WORLD HAPPINESS REPORT

Edited by John Helliwell, Richard Layard and Jeffrey Sachs

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INTRODUCTION

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We live in an age of stark contradictions. The world enjoys technologies of unimaginable sophistication; yet has at least one billion people without enough to eat each day. The world economy is propelled to soaring new heights of productivity through ongoing technological and organizational advance; yet is relentlessly destroying the natural environment in the process. Countries achieve great progress in economic development as conventionally measured; yet along the way succumb to new crises of obesity, smoking, diabetes, depression, and other ills of modern life. [1]

These contradictions would not come as a shock to the greatest sages of humanity, including Aristotle and the Buddha. The sages taught humanity, time and again, that material gain alone will not fulfill our deepest needs. Material life must be harnessed to meet these human needs, most importantly to promote the end of suffering, social justice, and the attainment of happiness. The challenge is real for all parts of the world.

As one key example, the world's economic superpower, the United States, has achieved striking economic and technological progress over the past half century without gains in the self-reported happiness of the citizenry. Instead, uncertainties and anxieties are high, social and economic inequalities have widened considerably, social trust is in decline, and confidence in government is at an all-time low. Perhaps for these reasons, life satisfaction has remained nearly constant during decades of rising Gross National Product (GNP) per capita.

The realities of poverty, anxiety, environmental degradation, and unhappiness in the midst of great plenty should not be regarded as mere curiosities. They require our urgent attention, and especially so at this juncture in human history. For we have entered a new phase of the world, termed the *Anthropocene* by the world's Earth system scientists. The Anthropocene is a newly invented term that combines two Greek roots: "anthropo," for human; and "cene," for new, as in a new geological epoch. The Anthropocene is the new epoch in which humanity, through its technological prowess and population of 7 billion, has become the major driver of changes of the Earth's physical systems, including the climate, the carbon cycle, the water cycle, the nitrogen cycle, and biodiversity.

The Anthropocene will necessarily reshape our societies. If we continue mindlessly along the current economic trajectory, we risk undermining the Earth's life support systems – food supplies, clean water, and stable climate – necessary for human health and even survival in some places. In years or decades, conditions of life may become dire in several fragile regions of the world. We are already experiencing that deterioration of life support systems in the drylands of the Horn of Africa and parts of Central Asia.

On the other hand, if we act wisely, we can protect the Earth while raising quality of life broadly around the world. We can do this by adopting lifestyles and technologies that improve happiness (or life satisfaction) while reducing human damage to the environment. "Sustainable Development" is the term given to the combination of human well-being, social inclusion, and environmental sustainability. We can say that the quest for happiness is intimately linked to the quest for sustainable development.

The Search for Happiness

In an impoverished society, the focused quest for material gain as conventionally measured typically makes a lot of sense. Higher household income (or higher Gross National Product per capita) generally signifies an improvement in the life conditions of the poor. The poor suffer from dire deprivations of various kinds: lack of adequate food supplies, remunerative jobs, access to health care, safe homes, safe water and sanitation, and educational opportunities. As incomes rise from very low levels, human well-being improves. Not surprisingly, the poor report a rising satisfaction with their lives as their meager incomes increase. Even small gains in a household's income can result in a child's survival, the end of hunger pangs, improved nutrition, better learning opportunities, safe childbirth, and prospects for ongoing improvements and opportunities in schooling, job training, and gainful employment.

Now consider the opposite end of the income spectrum. For most individuals in the high-income world, the basic deprivations have been vanquished. There is enough food, shelter, basic amenities (such as clean water and sanitation), and clothing to meet daily needs. In fact, there is a huge surfeit of amenities above basic needs. Poor people would swap with rich people in a heartbeat. Yet all is not well. The conditions of affluence have created their own set of traps.

Most importantly, the lifestyles of the rich imperil the survival of the poor. Human-induced climate change is already hitting the poorest regions and claiming lives and livelihoods. It is telling that in much of the rich world, affluent populations are so separated from those they are imperiling that there is little recognition, practical or moral, of the adverse spillovers (or "externalities") from their own behavior.

Yet the problems of affluence also strike close to home. Affluence has created its own set of afflictions and addictions. Obesity, adult-onset diabetes, tobacco-related illnesses, eating disorders such as anorexia and bulimia, psychosocial disorders, and addictions to shopping, TV, and gambling, are all examples of disorders of development. So too is the loss of community, the decline of social trust, and the rising anxiety levels associated with the vagaries of the modern globalized economy, including the threats of unemployment or episodes of illness not covered by health insurance in the United States.

Higher average incomes do not necessarily improve average well-being, the U.S. being a clear case in point, as noted famously by Professor Richard Easterlin, and shown in Figure 3.2. U.S. GNP per capita has risen by a factor of three since 1960, while measures of average happiness have remained essentially unchanged over the half-century. The increased U.S. output has caused massive environmental damage, notably through greenhouse gas concentrations and human-induced climate change, without doing much at all to raise the well-being even of Americans. Thus, we don't have a "tradeoff" between short-run gains to well-being versus long-run costs to the environment; we have a pure loss to the environment without offsetting short-term gains.

The paradox that Easterlin noted in the U.S. was that at any particular time richer individuals are happier than poorer ones, but over time the society did not become happier as it became richer. One reason is that individuals compare themselves to others. They are happier when they are higher on the social (or income) ladder. Yet when everybody rises together, relative status remains unchanged. A second obvious reason is that the gains have not been evenly shared, but have gone disproportionately to those at the top of the income and education distribution. A third is that other societal factors – insecurity, loss of social trust, a declining confidence in government – have counteracted any benefits felt from the higher incomes. A fourth reason is adaptation: individuals may experience an initial jump in happiness when their income rises but then at least partly return to earlier levels as they adapt to their new higher income.

These phenomena put a clear limit on the extent to which rich countries can become happier through the simple device of economic growth. In fact, there are still other general reasons to doubt the formula of ever-rising GNP per person as the route to happiness. While higher income may raise happiness to some extent, the *quest* for higher income may actually reduce one's happiness. In other words, it may be nice to have more money but not so nice to crave it. Psychologists have found repeatedly that individuals who put a high premium on higher incomes generally are less happy and more vulnerable to other psychological ills than individuals who do not crave higher incomes. Aristotle and the Buddha advised humanity to follow a middle path between asceticism on the one side and craving material goods on the other.

A further huge problem is the persistent creation of new material "wants" through the incessant advertising of products using powerful imagery and other means of persuasion. Since the imagery is ubiquitous on all of our digital devices, the stream of advertising is more relentless than ever before. Advertising is now a business of around $500 billion per year. Its goal is to overcome satiety by creating wants and longings where none previously existed. Advertisers and marketers do this in part by preying on psychological weak-

nesses and unconscious urges. Cigarettes, caffeine, sugar, and trans-fats all cause cravings if not outright addictions. Fashions are sold through increasingly explicit sexual imagery. Product lines are generally sold by associating the products with high social status rather than with real needs.

And finally, there is one further word of warning to those who expect to become happier by becoming richer. Even if gains in well-being can be eked out by further income gains, the evidence is quite overwhelming that after a certain point, the gains are very small. The key idea is known as the "diminishing marginal utility of income." Suppose that a poor household at $1,000 income requires an extra $100 to raise its life satisfaction (or happiness) by one notch. A rich household at $1,000,000 income (one thousand times as much as the poor household) would need one thousand times more money, or $100,000, to raise its well-being by the same one notch. Gains in income have to be of equal proportions to household income to have the same benefit in units of life satisfaction. This principle means that poor people benefit far more than rich people from an added dollar of income. This is a good reason why tax-and-transfer systems among high-income OECD countries on balance take in net revenues from high-income households and make net transfers to low-income households. Put another way, the inequality of household income is systematically lower net of taxes and transfers than before taxes and transfers.[2]

Rethinking the Keys to Happiness

The western economist's logic of ever higher GNP is built on a vision of humanity completely at variance with the wisdom of the sages, the research of psychologists, and the practices of advertisers. The economist assumes that individuals are rational decision-makers who know what they want and how to get it, or to get as close to it as possible given their budget. Individuals care largely about themselves and derive pleasure mainly through their consumption. The individual's preferences as consumers are a given or change in ways actually anticipated in advance by the individuals themselves. Some economists even say that drug addicts have acted "rationally," consciously trading off the early benefits of drug use with the later high toll of addiction. These economists may say this, but they don't dare examine such foolishness too closely!

We increasingly understand that we need a very different model of humanity, one in which we are a complicated interplay of emotions and rational thought, unconscious and conscious decision-making, "fast" and "slow" thinking. Many of our decisions are led by emotions and instincts, and only later rationalized by conscious thought. Our decisions are easily "primed" by associations, imagery, social context, and advertising. We are inconsistent or "irrational" in sequential choices, failing to meet basic standards of rational consistency. And we are largely unaware of our own mental apparatus, so we easily fall into traps and mistakes. Addicts do not anticipate their future pain; we spend now and suffer the consequences of bankruptcy later; we break our diets now because we aren't thinking clearly about the consequences.

We also understand (again!) that we are social animals through and through. We learn through imitation, and gain our happiness through meeting social norms and having a sense of belonging to the community. We feel the pain of others, and react viscerally when others are sad or injured. We even have a set of "mirror neurons" that enable us to feel things from the point of view of others. All of this gives us a remarkable capacity to cooperate even with strangers, and even when there is little chance of reward or reciprocity, and to punish non-cooperators, even when imposing punishment on others is costly or puts us at risk ourselves. Of course there are limits to such cooperation and fellow feeling. We also cheat, bluff, deceive, break our word, and kill members of an out-group. We engage in identity politics, acting as cruel to outsiders as we are loving to our own group.

All these lessons of human nature matter more than ever, more even than when the Buddha taught humanity about the illusions of transient pleasures, and the Greeks warned us against the tempting Siren songs that could pull us off our life's course. For today we have more choices than ever before. In the ancient world,

the choice facing most of humanity most of the time was little choice indeed: to work hard to secure enough to eat, and even then to face the risk of famine and death from bad weather or bad luck.

Now we face a set of real choices. Should the world pursue GNP to the point of environmental ruin, even when incremental gains in GNP are not increasing much (or at all) the happiness of affluent societies? Should we crave higher personal incomes at the cost of community and social trust? Should our governments spend even a tiny fraction of the $500 billion or so spent on advertising each year to help individuals and families to understand better their own motivations, wants, and needs as consumers?

Should we consider some parts of our society to be "off bounds" to the profit motive, so that we can foster the spirit of cooperation, trust, and community? A recent analyst of Finland's school system, for example, writes that Finland's excellence (ranking near the top of international comparisons in student performance) has been achieved by fostering a spirit of community and equality in the schools.[3] This is in sharp contrast to the education reform strategy at work in the U.S., where the emphasis is put on testing, measurement, and teacher pay according to student test performance.

There are reasons enough to believe that we need to re-think the economic sources of well-being, more so even in the rich countries than in the poor ones. High-income countries have largely ended the scourges of poverty, hunger, and disease. Poor countries rightly yearn to do so. But after the end of poverty, what comes next? What are the pathways to well-being when basic economic needs are no longer the main drivers of social change? What will guide humanity in the Anthropocene: advertising, sustainability, community, or something else? What is the path to happiness?

Taking Happiness Seriously

Most people agree that societies should foster the happiness of their citizens. The U.S. Founding Fathers recognized the inalienable right to the pursuit of happiness. British philosophers talked about the greatest good for the greatest number. Bhutan has famously adopted the goal of Gross National Happiness (GNH) rather than Gross National Product. China champions a harmonious society.

Yet most people probably believe that happiness is in the eye of the beholder, an individual's choice, something to be pursued individually rather than as a matter of national policy. Happiness seems far too subjective, too vague, to serve as a touchstone for a nation's goals, much less its policy content. That indeed has been the traditional view. Yet the evidence is changing this view rapidly.

A generation of studies by psychologists, economists, pollsters, sociologists, and others has shown that happiness, though indeed a subjective experience, can be objectively measured, assessed, correlated with observable brain functions, and related to the characteristics of an individual and the society. Asking people whether they are happy, or satisfied with their lives, offers important information about the society. It can signal underlying crises or hidden strengths. It can suggest the need for change.

Such is the idea of the emerging scientific study of happiness, whether of individuals and the choices they make, or of entire societies and the reports of the citizenry regarding life satisfaction. The chapters ahead summarize the fascinating and emerging story of these studies. They report on the two broad measurements of happiness: the ups and downs of daily emotions, and an individual's overall evaluation of life. The former is sometimes called "affective happiness," and the latter "evaluative happiness."

What is important to know is that both kinds of happiness have predictable causes that reflect various facets of our human nature and our social life. Affective happiness captures the day-to-day joys of friendship, time with family, and sex, or the downsides of long work commutes and sessions with one's boss. Evaluative happiness measures very different dimensions of life, those that lead to overall satisfaction or frustration with one's place in society. Higher income, better health of mind and body, and a high degree of trust in one's community ("social capital") all contribute to high life satisfaction; poverty, ill health, and deep divisions in the community all contribute to low life satisfaction.

What we learn in the chapters ahead is that happiness differs systematically across societies and over time, for reasons that are identifiable, and even alterable through the ways in which public policies are designed and delivered. It makes sense, in other words, to pursue policies to raise the public's happiness as much as it does to raise the public's national income. Bhutan is on to something path breaking and deeply insightful. And the world is increasingly taking notice.

A household's income counts for life satisfaction, but only in a limited way. Other things matter more: community trust, mental and physical health, and the quality of governance and rule of law. Raising incomes can raise happiness, especially in poor societies, but fostering cooperation and community can do even more, especially in rich societies that have a low marginal utility of income. It is no accident that the happiest countries in the world tend to be high-income countries that also have a high degree of social equality, trust, and quality of governance. In recent years, Denmark has been topping the list. And it's no accident that the U.S. has experienced no rise of life satisfaction for half a century, a period in which inequality has soared, social trust has declined, and the public has lost faith in its government.

It is, of course, one thing to identify the correlates of happiness, and quite another to use public policies to bring about a society-wide rise in happiness (or life satisfaction). That is the goal of Bhutan's GNH, and the motivation of an increasing number of governments dedicated to measuring happiness and life satisfaction in a reliable and systematic way over time. The most basic goal is that by measuring happiness across a society and over time, countries can avoid "happiness traps" such as in the U.S. in recent decades, where GNP may rise relentlessly while life satisfaction stagnates or even declines.

The Bhutan case study tells the story of GNH in Bhutan, a story of exploration and progress since the King declared in 1972 the goal of happiness over the goal of wealth. Happiness became much more than a guidepost or inspiration; it became an organizing principle for governance and policy-making as well. The Gross National Happiness Index is the first of its kind in the world, a serious, thoughtful, and sustained attempt to measure happiness, and use those measurements to chart the course of public policy. I leave description of Bhutan's wonderful adventure, still unfolding while already inspiring others, to the case study.

Happiness and the Sustainable Development Goals

As the world enters the dangerous next decades of the Anthropocene, we must intensify our efforts to achieve a new course, one that ensures poor countries have the right to develop, and all countries have the right to happiness, while simultaneously curbing the human-induced destruction of the environment. It is too late to head off entirely climate change and loss of biodiversity. There is still time, though, to mitigate the damage and to build resilience to the changes ahead. The quest for happiness will be carried out in the context of growing environmental risks.

According to the recent recommendations of the UN Secretary-General's High-level Panel on Global Sustainability, the Millennium Development Goals, set to end in 2015, should be followed by a new set of Sustainable

Development Goals. More succinctly, the MDGs should be followed by the SDGs. It is likely that the concept of the SDGs will be adopted by the UN member states at the Rio+20 Summit in Rio de Janeiro in June 2012.

The Sustainable Development Goals should have four pillars. The first should be to carry on the crucial work of the MDGs in order to **end extreme poverty** by 2030. The developing countries have successfully cut the overall poverty rate by half comparing 1990 and 2010, from around 44% to 22%. The biggest gains have come in China, while Africa has lagged behind, though Africa too is now on a path of poverty reduction. No later than 2030 the remaining extreme poverty and hunger should be eradicated. Happiness in the poorest countries would be strongly boosted by such an historic breakthrough.

The second pillar of the SDGs should be **environmental sustainability**. Without that, no gains against poverty, hunger, or disease can endure long. The environmental pillar of the SDGs may be guided by the concept of "planetary boundaries," the notion that humanity must avoid specific thresholds of environmental damage to avoid creating irreparable harms to the Earth and to future generations.

The third pillar should be **social inclusion**, the commitment of every society that the benefits of technology, economic progress, and good governance should be accessible to everybody, women as well as men, minority groups as well as the majority. Happiness must not be the preserve of a dominant group. The goal should be happiness for all.

The fourth pillar should be **good governance**, the ability of society to act collectively through truly participatory political institutions. Good governance is not only a means to an end, but also an end in itself, since good governance signifies the ability of people to help shape their own lives and to reap the happiness that comes with political participation and freedom.

Yet how shall we measure success, to know that our society is on track? Here is where new metrics of happiness can play a crucial role. To assess the four pillars of sustainable development, we need a new set of indicators that extend well beyond the traditional GNP. The UN conferees have anticipated this need in the draft outcome document for Rio+20:

> Paragraph 111. We also recognize the limitations of GDP as a measure of well-being. We agree to further develop and strengthen indicators complementing GDP that integrate economic, social and environmental dimensions in a balanced manner. We request the Secretary-General to establish a process in consultation with the UN system and other relevant organizations.[4]

These are the kinds of indicators – economic, social, and environmental – now being collected by Bhutan's Gross National Happiness Commission in order to create Bhutan's GNH Index.

In addition to specific measures of economic, social, and environmental performance, governments should begin the systematic measurement of happiness itself, in both its affective and evaluative dimensions. The SDGs should include a specific commitment to measure happiness, so that the world as a whole, and each individual country, can monitor progress in sustainable development and can make comparisons with the achievements elsewhere. This massive effort of data collection has already begun. As this report discusses, survey data on happiness are now being collected in various means: the World Values Survey, covering up to 65 countries; the Gallup World Poll covering 155 countries; and several other national and international surveys mentioned in Chapters 2 and 3. The OECD is now developing important proposals for internationally standard measures explained in its case study.

Summary of this Report

When thinking about increasing happiness, one of the most important aspects is measurement. Is there a way to accurately measure people's happiness, both within and across societies? Chapter 2 discusses the happiness measures currently in use across countries, specifically the Gallup World Poll (GWP), the World Values Survey (WVS), and the European Social Survey (ESS), and asks whether or not these measures can provide valid information about quality of life that can be used to guide policy-making. It considers the questions of the reliability and validity of well-being measures; how happiness can be compared; whether or not there is a happiness set point; and if happiness is "serious" enough to be taken seriously. The chapter argues that regular large-scale collection of happiness data will enable analysis of the impacts of policies on well-being. It concludes that regular large-scale collection of happiness data will improve macroeconomic policy-making, and can inform service delivery.

In order to both measure and improve happiness levels, we must understand what influences these levels. Chapter 3 discusses the causes of happiness and misery, based on 30 years of research on the topic. Both external and personal features determine well-being. Some of the important external factors include income, work, community and governance, and values and religion. More "personal" factors include mental and physical health, family experience, education, gender, and age. Many of these factors have a two-way interaction with happiness – physical health may improve happiness, while happiness improves physical health. An analysis of all these factors strikingly shows that while absolute income is important in poor countries, in richer countries comparative income is probably the most important. Many other variables have a more powerful effect on happiness, including social trust, quality of work, and freedom of choice and political participation.

Chapter 4 discusses some of the policy implications of these findings. GNP is a valuable goal, but should not be pursued to the point where economic stability is jeopardized, community cohesion is destroyed, the vulnerable are not supported, ethical standards are sacrificed, or the world's climate is put at risk. While basic living standards are essential for happiness, after the baseline has been met happiness varies more with quality of human relationships than income. Other policy goals should include high employment and high-quality work; a strong community with high levels of trust and respect, which government can influence through inclusive participatory policies; improved physical and mental health; support of family life; and a decent education for all. Four steps to improve policy-making are the measurement of happiness, explanation of happiness, putting happiness at the center of analysis, and translation of well-being research into design and delivery of services.

[1] Editorial assistance provided by Claire Bulger.

[2] On average across OECD countries, cash transfers and income taxes reduce inequality by one third. Poverty is around 60% lower than it would be without taxes and benefits. Even among the working-age population, government redistribution reduces poverty by about 50%. See OECD (2008).

[3] Sahlberg, P (2007).

[4] Rio+20 United Nations Conference on Sustainable Development. (2012).

Part I.

Chapter 2.
THE STATE OF WORLD HAPPINESS

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Introduction

This chapter presents and explains a range of happiness measures currently available in a comparable format for many countries. Some survey data cover almost all countries, and hence can be used to develop an overall picture of the state of world happiness in the first decade of the 21st century.[1] This accounting makes use of measures of subjective well-being, since they capture best how people rate the quality of their lives. "Subjective well-being" is the general expression used to cover a range of individual self-reports of moods and life assessments. The word "happiness" is often used in an equally general way, as in the title of this report. It does help to focus thinking, and attracts attention more quickly than does "subjective well-being." But there is a risk of confusion. A bit of advance explanation may help to keep things clear.

Among various measures of subjective well-being, the primary distinction to be made is between cognitive life evaluations (represented by questions asking how happy or satisfied people are with their lives as a whole), and emotional reports.[2] Early modern attempts to classify different types of subjective well-being in psychology have also made a distinction between two types of emotional reports: positive affect (a range of positive emotions) and negative affect (a range of negative emotions).[3] The primary distinction between life evaluations and emotional reports continues to be accepted today. It is also accepted,[4] although less generally,[5] that positive and negative affect carry different information, and need to be separately measured and analyzed. In this report we shall present all three types of measure.

How does happiness come into this classification? For better or worse, it enters in three ways. It is sometimes used as a current emotional report- "How happy are you now?," sometimes as a remembered emotion, as in "How happy were you yesterday?," and very often as a form of life evaluation, as in "How happy are you with your life as a whole these days?" People answer these three types of happiness question differently, so it is important to keep track of what is being asked. The good news is that the answers differ in ways that suggest that people understand what they are being asked, and answer appropriately. Thus when people are asked about their happiness now or yesterday, the answers are closely correlated with current activities and events in their lives today or yesterday. By contrast, when people are asked how happy they are with their lives a whole these days, their answers match very closely the answers to other similar evaluations of life as a whole.[6]

We shall return later to more detailed discussions of the meaning and validity of different measures. The introduction above is intended to provide a springboard for our initial description of world happiness. The specific data we use are drawn from the Gallup World Poll (GWP), the World Values Survey (WVS), the European Values Survey (EVS), and the European Social Survey (ESS). We shall start by presenting data from the Gallup World Poll, since it provides far greater country coverage than is currently available from any other source. The Gallup World Poll contains measures of positive and negative affect (yesterday) as well as a life evaluation. We shall start with life evaluations, since they will be shown to depend much more on life circumstances, to have larger and more stable international differences, and to be more readily and systematically explained. We shall then consider the levels and uses of affect measures, and compare affect measures and life evaluations from other surveys covering fewer countries.

Happiness Across the World

In the Gallup World Poll respondents are asked (using fresh annual samples of 1,000 respondents aged 15 or over in each of more than 150 countries) to evaluate the quality of their lives on an 11-point ladder scale running from 0 to 10, with the bottom rung of the ladder (0) being the worst possible life for them and 10 being the best possible. We begin with this ladder measure, which we sometimes refer to as the Cantril ladder,[7] because it currently covers the widest span of countries. Figure 2.1 gathers together the responses from all available Gallup World Polls, from 2005 through mid-2011, and weights them by each country's population aged 15 and up to show the state of world happiness. There are 11 columns in the figure, one for each possible answer to

the question. The total height of each bar represents the number of people in the world, aged 15 and over (the population being surveyed), who give that score for their evaluation of life today. Because of the large number of countries covered, Figure 2.1 provides the broadest measure of the level and distribution of world happiness in the second half of the first decade of the 21st century.

What do the data show? Over one-fourth of the world's population give answers of 5, which is exactly the mid-point of the range of possibilities. In every country there are life evaluations covering the whole range of possible answers, from 0 to 10. The differences within each country reflect differing life circumstances and personalities, and perhaps whatever else was in the respondents' minds when the question was asked. It has even been argued by some that individuals have their own personal set points for their happiness, as determined by their personalities. In this view, while good or bad experiences might push people away from their set points, they eventually adapt to the new circumstances, and revert to their set point. If this were generally true, the world distribution of happiness answers in Figure 2.1 could tell us little about the economic and social circumstances of people's lives. It would reflect instead the distribution of more and less happy personality types.

On the contrary, Figure 2.2 presents the distributions of answers in each of nine country groupings to show that life evaluations reflect much more than individual personality differences. Average life evaluations differ a great deal from continent to continent, as shown in Figure 2.2, and even more from the top to the bottom of the country rankings, as shown in Figure 2.3. There are very large differences in average life evaluations across world regions, with a difference exceeding 3 points on the 11-point scale between a group of industrial countries and sub-Saharan Africa. Even more striking is the ability of just a few differences in average life circumstances, including per capita incomes, healthy life expectancy, having friends to count on in times of need, having a sense of freedom to make life choices, and absence of corruption to explain almost all (more than 95%) of these inter-regional differences.

Happiness, like income, is unequally distributed within and among nations. As is shown in Table 2.1, however, the variation of happiness across the world's population is largely within countries, while this is much less so for incomes. Thus 42% of the worldwide variation in log of household incomes is between countries, much higher than the corresponding percentages for subjective well-being, which are 22% for the Gallup World Poll ladder and 7% for happiness yesterday. The primary reason for the difference is that income is but one of the supports for happiness, and most of the other supports are much more evenly spread across countries. However, some of the economically poorest regions and countries also have lower trust and weaker social relations, both of which have strong links to happiness.

Also apparent from Figures 2.1 and 2.2 is that in every region there is a broad range of life evaluations. To some extent these simply reflect different personality types.[8] But to a much greater extent they reflect different circumstances of life, and predict different future life courses, within the same neighborhoods and nations.

Happiness Averages by Country

The several panels of Figure 2.3 show ranked ladder averages by country, with horizontal lines showing the 95% confidence bands. Data from several years are combined, so that the sample size is several thousand for most countries. This large sample size, coupled with the fact that the year-to-year changes in happiness averages are small relative to the inter-country differences, means that it is possible to establish many significant inter-country differences.

Because of the variety of national experiences, the range of national happiness averages is even greater than for groups of countries. The top four countries (all in Northern Europe) in Figure 2.3 have life evaluations averaging 7.6, compared to 3.4 in the bottom four (all in sub-Saharan Africa). As described in more detail in Chapter 3,

about 80% of these inter-country differences can be attributed to the same few variables measuring the material, social and institutional supports for a good life. All of these supports are stronger in the high-ranking countries. Comparing the top four to the bottom four countries, average incomes are 40 times higher, healthy life expectancy is 28 years greater, people are much more likely to have someone to call on in times of trouble (95% vs. 48%), to have a sense of freedom (94% vs. 63%), and are less likely to perceive widespread corruption in business and government (33% vs. 85%).

Returning to the question of the distribution of subjective well-being within countries, the panels of Figure 2.4 show the standard deviations of each country's distribution of life evaluations. The countries are listed in the same order as in Figure 2.3, so as to illustrate the great extent to which inequality of well-being differs among countries. If the degree of within-country inequality in the distribution of happiness were the same in each country (as measured by the coefficient of variation) then the standard deviations in Figure 2.4 would follow the same gradual downward slope displayed by the Figure 2.3 country rankings of average life evaluations. Figure 2.4 shows that this is far from reality. In general, there is no significant cross-country correlation between country means and standard deviations for the global sample of countries. However, among the OECD countries the correlation between county means and standard deviations is significantly negative, while for the rest of the world the correlation is on average positive. Among those countries with high average scores, some have quite high degrees of equality in the distribution of happiness (e.g. Denmark and the Netherlands), while in some other fairly high-ranking countries (e.g. Costa Rica and the United States) there is much more dispersion, and a higher proportion of the population has low life satisfaction. The OECD has recently reported a growing inequality of income in almost all OECD countries over the past 20-odd years.[9] There are not yet sufficiently large and long samples of happiness data, and of social support data, to see whether this growing inequality of income has been matched by growing inequality of happiness and its non-income drivers.

Comparing Different Measures

After starting with the ladder, since it is the data set with the best international coverage, we now turn to illustrate the differences between the ladder, life satisfaction, overall happiness, and measures of positive and negative affect. If all of these measures were collected from the same respondents, in the same surveys, in comparable ways, then it would be relatively easy to see how they differ, both in average values and in the stories they tell about why some lives are happier than others.

But most surveys only ask one or two subjective well-being questions, so it is instead necessary to proceed in stages, using a number of pair-wise comparisons. But first some further distinctions need to be made between different ways of getting individuals to report on their well-being. A first distinction is between experienced and remembered well-being. Experienced well-being depends on moment-by-moment reports, usually of pleasure or pain, and remembered well-being is reported subsequently, and is hence based on memory. A second distinction relates to the time span of the emotion or event being experienced or remembered. For experienced well-being, the time span is momentary, but for remembered well-being, the report can relate to a past moment (how did you feel when something happened, or at noon), to the average for any particular event or time period, whether yesterday, last week, your last holiday, your just-finished colonoscopy, or to your life as a whole these days. A third distinction is between evaluations and emotional reports. An evaluation is inherently a judgment about something, while an emotional report is more simply the description of an emotional state.

All three of these distinctions are potentially important. The reference to colonoscopies was deliberate. In a well-known study, colonoscopy patients were asked to report their moment-by-moment pain levels, and were later asked for a retrospective evaluation using the same scale.[10] There was a systematic difference between the average of momentary assessments and the retrospective evaluations, with the latter closely tracking the average of the peak and final momentary pain levels. If these two reporting forms give different answers, then which should be taken to represent the true pain level? Some have argued that the true total pain is the sum of the momentary assessments, and that therefore the retrospective reports are mistaken.[11] Others have argued

that the ability to frame experiences into summary memories that help to inform future judgments is an essential rather than a mistaken part of human nature.[12] And when future decisions are made about having colonoscopies, choosing where to go on spring break, or deciding to have another child, it is retrospective evaluations that govern decisions.[13] But most agree that "the remembering self and the experiencing self must both be considered, because their interests do not always coincide."[14] This distinction does not impinge directly on this current analysis of world happiness measures, since all of the affect reports currently available are of remembered rather than experienced affect. This includes all of the Gallup World Poll affect measures presented here, which refer to memories of emotions on the previous day.

The second and third distinctions, relating to the time span covered by the question, and whether the question invites an evaluation of life or an emotional report, both remain important for our discussions here. As already noted, the Gallup affect measures all relate to yesterday. Most life assessments are explicitly evaluative, asking respondents to think of their lives as a whole, often nowadays, or alternatively at some past or future time. Thus the three separate Cantril ladder questions in the Gallup World Poll ask respondents to evaluate their lives "at the present time," five years ago and five years in the future. The data in this report are all based on answers to the "at the present time" question.

The life satisfaction question in the European Social Survey asks "All things considered, how satisfied are you with your life as a whole nowadays?" (on a 0 to 10 scale). The World Values Survey asks almost the same life satisfaction question, except that it uses "these days" instead of "nowadays," and the response scale runs from 1 to 10.

Happiness measures sometimes relate to a specific moment or day, in which case it is appropriate to regard them as reports of affect. This is the case with the positive affect question now being used widely by the U.K. Office for National Statistics (ONS), which asks "Overall, how happy were you yesterday?."[15] By contrast, the happiness question in the European Social Survey, and that asked in the World Values Survey, are both evaluative in nature, and broader in their time coverage. For example, the European Social Survey asks "Taking all things together, how happy would you say you are?" (on a scale of 0 to 10), while the World Values Survey asks "Taking all things together, would you say you are: Very happy, Quite happy, Not very happy, or Not at all happy?."How do the various evaluation measures compare? Figure 2.5 shows the country-by-country rankings for life satisfaction based on the Gallup World Poll and Figure 2.6 shows them for the combined World Values Survey/European Values Survey. These rankings are very similar to those shown for the ladder in Figure 2.3. If the Figure 2.5 country rankings for life satisfaction are compared with those for the Gallup ladder responses asked of the same respondents, and in the same survey, the correlation is very high (r=0.94). Analysis of the resulting data show that while there were significant differences in average scores, with the mean of life satisfaction being higher by about 0.5 on the 11-point scale, the two variables are explained by the same factors, including the same effects of income.[16]

What about comparisons between the answers from life evaluations based on happiness and those based on satisfaction with life? This is best answered using data from the European Social Survey, which asks happiness and life satisfaction questions in similarly evaluative ways, and on the same scales, for large samples of respondents in 29 countries. Figures 2.7 and 2.8 show the country averages for life satisfaction and happiness, respectively. Although the means of the two series differ significantly, with life satisfaction generally being rated higher by 0.4 points on the 11-point scale, tests of explanatory equations show that the same variables explain happiness and life satisfaction, with generally similar coefficients, including the effects of income. In addition, the ESS country rankings for happiness and life satisfaction are almost identical (r=0.987). Thus when happiness is asked about in a life-evaluative mode, the answers have the same structures across individuals and countries as do the answers to life satisfaction questions. Indeed, these structures are so similar that taking an average of the life satisfaction and happiness answers for each respondent gives a combined evaluation of life that is explained significantly more accurately than is either on its own. The same is true for life satisfaction and ladder responses in the Gallup World Poll.[17]

Bhutan has not yet been included in the Gallup World Poll, but has used the European Social Survey happiness question in its recent large (n=7,000) national survey, so that Bhutanese average happiness, equal to 6.05 on the 0 to 10 scale, can be compared with that in the ESS countries. This is lower than the 7.01 average in the latest ESS survey, but higher than in Russia, Ukraine and Bulgaria, significantly so in the latter two cases. Compared to Bhutan's near neighbors, less precise calculations rank Bhutanese happiness levels slightly above those in India, and significantly above those in Nepal, China and Bangladesh.[18]

The bottom line of our comparisons among life evaluations is that when life satisfaction, happiness and ladder questions are asked about life as a whole, they tell very similar stories about the likely sources of a good life. The information base for these comparisons is still growing, however, so there may be some systematic differences that appear in larger samples.

But when happiness is seen as an emotional report, and measured at a point in time, then it looks very like other measures of positive affect. Thus "happiness yesterday" measured on a 0 to 10 scale as a positive affect measure (as currently being asked by the ONS in the U.K.) has very different properties from life satisfaction, asked on the same scale of the same respondents. The affect measure of happiness is much less correlated with major life circumstances than are the life satisfaction answers, and the effects of income are much smaller, and often statistically insignificant. This is similar to what was found when the Gallup ladder answers were compared to the Gallup "yesterday" affect answers.[19] The ONS and Gallup data both show that life evaluations are much more closely related to life circumstances than are affect measures, and that positive affect is more easily explained by life circumstances than is negative affect.

Figure 2.9 shows country rankings based on the 4-point evaluative happiness answers in the combined World Values Survey/European Values Survey, while Figure 2.10 shows rankings, for a much larger number of countries, of the average Gallup World Poll answers to a question asking about the respondent's happiness yesterday (using a yes/no 2-point response scale). We would not expect these country rankings to be very similar, and they are indeed much less correlated than were the ESS happiness and life satisfaction rankings. The reasons for difference relate to answer scales (binary for the Gallup happiness vs. a 4-point scale for the WVS/EVS happiness question), to the difference between yesterday and some longer period, and to the related and more fundamental distinction between evaluations and emotional reports.

Although short-term emotional reports carry much less information about life circumstances than do life evaluations, they are very useful at revealing the nature and possible causes of changes in moods on an hour-by-hour or day-by-day basis. They are hence of most use when asked in the context of time-use surveys that provide scope for explaining these short-term changes.[20]

How do international differences in measures of affect compare with those for the more cognitive life evaluations? Figure 2.11 shows Gallup World Poll country rankings for positive affect (the average of yes/no answers on the frequency yesterday of enjoyment, happiness and laughter). Figure 2.12 does the same for negative affect (averages for worry, sadness, anger and depression), and Figure 2.13 shows net affect (positive affect minus negative affect).[21] We should expect that proportionate differences between average country scores would be larger for life evaluations than for affect, because the effects of income are relatively larger for the evaluative measures, and the international differences in income are much greater than those for the non-economic supports for a better life. This is consistent with the results in Figures 2.11 to 2.13, which show some interesting differences in country rankings both between evaluations and affect, and between positive and negative affect. In all parts of the world, the frequency of positive affect is two to three times greater than for negative affect. The countries of Latin America and the Caribbean have higher than average rankings for the ladder and for positive affect, to a slightly greater extent for the latter.

To summarize, life evaluations, whether they are general questions about life satisfaction, the ladder question in the Gallup World Poll, or overall happiness questions of the sort used in the European Social Survey, all give similar answers about the relative importance of the economic and social supports for a good life. When overall happiness and life satisfaction questions are asked on the same scales, and of the same respondents, the answers have very similar distribution, as shown in the two panels of Figure 2.14. Although the mean of the ESS happiness answers is 0.4 larger than for SWL, the two measures are very highly correlated at both the individual (r=0.67) and national (r=0.96) levels, are explained in the same way by the same variables, and are usefully averaged to produce even more robust life evaluations.

Measures of positive and negative affect contain much less that differs from one community or country to another (as shown in Table 2.1), but if collected in suitable ways can unravel important aspects of life as it is actually experienced.

Table 2.1 Inter-Country Shares of Total Variance

Data Source	Well-Being Measures	Inter-Country Share of Total Variance
GWP 05-11	Cantril Ladder (life evaluation)	0.222
GWP 07-10	Life Satisfaction (life evaluation)	0.327
GWP 05-11	Happiness (yesterday)	0.068
GWP 05-11	Positive Affect (yesterday)	0.072
GWP 05-11	Negative Affect (yesterday)	0.042
GWP 05-11	Net Affect (yesterday)	0.061
GWP 05-11	Log of Income	0.422
ESS round 4	Life Satisfaction (life evaluation)	0.172
ESS round 4	Happiness (life evaluation)	0.146
ESS round 4	Log of Income	0.384
WVS 3-5	Life Satisfaction (life evaluation)	0.143
WVS 3-5	Happiness (four point scale)	0.115

Notes: (1) To construct numerical income from the categorical income class in ESS round 4, we use midpoints for non-top income categories and 1.5*(bottom boundary) for the top income category. Household income in local currency units in ESS round 4 is converted to international dollars by multiplying by the PPP conversion factor from WDI (2011). Note that the PPP conversion ratio for Slovakia is for euro and international dollar, however, the household income is measured by Slovak crown in the survey. Household income for Slovak respondents is then divided by 30.126, the official exchange rate between Slovak crown and euro, before applying the PPP conversion factor. (2) WVS 3-5 refers to the WVS round 3-5 and EVS round 4-5.

Happiness has been shown to play a double role, sometimes appearing as an emotional report and at other times in an evaluative role. Life satisfaction and other life evaluations, by contrast, always relate to life as a whole, and show much less short-term variation but much more linkage to life circumstances. Having presented a range of measures of subjective well-being, we turn now to consider the extent to which they can provide valid and policy-relevant guides to the quality of life.

Making the Case for Measuring Subjective Well-Being

Although almost 40 years have passed since Richard Easterlin advocated using measures of happiness to assess the quality of people's lives, systematic collection and use of subjective well-being data at the population level have been slow to follow.[22] In the meantime, several decades of research, mainly in psychology, have dug

deeper into the meaning, reliability, and validity of various measures of subjective well-being. The results of this research strongly support wider collection and use of subjective well-being data.[23]

Why has it taken so long for subjective well-being to become more widely and routinely measured as part of the statistical base for public information and decision-making? One reason is that in the absence of some crisis in existing ways of collecting and using information, people tend to simply and often unconsciously[24] apply and use information and decision rules that have served them well in the past.[25] It took many decades to establish national systems of accounts for income and expenditure, and even then the developments were often driven by the imperatives of wars or depressions, and the meaning and uses of the data were frequently contested. Hence it should be no surprise that it has taken many years to raise baseline awareness to the point where widespread official and private collection of subjective well-being data is starting to happen. Nor should it be surprising that there are many skeptical questions posed about what the data mean and whether they are useful.

Here are some of the questions that have been asked, and how they have been answered:

Are subjective well-being measures reliable?

Within psychology, reliability is gauged by the extent to which the same questions yield identical answers when administered in the same conditions. The replicability of subjective well-being measures has been tested in a variety of ways, all of which combine to produce a reassuring picture.[26] For example, life evaluations asked of the same person in a sequence of surveys start high, and become less correlated as the intervening time grows.[27] This is just what should be expected, since underlying circumstances are more likely to have changed over the longer period. Furthermore, multi-item measures average over random errors, and hence produce higher reliability measures at the individual level.

At the group or national level, reliability is very high, since individual-level random variations and personality differences are averaged away, while the underlying year-to-year changes in average life circumstances are relatively modest. Hence the year-to-year correlations of country rankings of the ladder in the Gallup World Poll are very high, averaging between 0.88 and 0.95. Similarly the wave-to-wave country-ranking correlations of both happiness and life satisfaction in the European Social Survey are between 0.92 and 0.98. These correlations gradually drop, as they ought to do, when the comparison dates become further apart.

Are subjective well-being answers valid?

There are three quite different ways of judging the validity of happiness measures. The first is to see to what extent they are plausibly explained in terms of life circumstances and other candidate variables. The second is to assess the extent to which they are correlated with other subjective and objective measures of well-being. The third is to see how and whether the measures predict subsequent outcomes and behavior.

As will be shown in the next chapter, more than three-quarters of the cross-country differences in national average measures of happiness can be explained by variables already known through experimental and other evidence to be important. The fact that different measures of subjective well-being are explained by different patterns of other variables represents a strength rather than a weakness, because in general the differential patterns take exactly the form they should if the measures are valid. For example, Maslow's theory of the hierarchy of needs would suggest that the relative importance of income and social factors might differ between richer and poorer countries.[28] Research using data from the Gallup World Poll shows country differences of just this sort. Although both social and economic conditions are important supports for life evaluations in all countries, the relative importance of the social factors is higher in OECD countries.[29]

Second, subjective measures of well-being have been correlated with a variety of objective measures including facial expressions, brain-wave patterns and cortisol measures at the individual level, and community and national suicide patterns. Some have regarded these correlations as a necessary pre-requisite to taking subjective measures more seriously. But why should this be necessary? In the case of happiness the subjective measure

itself is primary, with the coincidental movements of physical measures being reassuring but of less consequence. Indeed, certain patterns of electrical activity in the brain became established as measures of happiness because they tended to be present when people reported themselves to be happy. [30] Clearly what matters are the subjective experiences, and not any associated electrical patterns. Nonetheless, the correlations are reassuring to those who are concerned about interpersonal and intercultural differences in how people use words and scales when making their reports.

The ability of measures of subjective well-being to predict subsequent events and behavior is relevant for two main reasons. First, predictive power is a straight forward test of validity. The ability of life evaluations in large populations to predict subsequent suicide frequencies provides strong evidence that life evaluations are important to behavior.[31] The same point can be made for the ability of measures of positive affect to predict a variety of good outcomes[32] especially including health[33] and mortality.[34]

Second, the fact that happiness measures are predictive of sickness and death feeds back to strengthen the case for collecting measures of happiness as a regular part of health maintenance and the delivery of health care.

How sensitive are results to question wording and placement?

A well-known study[35] hypothesized, following influential philosophical work on the logic of conversation, that if a general question follows a related specific one the answer to the specific question will help set the context for the general question, and will hence be likely to influence the answer to it.[36] Thus the researchers presumed, and found, that when students in Illinois were asked about how happy they were with their recent dating experiences and how happy they were with their lives as a whole, the answers were more closely correlated when the dating question was asked before the general question. But when the two questions were presented as relating to one another, the ordering effect shrank to insignificance. The first part of the result has been used by some to question the reliability of subjective assessments, but the two parts seen together might equally well be seen to show that respondents are adept at seeing the conversational context and giving answers that are most useful when seen in that context.[37]

Two other results help to show that respondents are generally able to understand the questions asked, and to give the answers requested. The first relates to subjective health evaluations. Many surveys ask respondents, on a 5-point scale, to report the state of their physical health, with 0 being very poor and 5 being very good. The answers to this question always show a significant decline as age increases. The designers of one large Canadian survey, trying to be more precise, used the same response scale but asked respondents to compare the state of their health with that of others of the same age. The answers showed no age trend at all. This suggests strongly that respondents are able to assess the states of their own health, and to make, if asked, appropriate comparisons with the age-adjusted states of health of others living in the same community.

The second example comes from the Gallup Daily Poll which reveals strong day-of-week effects for affect questions that apply specifically to "yesterday," but no daily patterns in life evaluations.[38]

There has also been a substantial literature testing and assessing order effects, with one meta-analysis of 16 studies showing small effects.[39] But they can be dramatically large, as recently found in the Gallup-Healthways U.S. Daily Poll.[40] Split samples showed that respondents asked about their attitudes to government (which were very negative at the time) immediately before the ladder question gave significantly lower answers (by almost 5%), than when the political questions were absent, or were separated from the ladder question by some less upsetting buffer questions. This effect is very large relative to the modest changes in national average happiness that would normally happen from day to day or year to year, even during a major recession. These results are very useful in underlining three points already implicit in the data we have presented. First, the day-to-day and year-to-year changes in national average subjective well-being are likely to be very small relative to the differences across individuals, communities and nations. Second, as will be shown in more

detail in Chapter 3, although incomes are important supports for life evaluations, their effects are relatively small compared to other factors, especially in terms of national average changes from one year to the next. Third, shared changes in sentiment, whether triggered by question order or changes in the stock market, can have large effects on average scores. The daily frequency of the Gallup-Healthways poll, and Gallup's use of split samples, made it easy to spot and correct the issue, and to convince others to test for question order and other framing effects. For all of these reasons, subjective well-being data are not suitable for use as guides to short-term macroeconomic policy, where in any case there are many other more relevant data.

Framing effects are important, but they exist for behavior as much as for survey answers. For example, experiments showed that student subjects showed some modest tendency (less than 7%, but nonetheless greater than the 5% noted in the previous paragraph) to mark in their own favor, but had no tendency to cheat if they had previously been asked to write down as many as they could remember of the Ten Commandments.[41] All human behavior, whether evidenced by thought, opinions or action, is influenced by the social norms and contexts in which people live. This does not diminish the validity of subjective answers, but does show the need for careful and experimental data collection, and demonstrates the advantages of large and repeated samples.

How can happiness be compared across individuals, nations, and cultures?

Since the social and institutional contexts are such important supports for well-being, then we would expect to find that there will be corresponding differences in reported well-being across communities, nations and cultures. But what if there are cultural differences in response styles, so that people in different cultures might report different answers to the same question, even if in other respects their life quality is the same? If these differences in the interpretations of questions, or in the use and meaning of response scales, were very large, they might affect subsequent judgments about where and why subjective well-being is higher.[42]

More generally, it has been argued that for a broad range of psychological findings, conclusions are based on experiments undertaken using WEIRD subjects (those from Western, Educated, Industrialized, Rich Democracies), and do not represent well what happens in the much larger populations in other countries and cultures.[43]

For both of these reasons, it is important to assemble data from different cultures and nations in ways that permit researchers to make judgments about the likely extent of difficulties in making comparisons in happiness. One basic check, once comparable data are assembled, is to see to what extent the answers drawn from different nations and cultures appear to be influenced by the same factors, and to the same extent. As it turns out, the cross-national commonality of the correlates of life evaluations is substantial.[44]

How much do aspirations and standards change?

Endowment effects, changing aspirations, adaptation, and relativities pose complications rather than road-blocks to the use of happiness data as measures of the quality of life. Life on earth has, at least on average, become much less brutish, nasty and short over the past 500 years. The evidence for this ranges from falling murder rates to rising life expectancies. There are no long-standing happiness measures available to track these life improvements, but it would be no surprise if individual and community-level aspirations and standards have risen over the same centuries, even if at a lower rate. The empirical basis for adaptation and relativities will be discussed in the next chapter. Our summary view of the available research is that adaptation and relativities can truncate the average happiness increases that accompany human progress, that some comparison effects are helpful and others harmful to average happiness, and that happiness tells a valid story both across communities and over time.

Is there a happiness set point?

It is sometimes argued that human capacities for adaptation are so strong that even major changes in life circumstances will have no lasting impact on subjective well-being. The most cited reference to this effect is

a study of subjective well-being among accident victims and lottery winners.[45] However, even based on the small number of cases analyzed in that paper, accident victims were significantly less happy than the control group. Subsequent research has consistently confirmed that individuals with long-term disabilities have lower subjective well-being, to an extent that varies with the severity of the disability.[46] As might be expected from other research reported in Chapter 3, the extent to which a disability affects subsequent well-being depends not just on the severity of the disability, but also on the extent to which patients are enabled to maintain their social connections.[47]

If each individual had his or her own set point based on stable personality traits, and eventually returned to that point after any change in circumstances, there could not be such large and long-lasting international differences in subjective well-being as are shown in this chapter. For example, average life evaluations in the top 10 countries of Figure 2.3 are twice as high as in the bottom 10 countries, and these differences are largely explained, as shown in Chapter 3, by measured differences in life circumstances. Nor would there be such a systematic U-shape in happiness over the life course for each individual, as shown in Chapter 3.

Studies of identical and fraternal twins have also been used to estimate the extent to which happiness depends on genetically based personality differences rather than differing circumstances. For example, studies of U.S. twins have estimated that one-third to one-half of within-country variance of happiness can be explained by genetic differences between individuals.[48] At the global level, the genetically based share of life satisfaction differences will of course be much smaller, since life circumstances differ much more among people around the globe than among people living in the same country.

Finally, if most inter-personal happiness differences were personality-driven, and if judgments returned to set point levels after a period of adaptation, then there could be no sustained trend differences in the relative happiness of different groups within larger populations. But data from a series of Canadian General Social Surveys spanning almost 25 years reveals that residents of Québec, especially those who are francophone, have had, in the decades following Québec's Quiet Revolution, steadily growing life satisfaction compared to residents of the rest of Canada.[49] The accumulated trend difference is both large and statistically very significant, equivalent in life satisfaction terms to more than a doubling of household incomes. This finding shows that life satisfaction captures much more than temporary departures from personality-driven set points, and also that social changes can cause sustained trends in well-being far beyond those explicable by conventional economic measures.

Is happiness serious enough to be taken seriously?

In most of the social, political, caring and policy sciences, the focus of attention is on eradication of disease, crime, poverty and war. In a world where there is still so much hardship left, is it an unearned luxury to be concerned with measuring and building happiness? The case for taking happiness seriously, even in a world still marked by evils of many types, is based on a belief, increasingly supported by evidence, that it provides a broader range of possible ways to build a better world, including more effective solutions for poverty, illness and war. Happiness research is sometimes seen as having a "giggle factor," too frivolous for serious study. It has taken a long time to build convincing evidence that the measurement and maintenance of positive states of mind can suggest new routes to longer and healthier lives, above and beyond conventional medical care, but the case has now been made.[50]

Another related issue, with deep philosophical roots, is the contrast between the hedonistic life, spent in the pursuit of pleasure, and the eudaimonistic life, aimed at achieving excellence.[51] This distinction is captured in modern psychology as the difference between hedonic and eudaimonic well-being, where the hedonic approach has a focus on positive emotions and the eudaimonic approach emphasizes flourishing, meaning and purpose.[52] Does this distinction support the skeptical view of happiness as too frivolous? Does happiness unduly emphasize current pleasures and ignore the deeper and more fundamental aspects of life? These questions hark back to the distinction we have made between emotional reports and life evaluations. Whether framed as questions about happiness or life satisfaction, life evaluations appear to take pleasures and purpose

both into account, just as Aristotle suggested they should and would. This is somewhat less so for short-term emotional reports, including those on happiness. This difference can be illustrated by the first data available from the 2011 U.K. ONS well-being surveys. Four questions are asked. One asks about life satisfaction, one asks about the respondent's sense of life purpose (a eudaimonic question), and two relate to emotions yesterday: one about happiness and the other about anxiety. The results show that the eudaimonic answers are correlated with both emotional measures, but more closely to life satisfaction than to either emotion.[53] Even emotional reports are likely to depend on more than current pleasures. Life evaluations, whether based on happiness, life satisfaction, or the Cantril ladder, are well placed to attach an even greater weight to the deeper features of a good life.

Happiness measures are part of a larger effort to understand well-being

Although there is always intrinsic interest in finding out how happy people are, such measures will be of little help unless they can be combined with sufficient other information to build an understanding of what makes for better lives. Thus many national and international efforts to measure and promote happiness have been set within broader frameworks involving the measurement and reporting of other variables that have themselves been used as indicators or supports for well-being.[54] The Bhutanese case study shows how measures of happiness are part of a larger Gross National Happiness framework that monitors many variables that have been found to contribute to a higher quality of individual and community life. Similarly, the OECD's recent accounting for well-being in OECD countries includes many other variables.[55] And in the United Kingdom, although most attention has been given to subjective well-being there is also recognition of the need to collect a much broader set of information relevant to the understanding and improvement of well-being.

Within the broader framework of well-being measures, what is special about happiness and other indicators of subjective well-being? The distinctive feature of happiness and other subjective well-being measures is that they offer people the chance to report on the quality of their own lives, reflecting their own histories, personalities and preferences. These are arguably the most democratic of well-being measures, since they reflect not what experts or governments think should define a good life, but instead represent a direct personal judgment. Seen in this light, the subjectivity of happiness is to be seen as a strength rather than a weakness. The most fundamental indicator of your happiness is how happy YOU feel, not whether others see you smiling, your family thinks you are happy, or you have all the presumed material advantages of a good life.

When pulled together for a neighborhood, community or nation, subjective well-being scores can thus be seen as directly democratic measures of the quality of individual and community life within that geographic zone. Other measures of well-being, and of the presumed supports for happy lives, can then provide the evidence required to explain why some lives, and some communities, are happier than others. Chapter 3 provides many examples of what can be discovered, and Chapter 4 shows how this information can be put to work to suggest, test and evaluate better ways of designing and delivering public and private services.

Building a strong information base requires that subjective well-being measures be collected widely and frequently. Geographic detail is needed to better understand what features of community life are most supportive of well-being. To be of most use, assessments of happiness should be made within a wide variety of surveys already being conducted for other purposes, since such surveys will thereby automatically provide a range of descriptions of the social and economic contexts of people's lives. These in turn can support a more fine-grained assessment of what makes for happier communities.

Running surveys frequently, and spreading data collection over the whole year, is useful to help pinpoint and hence understand the sources of changes in happiness. Average happiness measures generally move slowly, and the changes over time are small relative to the range of happiness differences among cities and countries. This increases the value of frequent assessments, especially in geographic detail, as the frequency makes it easier to spot and understand trends as they develop. We turn now to consider in slightly more detail how different types of measures can best be collected and used.

Different measures for different purposes

What can be learned by measuring and tracking happiness on different time scales? Time use surveys involving the diary-based daily reconstruction method[56] or the pager-based experience sampling methods each have their own most appropriate uses.[57] Experience sampling and diary methods, despite their differences, can be used in complementary ways to track happiness and its correlates in the context of daily life.[58]

This chapter has made a distinction between life evaluations (whether ladder, SWL or happiness) and emotional reports, including both positive and negative affect. Life evaluations, positive affect, and negative affect are ranked in that order in terms of what they tell us about the relative importance of different life circumstances, as will be shown in Chapter 3. But for analyzing the fabric of daily life, the priorities are reversed, with the most valuable information being provided by momentary and remembered emotions and reactions during the daily course of activities and events.[59]

What are the implications for future collection and use of happiness data?

What sorts of happiness data are needed to support better institutions and policy choices? How can the results of well-being research be used to design and deliver better policies? We outline a few possibilities here, to set the stage for fuller consideration in Chapter 4.

First, regular large-scale collection of happiness data in the context of a variety of existing surveys will permit the establishment of baseline values and trend changes for subjective well-being within and across nations and communities. This will permit the well-being consequences of subsequent events and policy changes to be better assessed. It is critically important, if happiness data are to be able to support the uses described below, that there should be information available also about the key variables likely to support better lives. It is also necessary to know where respondents live, to permit measurement and explanation of happiness differences among neighborhoods, cities, and demographic groups.

Second, analysis of these data in their broader economic and social contexts will permit more comprehensive estimation of the relative importance of different factors supporting happiness. This will in turn allow conventional benefit/cost analysis to be changed to attach specific values to many features of life, and especially the social context. Thus it becomes possible to lift important non-market variables from the footnotes to the center of benefit/cost analysis.[60]

Third, the resulting research can have implications for macroeconomic policies by improving the information used to assess the relative importance of different macroeconomic objectives,[61] as well as to alter how such policies are designed and delivered.[62]

Fourth, well-being results can be used to suggest alternative ways of designing and delivering[63] public services ranging from elder care[64] and community services[65] to prisons.[66]

In all of these cases, subjective well-being measures are needed. First, it is necessary to build the broad base of information to establish baseline levels and to enable more solid research. Second, the research gives rise to a range of policy possibilities that need to be assessed in experimental and field trial conditions, in each case supported by monitoring the well-being consequences for those involved in designing, delivering and receiving public and private services.

