 3 universities

Average score of the top 3 universities at the QS world university ranking\* | 2013

Average score of the top three universities per country. If fewer than three universities are listed in the QS ranking of the global top 700 universities, the sum of the scores of the listed universities is divided by three, thus implying a score of zero for the non-listed universities.

Source: QS Quacquarelli Symonds Ltd, QS World University Ranking 2013/2014, Top Universities. (<http://www.topuniversities.com/university-rankings/world-university-rankings/2013>)

is the second sub-index in ITU's ICT Development Index (IDI).

Source: International Telecommunication Union, *Measuring the Information Society 2013, ICT Development Index 2013*. (<http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2013.aspx>)

### 3.1.3 Government's online service

Government's online service index\* | 2012

To arrive at a set of online service index values, research teams assessed each country's national website, including the national central portal, e-services portal, and e-participation portal as well as the websites of the related ministries of education, labour, social services, health, finance, and environment, as applicable. In addition to being assessed for content and features, the national sites were tested for a minimal level of web content accessibility as described in the *Web Content Accessibility Guidelines* of the World Wide Web Consortium. The survey covers four stages of government's online service development, with points assigned for (1) an emerging presence, providing limited and basic information; (2) an enhanced presence, providing greater public policy and governance sources of information, such as policies, laws and regulation, downloadable databases, etc.; (3) a transactional presence, allowing two-way interactions between government and citizens (G2C and C2G), including paying taxes and applying for ID cards, birth certificates, passports, license renewals, etc.; and (4) a connected presence, characterized by G2G, G2C, and C2G interactions; participatory deliberative policy- and decision-making. A citizen-centric approach was followed. It is the first of three components of the E-Government Development Index (EGDI) of the United Nations Public Administration Network (UNPAN), together with components on telecommunication infrastructure and human capital.

Source: United Nations Public Administration Network, *e-Government Survey 2012*. (<http://www2.unpan.org/egovkb/>)

### 3.1.4 Online e-participation

E-Participation Index\* | 2012

The United Nations E-Participation Index is based on the survey used for the UN Online Service Index. The survey was expanded with questions emphasizing quality in the connected presence stage of e-government. These questions focus on the use of the Internet to facilitate the provision of information by governments to citizens ('e-information sharing'), interaction with stakeholders ('e-consul-

## 3 Infrastructure

### 3.1 Information and communication technologies (ICTs)

#### 3.1.1 ICT access

ICT access index\* | 2012

The ICT access index is a composite index that weights five ICT indicators (20% each): (1) Fixed telephone lines per 100 inhabitants; (2) Mobile cellular telephone subscriptions per 100 inhabitants; (3) International Internet bandwidth (bit/s) per Internet user; (4) Percentage of households with a computer; and (5) Percentage of households with Internet access. It is the first sub-index in ITU's ICT Development Index (IDI).

Source: International Telecommunication Union, *Measuring the Information Society 2013, ICT Development Index 2013*. (<http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2013.aspx>)

#### 3.1.2 ICT use

ICT use index\* | 2012

The ICT use index is a composite index that weights three ICT indicators (33% each): (1) Percentage of individuals using the Internet; (2) Fixed (wired)-broadband Internet subscriptions per 100 inhabitants; and (3) Active mobile-broadband subscriptions per 100 inhabitants. It

tation'), and engagement in decision-making processes ('e-decision making'). A country's E-Participation Index value reflects how useful these features are and the extent to which they have been deployed by the government compared with all other countries. The purpose of this measure is to offer insight into how different countries are using online tools to promote interaction between citizens and government, as well as among citizens, for the benefit of all. The index ranges from 0 to 1, with 1 showing greater e-participation.

Source: United Nations Public Administration Network, e-Government Survey 2012. (<http://www2.unpan.org/egovkb/>)

## 3.2 General infrastructure

### 3.2.1 Electricity output

Electricity output (kWh per capita)<sup>a</sup> | 2011

Electricity production, measured at the terminals of all alternator sets in a station. In addition to hydropower, coal, oil, gas, and nuclear power generation, this indicator covers generation by geothermal, solar, wind, and tide and wave energy, as well as that from combustible renewables and waste. Production includes the output of electricity plants that are designed to produce electricity only as well as that of combined heat and power plants. Electricity output in KWh is scaled by population.

Source: International Energy Agency, *World Energy Balances online data service (2011–12)*. (<http://www.iea.org/stats/>)

### 3.2.2 Logistics performance

Logistics Performance Index<sup>®a</sup> | 2012

A multidimensional assessment of logistics performance, the Logistics Performance Index (LPI) compares the trade logistics profiles of 160 countries and rates them on a scale of 1 (worst) to 5 (best). The ratings are based on 6,000 individual country assessments by nearly 1,000 international freight forwarders, who rated the eight foreign countries their company serves most frequently. The LPI's six components include: (1) the efficiency of the clearance process (speed, simplicity, and predictability of formalities) by border control agencies, including customs; (2) the quality of trade- and transport-related infrastructure (ports, railroads, roads, information technology); (3) the ease of arranging competitively priced shipments; (4) the competence and quality of logistics services (transport operators, customs brokers); (5) the ability to track and trace consignments; and (6) the frequency with

which shipments reach the consignee within the scheduled or expected delivery time. Details of the survey methodology are in Arvis et al.'s *Connecting to Compete 2014: Trade Logistics in the Global Economy* (2014). Scores are averaged across all respondents.

Source: World Bank and Turku School of Economics, *Logistics Performance Index 2014*; Arvis et al., 2014, *Connecting to Compete 2014: Trade Logistics in the Global Economy*. (<http://lpi.worldbank.org/>)

### 3.2.3 Gross capital formation

Gross capital formation (% of GDP) | 2013

Ratio of total gross capital formation in current local currency to GDP in current local currency. Gross capital formation or investment is measured by the total value of the gross fixed capital formation and changes in inventories and acquisitions less disposals of valuables for a unit or sector, on the basis of the System of National Accounts (SNA) of 1993. Gross fixed capital formation consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales and 'work in progress'. Net acquisitions of valuables are also considered capital formation.

Source: International Monetary Fund, *World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2006–12)*. (<http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weoselgr.aspx>)

## 3.3 Ecological sustainability

### 3.3.1 GDP per unit of energy use

GDP per unit of energy use (2005 PPP\$ per kg of oil equivalent) | 2011

Purchasing power parity gross domestic product (PPP\$ GDP) per kilogram of oil equivalent of energy use. Energy use or total primary energy supply (TPES) is calculated as the production of fuels + inputs from other sources + imports – exports – international marine bunkers +/- stock changes. It includes coal, crude oil, natural gas liquids, refinery feedstocks, additives, petroleum products, gases, combustible renewables and waste, electricity, and heat. Domestic supply (also called 'energy apparent con-

sumption') differs from final consumption in that it does not take account of distribution losses. The supply (or use) of energy commodities is converted to kilograms or tons of oil equivalent (koe, toe) using standard coefficients for each energy source.

Source: International Energy Agency, *World Energy Balances online data service (2011–12)*. (<http://www.iea.org/stats/>)

### 3.3.2 Environmental performance

Environmental Performance Index<sup>\*</sup> | 2014

This index ranks countries on 20 performance indicators tracked across policy categories that cover both environmental public health and ecosystem vitality. These indicators gauge how close countries are to established environmental policy goals. The index ranges from 0 to 100, with 100 indicating best performance.

Source: Yale University and Columbia University *Environmental Performance Index 2014*. (<http://epi.yale.edu/>)

### 3.3.3 ISO 14001 environmental certificates

ISO 14001 Environmental management systems—Requirements with guidance for use: Number of certificates issued (per billion PPP\$ GDP)<sup>a</sup> | 2012

Number of certificates of conformity to 'ISO 14001:2004 Environmental management systems: Requirements with guidance for use' issued, according to the ISO survey. Single-site and multiple-site certificates are not distinguished. The ISO survey is published on an annual basis by the International Organization for Standardization (ISO). Only certification bodies accredited by national members of the International Accreditation Forum ([www.iaf.nu](http://www.iaf.nu)) were used as sources (except for certificates in the Russian Federation, which were accredited locally). Certification of conformity with standards is not a requirement and the standards can be implemented without certification, but certification is perceived as adding value and trust. ISO is a network of the national standards institutes of 162 countries, and it is the world's largest developer of voluntary International Standards for business, government, and society, with a portfolio of more than 19,500 standards in almost every sector of economic activity and technology. ISO itself does not perform certification to its standards, does not issue certificates, and does not control certification performed independently of ISO by other organizations. The data are reported per billion PPP\$ GDP.



Source: International Organization for Standardization (ISO), *The ISO Survey of Management System Standard Certifications, 1999–2012*; International Monetary Fund *World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2006–12)*. ([www.iso.org](http://www.iso.org); <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weoselgr.aspx>)

## 4 Market sophistication

### 4.1 Credit

#### 4.1.1 Ease of getting credit

Ease of getting credit (distance to frontier)\* | 2013

The ranking is the simple average of the percentile rankings on the component indicators of the ease of getting credit index: strength of legal rights index (range 0–10); and depth of credit information index (range 0–6). *Doing Business* measures the legal rights of borrowers and lenders with respect to secured transactions through one set of indicators and the sharing of credit information through another. The first set of indicators describes how well collateral and bankruptcy laws facilitate lending. The second set measures the coverage, scope, and accessibility of credit information available through public credit registries and private credit bureaus. Although *Doing Business* compiles data on getting credit for public registry coverage (% of adults) and for private bureau coverage (% of adults), these indicators are not included in the ranking. Refer to indicator 1.3.1 for details regarding the distance to frontier measure.

Source: World Bank, *Ease of Doing Business Index 2014, Doing Business 2014*. (<http://www.doingbusiness.org/reports/global-reports/doing-business-2014>)

#### 4.1.2 Domestic credit to private sector

Domestic credit to private sector (% of GDP) | 2012

Financial resources provided to the private sector, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries, these claims include credit to public enterprises.

Source: International Monetary Fund, *International Financial Statistics and data files*, and World Bank and OECD GDP estimates; extracted from World Bank *World Development Indicators database (2005–12)*. (<http://data.worldbank.org/>)

#### 4.1.3 Microfinance institutions' gross loan portfolio

Microfinance institutions: Gross loan portfolio (% of GDP) | 2012

Combined gross loan balances per micro-finance institution (current US\$), divided by GDP (current US\$) and multiplied by 100.

Source: Microfinance Information Exchange, *Mix Market database*; International Monetary Fund: *World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2006–12)*. (<http://www.mixmarket.org/crossmarket-analysis-report/download>; <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>)

### 4.2 Investment

#### 4.2.1 Ease of protecting investors

Ease of protecting investors (distance to frontier)\* | 2013

The ranking is the simple average of the percentile rankings on the component indicators of the ease of protecting investors index: the extent of disclosure index (0–10); the extent of director liability index (0–10); the ease of shareholder suits index (0–10); and the strength of investor protection index (0–10). *Doing Business* measures the strength of minority shareholder protections against directors' misuse of corporate assets for personal gain. The indicators distinguish three dimensions of investor protections: transparency of related-party transactions (extent of disclosure index), liability for self-dealing (extent of director liability index), and shareholders' ability to sue officers and directors for misconduct (ease of shareholder suits index). The data come from a survey of corporate and securities lawyers and are based on securities regulations, company laws, civil procedure codes, and court rules of evidence. Refer to indicator 1.3.1 for details regarding the distance to frontier measure.

Source: World Bank, *Ease of Doing Business Index 2014, Doing Business 2014*. (<http://www.doingbusiness.org/reports/global-reports/doing-business-2014>)

#### 4.2.2 Market capitalization

Market capitalization of listed companies (% of GDP)<sup>a</sup> | 2012

Market capitalization (also known as 'market value') is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies do not include investment companies, mutual funds, or other collective investment vehicles.

Source: Standard and Poor's and World Bank and OECD GDP estimates; extracted from World Bank *World Development Indicators database (2005–12)*. (<http://data.worldbank.org/>)

#### 4.2.3 Total value of stocks traded

Stocks traded, total value (% of GDP)<sup>a</sup> | 2012

Total value of shares traded during the period. This indicator complements the market capitalization ratio by showing whether market size is matched by trading.

Source: Standard and Poor's and World Bank and OECD GDP estimates; extracted from World Bank *World Development Indicators database (2005–12)*. (<http://data.worldbank.org/>)

#### 4.2.4 Venture capital deals

Venture capital per investment location: Number of deals (per trillion PPP\$ GDP)<sup>a</sup> | 2013

Thomson Reuters data on private equity deals, per deal, with details on the location of investment, investment company, investor firms, and funds, among others. The series corresponds to a query on venture capital deals from 1 January 2013 to 31 December 2013, with the data collected by investment location, for a total of 18,887 deals in 77 countries in 2013. The data are reported per trillion PPP\$ GDP.

Source: Thomson Reuters, *Thomson One Banker Private Equity database*; International Monetary Fund *World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2006–12)*. (<http://banker.thomsonib.com>; <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>)

### 4.3 Trade and competition

#### 4.3.1 Applied tariff rate, weighted mean

Tariff rate, applied, weighted mean, all products (%)<sup>a,b</sup> | 2011

The average of effectively applied rates weighted by the product import shares corresponding to each partner country. Data are classified using the Harmonized System of trade at the six- or eight-digit level. Tariff line data were matched to Standard International Trade Classification (SITC) revision 3 codes to define commodity groups and import weights. To the extent possible, specific rates have been converted to their ad valorem equivalent rates and have been included in the calculation of weighted mean tariffs. Effectively applied tariff rates at the six- and eight-digit product level are averaged for products in each commodity group. When the effectively applied rate is unavailable, the most-

favoured nation rate is used instead. World Bank estimates use the World Integrated Trade Solution (WITS) system, based on tariff data from the UNCTAD Trade Analysis and Information System (TRAINS) database and import weights calculated using the UN Comtrade database.

Source: World Bank, based on WITS, UNCTAD TRAINS, and UN COMTRADE; extracted from World Bank World Development Indicators database (2005–12). (<http://data.worldbank.org/>)

#### 4.3.2 Market access for non-agricultural exports

Non-agricultural market access: Five major export markets weighted actual applied tariff (%)<sup>a,b</sup> | 2011

Non-agricultural market access (NAMA) conditions are measured by the actual average weighted (AAW) tariff rate applied by the five major export markets. The applied tariff rate is the difference between the most-favoured nation (MFN) duty and the preference margin (if any); and average tariff rates are weighted by actual imports calculated from mirror imports data (any of the two reference years, 2011 or 2010). For example, imports from Albania into the EU (China) benefit from an AAW preference margin of 4.7 (0.4) over an AAW MFN duty of 4.7 (0), thus implying an AAW applied tariff of 0.0 (0.4). Once the three other major export markets for Albania are considered as well (the Former Yugoslav Republic of Macedonia, India, and Turkey), the NAMA conditions for Albania can be summarized in an AAW applied tariff of 0.04%. For EU countries, the extra-EU data are assigned to each of the 27 (28 if considering Croatia) countries. When information on preferential tariff regimes is missing, MFN treatment is assumed (it is also assumed that a country avails itself of preferential tariffs, even if the exporter chooses not to for whatever reason—such as the more onerous prerequisites attached to the preferential tariff).

Source: World Trade Organization (WTO), International Trade Centre (ITC), and United Nations Conference on Trade and Development (UNCTAD) World Tariff Profiles 2013; Annex 1 of the WTO Agreement on Agriculture (NAMA classification) (2010–11). (<http://stat.wto.org/TariffProfile/WSDBTariffPFHome.aspx?Language=E>)

#### 4.3.3 Intensity of local competition

Average answer to the survey question: In your country, how intense is competition in the local markets? [1 = not intense at all; 7 = extremely intense]<sup>†</sup> | 2013

Source: World Economic Forum, Executive Opinion Survey 2013–2014. (<https://wefsurvey.org>)

#### 5.1.4 GERD performed by business enterprise

GERD: Performed by business enterprise (% of total GERD)<sup>a</sup> | 2012

Percentage of gross expenditure on R&D performed by business enterprise.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (<http://stats.uis.unesco.org>)

#### 5.1.5 GMAT test takers

Number of test takers of the Graduate Management Admission Test (GMAT) by citizenship (scaled by million population 20–34 years old)<sup>a</sup> | 2013

Total number of test takers of the Graduate Management Admission Test (GMAT) by citizenship, scaled by population 20–34 years old (if for a given country/economy the data for citizens do not exist, the data for residents are given instead).

Source: Graduate Management Admission Council (GMAC); United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population data) (2004–13). ([www.gmac.com/research](http://www.gmac.com/research); <http://esa.un.org/unpd/wpp/Excel-Data/population.htm>)

## 5 Business sophistication

### 5.1 Knowledge workers

#### 5.1.1 Employment in knowledge-intensive services

Employment in knowledge-intensive services (% of workforce) | 2012

Sum of people in categories 1 to 3 as a percentage of total people employed, according to the International Standard Classification of Occupations (ISCO). Categories included: ISCO-08: 1 Managers, 2 Professionals, and 3 Technicians and associate professionals (years 2009–12); ISCO-88: 1 Legislators, senior officials and managers, 2 Professionals, 3 Technicians and associate professionals (2004–12); ISCO-1968: 1 Professional, technical and related workers (category 0 Armed forces is excluded), 2 Administrative and managerial workers, 3 Clerical and related workers (years 2004–08).

Source: International Labour Organization, LABORSTA Database of Labour Statistics (2004–08), and ILOSTAT Database of Labour Statistics Beta version (2004–12). (<http://www.ilo.org/ilostat>; <http://laborsta.ilo.org/>)

#### 5.1.2 Firms offering formal training

Firms offering formal training (% of firms) | 2009

The percentage of firms offering formal training programmes for their permanent, full-time employees.

Source: International Finance Corporation and World Bank, Enterprise Surveys (2005–13). (<http://www.enterprisesurveys.org/>)

#### 5.1.3 GERD performed by business enterprise

GERD: Performed by business enterprise (% of GDP)<sup>a</sup> | 2012

Gross expenditure on R&D performed by business enterprise as a percentage of GDP.

Source: UNESCO Institute for Statistics, UIS online database (2004–12). (<http://stats.uis.unesco.org>)

### 5.2 Innovation linkages

#### 5.2.1 University/industry research collaboration

Average answer to the survey question: In your country, to what extent do business and universities collaborate on research and development (R&D)? [1 = do not collaborate at all; 7 = collaborate extensively]<sup>†a</sup> | 2013

Source: World Economic Forum, Executive Opinion Survey 2013–2014. (<https://wefsurvey.org>)

#### 5.2.2 State of cluster development

Average answer to the survey question on the role of clusters in the economy: In your country, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)? [1 = nonexistent; 7 = widespread in many fields]<sup>†</sup> | 2013

Source: World Economic Forum, Executive Opinion Survey 2013–2014. (<https://wefsurvey.org>)

#### 5.2.3 GERD financed by abroad

GERD: Financed by abroad (% of total GERD) | 2011

Percentage of gross expenditure on R&D financed by abroad—i.e., with foreign financing.

Source: UNESCO Institute for Statistics, UIS online database (2006–13). (<http://stats.uis.unesco.org>)



### 5.2.4 Joint venture/strategic alliance deals

Joint ventures/strategic alliances: Number of deals, fractional counting (per trillion PPP\$ GDP)<sup>2</sup> | 2013

Thomson Reuters data on joint ventures/strategic alliances deals, per deal, with details on the country of origin of partner firms, among others. The series corresponds to a query on joint venture/strategic alliance deals from 1 January 2013 to 31 December 2013, for a total of 2,978 deals announced in 2013, with firms headquartered in 127 participating economies. Each participating nation of each company in a deal ( $n$  countries per deal) gets, per deal, a score equivalent to  $1/n$  (with the effect that all country scores add up to 2,978). The data are reported per trillion PPP\$ GDP.

Source: Thomson Reuters, Thomson One Banker Private Equity, SDC Platinum database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2006–12). (<http://banker.thomsonib.com>; <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>)

### 5.2.5 Patent families filed in at least three offices

Number of patent families filed by residents in at least three offices (per billion PPP\$ GDP)<sup>3</sup> | 2010

A 'patent family' is defined as a set of interrelated patent applications filed in one or more countries/jurisdictions to protect the same invention (either directly or through the WIPO-administered Patent Cooperation Treaty). In this report, 'patent families data' refers to patent applications filed by residents in at least three offices; the data are scaled by PPP\$ GDP (billions). A 'patent' is a set of exclusive rights granted by law to applicants for inventions that are new, non-obvious, and commercially applicable. It is valid for a limited period of time (generally 20 years), during which patent holders can commercially exploit their inventions on an exclusive basis. In return, applicants are obliged to disclose their inventions to the public in a manner that enables others, skilled in the art, to replicate the invention. The patent system is designed to encourage innovation by providing innovators with time-limited exclusive legal rights, thus enabling innovators to appropriate a return on their innovative activity.

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2006–12). (<http://www.wipo.int/ipstats/>; <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>)

## 5.3 Knowledge absorption

### 5.3.1 Royalties and license fees payments

Royalty and license fees, payments (% of total trade)<sup>4</sup> | 2012

Royalties and license fees payments (% of total service imports) according to the Extended Balance of Payments Services Classification EBOPS 2002—i.e., code 266 Royalties and license fees (including franchises and similar rights) as a percentage of total trade. 'Total trade' is defined as the sum of total imports code G100 goods and code S200CS commercial services (excluding government services) plus total exports of code G100 goods and code S200CS commercial services (excluding government services), divided by 2. According to the fifth edition of the IMF's *Balance of Payments Manual* (BPM5), the item 'Goods' covers general merchandise, goods for processing, repairs on goods, goods procured in ports by carriers, and nonmonetary gold. The 'commercial services' category is defined as being equal to 'services' minus 'government services, not included elsewhere'. Receipts are between residents and nonresidents for the authorized use of intangible, nonproduced, nonfinancial assets and proprietary rights (such as patents, copyrights, trademarks, industrial processes, and franchises) and for the use, through licensing agreements, of produced originals of prototypes (such as films and manuscripts).