1. In preparing and revising this chapter, we have benefited from the kind advice of Rafael Di Tella, Paul Dolan, Richard Easterlin, Nicole Fortin, Bruno Frey, Dan Gilbert, Carol Graham, Stephen Hicks, Haifang Huang, Ron Inglehart, Daniel Kahneman, Richard Layard, Richard Lucas, Conal Smith, Neil Thin, Chris Barrington-Leigh, and Dan Weijers. This research was supported by R01AG040640 from the US National Institute on Aging.
2. Kahneman, Diener & Schwarz, eds, (1999).
3. e.g. Andrews & Withey (1976), Diener (1984).
4. Cohen et al. (2003), Lyubomirsky et al. (2005), Schimmack (2003), Wiest et al. (2011).
5. Russell & Carroll (1999).
6. This is shown by the similarity between the European Social Survey happiness and life satisfaction data in Figures 2.7 and 2.8, and between life satisfaction and the Cantril ladder in the Gallup World Poll, in Diener et al., eds. (2010) Table 10.1.
7. Cantril (1965) introduced the ladder as a "self-anchoring striving scale."
8. See, for example, De Neve et al. (2011).
9. OECD (2011b).
10. Redelmeier & Kahneman (1996).
11. Kahneman et al. (1997) took this Benthamite view.
12. E.g. Helliwell (2008) and Helliwell & Barrington-Leigh (2010).
13. Wirtz et al. (2003).
14. Kahneman (2011), p. 410.
15. Dolan et al. (2011).
16. Helliwell et al. (2010) Table 10.1.
17. Helliwell et al. (2010) Table 10.1.
18. The comparisons with neighboring countries are indirect because the satisfaction with life answers of the Gallup World Poll need to be compared to the happiness answers in Bhutan. Both are asked using the same 0 to 10 scale, and comparisons are implemented using averages from ESS answers to the same two questions. In the ESS, life satisfaction answers are on average 0.40 points lower than those for happiness. The Bhutanese happiness average of 6.05 is thus converted to a 5.65 "SWL-equivalent" value for comparison with the Gallup SWL averages of 5.51 for India, 5.32 for Nepal, 5.25 for Bangladesh and 5.24 for China. The Bhutan estimate is statistically significantly higher than for Nepal, Bangladesh and China.
19. Kahneman & Deaton (2010).
20. Krueger et al. (2009).
21. See the notes to Figures 2.11 to 2.13 for the exact questions asked.
22. Easterlin (1974). Empirical welfare functions based on happiness data were being estimated even earlier in Europe, e.g. van Praag (1971).
23. For surveys and examples, see Stiglitz et al. (2009), Diener et al. (2009), Krueger et al. (2009), and Layard (2010).
24. Bilalić et al. (2008).
25. Nickerson (1998).
26. Diener (2011), Diener et al. (2009).
27. e.g. r=0.56 in one year, falling to 0.24 over sixteen years, Fujita and Diener (2005).
28. Maslow (1943).
29. For the distributions of country coefficients, see Figure 10.3 of Diener et al., eds, (2010). For the difference between OECD and non-OECD coefficients, see Figure 1 of Helliwell & Barrington-Leigh (2010).
30. Gilbert (2006), p. 66.
31. For example, see Koivumaa-Honkanen et al. (2000).
32. Lyubomirsky et al. (2005).
33. Cohen & Pressman (2006).
34. See Danner et al. (2001), Chida & Steptoe (2008), and Diener & Chan (2011).
35. Strack, Martin & Schwarz (1988).
36. Grice (1975).
37. As argued by Grice (1975).
38. Helliwell & Wang (2011b).

39. Schimmack & Oishi (2005).

40. See Deaton (2011) and Agrawal & Harter (2011).

41. Mazar et al. (2008), experiment 1.

42. Oishi (2010).

43. Henrich et al. (2010).

44. As shown in Figure 10.3 of Diener et al., eds. (2010).

45. Brickman et al. (1978).

46. Lucas (2007).

47. Haslam et al. (2008).

48. See for example Lykken (1999) and De Neve et al. (2011). This share includes the role of any environmental factors that may be correlated with the genetic differences. De Neve et al. (2011) also identify one of the candidate genes involved (the 5HTT).

49. Barrington-Leigh (2011).

50. For representative surveys of these results, see Steptoe et al. (2005) and Diener & Chan (2011).

51. For more on the philosophical underpinnings of happiness research, see Bok (2010), Kenny & Kenny (2006), Nussbaum & Sen, eds. (1999) and Graham (2011, chapter 2).

52. E.g. Ryan & Deci (2001).

53. The correlation between a sense of life purpose and satisfaction with life is r=0.67 (n=4200) compared to r=0.54 between purpose and happiness yesterday and r=-0.16 between life purpose and anxiety yesterday.

54. For a survey, see Møller et al., eds. (2008).

55. OECD (2011a).

56. Krueger et al. (2009).

57. Csikszentmihalyi & Larson (1987).

58. Kahneman (2011), Stone et al. (2002).

59. Krueger, ed. (2009).

60. For an experimental study showing how much results can differ when the social context is values using subjective well-being analysis, see Gyarmati et al. (2008). For a general review of methods for taking subjective well-being into account in benefit/cost analysis, see Fujiwara & Campbell (2011).

61. For examples, see Di Tella et al. (2001) and Di Tella & MacCulloch (2009).

62. As in the recent South Korean macroeconomic policies described in Helliwell (2011b).

63. Frey et al. (2004).

64. Haslam et al. (2010).

65. Halpern (2010), Bacon et al. (2010).

66. Leong (2010), Helliwell (2011a).

Figure 2.1: World Distribution of Cantril Ladder
(GWP 05-11, 4820 million population aged 15+)

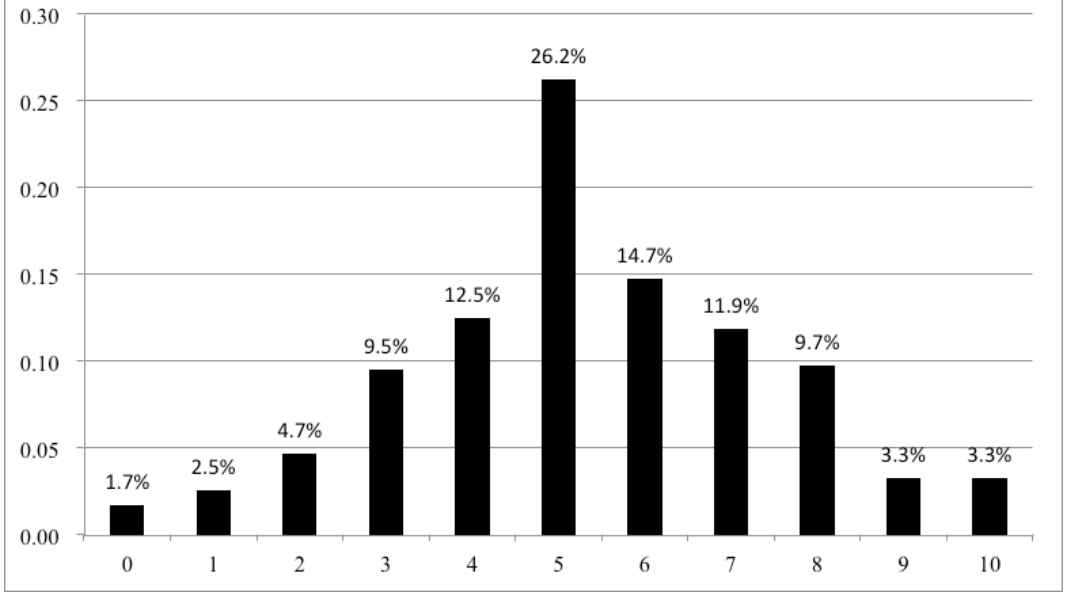


Figure 2.2 - 1: Distribution of Cantril Ladder:
Northern America & ANZ
(GWP 05-11, 291 million population aged 15+)

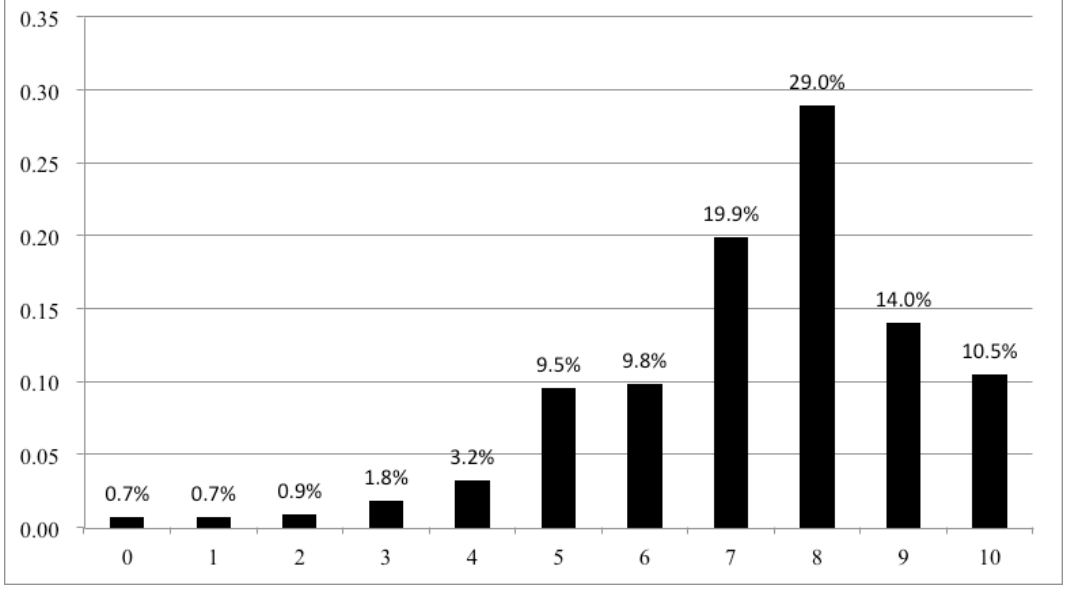


Figure 2.2 - 2: Distribution of Cantril Ladder: Europe
(GWP 05-11, 450 million population aged 15+)

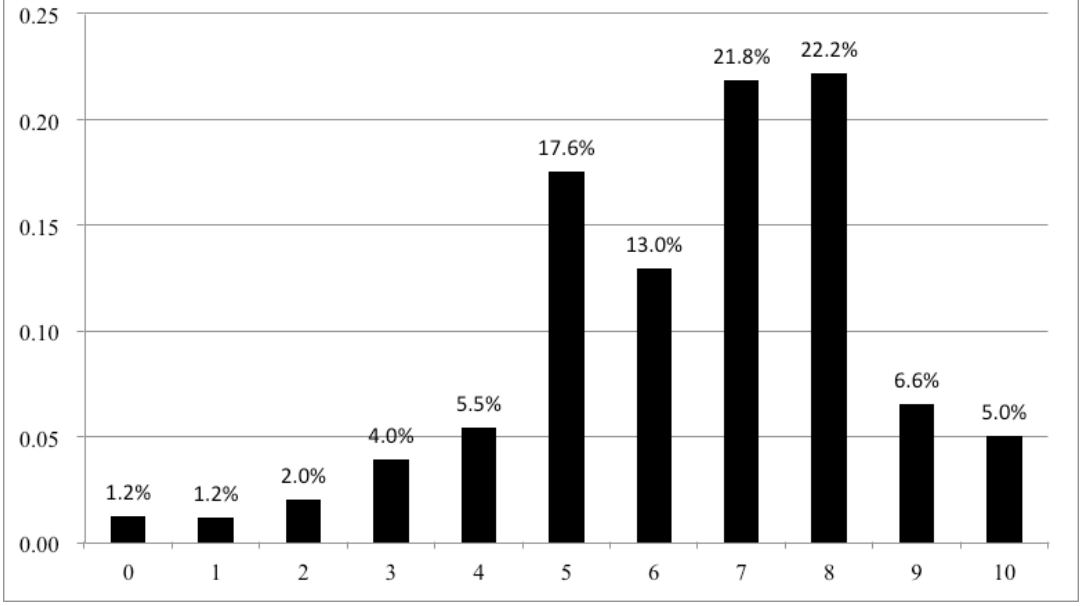


Figure 2.2 - 3: Distribution of Cantril Ladder:
Latin America & Caribbean
(GWP 05-11, 409 million population aged 15+)

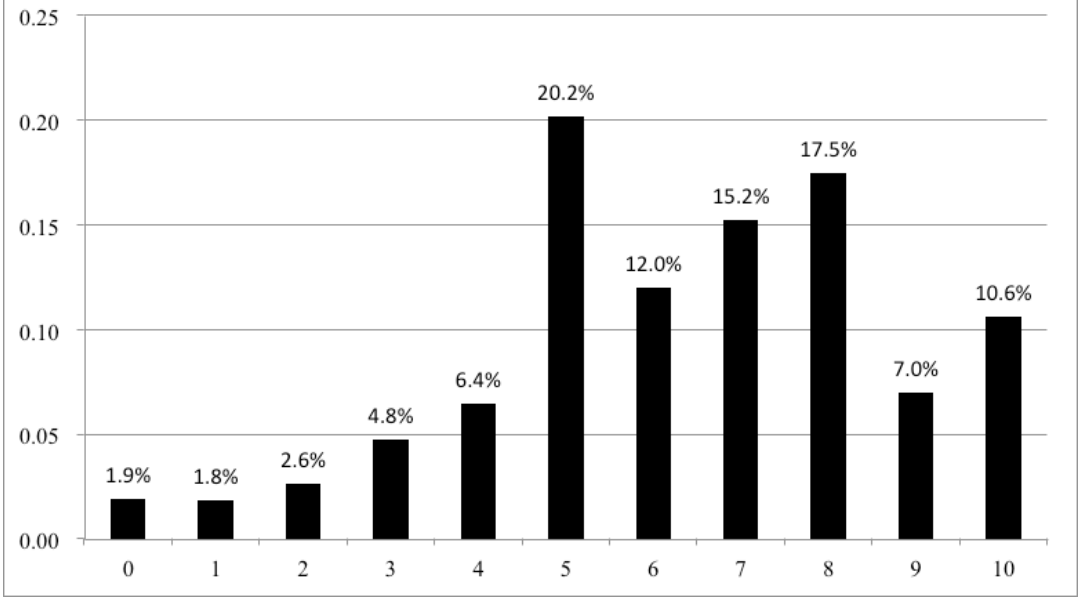


Figure 2.2 - 4: Distribution of Cantril Ladder: Southeast Asia
(GWP 05-11, 416 million population aged 15+)

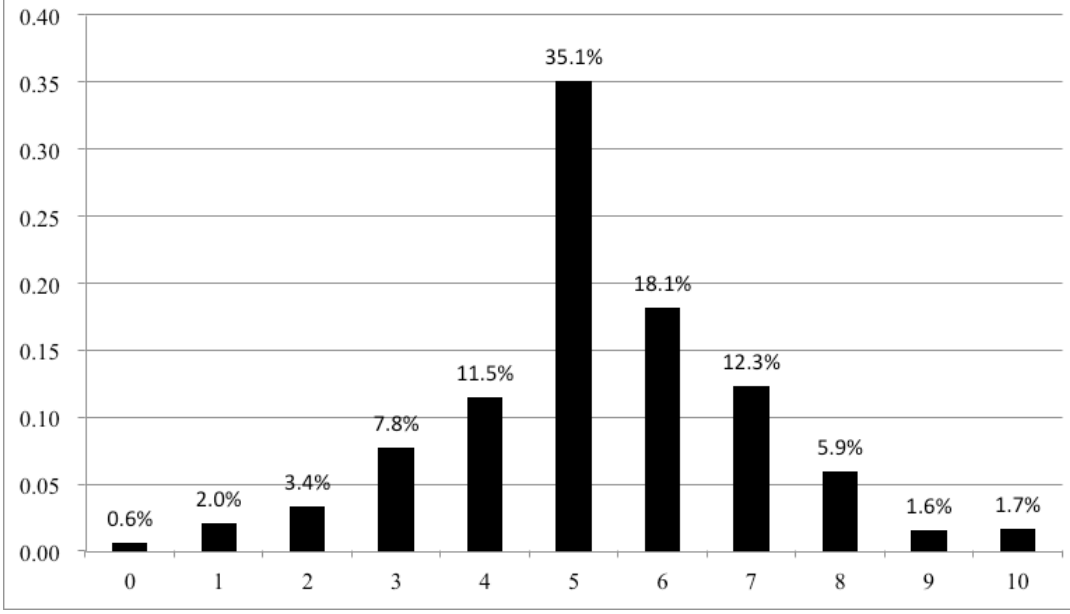


Figure 2.2 - 5: Distribution of Cantril Ladder:
Middle East & North Africa
(GWP 05-11, 302 million population aged 15+)

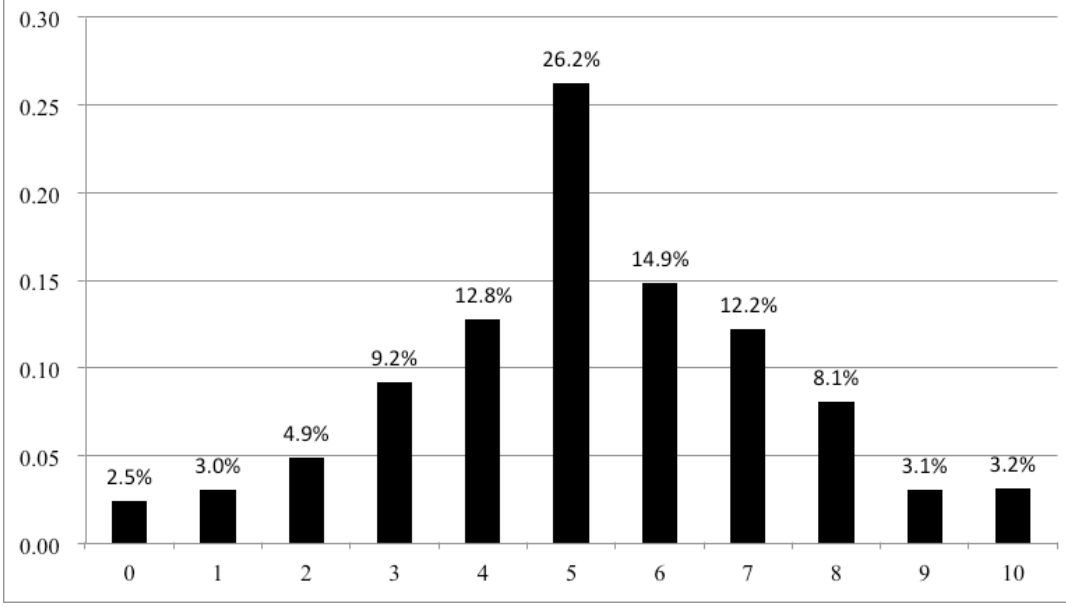


Figure 2.2 - 6: Distribution of Cantril Ladder: East Asia
(GWP 05-11, 1234 million population aged 15+)

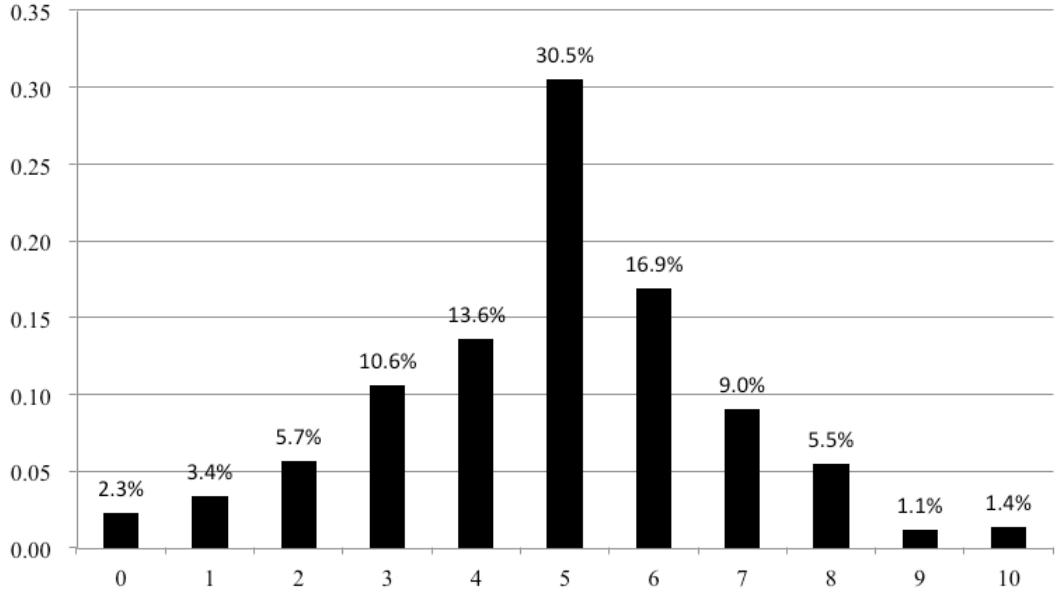


Figure 2.2 - 7: Distribution of Cantril Ladder:
Commonwealth of Independent States (CIS)
(GWP 05-11, 227 million population aged 15+)

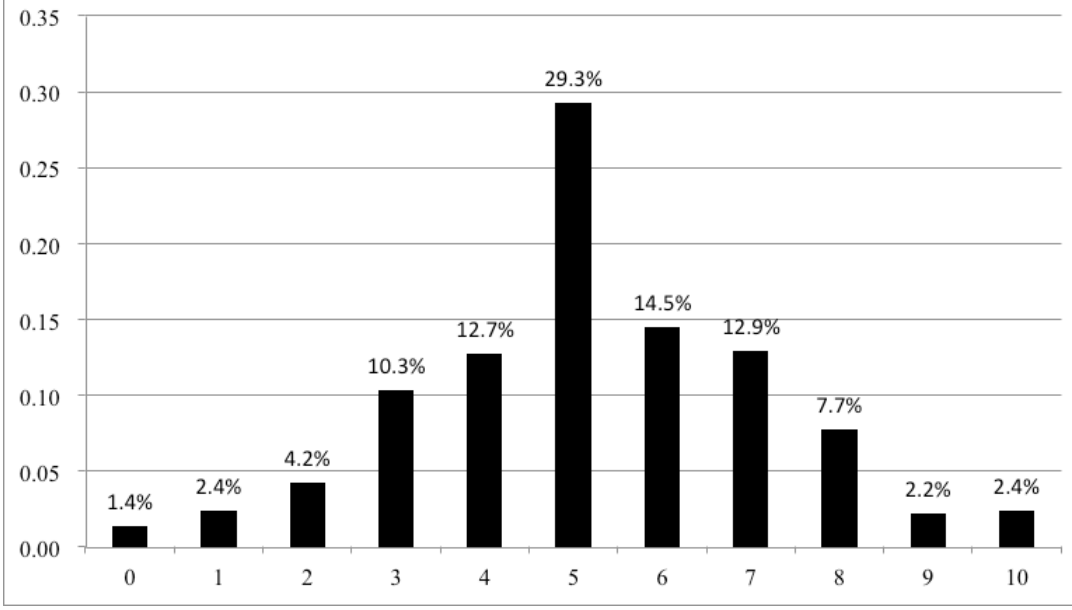


Figure 2.2 - 8: Distribution of Cantril Ladder: South Asia
(GWP 05-11, 1038 million population aged 15+)

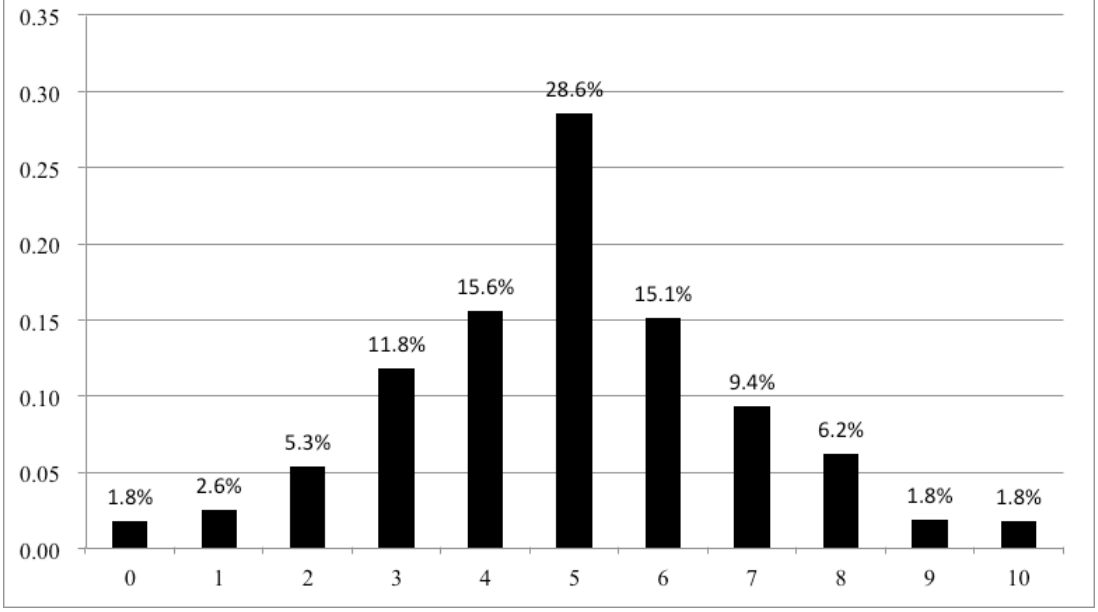


Figure 2.2 - 9: Distribution of Cantril Ladder:
Sub-Saharan Africa
(GWP 05-11, 453 million population aged 15+)

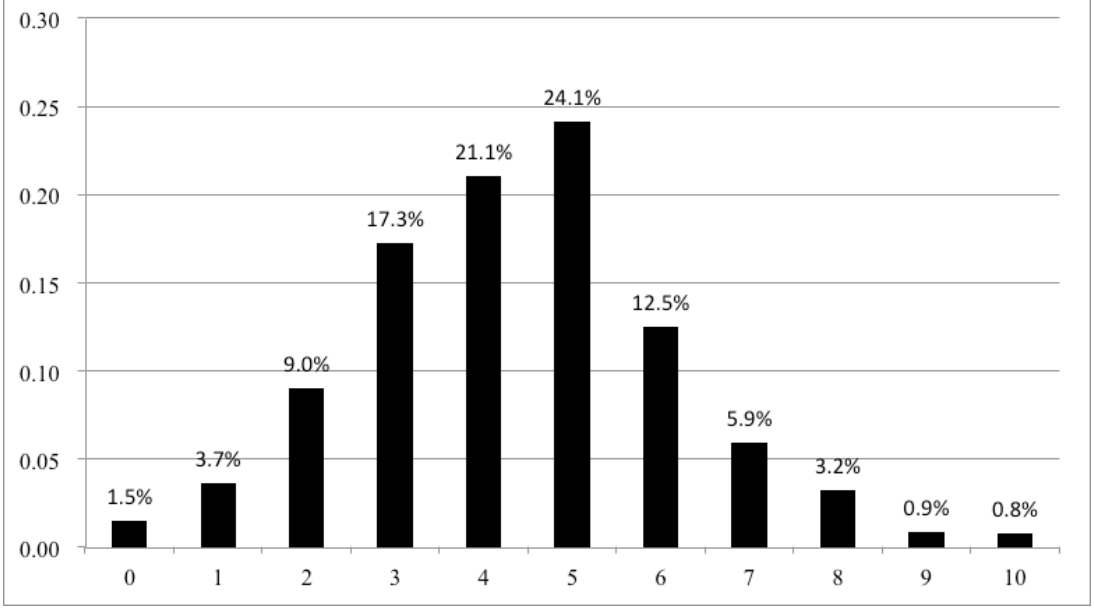


Figure 2.3: Average Cantril Ladder by Country - Part 1 (GWP 05-11)

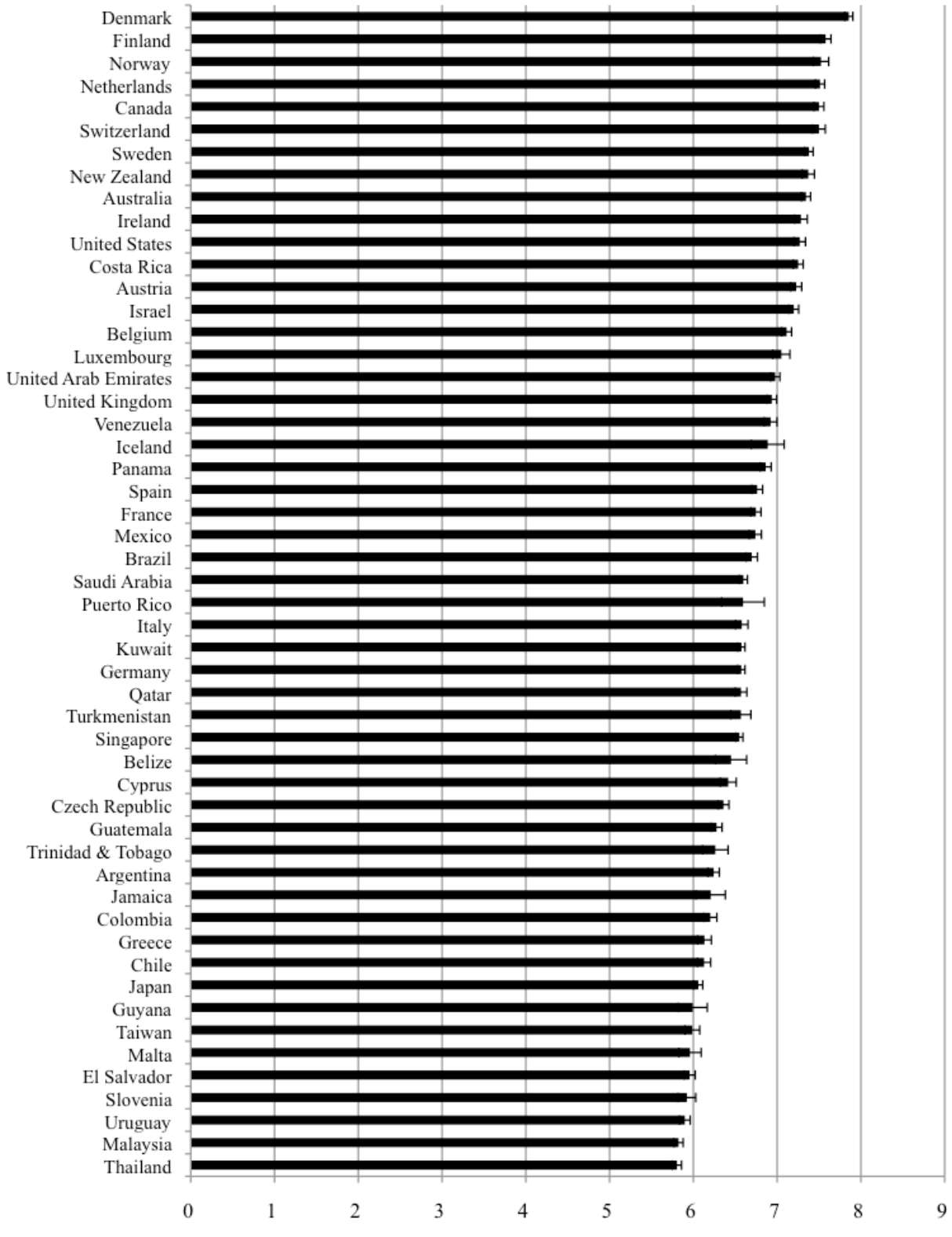


Figure 2.3: Average Cantril Ladder by Country - Part 2 (GWP 05-11)

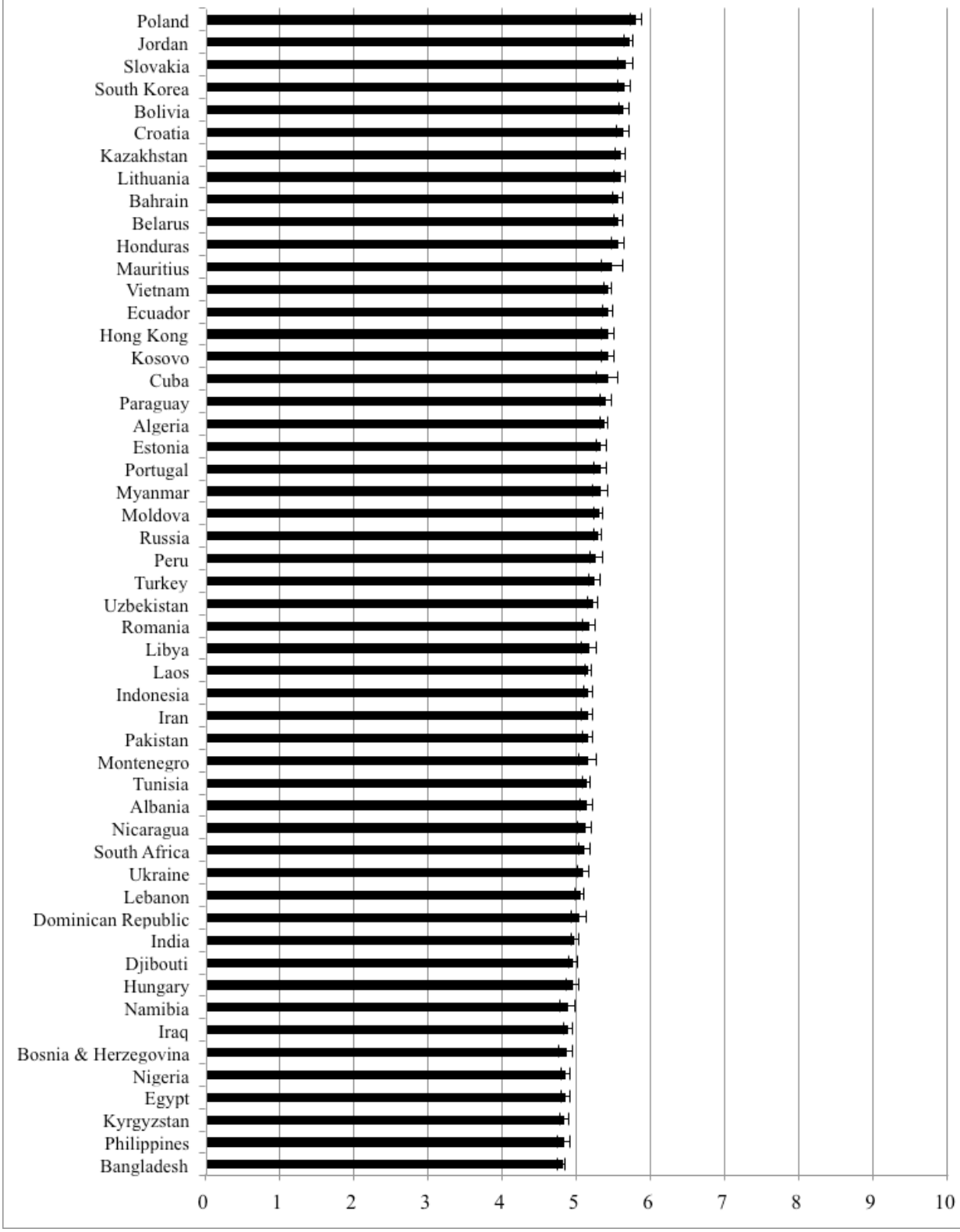


Figure 2.3: Average Cantril Ladder by Country - Part 3
(GWP 05-11)

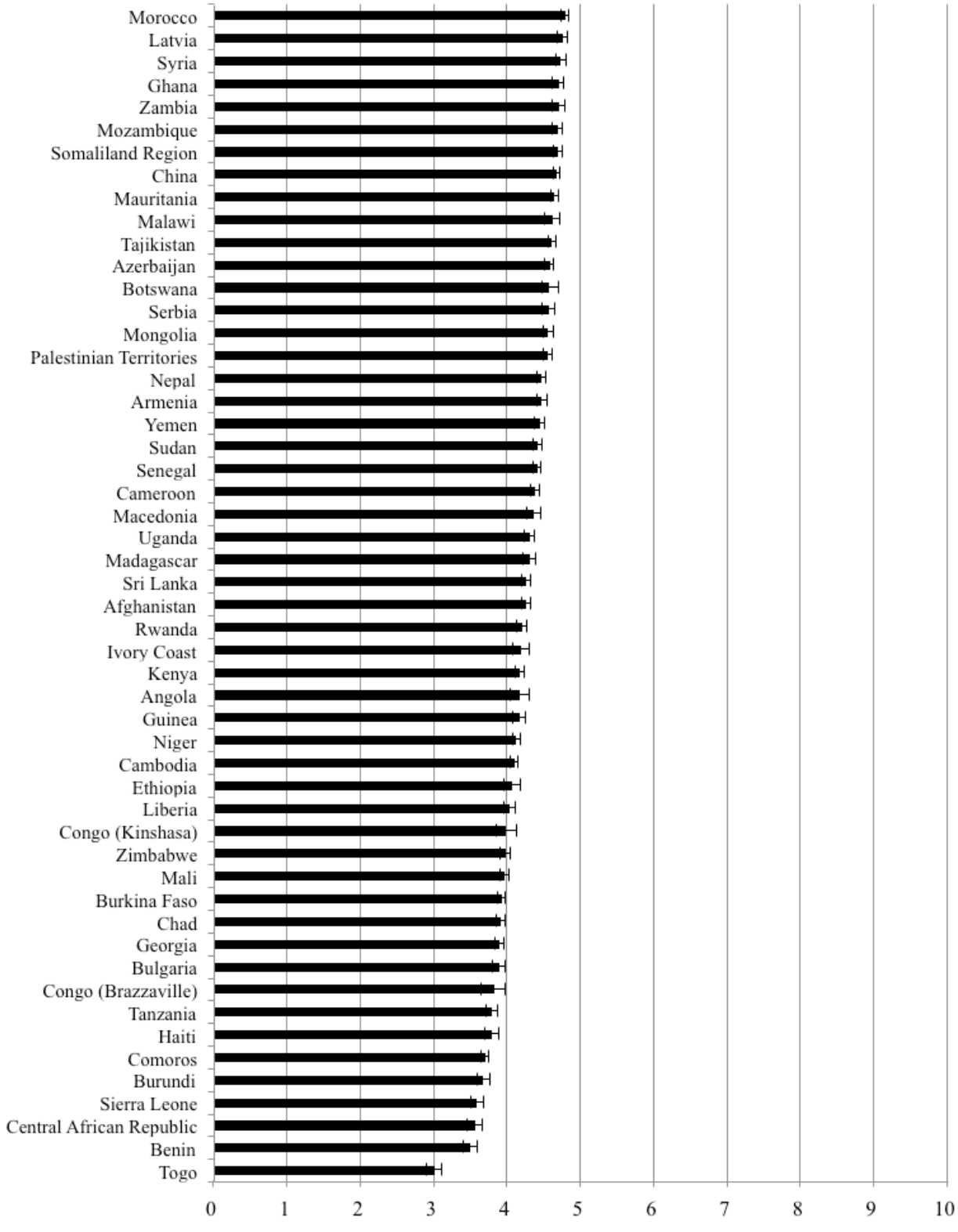


Figure 2.4: Standard Deviation of Cantril Ladder by Country - Part 1 (GWP 05-11)

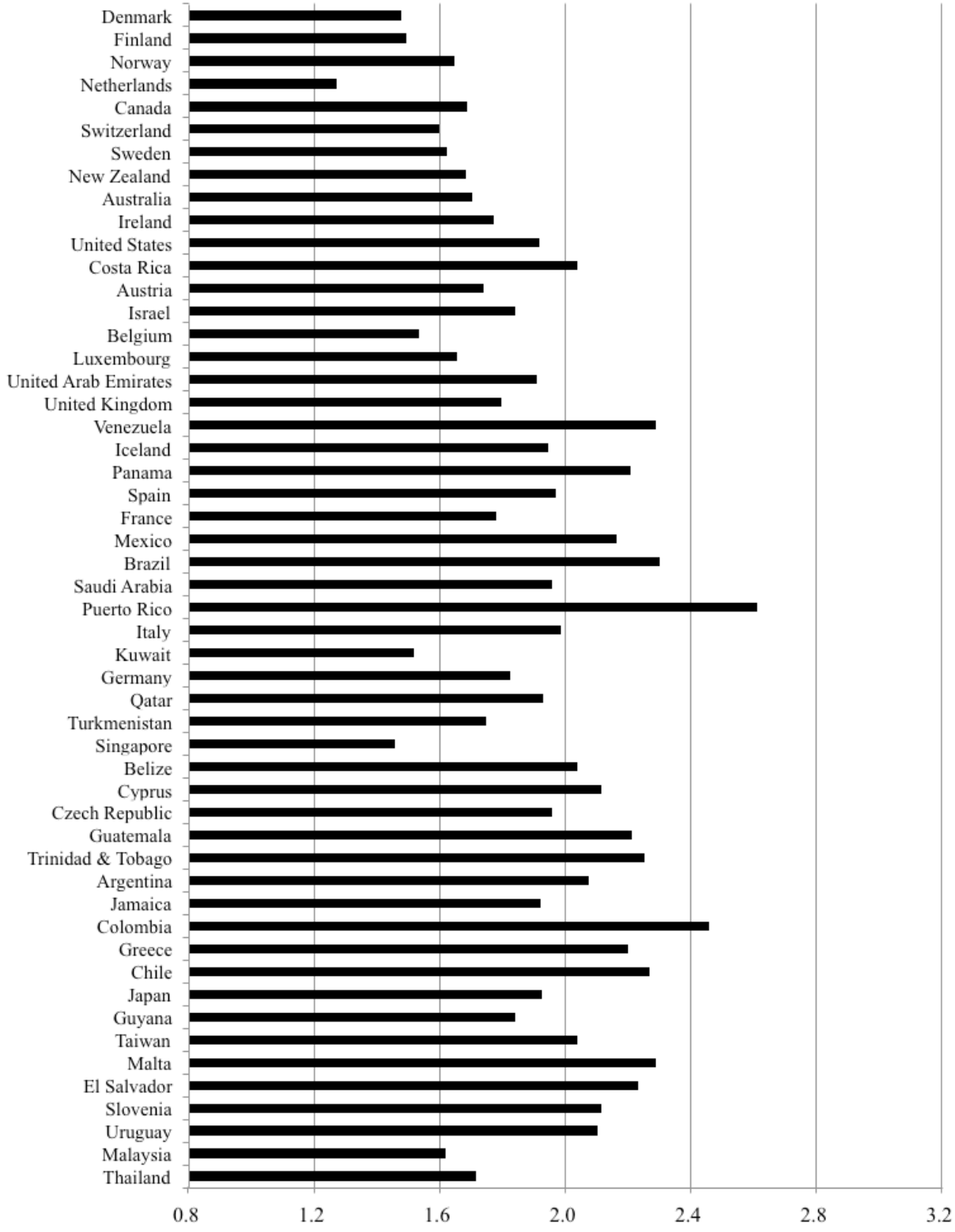


Figure 2.4: Standard Deviation of Cantril Ladder by Country - Part 2 (GWP 05-11)

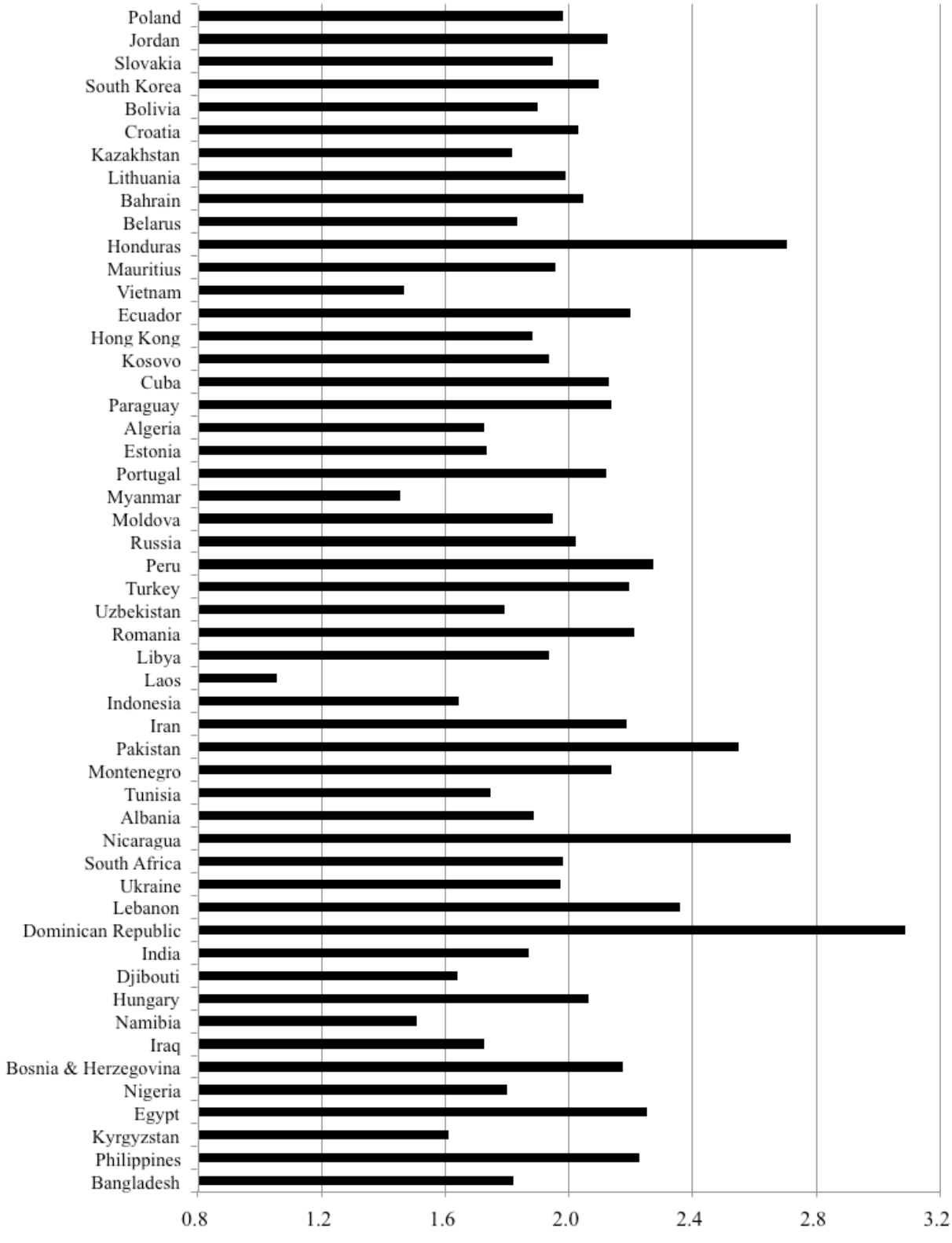


Figure 2.4: Standard Deviation of Cantril Ladder by Country - Part 3 (GWP 05-11)

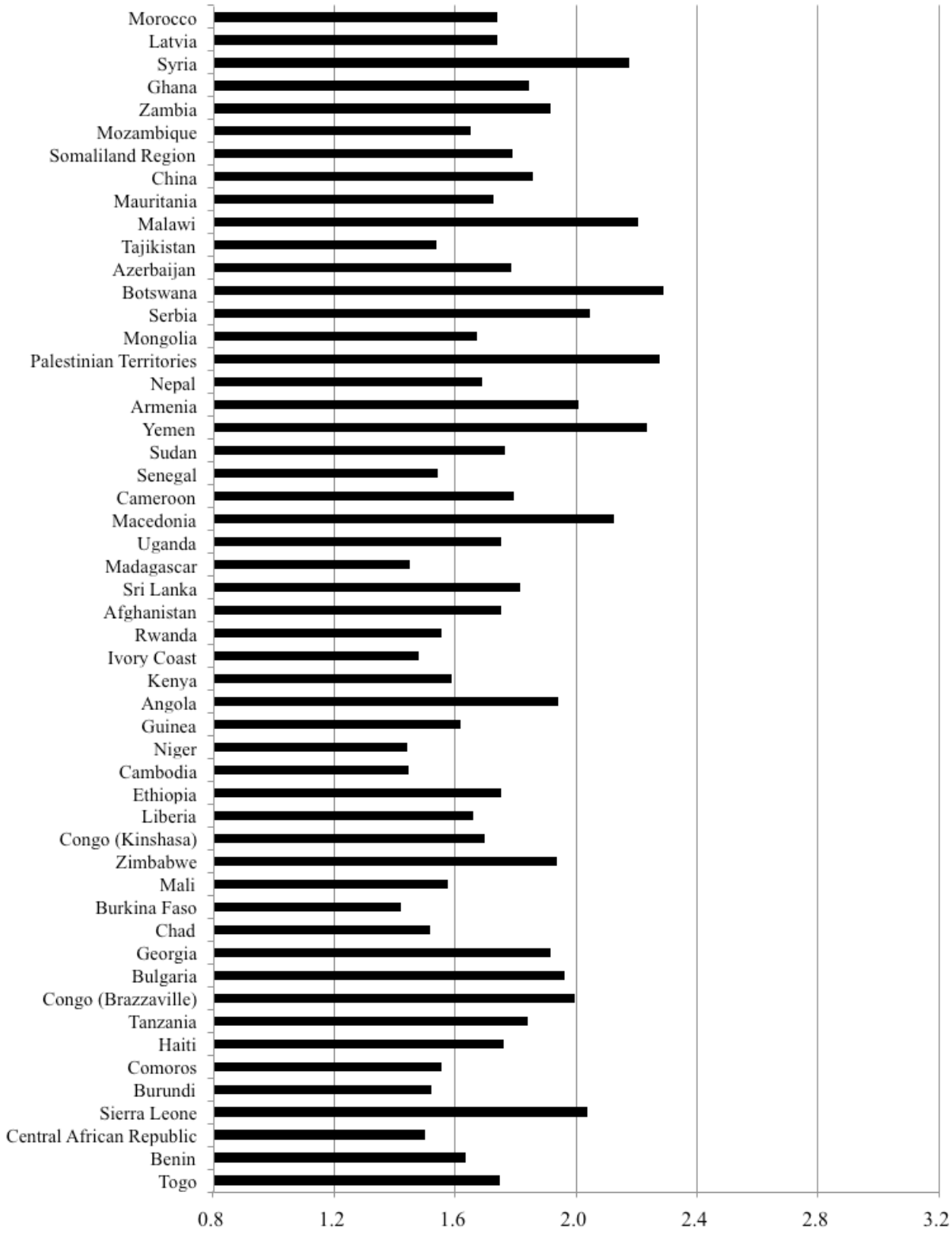


Figure 2.5 Average Life Satisfaction by Country - Part 1 (GWP 07-10)

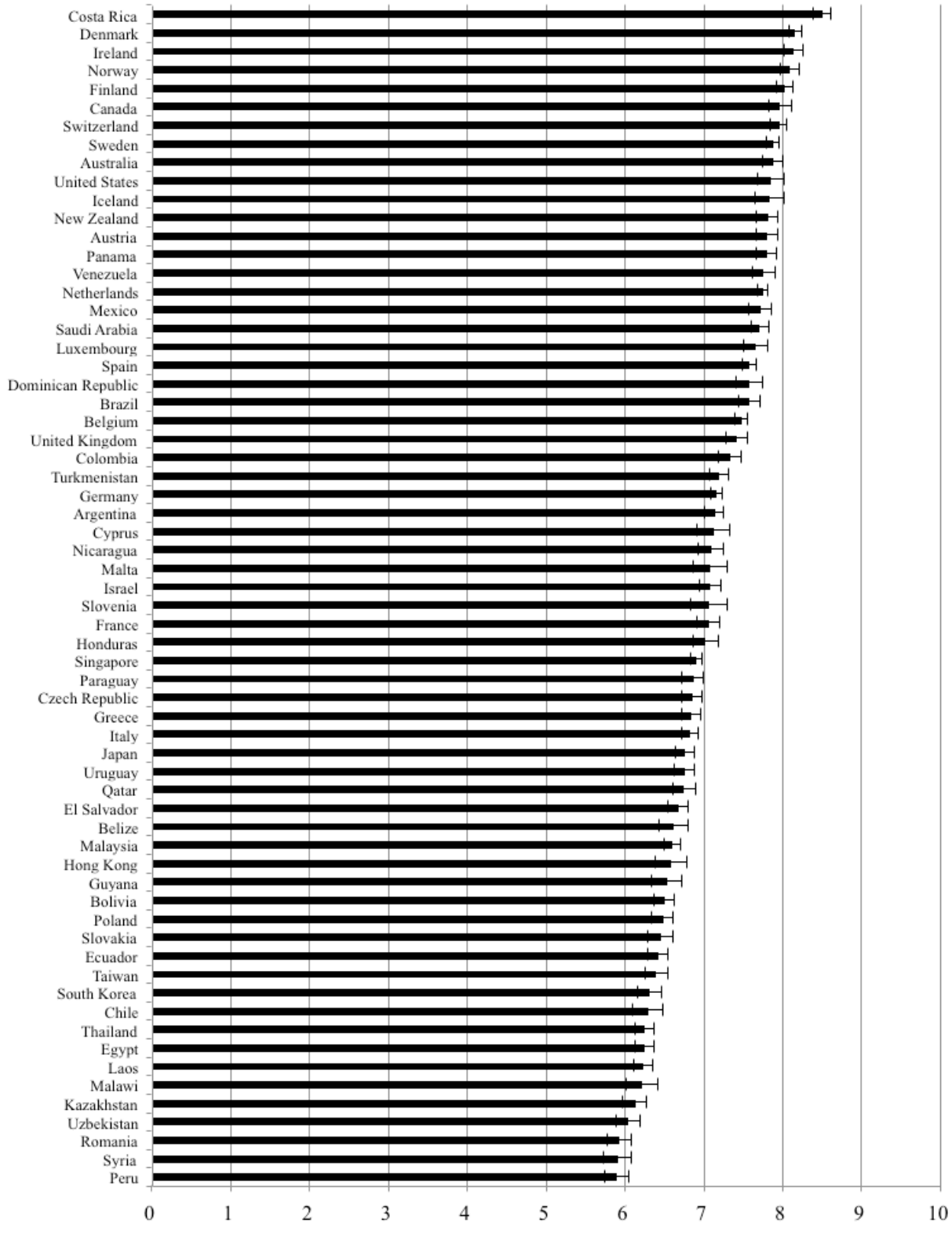


Figure 2.5 Average Life Satisfaction by Country - Part 2
(GWP 07-10)

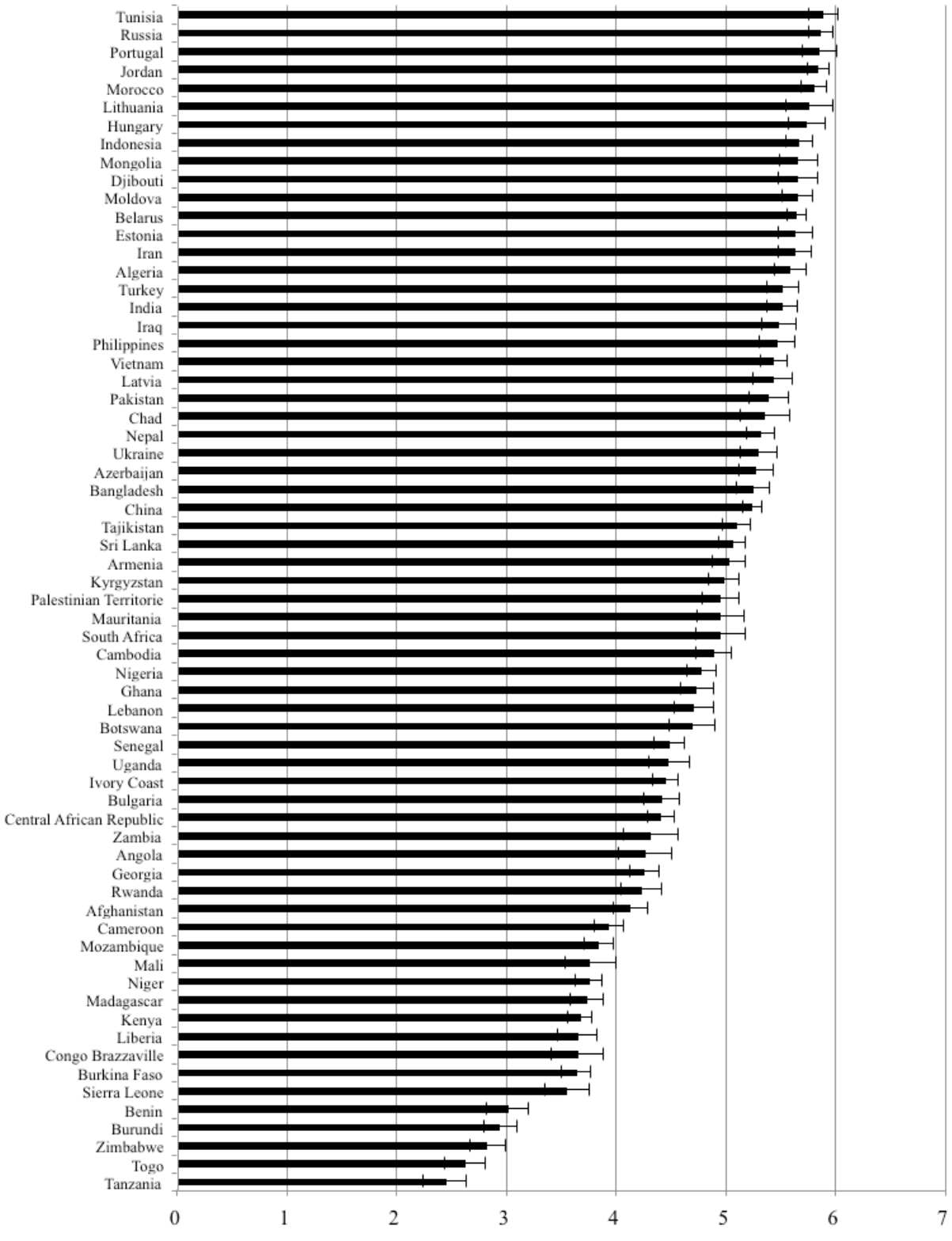


Figure 2.6 Average Life Satisfaction by Country - Part 1
(WVS wave 4-5 & EVS wave 3-4)