Source: World Trade Organization, *Trade in Commercial Services* database, itself based on the fifth (1993) edition of the *International Monetary Fund Balance of Payments Manual and Balance of Payments* database (2007–12). (<http://stat.wto.org/StatisticalProgram/WSDStatProgramSeries.aspx?Language=E>; [http://unstats.un.org/unsd/tradeserv/EBOPS2002\\_eng.pdf](http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf))

### 5.3.2 High-tech imports

High-tech net imports (% of total trade) | 2012

High-technology imports minus re-imports over total trade. The list of commodities contains technical products with a high intensity of R&D, based on the Eurostat classification, itself based on SITC Rev.4 and the Organisation for Economic Co-operation and Development (OECD) definition. Commodities belong to the following sectors: aerospace; computers & office machines; electronics, telecommunications; pharmacy; scientific instruments; electrical machinery; chemistry; non-electrical machinery; and armament.

Source: United Nations, COMTRADE database; Eurostat 'High-technology' aggregations based on SITC Rev. 4, April 2009 (2007–12). (<http://comtrade.un.org>; [http://epp.eurostat.ec.europa.eu/cache/ITY\\_SDDS/Annexes/htec\\_esms\\_an5.pdf](http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/htec_esms_an5.pdf)); World Trade Organization, *Trade in Commercial Services* database, itself based on the fifth (1993) edition of the *International Monetary Fund Balance of Payments Manual and Balance of Payments* database (2007–12). (<http://stat.wto.org/StatisticalProgram/WSDStatProgramSeries.aspx?Language=E>; [http://unstats.un.org/unsd/tradeserv/EBOPS2002\\_eng.pdf](http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf))

### 5.3.3 Communications, computer and information services imports

Communications, computer and information services imports (% of total trade) | 2012

Communication, computer and information services imports (% of total trade) according to the Extended Balance of Payments Services Classification EBOPS 2002, including codes 245 Communications services (postal, courier services, and telecommunications services); and 262 Computer and information services, as a percentage of total trade.

Source: World Trade Organization, *Trade in Commercial Services* database, itself based on the fifth (1993) edition of the *International Monetary Fund Balance of Payments Manual and Balance of Payments* database (2007–12). (<http://stat.wto.org/StatisticalProgram/WSDStatProgramSeries.aspx?Language=E>; [http://unstats.un.org/unsd/tradeserv/EBOPS2002\\_eng.pdf](http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf))

### 5.3.4 Foreign direct investment net inflows

Foreign direct investment (FDI), net inflows (% of GDP) | 2011

Net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP.

Source: International Monetary Fund, *International Financial Statistics and data files*, and World Bank and OECD GDP estimates; extracted from World Bank World Development Indicators database (2007–12). (<http://data.worldbank.org/>)

## 6 Knowledge and technology outputs

### 6.1 Knowledge creation

#### 6.1.1 National office resident patent applications

Number of patent applications filed by residents at the national patent office (per billion PPP\$ GDP)<sup>a</sup> | 2012

Number of patent applications filed by residents at the national patent office. Data are scaled by PPP\$ GDP (billions). 'Patent' is defined in the description of indicator 5.2.5. Patent applications by resident data are based on 'equivalent count', by which applications at regional offices are multiplied by the corresponding number of member states. This concerns the Eurasian Patent Office (EAPO) and the African Intellectual Property Organization (OAPI). For the European Patent Office (EPO) and the African Regional Intellectual Property Organization (ARIPO), each application is counted as one application abroad if the applicant does not reside in a member state; or as one resident and one application abroad if the applicant resides in a member state.

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2006–12). (<http://www.wipo.int/ipstats/>; <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>)

#### 6.1.2 Patent Cooperation Treaty resident applications

Number of international patent applications filed by residents at the Patent Cooperation Treaty (per billion PPP\$ GDP)<sup>a</sup> | 2012

Number of patent applications filed by residents under the World Intellectual Property Organization (WIPO)-administered Patent Cooperation Treaty (PCT). Data are reported for PCT member countries only, and scaled by PPP\$ GDP (billions). 'Patent' is defined in the description of indicator 5.2.5. PCT applications are assigned to a particular country of origin according to the country of residence of the first-named applicant. The PCT system simplifies the process of multiple national patent filings by reducing the requirement to file a separate application in each jurisdiction. However, the decision of whether to grant patent rights remains in the hands of national and regional patent offices, and the patent rights remain limited to the jurisdiction of the patent granting authority. The PCT international application process

starts with the international phase, during which an international search and, possibly, a preliminary examination are performed, and concludes with the national phase, during which national and regional patent offices decide on the patentability of an invention according to national law.

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2006–12). (<http://www.wipo.int/ipstats/>; <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>)

#### 6.1.3 National office resident utility model applications

Number of utility model applications filed by residents at the national patent office (per billion PPP\$ GDP) | 2012

Number of utility model applications filed by residents at the national patent office. Resident UM data are scaled by PPP\$ GDP (billions). Like a patent, a UM is a special form of patent right granted by a state/jurisdiction to an inventor or inventor's assignee for a fixed period of time. The terms and conditions for granting a utility model are slightly different from those for normal patents (including a shorter term of protection and less stringent patentability requirements). The term 'utility model' can also describe what are known in certain countries as 'petty patents', 'short-term patents', or 'innovation patents'.

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2007–12). (<http://www.wipo.int/ipstats/>; <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>)

#### 6.1.4 Scientific and technical publications

Number of scientific and technical journal articles (per billion PPP\$ GDP)<sup>a</sup> | 2013

The number of scientific and engineering articles published in the following fields: physics, biology, chemistry, mathematics, clinical medicine, biomedical research, engineering and technology, and earth and space sciences. Article counts are from a set of journals covered by the Science Citation Index (SCI) and the Social Sciences Citation Index (SSCI). Articles are classified by year of publication and assigned to each country/economy on basis of the institutional address(es) listed in the article. Articles are counted on a count basis (rather than a fractional basis)—that is, for articles with collaborating institutions from multiple coun-

tries/economies, each country/economy receives credit on basis of its participating institutions. The data are reported per trillion PPP\$ GDP.

Source: Special tabulations from Thomson Reuters, Web of Science, Science Citation Index (SCI) and Social Sciences Citation Index (SSCI); International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP\$ GDP). ([http://thomsonreuters.com/products\\_services/science/](http://thomsonreuters.com/products_services/science/); <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>)

#### 6.1.5 Citable documents H index

The H index is the economy's number of published articles (H) that have received at least H citations in the period 1996–2013.<sup>a</sup> | 2013

The H index is an economy's number of published articles (H) that have received at least H citations in the period 1996–2013. It quantifies both country scientific productivity and scientific impact and is also applicable to scientists, journals, etc. The SCImago Journal & Country Rank is a portal that includes journal and economy scientific indicators developed from the information contained in the Scopus® database (Elsevier B.V.). This platform takes its name from the SCImago Journal Rank (SJR), developed by SCImago from the algorithm Google PageRank™. The H index is tabulated from the number of citations received in subsequent years by articles published in a given year, divided by the number of articles published that year.

Source: SCImago (2007) SJR—SCImago Journal & Country Rank. Retrieved February 2014. (<http://www.scimagojr.com>)

## 6.2 Knowledge impact

### 6.2.1 Growth rate of GDP per person engaged

Growth rate of GDP per person engaged (constant 1990 PPP\$) | 2012

Growth of gross domestic product (GDP) per person engaged provides a measure of labour productivity (defined as output per unit of labour input). GDP per person employed is GDP divided by total employment in the economy. PPP\$ GDP is converted to 1990 constant international dollars using PPP rates. An international dollar has the same purchasing power over GDP that a US dollar has in the United States of America.

Source: International Labour Organization, Key Indicators of the Labour Market (KILM) database, Table 17b Labour productivity (Conference board estimates), special tabulations prepared using KLIM Excel Add-in.

### 6.2.2 New business density

New business density (new registrations per thousand population 15–64 years old)<sup>a</sup> | 2012

Number of new firms, defined as firms registered in the current year of reporting, per thousand population aged 15–64 years old.

Source: World Bank, *Doing Business 2014, Entrepreneurship (2007–12)*. (<http://www.doingbusiness.org/data/exploretopics/entrepreneurship>)

### 6.2.3 Total computer software spending

Total computer software spending (% of GDP)<sup>a</sup> | 2012

Computer software spending includes the total value of purchased or leased packaged software such as operating systems, database systems, programming tools, utilities, and applications. It excludes expenditures for internal software development and outsourced custom software development. The data are a combination of actual figures and estimates. Data are reported as a percentage of GDP.

Source: IHS Global Insight, *Information and Communication Technology Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (current US\$ GDP)*. (<http://www.ihsglobalinsight.com/ProductsServices/ProductDetail2370.htm>); <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>

### 6.2.4 ISO 9001 quality certificates

ISO 9001 Quality management systems—

Requirements: Number of certificates issued (per billion PPP\$ GDP)<sup>a</sup> | 2012

Number of certificates of conformity to standard 'ISO 9001:2008 Quality management systems—Requirements' issued, according to the ISO Survey. Single-site and multiple-site certificates are not distinguished. The data are reported per billion PPP\$ GDP. Refer to indicator 3.3.3 for details.

Source: International Organization for Standardization (ISO), *The ISO Survey of Management System Standard Certifications, 1999–2012; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2010–12)*. ([www.iso.org](http://www.iso.org)); <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/weoselgr.aspx>

### 6.2.5 High-tech and medium-high-tech output

High-tech and medium-high-tech output (% of total manufactures output)<sup>a</sup> | 2010

High-tech and medium-high-tech output as a percentage of total manufactures output, on the basis of the

Organisation for Economic Co-operation and Development (OECD) classification of Technology Intensity Definition, itself based on International Standard Industrial Classification ISIC Revision 3.

Source: United Nations Industrial Development Organization (UNIDO), *Industrial Statistics Database, 3- and 4-digit level of International Standard Industrial Classification ISIC Revision 3 (INDSTAT4 2012)*; OECD, Directorate for Science, Technology and Industry, Economic Analysis and Statistics Division, 'ISIC REV. 3 Technology Intensity Definition: Classification of Manufacturing Industries into Categories Based on R&D Intensities', 7 July 2011 (2004–10). ([www.unido.org/statistics.html](http://www.unido.org/statistics.html)); <http://unstats.un.org/unsd/cr/registry/regcst.asp?cl=27>; <http://www.oecd.org/sti/ind/48350231.pdf>

## 6.3 Knowledge diffusion

### 6.3.1 Royalties and license fees receipts

Royalty and license fees, receipts (% of total trade)<sup>a</sup> | 2012

Royalties and license fees receipts (% of total trade) according to the Extended Balance of Payments Services Classification EBOPS 2002—i.e., code 266 Royalties and license fees (including franchises and similar rights) as a percentage of total trade. Receipts are between residents and nonresidents for the authorized use of intangible, nonproduced, nonfinancial assets and proprietary rights (such as patents, copyrights, trademarks, industrial processes, and franchises) and for the use, through licensing agreements, of produced originals of prototypes (such as films and manuscripts).