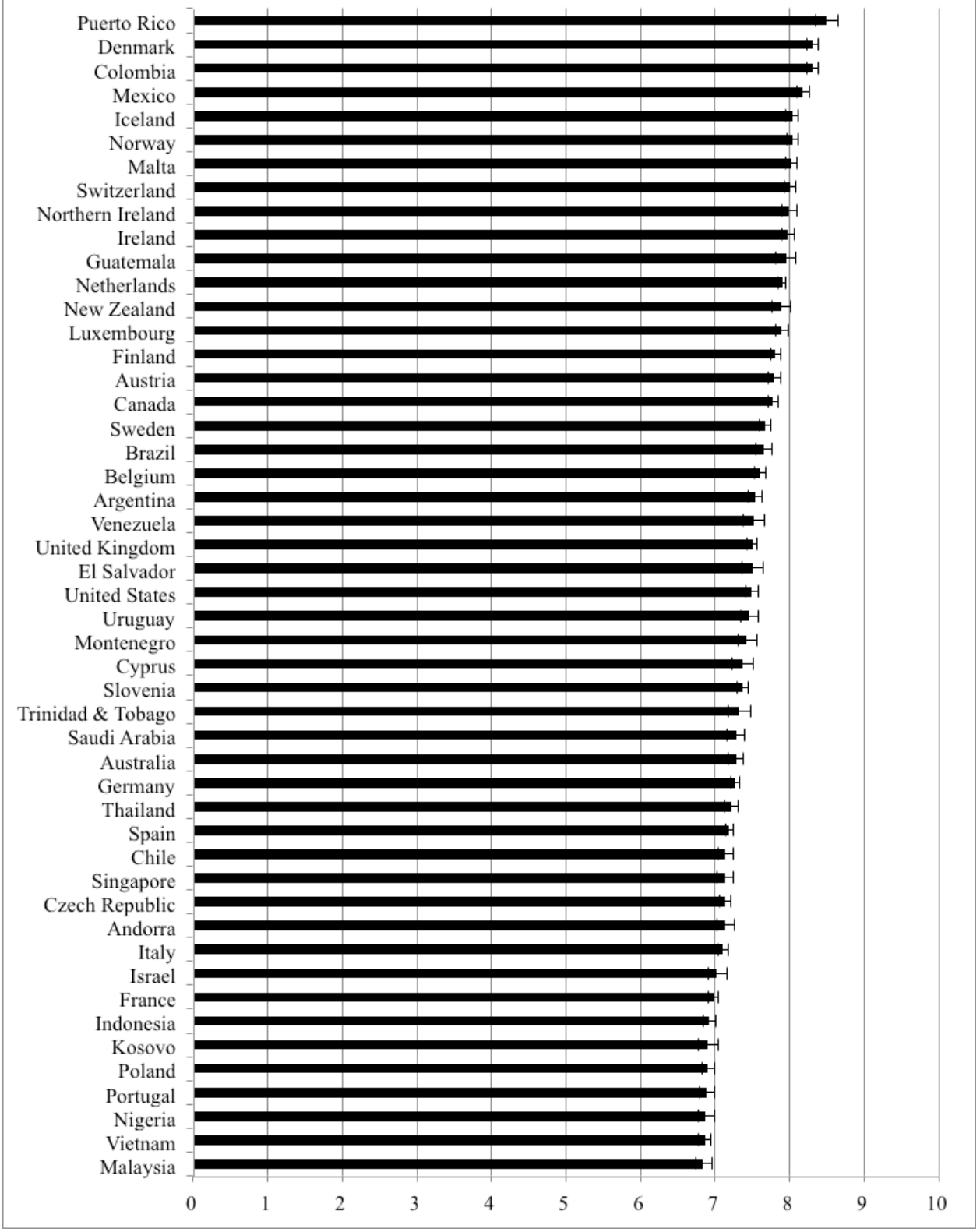


Figure 2.6 Average Life Satisfaction by Country - Part 2
(WVS wave 4-5 & EVS wave 3-4)

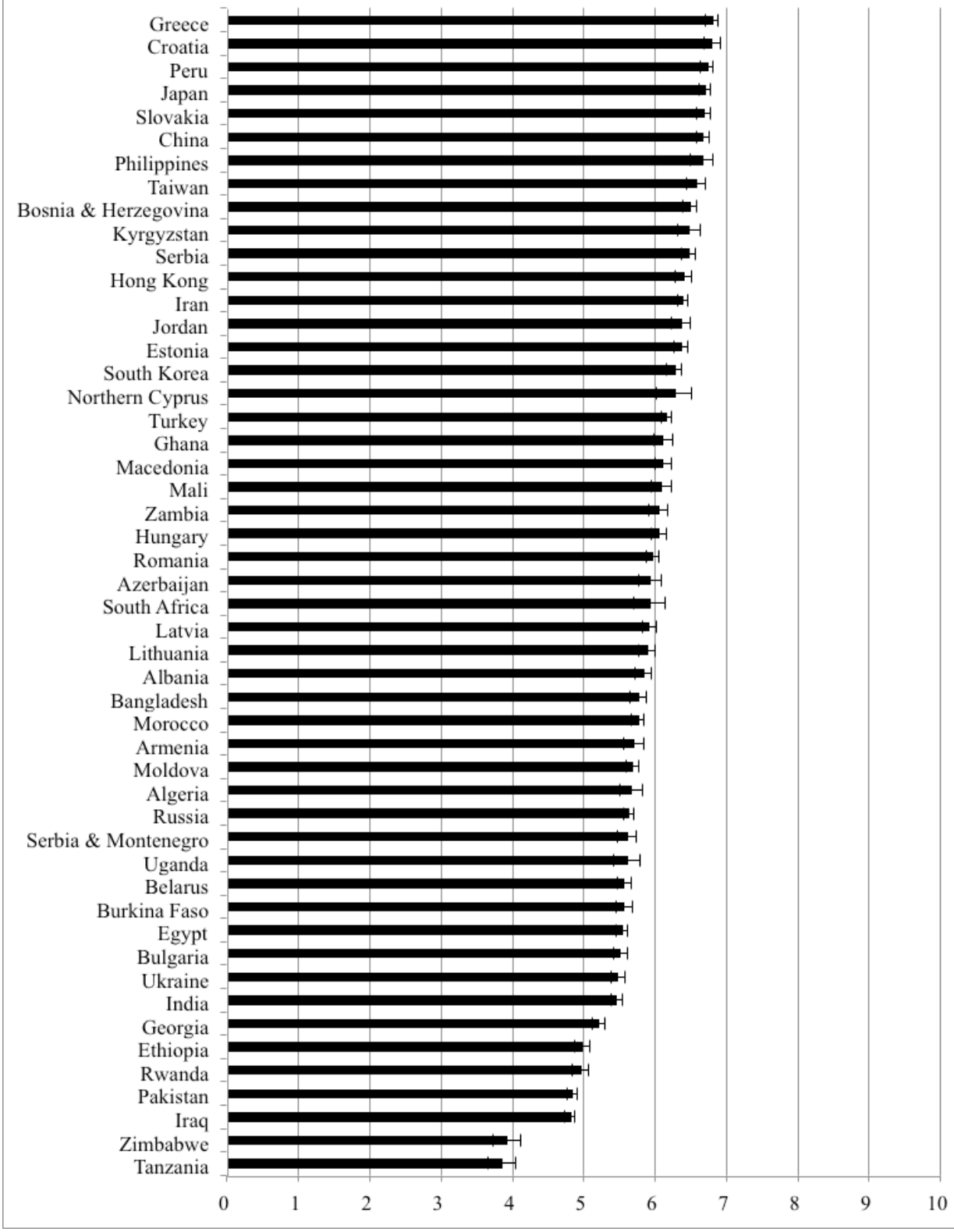


Figure 2.7: Average Life Satisfaction by Country (ESS round 4)

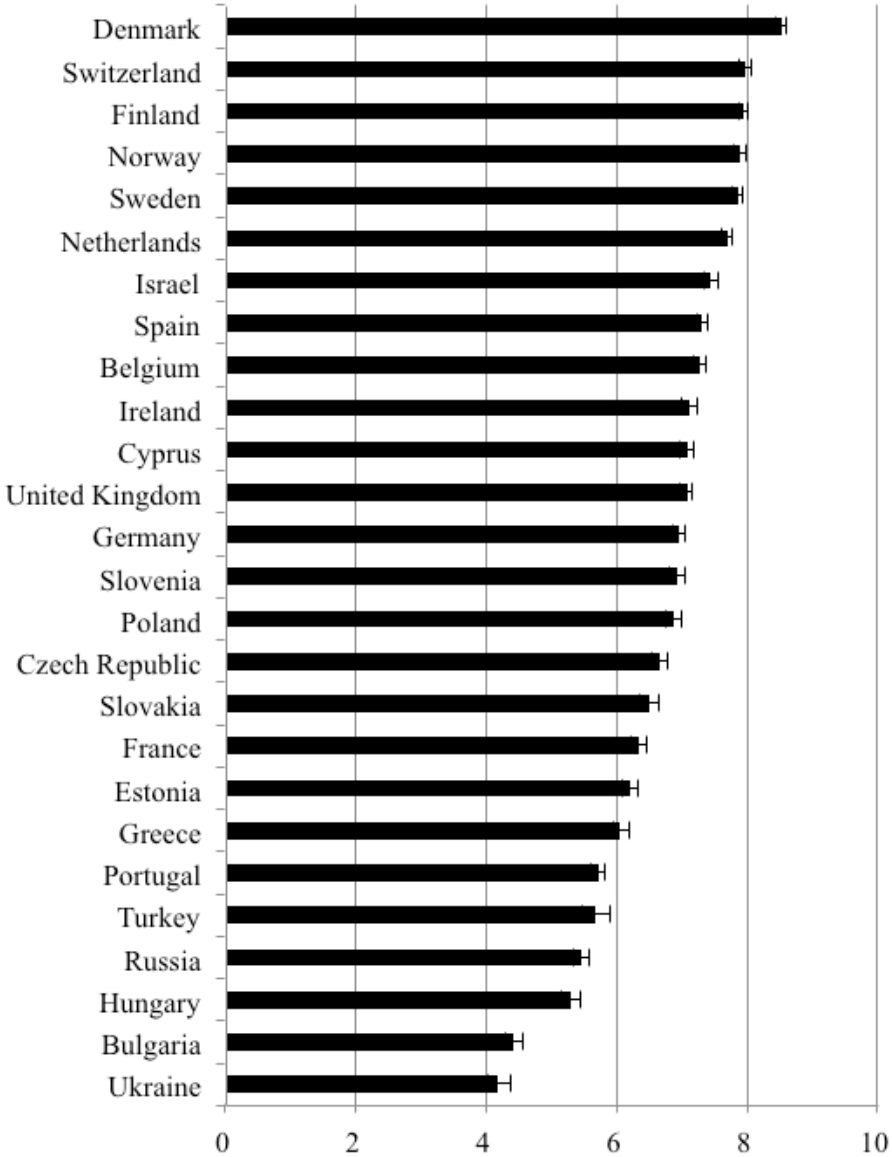


Figure 2.8: Average Happiness (with Life as A Whole) by Country (ESS round 4)

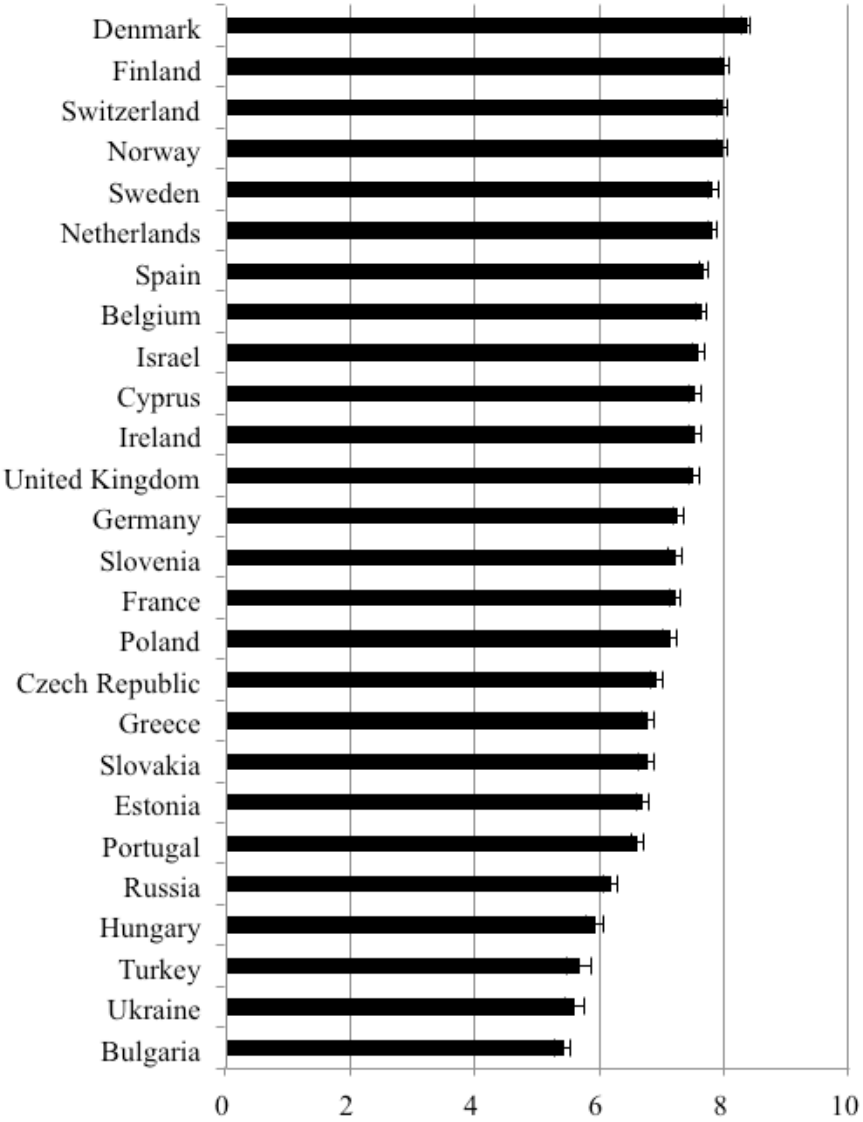


Figure 2.9 Happy Index by Country - Part 1
(WVS wave 4-5 & EVS wave 3-4)

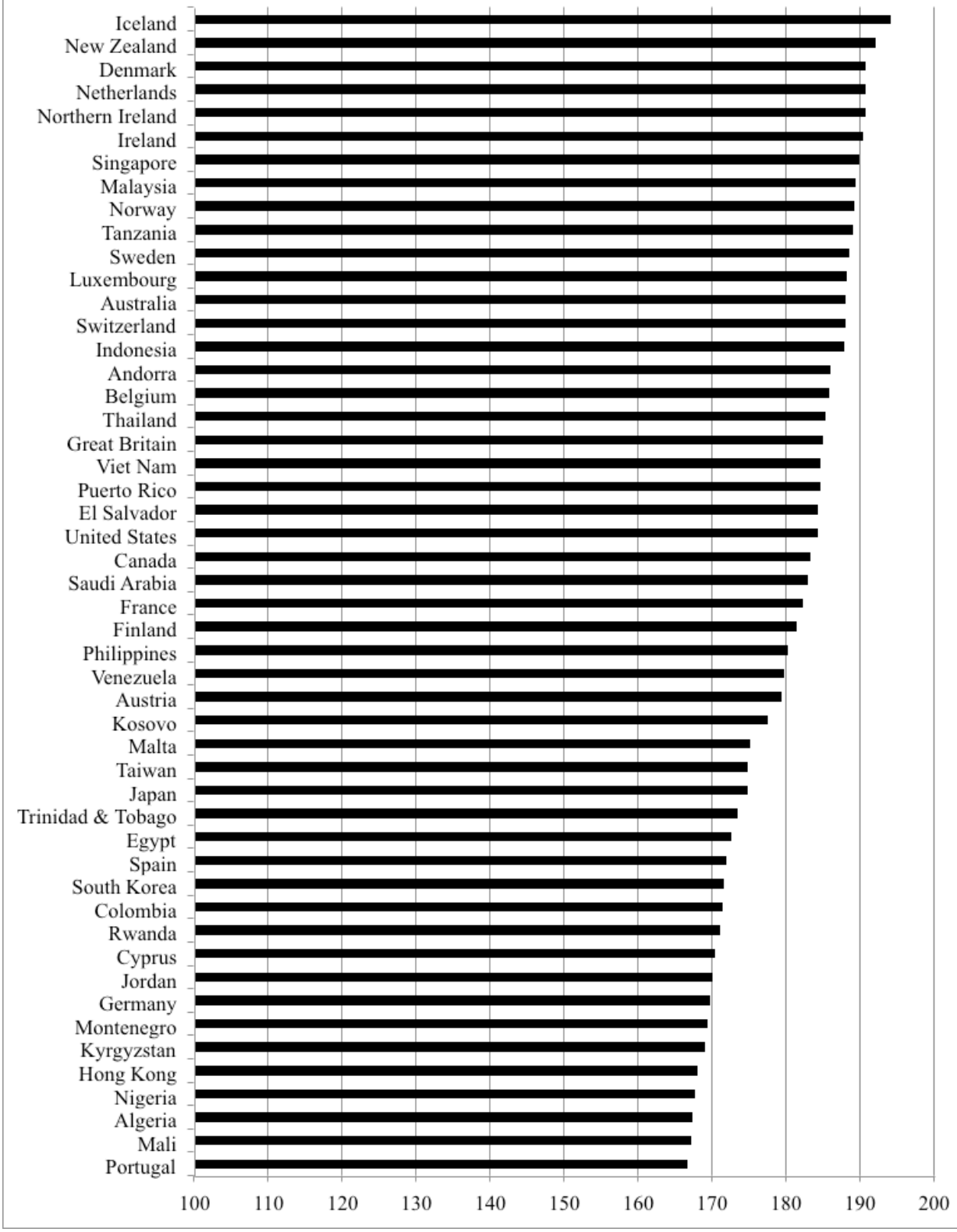


Figure 2.9 Happy Index by Country - Part 2
(WVS wave 4-5 & EVS wave 3-4)

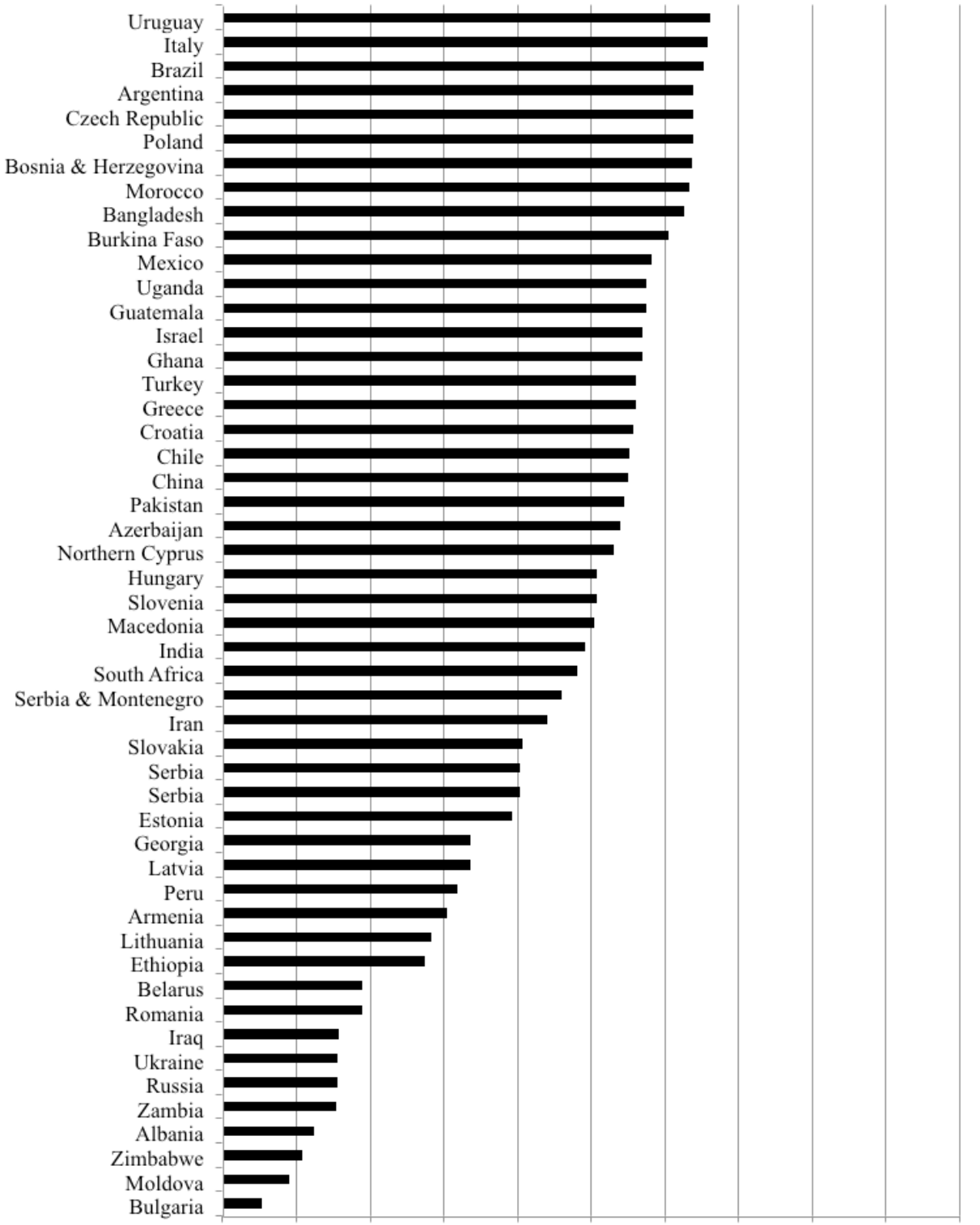


Figure 2.10 Average Happiness (Yesterday) by Country - Part 1 (GWP 08-11)

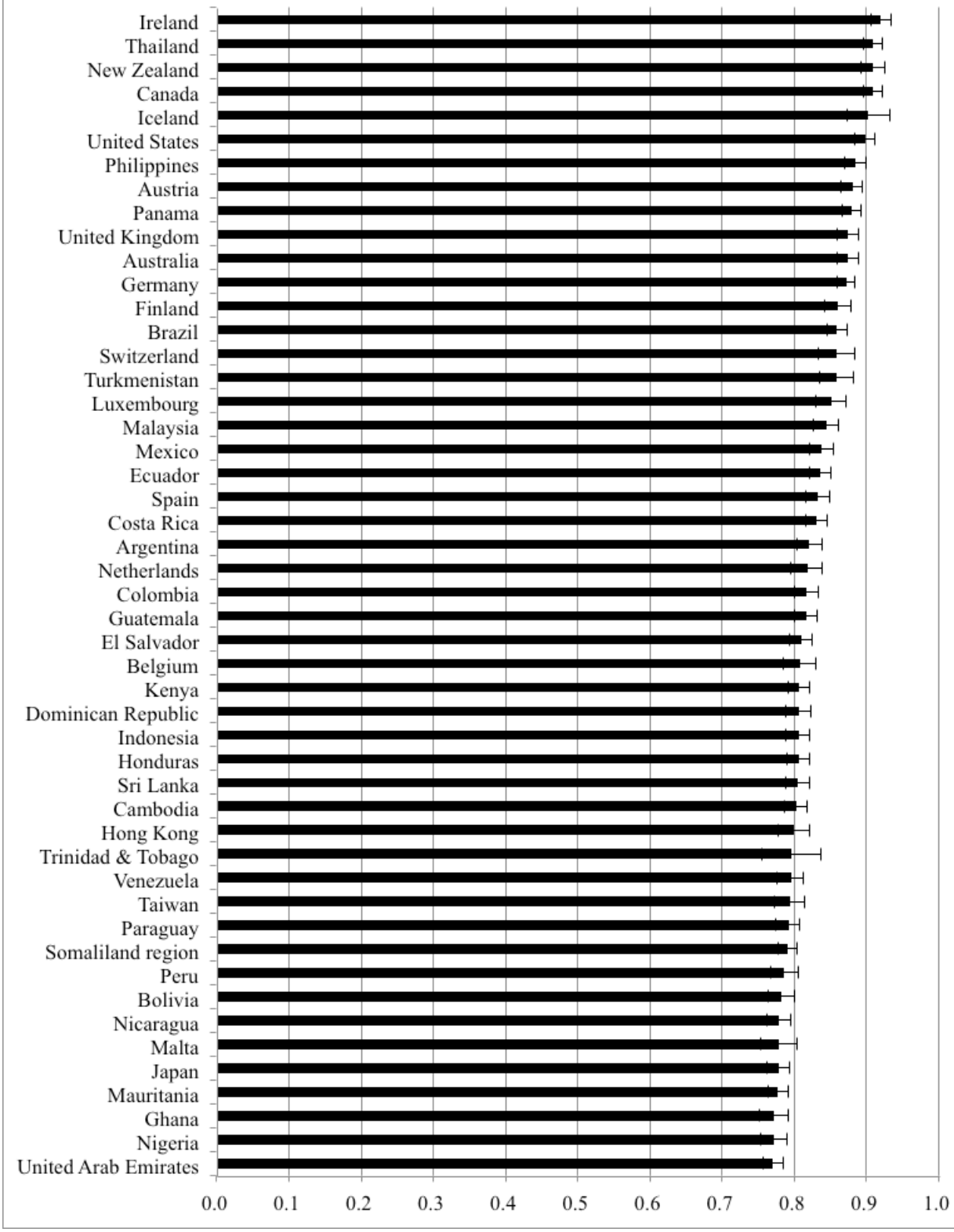


Figure 2.10 Average Happiness (Yesterday) by Country - Part 2 (GWP 08-11)

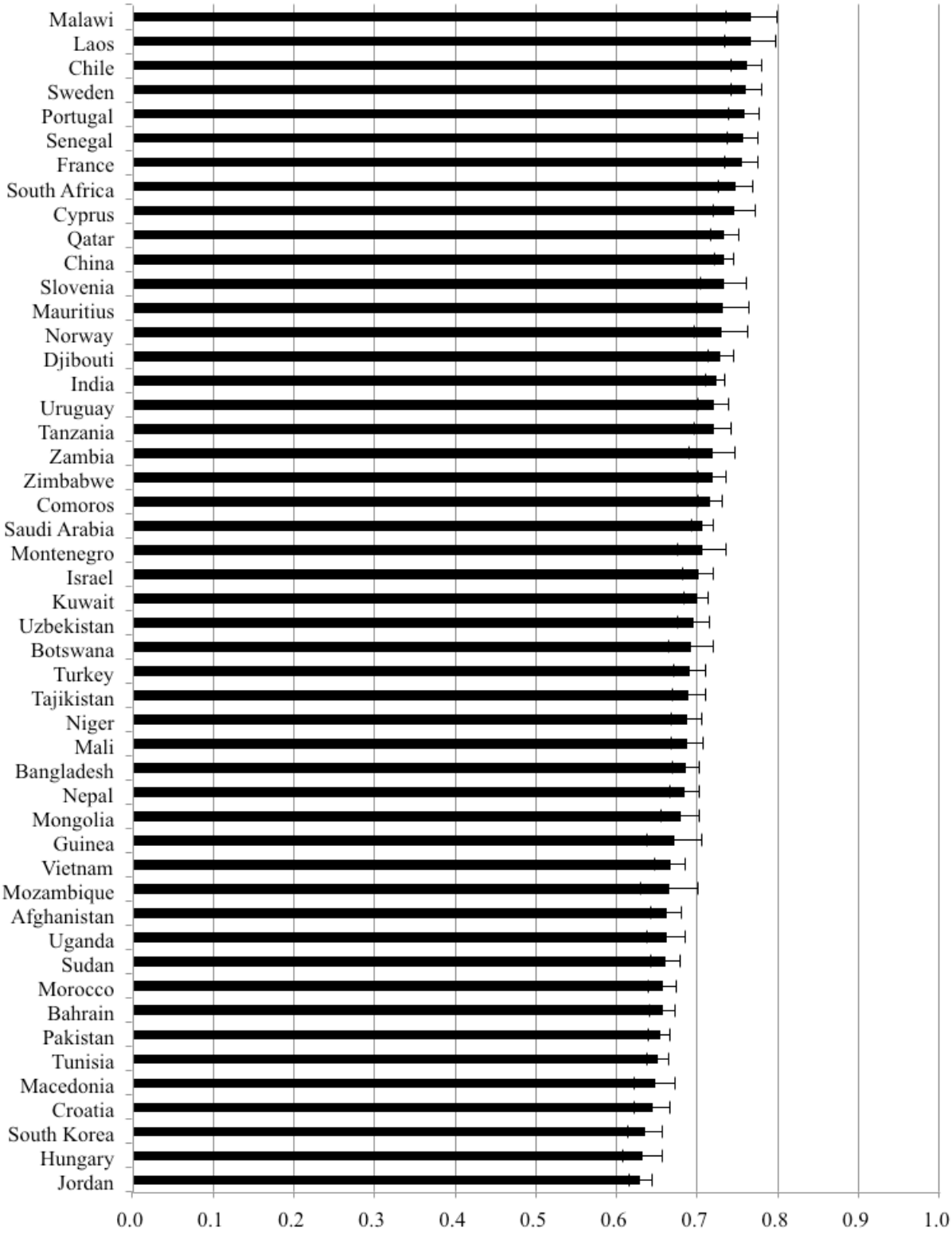


Figure 2.10 Average Happiness (Yesterday) by Country - Part 3
(GWP 08-11)

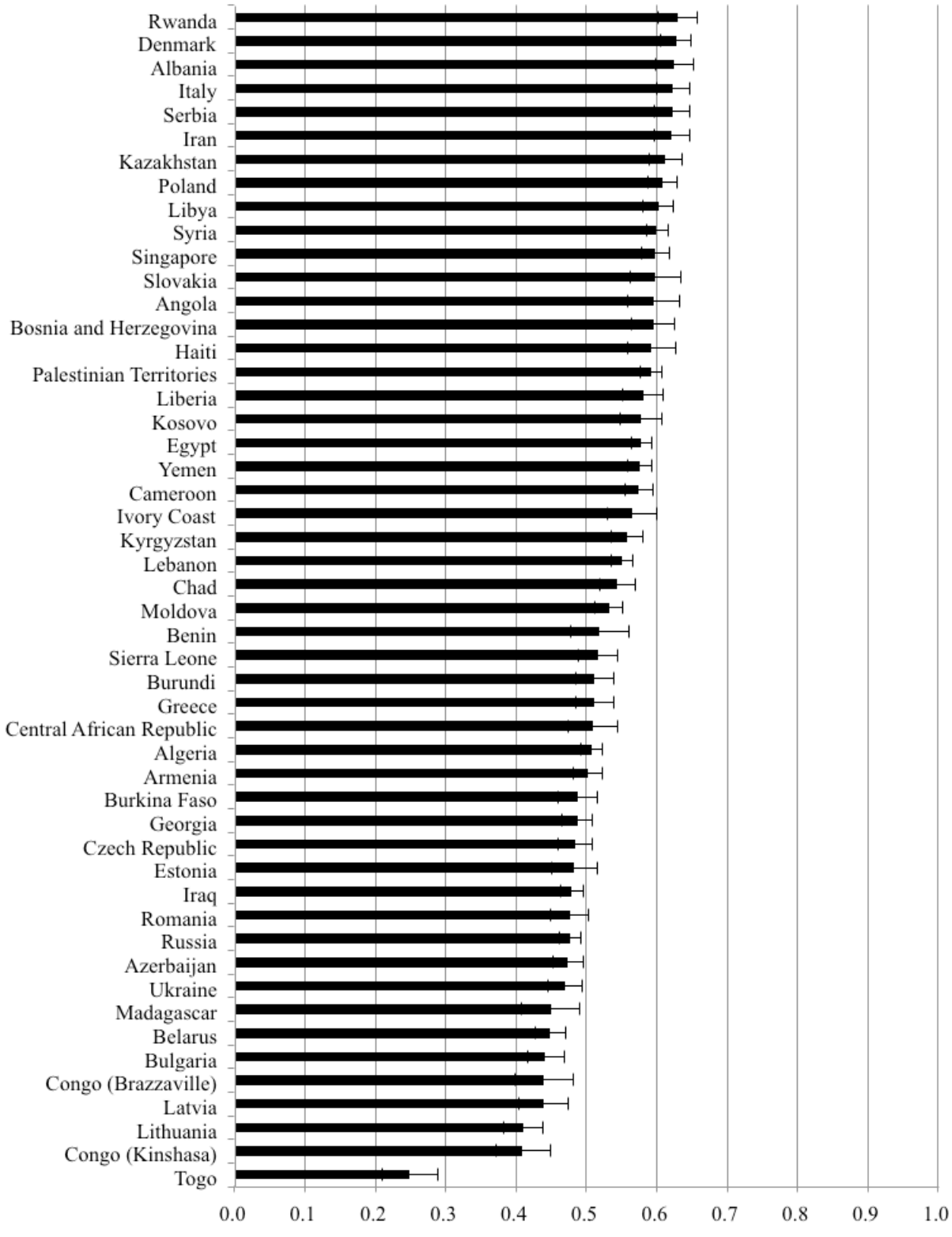


Figure 2.11 Average Positive Affect by Country - Part 1 (GWP 05-11)

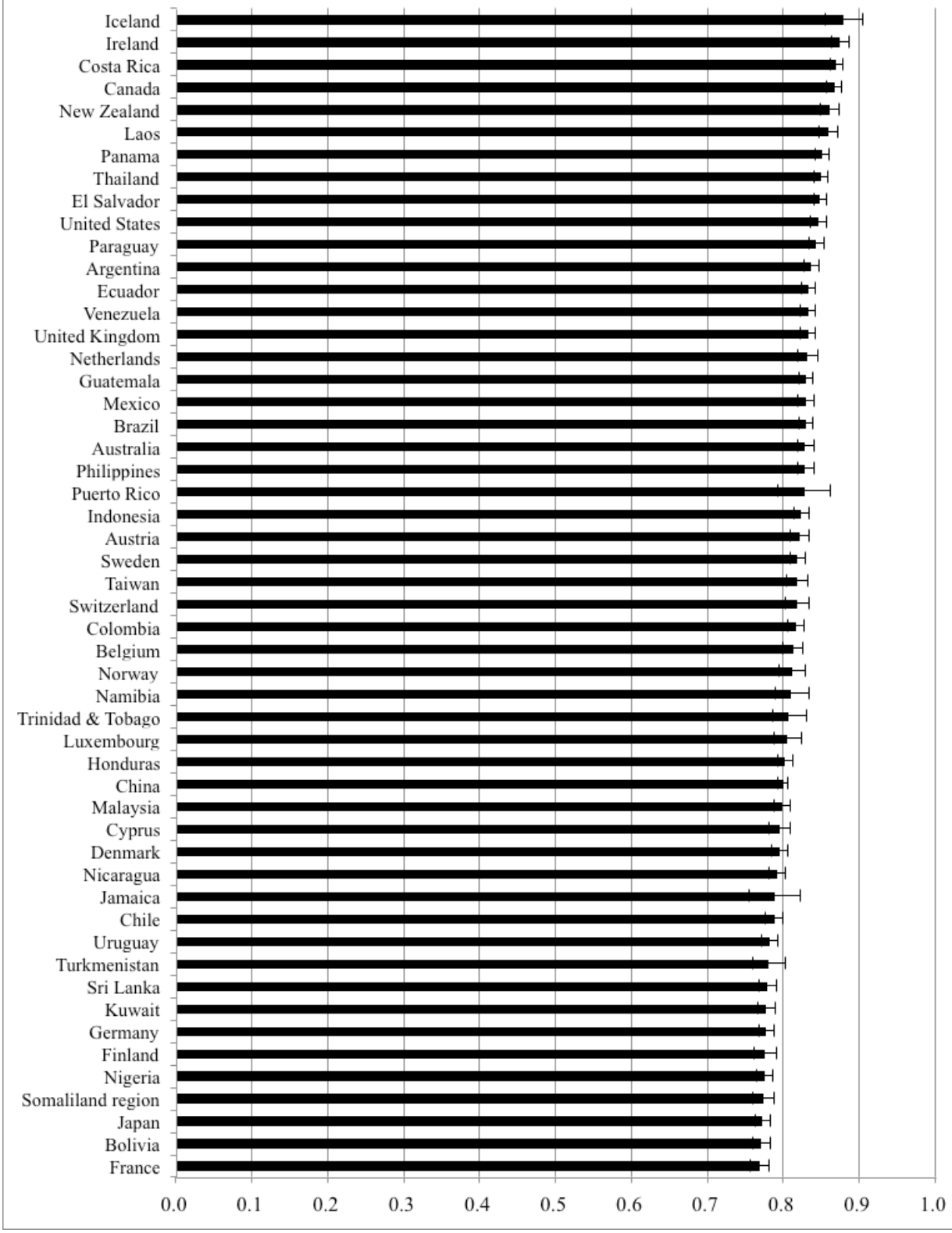


Figure 2.11 Average Positive Affect by Country - Part 2 (GWP 05-11)

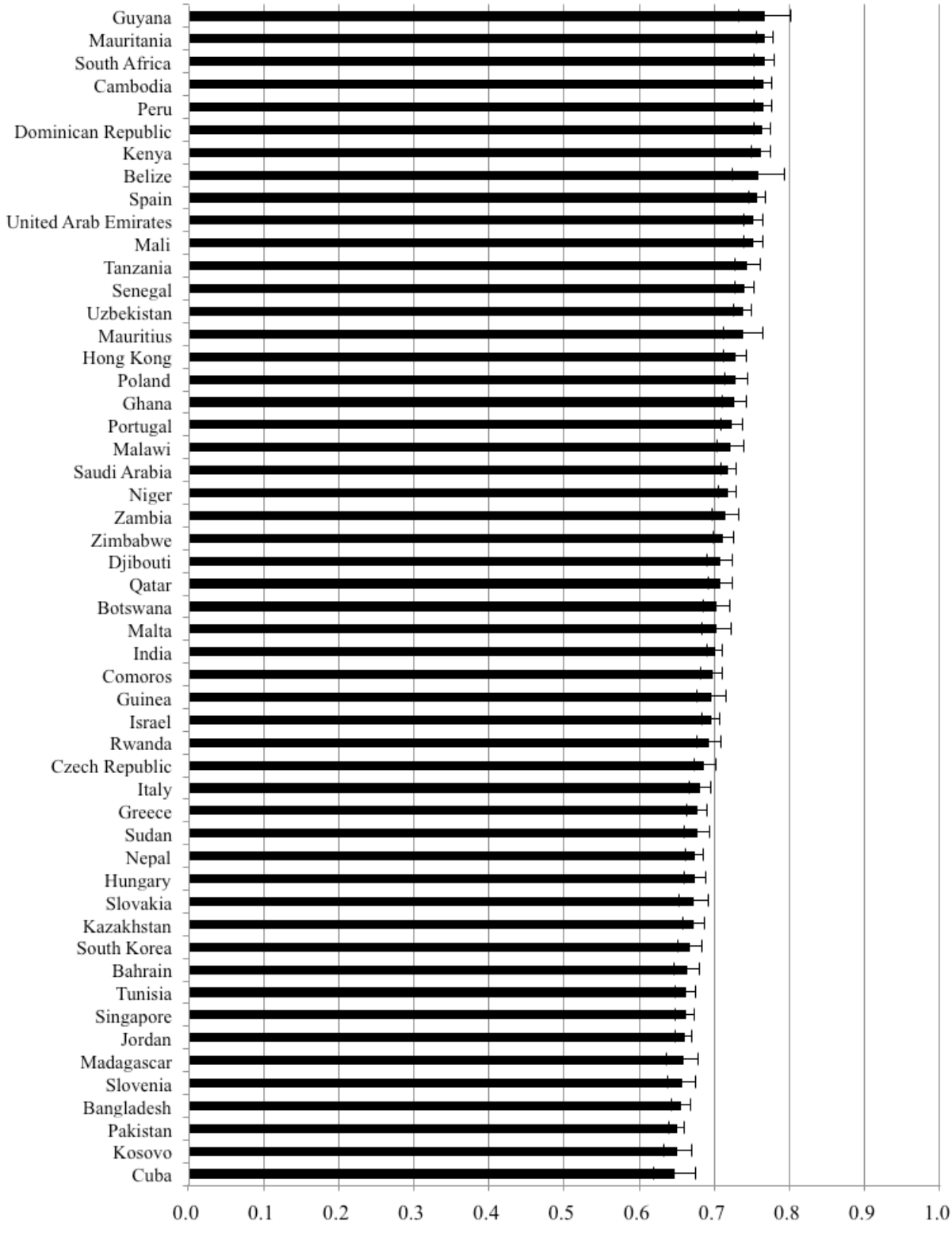


Figure 2.11 Average Positive Affect by Country - Part 3
(GWP 05-11)

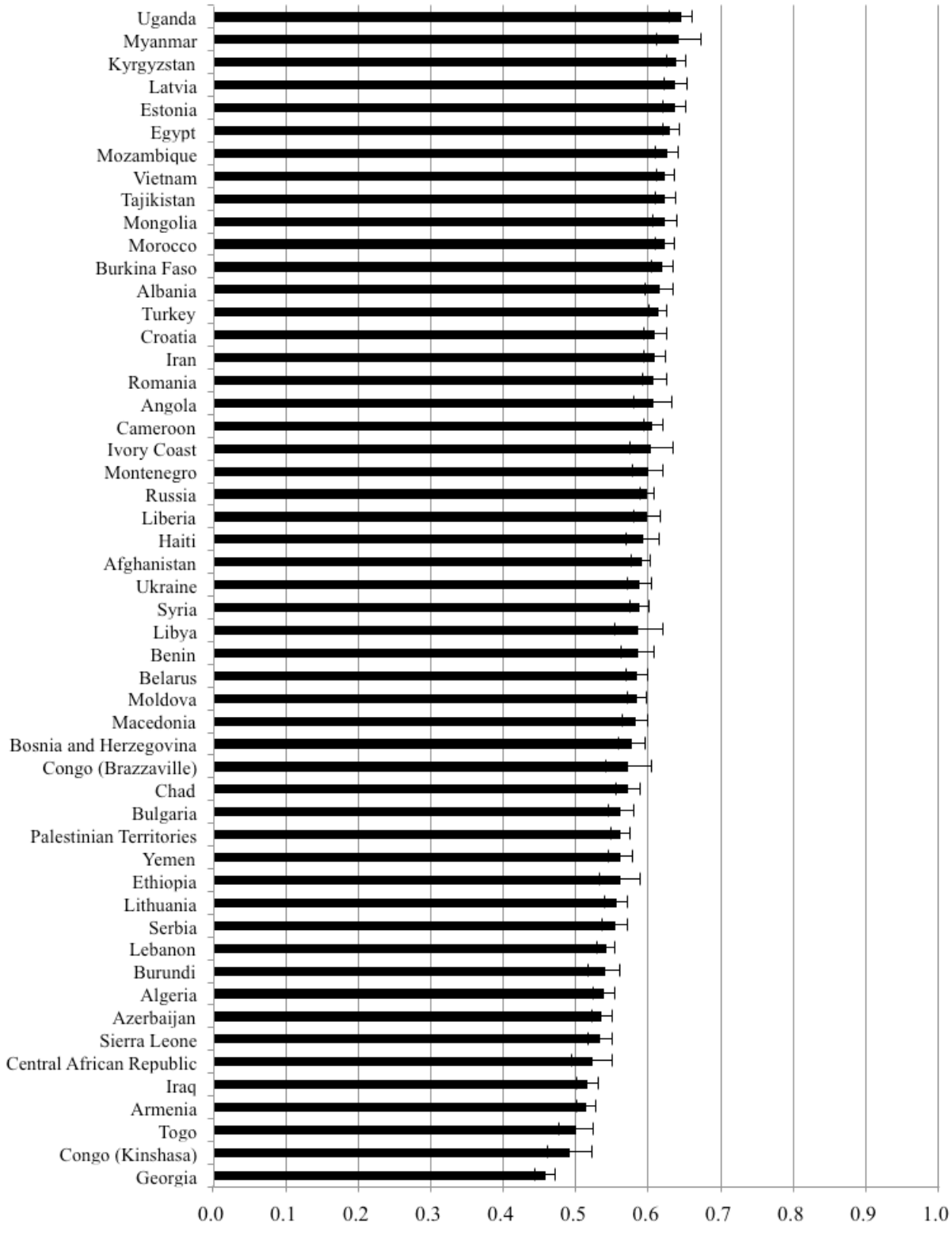


Figure 2.12 Average Negative Affect by Country - Part 1
(GWP 05-11)

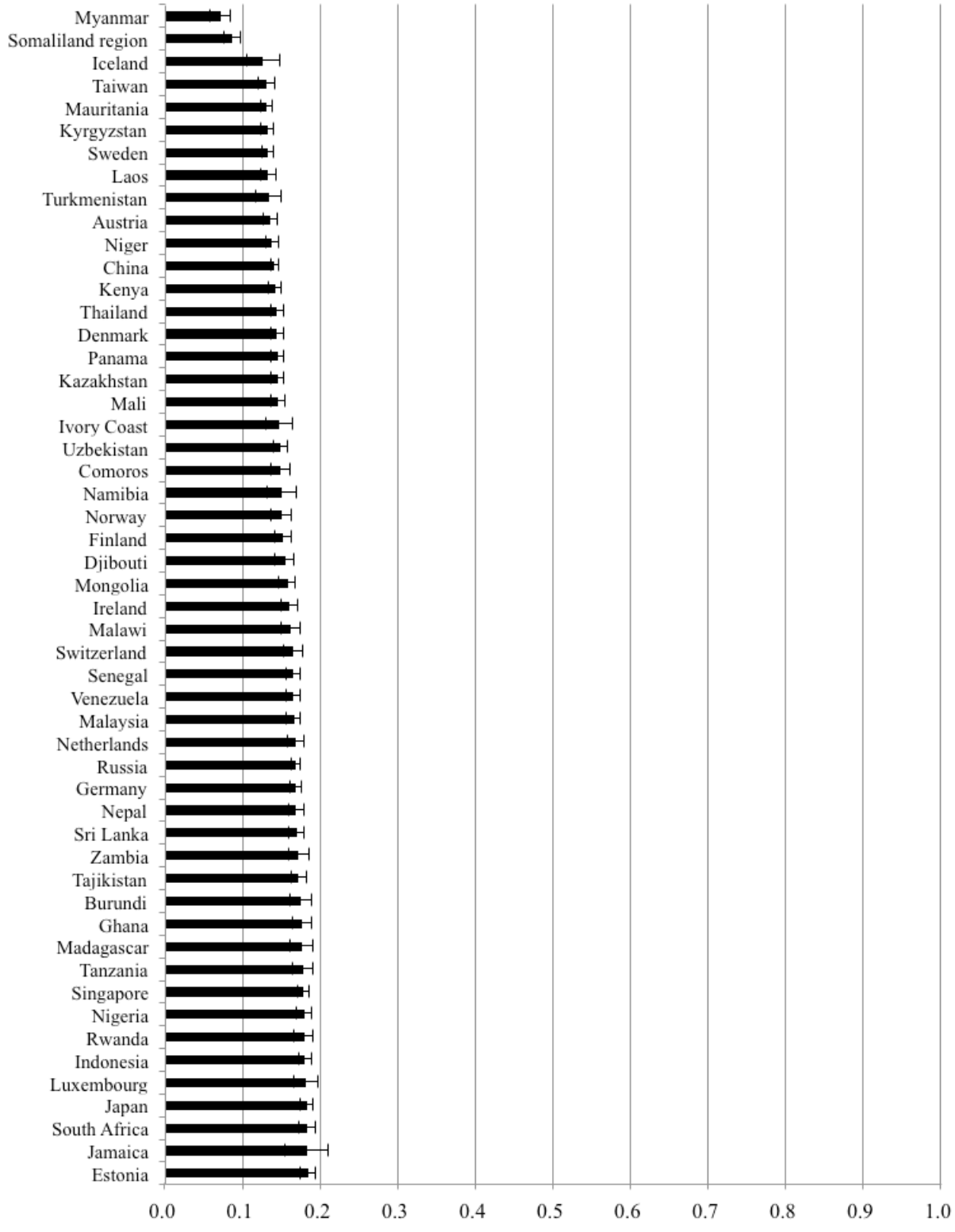


Figure 2.12 Average Negative Affect by Country - Part 2
(GWP 05-11)

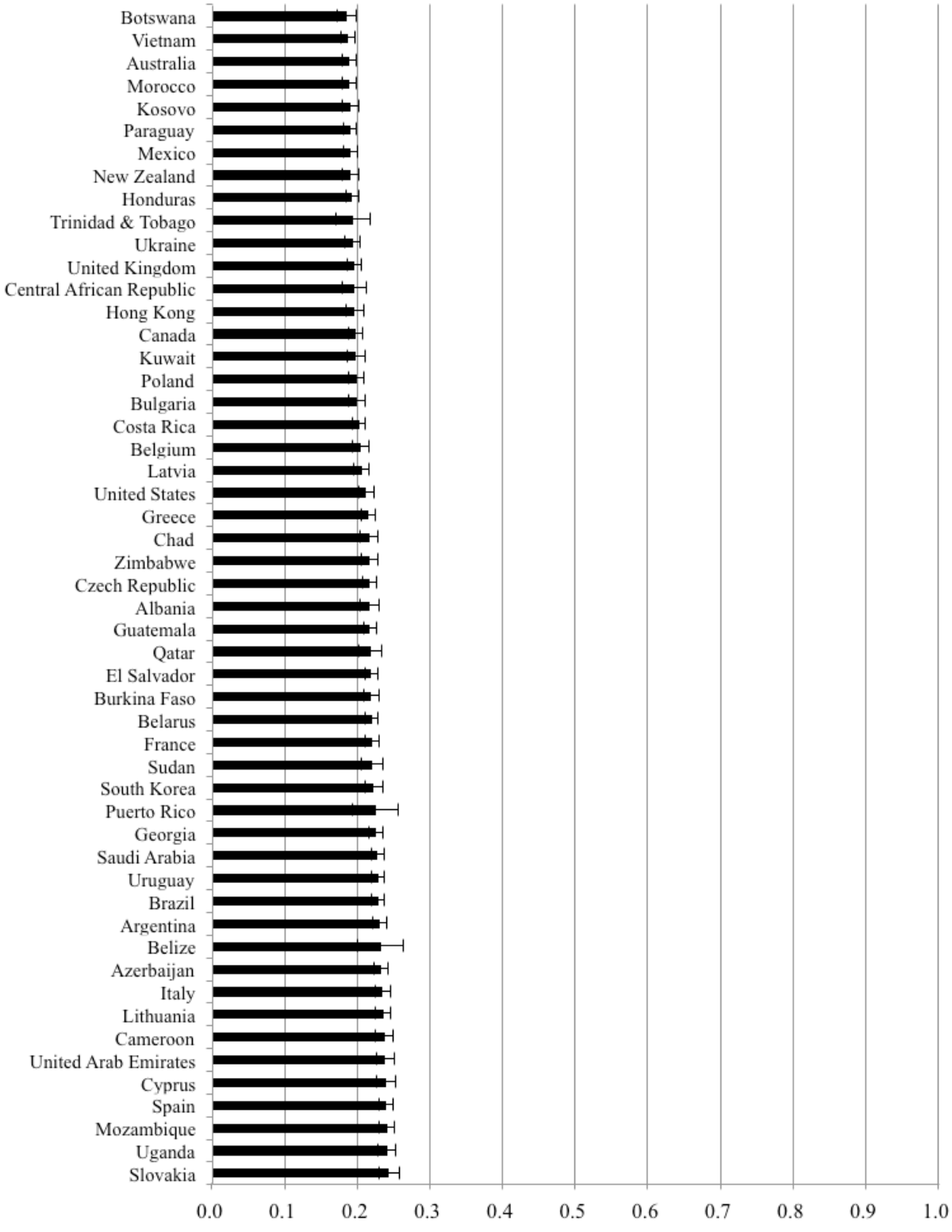


Figure 2.12 Average Negative Affect by Country - Part 3
(GWP 05-11)

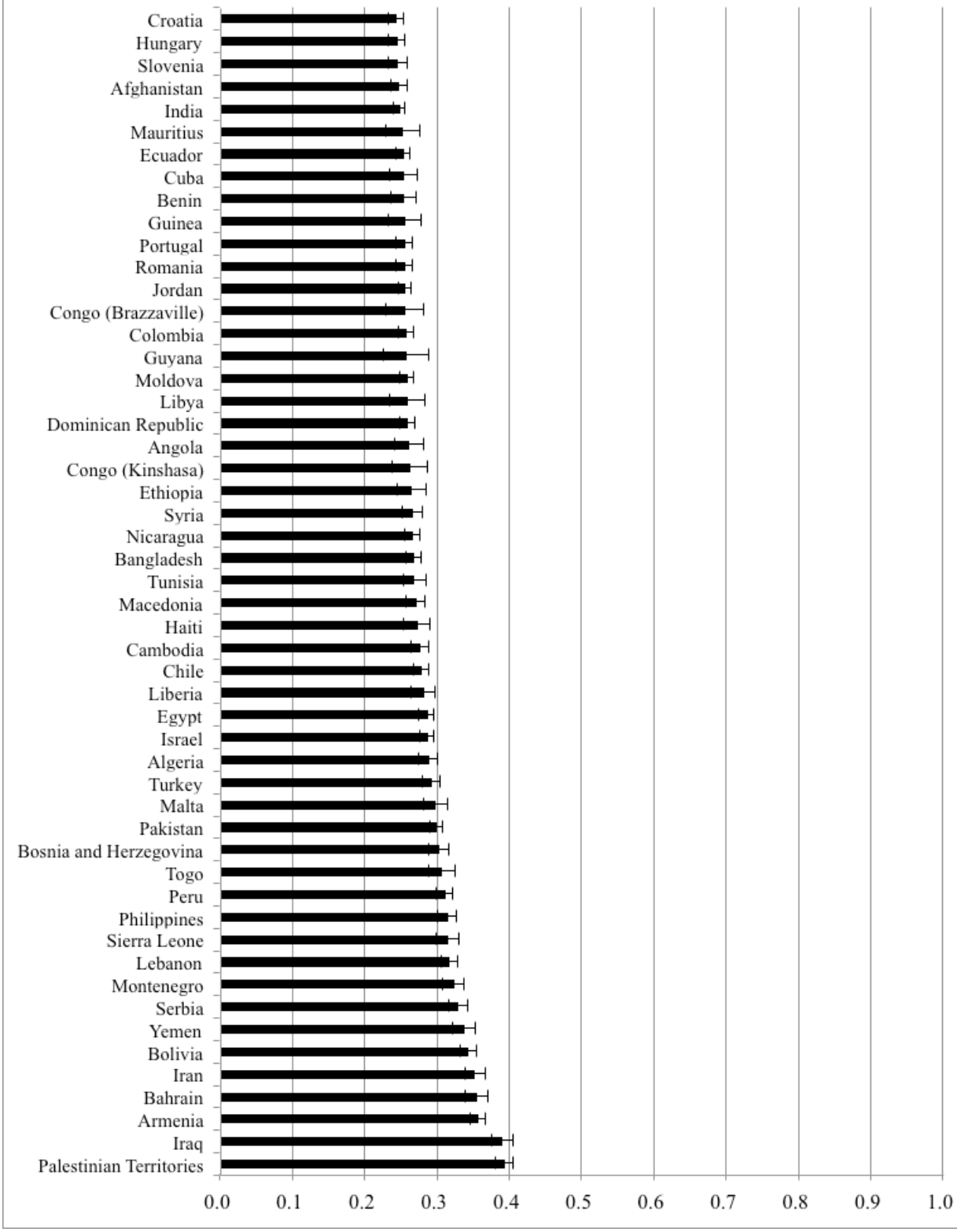


Figure 2.13 Average Net Affect by Country - Part 1
(GWP 05-11)