Source: World Trade Organization, *Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12)*. (<http://stat.wto.org/StatisticalProgram/WSDStatProgramSeries.aspx?Language=E>); [http://unstats.un.org/unsd/tradeserv/EBOPS2002\\_eng.pdf](http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf)

### 6.3.2 High-tech exports

High-tech net exports (% of total trade)<sup>a</sup> | 2012

High-technology exports minus re-exports over total trade. See indicator 5.3.2 for details.

Source: United Nations, COMTRADE database; Eurostat 'High-technology' aggregations based on SITC Rev. 4, April 2009 (2007–12). (<http://comtrade.un.org>); [http://epp.eurostat.ec.europa.eu/cache/ITY\\_SDDS/Annexes/htec\\_esms\\_an5.pdf](http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/htec_esms_an5.pdf)); World Trade Organization, *Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12)*. (<http://stat.wto.org/StatisticalProgram/WSDStatProgramSeries.aspx?Language=E>); [http://unstats.un.org/unsd/tradeserv/EBOPS2002\\_eng.pdf](http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf)

### 6.3.3 Communications, computer and information services exports

Communications, computer and information services exports (% of total trade)<sup>a</sup> | 2012

Communication, computer and information services exports (% of total trade) according to the Extended Balance of Payments Services Classification EBOPS 2002, including codes 245 Communications services (postal, courier services, and telecommunications services) and 262 Computer and information services, as a percentage of total trade.

Source: World Trade Organization, *Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12)*. (<http://stat.wto.org/StatisticalProgram/WSDStatProgramSeries.aspx?Language=E>); [http://unstats.un.org/unsd/tradeserv/EBOPS2002\\_eng.pdf](http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf)

### 6.3.4 Foreign direct investment net outflows

Foreign direct investment (FDI), net outflows (% of GDP) | 2012

Net outflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net outflows of investment from the reporting economy to the rest of the world and is divided by GDP.

Source: International Monetary Fund, *International Financial Statistics and data files*, and World Bank and OECD GDP estimates; extracted from World Bank World Development Indicators database (2005–12). (<http://data.worldbank.org/>)

## 7 Creative outputs

### 7.1 Intangible assets

#### 7.1.1 National office resident trademark applications

Number of trademark applications issued to residents by the national office (per billion PPP\$ GDP) | 2012

Number of trademark applications at the national trademark office, based on equivalent class counts. Data are scaled by PPP\$ GDP (billions). A 'trademark' is a distinctive sign that identifies certain goods or services as those produced or provided by a specific person or enterprise. The holder of a trademark application has the legal right to exclusive use of the mark in relation to the products or services for which it is registered. The owner can prevent unauthorized use of the trademark, or a confusingly similar mark, so as to prevent consumers and the public in general from being misled. Unlike patents, trademarks can be maintained indefinitely by paying renewal fees. The procedures for registering trademarks are governed by the rules and regulations of national and regional IP offices. Trademark rights are limited to the jurisdiction of the authority that registers the trademark. Resident trademark registrations are based on equivalent class counts. 'Class count' refers to the number of classes specified in a trademark registration. In the international trademark system and at certain offices, an applicant can file a trademark application that specifies one or more of the 45 goods and services classes of the Nice Classification. Offices use either a single- or multi-class filing system. For example, the offices of Japan, the Republic of Korea, and the United States of America as well as many European offices have multi-class filing systems. The offices of Brazil, China, and Mexico follow a single-class filing system, requiring a separate application for each class in which applicants seek trademark protection. To capture the differences in application numbers across offices, it is useful to compare their respective registration class counts. 'Equivalent registrations' refers to registrations at regional offices and are equivalent to multiple registrations, one in each of the states that is a member of those offices. To calculate the number of equivalent registrations for regional office data, each registration is multiplied by the corresponding number of member states.

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2004–12). (<http://www.wipo.int/ipstats/>; <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>)

#### 7.1.2 Madrid System trademark applications by country of origin

Number of international trademark applications issued through the Madrid System by country of origin (per billion PPP\$ GDP)<sup>a</sup> | 2012

Number of international trademark applications by country of origin under the WIPO-administered Madrid System. Data are reported for Patent Cooperation Treaty (PCT) member countries only, and scaled by PPP\$ GDP (billions). 'Trademark' is defined in the description of indicator 7.1.1. The Madrid System for the International Registration of Marks, established under the Madrid Agreement and the Madrid Protocol and administered by WIPO, makes it possible for an applicant to register a trademark in a large number of countries by filing a single application at their national or regional IP office that is party to the system. The Madrid System simplifies the process of multinational trademark registration by reducing the requirement to file separate applications at each office. It also simplifies the subsequent management of the mark, since it is possible to record changes or to renew the registration through a single procedural step. Registration through the Madrid System does not create an 'international' trademark, and the decision to register or refuse the trademark remains in the hands of national and/or regional office(s). Trademark rights are limited to the jurisdiction of the trademark registration office(s).

Source: World Intellectual Property Organization, WIPO Statistics Database; International Monetary Fund World Economic Outlook 2013 database, April 2013 (PPP\$ GDP) (2007–13). (<http://www.wipo.int/ipstats/>; <http://www.imf.org/external/pubs/ft/weo/2013/01/weodata/download.aspx>)

#### 7.1.3 ICTs and business model creation

Average answer to the question: In your country, to what extent do ICTs enable new business models? [1 = not at all; 7 = to a great extent]<sup>†</sup> | 2013

Source: World Economic Forum, Executive Opinion Survey 2013–2014. (<https://wefsurvey.org>)

#### 7.1.4 ICTs and organizational model creation

Average answer to the question: In your country, to what extent do ICTs enable new organizational models (e.g. virtual teams, remote working, telecommuting) within businesses? [1 = not at all; 7 = to a great extent]<sup>†</sup> | 2013

Source: World Economic Forum, Executive Opinion Survey 2013–2014. (<https://wefsurvey.org>)

### 7.2 Creative goods and services

#### 7.2.1 Cultural and creative services exports

Cultural and creative services exports (% of total trade)<sup>a</sup> | 2012

Creative services exports (% of total exports) according to the Extended Balance of Payments Services Classification EBOPS 2002—that is, EBOPS code 264 Information services; code 278 Advertising, market research and public opinion polling; code 288 Audiovisual and related services; and code 897 Other, personal, cultural and recreational services as a percentage of total trade. The score for the United States of America (USA) includes the category Film and TV tape distribution in the absence of available data for code 288 Audiovisual and related services. The category Film and tape distribution is specific to the USA and does not have a code. However, these transactions have been classified by the USA under the EBOPS item 266 (Royalties and licence fees).

Source: World Trade Organization, Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12). ([http://stat.wto.org/StatisticalProgram/WSDStatProgramSeries.aspx?Language=E](http://stat.wto.org/StatisticalProgram/WSDStatProgramSeries.aspx?Language=E;); [http://unstats.un.org/unsd/tradeserv/EBOPS2002\\_eng.pdf](http://unstats.un.org/unsd/tradeserv/EBOPS2002_eng.pdf))

#### 7.2.2 National feature films produced

Number of national feature films produced (per million population 15–69 years old)<sup>a</sup> | 2011

A film with a running time of 60 minutes or longer. It includes works of fiction, animation, and documentaries. It is intended for commercial exhibition in cinemas. Feature films produced exclusively for television broadcasting, as well as newsreels and advertising films, are excluded. Data are reported per million population 15–69 years old. For Cambodia and Cameroon, this indicator covers only feature films in video format; for Slovenia, feature films with a running time of 75 minutes or longer.



Source: UNESCO Institute for Statistics, UIS online database; United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2012 Revision (population data) (2005–11)*. (<http://stats.uis.unesco.org>; <http://esa.un.org/unpd/wpp/Excel-Data/population.htm>)

### 7.2.3 Global entertainment and media output

Global entertainment and media output (per thousand population 15–69 years old)\*<sup>a</sup> | 2012

The Global entertainment and media outlook (the Outlook) provides global analysis for consumer and advertising spend with like-for-like, five-year historical and forecast data across 13 industry segments in 59 countries. The Outlook allows one to compare and contrast regional growth rates and consumer and advertising spend. The segments covered by the Outlook are: TV subscriptions and license fees; TV advertising; Internet access; radio; out-of-home advertising; video games; filmed entertainment; newspaper publishing; consumer magazine publishing; business-to-business markets; Internet advertising; and consumer and educational book publishing and music. The score and rankings for the Global Media Expenditures for the 59 countries considered in this report are based on advertising and consumer digital and non-digital data in US\$ millions at average 2012 exchange rates for the year 2012. These results are reported normalized per thousand population, 15–69 years old, for the year 2012. The figures for Algeria, Bahrain, Egypt, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, and the United Arab Emirates were estimated from a total corresponding to Middle East and North Africa (MENA) countries using a breakdown of total GDP (current US\$) for the above-mentioned countries to define referential percentages.

Source: The source of the data for the base of these calculations was derived from PwC's *Global entertainment and media outlook, 2013–2017*; United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2010 Revision (population data)*. ([www.pwc.com/outlook](http://www.pwc.com/outlook))

### 7.2.4 Printing and publishing output

Printing and publishing manufactures output (% of manufactures total output) | 2010

Publishing, printing, and reproduction of recorded media output (ISIC Rev. 3 code 22) as a percentage of total manufacturing output (ISIC rev.3 code D).

Source: United Nations Industrial Development Organization, *Industrial Statistics Database, 2-digit level of International Standard Industrial Classification ISIC Revision 3 (INDSTAT4 2012) (2007–12)*. ([www.unido.org/statistics.html](http://www.unido.org/statistics.html); <http://unstats.un.org/unsd/cr/registry/regcst.asp?cl=2>)

### 7.2.5 Creative goods exports

Creative goods exports (% of total trade) | 2012

Total value of creative goods exports, net of re-exports (current US\$) over total trade. 'Total trade' is defined as the sum of total imports code G100 goods and code S200CS commercial services (excluding government services) plus total exports of code G100 goods and code S200CS commercial services (excluding government services), divided by 2. According to the fifth edition of the IMF's *Balance of Payments Manual (BPM5)*, the item 'Goods' covers general merchandise, goods for processing, repairs on goods, goods procured in ports by carriers, and nonmonetary gold. The 'commercial services' category is defined as being equal to 'services' minus 'government services, not included elsewhere'.

Source: United Nations, COMTRADE database; 2009 UNESCO Framework for Cultural Statistics, Table 3, *International trade of cultural goods and services based on the 2007 Harmonised System (HS 2007)*; World Trade Organization, *Trade in Commercial Services database, itself based on the fifth (1993) edition of the International Monetary Fund Balance of Payments Manual and Balance of Payments database (2007–12)*. (<http://unctadstat.unctad.org>; <http://www.uis.unesco.org/culture/Documents/framework-cultural-statistics-culture-2009-en.pdf>; <http://stat.wto.org/StatisticalProgram/WSDStatProgramSeries.aspx?Language=E>)

## 7.3 Online creativity

### 7.3.1 Generic top-level domains (gTLDs)

Generic top-level domains (gTLDs) (per thousand population 15–69 years old) | 2013

A generic top-level domain (gTLD) is one of the categories of top-level domains (TLDs) maintained by the Internet Assigned Numbers Authority (IANA) for use in the Internet. Generic TLDs can be unrestricted (com, info, net, and org) or restricted—that is, used on the basis of fulfilling eligibility criteria (biz, name, and pro). Of these, the statistic covers the five generic domains biz, info, org, net, and com. Generic domains .name and .pro, and sponsored domains (arpa, aero, asia, cat, coop, edu, gov, int, jobs, mil, museum, tel, travel, and xxx) are not

included. Neither are country-code top-level domains (refer to indicator 7.3.2). The statistic represents the total number of registered domains (i.e., net totals by December 2013, existing domains + new registrations – expired domains). Data are collected on the basis of a 4% random sample of the total population of domains drawn from the root zone files (a complete listing of active domains) for each TLD. The geographic location of a domain is determined by the registration address for the domain name registrant that is returned from a whois query. These registration data are parsed by country and postal code and then aggregated to any number of geographic levels such as county, city, or country/economy. The original hard data were scaled by thousand population 15–69 years old. For confidentiality reasons, only normalized values are reported; while relative positions are preserved, magnitudes are not.

Source: ZookNIC Inc; United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2012 Revision (population data)*. (<http://www.zooknic.com>; <http://esa.un.org/unpd/wpp/Excel-Data/population.htm>)

### 7.3.2 Country-code top-level domains (ccTLDs)

Country-code top-level domains ccTLDs (per thousand population 15–69 years old) | 2013

A country-code top-level domain (ccTLD) is one of the categories of top-level domains (TLDs) maintained by the Internet Assigned Numbers Authority (IANA) for use in the Internet. Country-code TLDs are two-letter domains especially designated for a particular economy, country, or autonomous territory (there are 324 ccTLDs, in various alphabets/characters). The statistic represents the total number of registered domains (i.e., net totals by December 2013, existing domains + new registrations – expired domains). Data are collected from the registry responsible for each ccTLD and represent the total number of domain registrations in the ccTLD. Each ccTLD is assigned to the country with which it is associated rather than based on the registration address of the registrant. ZookNIC reports that, for the ccTLDs it covers, 85–100% of domains are registered in the same country; the only exceptions are the ccTLDs that have been licensed for commercial worldwide use. Of this year's GII sample of countries, this is the case for the ccTLDs of the following economies: Armenia am, Austria at, Belarus by, Belgium be, Colombia co, Denmark dk, Finland fi, Iceland is, India in, Iran ir, Italy it, Lao People's Democratic Republic la, Latvia lv, Moldova md, Mongolia mn,

Montenegro me, Nicaragua ni, Serbia rs, Seychelles sc, Slovenia si, Spain es, and Switzerland ch (this list is based on [www.wikipedia.org](http://www.wikipedia.org)). Data are reported per thousand population 15–69 years old. For confidentiality reasons, only normalized values are reported; while relative positions are preserved, magnitudes are not.

*Source: ZookNIC Inc; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population data). (<http://www.zooknic.com>; <http://esa.un.org/unpd/wpp/Excel-Data/population.htm>)*

### 7.3.3 Wikipedia monthly edits

Wikipedia monthly page edits (per million population 15–69 years old) | 2013

Data extracted from Wikimedia Traffic Analysis Report, Wikipedia Page Edits per Country, Overview on the portal [www.wikipedia.org](http://www.wikipedia.org). The count of monthly page edits data is based on a 1:1,000 sampled server log (squids), averages of quarterly reports. Wikimedia Foundation (WMF) traffic logging service suffered from server capacity problems in August/September/October 2011. Data loss occurred only during peak hours. It therefore may have had a somewhat different impact for traffic from different parts of the world. From mid-September until late November, squid log records for mobile traffic were in invalid format. Data could be repaired for logs from mid-October onwards. Older logs were no longer available. In an unrelated server outage, precisely half of traffic to WMF mobile sites was not counted from 16 October–29 November (one of two load-balanced servers did not report traffic). Countries are included only if the number of page edits in the period exceeds 100,000 (100 matching records in 1:1,000 sampled log). Page edits by bots are not included. Also all IP addresses that occur more than once on a given day are discarded for that day. A few false negatives are taken for granted. Data are reported per million population 15–69 years old.

*Source: Wikimedia Foundation; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population data). (<http://stats.wikimedia.org/wikimedia/squids/SquidReportsCountriesLanguagesVisitsEdits.htm>; <http://esa.un.org/unpd/wpp/Excel-Data/population.htm>)*

### 7.3.4 Video uploads on YouTube

Number of video uploads on YouTube (scaled by population 15–69 years old)\* | 2013

Total number of video uploads on YouTube, per country, scaled by population 15–69 years old. The raw data are survey based: the country of affiliation is chosen by each user on the basis of a multi-choice selection. This metric counts all video upload events by users. The following countries are reported with n/a because of total or partial service blockage: Bangladesh (YouTube banned for 261 days, ban lifted on 5 June 2013); China (Google inaccessible for 1,590 days); Iran (YouTube blocked for 1,711 days). In addition, only countries with a reach for YouTube equal to or above 45%, according to comScore's Multi-Country Key Measures, were included. For confidentiality reasons, only normalized values are reported; while relative positions are preserved, magnitudes are not.

*Source: Google, parent company of YouTube; United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: The 2012 Revision (population data). ([www.youtube.com](http://www.youtube.com); <http://esa.un.org/unpd/wpp/Excel-Data/population.htm>; <http://www.comscore.com/Industries/Media>)*





# Appendix **IV**

Technical Notes



## Technical Notes

### Audit by the Joint Research Centre of the European Commission

The Joint Research Centre (JRC) of the European Commission has researched extensively on the complexity of composite indicators ranking economies' performances along policy lines. For the fourth consecutive year, the JRC has agreed to perform a thorough robustness and sensitivity analysis of the Global Innovation Index (GII) to look at some structural changes made to the list of indicators by the GII developing team (see Table 1 of Annex 2 to Chapter 1 for more details).

An earlier version of the 2014 GII model was submitted to the JRC in April 2014. The recommendations and flexibilities allowed by the JRC preliminary audit were taken into account in the final version of the GII model and are explained below as appropriate.

A final audit was performed in May on that last model, the results of which are included in Annex 3 to Chapter 1.

### Composite indicators

The GII relies on seven pillars. Each pillar is divided into three sub-pillars, and each sub-pillar is composed of three to five individual indicators. Each sub-pillar score is calculated as the weighted average of its individual indicators.

Each pillar score is calculated as the weighted average of its sub-pillar scores.

The notion of weights as importance coefficients was, as in the previous two years, discarded to ensure a greater statistical coherence of the model, following the recommendations of the JRC.<sup>1</sup>

The GII includes three indices and one ratio:

1. The Innovation Input Sub-Index is the simple average of the first five pillar scores.
2. The Innovation Output Sub-Index is the simple average of the last two pillar scores.
3. The Global Innovation Index is the simple average of the Input and Output Sub-Indices.
4. The Innovation Efficiency Ratio is the ratio of the Output Sub-Index over the Input Sub-Index.

Country/economy rankings are provided for indicator, sub-pillar, pillar, and index scores.

The Innovation Efficiency Ratio serves to highlight those economies that have achieved more with less as well as those that lag behind in terms of fulfilling their innovation potential. In theory, assuming that innovation results go hand in hand with innovation enablers, efficiency ratios should evolve around the number one. This measure thus allows us to complement the GII by providing an insight that should be

neutral to the development stages of economies.<sup>2</sup>

### Individual indicators

The model includes 81 indicators, which fall within the following three categories:

1. quantitative/objective/hard data (56 indicators),
2. composite indicators/index data (20 indicators), and
3. survey/qualitative/subjective/soft data (5 indicators).

### Hard data

Hard data series (56 indicators) are drawn from a variety of public and private sources such as United Nations agencies (the United Nations Educational, Scientific and Cultural Organization, the World Intellectual Property Organization), the World Bank, PwC, Thomson Reuters, and IHS Global Insight.

Indicators are often correlated with population, gross domestic product (GDP), or some other size-related factor; they require scaling by some relevant size indicator for economy comparisons to be valid. Most indicators are either scaled at the source or do not need to be scaled; for the rest, the scaling factor was chosen to represent a fair

picture of economy differences. This affected 39 indicators, which can be broadly divided into four groups:

1. Indicators 2.1.1, 2.3.2, 3.2.3, 4.1.2, 4.1.3, 4.2.2, 4.2.3, 5.1.3, 5.3.4, 6.2.3, and 6.3.4 were scaled by GDP in current US dollars.<sup>3</sup>
2. The count variables 3.3.3, 4.2.4, 5.2.4, 5.2.5, 6.1.1, 6.1.2, 6.1.3, 6.1.4, 6.2.4, 7.1.1, and 7.1.2 were scaled by GDP in purchasing power parity current international dollars (PPP\$ GDP). This choice of denominator was dictated by a willingness to appropriately account for differences in development stages; in addition, scaling these variables by population would improperly bias results to the detriment of economies with large young or large ageing populations.<sup>4</sup>
3. Variables 5.1.5, 6.2.2, 7.2.2, 7.2.3, 7.3.1, 7.3.2, 7.3.3, and 7.3.4 were scaled by population (population 20–34 years old for 5.1.5, population 15–64 years old for 6.2.2, and population 15–69 years old for the rest).<sup>5</sup>
4. Sectoral indicators 5.3.1, 5.3.2, 5.3.3, 6.3.1, 6.3.2, 6.3.3, and 7.2.1 were scaled by total trade; indicators 6.2.5 and 7.2.4 were scaled by the total unit corresponding to the particular statistic.<sup>6</sup>

### Indices

Composite indicators come from a series of specialized agencies and academic institutions such as the World Bank, the International Telecommunication Union (ITU), the UN Public Administration Network (UNPAN), and Yale and Columbia Universities. Statisticians discourage the use of an ‘index within an index’ on two main grounds: the

distorting effect of the use of different computing methodologies and the risk of duplicating variables. The normalization procedure partially solves for the former (more on this below). To avoid incurring the mistake of including a particular indicator more than once (directly and indirectly through a composite indicator), only indices with a narrow focus (20 in total) were selected.

Any remaining downside is outweighed by the gains in terms of model parsimony, acknowledgement of expert opinion, and focus on multi-dimensional phenomena that can hardly be captured by a single indicator.<sup>7</sup>

### Survey data

Survey data are drawn from the World Economic Forum’s Executive Opinion Survey (EOS). Survey questions are drafted to capture subjective perceptions on specific topics; five EOS questions were retained to capture phenomena strongly linked to innovative activities for which hard data either do not exist or have low economy coverage.