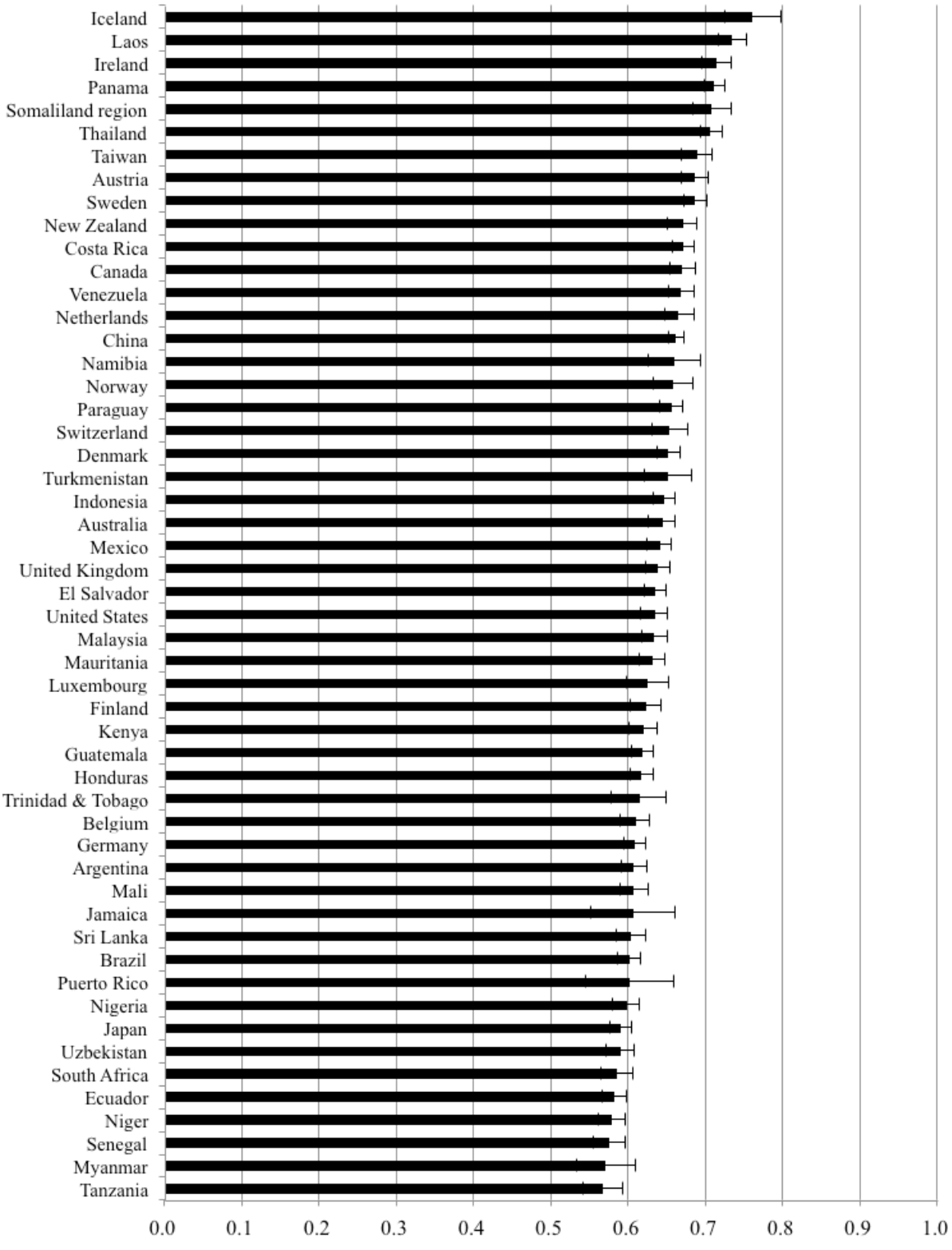


Figure 2.13 Average Net Affect by Country - Part 2
(GWP 05-11)

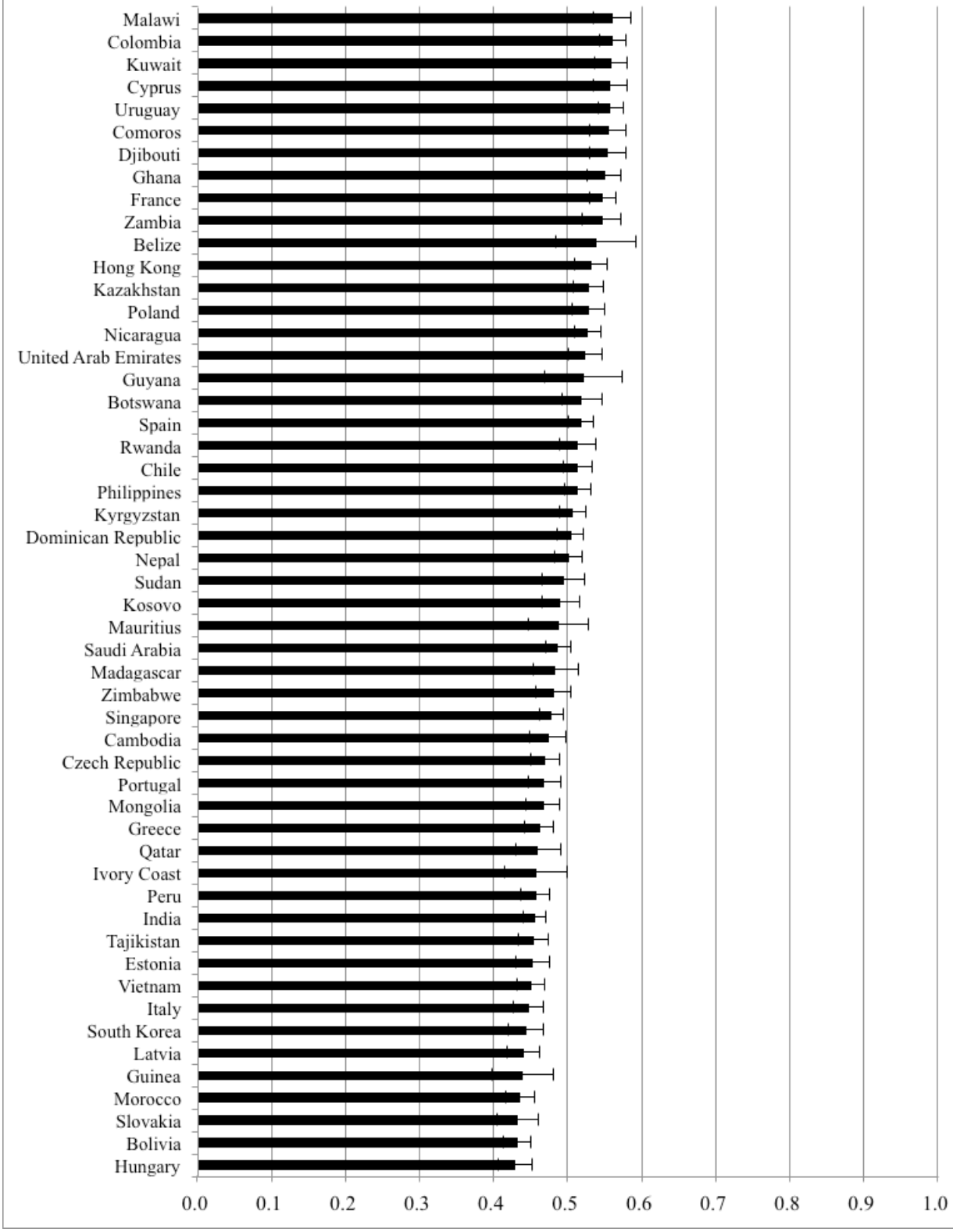


Figure 2.13 Average Net Affect by Country - Part 3
(GWP 05-11)

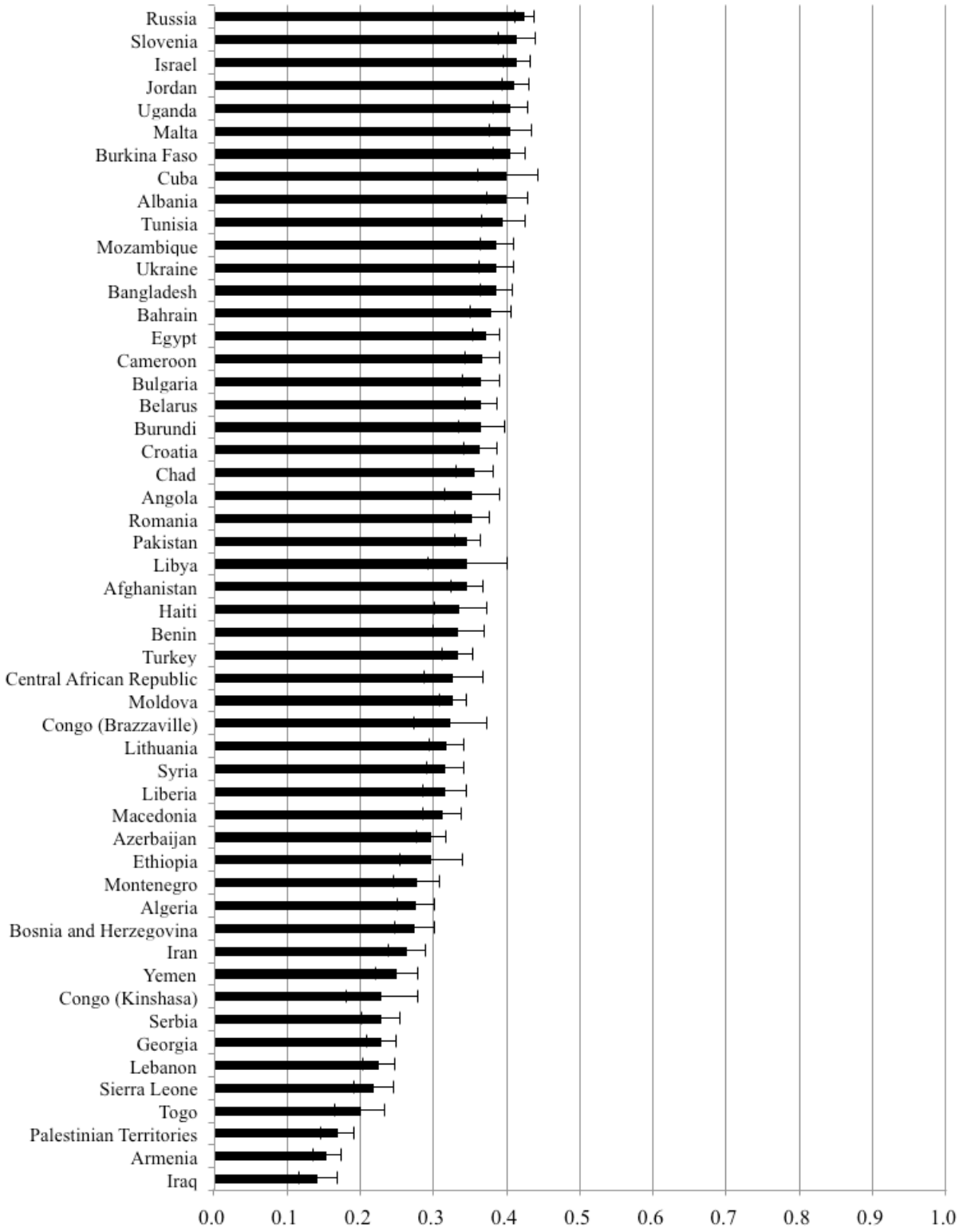


Figure 2.14 - 1: Distribution of Life Satisfaction in Europe

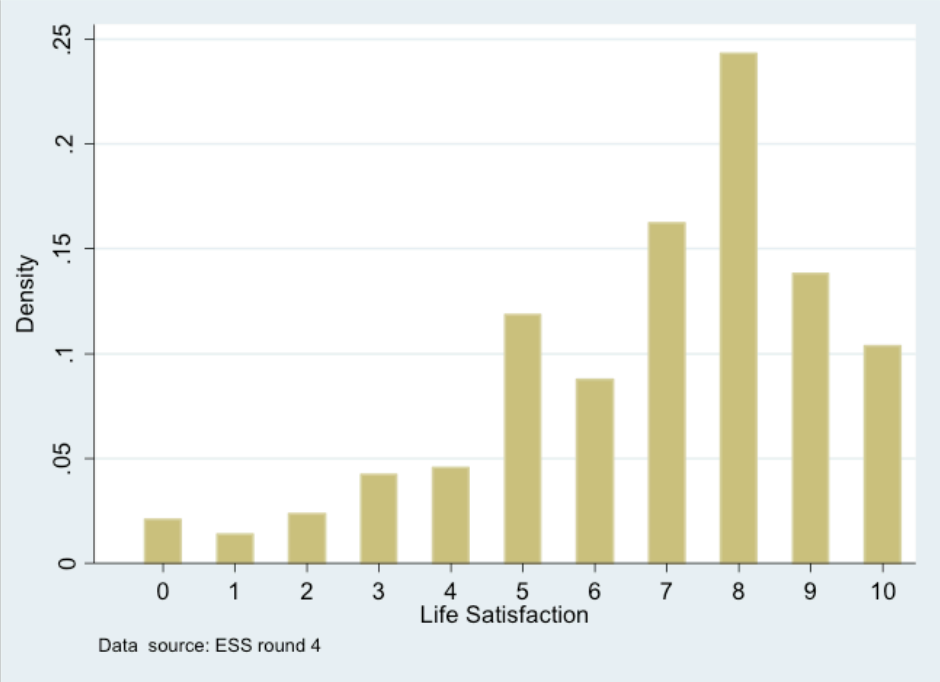
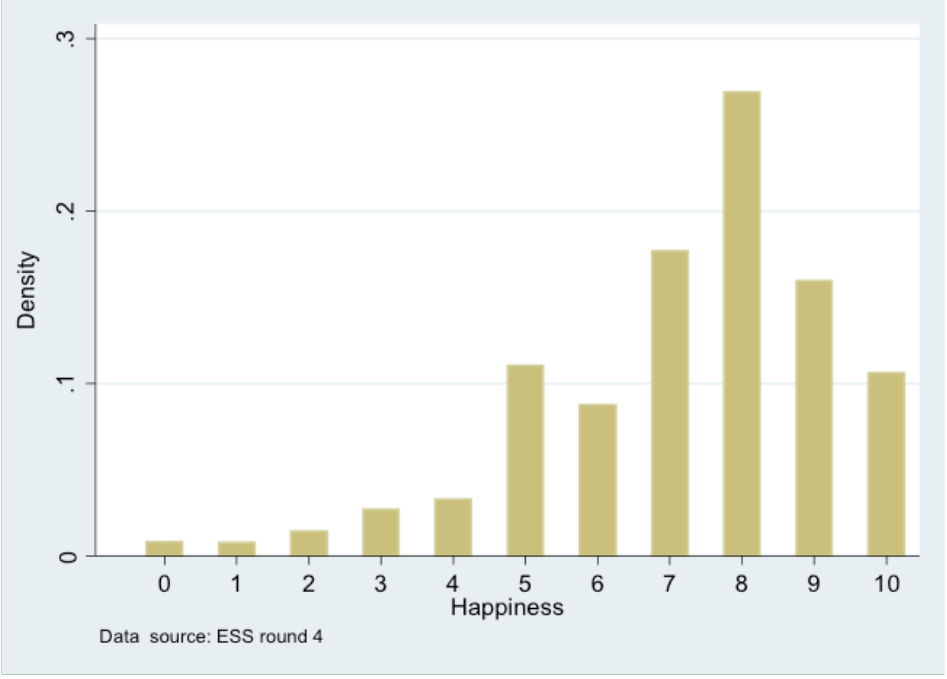


Figure 2.14 -2: Distribution of Happiness in Europe



Notes to Figures:

(1) Notes to Figures 2.1 and 2.2

The number of people reporting each Cantril Ladder score in a specific country is calculated in two steps: 1) Calculating the ratio of respondents reporting the level of ladder by dividing the weighted number of respondents reporting that ladder score by the weighted total number of ladder respondents. In this step, all-wave data in GWP 2005-2011 are used. 2) Multiplying the ratio by the total national population aged 15+. Only population aged 15+ is considered since only this age group is surveyed in GWP (2011). Total population aged 15+ is equal to the proportion of population aged 15+ (=one minus the proportion of population aged 0-14) multiplied by the total population. To simplify the analysis, we use population data in 2008 for all the countries/regions if the data are available in WDI (2011). Specifically, the total population and the proportion of population aged 0-14 are taken from the series "Population ages 0-14 (% of total)" and "Population, total" respectively from WDI (2011). In the cases where the data are not available in WDI (2011), such as in Taiwan and Kosovo, other sources of data are used. The data in the year closest to 2008 are used if those in 2008 are not available. The population in Taiwan is 22,921,000 in 2008 (Heston et al., 2011) with 16.7% of it aged 0-14 in 2009 (CIA, 2009). The proportion of population aged 0-14 in Kosovo in 2009 is 28% (Statistical Office of Kosovo, 2011). The data on age structure in Somaliland region are not available anywhere, therefore the region is not included in the calculation of world or regional distribution of ladder.

The world population reporting a specific level of ladder is the sum of population reporting that ladder score over all the countries with data on ladder and population. The same method is used to calculate regional population reporting each ladder score.

(2) Note to Figure 2.5

The SWL question was only asked for some waves, and not for all countries. There were 54 countries asking the SWL question in 2007, 68 in 2008, 12 in 2009 (A small fraction of German's wave 3 survey which was supposed to be done in 2008 was conducted in 2009, we then do not count Germany as one of the 12 countries having surveys in 2009), and 6 in 2010. Of the 129 countries asking the SWL question, only 11 have asked it in two waves, explaining why the total of country-wave observations (140) is only slightly more than the total of country observations (129).

(3) Note to Figures 2.6 and 2.9

To maximize the coverage of countries and focus on recent evaluations, we use data in WVS waves 4 and 5 and EVS waves 3 and 4 for Figure 2.6 and 2.9, except El Salvador which only has WVS wave 3 data (1999) (EVS, 2011; WVS, 2009). Therefore all the data used are from 1999 and later years.

The WVS Happy Index is used for ranking happiness in Figure 2.9, as suggested by the Director of the WVS Archive and ASEP/JDS, Jaime Díez Medrano (Medrano, 2012). The Happiness Index is defined as the weighted (by sampling weights) rate of respondents reporting "Very happy" or "Quite happy" less the weighted rate of respondents reporting "Not very happy" or "Not at all happy," plus 100. The index thus ranges from 0 to 200. This transformation makes the WVS happiness rankings closer to those for other measures. The 4-point happiness scores from WVS/EVS are in any event not easily comparable to other series with more complete scales.

(4) Note to Figures 2.11-2.13

Positive affect is defined as the average of happiness, laughter, and enjoyment yesterday for waves 3-5, but as the average of laughter and enjoyment for waves 1 and 2 since the happiness question was not asked in the first two waves. Negative affect is defined as the average of worry, sadness, depression, and anger yesterday except that in Mauritius it is defined as the average of worry, sadness, and anger, since the depression question was not asked there. Net affect is defined as positive affect minus negative affect. For the four negative affect items, and for enjoyment and happiness, the general question form was "Did you experience the following feelings a lot of the day yesterday:..". The laughter question was "Did you smile or laugh a lot yesterday?"

Part I.

Chapter 3.

THE CAUSES OF HAPPINESS AND MISERY

RICHARD LAYARD, ANDREW CLARK AND CLAUDIA SENIK

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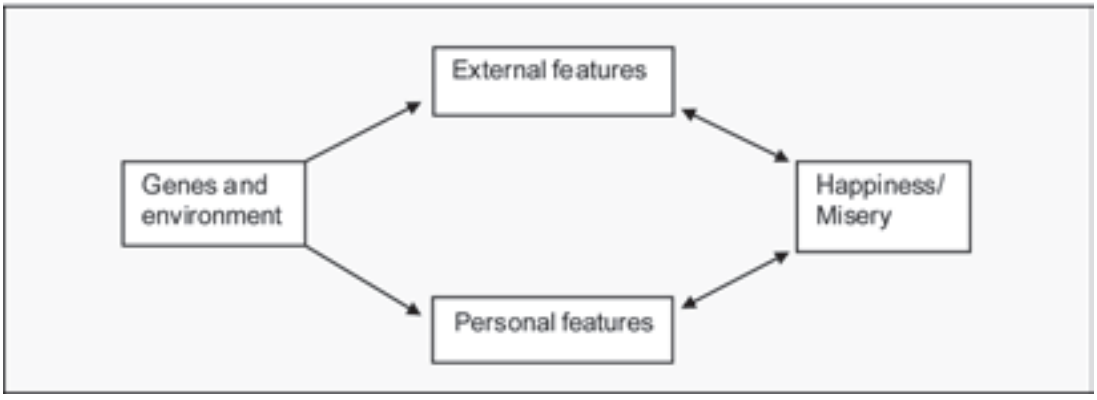
If we want to influence the levels of happiness and misery, we need to know what causes them. As a result of some 30 years of research, we now know a good deal about this. [1]

If we think of each individual, every one of us has her own genetic make-up, but the person she becomes depends on the interaction of those genes with the environment she encounters. Together, genes and environment determine the main features of a person's life – both those that are very "personal" and those that are more clearly "external." And these features in turn determine a person's well-being, as illustrated in Figure 3.1.

Figure 3.1



Among the more "external" factors, key determinants of happiness include:

- income
- work
- community and governance, and
- values and religion

and, among the more "personal" features, key determinants include:

- mental health
- physical health
- family experience
- education, and
- gender and age

Thus a person's happiness at a point in time is determined by the whole of her life course. The current external features of her life are important, but so are the personal features that have developed over the previous course of her life.

For policy-makers the main issues are the environmental factors affecting happiness, since these are what can be changed. Ideally we would study their effects holding the genes constant, but most research so far has been unable to do this.[2] So in this chapter we look directly at the ways in which external and personal factors (however they arise) affect a person's happiness.

What the policy-maker wants to know is how big an effect each factor has on happiness. So we concentrate both on that, and on the share of variance explained by the factor (which depends of course on the sample of people being considered).

We look first at the more external factors (income, work, community, governance, values and religion) and then at the more personal ones (mental health, physical health, family, education, gender and age). In many cases there is

a two-way interaction between the factor and happiness. For example, education affects a person's happiness, but happiness also affects the ability to learn. Likewise health affects happiness and happiness affects health. That is why, in the diagram above, arrows run from personal and external factors towards happiness (one direction of causality) but also run from happiness to health, education and so on (reverse causality). In what follows, we discuss each individual factor one by one, including (where it exists) the two-way workings of causality.

Types of Evidence

On every factor we offer a wide range of evidence. To isolate the causal effect of each factor is not easy. It clearly requires us to hold as much else as possible constant while we look at the co-movement of well-being and the factor in question. In most cases this cannot be done experimentally. So the next best is to study the same individuals (or countries) over time and see how their well-being moves when different factors change. Much of the evidence we shall quote is of this longitudinal, time-series form.

But some insights can also be got from cross-sectional evidence. In this case we are comparing different individuals (or countries) at the same point in time. The problem here is that, when we compare individuals or countries, there are many ways in which they may differ (for example in personality or values) that cannot easily be measured and controlled for when we are examining the effect of those factors that can be measured. But when we have longitudinal data on the same person or the same country we can assume that these unmeasured factors are more similar at each observation, and may have a better chance of tying down what is causing what.[3]

As a background to what follows we include in Appendix A standard individual happiness equations using two well-known sets of panel data and the World Values Survey. We give both cross-sectional and longitudinal estimates.

We can now review the main causes of happiness one by one.[4] We begin with the more "external" causes.

Income

Does economic growth improve the human lot? In 1974 Richard Easterlin wrote a seminal article on what has become known as the Easterlin paradox. He presented evidence of two apparently contradictory phenomena.

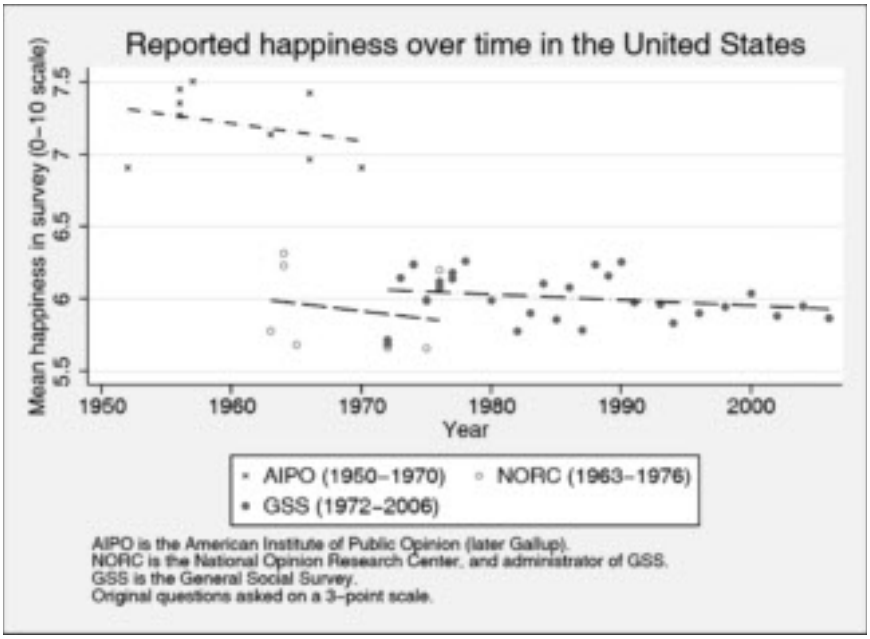
> "Fact 1" At a point in time within any society, richer people are on average happier than poorer people (a cross-sectional "fact").
>
> "Fact 2" Over time within many societies, the population does not on average become happier when the country's income rises (a time-series "fact").

To reconcile Facts No 1 and 2 Easterlin proposed the relative income hypothesis. People are comparing themselves with other people: it is relative income rather than absolute income that matters. Thus at any particular point in time richer people would compare favorably with poorer people (explaining "Fact No 1"). But over time, the aggregate of relative income in the population remains constant (thusexplaining "Fact No 2").

There is no doubt that Fact No 1 is correct. In multiple regressions, income always emerges as a factor explaining the variation in life satisfaction within a country – not the most important factor (see below) but an important one. It is also now possible to tie down quite closely the functional form of that relationship. It is well described by a logarithmic form where the absolute level of life satisfaction varies linearly with the logarithm of income.[5] This means that, for example, an extra dollar increases the satisfaction of a poor person by 10 times as much as it increases the satisfaction of a person who is 10 times richer. For centuries people have intuitively believed in the "diminishing marginal utility of income" but happiness research now provides empirical estimates that policy-makers can use when considering the distributional impact of their policies.

Turning to the time-series Fact No 2, which is what is relevant to the policy debate, the state of research is more unsettled. From micro-economic evidence presented below we know that relative income does matter. This is also supported by experiments in neuroscience. This establishes a strong prior that the time-series effects of higher absolute income would be less than those found in cross-sectional studies when the average level of income is held constant. This prior is in turn reinforced by the finding that in some important countries, especially the United States, average happiness has not risen despite strong economic growth (see Figure 3.2).[6] This was so during the golden period of economic growth in the 1950s and 1960s, and also more recently, when even the top quintile of income recipients experienced no growth in happiness, despite huge increases in their income.[7]

Figure 3.2



However the experience of particular countries is not enough to support generalized statements about the relation between happiness and economic growth. That requires a more exhaustive study of as many countries as possible. We shall therefore proceed as follows. First we shall examine the micro-economic evidence about how relative and absolute income influences the happiness of individuals. This will also include a discussion of adaptation. That done, we shall turn to aggregate evidence about the experience of whole nations.

Individual happiness and income

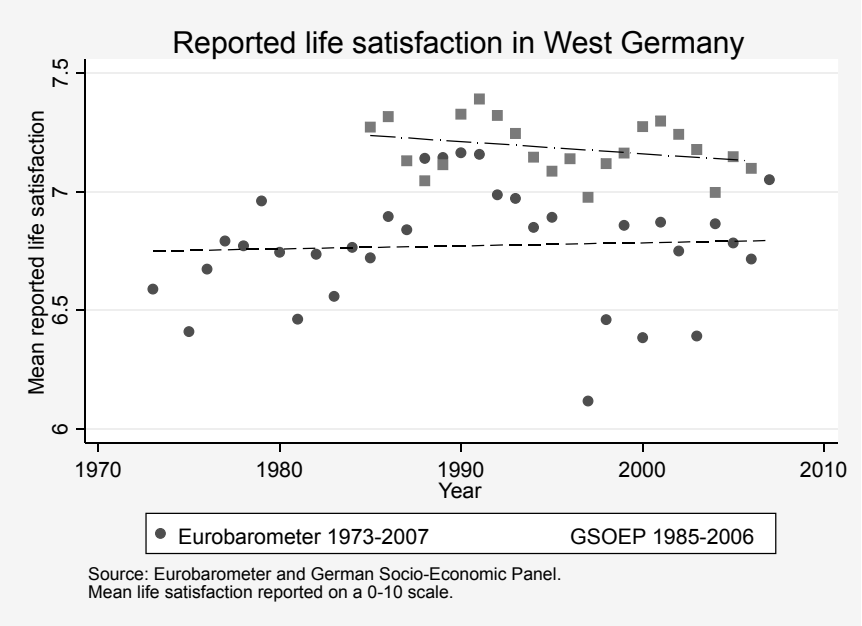
Does relative income raise a person's happiness and does absolute income do likewise? To examine the effect of income on happiness, we must eliminate any effect of a person's underlying happiness upon their income. The best way to attempt this is with panel data in which we trace the same individual over many years and examine how changes in the person's income affects their subsequent happiness. Fortunately we have such data from Europe's leading country. In West Germany the German Socio-Economic Panel (GSOEP) has been tracking the same individuals each year since 1984. We can use these data to help us understand the movement of average life satisfaction in that country, as illustrated in Figure 3.3, using the Eurobarometer series since 1972 and the GSOEP since 1984.

The first finding is about the effect of own income on life satisfaction: ceteris paribus, differences in income explain about 1% of the variance of life-satisfaction in the population. It is a significant effect, though when we use the panel feature of the data, it is somewhat reduced.[8]

The next step is to use the panel data to decompose this effect of income into an effect of absolute income and an effect of income relative to the appropriate comparator group. For this purpose relative income is measured relative to other people of the same sex, age and education in the year in question. When this analysis is performed with suitable controls, there is no effect left for absolute income.[9] Only relative income matters and this is clearly what explains the fact that in Figure 3.3 average life satisfaction has not risen despite rapid economic growth.

A third result is also of interest. Many people, including some psychologists, use adaptation to explain why happiness is not permanently increased by higher income: "whatever your income, you get used to it." This explanation clearly has problems since, if it were wholly true, we should not observe Fact No 1.[10] And in the GSOEP data there is no strong effect on current life satisfaction of current income relative to income over the previous three years – no evidence, that is, of a role for adaptation.[11]

Figure 3.3



We can turn now to the dozens of cross-sectional studies which also indicate strong effects of income comparisons.[12] All cross-section studies run the risk of exaggerating the effect of income on happiness by including the reverse effects of happiness on income.[13] But many of them provide more useful detail, including explicit questions about whom people compare themselves with, and how they think their income compares with that of different groups. For example, in a representative sample of rural Chinese, people said they mainly compared themselves with others in the same village, and multiple regression results showed that among all possible factors the most important for happiness was perceived relative income within the village.[14]

In advanced countries the comparators are different. The European Social Survey asked people "How important is it for you to compare your income with other people's incomes?" and those who said income comparisons were more important were also on average less satisfied with their lives – a common finding.[15] Respondents were also asked "Whose income would you be most likely to compare your own with?" The most important group mentioned was "colleagues," and the same was found in a one-year-only set of questions in the GSOEP.[16] In the GSOEP study people were then asked to rank their income compared with their colleagues, and also with their friends, neighbors, etc. In explaining life satisfaction it was confirmed that perceived relative income has a large effect on life satisfaction. Similar findings have been found in repeated cross-sections in the United States,[17] which helps to explain the fact that happiness has not increased in the U.S. (see Figure 3.2).

The preceding studies use data on perceived relative income. This perception can of course be influenced by the mood of the respondent, but it is reassuring that the results are very similar if we only include actual relative income. Many studies only do this, and most but not all of them find significant effects of income relative to income in the surrounding area, be it travel-to-work area, county or province.[18]

If happiness depends on income relative to the income of a "comparator" that means that when the "comparator's" income rises, happiness falls. As we have seen, this is the most common general finding, but it is not always the case. In some cases people appear to take the comparator's income as an indication of what they might themselves attain, rather than as an external benchmark they need to compare well with. The comparator's income is then like a light at the end of the tunnel.[19] In a number of situations this "tunnel effect" has been found to dominate the "external norm effect,"[20] so that comparator income sometimes has a positive effect or in other studies a zero effect.[21]

But the more general finding is that comparator's income reduces happiness and this has been strikingly confirmed in many laboratory experiments. One neuroscience experiment involved the task of guessing the number of dots on a screen.[22] Good guesses were rewarded by a monetary payment. Each subject was paired with another subject, and after each of the 300 trials the subject was told the accuracy of his own guesses and the associated income he would receive, as well as the same information for his "pair." At the same time fMRI scans measured the blood oxygenation in the subject's relevant reward center (the ventral striatum). Blood oxygenation responded strongly to both the subject's own income (positively) and to the pair's income (negatively). And the negative affect of the pair's income was at least two thirds as large as the positive effect of the subject's own income.

Country-level income and happiness: cross-sectional evidence

We can turn now to country-level data and ask, how far does absolute income affect the happiness of nations? We can begin with a cross-sectional analysis of data similar to those presented in Chapter 2, before turning to the time-series, which is far more informative about what causes what.

In Table 3.1, we examine the Gallup World Poll's measures of well-being reported in Chapter 2. We show first a simple regression of average well-being (according to each measure) on the log of GDP per head across the sample of countries. There is a very strong relation.[23] However material well-being is not the only determinant of well-being. In order to get a sensible idea of its effect, we should also include other obvious determinants. Beginning with the other indicators in the UNDP's Human Development Index (HDI), we include:

Health (we use healthy life expectancy from the WHO)
Education (we use the HDI average educational level among adults)

We also include measures of the degree of social support, freedom and corruption that individuals experience in their country. These come from the World Gallup Poll's answers to the following questions:

Social Support

If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not? (proportion of respondents saying Yes)

Freedom

In your country, are you satisfied or dissatisfied with your freedom to choose what you do with your life? (proportion of respondents saying Yes)

Corruption

Average proportion of respondents saying Yes to the following 2 questions:
1. Is corruption widespread within business located in your country, or not?
2. Is corruption widespread throughout the government in your country, or not?

Finally we take into account the strength of family life – measured by the proportion of people separated, divorced, or widowed.

In Panel A of Table 3.1 we include only income as an explanatory factor. It has a strong positive impact on life evaluation, a smaller impact on positive affect, and an insignificant impact on negative affect. For life satisfaction the β-coefficient on income is high at 0.81; it thus explains 65% (β2) of the variation across countries. However, when in Panel B we introduce the social variables discussed above, the positive effect of income falls sharply – by more than half. Most of the social variables are highly significant. When it comes to positive and negative affect, only the social variables play a significant role.

A parallel analysis focusing only on European countries shows similar results using the European Social Survey. The dependent variable is the average of life satisfaction and happiness these days. When regressed on log GDP per head only, β is .84. but when we introduce one additional variable – the average of social trust and trust in police -the β-coefficient on trust is .62, and that on GDP falls to .36.

Table 3.1 Regressions to explain average well-being across countries[24] (standardized βstatistics)

	Dependent Variable		
Independent Variables	Life evaluation	Positive affect	Negative affect
Panel A			
Log GDP per head	0.81 ***	0.40 ***	-0.08
$\bar{R}^2$	0.65	0.15	-0.00
No of countries	153	153	153
Panel B			
Log GDP per head	0.28 **	-0.18	0.22
Health	0.25 **	0.24	0.27
Education	-0.01	-0.18	-0.05
Social support	0.29 ***	0.43 ***	-0.35 ***
Freedom	0.15 ***	0.49 ***	-0.24 **
Corruption	-0.18 ***	0.00	0.23 ***
Divorce etc.	-0.43	-0.09	-0.08
$\bar{R}^2$	0.80	0.52	0.20
No of countries	139	139	139

Significance Levels: (1 tailed tests)
* 0.05 ** 0.01 *** 0.001

The preceding analyses underline the problems of studying the relation of national income and happiness without taking into account other variables. This is the main problem with the careful study by Betsey Stevenson and Justin Wolfers in which they compare the effect of income on life evaluation at the cross-country level with its effect at the individual level within a country.[25] They argue that there can be no effects of comparator income at the individual level if (as they find) the cross-country effects are as high as the within-country individual effects. This statement is logically correct, provided other things are held equal. But they are not: the "effect of income" at the cross-country level is estimated with nothing else held constant. But, as we have shown in Table 3.1, the cross-country effect falls sharply when other variables are included. It is of course possible that high income in a country is good for health, social support, freedom and corruption. But to find out about the direct effects of comparator income on family well-being, we would definitely have to keep these other things constant. Moreover from a public policy point of view it is important to separate out the effects of income from those of health, social support, freedom and corruption, and not to roll them all together.

The problem of other things equal maybe relatively less acute when we now turn to changes in GDP over time (not holding other things constant).

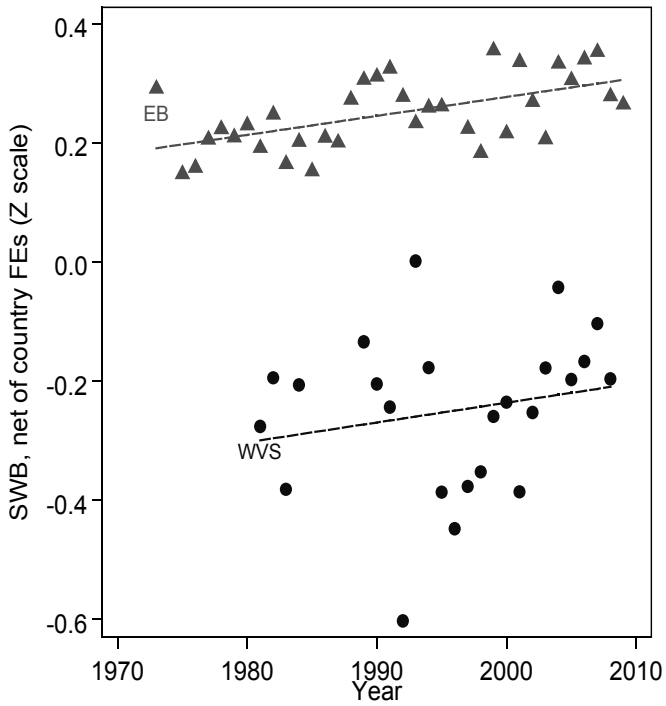
Country-level income and happiness: long-term economic growth

So we are now ready to scrutinize Richard Easterlin's Fact No 2. Is it true that, if countries grow in income, they become no happier? On this matter, one can make no general statement. As we have seen there are some countries like the U.S. and West Germany that have grown over long periods of time but have not become happier.[26] On the other hand there are other countries where income growth has gone hand in hand with increases in happiness.

It would however be helpful if there were some way to summarize the average of this relationship across all countries. In a recent paper, Richard Easterlin offered his own summary.[27] In order to concentrate on long-term economic change, he confined himself to 37 countries with a long enough range of data (21 years for developed countries, 15 for developing countries and 12 for transition countries). He found in each group a flat or negative relation between changes in life satisfaction and income per head.

However, this analysis has been powerfully challenged by Stevenson and Wolfers, whose most recent paper deals entirely with the issue of long-term growth. It shows first that, both in the countries covered by the World Values Survey and in those covered by Eurobarometer, there has been an increase in life satisfaction in the average country over recent decades, see Figure 3.4.[28] They then investigate whether the intercountry differences in changes in life satisfaction are associated with different rates of growth of per capita income. For the World Values Survey they find a strong relation between changes in life satisfaction and changes in trend-GDP per head – roughly equal in size to the effect found in simple cross-country regressions. They also find a relationship among Eurobarometer countries, though the size of the effect is under half of that in the cross-section. One reason why their findings differ from Easterlin's is that they exclude all countries for which the survey did not cover the whole country.[29]

Figure 3.4 Average subjective well-being in countries covered by Eurobarometer (EB) and World Values Survey (WVS)



There are clearly a number of issues remaining to be resolved in this area.[30] But a reasonable interim conclusion is as follows:

1. In a typical country, economic growth improves happiness, other things equal. But other things are not necessarily equal, so economic growth does not automatically go with increased happiness. Thus policy-makers should balance the argument for more rapid growth against the arguments for supporting other sources of happiness. This applies to countries at every level of development.

2. In developed countries in particular there is strong micro-level evidence of the importance of income comparisons, which has not been disproved by aggregate data. For this reason policies to raise average happiness must target much else besides economic growth.

Country-level income and happiness: cyclical fluctuations

There is of course a sharp distinction between long-term economic growth, which may have little effect on the level of unemployment, and short-term growth, which is the only way to reduce the high unemployment currently prevailing in most parts of the world.

Everybody agrees on the importance of short-run growth in such a context. Happiness fluctuates over the business cycle. It is generally somewhat higher when employment is high relative to trend and when unemployment is therefore low.[31] But on the other hand happiness is also lower when inflation is high, as often happens in upturns. In the overall balance, happiness rises in booms because a one-point decrease in unemployment has at least twice as large an effect on happiness as a one-point increase in the inflation rate.

Economic stability is a crucial goal for any society, due largely to the fact of loss aversion, whereby individuals hate to lose x dollars more than they love to gain x dollars.[32] But economic stability is a quite different goal from long-term economic growth. Long-term growth has much less impact on human happiness than do human relationships in all their dimensions – as we shall see.

Work

A key relationship comes through work. It provides not only a livelihood but a source of meaning – feeling needed and able to contribute. But not everyone can get work, nor if they can, is it always satisfying.

Unemployment

When people become unemployed they experience sharp falls in well-being and their well-being remains at this lower level until they are re-employed.[33] The estimated effect is typically as large as the effect of bereavement or separation, and the unemployed share with these other experiences the characteristic of ceasing to be needed.

The Appendix to this chapter documents that unemployment reduces well-being in all the datasets analyzed. It also shows that the main impact of unemployment on well-being is not through the loss of income, but rather through loss of social status, self-esteem, workplace social life, and other factors that matter.

Psychologists[34] have examined these non-pecuniary benefits of work, and they include the preset time structure of the working day, regularly shared experiences and contacts with people outside the family, links to goals and

purposes that transcend the individual, personal status and identity, and the enforcement of activity.[35] Unemployment is destructive due to its negative effect on these functions.

High unemployment also has spillover effects not only on the families of the unemployed[36] but also on those in work, who feel less secure in their jobs.[37] Thus private sector employees are more affected than public sector employees, whose jobs are more secure.[38] When we total up all the well-being effects of a rise in the unemployment rate, the loss to the rest of the population (which is a large number of people) is twice as large as the loss to the unemployed themselves.[39]

There is also another spillover effect of the unemployment rate: upon the unemployed themselves. A priori one might expect individual unemployed people to be worse off if more other unemployed people were competing with them for the available jobs. However, the evidence suggests that greater unemployment may actually reduce the stigma associated with one's own unemployment, or be associated with greater social support.[40] British data reveals that others' unemployment (at the regional, household, and couple level) generally has a positive effect on the well-being of the unemployed (at least for men).[41] This social norm effect, whereby my own unemployment hurts less when more other people are unemployed, parallels data on suicide and para-suicide by the unemployed, which is more probable where unemployment is low.[42]

But if unemployment is bad, is any reduction in it unambiguously good? In particular is it better to get people into bad jobs rather than no jobs at all? This has been a subject of controversy, but a comprehensive study using the German Socio-Economic Panel concludes that "Our main result is that we cannot identify a single job feature, nor a combination of such features that constitute such low quality jobs that remaining unemployed would be the better choice for the individual. On the contrary, the bulk of our evidence shows that even low quality jobs are associated with higher life satisfaction, and this effect is statistically significant for most specifications of "bad" jobs.[43] A parallel study examines the value of the large German workfare program and concludes that people's life satisfaction rises substantially after moving onto the program from being totally out of work.[44]

Quality of work

Thus one of the most important aspects of the labor market in terms of well-being is whether individuals are able to find a job, given that they want one. However, when in work the quality of life at work is also crucial. The view that job quality consists of pay and hours of work has by now largely been superseded.[45] In three waves of the International Social Survey Programme workers rank eight different job characteristics, on a one to five scale from "Not at all important" to "Very Important." The characteristics are: high income, flexible working hours, good opportunities for advancement, job security, interesting job, allows to work independently, allows to help other people, and useful to society. The results[46] show that only around 20% of respondents in OECD countries say that having a high income is very important and the same figure applies to flexible hours and promotion opportunities. But around 60% say that job security is very important, with similar figures for interesting work and autonomy (50% and 30% respectively).

Thus it is not surprising that measured satisfaction is shown to be strongly correlated with not only pay at work, but also measures of job security, autonomy, workplace trust, independence and so on. Any evaluation based solely on income and hours will omit many key characteristics that workers value.

An important school of thought focuses on the importance of intrinsic motivation at work – and related to that the importance of the intrinsic features of the job (rather than pay) as sources of satisfaction:[47] eudaimonic returns associated with human flourishing. These features include a sense of overall purpose for the job, a degree of autonomy in discharging it, and the competence to do the job – a proper fit between worker and job. Allied to this people need support and recognition for their efforts. Experimental work has underlined the role of purpose and control in determining individual behavior in hypothetical-choice experiments.[48]

This approach has a number of implications. It plays down the role of pay as the prime system of motivation. Psychologists have shown many cases where introducing financial incentives reduces performance by undermining intrinsic motivation.[49] These findings need to be taken seriously by those who design systems of performance-related pay.

One striking finding of happiness research is that the time of day when people are least happy is when they are in the presence of their line manager.[50] This suggests that too many managers fail to inspire their workers and rely too much on mechanical incentives and command.

Worker well-being matters to firms as well as workers; it is a good predictor of productivity. It is well-known that workers who are more satisfied with their jobs are less likely to quit their jobs. They are also less likely to reduce firm productivity via absenteeism or via presenteeism - turning up to work, but contributing little.[51]

Self-employment

When it comes to autonomy, some workers can completely control their quality of work, because they are self-employed. The self-employed do worse on many job dimensions, including income, hours of work and job security, but even so they often report higher levels of overall job satisfaction than do the employed, at least in OECD countries. A positive correlation is found in American and European data,[52] and in data from Great Britain, Germany and Switzerland.[53]

This need not necessarily mean that the self-employed experience greater overall satisfaction with their lives, if they are sacrificing other dimensions of their lives to their job. Thus it is interesting that in Appendix A, Table 2, self-employment has no significant effect on overall life satisfaction.

The great majority of work on well-being and self-employment has used OECD data. But any comparison of self-employment and employment will depend critically on the extent to which the former is a choice.[54] If individuals are free to choose, they will choose self-employment if their happiness there is higher. However, when there are insufficient employment opportunities in the formal sector, self-employment may not be a choice but a necessity. If formal-sector employment opportunities are positively linked to financial development, this could help to explain a more positive job satisfaction gap between the self-employed and the employed in more developed countries. This proposition has been tested on data from the World Value Surveys (WVS) over the 1981-2001 period.[55] The self-employed do not always report higher job satisfaction scores than employees, but do so more often in developed countries. This pattern is not affected by the inclusion of income as a control variable, suggesting that the key difference between employees and the self-employed is to be found in the non-pecuniary arena.[56] The results for non-OECD countries are line with the fact that self-employment is associated with lower satisfaction in Latin American countries.[57]

Retirement

Eventually many of us stop working: we retire. Do people enjoy life more after they retire? Analyses of panel data from the Survey of Health, Ageing and Retirement in Europe (SHARE) show no large overall effect but a wide disparity in the effect on different individuals: more educated workers experience rises in well-being on retiring; others' well-being falls.[58] So workers in lower-quality jobs are not necessarily those who gain most from retirement. The lower-educated report lower levels of well-being when in work, as might be imagined, but they also report a greater drop in well-being when they retire. This seeming paradox might be explained if education affects not only the value of employment, but also that of retirement: the lower-educated may have worse jobs than the better-educated, but also worse retirements. However most work in this area is still preliminary.

It might be expected that retiring voluntarily would be associated with a greater rise in well-being than involuntary retirement. However, it is not always easy to distinguish the type of retirement in survey data. Also, those who retire voluntarily may have a reason for doing so, such as being in poor health, which will potentially confound any comparison of voluntary and involuntary retirement if it is not controlled for.

Social Capital

While work is one important part of our social world, our relationships go much further, and include relationships with family, friends and community. In Maslow's pyramid of human needs, love and belonging come just after basic physiological and safety needs.[59] Clearly, the sources of individual happiness include the set of social interactions through which individuals are interconnected. The quantity and quality of social relations in a community is sometimes referred to as social capital.[60]

Why "capital"? Because people's social networks are accumulated over time (like financial capital) and because they yield benefits, such as informal mutual assistance or simply the pleasure of being socially integrated and participating in intense social interactions. As a network, social capital also includes a notion of externality, i.e. mutually reinforcing benefits for all members.

We have already seen in Table 3.1 how strongly the happiness of nations is influenced by the extent to which the citizens believe they have others they can rely on in times of trouble. We have also seen the powerful effect of the levels of perceived corruption in government.

Trust

In a well-functioning society there is a high level of trust – above all between citizens, but also in institutions. There is a standard question that has been asked in many surveys over many years in many countries. "In general, do you think that most people can be trusted, or, alternatively that you can't be too careful in dealing with people?"

This has been asked in fewer countries than the questions used in Table 3.1. But among those where it has been asked, it performs at least as well as the social variables in Table 3.1. One might ask, Do answers to these questions correspond to real differences between countries? Their validity is confirmed by the "lost wallet" experiment, first conducted by the Reader's Digest Europe in 1996. This experiment involved dropping 10 cash-bearing wallets (including a name and address) in each of 20 cities in 14 western European countries, and in each of a dozen U.S. cities. Researchers[61] later used these data to validate the classic question of trust. It turned out that indeed, the actual frequency of return of the wallets was highly correlated with national average social trust, as measured in international surveys. Since then, this experiment has often been replicated, and the question about the likelihood that a lost wallet, if found by a stranger, or alternatively by a police officer, would be returned intact to the owner was used in the Gallup World Poll, as well as certain national surveys (e.g. in Canada and the United States) to provide more specific measures of trust.[62]

Studies of various types of trust important to Canadian individuals showed large effects for trust in neighbors, trust in police, trust in strangers, and especially workplace trust.[63] Higher life satisfaction is correlated with having a more intense relational life in general, such as socializing frequently with friends and relatives,[64] attending social gatherings and cultural events, participating in sports, performing volunteer work,[65] and pro-social behavior (donations of time, donations of money, providing help to a stranger). Such correlation may include an element of reverse causality with happier people more likely to enter these situations. But several studies have documented the stability of trust over generations: the social trust of descendants of immigrants to the United States[66] or Canada[67] is positively linked with the trust level of their ancestors' home-country. The

current level of trust in Europe[68] and Africa[69] can be traced back to distant past "critical junctures" such as slavery or other historical conditions. These studies suggest that trust causes life satisfaction rather than the reverse.

Levels of trust have fallen substantially over time in some countries (like the U.S. and U.K.) and risen in others (such as Denmark and Italy). This may help to explain the fact that life satisfaction has not risen in the U.S. and U.K., while it has risen in a number of continental European countries. Indeed for the U.S. it has been well argued that the main offsets to the private benefits of economic growth include not only comparator incomes but also a decline in the quality of human relationships, as measured by increased solitude, communication difficulties, fear, distrust, family infidelity and reduced social engagement.[70]

Bonding and bridging capital

At this point it is important to contrast the relations between people who are similar to each other (bonding capital) with the relations between people who are different (bridging capital).[71] We want both - not only good social capital within communities but also good links between communities.

The first is the more obvious. Social capital has a local dimension and is most evident within communities, i.e. sub-groups of the population who interact directly and frequently share common norms[72] and a sense of common identity. Staying rooted in the same neighborhood for a longer time is associated with higher levels of all types of trust, especially neighborhood trust;[73] while respondents who live in districts where the population is highly mobile are less likely to trust their neighbors.[74] But longer-distance attachments to similar people also often matter a lot, even if not as much as local attachments.

So may more social capital for some mean less for others, because they are in some way excluded? Studies of migrants confirm the importance of close communities. New migrants are often found to be less satisfied with their life than natives, even when they share an identical socio-professional situation. This is certainly related to the fact that migrants have to leave behind them their networks of friends and family.[75] It could also be due to racial discrimination, although racial tolerance has increased in many Western countries over the last decade, leading to an improvement in the happiness of minorities.[76] This bridging capital implies that typical communities now involve widened circles, so that one can now identify with a wider range of people.[77]

Freedom

Another key feature of a society is the freedom that it provides to its members. No people can be truly happy if they do not feel that they are choosing the course of their own life – subject always of course to the inevitable constraints of human existence. The importance of freedom is confirmed in Table 3.1.

It is also the fact that the least happy societies documented in 1990 were those in the former Soviet bloc. It is not easy to disentangle the effect of the transition, but earlier surveys for Hungary and for Tambov district in Russia also show low levels of happiness at that level of GDP per head.[78] These contrasts confirm quite clearly the importance of freedom for human flourishing.

Equality

In a well-functioning society, there is a high degree of mutual respect between its members. Can such a situation be achieved if there are massive gaps in income between rich and poor in a society?

Evidence of the effects of income inequality on the evaluations of happiness is mixed. There is of course the basic point that in any society the value of an extra dollar to a poor person is much greater than to a rich person. As we have seen, if we compare a poor person with someone who is x times richer, an extra dollar is worth x times more (in terms of life satisfaction) to the poor person than to the one who is richer. So in a country with

a given GDP per head, the average life satisfaction must logically (other things equal) be greater if the income is more equally distributed.[79]

On top of that mechanism (working through individuals), it is often said that inequality damages happiness through increased social tensions. For example, Wilkinson and Pickett claim that income inequality is associated with lower well-being of various kinds.[80] But they also find that inequality damages the rich as well as the poor – indicating some kind of environmental effect.

Nevertheless empirical work on the effects of inequality on life satisfaction has yielded very mixed results. Many studies have failed to find any effect.[81] The most positive results are in an interesting time-series study using both the U.S. General Social Survey and Eurobarometer.[82] This finds that in both the U.S. and Europe increases in inequality have (other things equal) produced reductions in happiness. The effect has been stronger in Europe than in the U.S. This difference probably reflects ideological differences: some 70% of Americans believe that the poor have a chance of escaping poverty, compared with only 40% of Europeans. Interestingly, the actual facts are actually the other way round: there is more intergenerational social mobility in Europe than the U.S. And there is more mobility where there is greater income equality.[83] But attitudes have an effect on perceptions and thus on happiness.

People hate inequality much more when they think it is unfair. For example, in some transition countries, particularly Poland, income inequality, initially perceived as a positive signal of increased opportunities, started to undermine people's life satisfaction when individuals became skeptical about the legitimacy of the enrichment of those who won out in the reform process.[84]

The conclusion must be that, other things equal, equality is desirable for two reasons. First the value of extra income is greater for the poor than the rich. And second, greater equality can be associated with reduced social tensions, especially when inequality is perceived as unfair. But greater equality is unlikely to come about without some greater pre-existing ethos of mutual respect and solidarity.

Values and Religion

This brings us directly to the issues of values, including those connected with religious belief. Clearly the values of a society are crucial to the inhabitants of a society. They are important in two obvious ways: a person's happiness depends on his own values but also on the values of those around him.

Many people get their values from religion but many do not. The overlap between values and religious belief has not yet been studied in the happiness literature, so we shall treat these as two separate issues, beginning with religion, before coming on to those values that can also be expressed in purely secular terms.

Religion

Some 68% of adults in the world say that "religion is important in their daily lives."[85] Yet our understanding of its effects on human happiness is limited. The Gallup World Poll data reported in Chapter 2 provide a starting point.[86] They show that religious belief and practice is more common in countries where life is harder (less income, life expectancy, education and personal safety). They also show that in the U.S. religious belief is higher in those states where life is harder. After controlling crudely for those factors, there is no difference in life satisfaction between more and less religious countries. There is however a clear difference when comparing the emotional life of more and less religious regions. In particular, in those countries where life is tough, there is strikingly more positive emotion and less negative emotion among those people who are more religious. Where life is easier, there is no such difference in this study.