### Country/economy coverage and missing data

This year’s GII covers 143 economies, which were selected on the basis of the availability of data. Economies with a minimum indicator coverage of 51 indicators out of 81 (63%) and with scores for at least two sub-pillars per pillar were retained. These criteria were determined jointly with the JRC in 2011. The last record available for each economy was considered, with a cut-off at year 2004. For the sake of transparency and replicability of results, no additional effort was made to fill missing values. Missing values are indicated with ‘n/a’ and are not considered in the sub-pillar score. However, the

JRC audit assessed the robustness of the GII modelling choices (i.e., no imputation of missing data, fixed predefined weights, and arithmetic averages) by imputing missing data, applying random weights, and using geometric averages. Since 2012, on the basis of this assessment, a confidence interval is provided for each ranking in the GII as well as the Input and Output Sub-Indices (see Annex 2 to Chapter 1). Please refer to Annex 2 of Chapter 1 for more information regarding the use of ‘n/a’ and zero in indicators 4.2.4, 5.2.4, 5.2.5, and 7.3.4.

### Treatment of series with outliers

Potentially problematic indicators with outliers that could polarize results and unduly bias the rankings were treated according to the rules listed below, following the recommendations of the JRC. This affected 31 out of the 56 hard data indicators.

#### First rule: Selection

The identification of indicators as problematic used skewness or kurtosis. The problematic indicators had either:

- an absolute value of skewness greater than 2, or
- a kurtosis greater than 3.5.<sup>8</sup>

#### Second rule: Treatment

Series with one to five outliers (24 cases) were winsorized: The values distorting the indicator distribution were assigned the next highest value, up to the level where skewness and/or kurtosis entered within the ranges specified above.<sup>9</sup>

For series with six or more outliers (7 cases), skewness and/or kurtosis entered within the ranges specified above after multiplication by a given factor  $f$  and transformation

by natural logs.<sup>10</sup> Since only ‘goods’ were affected (i.e., indicators for which higher values indicate better outcomes, as opposed to ‘bads’), the formula used was:

$$\ln \left[ \frac{(\max \times f - 1) (\text{economy value} - \min)}{\max - \min} + 1 \right]^{11}$$

where ‘min’ and ‘max’ are the minimum and maximum indicator sample values.

### Normalization

The 81 indicators were then normalized into the [0, 100] range, with higher scores representing better outcomes. Normalization was made according to the min-max method, where the min and max values were given by the minimum and maximum indicator sample values respectively, except for index and survey data, for which the original series’ range of values was kept as min and max values (for example, [1, 7] for the World Economic Forum Executive Opinion Survey questions; [0, 100] for World Bank’s World Governance Indicators; [0, 10] for ITU indices, etc.). The following formula was applied:

#### • Goods:

$$\frac{\text{economy value} - \min}{\max - \min} \times 100$$

#### • Bads:

$$\frac{\max - \text{economy value}}{\max - \min} \times 100$$

### Notes

- 1 Paruolo et al. (2013) show that a theoretical inconsistency exists between the real theoretical meaning of weights and the meaning generally attributed to them by the standard practice in constructing composite indicators that use them as importance coefficients in combination with linear aggregation rules. The approach followed in the GII this year is to assign weights of 0.5 or 1.0 to each component in a composite to ensure the highest correlations between them (i.e., indicator/sub-pillar, sub-pillar/pillar, etc.). Three sub-pillars (6.1 Knowledge creation, 7.2 Creative goods and services, and 7.3 Online creativity) and 36 indicators (1.2.1, 1.2.2, 2.1.4, 2.1.5, 2.2.1, 2.2.3, 3.2.1, 3.2.2, 3.3.3, 4.2.2, 4.2.3, 4.2.4, 4.3.1, 4.3.2, 5.1.3, 5.1.4, 5.1.5, 5.2.1, 5.2.4, 5.2.5, 5.3.1, 6.1.1, 6.1.2, 6.1.4, 6.1.5, 6.2.2, 6.2.3, 6.2.4, 6.2.5, 6.3.1, 6.3.2, 6.3.3, 7.1.2, 7.2.1, 7.2.2, and 7.2.3) are weighted 0.5; the rest have a weight of 1.0.  
Five indicators with Pearson correlation coefficients with their respective sub-pillar scores below 0.5 were kept in the model to ensure a conceptual coherence (as opposed to a statistical coherence) in the belief that some cyclical (as opposed to structural) dimension might be at the source of their behaviour as ‘noise’ (see also Annex 3 to Chapter 1): 4.3.2 Market access for non-agricultural exports, 5.3.3 Communications, computer and information services imports, 6.2.1 Growth rate of GDP per person engaged, 6.2.2 New business density, and 6.3.4 Foreign direct investment net outflows.
- 2 To account for differences in development, other composite indicators use weighting schemes differentiated by income level.
- 3 These indicators are 2.1.1 Expenditure on education, 2.3.2 Gross expenditure on R&D, 3.2.3 Gross capital formation, 4.1.2 Domestic credit to private sector, 4.1.3 Microfinance institutions’ gross loan portfolio, 4.2.2 Market capitalization, 4.2.3 Total value of stocks traded, 5.1.3 GERD performed by business enterprise, 5.3.4 Foreign direct investment net inflows, 6.2.3 Total computer software spending, and 6.3.4 Foreign direct investment net outflows.
- 4 These count variables are mainly indicators that increase disproportionately with economic growth. They include: ISO 14001 environmental (3.3.3) and ISO 9001 quality (6.2.4) certificates issued; venture capital (4.2.4) and joint venture and strategic alliance (5.2.4) deals; Patent Cooperation Treaty (PCT) published patent family applications filed in at least three offices (5.2.5); resident patent applications at the national office (6.1.1) and at the PCT (6.1.2); national office resident utility model applications (6.1.3); publications in scientific and technical journals (6.1.4); national office resident trademark applications (7.1.1); and trademark applications under the Madrid System by country of origin (7.1.2).
- 5 These variables are GMAT test takers (5.1.5); new business density (6.2.2); national feature films produced (7.2.2); global entertainment and media composite output (7.2.3); generic (7.3.1) and country-code (7.3.2) top-level Internet domains; Wikipedia monthly edits (7.3.3); and video uploads on YouTube (7.3.4).
- 6 Royalty and license fees payments (5.3.1), high-tech imports (5.3.2), communication, computer, information services imports (5.3.3), royalty and license fees receipts (6.3.1), high-tech exports (6.3.2), communication, computer, and information services exports (6.3.3), cultural and creative services exports (7.2.1) and creative goods exports minus re-exports (7.2.5) were scaled by total trade; high-tech goods imports minus re-imports by total imports minus re-imports (5.3.2); high-tech and medium-high-tech output (6.2.5), and printing and publishing output (7.2.4) by total manufactures output; and high-tech goods exports minus re-exports (6.3.2) by total exports minus re-exports. Refer to Annex 1 of Chapter 1 and Appendix III for details.
- 7 For example, GII sub-pillar 3.1 Information and communication technologies (ICTs) is composed of four indices: ITU’s ICT Access and Use sub-indices and UNPAN’s Government Online Service and E-Participation Indices. The first two are components of ITU’s ICT Development Index together with an ICT skills sub-index that was not considered, as it duplicates GII pillar 2. Similarly, the Online Service Index is a component of UNPAN’s E-Government Development Index together with two indices on Telecommunication Infrastructure and Human Capital that were not considered, as they duplicate GII pillars 3 and 2, respectively. The e-Participation Index was developed separately by UNPAN in 2010.
- 8 Based on Groeneveld and Meeden (1984), which sets the criteria of absolute skewness above 1 and kurtosis above 3.5. The skewness criterion was relaxed to account for the small sample at hand (143 economies).
- 9 This distributional issue affects the following variables: 3.3.3, 4.2.2, 5.3.2, 7.2.1, 7.2.4 (1 outlier) 3.2.1, 5.3.1, 6.1.5, 7.1.1 (2 outliers); 4.2.3, 5.3.4, 6.1.1, 6.2.2, 6.2.4, 7.3.1 (3 outliers); and 1.2.3, 4.1.3, 4.2.4, 5.2.4, 6.1.3, 6.3.3, 7.1.2 (4 outliers). The treatment criterion was relaxed this year to allow series with 5 outliers to be winsorized instead of subjected to natural log transformation. Two indicator series (2.2.3 and 7.2.2) with 5 outliers each required no further transformation once these were winsorized.
- 10 This distributional issue affects variables 5.1.5, 6.1.2, 6.3.4, 7.2.5, 7.3.2 (factor f of 1); 5.2.5, 6.3.1 (factor f of 10).
- 11 The corresponding formula for bads is:
 
$$\ln \left[ \frac{(\max \times f - 1) \times (\max - \text{economy value})}{\max - \min} + 1 \right]$$



These formulas achieve two things: converting all series into 'goods' and scaling the series to the range [1, max] so that natural logs are positive starting at 0.

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# Appendix **v**

About the Authors



## About the Authors

**Ilham Bennani** is Head of the Technological Innovation Department in the Moroccan Industrial and Commercial Property Office (OMPIC). She is responsible for managing operations dealing with innovation, including activities with universities, engineering schools, and research centres. She is also in charge of the management of training activities in the Moroccan Academy of Intellectual Property and Commercial (AMAPIC), created in 2012 by OMPIC. Since 1992, she has held several positions, including Head of Patents Service, Head of Industrial Design Service, and Head of the Patent and Industrial Designs Department at OMPIC. She has taken part in many courses at the World Intellectual Property Organization, the European Patent Office, and the USPTO Global Intellectual Property Academy. She received an Engineering Diploma in Process Engineering in 1991 from the Engineers Mohammedia School (EMI) in Morocco and a Master of Organic Chemistry in 1989 from the Science Faculty, University Sidi Mohammed Ben Abdellah Fes in Morocco.

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**Marwan Berrada** is from Rabat, Morocco. At the Ministry in Charge of Moroccans Living Abroad and Migration Affairs, he was Head of Research and Economic Action between 2011 and 2012 and has been Head of the Networks Skills Development since 2012. He ensures the monitoring and coordination of the creation of several Diaspora experts networks, including geographic networks (Germany, France, Canada, USA) and thematic ones (World Moroccan Medical Skills Network). He has represented the Ministry in several meetings and conferences abroad, including in France, Spain, Italy, Germany, Slovenia, Canada, Egypt, and the United Arab Emirates. He holds a Bachelor's degree in Geography (2006) and a Master of Country Planning (2008) from the Mohammed V University in Rabat.

**Ahmad Bin Byat** is the Founding Chairman of du and one of the most prominent corporate leaders in Dubai. He holds a number of high-ranking directorial positions and plays an instrumental role in leading key economic initiatives designed to drive Dubai's knowledge-based economy forward. He is currently Chief Executive Officer of Dubai Holding, a member of the Board of Trustees at Dubai School of Government, and Director General at Dubai Technology and Media Free Zone Authority. Mr Bin Byat has also held a number of other senior roles, including stints as Executive Chairman of TECOM Investments; Chairman of Dubai Real Estate Corporation (DREC); Secretary General of the Dubai Executive Council; President of the Dubai Government Excellence Programme; Chairman of the Dubai Education Council; a member of the Board of Trustees for Zayed University; Chairman of the Board of Directors at The Consulting Office; and a member of the Board of Thuraya Telecommunications Company. Additionally, he is a former Member of the Supreme Committee for the Supervision of the Telecommunication Sector in the UAE and the Dubai Supreme Fiscal Committee. He is a highly resourceful and inspiring corporate leader successful in building high-performing teams, creating partnerships, and nurturing long-term relationships.