It is interesting to understand what aspects of religion produce the positive effects on happiness. Clearly religion has both social aspects (especially through attending places of worship) but also deeply personal aspects (as connected for example with private prayer). In the Gallup World Poll people are asked about the importance of religion in their daily lives and also about whether they "have attended a place of worship or religious service within the last seven days?" (roughly half of the world's population had done this). Though these variables are not perfectly correlated they both have similar explanatory power.[87]

It is therefore natural that, when further questions are examined, they confirm that religion can help in hard circumstances both by providing more "relatives or friends you can count on," and more feelings of being respected, and more feeling that "your life has an important purpose or meaning."[88]

Most of the results we have considered above are based on inter-country comparisons. When it comes to comparisons between individuals there is always the problem that people who are naturally happier in given circumstances are more willing to believe that there is a benevolent deity. However studies of individuals do largely agree with the preceding inter-country findings. Meta-analysis concludes that greater religiosity is mildly associated with fewer depressive symptoms[89] and 75% of studies find at least some positive effect of religion on well-being.[90] This effect is particularly prevalent in high-loss situations, such as bereavement, and weaker in low-loss situations, such as job loss or marital problems. Thus religion can reduce the well-being consequences of stressful events, via its *stress-buffering* role.[91]

A recent large study of individuals in the European Social Survey found small but statistically significant effects on life satisfaction of "ever attending religious services" and "ever praying."[92] And interestingly the religiosity of others in the region was also found to have positive benefits both on those who are religious and on those who are not. This confirms findings from cross-country analysis of the Gallup World Poll that weekly church attendance has positive spillovers on the well-being of others at the national level.[93]

Altruism

But many of the values taught by the world's religions are of course universal values that have also been strongly supported by secular systems of ethics, going back to Stoicism (the most prominent ethical system of the Roman Empire) and beyond. The central principle is "do as you would be done by" – behave to others as you would wish them to behave to you. This frequently requires that you incur costs for the benefit of others – the fundamental definition of altruism.

Clearly altruistic behavior benefits those at the receiving end. But does it also benefit those who give, as well as those who receive? There is substantial evidence that it does, and that this is why it is so much more common than the crude teachings of elementary economics might predict.

There is of course plenty of evidence that people who care more about others are typically happier than those who care more about themselves.[94] But does that mean that altruism increases happiness in a causal sense? Evidence on volunteering and on giving money suggests that it does.[95]

When East Germany was united with West Germany, many opportunities for volunteering in East Germany disappeared. At the same time those who had previously volunteered experienced much larger falls in happiness than those who had not been volunteering. This suggests strongly that volunteering had been a cause of happiness for those who did it.[96] Acts of kindness have a similar effect – in a randomized experiment, the treatment group was told to do three extra acts of kindness a day and this significantly raised their happiness for some weeks.[97]

In an experiment on giving, one group was given some money to spend on themselves and another group was given equal amounts of money to spend on others. At the end of the day the second group reported themselves to be the happier.[98] These effects on happiness can also be observed in the brain's reward centers – when people give money they experience a positive reward.[99] Moreover altruism can be trained. After two weeks' compassion training, a control group gave more money in a laboratory game and showed more neural activity in the reward centers of the brain.[100]

There is a parallel question of whether happiness in turn increases altruism – a key question if we are wondering whether greater individual happiness would also increase happiness in others. There is some evidence that happiness is contagious.[101] But the specific channel of altruism is best studied through experimentation. A number of experiments have confirmed that happier people are more likely to give help to others.[102]

Materialism

Most ethical systems teach not only altruism but also that material wealth should not be pursued beyond the point where it compromises other values. Many studies have shown that other things equal, people who care more about money are less happy.[103] An important study covers a group of students who were freshmen in 1976.[104] Soon after entering college they were asked "the importance to you personally of being well off financially." Nineteen years later they reported their income and their overall satisfaction with life, as well as with family life, friendships, and work. At a given level of income, people who cared more about their income were less happy with life overall, with their family life, with their friendships and with their job. Of course people who care more about money also tend to earn more, and this helps to offset the negative effect of materialism. But in this study a person considering high income essential would need twice as much income to be as happy as someone considering high income unimportant.

If materialistic values tend to reduce social life, so does watching TV. Many studies have shown that watching TV is associated with lower happiness, other things equal. An early study exploited the fact that one Canadian town gained access to TV some years later than other towns.[105] The result was a relative fall in social life and increased aggression. So TV may cause problems in many ways, including reduced social life and increased violence. But the U.S. General Social Survey also shows that heavy TV watchers see so many rich people on the screen that they underestimate their own relative income.[106] Against all this TV also provides a great deal of enjoyment and instruction.

Environment

A final issue of values is the environment. There are two quite distinct issues here. One is the future of the planet. This mainly affects the happiness of future generations, rather than adults currently alive. The issue of greenhouse gases is a classic free-rider problem, and negotiation alone will not solve it. It will require a major dose of altruism world-wide.

The second environmental issue is the effect of our existing environment on adults who are currently alive. The environment we live in is extremely complex and only a few of its aspects have so far been examined for their effects on human happiness. The method is the same standard method we have used so far – to compare the happiness of people living in different environments.[107] Dimensions which have been examined so far include air quality (sulfur dioxide),[108] airport noise,[109] and aspects of the climate (sun, heat, humidity and wind).[110] In all cases sensible results have been obtained. Other studies have examined the effects of the natural world on human experience. At a very primary level, people assigned to walk from A to B on a tree-lined path alongside the Rideau River were systematically happier than those taking the same trip via the Carleton University's underground tunnel system, and the actual gains were much higher than people thought they would be.[111] Students who can see greenery out their classroom windows do better than those who cannot.[112] A hospital window with a green view similarly sees patients cured faster,[113] and there are many other studies linking green spaces to better health, performance, and life satisfaction.[114]

Mental Health

So far we have focused on factors that are very heavily influenced by the society in which you live. We turn now to factors that vary more within a country than across countries, but which are still extremely important areas for public policy.

Before starting, there is one important point to make. Happiness depends crucially on personality, and personality is strongly affected by your genetic make-up. This has been conclusively established by studying the similarity of happiness among identical twins reared apart, and comparing it with the similarity of happiness among non-identical twins who grew up in the same family. Identical twins reared apart are remarkably similar in their levels of happiness, while non-identical twins brought up together are very different.[115]

One important channel through which genes operate is mental health. This can be seen by taking any serious mental illness such as bipolar (or manic-depressive) disorder. If one identical twin has this condition, the other will also have it in 65% of cases. But, if the twins are non-identical, this falls to 14%.[116] For less serious mental health conditions the role of the genes is smaller. But for any condition, however serious, environmental interventions can also make a huge difference, as we shall see.

So how important is mental health in explaining the variation of happiness within any particular country? There is obviously a danger here of tautology – we explain the variation of happiness by the variation of misery. However, we can largely deal with this problem by measuring mental health earlier in life and using it to explain current happiness. We can illustrate this approach using the British Cohort Study of people born in 1970. For example, we can measure their life satisfaction when they were 34, and then explain this by the standard factors discussed in this chapter plus their level of malaise eight years earlier.[117] Of all the influences the most powerful were malaise eight years earlier ($\beta = -.23$), general health eight years earlier ($\beta = .10$) and current income ($\beta = .10$). Even if mental health is measured at age 16 it still exerts nearly as much impact on life satisfaction at age 34 as does current income. These facts in themselves have profound implications for policy.

These are the direct effects of mental health, holding constant a person's current circumstances. But mental health also has an indirect effect, through its effect on those current circumstances. To see this, we have to again look back at the effects of previous mental illness. About one half of those who are mentally ill as adults were already ill by the age of 15 (one half with primarily emotional problems and one half with primarily behavioral problems).[118] If we take those people who were mentally ill as adolescents, we can compare their adult circumstances with those of the rest of the population. Holding other things constant, they are more likely to have experienced low earnings, unemployment, criminal records, teenage pregnancy, physical illness and poor educational performance.[119] And these factors will in turn reduce their happiness – and frequently that of other members of the community as well.

Even if mental illness is quite narrowly defined, it affects a large number of people. The estimates in population surveys vary between countries for reasons that are not well understood.[120] But in the typical advanced country roughly 15% would be assessed as ill enough to need treatment – with some 1% suffering from psychotic conditions (especially schizophrenia) and most of the rest divided equally between depression on the one hand and on the other hand anxiety disorders like social phobia, panic attacks, obsessive-compulsive disorder, PTSD and crippling general anxiety. In developing countries rates of psychosis are similar, but measured rates of depression and anxiety are somewhat lower.

Mental illness is extremely disabling. For example a recent WHO study estimated that depression was 50% more disabling than chronic physical illnesses like angina, asthma, arthritis or diabetes.[121] If we combine the high prevalence of mental illness with its severity, we find that in WHO estimates it accounts for 43% of disability in advanced countries (as measured by the WHO) and 31% of disability world-wide.[122] Indeed among

the working-age population in advanced countries, mental illness accounts for as much disability as all the other diseases put together. Even if we include all age groups and measure the overall burden of disease so as to include not only disability but also premature death, mental illness accounts for 26% of the burden of disease in advanced countries, and 13% world-wide.

Yet mental illness is in very many cases curable – more so than many physical diseases – and in nearly all cases it is treatable with significant benefit. For example, when people with anxiety conditions (which have often lasted for decades) are treated by cognitive behavioral therapy, one half will experience a complete and permanent recovery. Similarly one half of depressed patients will recover and have far less risk of relapse.[123] These treatments are not expensive. Medication is also an effective treatment for severe depression, with recovery rates of around one half and reduced risk of relapse if the medication is continued.

Despite this, in most advanced countries only a quarter of people with mental illness are in treatment, compared with well over three quarters for most physical conditions. This is a cause of much unnecessary misery, and the situation is even worse in developing countries. Though genes and childhood experience affect our likelihood of mental illness, healthcare interventions in childhood and later can reverse the course of our lives.

And increasingly preventive interventions are also being developed, which can reduce the likelihood of developing mental illness in the first place. These include interventions that can be made in childhood or pursued by adults. They all fall under the broad heading of "mind-training" and have been shown to affect not only self-reported well-being but also immune responses, hippocampal activity and educational performance.[124]

Physical Health

Physical health too is obviously correlated with well-being. There are however a number of issues involved in establishing how far health affects happiness. For example the most common measure of health used in these surveys is a subjective one. In the BHPS individuals are asked "Please think back over the last 12 months about how your health has been. Compared to people of your own age, would you say that your health has on the whole been...," with response categories of Excellent, Good, Fair, Poor, and Very Poor. While these kind of measures are easy to apply, and are indeed widely used, it is possible that individual replies are influenced by response style (some people give more positive replies, while others are more negative for the same level of underlying health), and that the same response bias is at work in each person's answers to the well-being questions. If so, it is unsurprising that health and well-being are correlated, but this need not necessarily reflect any causal relationship.

One way of dealing with this problem is to use panel data, in which we consider changes in health for the same individual and relate these to changes in lif- satisfaction. This method of analysis will eliminate any fixed individual response style with respect to either health or well-being. The data in the Appendix to this chapter enable us to adopt this approach. Table 1 in the Appendix shows that cross-section analysis of BHPS, GSOEP and WVS data produces estimated coefficients on self-assessed health that are not only significant, but also very sizeable: ceteris paribus, reporting health in the top two categories is associated with life satisfaction scores that are two to three points higher than reporting health in the worst category. Table 2 in the Appendix then turns to panel analysis for the two datasets in which individuals are repeatedly interviewed (BHPS and GSOEP). The estimated coefficients in the panel analysis are indeed somewhat smaller than those in Table 1, but nonetheless remain significant at all conventional levels. Thus health has a large impact on individual life-satisfaction.

Another approach is to avoid subjective health measures altogether and turn to more objective measures, such as doctor visits, nights spent in hospital, or measures of disability. There can be debate over whether such

happenings are partly caused by underlying well-being, but these variables are at least more objective than self-reported health. There is also self-reported information from the British Household Panel Survey on whether the individual is moderately or severely physically disabled, and this can be related to life satisfaction.[125] Panel data allows us to compare the life-satisfaction of the same individuals before and after they became disabled. The impact effect of severe disability is estimated as being 0.6 points on the one to seven life satisfaction scale, and that of moderate disability as 0.4 points. There is also evidence of adaptation to disability, such that someone who has been disabled for all of the past three years is less affected (in life-satisfaction terms) than someone who is recently disabled. This adaptation is estimated at around 50% for moderate disability and 30% for severe disability (so that around one-third of the life-satisfaction effect of the latter dissipates over time).

There is also a reverse relationship: the impact of happiness on health. More happiness predicts better future physical health.[126] The medical literature has found high correlations between various low well-being scores and subsequent coronary heart disease,[127] strokes,[128] suicide[129] and length of life.[130] Individuals with higher positive affect have better neuroendocrine, inflammatory and cardiovascular activity.[131] Those with higher positive affect are less likely to catch a cold when exposed to a cold virus, and recover faster if they do.[132]

The Family

Marriage

Loving and being loved are key conditions for human happiness. Marriage is an institution which is meant to promote those experiences. Does it?

Marriage is one of the unambiguous, universally positive and statistically significant correlates of life satisfaction. Basic estimates of happiness always reveal that being married rather than single, divorced or widowed, is strongly associated with higher self-declared happiness, in all countries that have been under study, e.g. the United States and the countries of the European Union,[133] Switzerland,[134] Latin America, Russia, Eastern Europe[135] and Asia.[136] In most countries married people are also happier with their life than those who cohabit with a partner.

But does marriage make people happy, or are happy people more likely to become and remain married? An obvious way to try and disentangle the two directions of causality is to use longitudinal surveys and follow the same individuals over time. Accordingly, a retrospective view over 17 years of individuals living in Germany[137] reveals that among single people aged 20, those who would get married later were already happier with their life at the age of 20 than those who would remain single. Also, those who would get divorced were already less happy when they were single or newly married. Hence individuals who are already happier when they are young have a higher probability of becoming and remaining married. Even so, above and beyond these selection effects in and out of marriage, getting married still gives an additional boost to happiness, at least for some years.

Life satisfaction peaks in the years before and after marriage. As with many other life events, the happiness boost is subject to considerable adaptation after a honeymoon period. But for those who never get divorced, happiness remains permanently higher than before they were married.[138]

To many readers this marriage "bonus" will not come as a surprise. Apart from love and companionship, there are economic advantages of marriage, such as insurance and buffers against adverse life shocks, economies of scale and specialization within the family;[139] and studies have documented the fact that, compared to single people, married people enjoy better physical and psychological health (e.g. less substance abuse and less depression) and live longer.[140] Because marriage involves a long-term commitment, accompanied with trust

and companionship, it can also be seen as a form of social capital. Research where the data permit has shown that the happiness of spouses is interdependent, in Great Britain,[141] Germany[142] and Australia.[143]

However, as for any social group, couples may also suffer from inter-personal comparisons and relative deprivation. The leisure and social activities of one's spouse cause reduced life satisfaction in the other spouse.[144] Intra-household comparisons of happiness can be a cause of marital instability:[145] couples with a higher happiness gap are more at risk of divorcing in the future, especially if the wife is the unhappy one.[146] A related observation is that assortative mating (i.e. marriage between equally educated people) seems to favor greater happiness and lower risk of divorce,[147] probably because there is more similarity and experience-sharing between spouses.

Finally, should people who are unhappy in their marriages expect to be happier after divorce? It is true that divorced people are less happy and suffer from more mental strain than people who remain married; but people who live in a marriage of (self-assessed) poor quality are less happy than unmarried people.[148] As British, German and American data show, a person who gets divorced becomes on average more satisfied with their life, some years after the separation, than he or she used to be in the three years preceding separation.[149]

Of course the break-up of a couple is also likely to affect other people, and children are obvious potential collateral victims. Evidence of the impact of parental separation on children's welfare is abundant; poor school performance being one of the most obvious symptoms. However, it is not divorce as such that appears to damage children's welfare and school grades, but parental conflict. Accordingly, children's school performance deteriorates for several years before the official separation of their parents.[150] However, the issue of child development is too large to be treated here and most of the evidence comes from quite different sources from those considered in this report.

In sum, (a good) marriage is a source of life satisfaction, and conversely, the equality of happiness between spouses is a guarantee of marital stability; less happy people are more likely to get divorced, but once they do, divorcees reach higher levels of happiness in the long run than they used to experience before divorce.

Children

But do children make their parents happy? Surprisingly, the presence of children in the household appears not to be associated with higher life satisfaction.[151] This is found in the World Values Survey and in panel data for U.K. and Germany (see Appendix). Several surveys of the literature acknowledge this surprising absence of a relationship[152] and in particular single parents with more children are less happy than those with fewer children.[153]

There are obviously the responsibilities and time pressures of childcare, especially for those facing too many claims on their time. Time-use and experience-sampling studies, which investigate the occurrence of positive and negative feelings (happy, relaxed, frustrated, depressed, angry, sad, etc.) during typical daily activities, reveal that childcare ranks very low in the hierarchy of daily activities, sometimes as low as 16th out of 19 daily activities, in terms of net positive feelings.[155] Everyday experience with children may not be immediately rewarding, but "*a man who has children lives like a dog, a man without children dies like a dog,*" says the proverb. However the effect of adult children has not yet been systematically investigated. Moreover even among young children, their age matters. Young children under 3 and teenagers are associated to a lower level of parents' happiness, whereas children aged 3-12 are associated with higher happiness.[155]

Richer people are on average happier with being parents, and parenthood is also less problematic in the social-democratic countries of Northern Europe, where there is more child-support from the state.

In summary, having children is no guarantee of higher happiness. The pleasure of parenting depends on the age of the children, on the quality of the parenting couple and on the social context, including having enough time to enjoy family life.

Education

On average, the level of education has no clear direct impact on happiness, but education is of course indirectly related to happiness through its effect on income: education increases income and income increases happiness. Studies of the financial returns to education in recent years, mostly based on natural experiments, show high returns from additional years of schooling (between 7% and 15% per year).[156] Longer years of education are also associated with increased employability and job security, and faster promotion,[157] all of those being factors conducive to higher happiness.

By contrast, evidence on the direct effect of education is mixed and varies between countries.[158] One obvious problem is that happy people may be more likely to persist in education and this effect cannot be controlled for in panel studies. But there is one type of natural experiment which can help – the raising of the compulsory minimum school leaving age. This has been shown to have directly raised the average happiness of those affected by the change, though again largely through its effect on income.[159]

The conclusion is that education may have some non-income benefits to the individuals who get an education, especially in poor countries.[160] But this is smaller than is often claimed by educationalists. On top of that there may be important social effects through an informed electorate and in poor countries through reduced birth-rates and mortality.

Gender

In most advanced countries women report higher satisfaction and happiness than men.[161] In our Appendix, women report higher life satisfaction scores than do men in all three of the data sets analyzed. But this finding is dominated by advanced countries. Outside the industrial countries the happiness gap infavor of women is often found to be smaller or even reversed.[162] Moreover in both the U.S. and Europe women are becoming less happy relative to men.[163]

In the U.S. it is also possible to investigate gender differences using the U-index, which is defined as the proportion of time spent in activities for which the highest-rated feeling was negative.[164] Data from the Princeton Affect and Time Survey (PATS), where the activities of the day previous to the interview are reconstructed, show that U.S. women have lower U-index scores than men – and thus less misery.[165] It is also found that women are relatively happier in countries where gender rights are more equal.[166]

Though women report higher life satisfaction than men, ceteris paribus, their rates of mental illness are also higher.[167] In the BHPS, where both well-being measures are available, women report higher overall life satisfaction scores but more psychological stress, as measured by the twelve-item GHQ-12.[168]

Age

The relationship between age and evaluations of happiness is one of the most robust and common findings in happiness research. *A priori*, most people would expect that happiness steadily declines with age, at least in adulthood, as do many of our physical and mental faculties. But the pattern of life-evaluation uncovered

by surveys is essentially U-shaped through life: satisfaction declines, reaches a minimum in middle-age (between 40 and 50), and then rises again. This two-part age profile of life-evaluation has been observed in many countries in many continents,[169] although some work finds different patterns in specific countries.[170] In the U.S. the U-shaped pattern has also been found for affect.[171]

The shape is even more pronounced when holding income, marital status, health and employment status constant. Thus it is not only higher income or greater family stability that explains the rebound in happiness after the mid-life low. Explanations could include the wisdom of maturity, or the beneficial effect of reduced (or more realistic) aspirations. However between 70 and 80 worsening health begins to take its effect[172] and average happiness begins to decline once more.[173]

Conclusion

We have covered a lot of ground. We have shown above all that happiness depends on a huge range of influences, many of which can be influenced by government policy. In due course we shall have more precise estimates of these effects. But a very rough perspective of orders of magnitude can be got from Appendix B, where we compare the effects of the main influences looked at in this chapter with the effect of a 30% increase in income. The calculations confirm the powerful effect of many variables other than income.

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[1] We are extremely grateful to the U.S. National Institute of Aging (R01AG040640) for financial support, to John Berry, Angus Deaton, Ed Diener, Bruno Frey, Carol Graham, Richard Easterlin, John Helliwell, Daniel Sachs, Andrew Steptoe, Betsey Stevenson and Alois Stutzer for helpful comments and to Harriet Ogborn for expert handling of the preparation of the manuscript.

[2] On the role of genes see Lykken (1999) and Plomin et al. (2001).

[3] However on the other side, estimates of effects based on longitudinal data are more biased towards zero by measurement error. They also reflect a narrower range of variation of the variables under study.

[4] For a classic review of the determinants of happiness see Diener & Biswas-Diener (2008). See also Dolan et al. (2008).

[5] Layard et al. (2008). This implies no level of income at which people become satiated. Kahneman & Deaton (2010) have examined this question in the U.S. for a given year. Holding constant the incomes of other people, individual life-evaluation has no point of satiation but positive affect becomes satiated with income around the level of $75,000.

[6] Layard et al. (2010), Fig 6.2.

[7] Layard et al. (2010), Table 6.1.

[8] See Appendix A. A similar reduction is found using the British Household Panel Survey. This reduction reflects two features: the introduction of the fixed effect and the greater measurement error bias in panel data. Bound & Krueger (1991) suggest that for income the measurement error reduces the coefficient estimate by a factor of around 0.8 in the cross-section and 0.65 in first differences.

[9] Layard et al. (2010), Table 6.4.

[10] Of course in any year richer people have on average more transitory income. But they also have more permanent income.

[11] Di Tella et al. (2010) find strong effects of lagged income but this is because they exclude comparator income from their explanatory variables (and include occupational status instead).

[12] Clark et al. (2008b).

[13] For experimental evidence of such effects see Oswald et al. (2011). But there have been good attempts to handle this problem using industry wages or twins as instrumental variables. See Pischke (2011) and Li et al. (2011).

[14] Knight et al. (2010). However in South Africa, Kingdon & Knight (2006) find that the comparator incomes that have negative effects on happiness are mainly from outside the village.

[15] Clark & Senik (2010).

[16] Mayraz et al. (2010).

[17] Layard et al. (2010).

[18] For studies which find effects in the U.S. and Canada, see Luttmer (2005), Helliwell & Huang (2010), and Barrington-Leigh & Helliwell (2008).

[19] Hirschman & Rothschild (1973)

[20] Graham & Pettinato (2002).

[21] In individual regressions in the Gallup World Poll, individual income raises life satisfaction as usual but GDP (the comparator) does not reduce it (Helliwell et al., 2010).

[22] Dohmen et al. (2011)

[23] See also Deaton (2008).

[24] *Source*: Gallup World Poll 2005-2011, equations by Helliwell and Wang. The measure of life evaluation is the ladder. Very similar results would be obtained using life satisfaction, see Helliwell et al. (2010), Table 1, for a comparison using identical samples.

[25] Stevenson & Wolfers (2008b).

[26] The U.K. is another example.

[27] See Easterlin et al. (2010).

[28] Sacks et al. (2012). Scores for each year indicate the average value in that year for all countries covered. The units are Z-scores net of country FEs. The table implies that over the last 40 years average happiness has risen in total by 0.14 standard deviations of happiness across the world's population.

[29] Sacks et al. (2012), Table 3, Lines 5 and 6. Also, in this study changes in happiness are only measured using the same survey source for every observation.

[30] One source of controversy relates to the maintained hypothesis. For example, in many estimates the effect of economic growth on life satisfaction is not significantly different from zero, nor is it significantly different from the cross-sectional effect across countries or individuals.

[31] Di Tella et al. (2003). Helliwell & Huang (2011b) use cross-sectional U.S. evidence to show that well-being is higher in places where unemployment is lower.

[32] Kahneman (2011). See also Wolfers (2003) who shows the harmful effects of unemployment variability.

[33] See, for example, Blanchflower & Oswald (2004), Clark & Oswald (1994), and Winkelmann & Winkelmann (1998).

[34] Eisenberg & Lazarsfeld (1938).

[35] Jahoda (1981 and 1988).

[36] McKee & Bell (1986).

[37] Green (2011).

[38] Luechinger et al. (2010).

[39] Helliwell & Huang (2011b).

[40] Jackson & Warr (1987).

[41] Clark (2003). This finding is confirmed for large samples of the U.S. data in Helliwell & Huang (2011b).

[42] Platt & Kreitman (1990) and Platt et al. (1992).

[43] Grün et al. (2010), p.287.

[44] Wulfgramm (2011). See also Gyarmati et al. (2008) for a randomized experiment in which the treatment group were allocated to work on community projects.

[45] See Warr (1999) for example.

[46] Clark (2010).

[47] Deci & Ryan (1985).

[48] Benjamin et al. (2012).

[49] Ariely et al. (2005), Pink (2009), Frey (1997).

[50] Kahneman et al. (2004).

[51] Robertson & Cooper (2011) and Cooper & Lundberg (2011).

[52] Blanchflower & Oswald (1998), Blanchflower et al. (2001) and OECD (2000).

53. Frey & Benz (2008).

54. Bianchi (2012).

55. Ibid.

56. Frey (2008), Chapter 7.

57. Graham & Pettinato (2002).

58. Clark & Fawaz (2009). Many studies find no overall effect of retirement on health (Coe & Lindeboom, 2008), but some find a negative effect of retirement on mental health (Dave et al., 2008). In general this literature has not produced an unambiguous set of results.

59. Maslow (1943).

60. The OECD (2001, p. 41) defines social capital as "networks together with shared norms, values and understandings that facilitate cooperation within or among groups."

61. Knack (2001).

62. Helliwell & Putnam (2004); Helliwell (2008); Helliwell & Wang (2011a).

63. This dominance of workplace trust applies both for trust in colleagues (Helliwell & Wang 2011a, and Helliwell & Barrington-Leigh 2011) and trust in management (Helliwell & Huang 2010). These two measures of workplace trust are compared, and their pre-eminence confirmed, in Helliwell & Huang (2011a).

64. Powdthavee (2008).

65. Meier & Stutzer (2008).

66. Algan & Cahuc (2010), Uslaner (2008).

67. Soroka et al. (2007), Helliwell & Wang (2011a)

68. Durante (2009).

69. Nunn & Wantchekon (2011).

70. Bartolini (2011), Sarracino (2010).

71. Putnam (2000).

72. Bowles & Gintis (2002). Of course, "*communities work because they are good at enforcing norms, and whether this is a good thing depends on what the norms are*" (p.428). Indisputably, examples of harmful norms, such as the culture of honor and the associated violence, are legion. See Nisbett & Cohen (1996); Grosjean (2011).

73. Helliwell & Wang (2011a).

74. Alesina & La Ferrara (2005). See also Sampson et al. (1997).

75. See Nguyen & Benet-Martinez (forthcoming) for a meta-analysis of biculturalism.

76. Stevenson & Wolfers (2008a).

77. Singer (1981), Pinker (2011).

78. See also Easterlin (2010).

79. Stevenson & Wolfers (2010) use cross-country data to examine this mechanism and cannot refute it (nor can they refute zero effect of inequality).

80. Wilkinson & Pickett (2009). They do not include happiness or life satisfaction in their outcomes.

81. Stevenson & Wolfers (2010), Blanchflower & Oswald (2004) and Helliwell (2003), p.351. But for positive results see Morawetz et al. (1977) and Schwarze & Härpfer (2007).

82. Alesina et al. (2004).

83. Blanden (2009), Atkinson et al. (1992), Burkhauser & Poupore (1997).

84. Grosfeld & Senik (2010).

85. In this context Buddhists normally report themselves as religious, even if others question this use of words.

86. Diener et al. (2011), see especially their Figure 1. This also shows that there was a large difference in happiness between religious and less religious the U.S. states but only a small one for the U.S. individuals.

87. See *op cit*, Table 3.

88. By contrast, recent theU.S. research has found evidence suggesting that all of the life satisfaction benefits of religiosity flow through church attendance and the social networks provided by their congregations, and specifically friendships among those sharing a strong sense of religious identity, see Lim & Putnam (2010). Another ingenious the U.S. study uses exogenous changes in laws related to Sunday shopping to identify a positive effect of church attendance (Cohen-Zada & Sander, (2010)).

89. Smith et al. (2003).

90. Pargament (2002).

91. Ellison (1991).

92. Clark & Lelkes (2009).

93. Helliwell et al. (2010).

94. Lyubomirsky (2007). See also Singer et al. (2004).

95. See also Brown et al. (2003) and Schwartz & Sendor (1999).

96. Meier & Stutzer (2008).

97. Lyubomirsky (2007), Chapter 5.

98. Anik et al. (2010). See also Aknin et al. (2010) and Dunn et al. (2008). In the cross-country regressions in Table 3.1, it is possible to add a further variable: the proportion of subjects who gave money to a charity in the last month. This is again highly significant.

99. Harbaugh et al. (2007). See also Zaki & Mitchell (2011) who also show that inequitable behavior causes activity in brain regions as sociated with subjective disutility.

100. Experiment conducted by Richard Davidson.

101. Fowler & Christakis (2008).

102. Anik et al. (2010).

103. Konow & Earley (2008).

104. Nickerson et al. (2003).

105. Williams (1986).

106. Layard (2005), Annex 6.1. See also Bruni & Stanca (2008).

107. In principle we need to allow for the fact that people have chosen their environments.

108. Luechinger (2009).

109. Van Praag & Baarsma (2005).

110. Frijters & Van Praag (1998), and Brereton et al. (2008), who also examine proximity to the sea, to landfill, and to transport routes.

111. Nisbet & Zelenski (2011).

112. Matsuoka (2010).

113. Ulrich (1984).

114. Basu et al. (2012).

115. Lykken (1999).

116. McGue & Bouchard (1998), Table 1.

117. Layard (2012). Similar findings come from the earlier National Child Development Study of people born in 1958.

118. Kim-Cohen et al. (2003).

119. Richards & Abbott (2009), Layard & Dunn (2009).

120. Demyttenaere et al. (2004).

121. Moussavi et al. (2007).

122. WHO (2008).

123. Roth & Fonagy (2005).

124. Durlak et al. (2011); Williams et al. (2007); Davidson et al. (2003) and Hölzel et al. (2011).

125. Oswald & Powdthavee (2008).

126. See Diener & Chan (2011), Frey (2011) and Lyubomirsky et al. (2005).

127. Sales & House (1971).

128. Huppert (2006).

129. Koivumaa-Honkanen et al. (2001).

130. Palmore (1969) and Mroczek & Spiro (2006).

131. Steptoe et al. (2005).

132. Cohen et al. (2003).

133. Di Tella et al. (2003).

134. Frey & Stutzer (1999).

135. Graham & Pettinato (2002); Senik (2004); Grosjean et al. (2011).

136. Knight et al. (2010); Knight & Gunatilaka (2010).

137. Stutzer & Frey (2006).

138. Stutzer & Frey (2006).

139. Becker (1974).

140. Gardner & Oswald (2002); Gove et al. (1983); Hu & Goldman (1990).

141. Powdthavee (2009).

142. Lucas & Schimmack (2006).

143. Guven et al. (2012, forthcoming).

144. Clark (2011).

145. Guven et al. (2012, forthcoming).

146. Ibid.

147. Frey & Stutzer (2006).

148. Chapman & Guven (2010).

149. Gardner & Oswald (2006); Clark et al. (2008a).

150. Piketty (2003).

151. Di Tella et al. (2003); Alesina et al. (2004).

152. Blanchflower (2008); Clark et al. (2008a); Layard (2005); Gilbert (2006). But few studies find a positive association, see Clark & Oswald (2002); Frey & Stutzer (2006); Haller & Hadler (2006).

153. Frey & Stutzer (2006).

154. Kahneman et al. (2004).

155. Margolis & Myrskylä (2011). Children affect happiness more favourably at weekends when parents have more time (Helliwell & Wang, 2011b).

156. Angrist & Krueger (1991); Acemoglu & Angrist (2001); Card (2001).

157. Blanchflower & Oswald (2004).

158. For some positive results, see Frey & Stutzer (2002); Di Tella et al. (2003) and Appendix A for GSOEP and WVS but not BHPS. For evidence varying between countries, see Hartog & Oosterbeek (1998), p247.

159. Oreopoulos & Salvanes (2011) relates to U.K., Canada and U.S.

160. Hartog & Oesterbeek (1998) p. 247.

161. See Blanchflower (2008) for evidence from repeated cross-sections covering a wide variety of countries, and Helliwell (2008) for Gallup data in 27 OECD countries.

162. See Senik (2004) for instance. But no difference is observed in the Gallup World Poll.

163. Stevenson & Wolfers (2009).

164. Kahneman & Krueger (2006).

165. Krueger et al. (2009).

166. Graham & Chattopadhyay (2011).

167. Nolen-Hoeksema & Rusting (1999).

168. This BHPS measure is used in Clark & Oswald (1994) and Clark (2003).

169. Blanchflower & Oswald (2004 and 2008); Hayo & Seifert (2003); Helliwell (2003); Helliwell et al. (2009).

170. For the U.S. Easterlin (2001) has traced the same birth cohorts over their lifetime and failed to find the U-shape. If cross-section and cohort results differ, this must mean that the cohorts born some 40-50 years before the study had particularly bad lifetimes.

171. Stone et al. (2010).

172. Gerstorf et al. (2008); Gerstorf et al. (2010).

173. Frijters & Beatton (2008); Wunder et al. (2009). This can also be seen in the GSOEP and the BHPS, using 10-year age groups. (This is despite the fact that the BHPS question refers to health relative to your age-group.)

Appendix A

Standard life-satisfaction equations for individuals in three large data sets

In this Appendix we present standard equations to explain life-satisfaction. We use the German Socio-Economic Panel (GSOEP, 1984-2009), the British Household Panel Study (BHPS, 1996-2008) and the World Values Survey (WVS, 1981-2008).

Table 1 shows OLS cross-section regressions, while Table 2 shows OLS equations including a fixed-effect for each individual and year, so that the equation estimates the effect of each variable in explaining the different levels of happiness which an individual experiences in each different year.

The sample used is prime-age (30-55), with the top and bottom 5% of income recipients trimmed. Income is household income. Regressions by Sarah Flèche.

Table 1: Cross-sectional regressions to explain life satisfaction
(Range of life satisfaction: GSOEP 0-10, BHPS 1-7, WVS 1-10)

	GSOEP (West)	BHPS	WVS
Log of Income (monthly)	0.60*(0.01)	0.26*(0.02)	0.65*(0.01)
Female	0.12* (0.00)	0.09*(0.01)	0.14* (0.01)
Age	0.11*(0.07)	0.11 (0.09)	0.19* (0.11)
Age^2/1000	-3.55*(1.80)	-4.29* (2.18)	-5.37* (2.73)
Age^3/1000	0.03*(0.01)	0.04* (0.01)	0.04* (0.02)
Single	-0.15*(0.01)	-0.34*(0.01)	-0.32* (0.03)
Widowed	-0.18* (0.04)	-0.46*(0.04)	-0.25* (0.03)
Divorced	-0.20* (0.01)	-0.41*(0.01)	-0.40*(0.03)
Separated	-0.48*(0.02)	-0.60*(0.03)	-0.55* (0.04)
Unemployed	-0.63*(0.01)	-0.33*(0.03)	-0.43* (0.02)
Self Employed	-0.15*(0.01)	0.07*(0.01)	0.04* (0.02)
Out of the labor force	-0.03* (0.01)	-0.13*(0.01)	0.11* (0.01)
Student	-0.12*(0.06)	-0.00 (0.06)	-0.34* (0.06)
Education: high	0.00* (0.01)	-0.20 (0.08)	0.14*(0.02)
Education: medium	-0.01(0.01)	0.00* (0.04)	0.07*(0.01)
One child	-0.02* (0.01)	-0.07*(0.01)	-0.03 (0.02)
Two children	-0.03* (0.01)	-0.06 (0.01)	-0.03 (0.02)
Three + children	-0.09*(0.01)	-0.09*(0.02)	-0.00 (0.02)
Health			
Excellent	3.45*(0.03)	1.94*(0.03)	2.69* (0.08)
Good	2.82*(0.03)	1.59*(0.03)	2.06* (0.08)
Satisfactory	2.04*(0.03)	1.09*(0.03)	1.44* (0.08)
Poor	1.26* (0.03)	0.59*(0.03)	0.61* (0.09)
Fixed effects	No	No	No
Time Dummies	Yes	Yes	Yes
Region Dummies	Yes	Yes	Yes
Observations	100,945	53,615	106,504
R^2	0.25	0.17	0.28

Note: * denotes statistical significance at 5% level

Table 2: Fixed effects regressions to explain life satisfaction
(Range of life satisfaction: GSOEP 0-10, BHPS 1-7)

	GSOEP (West)	BHPS
Log of Income (monthly)	0.39* (0.01)	0.13* (0.03)
Female	--	--
Age	-0.16* (0.07)	-0.08 (0.09)
Age^2 /1000	2.97 (1.76)	0.56 (2.13)
Age^3/1000	-0.02* (0.01)	0.00 (0.01)
Single	-0.07* (0.03)	-0.13*(0.04)
Widowed	-0.44* (0.07)	-0.18* (0.07)
Divorced	0.03 (0.02)	-0.14* (0.03)
Separated	-0.25* (0.03)	-0.34* (0.03)
Unemployed	-0.49* (0.01)	-0.22* (0.03)
Self Employed	-0.01 (0.02)	0.01 (0.02)
Out of the labor force	-0.13* (0.01)	-0.12* (0.02)
Student	-0.14*(0.06)	0.07 (0.06)
Education: High	0.07 (0.05)	-0.07 (0.08)
Education: Medium	0.10* (0.03)	0.13* (0.04)
One child	0.07* (0.01)	0.01 (0.01)
Two children	0.04* (0.02)	0.03 (0.02)
Three + children	0.06* (0.02)	0.06* (0.03)
Health		
Excellent	2.25* (0.03)	1.04* (0.03)
Good	1.92* (0.03)	0.90* (0.03)
Satisfactory	1.51* (0.03)	0.64* (0.03)
Poor	0.93* (0.03)	0.36* (0.03)
Fixed effects	Yes	Yes
Time Dummies	Yes	Yes
Region Dummies	Yes	Yes
Observations	100945	53615
R^2	0.20	0.09

Note: * denotes statistical significance at 5% level

GSOEP (1984-2009) (West Germany) Summary Statistics

Variable	Mean	Std. Dev	Min	Max
Life satisfaction	7.05	1.72	0	10
Female	0.51	0.49	0	1
Age	42.05	7.27	30	55
Age^2/1000	1.82	0.61	0.90	3.02
Age^3/1000	81.10	40.43	27	166.37
Single	0.13	0.34	0	1
Widowed	0.01	0.10	0	1
Divorced	0.08	0.28	0	1
Separated	0.02	0.16	0	1
Unemployed	0.06	0.24	0	1
Self-employed	0.05	0.22	0	1
Out of the labor force	0.12	0.33	0	1
Student	0.00	0.07	0	1
Log of Income	3.33	0.20	2.70	3.74
Education: high	0.19	0.39	0	1
Education: medium	0.31	0.46	0	1
One child	0.23	0.42	0	1
Two children	0.22	0.41	0	1
Three + children	0.08	0.27	0	1
Heath: excellent	0.09	0.29	0	1
Health: good	0.46	0.49	0	1
Health: satisfactory	0.30	0.46	0	1
Health: poor	0.10	0.30	0	1

BHPS (1996-2008) Summary Statistics

Variable	Mean	Std. Dev	Min	Max
Life satisfaction	5.07	1.24	1	7
Female	0.54	0.49	0	1
Age	42.52	7.12	30	55
Age^2/1000	1.85	0.61	0.90	3.02
Age^3/1000	83.41	40.35	27	166.37
Single	0.09	0.29	0	1
Widowed	0.01	0.10	0	1
Divorced	0.07	0.26	0	1
Separated	0.02	0.16	0	1
Unemployed	0.02	0.16	0	1
Out of the labor force	0.15	0.36	0	1
Student	0.00	0.07	0	1
Self-employed	0.09	0.29	0	1
Log of Income	3.40	0.22	2.80	3.79
Education: high	0.00	0.05	0	1
Education: medium	0.01	0.10	0	1
One child	0.22	0.41	0	1
Two children	0.19	0.39	0	1
Three +children	0.07	0.27	0	1
Heath: excellent	0.24	0.43	0	1
Health: good	0.47	0.49	0	1
Health: satisfactory	0.18	0.39	0	1
Health: poor	0.07	0.25	0	1

WVS (1981-2008) : 86 Countries Summary Statistics

Variable	Mean	Std. Dev	Min	Max
Life satisfaction	6.33	2.50	1	10
Female	0.51	0.49	0	1
Age	41.05	7.27	30	55
Age^2/1000	1.73	0.61	0.9	3.02
Age^3/1000	75.83	39.60	27	166.37
Single	0.09	0.28	0	1
Widowed	0.02	0.17	0	1
Divorced	0.04	0.19	0	1
Separated	0.02	0.14	0	1
Unemployed	0.07	0.27	0	1
Out of the labor force	0.20	0.40	0	1
Self-employed	0.14	0.34	0	1
Student	0.01	0.10	0	1
Log of Income	1.38	0.61	0	2.30
Education: high	0.22	0.41	0	1
Education: medium	0.42	0.49	0	1
One child	0.16	0.36	0	1
Two children	0.32	0.46	0	1
Three + children	0.38	0.48	0	1
Heath: excellent	0.21	0.41	0	1
Health: good	0.44	0.49	0	1
Health: satisfactory	0.27	0.44	0	1
Health: poor	0.05	0.23	0	1

Appendix B

Comparing the impact of different influences on happiness

For policy analysis it is necessary to compare the quantitative impact of different factors upon happiness. A natural way to do this is to compare the effect of a change in each other factor with the effect of a 30% increase in income.

At present the calculations are purely illustrative drawing on a variety of sources, which are indicated in the table. They do however show clearly how much else matters to people besides income.

Effects on life evaluation of each factor, as a multiple of the effect of a 30% increase in income

		Source
Individual unemployment (versus employment)	-6.0	*GSOEP Panel (Appendix A)*
Unemployment rate (10% point increase)	-1.3	*Helliwell and Huang, 2011b*
Social support (10% point extra saying yes)	4.5	*Table 3.1, unstandardized*
Freedom (10% point extra saying yes)	2.1	" "
Corruption (10% point extra saying yes)	1.9	" "
Malaise 8 years earlier (1 standard deviation worse)	-10	*British Cohort Study*
Physical health (Poor versus good, self-assessed)	-15	*GSOEP panel (Appendix A)*
Single (versus married)	-2.2	" "
Separated (versus married)	-4.0	" "
Widowed (versus married)	-2.9	" "
Female (versus male)	1.5	*GSOEP, using panel for effect of income*

Note: The effect of each other variable is compared with that of individual relative income. The exceptions are for social support, freedom and corruption, whose effects are compared with the effects of GDP per head.

Part I.

Chapter 4.
SOME POLICY IMPLICATIONS

JOHN HELLIWELL, RICHARD LAYARD AND JEFFREY SACHS

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The UN General Assembly has invited Member States to "pursue the elaboration of additional measures that better capture the importance of the pursuit of happiness and well-being in development with a view to guiding their public policies."[1] This does not mean that the existing goals of governments should be abandoned. Indeed, a focus on well-being is already guiding many national and international development policies. But it does mean that the relative importance of different goals needs to be reconsidered, especially as absolute poverty is progressively eliminated.

In this chapter we examine this issue in light of the evidence presented in the previous chapters. We do not repeat the evidence but draw out some of its implications. We then go on to consider the wider strategic issue of how the overall process of policy-making should be changed, if happiness is to become a major goal.[2]

New Policy Priorities

GDP

No government has ever had GDP per person as its only goal. But in the last 30 years income creation as measured by GDP has become an increasing mantra, and we are often told that we cannot afford the "luxury" of harmonious social relationships when they stand in its way.

The first lesson of happiness research is that GDP is a valuable goal but that other things also matter greatly. So GDP should not be pursued to the point where:

- economic stability is imperiled
- community cohesion is destroyed
- the weak lose their dignity or place in the economy
- ethical standards are sacrificed, or
- the environment, including the climate, is put at risk.

GDP is important but not all that is important. This is especially true in developed countries, where most or all of the population has living standards far above basic material needs. Except in the very poorest countries happiness varies more with the quality of human relationships than with income.[3] And in the richest countries it is essential not to subordinate the happiness of the people to the "interests of the economy," since the marginal utility of income is low when income is so high. The economy exists to serve the people, not vice versa. Incremental gains in income in a rich country may be much less beneficial to the population than steps to ensure the vibrancy of local communities or better mental health.

Nor should maximizing GDP be used as an argument against limiting the scale of greenhouse gas emissions or other environmental protections. There would be no point in having a high GDP for another decade or two if that would be followed by widespread misery and dislocation due to climate change and the loss of biodiversity. To be worth having, economic growth must be environmentally and socially sustainable.

Work

Among objectives other than long-term growth, high employment is one of the most important. Mass unemployment is a major blow to society. It reduces the happiness of those unemployed by as much as bereavement or divorce, and it also infects those who do have jobs with the fear of losing them. In conditions of high unemployment, active labor market policies and other means to restore employment should be prioritized. Of course employment policies must be judged by their efficacy, not merely by their intention. Yet governments should give great weight to policies that reduce involuntary unemployment, including retraining, job matching, public employment, low-wage subsidies, education support (to raise long-term skills), and other policies.

A bad job is often better than no job. Job sharing may play a role to spread jobs within an enterprise facing a downturn. Long-term unemployment can be devastating, both psychologically and in the deterioration of skills. Spurring socially productive community projects can be an important interim step to long-term employment.[4] But of course as many people as possible should be in good jobs, where goodness is defined by their overall contribution to well-being.

A good job is one that provides happiness and satisfaction to the worker, as well as positive spillovers to others. Happiness at work really matters. Employers (including those in the public sector) need to give more weight to this. It is in their interest to do so, since happy workers are at least as productive as unhappy ones, and are more productive if their happiness results from the right kind of management. Good managers inspire their workers by: explaining the purpose and goals of the job; leaving enough autonomy about how to do it; and always providing support, appreciation and feedback. Managers need to develop the intrinsic motivation of their workers, and to rely less on extrinsic incentives (like performance-related pay), which can often be dysfunctional and actually undermine intrinsic motivation.

Community and governance

Human beings are social animals. We are happier when we are with others and our most rewarding experiences are normally connected with human relationships.[5] In all societies the most important relationships are with loved ones, yet our relationships at work, with friends and in the community are also important.[6] A successful society is one in which people have a high level of trust in each other – including family members, colleagues, friends, strangers, and institutions such as government. Social trust spurs a sense of life satisfaction.

High social trust is built on strong mutual respect among people, including those of all ages, genders, ethnicities and social groupings. Government policy can contribute importantly to this by pursuing inclusive policies (including in education) that ensure that all can participate as fully and equally as possible.

However, there are limits to the proper sphere of government. In a happy society, individuals feel they are charting their own courses through life, without excessive constraints. That is why there was such unhappiness in the countries of the Soviet bloc before their transition to functioning and stable open societies, and why the happiest countries all have very high shares of their populations who feel free. Making happiness an objective of governments would not therefore lead to the "servile society," and indeed quite the contrary, if governments pay proper regard to the findings of happiness research. Happiness comes from an opportunity to mold one's own future, and thus depends on a robust level of freedom. Moreover, corruption in government is a major cause of unhappiness in many countries, and needs to be rooted out.

Values and religion

The government is never the main source of values in a healthy community. Values are transmitted mainly by parents, educators, faith organizations, the media, writers, and a whole range of organizations of civil society.[7] In well-functioning societies there is widespread support for the universal value that we should treat others as we would like them to treat us. In one form or another, the golden rule ranks high in every system of religious commandments.

This is not an easy standard to live up to. But there is clear evidence from psychology and neuroscience that people who care more about others are on average happier. When people do good deeds for others, they may not always feel happier, but in general they do. It is difficult to see how harmonious societies could even exist unless this emotional pay-off is there. We are hard-wired for altruism and cooperation, even if we are also able to cheat and violate the trust of others. Our two-sided nature – both trust and deception – is at the core of human nature itself.

But people vary enormously in their standards of behavior and their "fellow feeling" for others. These qualities can and should be systematically taught, as is already done in many schools. Unfortunately, the opposite can also be taught. Students of game theory in economics courses often end up more likely to "defect" (that is, to cheat) vis-à-vis their fellow students in classroom experiments. We need to inculcate the values of cooperation. Our happiness and well-being in the community depend on it.

Most of the world's religions also teach these principles. Among poorer societies, people in more religious regions experience more positive emotion. But among richer societies there is no such difference and a good, modern society needs to rely also on secular bases for morality. Unfortunately, some recent studies show that the more affluent members of the society may have systematically less regard for others than poorer members of society do. Wealth can lead to a sense of entitlement, a "right" to violate the trust of others.[8] We need to cultivate social norms so that the rich and powerful are never given a feeling of impunity vis-à-vis the rest of society.

Mental health

We come now to the more personal aspects of happiness and misery. Of these, mental illness is the most important, and typically affects a third of all families in one way or another.[9] Yet it is often barely mentioned because of the feelings of guilt and inadequacy felt by those who suffer, and their relatives, as well as the feeling that nothing can be done.

Mental illness, however, is as responsive to evidence-based treatment as most physical conditions. But in most advanced countries only a quarter of mentally ill people are in treatment, and even fewer in developing countries This contrasts with over three quarters for most physical illnesses in advanced countries. The difference is a simple matter of discrimination.

In developed countries mental illness accounts for one half of all illness among people of working age. Yet it was not covered by the recent UN high-level meeting on non-communicable diseases. A major change of perception is clearly needed. The key need is for wider access to modern evidence-based psychological therapies.

Physical health

Improved physical health is probably the single most important factor that has improved human happiness in recent centuries. This is true in countries at all levels of development. But major health gaps remain in poor countries that require urgent increases in public investments, and increased support by donor countries. And, as rich countries grow richer, people are clearly willing to contribute an increasing share of their income to healthcare. This should be anticipated. There is of course a problem of out-of-control healthcare costs, especially in insurance-based systems of care. But happiness research confirms that people greatly value healthcare, and it is likely that growing health expenditures often through the public sector will give more satisfaction than equivalent increases in private consumption.

Family and friends

Of all types of social life, close personal relationships with loved adults explain the greatest variation in happiness. Traditionally, external support for family life was provided largely through faith communities. But in secular societies all social organizations and institutions, including those managed by the state, have important roles to play.

Many people sacrifice aspects of their family life in order to raise their income, or to achieve personal success. These problems of work-life balance can be a major source of stress in families, and are an important source of the U-shape in the age-happiness relationship described in Chapter 3. To reduce this stress, it is important that workplaces and government policies, including those for childcare and family support, should operate flexibly, in ways that moderate these pressures.

Education

A decent education for all is essential. It is an important support for building incomes, improving health, creating trust, and increasing the efficiency and accountability of government. Indeed, it is primarily through these important channels that education supports happier lives. Universal access to education is widely judged to be a basic human right, because every aspect of an individual's dignity, productivity, and ability to thrive is enhanced by educational attainment.

The Formation of Policy

At this stage the science of happiness is in its infancy and its policy implications are inevitably piecemeal and tentative. But the happiness agenda is a progressive project that will have a steadily increasing impact on society as knowledge and experience accumulate. Over time the explanation of happiness (its causes, direct and indirect) should become a central purpose of social science.

So, how should this increased understanding affect the ways in which governments make policy? There are three steps:

- the measurement of happiness in the population
- the explanation of how happiness is determined in individuals, communities and whole populations, and
- the use of this understanding to make policy aimed at greater happiness and less misery.

Measurement

The first reason for measuring happiness is to enable citizens and policy-makers to know what their problems and opportunities are, and how well difficulties are being solved and doors are being opened. Measurement needs to be done in sufficient depth to show how happiness varies among cities and regions, as well as among demographic and social groups within those regions.

The government should systematically survey the subjective well-being of the population. It should also be possible to link this information to information on health, education, poverty reduction, and so forth. A wide range of surveys will help to link surveys across different subject areas, and to enlarge the range of information required to better understand the sources and consequences of happiness.

It is also highly desirable that happiness be measured by firms, communities, schools, hospitals and even medical practitioners. This will permit a more rapid increase in knowledge about the sources and consequences of happiness. These measures can also, at the same time, improve the evaluation and performance of all types of organizations.

A central issue is how governments should measure happiness (as proposed in the General Assembly resolution). Every organization and nation will have their own ideas of what aspects of life are most important to them, and this will dictate what they choose to measure. To make the knowledge they discover of most use to others, it is important to have some core questions that are asked in the same way everywhere.

As described later in this report, the OECD has a major process underway to develop recommendations for national statistical offices to consider when expanding the well-being content of their national statistical systems. We would not wish to prejudge these recommendations. However, the analysis in Chapters 2 and 3 found that there would be some advantage in asking two different life evaluation questions, mainly to achieve the gains from multiple measures, and partly to reduce the risks that a particular question might not resonate in the same way in different languages and cultures. The European Social Survey has for several rounds used the following two questions, and our analysis has shown that together they provide a more robust measure of well-being than either on its own.

- Taking all things together, how happy would you say you are?
  (where 0 means extremely unhappy, and 10 means extremely happy)
- All things considered, how satisfied are you with your life as a whole nowadays?
  (where 0 means extremely dissatisfied and 10 means extremely satisfied)

Countries may also wish to ask questions about the experience of positive and negative affect, either in general surveys or in surveys that track the ups and downs of daily life.

Explanation

Up to now the science of happiness has focused mainly on the role of a person's current circumstances in determining their happiness. We have reported some of the results in Chapter 3. But, as the diagram at the beginning of that chapter shows, these features are in many cases experiences in a person's life (and their genes as well as their environment). A new frontier for happiness research will be a more developmental approach, using very long birth-cohort panels to identify factors affecting happiness over the life-course.

There is also a pressing need for more controlled experiments to find the effects of different interventions. From multiple sources, we need quantitative results, which show us how much different factors really matter in determining happiness as variously measured.

Policy-making using happiness as a criterion

As knowledge increases, societies will have a growing basis for a new type of policy-making aimed at increasing happiness and reducing misery. This would involve a change of perspective and a change in the techniques of policy analysis.

At present many countries use a traditional form of cost-effectiveness analysis, in which benefits are measured in money units on the basis of what citizens would be willing to pay for those benefits.[10] This works quite well when the primary benefits are indeed financial or can be readily transferred into monetary equivalents. This is often true for policies on industry, transport, education and employment. However expenditure in these areas is often no more than a quarter or so of public expenditure. The bulk of public expenditure is on health, social care, law and order, the environment, child welfare, and income support. In none of these cases does willingness to pay provide adequate guidance to the benefits that arise. Happiness would be an excellent added criterion for evaluating these expenditures.

So we can well envisage a parallel system of evaluation taking shape over time where policies are judged by the changes in happiness that they produce per unit of net public expenditure.[11] Developing such systems should be a goal, at least provisionally. To make them fully operational will of course require more information and much more verification, but here the chicken-and-the-egg issue must be confronted. We should get started in serious thinking about the links of policies to produce subjective well-being, just as Bhutan is doing with Gross National Happiness.

More knowledge is needed before such methods can be used, but the knowledge is more likely to be produced if there is an adequate demand. It is therefore important for governments to foresee their own requirements for knowledge about the well-being of the population, and to set in motion the relevant sequence of data collection and research to develop that knowledge. If this is done, there will be then an ever-growing understanding of what things matter most to people and in which ways. This growing understanding may well provide a new basis for policy-making in the age of sustainable development.

Philosophical issues

Of course most governments will have many other aims besides increasing the self-reported happiness of their population. Leaving aside the desire to be re-elected (which is generally helped if the population are happy), governments will surely care about health, freedom, honor, the realization of human potential, social justice, and the well-being of future generations. These are all important aims to society. What then is the special role of happiness?

In Ancient Greece, Aristotle argued that happiness was the only good that was "good in itself." This argument still has relevance.[12] If we ask why health matters, we can give reasons: people feel bad when they are sick. Similarly people feel bad when they are not free. And so on. But if we ask, "Why does it matter if people feel good or bad?" we often end up with the proposition that people's feelings – their happiness – is the ultimate standard for judging the importance of health or some other objective.

People sometimes say that such a focus encourages the selfish pursuit of individual happiness at the expense of others. Nothing could be more fallacious. The evidence is very strong that a society cannot be happy unless there is a high degree of altruism and trust among its members. That is why Aristotle advocated that happiness should be mainly pursued through virtuous acts. The Buddha and countless other sages, as well as many of today's leading psychologists and moral leaders, argue the same.

As regards social justice, this too is of course vital. It is about the distribution of the benefits of life among the members of the community. In the context of happiness it is an issue about the distribution of happiness. So social justice is not, strictly speaking, an alternative value to happiness; it is intrinsic to how happiness outcomes should be measured and evaluated.

For a given average level of happiness, most would prefer a more equal to a less equal distribution. But how far would we accept a fall in average happiness in order to promote a more equal spread of happiness? Or, to put the point another way, what weights would we give to increased happiness accruing to people at different points of the happiness scale? These are important ethical issues that have to be decided by the community, through politics, culture, and public debate and deliberation.

Governments will differ on these issues and in the importance that they should attach to happiness in general. But the General Assembly's resolution that happiness should be given greater attention seems to be on the mark. Societies want to be happy, and for good and deep reasons. The evidence given in this Report will, we hope, give governments some indication of what this means: both the new priorities it implies, and alternative modes of policy formation.

Sustainable Development

In Chapter 1 we proposed that happiness data and research should underpin the design and attainment of the four pillars of sustainable development: ending extreme poverty, environmental sustainability, social inclusion, and good governance. The happiness consequences of ending poverty, building social inclusion and achieving good government have been well documented by the data and research in Chapters 2 and 3. There are as yet many fewer established links between happiness and environmental sustainability. We would argue that the tools of happiness research have real potential to recast the debate between economic growth and environmental protection, and to show new ways to harness human ingenuity to improve all four pillars at the same time.

The environmental debate could be importantly recast by changing the fundamental objectives from economic growth to building and sustaining the quality of lives, as assessed by those whose lives they are. This will depend crucially on the human capacity for cooperation that we have documented. The assumption that individuals are only interested in their own material standards of life has made the possibilities for preserving the environment seem unrealistic to many observers. But such pessimism is misplaced. On the contrary people gain in happiness by working together for a higher purpose. There can be no higher purpose than promoting the Earth's environmental balance, the well-being of future generations, and the survival and thriving of other species as well. Sustainability is an instrumental goal, because without it, our health and prosperity are bound to collapse. But environmental sustainability is also an end goal: we care about nature, we care about other species, and we care about future generations. Building a wider sense of common identity among all peoples, with each other, with other species, and with the future of a threatened planet, will not be easy. But it is the only possible way forward for human thriving and even survival.

[1] UN General Assembly Resolution A/65/L.86 (13 July 2011).

[2] For a more extended discussion, see Bok (2010), Diener et al. (2009) and Layard (2011). For a discussion of recent evidence-based changes in Britain, see Halpern (2010).

[3] Helliwell & Barrington-Leigh (2010).

[4] Layard et al. (2005), Gyarmati et al. (2008).

[5] Kahneman et al. (2004). On the social context of well-being see Helliwell (2011).

[6] Layard (2011). Annex 5.2.

[7] For example, Action for Happiness is an organization whose members pledge to try to create more happiness and less misery in the world around them.

[8] Piff et al. (2012).

[9] On this section, see Layard (2012).

[10] In "cost-benefit analysis" the government's budget is assumed to adjust to accommodate all justified expenditure. A more practical procedure is "cost-effectiveness analysis" where the budget is assumed constant and the aim is that it deliver the maximum benefit.

[11] Policies evaluated this way will of course have to be compared with policies evaluated using willingness to pay. At that stage it is important to recognize that, when an individual benefits by some monetary amount that we can convert into units of happiness, society may benefit less in total happiness due to a negative effect on those who do not benefit, stemming from the increase in the income of their "comparator."

[12] Layard (2011), Chapter 15.

References

Acemoglu, D., & Angrist, J. (2001). How large are human capital externalities? Evidence from compulsory schooling laws. *NBER Macroannual*, 9–59.

Agrawal, S., & Harter, J. K. (2011). Context effect on life evaluation items: Forming new estimates for data prior to January 6, 2009. *Gallup Technical Report*, Washington: Gallup Organization.

Aknin, L. B., Barrington-Leigh, C. P., Dunn, E. W., Helliwell, J. F., Biswas-Diener, R., Kemeza, ... Norton, M. I. (2010). Prosocial spending and well-being: Cross-cultural evidence for a psychological universal. *NBER Working Paper No. 16415*, Cambridge: National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w16415.

Alesina, A., Di Tella, R., & MacCulloch, R. (2004). Inequality and Happiness: Are Europeans and Americans Different? *Journal of Public Economics, 88*, 2009-2042. doi:10.1016/j.jpubeco.20033.07.006

Alesina, A., & La Ferrara, E. (2005). Preferences for Redistribution in the Land of Opportunities, *Journal of Public Economics, 89*, 897-931.

Algan, Y., & Cahuc, P. (2010). Inherited trust and growth. *American Economic Review, 100*, 2060-92.

Andrews, F. M., & Withey, S. B. (1976). *Social indicators of well-being: American perceptions of life quality*. New York: Plenum Press.

Angrist, J. D., & Krueger, A. (1991). Does compulsory school attendance affect schooling and earnings? *Quarterly Journal of Economics*, 106(4), 979–1014.

Anik, L., Aknin, L. B., Norton, M. I., & Dunn, E. W. (2010). Feeling Good about Giving: The Benefits (and Costs) of Self-Interested Charitable Behavior. *Harvard Business School Discussion Paper No. 10-012*.

Ariely, D., Gneezy, U., Lowenstein, G., & Mazar, N. (2005). Large Stakes and Big Mistakes. *Federal Reserve Bank of Boston Working Paper No 05-11*, Boston: Federal Reserve Bank of Boston. Retrieved from http://www.bos.frb.org/economic/wp/wp2005/wp0511.pdf

Atkinson, T., Bourguignon, F., & Morrisson, C. (1992). *Empirical Studies in Earnings Mobility*. New York: Harwood.

Bacon, N., Brophy, M., Mguni, N., Mulgan, G., & Shandro, A. (2010). *The States of happiness: Can public policy shape peoples wellbeing and resilience*? London: The Young Foundation. Retrieved from http://www.youngfoundation.org/files/images/wellbeing_happiness_Final__2_.pdf

Balliet, D. (2010). Communication and cooperation in social dilemmas: A meta-analytic review. *Journal of Conflict Resolution, 54(1)*, 39-57. doi:10.1177/0022002709352443

Barrington-Leigh, C.P. (2011). The Québec convergence and Canadian life satisfaction 1985-2008. Retrieved from http://wellbeing.ihsp.mcgill.ca/publications/Barrington-Leigh-DRAFT-Quebec.pdf

Barrington-Leigh, C.P., & Helliwell, J.F. (2008). Empathy and emulation: Life satisfaction and the urban geography of comparison groups. *NBER Working Paper 14593*.

Bartolini, S. (2011). Sociability predicts happiness in nations: Evidence from macro and micro data. In S. Bartolini (Ed.), *Policies for Happiness*. Oxford: Oxford University Press.

Basu, A., Kaplan, R., & Kaplan, S. (2012). Reasonableness as a way to move towards sustainable well-being. In T. Hämäläinen & J. Michaelson, (Eds.), *New Theories and Policies for Well-Being*. (forthcoming).

Becker, G. S. (1974). A theory of marriage: Part II. *Journal of Political Economy, 82*(2), S11-S26.

Benjamin, D., Heffetz, O., Kimball, M., & Rees-Jones, A. (2012). What Do You Think Would Make You Happier? What Do You Think You Would Choose? *American Economic Review*, forthcoming.

Bianchi, M. (2012). Financial Development, Entrepreneurship and Job Satisfaction. *The Review of Economics and Statistics, 94*(1): 273–286.

Bilalić, M., McLeod, P., & Gobet, F. (2008). Why good thoughts block better ones: The mechanism of the pernicious Einstellung (set) effect. *Cognition, 108*(3), 652-661. doi: 10.1016/j.cognition.2008.05.005

Blanchflower, D. G., (2008). International evidence on well-being. *NBER Working Paper 14318*.

Blanchflower, D. G., & Oswald, A. J. (1998). What makes an entrepreneur? *Journal of Labor Economics, 16*, 26–60.

Blanchflower, D. G., & Oswald, A. J. (2004). Well-Being over time in Britain and the USA. *Journal of Public Economics, 88*(7–8), 1359-1386.

Blanchflower, D. G., & Oswald, A. J. (2008). Is Well-being U-Shaped over the Life Cycle? *Social Science & Medicine, 66*(6), 1733-1749.

Blanchflower, D. G., Oswald, A. J., & Stutzer, A. (2001). Latent Entrepreneurship Across Nations. *European Economic Review, 45*, 680-691.

Blanden, J. (2009). How much can we learn from international comparisons of intergenerational mobility? *CEE Discussion Paper No 0111*.

Bok, D. (2010). *The Politics of Happiness: What Government Can Learn from the New Research on Well-Being*. Princeton and Oxford: Princeton University Press.

Bok, S. (2010). *Exploring happiness from Aristotle to brain science*. New Haven: Yale University Press.

Bound, J. & Krueger, A.B. (1999). The Extent of Measurement Error in Longitudinal Earnings Data: Do Two Wrongs Make a Right? *Journal of Labor Economics, 9(1)*, 1-24.Bowles, S., & Gintis, H. (2002). Social Capital and Community Governance. *Economic Journal, 112*, 419-436.

Brickman, P., Coates, D., & Janoff-Bulman, R. (1978). Lottery winners and accident victims: Is happiness relative? *Journal of Personality and Social Psychology, 36*(8), 917-927. doi:10.1037/0022-3514.36.8.917

Brereton, F., Clinch, J., & Ferreira, S. (2008). Happiness, geography and the environment. *Ecological Economics, 65*, 386-396.

Brown, S. L., Nesse, R.M., Vinokur, A.D., & Smith, D.M. (2003). Providing social support may be more beneficial than receiving it: Results from a prospective study of mortality. Psychological Science, *14*(4), 320-7.

Bruni, L., & Stanca, L. (2008). Watching alone: Relational goods, television and happiness. *Journal of Economic Behavior & Organisation, 65*, 506-528.

Burkhauser, R. V., & Poupore, J. G. (1997). A Cross-National Comparison of Permanent Inequality in the United States and Germany. *Review of Economics and Statistics, 81*, 251-368.

Cantril, H. (1965). *The Pattern of Human Concerns*. New Brunswick, N.J.: Rutgers University Press.

Card, D. (2001). Estimating the return to schooling: progress on some persistent econometric problems. *Econometrica, 69*(5), 1127–1160.

Card, D., Mas, A., Moretti, E., & Saez, E. (2010). Inequality at work: The effect of peer salaries on job satisfaction. *NBER Working Paper 16396*.

Central Intelligence Agency (CIA) (2009). *The world factbook 2009*. US Central Intelligence Agency. Retrieved from http://www.geographic.org/wfb2009/taiwan/taiwan_people.html

Chapman, B. J., & Guven, C. (2010). Marital Status is Misunderstood in Happiness Models. *Deakin University Economics Working Paper Series No 2010/03*.

Chida, Y., & Steptoe, A. (2008). Positive psychological well-being and mortality: A quantitative review of prospective observational studies. *Psychosomatic Medicine, 70*(7), 741-756. doi:10.1097/PSY.0b013e31818105ba

Clark, A. E. (2003). Unemployment as a Social Norm: Psychological Evidence from Panel Data. *Journal of Labor Economics, 21*, 323-351.

Clark, A. E. (2010). Work, Jobs and Well-Being across the Millennium. In E. Diener, J. F. Helliwell, & D. Kahneman (Eds.), *International differences in well-being*. Oxford: Oxford University Press.

Clark, A.E. (2011). Happiness, Habits and High Rank: Comparisons in Economic and Social Life. *IZA Discussion Paper No 5966*.

Clark, A. E., Diener, E., Georgellis, Y., & Lucas, R. (2008). Lags and Leads in Life Satisfaction: A Test of the Baseline Hypothesis. *Economic Journal, 118*, F222–F243.

Clark, A. E., & Fawaz, Y. (2009). Valuing Jobs via Retirement: European Evidence. *National Institute Economic Review, 209*, 88-103.

Clark, A.E., Frijters, P., & Shields, M. (2008). Relative Income, Happiness and Utility: An Explanation for the Easterlin Paradox and other Puzzles. *Journal of Economic Literature, 46*, 95-144.

Clark, A. E., & Lelkes, O. (2009). Let us Pray: Religious Interactions in Life Satisfaction. *PSE Working Paper No 2009-01*.

Clark, A. E., & Oswald, A. J. (1994). Unhappiness and Unemployment. *Economic Journal, 104*, 648-659.

Clark, A.E., & Oswald, A. J. (2002). A Simple Statistical Model for Measuring How Life Events Affect Happiness. *International Journal of Epidemiology, 31*, 1139-1144.

Clark, A.E., & Senik, C. (2010). Who compares to Whom? The Anatomy of Income Comparisons in Europe. *The Economic Journal, 120*, 573-594. doi:10.1111/j.1468-0297.2010.02359.x.

Coe, N., & Lindeboom, M. (2008). Does Retirement Kill You? Evidence from Early Retirement Windows. *IZA Discussion Paper No.3817*.

Cohen, S., Doyle, W. J., Turner, R. B., Alper, C. M., & Skoner, D. P. (2003). Emotional style and susceptibility to the common cold. *Psychosomatic Medicine, 65*(4), 652-657. doi:10.1097/01.PSY.0000077508.57784.DA

Cohen, S., & Pressman, S. D. (2006). Positive Affect and Health. *Current Directions in Psychological Science, 15*(3), 122-125. doi:10.1111/j.0963-7214.2006.00420.x

Cohen-Zada, D., & Sander, W. (2010). Religious participation versus shopping: What makes people happier? *IZA Discussion Paper No. 5198*.

Cooper, C. L., & Lundberg, U. (2011). *The science of occupational health: stress, psychobiology and the new world of work*. Chichester: John Wiley & Sons.

Csikszentmihalyi, M., & Larson, R. (1987). Validity and reliability of the experience sampling method. *Journal of Nervous and Mental Disease, 175*(9), 526-536. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/3655778

Danner, D. D., Snowdon, D. A., & Friesen, W. D. (2001). Positive emotions in early life and longevity: Findings from the nun study. *Journal of Personality and Social Psychology 80*(5), 804-813. doi:10.1037/0022-3514.80.5.804

Davidson, R.J, et al. (2003). Alterations in brain and immune function produced by mindfulness meditation. *Psychosomatic Medicine, 65,* 564-70.

Dave, D., Rashad, I., & Spasojevici, J. (2008). The Effects of Retirement on Physical and Mental Health Outcomes. *Southern Economic Journal, 75,* 497-523.

Deaton, A. (2008). Income, Health, and Well-Being around the World: Evidence from the Gallup World Poll. *Journal of Economic Perspectives, 22*(2), 53-72.

Deaton, A. (2012). The financial crisis and the well-being of Americans. *Oxford Economic Papers, 64*(1), 1-26. doi:10.1093/oep/gpr051

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behaviour*. New York: Plenum Press.

Demyttenaere, K., et al. (2004). Prevalence, Severity, and Unmet Need for Treatment of Mental Disorders in the World Health Organisation World Mental Health Surveys. *Journal of the American Medical Association, 291* (21), 2581-2590.

De Neve, J.-E., Christakis, N. A., Fowler, J. H., & Frey, B. S. (2011). Genes, economics, and happiness. Retrieved from http://jhfowler.ucsd.edu/genes_economics_and_happiness.pdf

Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*(3), 342-375. doi:10.1037/0033-2909.95.3.542

Diener, E. (2011). *The validity of life satisfaction measures.* Unpublished manuscript.

Diener, E. & Biswas-Diener, R. (2008). *Happiness: Unlocking the mysteries of psychological wealth*. Malden, MA: Blackwell Publishing.

Diener, E., & Chan, M. Y. (2011). Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-Being, 3*(1), 1-43. doi:10.1111/j.1758-0854.2010.01045.x

Diener, E., Helliwell, J. F., & Kahneman, D. (Eds.). (2010). *International differences in well-being.* New York: Oxford University Press. doi:10.1093/acprof:oso/9780199732739.001.0001

Diener, E., Lucas, R., Schimmack, U., & Helliwell, J. F. (2009). *Well-Being for public policy*. New York: Oxford University Press.

Diener, E., Tay, L., & Myers, D., (2011). The religion paradox: If religion makes people happy, why are so many dropping out? *Journal of Personality and Social Psychology, 101,* 1278-1290.

Di Tella, R., Haisken-De New, J., & MacCulloch, R. (2007). Happiness adaptation to income and to status in an individual panel. *NBER Working Paper No 13159.*

Di Tella, R., & MacCulloch, R. (2009). Happiness, contentment and other emotions for central bankers. In C. L. Foote, L. Goette, & S. Meier (Eds.), *Policymaking insights from behavioural economics* (311-373). Boston: Federal Reserve Bank of Boston. (Proceedings of a conference held in September 2007)

Di Tella, R., MacCulloch, R. & Oswald, A. (2003). The Macroeconomics of Happiness. *Review of Economics and Statistics, 85,* 809–827.

Di Tella, R., MacCulloch, R., & Oswald, A. (2001). Preferences over inflation and unemployment: Evidence from surveys of happiness. *American Economic Review, 91*(1), 335-341. doi:10.1257/aer.91.1.335

Dohmen, T., Falk, A., Fliessbach, K., Sunde, U., & Weber, B. (2011). Relative versus absolute income, joy of winning, and gender: Brain imaging evidence. *Journal of Public Economics, 95,* 279-285.

Dolan, P., Peasgood, T., & White, M. (2008). Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective well-being. *Journal of Economic Psychology, 29*(1), 94-122.

Dolan, P., Layard, R., & Metcalfe, R. (2011). *Measuring subjective well-being for public policy*. London: Office for National Statistics.

Dunn, E., Aknin, L., & Norton, M. (2008). Spending Money on Others Promotes Happiness. *Science, 319,* 1687-1688.

Durante, R. (2009). Risk, cooperation and the economic origins of social trust: an empirical investigation. Retrieved from http://www.cepr.org/meets/wkcn/2/2413/papers/Durante.pdf

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. *Child Development, 82*(1), 405-432.

Easterlin, R. (1974). Does economic growth improve the human lot? Some empirical evidence. In P. A. David & M. W. Reder (Eds.), *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz* (pp. 89-125). New York: Academic Press.

Easterlin, R.A. (2006). Life Cycle Happiness and Its Sources: Intersections of Psychology, Economics, and Demography. *Journal of Economic Psychology, 27*(4), 463-482.

Easterlin, R.A. (2010). *Happiness, growth, and the life cycle.* IZA Prize in Labor Economics Series. Oxford: Oxford University Press.

Easterlin, R.A., Angelescu McVey, L., Switek, M., Sawangfa, O., & Smith Zweig, J. (2010). The happiness-income paradox revisited. *PNAS Early Edition, 107*(52), 22463-22468. doi:10.1073/pnas.1015962107

Eisenberg, P., & Lazarsfeld, P. (1938). The psychological effects of unemployment. *Psychological Bulletin, 35,* 358-390.

Ellison, C. G. (1991). Religious involvement and subjective well-being. *Journal of Health and Social Behavior, 32,* 80-99.

ESS Round 4: European Social Survey Round 4 Data. (2008). *Data file edition 4.0*. Norwegian Social Science Data Services, Norway - Data Archive and distributor of ESS data. Retrieved from http://ess.nsd.uib.no/downloadwizard/

EVS. (2011). *European values study 1981-2008, Longitudinal data file* (ZA4804 Data File Version 1.0.0, 2011-04-30) [Integrated_values_surveys_1981-2008.sav]. GESIS Data Archive, Cologne, Germany. doi:10.4232/1.1480

Ferrer-i-Carbonell, P., & Frijters, P. (2004). How important is methodology for the estimates of the determinants of happiness? *Economic Journal, 114*(497), 641-659. doi:10.1111/j.1468-0297.2004.00235.x

Fowler, J.H., & Christakis, N. A. (2008) Dynamic spread of happiness in a large social network: longitudinal analysis over 20 years in the Framingham Heart Study. *British Medical Journal*. doi:10.1136/bmj.a2338

Frey, B. S. (1997). *Not just for the money: an economic theory of personal motivation*. Massachusetts and Cheltenham: Edward Elgar.

Frey, B. S. (2008). *Happiness: A revolution in economics*. Boston: MIT Press.

Frey, B. S., & Benz, M. (2008). Being Independent is a Great Thing: Subjective Evaluations of Self-Employment and Hierarchy. *Economica, 75*, 362–383.

Frey, B. S., Benz, M., & Stutzer, A. (2004). Introducing procedural utility: Not only what but also how matters. *Journal of Institutional and Theoretical Economics, 160*(3), 377-401. Retrieved from http://www.ingentaconnect.com/content/mohr/jite/2004/00000160/00000003/art00002

Frey, B. S. & Stutzer, A. (2002). *Happiness and Economics*. Princeton and Oxford: Princeton University Press.

Frey, B. S., & Stutzer, A. (2002a). The Economics of Happiness, *World Economics, 3*(1), 1-17.

Frey, B. S., & Stutzer, A. (2002b). What Can We Learn from Happiness Research?. *Journal of Economic Literature, 40*(2), 402-435. Retrieved from http://www.jstor.org/stable/2698383

Frijters, P., & Beatton, T. (2011). The mystery of the U-shaped relationship between happiness and age. National Center for Econometric Research Working Paper No. 26. Retrieved from http://www.ncer.edu.au/papers/documents/NCER_WpNo-26Jul08v2.pdf

Frijters, P., & Van Praag, B.M.S. (1998). The Effects of Climate on Welfare and Well-Being in Russia. *Climatic Change, 39*, 61-81.

Fujita, F., & Diener, E. (2005). Life satisfaction and set point: Stability and change. *Journal of Personality and Social Psychology, 88*(1), 158-164. doi:10.1037/0022-3514.88.1.158

Fujiwara, D., & Campbell, R. (2011). *Valuation techniques for social cost-benefit analysis: Stated preference, revealed preference and subjective well-being approaches*, London: Departmental Working Paper of HM Treasury and Department of Work and Pensions. Retrieved from http://www.hm-treasury.gov.uk/d/green_book_valuationtechniques_250711.pdf

Gardner, J., & Oswald, A. J. (2002). Is it money or marriage that keeps people alive? Retrieved from http://www2.warwick.ac.uk/fac/soc/economics/staff/academic/oswald/augmortalitygardner-os2002final.pdf

Gardner, J., & Oswald, A. J. (2006). Do divorcing couples become happier by breaking up? *Journal of the Royal Statistical Society A, 169*, 319-336.

Gerstorf, D., Ram, N., Estabrook, R., Schupp, J., Wagner, G., & Lindenberger, U. (2008). Terminal Decline in Life Satisfaction in Old Age - Longitudinal Evidence from the German Socio-Economic Panel Study. *Developmental Psychology, 44*(4), 1148-1159.

Gerstorf, D., Ram, N., Mayraz, G., Hidajat, M., Lindenberger, U., Wagner, G., & Schupp, J. (2010). Late-Life Decline in Well-Being Across Adulthood in Germany, the UK and the US: Something is Seriously Wrong at the End of Life. *Psychology and Aging, 25*(2), 477-485.

Gilbert, D. (2006). *Stumbling on happiness*. New York: Random House.

Gove, W., Hughes, M., & Briggs Style, C. (1983). Does marriage have positive effects on the psychological well-being of the individual?. *Journal of Health and Social Behavior, 24*(2), 122–131.

Graham, C. L. (2011). *The pursuit of happiness: An economy of well-being*. Washington: Brookings Institution.

Graham, C., & Chattopadhyay, S. (2011). Gender and Well-Being around the World: Some Insights from the Economics of Happiness. Mimeo, The Brookings Institution.

Graham, C., & Pettinato, S. (2002). *Happiness and Hardship. Opportunity and Insecurity in New Market Economies*. Washington D.C.: Brookings Institution Press.

Green, F. (2011). Unpacking the misery multiplier: how employability modifies the impacts of unemployment and job insecurity on life satisfaction and mental health. *Journal of Health Economics, 30*(2), 265-276.

Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and Semantics, Vol. 3, Speech Acts* (pp. 41-58), New York: Academic Press.

Grosfeld I., & Senik, C. (2010). The Emerging Aversion to Inequality. Evidence from subjective data. *Economics of Transition, 18*(1), 1-26.

Grosjean, P. (2011). A History of Violence: The Culture of Honor as a Determinant of Homicide in the US South. Retrieved from http://economics.stanford.edu/files/GrosjeanApril.pdf

Grosjean, P., Ricka, F., & Senik, C. (2011). Learning, Political Attitudes and the Crisis in Transition countries. *EBRD Working Paper*. Retrieved from http://www.ebrd.com/downloads/research/economics/workingpapers/wp0140.pdf

Grün, C., Hauser, W., & Rhein, T. (2010). Is any job better than no job? Life satisfaction and re-employment. *Journal of Labour Research, 31*, 285-306. doi:10.1007/s12122-010-9093-2

Guven, C., Stichnoth, H., & Senik, C. (2012). You can't be happier than your wife. Happiness Gaps and Divorce. *Journal of Economic Behavior and Organization, 82*(1), 110-130. Retrieved from http://dx.doi.org/10.1016/j.jebo.2012.01.003

GWP. (2011). *Gallup world poll 2005-2011* [the_gallup_071511.dta]. Gallup Inc.

Gyarmati, D., de Raaf, S., Palameta, B., Nicholson, C. & Hui, T. (2008). *Encouraging work and supporting communities: Final results of the community employment innovation project*. Ottawa: Social Research and Demonstration Corporation. Retrieved from http://www.srdc.org/uploads/CEIP_finalrpt_ENG.pdf

Haller, M., & Hadler, M. (2006). How social relations and structures can produce happiness and unhappiness: An international comparative analysis. *Social Indicators Research, 75*, 169-216.

Halpern, D. (2010). *The Hidden Wealth of Nations*. Cambridge: Polity Press.

Harbaugh, W.T., Mayr, U., & Burghart, D.R. (2007). Neural Responses to Taxation and Voluntary Giving Reveal Motives for Charitable Donations. *Science, 306*, 1622-1625. doi:10.1126/science.1140738

Hartog, J., & Oosterbeek, H. (1998). Health, Wealth and Happiness: Why Pursue a Higher Education? *Economics of Education Review, 17*(3), 245-256. Retrieved from http://upi-yptk.ac.id/Ekonomi/Hartog_Health.pdf

Haslam, C., Haslam, S. A., Jetten, J., Bevins, A., Ravenscroft, S., & Tonks, J. (2010). The social treatment: The benefits of group interventions in residential care settings. *Psychology and Aging, 25*(1), 157-167. doi:10.1037/a0018256

Haslam, C., Holme, A., Haslam, S. A., Iyer, A., Jetten, J., & Williams, W. H. (2008). Maintaining group memberships: Social identity continuation predicts well-being after a stroke. *Neuropsychological Rehabilitation, 18*(5-6), 671-691. doi:10.1080/09602010701643449

Hayo, B., & Seifert, W. (2003). Subjective economic well-being in Eastern Europe. *Journal of Economic Psychology, 24*(3), 329-348.

Helliwell, J.F. (2003). How's Life? Combining Individual and National Variables to Explain Subjective Well-Being. *Economic Modelling, 20*, 331-360.

Helliwell, J. F. (2008). Life satisfaction and quality of development. *NBER Working Paper No. 14507*. Cambridge: National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w14507

Helliwell, J. F. (2011a). How can subjective well-being be improved? In F. Gorbet & A. Sharpe (Eds.), *New directions for intelligent government in Canada* (pp. 283-304). Ottawa: Centre for the Study of Living Standards. Retrieved from http://www.csls.ca/festschrift/Helliwell.pdf

Helliwell, J. F. (2011b). Institutions as enablers of well-being: The Singapore prison case study. *International Journal of Wellbeing, 1*(2), 255-65. doi:10.5502/ijw.v1i2.7

Helliwell, J. F., & Barrington-Leigh, C.P. (2008). Empathy and emulation: Life satisfaction and the urban geography of comparison groups. *NBER Working Paper No. 14593*.Retrieved from http://www.nber.org/papers/w14593.pdf

Helliwell, J. F., & Barrington-Leigh, C. P. (2010). Measuring and understanding subjective well-being. *Canadian Journal of Economics, 43*(3), 729-753. doi: 10.1111/j.1540-5982.2010.01592.x

Helliwell, J. F., & Barrington-Leigh, C. P. (2011). How much is social capital worth? In J. Jetten, C. Haslam, & S. A. Haslam (Eds.), *The social cure* (pp. 55-71). London: Psychology Press.

Helliwell, J. F., Barrington-Leigh, C. P., Harris, A., & Huang, H. (2010). International evidence on the social context of well-being. In E. Diener, J. F. Helliwell, & D. Kahneman (Eds.), *International differences in well-being* (Chapter 10, pp. 291-350). New York: Oxford University Press.

Helliwell, J. F., & Huang, H. (2008). How's your government? International evidence linking good government and well-being. *British Journal of Political Science, 38*(4), 595-619. doi:10.1017/S0007123408000306

Helliwell, J. F., & Huang, H. (2010). How's the job? Well-being and social capital in the workplace. *Industrial and Labor Relations Review 63*(2), 205-228. Retrieved from http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1513&context=ilrreview

Helliwell, J. F., & Huang, H. (2011a). New measures of the costs of unemployment: Evidence from the subjective well-being of 2.3 million Americans. *NBER Working Paper No. 16829*. Cambridge: National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w16829

Helliwell, J. F., & Huang, H. (2011b). Well-being and trust in the workplace. *Journal of Happiness Studies, 12*(5), 747-767. doi:10.1007/s10902-010-9225-7

Helliwell, J. F., & Putnam, R. D. (2004). The Social context of well-being. *Philosophical Transactions of the Royal Society B, 359*(1449), 1435-1446. doi:10.1098/rstb.2004.1522

Helliwell, J. F., & Wang, S. (2011a). Trust and well-being. *International Journal of Wellbeing, 1*(1), 42-78. Retrieved from www.internationaljournalofwellbeing.org/index.php/ijow/article/view/3/85

Helliwell, J. F. & Wang, S. (2011b). Weekends and subjective well-being. *NBER Working Paper No. 17180*. Cambridge: National Bureau of Economic Research. Retrieved from http://www.nber.org/papers/w17180.pdf

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*(2-3), 1-22. doi:10.1017/S0140525X0999152X

Heston, A., Summers, R., and Aten, B. (2011). *Penn World Table Version 7.0*. Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania. Retrieved from http://pwt.econ.upenn.edu/php_site/pwt70/pwt70_form.php

Hirschman, A. O., & Rothschild, M. (1973). The Changing Tolerance for Income Inequality in the Course of Economic Development. *The Quarterly Journal of Economics, 87*(4), 544-566.

Hölzel, B.K., Carmody, J., Vangel, M., Congleton, C., Yerramsetti, S.M., Gard, T., & Lazar, S.W. (2011). Mindfulness practice leads to increases in regional brain gray matter density, *Psychiatry Research: Neuroimaging, 191*, 36–43.

Hu, Y., & Goldman, N. (1990). Mortality differentials by marital status: An international comparison. *Demography, 27* (2), 233–250.

Huppert, F. (2006). Positive emotions and cognition: developmental, neuroscience and health perspectives. In J. Forgas (Ed.), *Hearts and minds: Affective influences on social cognition and behavior*. Philadelphia: Psychology Press.

Jackson, P., & Warr, P. (1987). Mental health of unemployed men in different parts of England and Wales. *British Medical Journal, 295*, 525.

Jahoda, M. (1981). Work, employment, and unemployment: Values, theories, and approaches in social research. *American Psychologist, 36*, 184-191.

Jahoda, M. (1988). Economic recession and mental health: Some conceptual issues. *Journal of Social Issues, 44*, 13-23.

Kahneman, D. (1999). Objective happiness. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-Being: The foundations of hedonic psychology* (pp. 3-25). New York: Russell Sage.

Kahneman, D. (2011). *Thinking, Fast and Slow*. Toronto: Doubleday.

Kahneman, D., & Deaton, A. (2010). High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Sciences of the United States of America, 107*(38), 16489-16493. doi:10.1073/pnas.1011492107

Kahneman, D., Diener, E., & Schwarz, N. (1999). *Well-being: The foundations of hedonic psychology*. New York: Russell Sage.

Kahneman, D., & Krueger, A. B. (2006). Developments in the measurement of subjective well-being. *Journal of Economic Perspectives, 20*(1), 3-24. doi:10.1257/089533006776526030

Kahneman, D., Krueger, A., Schkade, D., Schwarz, N., & Stone, A. (2004). A survey method for characterizing daily life experience: The day reconstruction method (DRM). *Science, 306*, 1776-1780. doi:10.1126/science.1103572

Kahneman, D., Wakker, P. P., & Sarin, R. (1997). Back to Bentham? Exploration of experienced utility. *Quarterly Journal of Economics, 112*(2), 375-406. doi:10.1162/003355397555235

Kenny, A., & Kenny, C. (2006). *Life, liberty and the pursuit of utility*. Charlottesville: Imprint Academic.

Kim-Cohen, J., Caspi, A., Moffitt, T. E., Harrington, H., Milne, B.J., & Poulton, P.J. (2003). Prior juvenile diagnoses in adults: Developmental follow back of a prospective longitudinal cohort. *Archives of General Psychiatry, 60*, 709-717.

Kingdon, G. & Knight. J. (2006). Subjective well-being poverty versus income poverty and capabilities poverty. *Journal of Development Studies, 42*(7), 1199-225.

Knack, S. (2001). Trust, associational life and economic performance. In J. Helliwell and A. Bonikowska (Eds.), *The Contribution of Human and Social Capital to Sustained Economic Growth and Well-Being*. Ottawa: HRDC and OECD.

Knight, J., & Gunatilaka, R. (2010). Great expectations? The subjective well-being of rural-urban migrants to China. *World Development, 38*(1), 113-124.

Knight, J., Song, L., & Gunatilaka, R. (2010). The determinants of subjective well-being in China. *China Economic Review, 20*(4), 635-49.

Koivumaa-Honkanen, H., Honkanen, R., Viinamäki, H., Heikkilä, K., Kaprio J., & Koskenvuo, M. (2000). Self-reported life satisfaction and 20-year mortality in healthy Finnish adults. *American Journal of Epidemiology, 152*(10), 983-991. doi:10.1093/aje/152.10.983

Koivumaa-Honkanen, H., Honkanen, R., Viinamaeki, H., Heikkilae, K., Kaprio, J., & Koskenvuo, M. (2001). Life satisfaction and suicide: A 20 year follow-up study. *American Journal of Psychiatry, 158*, 433-439.

Konow, J., & Earley, J. (2008). The Hedonistic Paradox: Is Homo Economicus Happier? *Journal of Public Economics, 92*, 1-33.

Krueger, A. B. (Ed.). (2009). *Measuring the subjective well-being of nations: National accounts of time use and well-being*. Chicago: University of Chicago Press.

Krueger, A. B., Kahneman, D., Schkade, D., Schwarz, N., & Stone, A. A. (2009). National time accounting: The currency of life. In A. B. Krueger (Ed.), *Measuring the subjective well-being of nations: National accounts of time use and well-being* (pp. 9-86). Cambridge: National Bureau of Economic Research. Retrieved from http://www.nber.org/chapters/c5053.pdf

Layard, R. (2005). *Happiness: Lessons from a new science*. New York: Penguin.

Layard, R. (2010). Measuring subjective well-being. *Science, 327*(5965), 534-535. doi:10.1126/science.1186315

Layard, R. (2012). *Mental Health: The New Frontier for the Welfare State*. Lecture, 6 March 2012. Retrieved from http://cep.ac.uk/layard

Layard, R., & Dunn, J. (2009). *A Good Childhood: Searching for Values in a Competitive Age*. London: Penguin.

Layard, R; Mayraz, G., & Nickell, S. (2010). Does Relative Income Matter? Are the Critics Right? In E. Diener, J. Helliwell & D. Kahneman (Eds.), *International Differences in Well-Being*. New York: Oxford University Press.

Layard, R., Nickell, S., & Jackman, R. (2005). *Unemployment: Macroeconomic Performance and the Labour Market*. (Second edition). Oxford: Oxford University Press.

Layard, R., Nickell, S., & Mayraz, G. (2008). The marginal utility of income. *Journal of Public Economics, 92*(8–9), 1846–57.

Leong, L. (2010). *Story of the Singapore prison service: From custodians of prisoners to captains of life*. Singapore: Civil Service College.

Li, H., Pak Wai, L., Ye, M., & Zhang, J. (2011). Does Money Buy Happiness? Evidence from Twins in Urban China. Working Paper (under review).

Lim, C., & Putnam, R.D. (2010). Religion, social networks, and life satisfaction. *American Sociological Review, 75*(6), 914-943.

Lucas, R. E. (2007). Long-term disability is associated with lasting changes in subjective well-being: Evidence from two nationally representative longitudinal studies. *Journal of Personality and Social Psychology, 92*(4), 717-730. doi:10.1037/0022-3514.92.4.717

Lucas, R., & Schimmack, U. (2006). Marriage matters: Spousal similarity in life satisfaction. *Journal of Applied Social Science Studies, 127*(1), 105–111.

Luechinger, S. (2009). Valuing Air Quality Using the Life Satisfaction Approach. *Economic Journal, 119*, 482–515.

Luechinger, S., Meier, S., & Stutzer, A. (2009). Why does unemployment hurt the employed? *The Journal of Human Resources, 45*(4), 998-1045.

Luttmer, E. (2005). Neighbors as Negatives: Relative Earnings and Well-Being. *Quarterly Journal of Economics, 120*, 963-1002.

Lykken, D. (1999). *Happiness: The nature and nurture of joy and contentment*. New York: St. Martin's Griffin.

Lyubomirsky, S. (2007). *The How of Happiness: A practical guide to getting the life you want*. London: Sphere.

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin, 131*(6), 803-855. doi:10.1037/0033-2909.131.6.803

Margolis, R., & Myrskylä, M. (2011). A Global Perspective on Happiness and Fertility. *Population and Development Review, 37*(1), 29–56.

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370-396. doi:10.1037/h0054346

Matsuoka, R.H. (2010). Student performance and high school landscapes: Examining the links. *Landscape and Urban Planning, 97*, 273-82.

Mazar, N., Amir, O., & Ariely, D. (2008). The dishonesty of honest people: A theory of self-concept maintenance. *Journal of Marketing Research, 45*(6), 633-644. doi:10.1509/jmkr.45.6.633

McKee, L., & Bell, C. (1986). His unemployment, her problem: the domestic and marital consequences of male unemployment. In S. Allen, S. Waton, K. Purcell, & S. Wood (Eds.), *The experience of unemployment*. Basingstoke: Macmillan.

Medrano, J. D. (2012). *Map of happiness*. Retrieved from http://www.jdsurvey.net/jds/jdsurveyMaps.jsp?Idioma=I&SeccionTexto=0404&NOID=103

Meier, S. & Stutzer, A. (2008). Is volunteering rewarding in itself? *Economica, 75*(1), 39-59.

Møller, V., Huschka, D., & Michalos, A. C. (Eds.). (2008). *Barometers of quality of life around the globe: How are we doing?* (Social Indicators Research Series, Vol. 33). Heidelberg, Germany: Springer.

Moussavi, S., Chatterji, S., Verdes, E., Tandon, A., Patel, V., & Ustun, B. (2007). Depression, chronic diseases, and decrements in health: results from the World Health Surveys. *The Lancet, 370*(9590), 851-858.

Nguyen, A-M., & Benet-Martinez, V.(2012). Biculturalism and Adjustment. A meta-analysis. *Journal of Cross-Cultural Psychology 20*(10), 1-38. doi:10.1177/0022022111435097

Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology, 2*(2), 175-220. doi:10.1037/1089-2680.2.2.175

Nisbet, E.K., & Zelenski, J.M. (2011). Underestimating nearby nature: Affective forecasting errors obscure the happy path to sustainability. *Psychological Science, 22*(9), 1101-6.

Nisbett, R., & Cohen, D. (1996). *Culture of Honor: The Psychology of Violence in the South*. Colorado: Westview Press, Inc.

Nolen-Hoeksema, S., & Rusting, C. L. (1999). Gender differences in well-being. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-Being: The Foundations of Hedonic Psychology*. Russell Sage Foundation, New York.

Nunn, N., & Wantchekon, L. (2011). The Slave Trade and the Origins of Mistrust in Africa. *American Economic Review, 101*(7), 3221-3252.

Nussbaum, M., & Sen, A. (Eds.). (1999). *The quality of life*. Oxford: Oxford University Press.

OECD. (2000). The Partial Renaissance of Self-Employment. *OECD Employment Outlook*. Paris: Organization for Economic Cooperation and Development.

OECD. (2001). *The well-being of nations: The role of human and social capital*. Paris: Organization for Economic Cooperation and Development.

OECD. (2008). *Growing Unequal? Income Distribution and Poverty in OECD Countries*. Paris: Organization for Economic Cooperation and Development.

OECD. (2011a). *Divided we stand: Why inequality keeps rising*, Paris: OECD. doi:10.1787/9789264119536-en

OECD. (2011b). *How's life? Measuring well-being*, Paris: OECD. doi:10.1787/9789264121164-en

Oishi, S. (2010). Culture and well-being: Conceptual and methodological issues. In E. Diener, J. F. Helliwell, & D. Kahneman (Eds.), *International differences in well-being* (pp. 34-69). New York: Oxford University Press. doi:10.1093/acprof:oso/9780199732739.003.0003

Oishi, S., Diener, E., Lucas, R. E., & Suh, E. M. (2009). Cross-cultural variations in predictors of life satisfaction: Perspectives from needs and values. In E. Diener (Ed.), *Culture and Well-Being: The collected works of Ed Diener* (Social Indicators Research Series 38, pp. 109-127). Dordrecht Heidelberg London New York: Springer. doi:10.1007/978-90-481-2352-0_6

Oreopoulos, P. (2007). Do Dropouts Drop Out Too Soon? Wealth, Health, and Happiness from Compulsory Schooling. *Journal of Public Economics, 91*(11-12), 2213-2229.

Oreopoulos, P., & Salvanes, K. (2011). Priceless: the Nonpecuniary Benefits of Schooling. *Journal of Economic Perspectives, 25*(1), 159-184.

Oswald, A. J., Proto, E., & Sgroi, D. (2011). Happiness and Productivity. *Department of Economics, University of Warwick, mimeo*. Retrieved from http://www2.warwick.ac.uk/fac/soc/economics/staff/academic/proto/workingpapers/protosgroioswalddivorcefinalmay2011.pdf

Oswald, A. J., & Powdthavee, N. (2008). Does happiness adapt? A longitudinal study of disability with implications for economists and judges. *Journal of Public Economics, 92*, 1061-1077.

Palmore, E. (1969). Predicting longevity: A follow-up controlling for age. *Journal of Gerontology, 39*, 109-116.

Pargament, K. I. (2002). The bitter and the sweet: An evaluation of the costs and benefits of religiousness. *Psychological Inquiry, 13*, 168-181.

Piff, P. K., Stancato, D.M., Côté, S., Mendoza-Denton, R., & Keltner, D. (2012). Higher social class predicts increased unethical behavior. *Proceedings of the National Academy of Sciences, 109*(9). doi:10.1073

Piketty, T. (2003). The Impact of divorce on school performance: evidence from France, 1968-2002. *CEPR discussion paper series No 4146*. Retrieved from http://piketty.pse.ens.fr/fichiers/Piketty2003.pdf

Pink, D.H. (2009). *Drive: The surprising truth about what motivates us*. New York: Riverhead Books.

Pinker, S. (2011). *The Better Angels of Our Nature: The Decline of violence in history and its causes*. London: Allen Lane.

Pischke, J-S. (2011). Money and Happiness: Evidence from the Industry Wage Structure. *CEP Discussion Paper No 1051*. Retrieved from http://cep.lse.ac.uk/pubs/download/dp1051.pdf

Platt, S., & Kreitman, N. (1990). Long term trends in parasuicide and unemployment in Edinburgh, 1968-87. *Social Psychiatry and Psychiatric Epidemiology, 25*, 56-61.

Platt, S., Micciolo, R., & Tansella, M. (1992). Suicide and Unemployment in Italy: Description, Analysis and Interpretation of Recent Trends. *Social Science & Medicine, 34*, 1191-1201.

Plomin, R., DeFries, J.C., McClearn, G.E.m & McGuffin, P. (2001). *Behavioral Genetics*. Fourth Edition. New York: Worth Publishers.

Powdthavee, N. (2008). Putting a price tag on friends, relatives and neighbours: using surveys of life satisfaction to value social relationships. *Journal of Socio-Economics, 37*(4), 1459-1480.

Powdthavee, N. (2009). I can't smile without you: Spousal correlation in life satisfaction. *Journal of Economic Psychology, 30*(4), 675–689.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.

Redelmeier, D., & Kahneman, D. (1996). Patients' memories of painful medical treatments: Real-time and retrospective evaluations of two minimally invasive procedures. *Pain, 66*(1), 3-8. doi:10.1016/0304-3959(96)02994-6

Richards, M., & Abbott, R. (2009). *Childhood mental health and life changes in post-war Britain. Insights from three national birth cohort studies*. Sainsbury Centre for Mental Health and other sponsors. Retrieved from http://www.centreformentalhealth.org.uk/pdfs/life_chances_report.pdf

Rio+20 United Nations Conference on Sustainable Development. (2012). *The Future We Want - Zero draft of the outcome document*.

Robertson, I., & Cooper, C.L. (2011). *Well-being: Productivity and Happiness at Work*. London: Palgrave Macmillan.

Roth, A., & Fonagy, P. (Eds.). (2005). *What Works for Whom?* (Second edition). New York: Guilford Press.

Russell, J. A., & Carroll, J. M. (1999). On the bipolarity of positive and negative affect. *Psychological Bulletin, 125*(1), 3-30. doi:10.1037/0033-2909.125.1.3

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology, 52*, 141-166. doi:10.1146/annurev.psych.52.1.141

Sacks, D., Stevenson, B., & Wolfers, J. (2011). Growth in Income and subjective well-being over time. Mimeo. Retrieved from http://www.sole-jole.org/12513.pdf

Sahlberg, P. (2007). Education policies for raising student learning: The Finnish approach. *Journal of Education Policy, 22*(2), 147-171.

Sales, S.M., & House, J. (1971). Job dissatisfaction as a possible risk factor in Coronary Heart Disease. *Journal of Chronic Diseases, 23*, 861-873.

Sampson, R., Raudenbush, S., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277*, 918–24.

Sarracino, F. (2010). Social capital and subjective well-being trends: Comparing 11 western European countries. *Journal of Socio-Economics, 39*, 482–517.

Schimmack, U. (2003). Affect measurement in experience sampling research. *Journal of Happiness Studies, 4*(1), 79-106. doi:10.1023/A:1023661322862

Schwartz, C. E., & Sendor, M. (1999). Helping others helps oneself: Response shift effects in peer support. *Social Science & Medicine, 48*(11), 1563-1575. doi:10.1016/S0277-9536(99)00049-0

Schwarze, J., & Härpfer, M. (2007). Are People Inequality Averse, and Do They Prefer Redistribution by the State? Evidence from German Longitudinal Data on Life Satisfaction. *Journal of Socio-Economics, 36*(2), 233-249.

Senik, C. (2004). When Information Dominates Comparison. Learning from Russian Subjective Panel Data. *Journal of Public Economics, 88*, 2099-2133.

Shiffman, S., Stone, A. A., & Hufford, M. R. (2008). Ecological momentary assessment. *Annual Reviews of Clinical Psychology, 4*, 1-32. doi:10.1146/annurev.clinpsy.3.022806.091415

Shultz, S., & Dunbar, R. I. M. (2007). The evolution of the social brain: Anthropoid primates contrast with other vertebrates. *Proceedings of the Royal Society B, 274*(1624), 2429-2436. doi:10.1098/rspb.2007.0693

Singer, P. (1981). *The Expanding Circle: Ethics and Sociobiology*. Oxford: Oxford University Press.

Singer, T., Seymour, B., O'Doherty, J., Kaube, H., Dolan, R., & Frith, C. (2004). Empathy for pain involves the affective but not sensory components of pain. *Science, 303*, 1157–62.

Smith, T. B., McCullough, M. E., & Poll, J. (2003). Religiousness and depression: evidence for a main effect and the moderating influence of stressful life events. *Psychological Bulletin, 129*, 614-636.

Soroka, S., Helliwell, J.F., & Johnston, R. (2007). Measuring and modeling interpersonal trust. In F.M. Kay & R. Johnston (Eds.), *Social Capital, Diversity and the Welfare State*. Vancouver: UBC Press.

Statistical Office of Kosovo. (2011). *Demographic, social and reproductive health survey in Kosovo, November 2009*. Department of Population Statistics, Statistical Office of Kosovo. Retrieved from http://esk.rks-gov.net/ENG/publikimet/doc_download/967-demographic-social-and-reproductive-health-survey-in-kosovo-

Steptoe, A., Wardle, J., Marmot, M., & McEwen, B. S. (2005). Positive affect and health-related neuroendocrine, cardiovascular, and inflammatory processes. *Proceedings of the National Academy of Sciences of the United States of America, 102*(18), 6508-6512. doi:10.1073/pnas.0409174102

Stevenson, B., & Wolfers, J. (2008a). Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox. *Brookings Papers on Economic Activity*, Spring. Retrieved from *www.gallup.com/poll/File/116605/EasterlinParadox.pdf*

Stevenson, B., & Wolfers, J. (2008b). Happiness Inequality in the United States. *Journal of Legal Studies, 37*(S2): S33-S79.

Stevenson, B., & Wolfers, J. (2009). The Paradox of Declining Female Happiness. *American Economic Journal: Economic Policy, 1*, 190–225.

Stevenson, B., & Wolfers, J. (2010). Inequality and Subjective Well-Being, mimeo. Retrieved from https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=ALEA2010&paper_id=266

Stiglitz, J., Sen, A., & Fitoussi, J.-P. (2009). *Report by the commission on the measurement of economic and social progress*. Paris: OECD. Retrieved from http://www.stiglitz-sen-fitoussi.fr/documents/rapport_anglais.pdf

Stone, A. A., Schiffman, S., Schwartz, J. E., Broderick, J. E., & Hufford, M. R. (2002). Patient non-compliance with paper diaries. *British Medical Journal, 324*(7347), 1193-1194. doi:10.1136/bmj.324.7347.1193

Stone, A. A., Schwartz, J. E., Broderick, J. E., & Deaton, A. (2010). A snapshot of the age distribution of psychological well-being in the United States. *Proceedings of the National Academy of Sciences of the United States of America, 107*(22), 9985-9990. doi:10.1073/pnas.1003744107.

Strack, F., Martin, L. L., & Schwarz, N. (1988). Priming and communication: Social determinants of information use in judgments of life satisfaction. *European Journal of Social Psychology, 18*(5), 429-442. doi:10.1002/ejsp.2420180505

Stutzer, A., & Frey, B.S. (2006). Does Marriage Make People Happy, Or Do Happy People Get Married?. *Journal of Socio-Economics, 35*(2), 326-347.

Ulrich, R.S. (1984). View through a window may influence recovery from surgery, *Science, 224*(4647), 420-1.

Uslaner, E.M. (2008). *Corruption, Inequality, and the Rule of Law*. Cambridge: Cambridge University Press.

Van Praag, B.M.S. (1971) The welfare function of income in Belgium: an empirical investigation. *European Economic Review, 2*(Spring), 337-69.

Van Praag, B.M.S., & Baarsma, B.E. (2005). Using Happiness Surveys to Value Intangibles: the Case of Airport Noise. *Economic Journal, 115*, 224-246.

Warr, P.B. (1999). Well-Being and the Workplace. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-Being: The Foundations of Hedonic Psychology*. New York: Russell Sage Foundation.

WHO. (2008). *Global Burden of Disease: 2004 update*. World Health Organisation.

Wiest, M., Shüz, S., Webster, N., & Wurm, S. (2011). Subjective well-being and mortality revisited: Differential effects of cognitive and emotional facets of well-being on mortality. *Health Psychology, 30*(6), 728-735. doi:10.1037/a0023839

Wilkinson, R., & Pickett, K. (2009). *The Spirit Level: Why more equal societies almost always do better*. London: Allen Lane/Penguin.

Williams, M., Teasdale, J., Segal., Z., & Kabat-Zinn, J. (2007). *The Mindful Way through Depression: Freeing Yourself from Chronic Unhappiness*. New York: Guilford.

Williams, T. M. (Ed.). (1986). *A Natural Experiment in Three Communities*. New York: Academic Press. Summarised in The impact of television: A longitudinal Canadian Study. In B. Singer (Ed.), *Communications in Canadian Society* (1991). Scarborough, ON: Nelson Canada.

Winkelmann, L., & Winkelmann, R. (1998). Why Are the Unemployed So Unhappy? Evidence from Panel Data. *Economica, 65*, 1-15.

Wirtz, D., Kruger, J., Scollon, C. N., & Diener, E. (2003). What to do on spring break? The role of predicted, on-line, and remembered experience in future choice. *Psychological Science, 14*(5), 520-524. doi:10.1111/1467-9280.03455

Wolfers, J. (2003). Is business cycle volatility costly? Evidence from surveys of subjective well-being. *International Finance, 6*(1), 1-26.

World Development Indicators (WDI). (2011). *World development indicators* [WDI_GDF_Dec102011.xslx]. Washington, World Bank. Retrieved from http://databank.worldbank.org/databank/download/WDIandGDF_excel.zip

Wulfgramm, M. (2011). Can activating labour market policy offset the detrimental life satisfaction effect of unemployment? *Socio-Economic Review, 9*, 477-501. doi:10.1093/ser/mwr006

Wunder, C., Wiencierz, A., Schwarze, J., Küchenhoff, H., Kleyer, S., & Bleninger, P. (2009). Well-Being over the Life Span: Semiparametric Evidence from British and German Longitudinal Data. *IZA Discussion Paper No 4155*. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1402502&http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cts=1331740279240&ved=0CCUQFjAA&url=http%3A%2F%2Fpapers.ssrn.com%2Fsol3%2FDelivery.cfm%3Fabstractid%3D1402502&ei=c75gT7m8NqHV0QHK0LCKBw&usg=AFQjCNFe7uTlU46NZwCn_ti2xkGMjXjksQ

WVS. (2009). *World value survey 1981-2008 official aggregate* (v.20090901, 2009) [wvs1981_2008_v20090914.sav]. World Values Survey Association, Aggregate File Producer: ASEP/JDS, Madrid. Retrieved from www.worldvaluessurvey.org

Zaki, J., & Mitchell, J.P. (2011). Equitable decision making is associated with neural markers of intrinsic value. *Proceedings of the National Academy of Sciences, 108*(49), 19761-19766.

Part II.

Case Study: Bhutan
GROSS NATIONAL HAPPINESS AND THE GNH INDEX

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Summary

Bhutan's GNH Index is a multidimensional measure, and is linked with a set of policy and program screening tools so that it has practical applications. The GNH Index is built from data drawn from periodic surveys that are representative by district, gender, age, rural-urban residence, income, etc. Representative sampling allows its results to be decomposed at various sub-national levels, and such disaggregated information can be examined and understood more by organizations and citizens for their uses. In the GNH Index, unlike certain concepts of happiness in current western literature, happiness is itself multidimensional – not measured only by subjective well-being, and not focused narrowly on happiness that begins and ends with oneself and is concerned for and with oneself. The pursuit of happiness is collective, though it can be experienced deeply personally. Different people can be happy in spite of their disparate circumstances but the options for trade off must be wide.

The GNH Index is meant to orient the people and the nation towards happiness, primarily by improving the conditions of not-yet-happy people. We can break apart the GNH Index to see where unhappiness is arising from and for whom. For policy action, the GNH Index enables the government and others to increase GNH in two ways. It can either increase the percentage of people who are happy or decrease the insufficient conditions of people who are not-yet-happy. In the way the GNH Index is constructed, there is a greater incentive for the government and others to decrease the insufficiencies of not-yet-happy people. This can be done by mitigating the many areas of insufficiencies the not-yet-happy face. Not-yet-happy people in rural Bhutan tend to be those who attain less in education, living standards and balanced use of time. In urban Bhutan, not-yet-happy people are insufficient in non-material domains such as community vitality and culture and psychological well-being. In Thimphu, the capital, for example, the biggest insufficiencies are in community vitality.