**Nour-Eddine Boukharouaa** is from Beni Mellal, Morocco, and joined the Moroccan Industrial and Commercial Property Office (OMPIC) in 2005 as a Patent Engineer Examiner in charge of the examination of patents in areas such as thermal energy, plastics, and building materials. He has undergone training programmes given by the World Intellectual Property Organization (WIPO), the European Patent Office, and the USPTO Global Intellectual Property Academy. Currently Mr Boukharouaa is in charge of innovation enhancement at OMPIC. His main duties concern developing a patent system in Morocco for universities, R&D centres, and small and medium-size enterprises. He has conducted many training programmes for national and international organizations such as WIPO and the Organization of Islamic Cooperation (OIC). He obtained a Baccalaureate degree from Ecole Royale de l'Air in Marrakech in 1999. In 2005, he graduated from the National School of Applied Sciences in the field of Industrial Engineering, and in 2012, he followed a training programme in Licensing and Technology Commercialisation at the University of California, Davis.

**Abdelhak Chaibi** is an expert in innovation management, and has worked since 2000 at R&D Maroc (Association R&D Morocco). R&D Maroc's general mission is to initiate, implement, and foster innovation and research development and to conduct activities that accelerate innovation in industry, business, and society. As Project Manager, he manages projects to facilitate the transfer and synergy among technology companies, R&D laboratories, and research institutions. Mr Chaibi is a member of several expert groups on measuring innovation; a member of the Ad Hoc Committee for Monitoring Indicators of Science and Technology, chaired by the Academy of Science and Technology; and a member of RDT (Technological Network of Diffusion). Since July 2008, Mr Chaibi has coordinated two Seventh Framework coordination and support projects within R&D Maroc: M2ERA (a bilateral project for integrating Morocco into the European research area, 2009–2012) and MOBILISE—Morocco and the EU: Strengthening Bilateral Links in Innovation and Science for Economy (2012–2015).

**Salma Dinia** has attended several trainings related to science, technology, innovation, and entrepreneurship management and evaluation. She joined the National Centre for Scientific and Technical Research (CNRST) in 1993 as a Researcher at the Remote Sensing and Digital Image Processing Lab. In 2003, she managed a national research programme called PROTARS3 (among 120 projects funded, 13 projects were supported to promote enterprises' competitiveness). In 2004, she joined the Moroccan Incubation and Spin-offs Network (Réseau Maroc Incubation et Essaimage, or RMIE) and became the Manager of this network in 2005 (which has 14 incubators and has funded more than 50 start-ups). Since 2006, she has worked as Head of Relations with Enterprises Unit, CNRST. Ms Dinia conducted and contributed to several studies and projects dealing with marketing, incubation, entrepreneurship, and innovation at national and international levels. She organized, contributed, and chaired many national and international workshops and conferences addressing research, innovation, business incubation, and entrepreneurship issues and has consulted nationally on these topics. During the last 10 years, she has been involved in science technology and innovation programmes supported by the European Investment Bank, the European Union, and programmes of bilateral and multilateral cooperation. Ms Dinia has an Engineering Diploma in Civil Engineering (Hydraulic).

**Soumitra Dutta** is the Anne and Elmer Lindseth Dean and Professor of Management at the Samuel Curtis Johnson Graduate School of Management at Cornell University, New York. Prior to July 2012, he was the Roland Berger Chaired Professor of Business and Technology at INSEAD and the founding director of eLab, a centre of excellence in the digital economy. His current research is on technology strategy and innovation policies at both corporate and national levels. He has won several awards for research and pedagogy and is actively involved in strategy and policy consulting. His research has been showcased in the global media and he has received a number of awards, including the Light of India Award '12 (from the Times of India media group) and the Global Innovation Award '13 (from INNOVEX in Israel). Professor Dutta obtained his PhD in Computer Science and his MSc in Business Administration from the University of California at Berkeley.

**Abdesselam El Ftouh** is a former Inspector of Trade at the Ministry of Trade and Industry in Morocco, and he joined the administration of the Prime Minister as a Research Officer and Policy Officer Representative to the Head of Government. He served in the Department of Economic Affairs in the 1980s, where he was responsible for monitoring several strategic economic sectors and worked on structural adjustment and Moroccan economic liberalization. He participated in building the Administration in charge of Privatization in Morocco, which he joined in 1991, becoming the Director and Coordinator of Transfer Operations in 1995. Four years later, in July 1999, he was appointed Director of the Economic Development Division at the Hassan II Foundation for Moroccans Residing Abroad; he has been the General Treasurer of the same foundation since April 2011. Mr El Ftouh supervised several studies in economic, financial, and banking fields as he participated in research on Moroccan migration, both at the Hassan II Foundation and the university, and he has led several international cooperation programmes on migration. He is also a seminar leader for Master's degree programmes in the field of migration at the University Mohamed V Agdal Rabat. He is a member of the Moroccan Association for Research on International Migration, where he accompanied, as a member of the scientific council of the research programme Mim-AMERM, 30 research projects; he has also made other contributions in the area of international migration of Moroccans.

**Omar Elyoussoufi Attou** is the Head of the Division of Innovation and Valorization (Directorate of Scientific Research and Innovation, Ministry of Higher Education, Scientific Research and Executive Training, Rabat Morocco). A Senior Engineer and a national expert in innovation policies and R&D valorization, Mr Elyoussoufi has worked for 12 years at the Directorate of Scientific Research, where he has experience in innovation policies and has been involved in various projects at national and regional levels. During the last 10 years, his work has focused on establishing and managing national programmes that aim to strengthen and boost the valorization of research, to stimulate innovation and university-business linkage, and to enable new youth employment opportunities through the creation of technology start-ups, with the ultimate goal of upgrading the national system of research and innovation. He also participated in the elaboration of several studies related to innovation and the valorization of research results (Evaluation Study of the Potential of Prototyping Activities in Morocco, Patent and Inventive Activity in Morocco, and Venture Capital and the Financing of Innovation in Morocco). Mr Elyoussoufi holds an Engineering Diploma in Production Systems from the National School of Mineral Industry (Morocco) and a Post-Graduate Diploma in IT from the National School of Computer Science and Systems Analysis (Morocco).

**Adil El Maliki** is from Casablanca, Morocco. He joined the Division of Chemical Industry of the Ministry of Industry and Trade in 1993, and became Head of the Department of Building Materials Industries in 1996. During 1997, he was in charge of central business registry and became Head of the Inventions and Trade Studies division until 2000. After the creation of the OMPIC (Moroccan Industrial and Commercial Property Office) in 2000, he was responsible for the Information and Communication Department until 2007. Since 2008, he has been Director General of the OMPIC. He has been an administrator of the Moroccan Centre for Innovation since October 2012, and a member of R&D Maroc since July 2011. He is the president of the Standing Committee on the Law of Trademarks, Industrial Designs and Geographical Indications, and has participated in the establishment of the ACTA (Anti-Counterfeiting Agreement) treaty. In 1992, he graduated from Mohammadia Engineering School in Chemistry Process.

**Rafael Escalona Reynoso** has been Lead Researcher at the Global Innovation Index since October 2013. His previous professional experience includes working as Economic and Science and Technology Policy Advisor to the Senate of Mexico and as a member of the Trade and Foreign Investment Advisory Board at the office of the President of Mexico. His research experience at Cornell University includes comparative studies between Mexico and Spain on the regulatory aspects of modern biotechnology and the biosafety of genetically modified organisms (GMOs), and on the reach of intellectual property rights (IPRs) in the information technologies era. He holds a PhD in Regional Planning and a Master in Public Administration from Cornell University as well as a BA in Economics from Universidad Panamericana in Mexico.

**Karima Farah** has been Director of Patents and Technological Innovation Department in the Moroccan Industrial and Commercial Property Office (OMPIC) since 2011. Her main duties are the management of national and international patent applications' processing procedures and the promotion of the use of the patent system. Ms Farah joined OMPIC in 2001 initially as an Engineer in the Patent Service. She then held the position of Trademarks Service Head. From 2007 to 2011, she headed the Department of Trademarks and Distinctive Signs in OMPIC. Before joining OMPIC, Ms Farah began her career in the private sector in 1991, initially with a position where she was responsible for Maintenance, then as a technical director of a company operating in the textile sector. Ms Farah holds an Engineering Diploma in Electrotechnics and Power Electronics.

**Naushad Forbes** is Director of Forbes Marshall, India's leading Steam Engineering and Control Instrumentation firm. He chairs the Steam Engineering Companies within the group. Dr Forbes was a Lecturer and Consulting Professor at Stanford University in the Program in Science, Technology and Society from 1987 to 2004. He has held various positions in the Confederation of Indian Industry and is Vice President for 2014–15.

**Leonid Gokhberg** is the First Vice-Rector of the National Research University – Higher School of Economics (HSE)—one of the most prominent universities in Russia—and Director of HSE Institute for Statistical Studies and Economics of Knowledge. From 1988 to 1991 he was Head of the Laboratory for S&T Statistics at the Research Institute for Statistics, and from 1991 to 2002 was Deputy Director at the Centre for Science Research and Statistics (CSRS) in Moscow. Professor Gokhberg coordinated more than 300 national and international projects sponsored by various national authorities, regional agencies, and industrial companies as well as by the European Commission, the World Bank, UNIDO, the US National Science Foundation, and IASA among others, in the areas of S&T and innovation indicators, analyses, foresight, and policies. Professor Gokhberg has served as a consultant to the OECD, Eurostat, UNESCO, the UN Economic Commission for Europe, and other international and national agencies. He is also Editor-in-Chief of the Moscow-based scientific journal *Foresight-Russia*, which ranks 1st in science studies and in management and 4th in economics according to the Russian National Science Citation Index. Professor Gokhberg is a member of the OECD and Eurostat expert groups on indicators for S&T, information society, and education and serves on the International Advisory Board of the Global Innovation Index (WIPO/INSEAD). In 2011, he was appointed Chairman of the Expert Group on Innovation Policy established by the Government of the Russian Federation to provide recommendations for a Socio-Economic Development Strategy for the Russian Federation until 2020 (Strategy-2020). Professor Gokhberg is the author of over 350 papers published in the Russian Federation and internationally, including several monographs and textbooks for universities. He holds a Doctorate and a Professor Diploma in Economics.