The GNH Index provides an overview of performances across nine domains of GNH (psychological well-being, time use, community vitality, cultural diversity, ecological resilience, living standard, health, education, good governance). The aggregation method is a version of Alkire Foster method (2007, 2011). The index is aggregated out of 33 clustered (grouped) indicators. Each clustered indicator is further composed of several variables. When unpacked, the 33 clustered indicators have 124 variables, the basic building blocks of the GNH Index. Weights attached to variables differ, with lighter weights attached to highly subjective variables. A threshold or sufficiency level is applied to each variable. At the level of domains, all the nine domains are equally weighted as they are all considered to be equally valid for happiness.

Three cutoff points have been established to identify degrees of happiness. Not all people need to be sufficient in each of 124 variables to be happy. People are diverse in the ways and the means in which they can have a fulfilling life. Not all variables need to be present for a person to be happy. People have freedom of choice in the ways in which they can make life fulfilling, so not all variables have universal applicability. For such reason, we divide the Bhutanese into four groups depending upon their degree of happiness. We use three cutoffs: 50%, 66%, and 77%. People who have achieved sufficiency in less than 50% are "unhappy," and they comprise only 10.4% of the population. A total of 48.7% of people have sufficiency in 50-65% of domains and are called "narrowly happy." A group of 32.6%, called "extensively happy," has achieved sufficiency in 66-76% – in between six and seven domains. And in the last group, 8.3% of people are identified as "deeply happy" because they enjoy sufficiency in 77% or more of weighted indicators – which is the equivalent of seven or more of the nine domains.

In order to have one overall index, the GNH cutoff was set at 66% of the variables, which is the middle cutoff used above. People can be considered happy when they have sufficiency in 66% of the (weighted) indicators or more – that is, when they were identified as extensively happy or deeply happy. The GNH Index value for 2010 is 0.737. It shows us that 40.8% of people in Bhutan have achieved such happiness, and the remaining 59% - who are narrowly happy or unhappy - still enjoy sufficiency in 57% (not 66% as required by the index) of the domains on average. On the other hand, if we go by the subjective well-being score, it was 6.06 (SD = 1.6) for 2010 suggesting a very good level of happiness. The cutoff does make a difference in the GNH Index.

The middle cutoff gives a relatively low score of GNH Index as a result of its requirement that a diverse set of conditions and states, represented by 124 variables, must be simultaneously prevalent for a person to be robustly happy. It is a tougher measure because it is not focused on survival like the poverty measure, but rather on flourishing over a wide array of conditions. However the GNH Index, and the four categories of people – unhappy, narrowly happy, extensively happy, and deeply happy – will be reported and analyzed when the GNH Index is updated over time, as they are in this report. Taken together they will provide a nuanced picture of the composition, diversity, and evolution of GNH across Bhutan.

Introduction

This guide[1] introduces the 2010 Gross National Happiness (GNH) Index of Bhutan. It explains the origins of the concept of GNH, its grounding in Bhutanese culture and history, and describes how the concept is being operationalized in the form of the GNH Index in some novel and innovative ways. Any discussion of GNH in Bhutan must begin from the understanding that it is distinct from the western literature on "happiness" in two ways. First it is multidimensional – not focused only on subjective well-being to the exclusion of other dimensions – and second, it internalizes other-regarding motivations. While multidimensional measures of the quality of life and well-being are increasingly discussed, Bhutan is innovative in constructing a multidimensional measure, which is itself relevant for policy and is also directly associated with a linked set of policy and program screening tools. This chapter presents the GNH Index, which provides an overview of national GNH across nine domains, comprising of 33 clustered indicators, each one of which is composed of several variables. When unpacked, the 33 clustered indicators have 124 variables.

The 2010 GNH survey from which the index is drawn evolved from a 2006 pre-pilot and a 2008 nationally representative survey. In its present form it is nationally representative and also representative at the rural and urban area and by districts or dzongkhags. In-depth sections on the domains and indicators cover the motivation behind the selection of each as well as the weights, cut-offs and results. The GNH Index identifies and aggregates information on happiness drawing on a special adaptation of the Alkire-Foster method for measuring multidimensional concepts such as poverty and well-being. This ensures that the national measure is rigorous, and that it is intuitive and can be examined in many policy-relevant ways.

Overall, in 2010, 10.4% of people are "unhappy" according to the GNH index; 47.8% are "narrowly happy," 32.6% are "extensively happy," and 8.3% are "deeply happy." These four groups correspond to people who have achieved sufficiency in less than half, 50-65%, 66-76%, and more than 77% of domains. The 2010 GNH Index uses the middle cutoff. Its value is 0.737, and shows that overall, 41% of Bhutanese are identified as happy (meaning they are extensively or deeply happy), and the remaining 59% enjoy sufficiency in 57% of the domains on average. Recall that 48.7% of these 59% are already narrowly happy, but because we wish to expand GNH we consider them not-yet-happy for policy purposes. The low score of GNH is a result of the GNH Index, which requires diverse conditions and states, represented by 124 variables, to be prevalent for a person to be robustly happy. GNH Indices and their subcomponents are also reported for each of the 20 districts, by gender, by rural-urban area, and, for illustrative purposes, by age and certain occupational categories.

Table 1 below presents the definition of each of the groups used in this analysis. It then gives the percentage of the population who belong in each category in the 2010 GNH Index results. The final column provides the average percentage of weighted indicators, or domains, in which people in each group, on average, enjoy sufficiency.

Table 1: Overview of GNH domains and breakdown of indicators

	Definition of groups ~ Sufficiency in:	Percent of population who are:	Average sufficiency of each person across domains
HAPPY	**66%-100%**	**40.9%**	**72.9%**
Deeply Happy	77%-100%	8.3%	81.5%
Extensively Happy	66%-76%	32.6%	70.7%
NOT-YET-HAPPY	**0-65%**	**59.1%**	**56.6%**
Narrowly Happy	50%-65%	48.7%	59.1%
Unhappy	0-49%	10.4%	44.7%

The analysis has two parts: first, the well-being of the people who have been identified as "happy" is examined, to show the indicators in which they enjoy satisfaction. The in-depth analysis of who is happy according to the 2010 GNH Index includes analysis at the district level, as well as by rural and urban categories, gender, occupation, education and income-levels. Some individual examples are presented, to show that the "happiest" people vary by age, district, occupation, gender, and sufficiency profiles.

The second part focuses on how to increase happiness. For as well as helping us to understand better the diverse kinds of happiness, the GNH Index was primarily devised to provide policy guidance to increase happiness, particularly by focusing on the not-yet-happy people so that their situation can be improved. Hence a second part of the analysis scrutinizes the domains in which not-yet-happy people lack sufficiency. As such the "not-yet-happy" and the question "how can GNH be increased?" are key components of the section.

The GNH Index, like the philosophy of GNH that motivates it, is very much a living experiment, seeking to convey more fully the color and texture of people's lives than does the standard welfare measure of GNI per capita, to enrich the dimensions and the methodology well beyond the Human Development Index, and to draw together some innovative work from other initiatives seeking to measure human progress on a shared planet.

Origins of the Concept of GNH

Although the term "Gross National Happiness" was first coined by the Fourth King of Bhutan the concept has a much longer resonance in the Kingdom of Bhutan. The 1729 legal code, which dates from the unification of Bhutan, declared that "if the Government cannot create happiness (*dekid*) for its people, there is no purpose for the Government to exist" (Ura 2010).[2] In 1972, the Fourth King declared Gross National Happiness to be more important than Gross National Product (GNP), and from this time onward, the country oriented its national policy and development plans towards Gross National Happiness (or GNH). The Constitution of Bhutan (2008, Article 9) directs the State "to promote those conditions that will enable the pursuit of Gross National Happiness."

While there is no single official definition of GNH, the following description is widely used:

> Gross National Happiness (GNH) measures the quality of a country in a more holistic way [than GNP] and believes that the beneficial development of human society takes place when material and spiritual development occurs side by side to complement and reinforce each other.[3]

From the start it is vital to clarify that GNH in Bhutan is distinct from the western literature on "happiness" in two ways. First it is multidimensional – not focused only on subjective well-being to the exclusion of other dimensions – and second, it internalizes responsibility and other-regarding motivations explicitly. As the first elected Prime Minister of Bhutan under the new Constitution of Bhutan adopted in 2008 put it:

> We have now clearly distinguished the 'happiness' ... in GNH from the fleeting, pleasurable 'feel good' moods so often associated with that term. We know that true abiding happiness cannot exist while others suffer, and comes only from serving others, living in harmony with nature, and realizing our innate wisdom and the true and brilliant nature of our own minds.[4]

It includes harmony with nature (again absent from some Western notions of happiness) and concern for others. The brilliant nature he alluded to consists of the various types of extraordinarily sensitive and advanced awareness with which human beings are endowed and can be realized.

The nine domains articulate the elements of GNH more fully and form the basis of the GNH Index. The earlier four pillars of GNH are included as part of the nine domains.[5] The first three domains are very familiar from a human development perspective – living standards (such as income, assets, housing), health, and education. The next three are a bit newer – the use of time (and time poverty), good governance and ecological resilience. And the last are the more innovative – psychological well-being (which includes overall happiness, but also emotions and spirituality), community vitality and cultural diversity and resilience.

The index weights the nine domains equally. Thirty-three cluster indicators are used to identify people as poor and create the index. For presentational simplicity they are also combined to produce nine domain-level indicators. Each sub-component indicator of the GNH Index is on its own useful for practical purposes of different agencies.

Table 1: Overview of GNH domains and breakdown of indicators

	Domain	Indicators
1	Psychological well-being	4
2	Health	4
3	Time use	2
4	Education	4
5	Cultural diversity and resilience	4
6	Good Governance	4
7	Community vitality	4
8	Ecological diversity and resilience	4
9	Living standards	3
	Total	33

Purpose of the 2010 GNH Index

Since the mid-2000s, steps have been taken to build a GNH Index that would draw as fully as possible on the holistic and deliberate vision of development as it has evolved in Bhutan. In a 2007 Government Round Table, Dasho Karma Ura proposed that a GNH Index would be used in: 1) Setting an alternative framework of development; 2) Providing indicators to sectors to guide development; 3) Allocating resources in accordance with

targets and GNH screening tools; 4) Measuring people's happiness and well-being; 5) Measuring progress over time; and 6) Comparing progress across the country.[6] These purposes, each of which has specific implications for measurement, are elaborated below.

1. Setting an alternative framework of development: Bhutan's GNH vision of development is distinctively holistic. The 10th plan explicitly seeks "to address a more meaningful purpose for development than just the mere fulfillment of material satisfaction."[7] Hence the nine domains of GNH, taken together, reflect the purpose of development. If certain dimensions contract, or are being crowded out by material progress, the GNH Index must explicitly convey such information as the imbalances enter, in order to catalyze public deliberation and if relevant, action.

2. Providing indicators to sectors to guide development: Certain indicators must either monitor activities by the public sector or else change when sector priorities are realized. For example "electricity," a component of the GNH, is a priority in the 10th five year plan. Insofar as the GNH indicators monitor outputs, the GNH Index provides incentives to ministries to deliver services, because their accomplishments will visibly contribute to higher GNH the next time the index is updated. Methodologically this requires an index that can be broken down into its component indicators.

3. Allocating resources in accordance with targets and GNH screening tools: While the composition of the GNH is not a sufficient guide for policy, a clear understanding of how the achievements and shortfalls in different dimensions of GNH vary over time and space and group provides key information for policy design and subsequent resource allocation. In terms of targeting, the GNH Index can show which dzongkhags are lacking in which indicators, and can also identify and target the "least happy" people and describe them by age, district, gender, etc. In terms of screening tools, the GNH indicators can be used as a check list, to convey in concrete terms the kinds of activities and achievements that constitute GNH.

4. Measuring people's happiness and well-being: The measure and its component indicators aim to capture human well-being in a fuller and more profound way than traditional socio-economic measures of economic development, human development or social progress have done. This also requires the measurement methodology to be understandable to the general public. Case studies can be provided of differently happy people, so that citizens can assess whether the index broadly seems intuitive and has room for their own aspirations and values.

5. Measuring progress over time: The component indicators of the GNH are to be sensitive to changes over time. Some indicators must be directly responsive to relevant changes in policy. In this way, the composition of well-being, as well as its overall level, can be observed over decades. Similarly, inequalities among groups and populations that require special attention can be identified. The GNH Survey hence must be repeated regularly, for example every two years.

6. Comparing progress across the country: The GNH Index should be able to make meaningful comparisons across the dzongkhags, which vary widely in terms of climate, culture, access to services, and livelihoods. The survey hence must be representative by dzongkhag, and the methodology of measurement must be subgroup consistent and decomposable.

Taken together these six requirements have been used to specify the indicators and composition of the GNH Index. It must be policy-sensitive – changing over time in response to public action. In key sectors, the indicators must reflect public priorities directly. The GNH Index must also reflect the strengthening or deterioration of social, cultural, and environmental achievements whether or not at present these are the direct objective of policy. The indicators must be assumed to be relevant in future periods as well as at the present time in order to measure progress across time. And the GNH Index must be sub-group consistent hence decomposable by regions and groups.

GNH Survey 2010

The GNH Index is based on a survey of 7,142 people that was completed in all 20 districts of Bhutan in the year 2010 and is representative by rural and urban area and by districts or dzongkhags. The survey itself was developed by the Centre for Bhutan Studies (CBS) and builds on previous surveys on GNH. The survey covers all nine domains and gives innovative insights into happiness that are not found in most other national surveys. Indeed in fielding the GNH surveys, the CBS argues that the quality of the data is unusually high and this is because the enumerators working often in remote rural areas took time with the participants to explain the purpose of the index, to share the importance of understanding their own insight and perspectives and so enabled the respondents to answer fully, completely and reflectively the questions on the survey. The survey builds on a 2006 pre-pilot questionnaire and also on the 2008 GNH survey, which was representative nationally but not by district. It repeated some of those questions, and learning from those experiences and the analysis of that survey, also improved them.

In order to measure the nine domains of GNH, 33 indicators have been selected according to five different criteria. First of all the indicators have to reflect the normative values of GNH, which have been articulated in official documents such as the National Development Plan and in statements by His Majesty the King, the Prime Minister and other ministers. They also reflect the normative values that are embedded in the culture and traditions of Bhutan. The second criterion for the indicators relates to their statistical properties; each indicator was analyzed extensively to ensure robustness. Third, the indicators were chosen such that they would accurately reflect how happiness is increasing or evolving in different regions over time and among different groups accurately. Fourth, the indicators had to be relevant for public action – although government policy is by no means the only way of increasing GNH. Many domains of GNH can be facilitated by appropriate government policies and by government policies that create incentives for businesses, NGOs and citizens to support GNH in its many dimensions. And lastly, the indicators have to be understandable as far as possible by ordinary citizens. They have to reflect and relate to people's own experiences in their own lives, so that the GNH Index would not only be a policy tool but would also be something that people could use to imagine the many different ways of being happy in the Bhutanese context.

There are four indicators in every domain, except time use, which has two (sleep and work), and living standards, which has three. Because the object of inquiry is happiness people will think the key questions are "How happy am I? How can I be happier?" but actually these hedonic questions are not present in the index although they were present in the survey and have been analyzed. The following section presents the indicators that have been included in the index.

Domains and indicators

This section explains each of the nine domains and 33 indicators of the 2010 GNH Index 2010, how they have been constructed as well as the cutoffs that have been set. The GNH Index uses two kinds of thresholds: sufficiency thresholds, and one happiness threshold. Sufficiency thresholds show how much a person needs in order to enjoy sufficiency in each of the 33 indicators. The overall happiness threshold meanwhile answers the question "how many domains or in what percentage of the indicators must a person achieve sufficiency in order to be understood as happy?" The happiness threshold will be presented later in this paper.

Figure 1: The nine domains and 33 indicators of the GNH

Psychological Well-being

Psychological well-being is an intrinsically valuable and desired state of being. Diener, *et al* (1997) categorize indicators of psychological well-being according to reflective or affective elements, while the Sarkozy Report[8](Stiglitz, Sen and Fitoussi, 2009a, p. 44) emphasizes the importance of using diverse well-being indicators. It states, "... different aspects (cognitive evaluations of one's life, happiness, satisfaction, positive emotions such as joy and pride, and negative emotions such as pain and worry)...should be measured separately to derive a more comprehensive appreciation of people's lives." Besides the reflective life evaluations and hedonic experiences, an additional aspect of spirituality has also been included in the domain.

Life satisfaction

This indicator combines individuals' subjective assessments of their contentment levels with respect to health, occupation, family, standard of living and work-life balance.[9] The respondents were asked to say how satisfied or dissatisfied they were in these five areas on a five-point Likert scale (1= very satisfied, 5=very dissatisfied).

The life satisfaction indicator sums their responses across the five areas. It could have a score as low as 5 (low satisfaction) or as high as 25 (high satisfaction). The sufficiency threshold for the life satisfaction score is set at 19 and 83% of people enjoy sufficiency in life satisfaction.

Emotional balance (positive and negative emotions)

Ten self-reported emotional items were selected for this indicator. Positive emotions, or non-disturbing emotions, such as compassion, generosity, forgiveness, contentment and calmness were included while selfishness, jealousy, anger, fear and worry were used to represent negative emotions. In Buddhist perspective, the negative emotions may be more accurately called disturbing emotions during which people cannot experience with much clarity and that might lead often to formation of poor intentions. For both sets of emotions the respondents were asked to rate the extent to which they had experienced them during the past few weeks with reference to a five-point scale.[10] The scale ranges are: 1 "never," 2 "rarely," 3 "sometimes," 4 "never" and 5 "very much."

Both the positive and negative emotion indicator scores run from 5 to 20 (from low to high incidence of positive or negative emotions). For positive emotions, a sufficiency threshold of 15 was set which identifies 58.8% as being adequate at positive emotions. The negative emotion indicator consists of two components of sub-indices. The emotions included are selfishness and jealousy in one sub-index, and anger, fear and worry in the other sub-index. A sufficiency threshold of 12 was applied for negative emotions, with about 64.6% of the respondents deemed as not suffering from disturbing or negative emotions.

Spirituality

The spirituality indicator is based on four questions. They cover the person's self-reported spirituality level, the frequency with which they consider karma,[11] engage in prayer recitation, and meditate. Self-reported spirituality level describes the person's judgment on his or her own position on the spirituality continuum. The question of the consideration of karma asked people to what extent they take into account their own volitional impulses and actions as having moral consequences in future just as they did in the present. Measures of social engagements are dealt in both community vitality and time use domains. Here, indicators of sacred activities were limited to praying and meditation as two separate events although these activities are not mutually exclusive. All the four indicators run on a four-point scale of "regularly" to "not at all" except for the spirituality level, which ranges from "very spiritual" to "not at all."

The indicator sums the scores across the four questions. Scores range from 4 to 16 with 16 indicating a greater degree of spirituality. The threshold has been set at 12, which implies that at least three of the four indicators must be rated "regularly" or "occasionally" for individuals to be defined as happy. The indicator identifies 53% of people as adequate in terms of spirituality level.

Health

In the indigenous healing science practiced as a branch of the official health system in Bhutan, health has always been associated with both physical health and mental health. Health is the outcome of the relational balance between mind and body, between persons and the environment. Typically, an individual is said to be well only if both heat-pain is absent from the body and sorrow is absent from the mind. The social and material conditions for creating good health such as clean air or water or nurturing family relationships or community relationships have been incorporated in other domains. Similarly, emotional balance and spirituality have also been included in the psychological well-being domain.

Self-reported health status

Questions persist about how accurately this simple self-reported indicator proxies objective health and nutrition states, and the extent to which it is affected by "adaptive preferences" (Easterlin 2003). The self-reported health indicator is used here as a proxy measure and to complement other health indicators (healthy days and disability) and is consequently given only one-tenth of the total weight for health, and only one-third as much weight as any of the other three indicators. The ratings range on a five-point scale from having "excellent" health to "poor" health.

For a person to be sufficient in self-reported health status, he or she must have a rating of "excellent" or "very good." A large majority (73.8%) has met the sufficiency condition in self-reported health.

Healthy days

This indicator reports the number of "healthy days" a respondent enjoyed within the last month. The mean number of healthy days for Bhutan is 26 days (SD=7.7) and the median is 30 days.

To allow for normal illness and for elderly respondents, the threshold has been set at 26 days and 76.2% meet the sufficiency threshold.

Long-term disability

This indicator examines an individual's ability to perform functional activities of daily living without any restriction (U.S. Department of Health and Human Services 2000). Participants were asked whether they had any longstanding illness that had lasted over six months. If the answer was "yes," they were then asked, using a five-point scale, whether the disability restricted their daily activities. The scale ranged from "never" to "all the time." However, no further information on the intensity of disabilities was elicited.

The threshold is set such that those individuals who are disabled but are "rarely" or "never" restricted from doing their daily chores are classified as sufficient. Conversely, individuals with a disability whose daily activities are restricted "sometimes" are classified as deprived. With this threshold, about 89.5% achieve sufficiency.

Mental health

This indicator uses a version of the General Health Questionnaire (specifically GHQ-12) developed by Goldberg. It consists of 12 questions that provide a possible indication of depression and anxiety, as well as confidence and concentration levels. It is calculated and interpreted using the Likert scale with lowest score at 0 and highest possible score at 36. Each item has a four-point scale, but there are two types of scales depending on the structure of statements. Some questions range from "not at all" to "much more than usual" and some from "more than usual" to "much less than usual."

Since the GHQ-12 satisfied similar reliability and validity tests in Bhutan as in other places, the 12 questions were computed using the standard procedure. The threshold was set at normal well-being (15) and 85.8% achieve sufficiency.

Education

GNH highlights the importance of a holistic educational approach that ensures Bhutanese citizens gain a deep foundation in traditional knowledge, common values and skills. In addition to studying reading, writing, math, science and technology, students are also encouraged to engage in creative learning and expression. A holistic education extends beyond a conventional formal education framework to reflect and respond more directly to the task of creating good human beings. It is important for Bhutan that an education indicator includes the cultivation and transmission of values (Ura 2009).

Literacy

A person is said to be literate if he or she is able to read and write in any one language, English or Dzongkha or Nepali. Most Bhutanese who have achieved six years of schooling are also literate, and this measure therefore recognizes their educational achievements. In literacy, 48.6% have attained sufficiency. Schooling on a universally accessible basis grew from the 1970s onwards. The backlog of older generations who did not go to school shows up as low literacy rate.

Educational qualification

The education system in Bhutan has two major components: formal education and non-secular institutions such as monastic schools, plus non-formal education (NFE). This educational indicator includes formal schooling, education imparted by monastic schools and NFE.

The threshold for education was set such that persons have insufficient education if they have not completed six years of schooling from any source, including government, non-formal, or monastic schools. With this threshold, only 37.3% have attained six years of schooling, again due to the fact that schooling and non-formal education began relatively recently in Bhutan.

Knowledge

This indicator attempts to capture learning that could have occurred either inside or outside formal institutions. Five knowledge variables were chosen: knowledge of local legends and folk stories, knowledge of local festivals (*tshechus*), knowledge of traditional songs, knowledge of HIV-AIDS transmission, and knowledge of the Constitution. The first three kinds of knowledge capture certain forms of local traditions, especially oral and performance-based ones. The responses for each question follow a five-point scale that ranges from "very good knowledge" to "very poor knowledge." Responses are aggregated to create a maximum score of 25, which indicates "very good" knowledge in all areas, while the minimum score of 5 indicates "very poor" knowledge.

The threshold is set to 19, which implies that Bhutanese should have an average of "good" knowledge across the five variables. When the threshold is applied, only 7.5% have sufficiency in knowledge. Sufficiency in knowledge is low compared to other indices; only 3% rated "good" or "very good" in all five knowledge indicators. It suggests a divergence between rising literacy and declining knowledge about respective locality.

Values

This indicator asked respondents whether they considered five destructive actions to be justifiable: killing, stealing, lying, creating disharmony in relationships and sexual misconduct. In a society influenced by good values, e.g., by Buddhism, individuals are expected to tame themselves with respect to five destructive actions. Moral consequences of virtues and non-virtues are typically revealed through speech, body and mind and in the case of disinformation, the agency of speech is emphasized. The variables have a three-point response scale ranging from "always justifiable" to "never justifiable" along with an option of "don't know."[12] The values have been combined into a composite indicator in a particular manner. For killing, stealing and sexual misconduct, a value of 1 is assigned if the person reports "never justifiable" while for creating disharmony and lying, responses of either "never justifiable" or "sometimes justifiable" are assigned 1. The composite indicator takes the values 1 to 5.

The threshold is set at four, which implies that a person can consider at least one of the values to be justifiable and 97.1% achieve sufficiency in value. The 2010 GNH indicator of values used will be improved in future GNH surveys but the present finding provides some preliminary insight into these issues.

Culture

The distinctive culture of Bhutan facilitates sovereignty of the country and provides identity to the people. Hence the preservation and promotion of culture has been accorded a high priority both by the government and the people. Culture is not only viewed as a resource for establishing identity but also for cushioning Bhutan from some of the negative impacts of modernization and thereby enriching Bhutan spiritually.

The diversity of the culture is manifested in forms of language, traditional arts and crafts, festivals, events, ceremonies, drama, music, dress and etiquette and more importantly the spiritual values that people share. To assess the strength of various aspects of culture, four indicators have been considered: language, artisan skills, cultural participation and *Driglam Namzha* (the Way of Harmony).

Language
The language indicator is measured by a self-reported fluency level in one's mother tongue on a four-point scale. It should be clarified that mother tongue is defined as natal tongue, which is a dialect. There are over a dozen dialects. Only in Western parts of the country does the mother tongue coincide with the national language, Dzongkha. The ratings vary from "very well" to "not at all."

Since almost everyone seems to be fluent in their mother tongue, a high threshold is necessary to maintain standards. And for this reason, the threshold is set to "very well." With this threshold, at present an impressive 95.2% of respondents are classified as sufficient.

Artisan skills
This indicator assesses people's interest and knowledge in 13 arts and crafts, collectively known as *Zorig Chusum*, and reports on the number of skills possessed by a respondent. These skills and vocations are the basis of historical material culture of Bhutan from when it was trading far less. The 13 arts and crafts include 1) weaving (*Thagzo*) 2) embroidery (*Tshemzo*) 3) painting (*Lhazo*) 4) carpentry (*Shingzo*) 5) carving (*Parzo*) 6) sculpture (*Jinzo*) 7) casting (*Lugzo*) 8) blacksmithing (*Garzo*) 9) bamboo works (*Tszharzo*) 10) goldsmithing and silversmithing (*Serzo* and *Nguelzo*) 11) masonry (*Dozo*) 12) leather works (*Kozo*) and 13) papermaking (*Dezo*). For the indicator, people were asked if they possessed any of the above 13 arts and crafts skills. The mean was 1.01 with a SD of 1.15.

A sufficiency threshold has been set at one, which implies that a person must possess at least one skill to be identified as sufficient. About 62% of the respondents are categorized as having achieved sufficiency. The dominant or commonly shared skills today are masonry, carpentry and textile weaving.

Socio-cultural participation
In order to assess people's participation in socio-cultural activities the average number of days within the past 12 months is recorded from each respondent. The days are grouped on five-point scale ranging from "none," and "1 to 5 days" to "+20 days." The median is 1 to 5 days and mean is 6 to 12 days. About 15% spent more than 13 days attending socio-cultural events in the past year and 1% reported "don't know" (these respondents were dropped).

The threshold was set at 6 to 12 days per year.[13] It identifies 33.2% that have achieved sufficiency.

Driglam Namzha
Driglam Namzha (the Way of Harmony) is expected behavior (of consuming, clothing, moving) especially in formal occasions and in formal spaces. It arose fundamentally from the conventions of communal living and working in fortress-monasteries. Certain elements of *Driglam Namzha* are commonly practiced amongst Bhutanese when they interact with each other in formal spaces. A minimal part of it is also taught for a few days in educational institutions. Respondents were asked to rate its importance on a three-point scale of being very important to not important. In addition, respondents were also asked if there were any perceived changes in the practice of this particular form of etiquette over the years.

For *Driglam Namzha*, two indicators were developed: perceived importance of *Driglam Namzha* and the perceived change in practice and observance during the last few years. The questions run on a three-point scale: perceived importance ranges from "not important" to "very important" and perceived change from "getting weaker" to "getting stronger." Both have values of "don't know" which have been classified as insufficient since it is considered vital to have knowledge about etiquette.

The thresholds have been set at "important" for perceived importance and at "getting stronger" for perceived change. Both indicators need to be fulfilled for an individual to be identified as sufficient in *Driglam Namzha*. After applying the thresholds, 59.7% of people enjoy sufficiency.

Time Use

The balance between paid work, unpaid work and leisure are important for one's well-being. Similarly, a flexible working life is vital for the well-being of individual workers and their families and communities. Since the 1970s, there has been a growing awareness of how unpaid work both at home and in communities is obscured in national accounts and so efforts have been made to include these activities, which are equally fundamental to well-being.

In the GNH survey, a simple time diary was administered. Information on how people use their time was collected by asking respondents to recall their activities during the previous day. Survey respondents reported activities that they did from the time they woke up until the time they slept on the previous day of the interview. For each activity the respondents were asked how long the activity lasted. The activities were then later regrouped into 60 different categories of different kinds of activities such as work, leisure, sleep, personal care and so on.

Time use data can yield a range of important information that provides insight into lifestyles and occupations of the people. It can also reveal the gap between GDP and non-GDP activities, which reflects the gap between market and household economy sectors. Such data are helpful in accounting for a more comprehensive output of goods and services that SNA omits (Ironmonger 1999). Time use data on 24 hours in the life of Bhutanese people can be broken down into various useful sub-categories. The distribution involves the following disaggregation: 20 districts, seven income slabs, 11 age groups, 60 activities, and gender (Ura 2012).[14] However, the GNH Index incorporates only two broad aggregated time use: work hours and sleep. The definition of work[15] hours in GNH is not completely congruent with definitions used elsewhere and shows unusually long work duration in Bhutan. Some activities not usually defined as work elsewhere are included as part of work.

Working hours

The GNH definition includes even unpaid work such as childcare, *woola* (labor contribution to community works), and voluntary works and informal helps etc. In this indicator, all the following categories are classified as work: Crop farming and kitchen gardening (agric), Business, trade and services, Care of children and sick members of household, Construction and repairs, Craft related activities, Forestry and horticultural activities, Household maintenance, Livestock related activities, Processing of food and drinks, and Quarrying work.

Eight hours is also the legal limit, applied to the formal sector, set by the Ministry of Labour and Human Resources of Bhutan for a standard work day. Since a main objective of the indicator is to assess people who are overworked, those who work for more than eight hours are identified as time deprived. 45.4% achieve sufficiency when this threshold is applied. Those who do not achieve this sufficiency are mainly women irrespective of whether they live in towns or villages, and more generally the people in the Eastern districts. People in Eastern Bhutan have longer workdays compared to the rest.

Sleeping hours

Sleep is clearly beneficial for a person's health and impacts nearly every area of daily life. In general most healthy adults need an average of seven to eight hours of sleep for proper functioning (Kleitman 1963; Doran, Dongen and Dinges 2001; Smith, Robinson and Segal 2011). But sleep requirements can vary substantially and some people, such as nuns and monks, would prefer and find it much healthier to devote more time to meditation and other spiritual practices than sleeping. Indeed, survey confirms that they sleep comparatively less.

Eight hours is considered the amount necessary for a well-functioning body for everyone. Both the mean and median fall at around eight hours for the respondents. With this threshold, about 66.7% achieve sufficiency.

Good Governance

Four measures were developed to signify effective and efficient governance. These include fundamental rights, trust in institutions, performance of governmental institutions and political participation. These indicators may be adjusted in future surveys. The governance indicators are quite innovative in combining political activities with access to government services. These are understood as part of governance and a part of the public services to be provided by the government. They also include fundamental rights to vote, freedom of speech, to join a political party, to be free of discrimination, and a perceptual indicator on government performance.

Political participation

The measure of political participation is based on two components: the possibility of voting in the next election and the frequency of attendance in *zomdue* (community meetings). The respondents are asked if they will vote in the next general election and the response categories are simply "yes" or "no" or "don't know."

An individual has to report "yes" in the voting criteria and has to attend at least one meeting in a year to be classified as sufficient in political participation. About 92% have expressed an intention to vote in the next general election, 4.7% declined and 2% don't know. For voting, the threshold is straightforward because it is agreed by everyone that developing true democratic processes requires the active participation of citizens – minimally, by voting. In terms of attendance in meetings the threshold has been set to one time. About 60.2% attended at least one meeting. Fixing the threshold as such classifies 43.6% as deprived in political participation.

Political freedom

These indicators attempt to assess people's perceptions about the functioning of human rights in the country as enshrined in the Constitution of Bhutan, which has an entire article (Article 7, Fundamental Rights) dedicated to it. The seven questions related to political freedom ask people if they feel they have: freedom of speech and opinion, the right to vote, the right to join a political party of their choice, the right to form *tshogpa* (association) or to be a member of *tshogpa*, the right to equal access and the opportunity to join public service, the right to equal pay for work of equal value, and freedom from discrimination based on race, sex, etc. All have three possible responses from 1 to 3: "yes," "no" and "don't know."

The thresholds for all rights were set to "yes." So, a person has a sufficient condition in the indicator if he or she has all seven rights fulfilled. Of the respondents, 61.7% were identified as sufficient.

Service delivery

The indicator comprises four indicators: distance from the nearest health care center, waste disposal method, access to electricity and water supply and quality. The goal is to evaluate access to such basic services, which in Bhutan are usually provided by the state.

In health services, people less than an hour's walk to the nearest health center are considered to have sufficient access. In cities, access is attained but crowding can lead to waiting. If households report disposing of trash by either "composting," "burning" or "municipal garbage pickup" they are non-deprived. On the other hand, if the response is "dump in forests/open land/rivers and streams" then they are deprived. As access to electricity is at the forefront of Bhutan's objectives, respondents who answer "yes" to the question of whether their house has access to electricity are considered non-deprived. The improved water supply indicator combines information on access to safe drinking water with information on the perceived quality of drinking water. An improved facility would include piped water into a dwelling, piped water outside of a house, a public outdoor tap or a protected well. For the perceived quality of water, the threshold has been set to "good" or "very good." Both conditions need to be fulfilled in order to be sufficient in water.

Overall, people are is classified as having achieved sufficiency in service delivery if they enjoy sufficiency in each of the four elements. About 41% have achieved that condition.

Government performance

The indicator pertains to people's subjective assessment of the government's efficiency in various areas. To test people's perceptions of overall service delivery in the country, respondents are asked to rate the performance of the government in the past 12 months on seven major objectives of good governance: employment, equality, education, health, anti-corruption, environment and culture. These outcome-based questions enable respondents to rank the services on a five-point scale from "very good" to "very poor."[16,17] The overall indicator has a maximum value of 35 and minimum value of 7.

A threshold of 28 was adopted, which means that a person has to perceive that public services are "very good" or "good" in at least five of the seven objectives. With this threshold, about 78.8% are considered to have achieved sufficiency.

Community vitality

The concept of GNH includes the social capital of the country, which is sustained through co-operative relationships and social networks within the community. A vital community can be described as a group of people who support and interact positively with each other. The concept outlined here reflects also GNH values and Bhutanese moral beliefs.

From a GNH standpoint, a community must possess strong relationships amongst the community members and within families, must hold socially constructive values, must volunteer and donate time and/or money, and lastly must be safe from violence and crime. It is vital that volunteering and donations of time and money be recognized as fundamental parts of any community development. The values can act as tools through which activities can be implemented for positive change in communities. The indicators in this domain cover four major aspects of community: 1) social support, which depicts the civic contributions made 2) community relationships, which refers to social bonding and a sense of community 3) family relationships and 4) perceived safety.[18]

Social support

These indicators assess the level of social support in a community and the trends across time. They capture the giving of time and money (other goods in previous olden days) – volunteering and donating – a traditional practice in Bhutanese societies. To capture the rate of volunteering, respondents were asked for the number of days they volunteered and for the amount they donated. Donation is expressed in the total amount of financial resources donated in the past 12 months and volunteering is measured by the days donated in the past 12 months.

For donation, giving 10% of household income is considered sufficient, and for volunteering, three days per year is considered sufficient. These thresholds have been derived from normative criteria. Overall, if persons donate 20% of their income, then even if they do not volunteer it is considered sufficient and if they volunteer more than six days, but do not donate 10% of their income, it is also considered sufficient. With these conditions applied, overall, 46% are sufficient.

Community relationships

The two components of this indicator are "a sense of belonging," which ranges from "very strong" to "weak," and "trust in neighbors," which ranges from "trust most of them" to "trust none of them." Both indicators have options of "don't know." 71% have a very strong sense of belonging, 46% trust most of their neighbors, and

85% trust most or some of their neighbors. The trust indicator may reveal the trustworthiness of the neighbors.

The thresholds here are based on normative reasons for sustaining and promoting a sense of community. The threshold for sense of belonging has been set at "very strong" and for levels of trust "some of them" and "most of them" have been selected. For a person to have achieved sufficiency, both conditions have to be satisfied and 62.5% of people are sufficient in both.

Family

For this indicator, six questions on a three-point scale of "agree," "neutral" and "disagree" have been asked of the respondents. They are added together to form an indicator with 18 as the maximum score (high family relationships) and 6 as the minimum score (low family relationships).

A threshold of 16 is applied in order to allow "neutral" responses in any two statements. 92% are satisfied in the family indicator.

Victim of crime

To assess safety in the community, respondents are asked if they have been a victim of crime in the past 12 months. The crime indicator has a simple two-point scale of "yes" and "no."

The threshold is set at "no." The crime statistics are low with only about 4% being described as victims. Self-reported victimization, however, slightly underestimates victimization when it concerns sexual offenses. In the next survey, other safety indicators might be incorporated to improve evaluation.

Ecological Diversity and Resilience

Bhutan has always recognized the central role environmental factors play in human development. Pursuant to Article 5 (Environment) of the Constitution of Bhutan, every Bhutanese citizen shall "...contribute to the protection of the natural environment, conservation of the rich biodiversity of Bhutan and prevention of all forms of ecological degradation including noise, visual and physical pollution..."

The environmental domain includes three subjective indicators related to perceptions regarding environmental challenges, urban issues and responsibilities, and one more objective question, related to wildlife damage to crops. Like other subjective indicators, the interpretation of these indicators is clouded by different and possibly shifting frames of reference, so they are given a light weight of 10% of the environmental domain each. Indicators in this domain in particular may be reconsidered for future GNH surveys to better capture the full complexity of the ecological system.

Pollution

In order to test people's environmental awareness, a series of questions were developed to test the perceived intensity of environmental problems. Seven environmental issues of concern were shared with respondents, and their responses follow a four-point scale from "major concern" to "minor concern."

They are not added into a single number but rather a conditional threshold is applied whereby an individual is insufficient if he or she has rated "major concern" or "some concern" in at least five of the seven environmental issues. Their reference frame is within the past 12 months; however, as with many subjective indicators, there might be errors with the reference frame and so it is not very practical to give more weight to perceptive data by fixing high thresholds. Hence, with the proposed threshold, 69% are sufficient in the pollution indicator.

Environmental responsibility

The indicator attempts to measure the feelings of personal responsibility towards the environment. It is crucial to reinforce attitudes that will encourage people to adopt eco-friendly approaches and also to identify any deterioration in the current very environmentally aware views of citizens. The responses run on a four-point scale ranging from "highly responsible" to "not at all responsible." When the threshold is set at "highly responsible," 84.4% are sufficient.

Wildlife

The wildlife indicator here incorporates information on damage to crops. There has been a growing concern about wildlife damage to crops in Bhutan (Choden and Namgay 1996; Wang, Curtis and Lassoie 2006). Wildlife damage can have catastrophic economic consequences for farmers, especially vulnerable households; it also disrupts sleep patterns and may create anxiety and insecurity. A simple self-reported estimate is used as a proxy for quantitative assessment. Two simple questions on the presence and absence of damage and the severity of damage are applied to determine the impact of wildlife damage on agriculture.

The first question deals with whether respondents consider damage as a constraint to farming. Responses are given on a four-point scale ranging from "major constraint" to "not a constraint." The threshold has been set at "minor constraint." The second indicator pertains to the severity of damage, i.e. crop loss. Respondents are asked to provide an average perceived amount of crop loss, if the crop had been damaged by wildlife. It ranges from "a lot" to "not at all." For both the indicators the reference frame is the past 12 months.

The threshold is fixed such that respondents are deprived if they report either "some constraint" or "major constraint" and account for a crop loss of "a lot" or "some." The lack of actual numeric amounts or percentages of actual crop loss may give rise to errors so both conditions have to be fulfilled. With this threshold, 57.9% of the respondents attain the sufficiency condition.

The wildlife indicator is rural-specific since it pertains to farmers. Individuals from other occupational backgrounds such as civil servants or corporate workers are classified as non-deprived. The rural-specific indicator is later offset by the urban issue indicator, which in turn applies to urban dwellers only.

Urban use

Bhutan is undergoing a rapid urbanization resulting in the growth of city and town populations. Since this has both positive impacts on human well-being (such as improvement in energy, health care, infrastructure) and negative effects (congestion, inadequate green spaces, polluted ambience) these adverse impacts on well-being have been incorporated into the GNH index. Respondents are asked to report their worries about four urban issues: traffic congestion, inadequate green spaces, lack of pedestrian streets and urban sprawl.

The threshold is set such that a person can report any one of the issues as a major threat or worry to be sufficient. About 84.4% achieve sufficiency; this is in part because people who live in rural areas have been automatically classified as sufficient, to offset the wildlife damage indicator introduced above. This indicator mainly acts as a proxy for sustainable urban development, which is one of the major objectives of the government.

Living Standards

The living standards domain refers to the material well-being of the Bhutanese people. It ensures the fulfillment of basic material needs for a comfortable living. Over the years, the material standard of living has risen steadily due to advances in development. However, about 23.2% (Royal Government of Bhutan 2007) of Bhutanese still live in income poverty; some lack assets such as land or adequate housing.

There are a wide range of indicators used in the literature to assess standards of living. For individual-level analysis, the actual consumption of goods and services is often argued to be the most accurate. Income and expenditure levels are often used if consumption is difficult to detail. Here, we use three indicators to assess people's standards of living: household per capita income, assets and housing conditions. Assets include livestock, land and appliances, while housing conditions pertain to room ratio, roofing and sanitation. These are included so that there are enough complementary measures for self-reported household income.

Household income

Household income includes income earned by all the individuals in a household from varied sources within or outside of the country. The household income here has been adjusted for in-kind payments received.

In the literature, two types of thresholds are generally used, either a fixed threshold like a poverty line or relative thresholds such as mean or median income. The poverty line for Bhutan is Nu. 1,096.94 per person per month in the Poverty Analysis Report (Royal Government of Bhutan 2007).[19] The mean household per capita was generated by dividing the household income by household size, without equivalence scales. In Bhutan Living Standards Survey (BLSS) (2007) it was Nu. 31,834.3. When a poverty line threshold (Nu. 1, 096.94) was used on individual income, the headcount estimation made by the Poverty Analysis Report (Royal Government of Bhutan 2007) was 23.2%.

For the GNH Index, it would not be sensible to use the poverty line as a threshold because the threshold should reflect sufficient income. The GNH living standards domain refers to higher conditions for well-being than poverty lines. One option would be to use a relative income threshold for the sufficiency threshold, as is commonly done in European countries. Thresholds like 60% of the median or 50% of mean income are often used to identify poverty.[20]

Yet for the GNH indicator an absolute sufficiency threshold was chosen, since the GNH values and encourages people to achieve happiness through their accomplishments, and discourages a relative approach in which one is satisfied only if one has relatively more income (or other achievements) than one's peers. In this regard, a threshold is computed from a GNH data-adjusted poverty line[21] by the multiplying the national poverty line by 1.5. It would have amounted to Nu. 14,200 per person per year in the BLSS 2007 data.[22] The income threshold classifies 54% of people as sufficient.

Assets

An asset indicator has been used as an indicator of living standards in many studies (Montgomery et al 2000; Morris et al 2000; Filmer and Pritchett 2001; Case et al 2004).[23] The indicator uses data on selected household assets, such as durable and semi-durable goods of everyday use, to describe household welfare. The concept is based on evidence that income/expenditure measures are incomplete measures of the material well-being of households especially in developing countries where such data may have higher measurement errors.[24] However, it is necessary to note that the items of the indicator are taken from a generic list of goods, the uses of which may not be the same across all household members, and quality aspects of the goods owned were not included.

Commonly, asset indicators are defined by appliances such as a mobile phone, radio, TV or bicycle; however, because of the socio-cultural context, livestock and land ownership were also considered assets. Livestock is understood as an integral component in agricultural and rural economies in Bhutan. Most farming is still subsistence farming, and the difficult terrain makes it challenging to use modern equipment. Thus, the work must be done by animals and humans. Moreover, animals provide households with transport, fertilizers and foods, and also employment. So, it is a critical asset especially for poor households. Similarly, land ownership is particularly relevant for rural agricultural-based economies. In some of the focus group participants' perceptions, a decent living standard always included livestock and land ownership.[25]

The asset indicator consists of three major components: 1) appliances (mobile phone, fixed-line telephone, personal computer, refrigerator, color television and washing machine) 2) livestock ownership and 3) land ownership.

The thresholds are applied at two levels: they are set initially on each of the three indicators and then later, an overall threshold is applied to classify insufficiency in the asset indicator.

For a measure of appliances, a series of household items that could be considered amenities for the family was developed. Principal component analysis has been used to determine the selection of appliances. The first factor explained 80% of the variance and contained six appliances – mobile phone, fixed-line phone, personal computer, refrigerator, washing machine and color television. The mobile phone could be dropped from the list of appliances since, in general sense, the utility is marginal and limited to the one who owns it. For the other appliances, the scope of functional utility is much wider and other members of the household might have access. However, in rural areas if a household owned a mobile phone then that would imply that every household member had some access to it. Moreover, fixed-line phones are being replaced by mobile phones even in urban areas; only 21% of urban households now have fixed-line phones. So, in the end, all six items loaded in the first factor were considered for the asset indicator. The sufficiency threshold was set to three and 31% are sufficient in appliances.

It is widely known that livestock constitute an important source of income, especially in rural areas and nomadic areas of the country. They contribute to a household's livelihood by providing cash income or in-kind income through the sale of animal products or animals themselves and thereby act as savings for future security. Although the importance of including livestock as an asset is generally agreed upon, setting a threshold becomes challenging because of the difference in the capital and maintenance costs of different species, which are usually higher for larger ruminants. Larger ruminants require more fodder while smaller domestic animals, such as chickens, can survive on a lesser amount. And so, based on the rates of an average domestic purchase, a threshold is defined. It was observed that an average price of 40 chickens would be equivalent to the average rate of others. Ownership of chickens has been reclassified accordingly. In terms of thresholds, Bhutan's national MPI (2010) sets it at three, but for the GNH Index it has to be set higher. And so, livestock has been set to five normatively. About 41.3% of the respondents are sufficient in livestock.

The data on land were collected in the categories of dry land and (un-terraced); wetland (irrigated and terraced); panzhing, which is a type of land use where land is cultivated after leaving it fallow to improve soil fertility; orchards; kitchen gardens; and tseri, which refers to shifting cultivation. Although the Land Act of 2007 banned tseri cultivation, the survey shows about 14.4% of the respondents still practice it. The average land holding is 2.9 acres per household (SD =3.6). The average rural land holding is 3.39 acres per rural household, and for urban areas it is 0.86 acres per household.

In setting the sufficiency cutoff for land, there are numerous factors that need to be taken into consideration such as quality of land, household size, area and type of farming practices and sources of other income. The household size plays a role as smaller families might require smaller land holdings and larger families might need more land. The region of location is also a huge determinant since an agriculture-based economy usually requires more land holdings. Lastly, the type of farming must also be considered, for instance whether the land is being used for crops or orchards or just as pasture for animals and also whether the particular household has other sources of income. Given the wide range of factors that require equal attention, it is challenging to set a threshold that fulfils all these conditions.

The focus group discussions carried out in some districts concluded that five acres was the threshold for a rural farming household with an average family size of five. It was decided that for farming-related activities an average of five acres would be sufficient to grow crops or fruits or for livestock management. The land asset is included to reflect assets for rural areas, and so understanding land ownership in rural areas is pertinent for setting the threshold. In rural areas, only 26% of households have five or more acres of land, while about 44% have three or more acres of land. For the MPI Bhutan 2010, the threshold was set to one acre, but the GNH Index is not a poverty measure and so a minimum threshold cannot be applied. The average household size in rural areas is 4.7, and the sufficiency threshold for an average land amount was normatively set to five acres. About 22% are sufficient; however, note that the GNH Index also includes urban dwellers whose income comes mostly from employment, so they would be regarded as deprived in this sub-indicator (but not necessarily overall as we see below).

The final threshold across the three assets is applied so that if a household possesses sufficiency in appliances or livestock or land then the household is classified as being sufficient in assets overall. This implies that any one condition of the three can be satisfied to be in order to be labeled non-deprived. This threshold was selected based on its flexibility to incorporate individuals from diverse occupational backgrounds, as well as from varied areas of residence. For example, livestock and farm land may not be very relevant to a person who is employed in a service occupation but may be particularly valid in remote areas. It must be understood that the objective of an asset indicator is to supplement information income with some crude indicator of wealth. Asset indices may move more slowly than income and expenditure. This gives rise to data reliability issues for GNH Index analysis attempting to capture trends in well-being over time. This requires not only that we interpret results with due caution but that we also keep in mind the complexities of combining the three assets together. However given the issues with the income data mentioned above, both indicators were included to improve accuracy. Application of the overall conditional threshold identifies 74.1% of Bhutanese to have achieved sufficiency.

Housing quality

The domain is incomplete without including an indicator of housing conditions. The benefits of good housing can be observed from both an individual as well as from a community perspective. On the individual level, having one's personal space is considered fundamental for one's biological, psychological and social needs since it is a place where most spend a significant part of their everyday lives.[26] Studies show the critical impacts that poor quality, overcrowded and temporary accommodation can have on an individual's physical and mental health.[27] From a community standpoint, aspects such as combating social exclusion and discrimination and strengthening social cohesion cannot be achieved unless there are proper living spaces and a decent standard of accommodation. Studies show strong associations between the likelihood of criminality and educational attainment (Lupton and Power 2005; Fagan and Davies 2007; Friedman 2010). Overcrowded accommodation, which is based on the number of rooms and number of household members, can lead to family disintegration and a weakening community ties, and is considered to give rise to a variety of social ills. Therefore, insufficient housing conditions can pose a threat to not only the well-being of individuals but also the community at large.

The quality of housing is composed of three indicators: the type of roofing, type of toilet and room ratio. The thresholds have been set based on the Millennium Development Goals such as corrugated galvanized iron (CGI) or concrete brick or stone for roofing, pit latrine with septic tank for toilet and two persons per room for overcrowding, and all three conditions must be met. So, overall an individual is sufficient in housing if he or she lives in a house that has a good roofing structure (CGI or concrete brick or stone), a pit latrine with a septic tank, and uncrowded rooms. In reality, having a higher quality roof may by far outweigh toilet condition as far as housing quality is considered. With the stated threshold, about 46.2% are sufficient in housing quality.

Weighting

The nine domains of GNH are equally weighted. This is because they are of equal importance, so none can be permanently ranked as more important than others but each might be particularly important to some person or some institution at a given point in time. The 33 indicators are roughly equally weighted but the subjective and self-reported indicators have lighter weights and the indicators that are anticipated to be more objective and/or more reliable have relatively higher weights when the domains mix subjective and objective indicators. There are equal weights among all indicators in three dimensions: psychological well-being, time use and living standards.

In three domains, health, good governance, and ecological diversity, subjective indicators receive only 10% of the weight of the dimensions and the other indicators within those dimensions are equally weighted. The five indicators which receive 10% weight of their respective dimension each, because they are subjective, are as follows: in the domain of health – self reported health status; in the domain of governance – governance performance and fundamental rights; in the domain of ecological diversity and resilience – responsibility towards the environment and perceptions of ecological issues.

In the last three domains, education, culture and community, self-reported indicators are weighted at 20% each and the other indicators are weighted at 30%. In education, the two self-report based indicators are knowledge and values. In cultural diversity and resilience, the two self-report based indicators are speaking a native language and *Driglam Namzha*. And in community vitality the two self-report based indicators are community relationships and family relationships.

Table 2: Weights on the 33 Indicators

Domain	Indicators	Weight	Domain	Indicators	Weight
Psychological wellbeing	Life satisfaction	33%	Good Governance	Political participation	40%
	Positive emotions	17%		Services	40%
	Negative emotions	17%		Governance performance	10%
	Spirituality	33%		Fundamental rights	10%
Health	Self reported health	10%	Community vitality	Donation (time & money)	30%
	Healthy days	30%		Safety	30%
	Disability	30%		Community relationship	20%
	Mental health	30%		Family	20%
Time use	Work	50%	Ecological diversity	Wildlife damage	40%
	Sleep	50%	& resilience	Urban issues	40%
Education	Literacy	30%		Responsibility towards er	10%
	Schooling	30%		Ecological issues	10%
	Knowledge	20%	Living Standard	Per capita income	33%
	Value	20%		Assets	33%
Cultural diversity	Zorig chusum skills (	30%		Housing	33%
& resilience	Cultural participatio	30%			
	Speak native langua	20%			
	Driglam Namzha (Eti	20%			

In this way the weighting on the indicators tries to both preserve accuracy and also to prevent future GNH indices being too affected by changes in the frame of reference or changes in the aspirations of people that might affect their subjective or self-reported indicators. However these are difficult decisions to make. Many indicators in the GNH survey could be argued to be self-report based. Indeed to some extent all could be self-report based indicators. However we have tested the GNH Index robustness to changes in these weights and those results, which are presented later, show that it is relatively robust for policy purposes for small changes in the weighting structure.

Thresholds

The GNH Index uses two kinds of thresholds: sufficiency thresholds or cutoffs, and one happiness threshold. Sufficiency thresholds show how much a person needs in order to enjoy sufficiency in each of the 33 cluster indicators. It asks how much is enough to be happy. Each of the 33 cluster indicators has a sufficiency threshold and each person in the survey is identified as enjoying sufficiency or not in each indicator. How are these sufficiency thresholds set? Who decided?

There were different inputs to calibrate these decisions. Some use relevant and appropriate international standards, e.g. for hours of work, and overcrowding in a house. Some use national standards, e.g. a sufficiency income is equivalent to 1.5 times the income poverty line for Bhutan. For other indicators there wasn't a literature or precedent in Bhutan or internationally to set sufficiency thresholds. For this reason, some rely on normative judgments. This is because GNH is innovative and there are no international or national standards for these indicators, e.g. for positive emotions. In this case, the GNH thresholds are based on normative judgments that

have been shared and discussed in consultative sessions. The final and important inputs were participatory meetings. The Centre for Bhutan Studies held consultative conversations with different institutions and leaders in government, and focus group discussions with communities in different rural areas and sought their input, checking with them the thresholds on test or trial GNH indices while the GNH Index was still being finalized. Their insights proved very useful but also drew attention to the fact that no one set of thresholds will be accurate across all people in Bhutan. And that is why it is very important to have a second cut-off, of a sufficient happiness threshold that allows for a lot of variation among people, based on their own personalities and aspirations as well as on their material, community and climactic circumstances. All of the indicators with their cut-offs will not be equally meaningful or relevant in the many varied contexts of Bhutan – but they need not be. The second threshold permits diversity.

In reporting the GNH, we divide the population into four sub-groups by applying three cutoffs, which refer to people who have achieved sufficiency in 50%, 66%, and 77% of the weighted indicators. This enables us to identify the unhappy, narrowly happy, extensively happy, and deeply happy. We can and do analyze each of these groups' achievements separately. For each person, we have their personal profile of achievements across all 33 cluster indicators, and these profiles provide a rich basis for analyses of these four different GNH Groups – the indicators and dimensions in which they lack sufficiency, and how these change by gender, region, age, and occupation.

To calculate the GNH Index, we choose one threshold or cutoff. We could choose the lowest cutoff in which case we would find that only 10% of Bhutanese were unhappy. However this would restrict the policy focus to a small set of the population, leaving the rest unsupported. So instead, we choose the middle happiness cutoff of 66%. Thus the not-yet-happy group includes both those who are unhappy and those who are narrowly happy – a total of 41% of people. Our analysis of how to "increase GNH" focuses on increasing the sufficiency of these groups.

This second cutoff is referred to as the happiness threshold. It is set across the nine domains and the 33 cluster indicators. The question that it asks is "how many domains or in what percentage of the indicators must a person achieve sufficiency in order to be understood as happy?" Here it is important to acknowledge that this approach is an experiment. Happiness is a very deeply personal experience and any measure of it is necessarily imperfect. The index is offered to the people of Bhutan for understanding, discussion and debate to see if it frames and captures their understandings and how this might change or be improved.