**Bruno Lanvin** is the Executive Director of INSEAD's European Competitiveness Initiative (IECI). From 2007 to 2012, he was the Executive Director of INSEAD's eLab, managing INSEAD's teams in Paris, Singapore, and Abu Dhabi. He is a Commissioner on the Broadband Commission. From 2000 to 2007, Dr Lanvin worked for the World Bank, where he was inter alia Senior Advisor for E-strategies and Regional Coordinator (Europe and Central Asia) for ICT and e-government issues. He also headed the Capacity Building Practice of the World Bank's Global ICT Department and was Chairman of the Bank's e-Thematic Group. From June 2001 to December 2003, he was the Manager of the Information for Development Program (infoDev) at the World Bank. In 2000, Dr Lanvin was appointed Executive Secretary of the G8-DOT Force. Until then, he was Head of Electronic Commerce in the United Nations Conference on Trade and Development (UNCTAD) in Geneva, and occupied various senior positions including Chief of the Cabinet of the Director General of the United Nations in New York, Head of Strategic Planning, and later Chief of the SME Trade Competitiveness Unit of UNCTAD/SITE. He was the main drafter, team leader, and editor of *Building Confidence: Electronic Commerce and Development*, published in January 2000. Since 2002, he has been co-authoring *The Global Information Technology Report* (INSEAD-World Economic Forum-Cornell University); he is currently the co-editor of the *Global Innovation Index* report (INSEAD-WIPO-Cornell University). He holds a BA in Mathematics and Physics from the University of Valenciennes (France), an MBA from Ecole des Hautes Etudes Commerciales (HEC) in Paris, and a PhD in Economics from the University of Paris I (La Sorbonne) in France. A frequent speaker at high-level meetings, he advises a number of global companies and governments and is a member of numerous boards, including that of the Tallinn e-government Academy.

**Yassine Ouardirhi** has been Division Chief of Development and Promotion of Innovation since 2010 at the Ministry of Industry, Trade, Investment and the Digital Economy in Morocco. He is in charge of the deployment of three strategic axes of the Morocco Innovation strategy: the Governance and Regulatory Framework, Funding and Support, and Talents Mobilization. Before 2010, he held several senior positions, including Head of the Department of Computer Science programmes and coordinator for e-education and ICT Research at the former Moroccan Department of Telecommunications and Information Technologies. Mr Ouardirhi was the project leader of the ICT Observatory in Morocco and a member of the International Working Group of the United Nations (and the African Regional Group) for measuring the information society in the framework of the second World Summit on the Information Society in Tunis (2005). Today he is a proponent of the Innovation Observatory in Morocco, which will be based on the core indicators of the GII. Mr Ouardirhi graduated as Chief Engineer in 1986 from the Ecole Mohammedia of Engineers, Rabat, in Automation and Industrial Computing.

**Valentina Poliakov** is a Researcher at the Institute for Statistical Studies and Economics of Knowledge, the National Research University – Higher School of Economics (HSE) in Moscow, Russian Federation. Her academic interests include sociological studies of innovation behaviour of populations, science and technology, and medicine as well as the sociology of expertise. Ms Poliakov has participated in a number of research projects related to the examination of public opinion on science and technology, innovative practices of populations, and the social legitimation of innovation. She holds a Master in Sociology with a specialization in the sociological theory and applied social knowledge from HSE.

**Michaela Saisana** is a Senior Scientific Officer at the Joint Research Centre of the European Commission (Italy). She conducts and coordinates research (a team of 10 post-doc researchers) on multidimensional measures for policy making on social, economic, and environmental issues. She is offering regular training courses on composite indicator development to European Commission Officials and to international organizations and academia. Since 2005, she has audited over 60 well-known composite indicators at the invitation of the United Nations, Transparency International, the World Economic Forum, INSEAD, and the World Intellectual Property Organization, among others. She has co-authored two books: *Handbook on Constructing Composite Indicators: Methodology and User Guide* (OECD/JRC, 2008) and *Global Sensitivity Analysis: The Primer* (2008). Her publications deal with sensitivity analysis, composite indicators, multicriteria analysis, multivariate analysis, data envelopment analysis, and multi-objective optimization (20 peer-reviewed publications, 60 working papers). In 2004 she was awarded the European Commission's JRC Young Scientist Prize in Statistics and Econometrics in recognition of her research on composite indicators. She has a PhD and an MSc in Chemical Engineering.

**Andrea Saltelli** has worked on physical chemistry, environmental sciences, and applied statistics, publishing over 80 peer-reviewed papers and three books. His main disciplinary focus is on *sensitivity analysis* of model output, a discipline where statistical tools are used to interpret the output from mathematical or computational models; and on *sensitivity auditing*, an extension of sensitivity analysis to the entire evidence-generating process in a policy context. A second focus is the construction of composite indicators or indices. Mr Saltelli presently leads the Econometric and Applied Statistics Unit of the European Commission at the Joint Research Centre in Ispra (I). The Unit, with a staff of 30, develops econometric and statistic applications, mostly in support to the services of the European Commission, in fields such as lifelong learning, inequality, employment, competitiveness, and innovation. He participates to the training of European Commission staff on impact assessment.

**Martin Schaaper** has been Head of the Science, Technology and Innovation Statistics unit at the UNESCO Institute for Statistics since 2009. His work consists of collecting and analysing internationally comparable STI indicators from all countries in world, as well as developing methodology and building capacity in developing countries for the collection of these indicators. Before joining UNESCO, he worked for eight years for the OECD, where he was responsible for the co-operation with non-OECD countries in the fields of STI and ICT statistics; and six years for various small companies, which were working on a contract basis for Eurostat on a variety of statistics.

**Richard Scott** is a Policy Analyst at the Organisation for Economic Co-operation and Development (OECD). He currently works within the OECD Centre for Educational Research and Innovation (CERI). His current work examines the skills required for innovation and innovative economies, as well as educational research and development. Before joining CERI, he worked in the OECD Directorate for Science, Technology and Industry as part of the OECD Young Professionals Programme. There, his work predominantly related to science and innovation policy, with a particular focus on the economic impacts of public investment in R&D. Prior to joining the OECD, he worked as a government economist at the Department for Business, Innovation and Skills in the United Kingdom, where he contributed to a range of analysis and policy formulations on labour markets, skills, and industrial policy. He holds an undergraduate degree in Economics from Durham University in the United Kingdom and a Master in Economics from the University of Nottingham.

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**Osman Sultan** is an iconic leader in telecommunications. Stemming from his belief that being connected is today a basic human right, Mr Sultan has led many transformations that have had a profound impact on people. He has led du as its CEO since 2006, ensuring that the company continues to remain on a sustainable growth path and set new benchmarks, such as taking the lead in developing smart technologies and investing in broadband for the betterment of people.

**Stéphan Vincent-Lancrin** is a Senior Analyst and Project Leader at the Organisation for Economic Co-operation and Development (OECD) Directorate for Education and Skills. He is currently responsible for the Innovation Strategy for Education and Training project within the OECD Centre for Educational Research and Innovation (CERI). His current interests cover the nature and level of education and skills that matter in innovation and knowledge societies, the innovation ecology in the education sector, and the measurement of innovation in education. His recent work covers the identification of skills for innovation-driven societies and how education systems can foster them (21st-century skills) through specific curricula, pedagogy, and assessments—at all educational levels. His most recent book, co-authored with Ellen Winner and Thalia Goldstein, is *Art for Art's Sake: The Impact of Arts Education* (OECD Publishing). He also works on STEM education and participates in OECD reviews related to innovation and research systems. Dr Vincent-Lancrin has been working extensively on many facets of higher education and innovation, including the internationalization and future of higher education, and e-learning. He has authored many articles and book chapters and edited several books. Before joining the OECD, he worked as lecturer and researcher in economics at the University of Paris-Nanterre and the London School of Economics. He is a Marie Curie Fellow and a 2007 Fulbright New Century Scholar. He holds a PhD in Economics, a Business School Diploma, and a Master in Philosophy.

**David Walwyn** is Professor (Engineering and Technology Management) at the Graduate School of Technology Management, Faculty of Engineering, Built Environment and IT, University of Pretoria. He also runs a small company, Reseva, which provides consultancy services in innovation strategy and management, science policy, feasibility studies, programme evaluation, and research management. He has previously worked as the Research Manager at the Council for Scientific and Industrial Research (CSIR), as the CEO of a small biotechnology start-up company (Arvir Technologies), the Commercialization Manager of iThemba Pharmaceuticals, the CEO of eGoli Biotechnology Incubator, the Research Manager (Process Development) at AECL, and in various capacities in other chemical companies. In his academic work, he teaches a course on research methodology and undertakes research in innovation management, health economics, and technology localization, where the latter covers the transformation of the South African manufacturing sector from its resource-dependency to high-value products and services. He also supervises 2 PhD and 20 Master's students. His publications include 25 peer-reviewed articles and book chapters, 24 conference presentations, 21 policy papers, and one patent. Professor Walwyn has a BSc in Chemical Engineering (University of Cape Town) and a PhD in Organic Chemistry (University of Cambridge).

**Sacha Wunsch-Vincent** is Senior Economic Officer under the Chief Economist at the World Intellectual Property Organization (WIPO). He is one of the main authors of the *World Intellectual Property Report* and the *Global Innovation Index*, and contributes to the new economic work of the organization. His primary research foci and current area of work are concerned with the interaction of innovation, intellectual property, and economic development. Before joining WIPO, he was an Economist at the OECD Directorate for Science, Technology, and Industry for seven years. Before that he was the Swiss National Science Fellow at the Berkeley Center for Law and Technology (University of California, Berkeley) and the Washington-based institute for International Economics. He has served as advisor to organizations such as the World Bank and the World Economic Forum, and has testified before national governments and parliaments. Dr Wunsch-Vincent holds a Master of International Economics from MERIT, University of Maastricht, and a PhD in Economics from the University of St. Gallen, Switzerland. He teaches International Economics at Sciences Po Paris.

The global economy is on a much stronger footing in 2014 than in preceding years. Considering all factors, because of progress being made in many advanced economies, economic growth is now more balanced across emerging markets and high-income countries, and the confidence of the private sector and investors is on the rise. Yet questions remain about what drives the sources of global economic growth and new jobs. Aware of these questions, the Global Innovation Index (GII) recognizes the key role of innovation as a driver of economic growth and well-being. In this context, it aims to capture the multi-dimensional facets of innovation and provide the tools that can assist in tailoring policies to promote long-term output growth, improved productivity, and job growth.

To guide policies and to help overcome divides between developed and emerging economies, metrics are needed to assess innovation and policy performance. For this purpose, *The Global Innovation Index 2014: The Human Factor in Innovation* is timely and relevant. The GI helps to create an environment in which innovation factors are continually evaluated. It provides a key tool and a rich database of detailed metrics for 143 economies, which represent 92.9% of the world's population and 98.3% of global GDP.

Putting the right environment in place that will nurture, promote, and enable the human factor in business and social innovation is a complex task but a critical one. Metrics to capture essential elements of the human factor in innovation have been included in the GI model. The chapter contributions to this report also describe many strands of action in the fields of education, training, skill formation, and related areas.

Launched by INSEAD in 2007, the GI project today is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. This year, the GI draws on the support and expertise of its Knowledge Partners: the Confederation of Indian Industry, du, and Huawei, as well as an Advisory Board of 14 eminent international experts. The Joint Research Centre (JRC) of the European Commission again performed a thorough robustness and sensitivity analysis of the index for the fourth consecutive year.

The GI is primarily concerned with improving the 'journey' towards better measuring and understanding innovation and with identifying targeted policies, good practices, and other levers that can foster innovation. Written in a nontechnical language and style, the GI appeals to diverse groups including policy makers, business leaders, academics, and different organizations of civil society.

The full report can be downloaded at [www.globalinnovationindex.org](http://www.globalinnovationindex.org).