The happiness threshold was set based on three criteria. The first is diversity, as not all of the indicators have universal applicability. It may not be necessary to have sufficiency in all of the indicators to be happy; e.g. a person who is very old might not need sufficiency in education indicators in order to be happy. They might have other members of their family who can read for them or explain things that require a formal education and their wisdom and skills may suffice for their own happiness. Some people, such as atheists for example, may not participate in prayer recitation or meditation.

The second is measurement error. Responses might not be completely accurate about people's values in different cultures – for example, people may be hesitant to say what exactly their beliefs or practices are for fear of seeming proud or ostentatious. Because of the difficulty of allowing for these differences (as it is done in poverty measures) it seemed reasonable not to require sufficiency in every domain.

The third and last criterion is freedom of choice. Many people are fully happy without achieving sufficiency in every single indicator. Maybe they are not healthy but they have achieved a kind of flourishing, fulfillment and richness of life that is important. Maybe they are illiterate or have material challenges but that need not necessarily be decisive for their happiness. Thus to allow some freedom of choice we have set the happiness threshold at 66%.

Methodology

The GNH itself is constructed using the Alkire Foster method (2007, 2011) for measuring multidimensional concepts such as poverty, well-being or inequality (see the Appendix for the formal methodology). It is a robust method that identifies a group – in this case those people who are not-yet-happy (vs. those who are happy) by considering the "sufficiencies" they enjoy. It is a flexible method that has been fully tailored to the needs and context in Bhutan. This includes identifying the happiness gradient – the four population subgroups according to the percentage of weighted indicators in which they have sufficiency.

Like other measures in the Alkire Foster family, the GNH Index is created from two numbers:

Headcount ratio: Percent of people who are happy
Breadth: Percent of domains in which people who are not-yet-happy enjoy sufficiency (this is similar to "intensity" in poverty measures using the Alkire Foster method)

To construct the GNH Index using this methodology six steps are followed:

1. Choose indicators
2. Apply sufficiency thresholds (who has enough)?
3. Apply weights for each indicator
4. Apply the happiness threshold
5. Identify two groups:
    1. **Happy people (extensively and deeply happy)**
    2. **Not-yet-happy people (policy priority)) (unhappy and narrowly happy)**
6. Identify among the not-yet-happy people, in what percentage of domains they lack sufficiency, and in what percentage they enjoy sufficiency.

Figure 2: Identifying who is happy according to the GNH

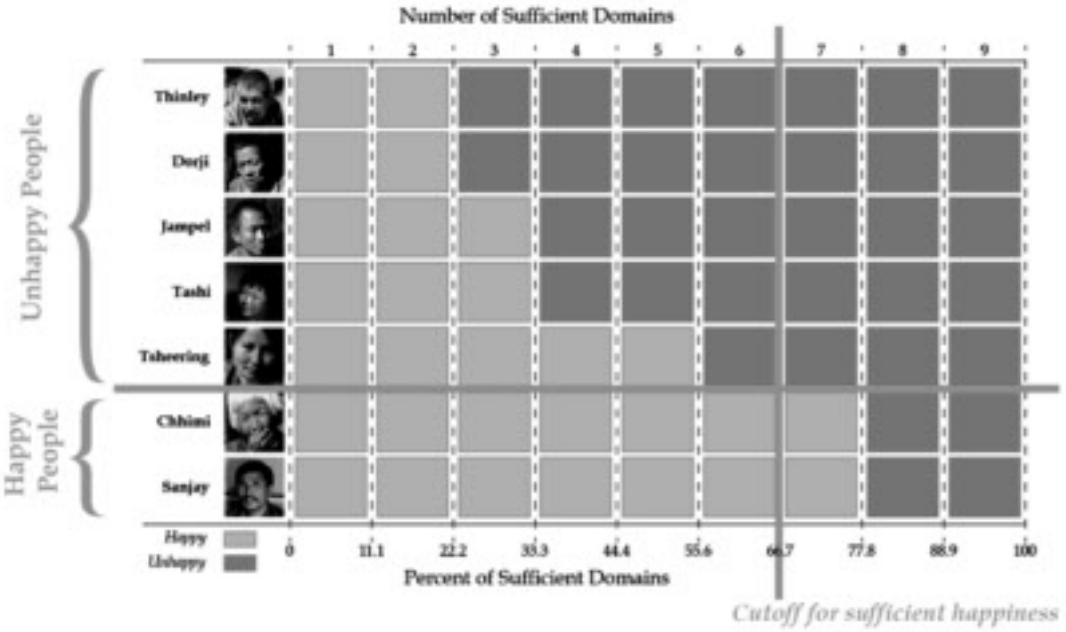


Figure 2 uses an illustrative sample of seven people with nine domains to show how step five works in practice.[28] The people at the top have sufficiency in the fewest domains, while those at the bottom have the most.

How do we move from this picture to the GNH? Here four out of seven people are not yet happy – 4/7 = 57%, while 3 out of 7 people are happy – 3/7 = 43%. Once we have this figure, to compute the GNH Index, we only need to know one more thing: Among the not-yet-happy people, in what percentage of domains do they enjoy sufficiency?

Figure 3: Calculating the percent of domains in which not-yet-happy people lack sufficiency

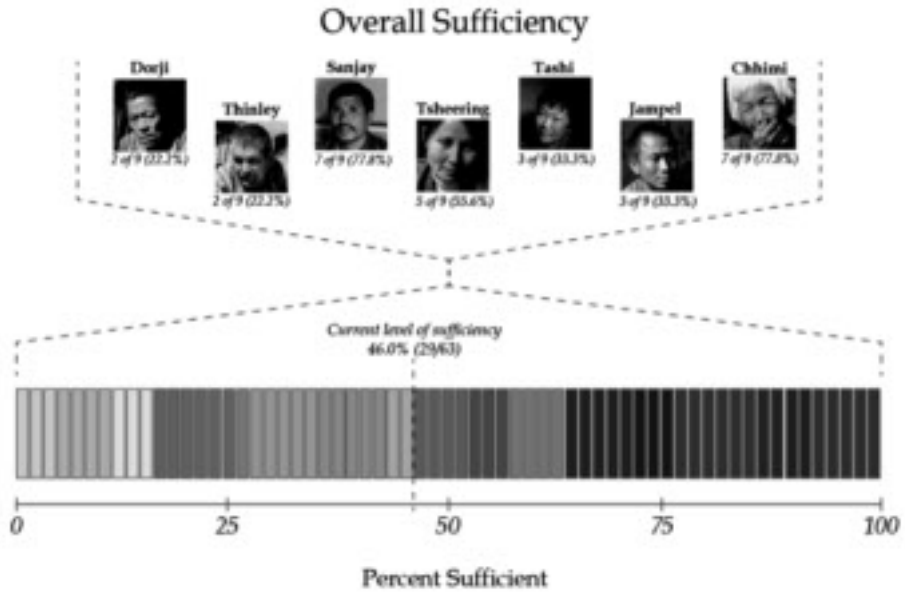


Figure 3 shows how we arrive at this figure. The not-yet-happy lack sufficiency in 48.9% of domains, and enjoy it in 51.1% of domains in this example.

To calculate the GNH, the data of the population are aggregated into a decomposable "Adjusted Headcount M_0" measure that is sensitive to the "breadth" of achievements (Alkire and Foster 2007, 2011). M_0 is constructed by multiplying H_nA_n, where H_n represents the percentage of people who have not achieved sufficiency in six domains thus are identified as not-yet-happy, and An is the average proportion of dimensions in which those not-yet-happy people lack sufficiency.

The Adjusted Headcount ranges in value from 0 to 1, with larger numbers signifying greater insufficiencies and less happiness. In order to create the GNH Index in which a higher number reflects greater happiness, the Adjusted Headcount is subtracted from 1 to obtain the GNH. $GNH = 1 - H_nA_n$.

The GNH Index formulae can also be written $GNH = H_h (H_n \times A_s)$, where H_h is the percentage of happy people [$H_h = (1=H)$] and A_s is the percentage of dimensions in which the average not-yet-happy person enjoys sufficiency [$A_s = 1-A_n$].[29] This way of presenting the same results focuses on happiness and sufficiency; the first presentation focuses on the not-yet-happy people and their insufficiencies. Both formulae create the same number, and both are useful in explaining the GNH Index. The GNH Index can be decomposed by population sub-groups and broken down by indicators.[30]

So returning to our example, we take the following three numbers:

The percentage of happy people we call H_h
This is 43% in the example

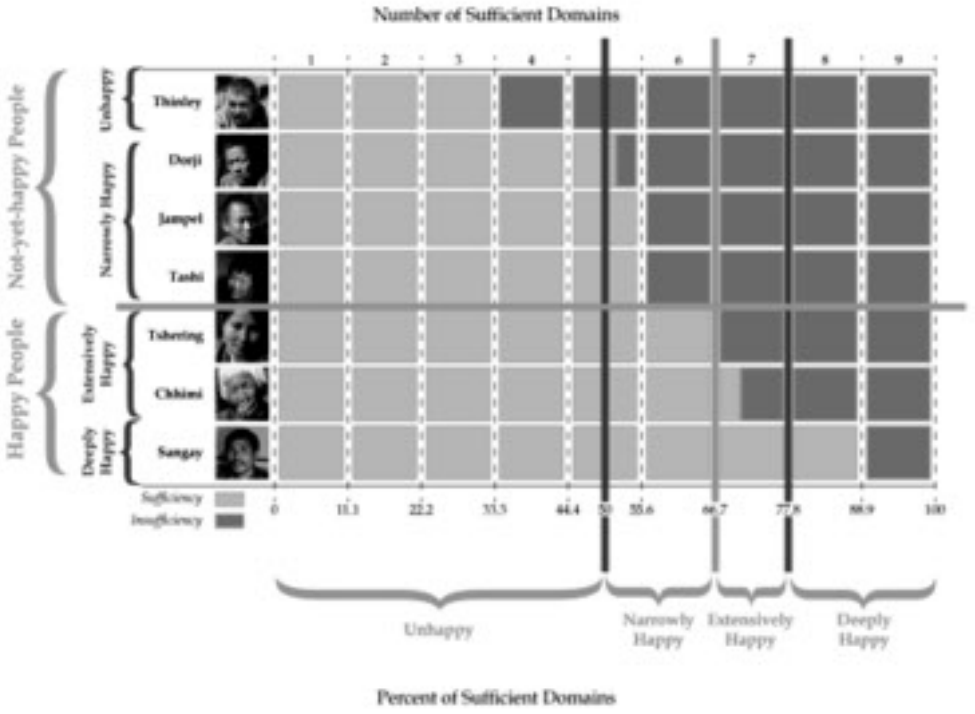
The percentage of not-yet-happy people H_n
This is 57% in the example

The percentage of domains in which not-yet-happy people enjoy sufficiency we call A_n
This is 54% in the example

They are then combined into a final GNH formula as follows: $\mathbf{GNH=(H_h+H_nA_s)= 57\% + (43\% \times 48.9\%) = 0.780}$

Now, to identify the happiness gradient, apply the two additional cutoffs – 50% and 77%. These enable the identification of the two additional groups.

Figure 4: Happiness Gradient



As Figure 4 shows, when we apply the 50% cutoff we find that only one person, Thinley, is unhappy. Looking between 50-65% we find three people are narrowly happy: Dorji, Jampel and Tashi. Two people have sufficiency in 66-76% of domains: Tshering and Chhimi. And finally, one person, Sangay, is deeply happy with achievements in over 77% of domains. We can compute the average sufficiency for each group also: for example, in the case of the narrowly happy people, the average sufficiency is [(4.6/9 + 5/9 + 5/9)/3] = 54%. We could also look at their composition (see Figure 21).

What does the GNH Index show us?

The index provides an overall picture of how GNH is distributed in Bhutan and can also be used to zoom in to look at who is happy and those who are "not yet happy," and to zoom further to look the unhappy, narrowly happy, extensively happy, and deeply happy. The GNH can also be unpacked in different ways to tell different stories. It can be decomposed by subgroups like Dzonkhags, age groups, gender, or some occupations. It can also be analyzed by each dimension and indicator. All of these functions make it a useful tool for policymakers as they seek to address the question of "how can GNH be increased?"

Overall, most Bhutanese enjoy sufficiency in value, safety, native language, family, mental health, urbanization issues, responsibility towards environment, satisfaction in life, government performance, healthy days and assets. Between 50-60% of Bhutanese enjoy sufficiency in ecological issues, negative emotions, community relationship, artisan skills and *Driglam Namzha*. Less than half of Bhutanese enjoy sufficiency in literacy, housing, donations, work, services, schooling, cultural participation and knowledge.

Each of the GNH indices is also reported for each of the 20 districts, by gender, by rural-urban area, and, for illustrative purposes, by age and certain occupational categories. Standard errors are presented, as are robustness tests for weights and cutoffs, measured with respect to group rankings and also, for the first time, with respect to the percentage contribution of each indicator.

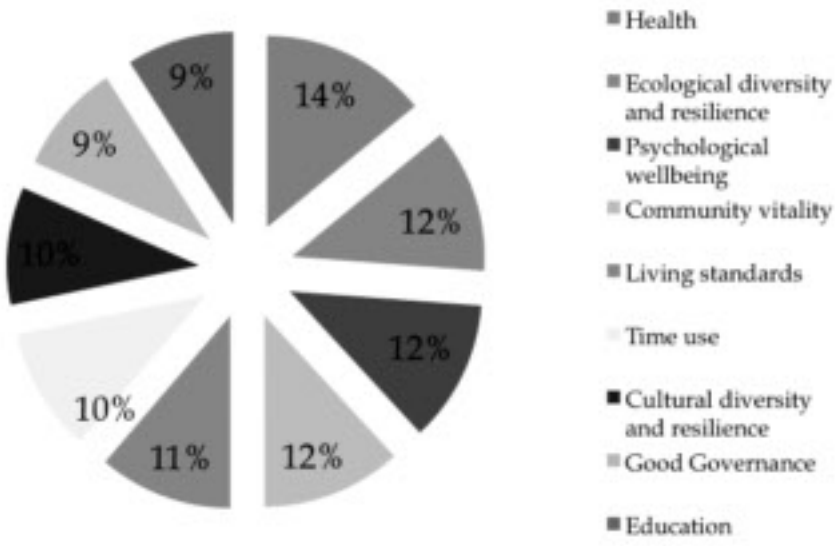
Understanding happiness and who is happy

The GNH value is 0.737. It shows us that 40.8% of people in Bhutan have achieved happiness, even after the structure of the GNH Index requires a wide array of conditions to be met. Those who are happy enjoy it in 56.6% of the domains, i.e. have sufficiency in 56.6% of the 124 weighted conditions. Happiness according to the GNH is reached when people reach sufficiency in roughly four out of the six domains or the equivalent proportion of conditions. How do the lives of happy people look? We first look at all happy people, and then briefly examine the "deeply happy" subset of them.

Domains

Figure 5 shows in which domains happy people enjoy sufficiency. We can see that all nine dimensions contribute to GNH and no domain is unimportant. Happy people live relatively balanced lives.

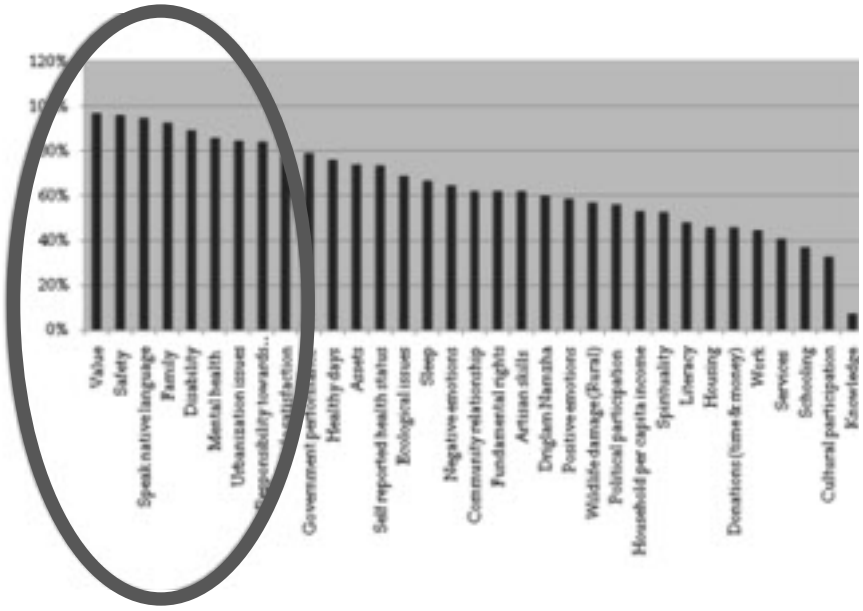
Figure 5: In which domains do happy people enjoy sufficiency?



Good health (14%), community (12%), ecology (12%), and psychological well-being (12%) contributed most to GNH of happy people in 2010. Happy Bhutanese did not necessarily have high education (9%). Nor did they score equally high in good governance (9%).

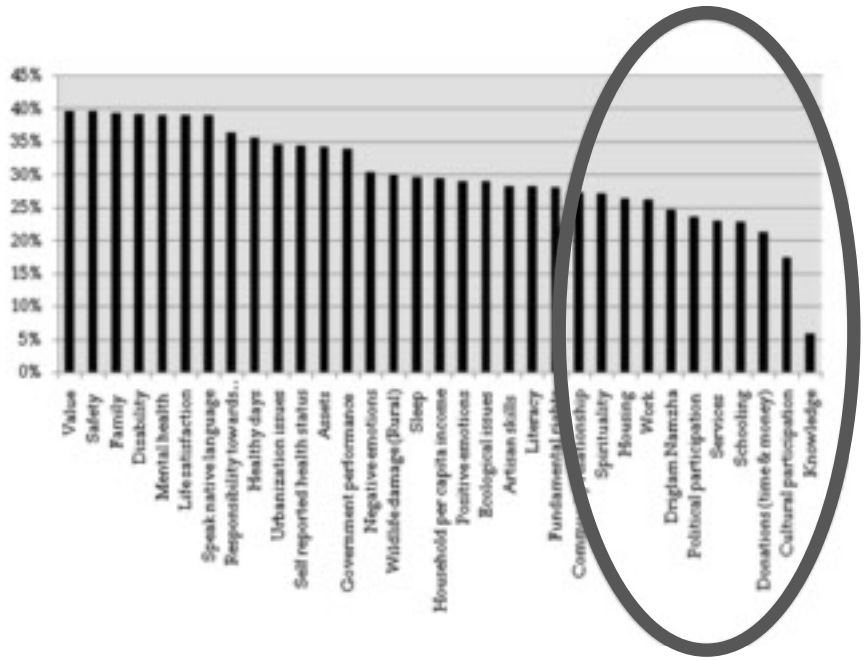
Indicators

Figure 6: Indicators in which happy people enjoy sufficiency



Bhutanese enjoy highest sufficiency in value, safety, native language, family, mental health, etc.

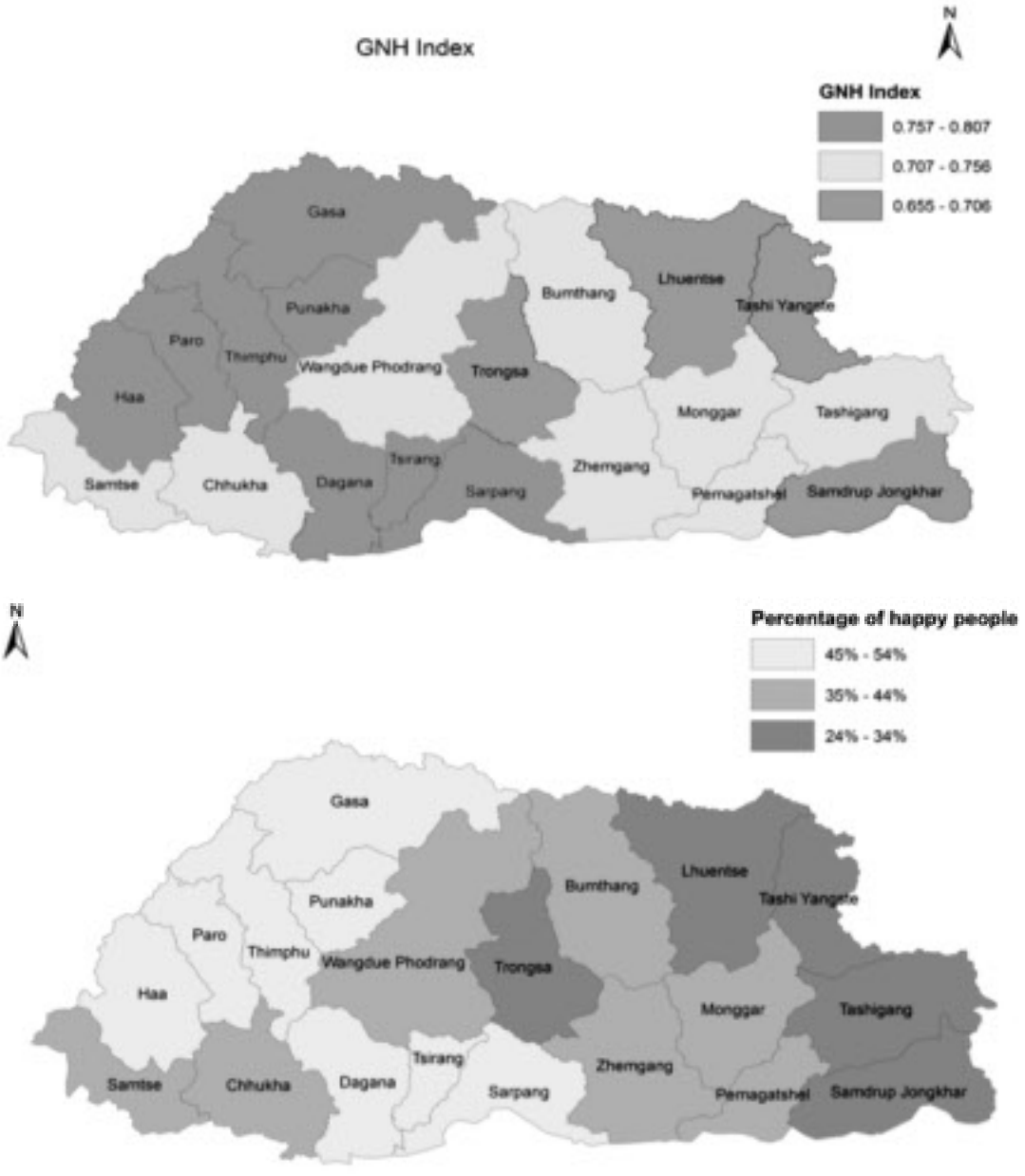
Figure 7: Indicators in which happy people lack sufficiency



The indicators in which happy people still often lack sufficiency were knowledge, participation in festivals, donations, having more than six years of schooling, enjoying government services, participating politically, and believing in the practice of *Driglam Namzha*.

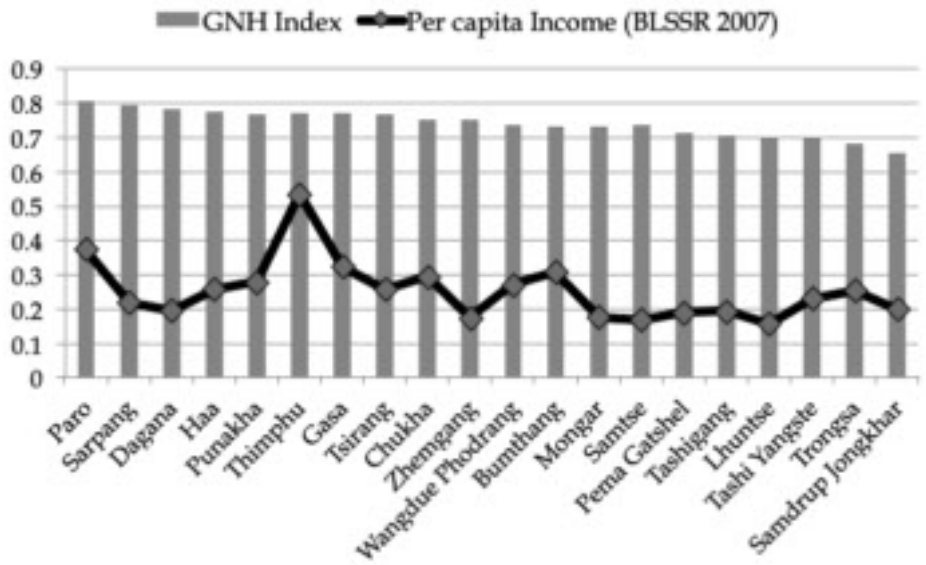
Dzongkhag (district)

Figure 8: GNH index by dzongkhag (district)



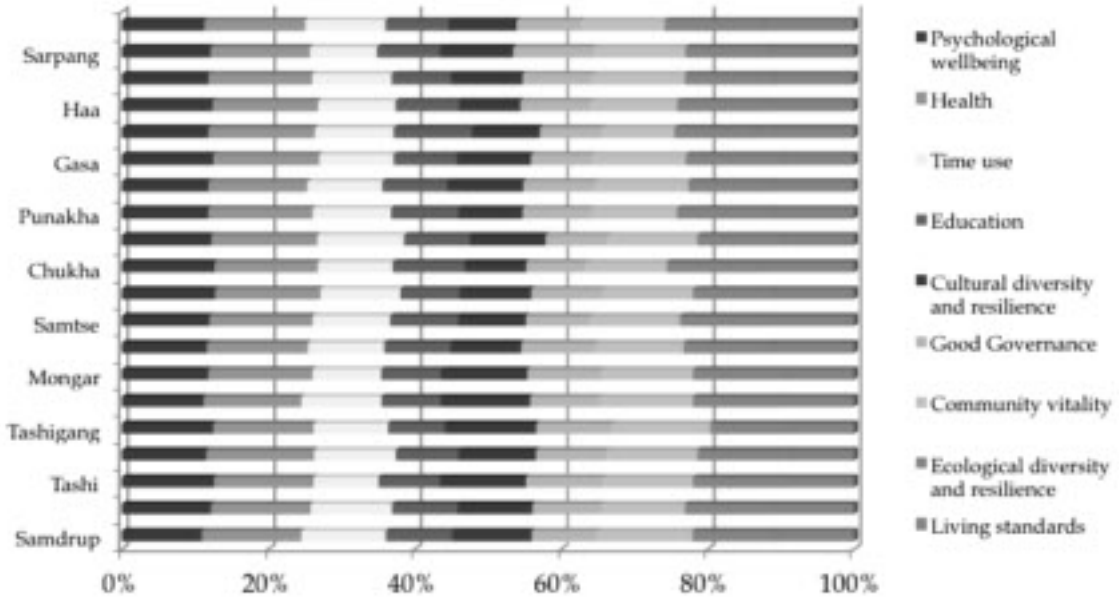
The GNH reveals a large amount of equality between the regions and the range between regions is very small. One district is probably the unhappiest – Samdrup Jongkhar.

Figure 9: GNH compared with per capita income



GNH ranks districts differently than does per capita income. Thimphu (the capital) is not ranked highest in GNH terms yet it has the highest per capita income of any district of Bhutan. Dagana and Zhemgang do much better in GNH than on income criteria.

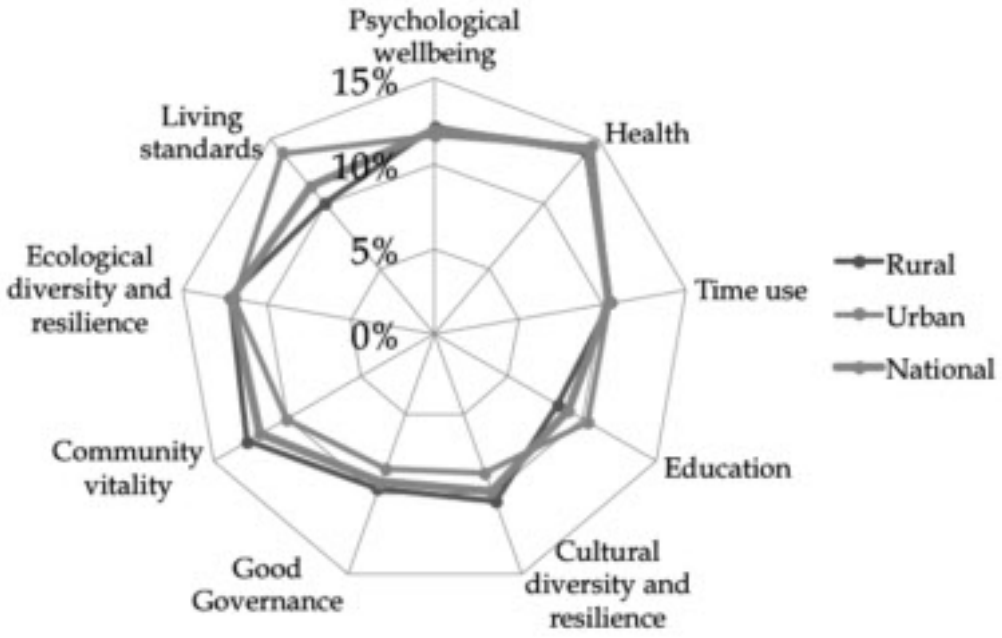
Figure 10: How the nine domains contribute to happiness by Dzongkhag



The composition of happiness changes somewhat across Dzongkhags. Thimphu does better in terms of education and living standards, but worse in community vitality. Thimphu and Chukha are also home to the highest number of happy people – and the highest numbers of not-yet-happy people (they are the biggest two Dzongkhags in terms of population) in absolute terms.

Rural and urban populations

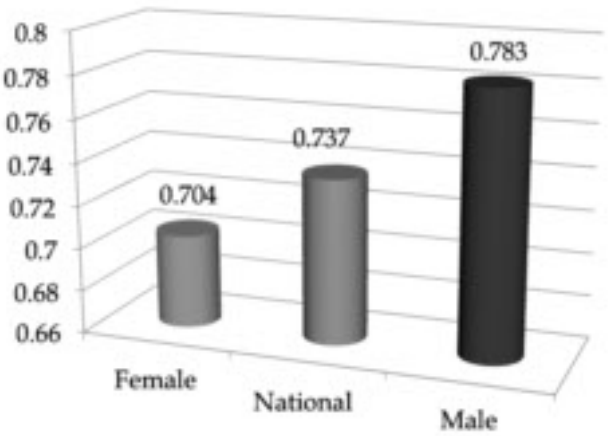
Figure 11: Contribution of domains to happiness by region



In general, rural people are less happy than urban people but it is rather balanced. 50% in urban areas are happy on GNH criteria and 37% in rural areas. The composition of happiness also differs; in rural areas, community vitality, cultural diversity and good governance contribute more to happiness. In contrast, living standards, education and health contribute more to happiness in urban areas. Urban people have insufficiency in governance, time use and culture, while in rural areas insufficiency is worst in education and living standards.

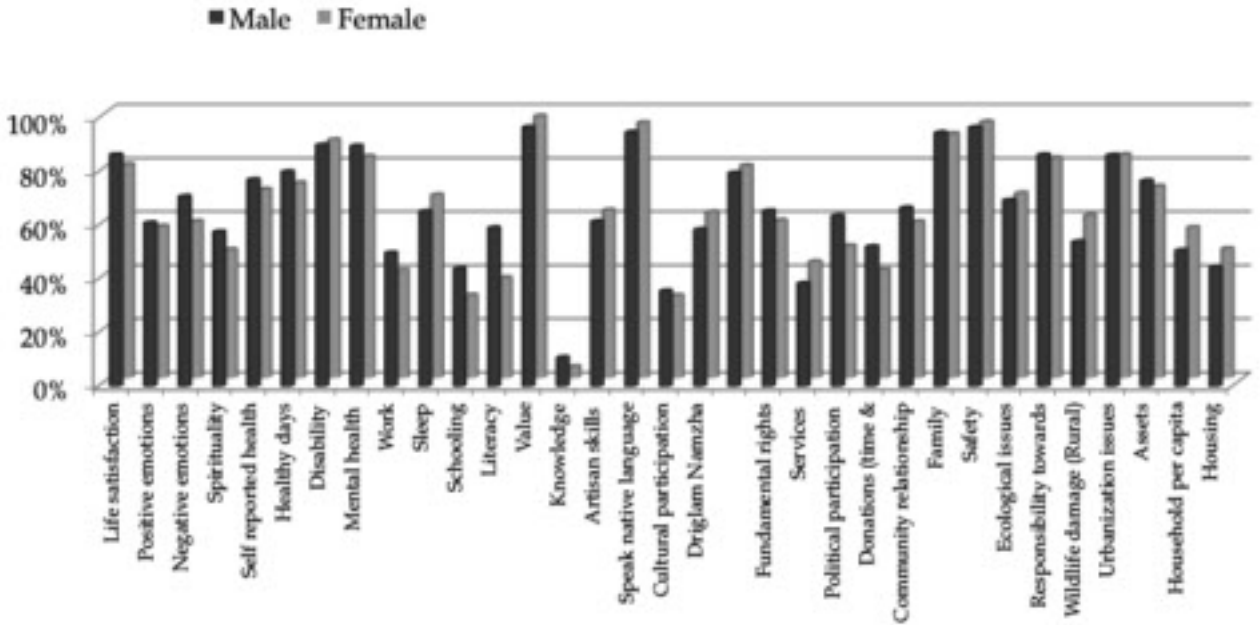
Gender

Figure 12: GNH index by gender



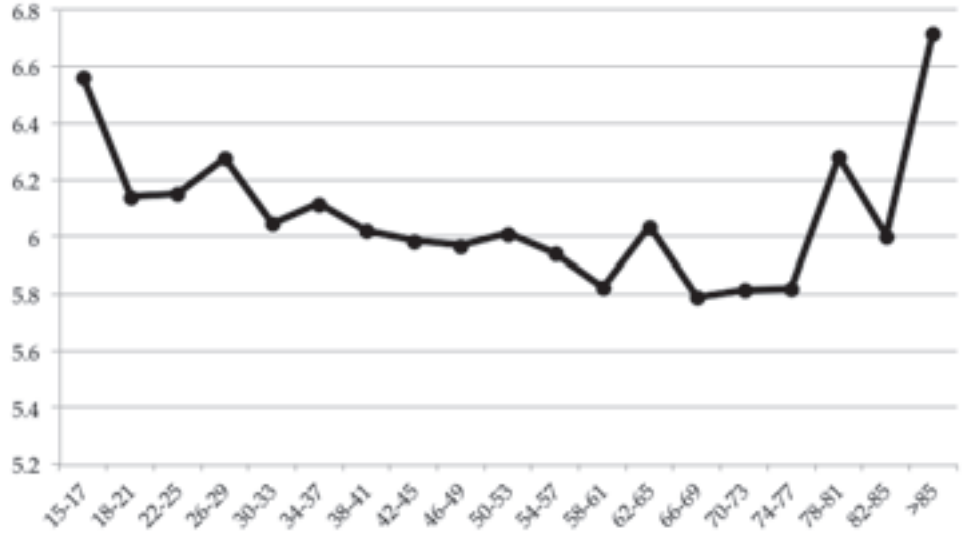
When we decompose the GNH Index by gender we see that men are happier than women. 49% of men are happy, while only one-third of women are happy, a result that is both striking and statistically significant. Women do better in living standards and ecology. Men do better in education, community vitality and psychological well-being. Men and women are about the same in health, time use, governance, and culture.

Figure 13: Percentage of Bhutanese having sufficiency according to gender



Age groups

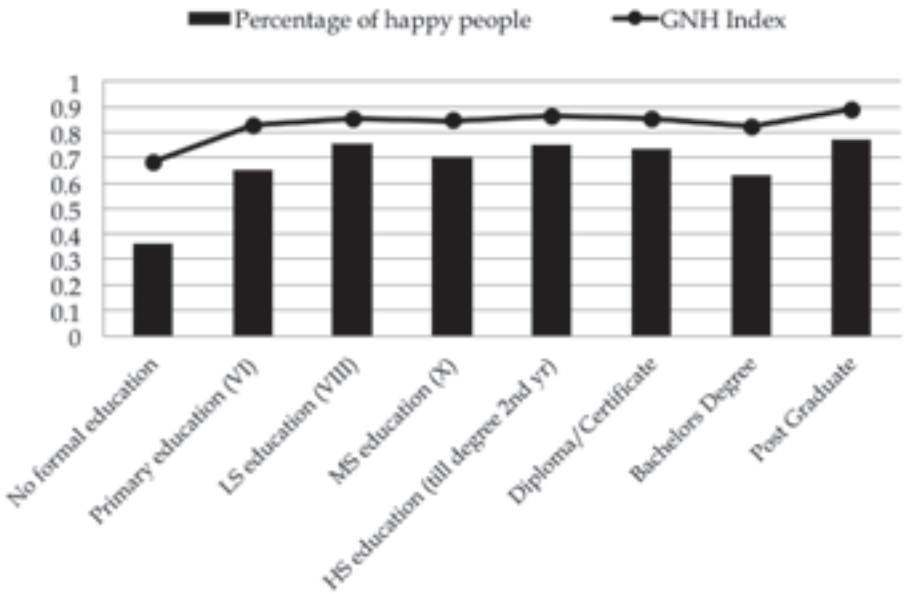
Figure 14: Self-reported happiness level by age group



The psychological happiness variable asks people to say, on a scale of 0 to 10, whether they consider themselves: 0 (Not a very happy person) - 10 (Very happy person). The young are generally the happiest group in Bhutan.

Educational level

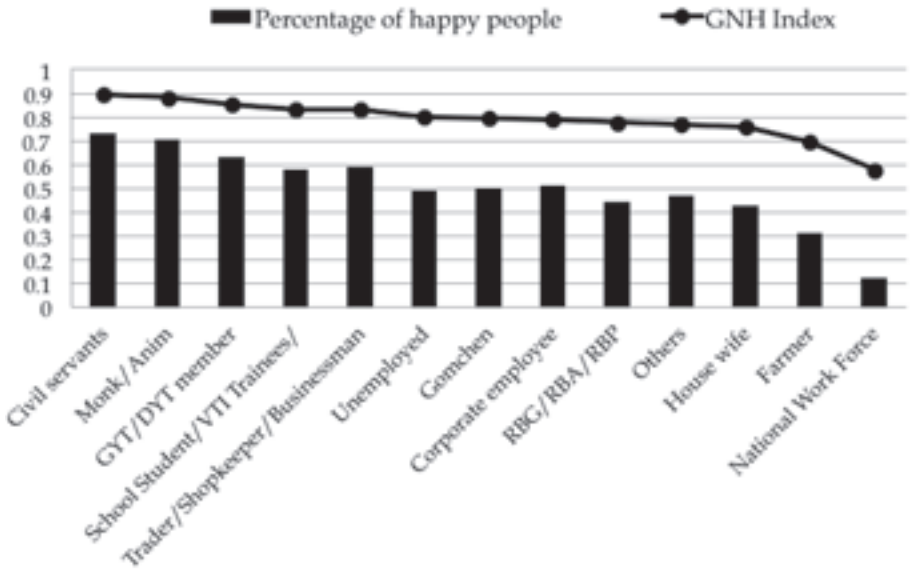
Figure 15: GNH Index and percentage of happy people by educational level



People who have been identified as happy by the GNH Index don't necessarily have good education. Those who are educated to post-graduate level are a little bit higher, though a lack of formal education clearly goes with lower happiness. We can also see that as education increases, the contribution of living standards and education to happiness increases; the contribution of governance and culture decrease.

Occupation

Figure 16: GNH Index and percentage of happy people by occupational status



The sample is not fully representative and these are not robust rankings. Members of the national work force are clearly and strongly the unhappiest group – they are often poorly paid migrants doing manual labor such as taking care of roads. Clearly, it is the worst group followed by farmers, the biggest group in the survey.

The deeply happy

Any analysis of the "happy" people would be incomplete without a brief exploration of the subset of happy people who are identified as "deeply happy." These comprise 8.3% of the population. Two-thirds of these are male, and one-third are female. 69% of the deeply happy people live in rural areas, and 31% in urban areas. The ages are spread from less than 20 years old to more than 65, with 59% of the deeply happy people being less than or equal to 40 years old. Deeply happy people live in every single district of Bhutan, with the highest numbers living in Thimphu, Samtse and Chukha. Still, only 12% of the deeply happy people live in Thimphu. 84% of the deeply happy people are married and 12% are never married; the rest are divorced, separated or widowed. 26% of deeply happy people have no formal education; 28% have completed primary school; and some deeply happy people pertain to the remaining categories of education. Finally, deeply happy people pertain to every occupational category except the national workforce. The highest share of deeply happy people is farmers (34%) followed by civil servants (18%). This small snapshot of happiness across Bhutan shows that it is accessible to people of different ages, occupational categories, regions, and educational backgrounds. The fact that two-thirds of deeply happy people are men is of clear policy interest.

Deeply happy people, on average, enjoy sufficiency in 81.5% of the domains. However it can still be interesting to look at the domains in which even they lack sufficiency. Interestingly, there are some insufficiencies in each domain, although these are very low in health. Overall, deeply happy people have the lowest deprivations across the four groups of happiness in health, living standards, time use, and psychological well-being. They have the highest relative (not absolute) contributions from deprivations in governance and culture.

The many faces of GNH

The GNH Index, like the philosophy of GNH that motivates it, is very much a living experiment, seeking to convey more fully the color and texture of people's lives than does the standard welfare measure of GNI per capita. It reflects the fact that happiness is a deeply personal matter and people will rarely agree on a set definition. Indeed, happiness has many faces, as the GNH survey shows. Here are the stories of just some happy people whose experiences of GNH were captured in the 2010 survey and who were identified as happy by the GNH Index.

These profiles help to enrich our understanding of happiness according to GNH and show that different groups – literate or illiterate, urban or rural, young or old, monk, farmer, or corporate worker, can all be happy according to these models.

One such happy person in the GNH survey was a married corporate employee aged 35 living in urban Chukha. He has completed 10th class, and has achieved sufficiency in nearly all indicators. He was a bit **sleep deprived**, and did not feel a deep sense of belonging to his community, but was overall very satisfied with his life. When asked what contributed most to happiness he said: to **be healthy, to meet basic needs, to have peace in the family, to be religious**.

Another happy person whose experiences were captured in the GNH survey was a married woman farmer aged 44 living in rural Tongsa. She was **illiterate**, and was deprived due to **wildlife damage to her crops**, and thought she **never felt forgiveness among the positive emotions –** yet was happy. She mused that she felt happy when she was able to do her **household work**, **when she was harvesting potatoes**, and **as she wove**.

Another happy person in the GNH survey was a widowed *gomchen* aged 70 living in rural Thimphu. He had **no formal education**, and was **deprived in education, housing, sleep** and did not **participate politically**. He observed that **getting good agricultural products from the land** contributes to happiness.

Another happy person as defined by the GNH Index is an unmarried young woman aged 26 living in urban Tashigang. She completed a bachelor's degree and is a civil servant living alone. She scores highly across domains, although she misses a **sense of belonging**. When asked what contributes to her happiness she replied: **love, family, friends, education, and enough money**.

Increasing Happiness: Policy implications

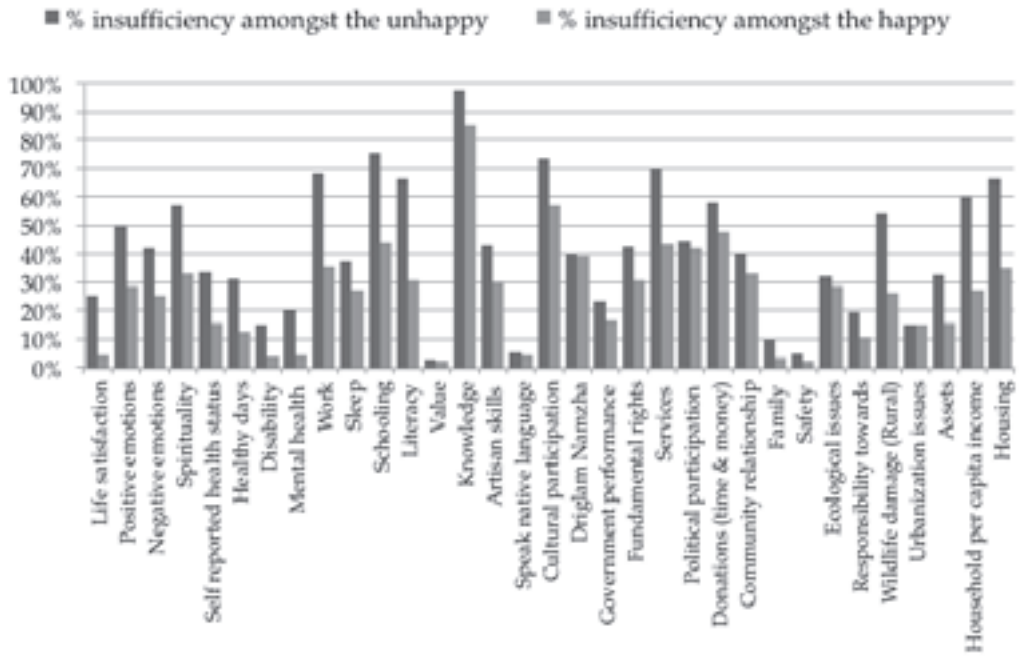
Aside from deepening our understanding of happiness, the GNH Index is formulated to provide an incentive to **increase happiness.** Civil servants, business leaders, and citizens of Bhutan may ask, "**how can I help to increase GNH**?" The GNH Index can help them answer this question in **practical** ways. It also enables the Government and others to track changes over time. In general, there are two mechanisms by which public policy action can be directed so as to increase GNH; it can either increase the percent of people who are happy, or increase the percent of domains in which not-yet-happy people enjoy sufficiency.

Insufficiencies by domain

To improve GNH we can look at people who are not-yet-happy and look at the areas where they lack sufficiency – 59% of Bhutanese are not-yet-happy, and they are deprived in roughly four domains each. The not-yet-happy people are more deprived in all 33 indicators than the happy people (Figure 17). The biggest deprivations are in **education, living standards** and **time use**. Among the not-yet-happy, women are unhappier than men.

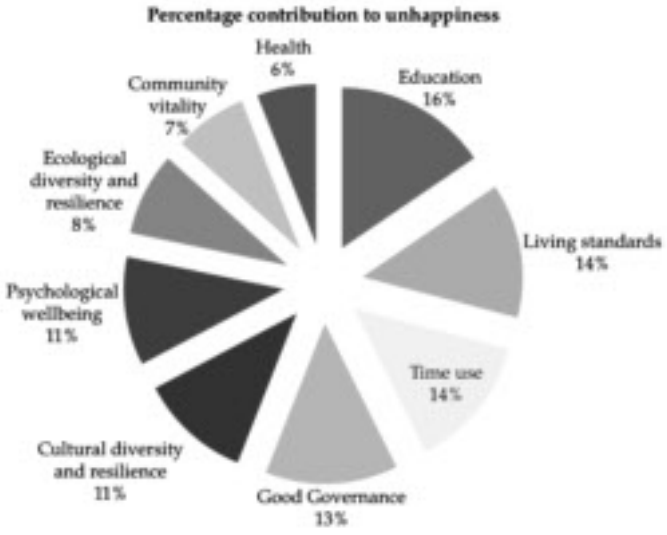
Rural people are less happy than urban people although their intensities are similar. But the composition of insufficiencies varies. The urban groups have bigger insufficiencies in governance, time and culture and in rural areas the biggest problems are education and living standards. The difference here is thus in terms of the more material domains versus those that are about community, culture and spirituality. In Thimphu, the capital, for example, the biggest deprivations are in community vitality.

Figure 17: Comparing percent of people who are insufficient among the happy and not-yet-happy



Across all indicators we see that there is no indicator in which "happy" people have *less* sufficiency than not-yet-happy people. Looking at psychological well-being, health, and time, we see that the "not-yet-happy" always have higher insufficiency. The groups are closest in sleep. In education, culture, and governance, the groups are least different than in value, language, *Driglam Namzha,* and political participation. Both have highest deprivations in education. In community, ecology, and living standard, the strong differences are in wildlife damage and in living standard. Happy people's insufficiencies in community and ecology are otherwise rather close, and in urbanization, almost equal.

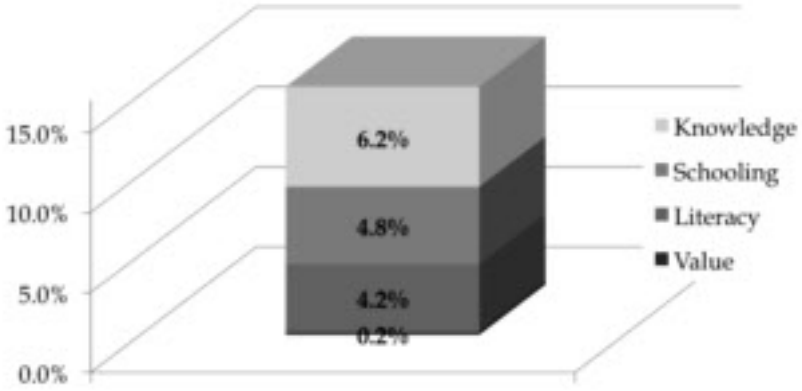
Figure 18: Understanding what constitutes unhappiness



Health is the lowest contributor to unhappiness followed by community vitality. Education is the highest contributor to unhappiness. In turn, we can break apart each domain and see how its individual indicators look, to see where the biggest sources of unhappiness are coming from.

Figure 19 illustrates this for the education domain. The highest insufficiency is in the knowledge indicator. Bhutanese experience low levels of knowledge in cultural and historical aspects of the country and in health and politics.

Figure 19: Contribution of Education indicators to unhappiness



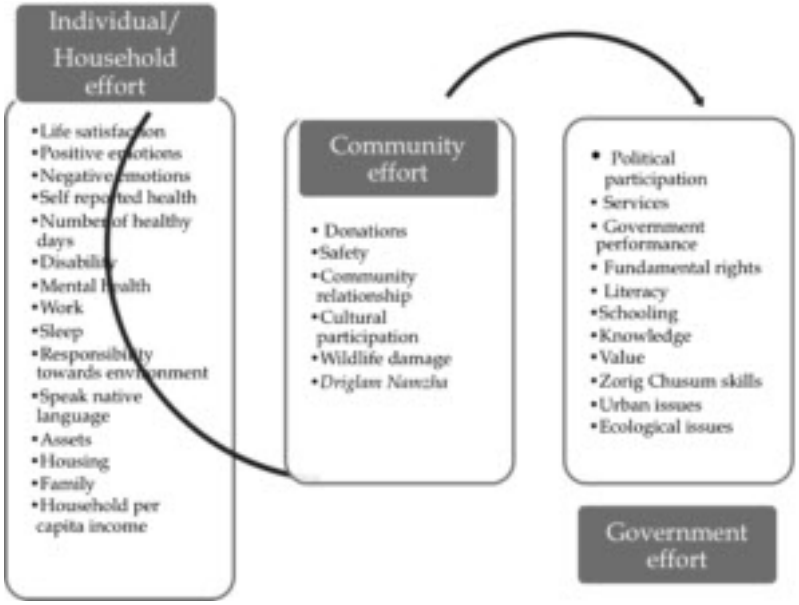
Who can increase GNH?

Increasing happiness is not only the business of government. The GNH requires civil servants, people in their personal lives, business leaders and others to ask how they can increase the GNH. It tries to offer the Index as a public good. His Majesty the King Jigme Khesar Namgyel Wangchuk clearly mentions that:

> "Our nation's vision can only be fulfilled if the scope of our dreams and aspirations are matched by the reality of our commitment to nurturing our future citizens."

The people who are not-yet-happy are an important policy priority and thus it is important to look at the areas in which they enjoy sufficiency and the percent of domains in which they still lack sufficiency. Government, monasteries, communities, and individuals and households efforts can contribute to increasing GNH.

Figure 20: Overlapping responsibilities for increasing happiness

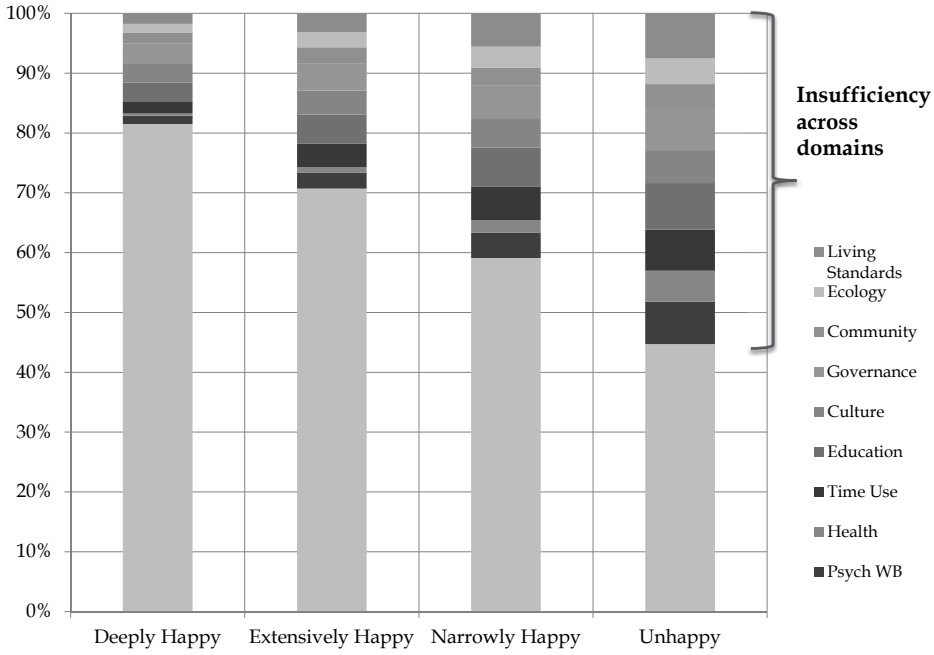


While responsibility for some indicators is shared across government, community and households, there is a lot of overlap between the areas of actions.

Insufficiencies by Happiness Group

Figure 21 shows the percent contribution of each domain to the insufficiency of the four population groups that we identified. As can be seen, clearly the average insufficiency is lowest, as we would expect, among the deeply happy group. We can also see that the absolute contribution of each indicator is the lowest in the deeply happy group. The biggest contributions to insufficiency among the unhappy are living standards, education, and psychological well-being – a combination of traditional and innovative measures of well-being. Time pressures and a lack of governance including access to services is also very high. Deprivations in community and ecology contribute relatively less to insufficiencies of the not-yet-happy.

Figure 21: Insufficiencies across the Happiness Gradient



The Unhappy

Those who achieve sufficiency in less than half of domains are consider unhappy. In 2010, 10.4% of Bhutanese were unhappy. Who are these people? 69% of the unhappy people are women and thirty one percent are men. 84% of unhappy people live in rural areas. Although the unhappy come from every age cohort, 57% of the unhappy are over 40 years old. Samtse, Tashigang, and Chukha are home to the most unhappy people, followed by Thimphu and Samdrup Jonkhar, but there are some in each district nationally. And 76% of unhappy people are married. While 90% of unhappy people have no formal education, others pertain to every other educational category except that there are zero unhappy people who have completed a diploma or post-graduate studies. 79% of unhappy people are farmers, but unhappy people are drawn from all occupations, except that there are zero unhappy people among the monks, anim, GYT and DYT.

Across domains, the unhappy people show markedly higher percent contributions to their deprivations from living standards, health deprivations, and psychological ill-being. This profile of unhappiness, when contrasted with the profile of the deeply happy people, is quite striking, in showing that no single category finds happiness unattainable, but in the same way very few categories leave one "immune" from unhappiness, with the possible exception of post-graduate education and the monastic or spiritually committed life.[31]

Building GNH

The GNH has been presented to provincial district-level leaders to allow them to review their policies against the district-level results and see how they could alter policies according to the results. The wider goal is to promote a public dialogue around the index so people share their own understandings and appreciate how they could increase their own GNH. Policy and program screening tools have already been in use since the 2008 index, and all agencies, whether public or private, are encouraged to think holistically.

As His Majesty the King said, "GNH has come to mean so many things to so many people but to me it signifies simply - Development with Values."

"We strive for the benefits of economic growth and modernization while ensuring that in our drive to acquire greater status and wealth we do not forget to nurture that which makes us happy to be Bhutanese. Is it our strong family structure? Our culture and traditions? Our pristine environment? Our respect for community and country? Our desire for a peaceful coexistence with other nations? If so, then the duty of our government must be to ensure that these invaluable elements contributing to the happiness and well-being of our people are nurtured and protected. Our government must be human." (*The Madhavrao Scindia Memorial Lecture* delivered by His Majesty the King, 23 December 2009 in New Delhi.)

Appendix: ***Methodology: GNH Index***

Let $M^{n,d}$ denote the set of all $n \times d$ matrices. The typical element $y \in M^{n,d}$ is the matrix of achievements of n people in *d* different dimensions. For every $i = 1,2,...,n$ and $j = 1,2,...,d$, the typical entry y_{ij} of *y* is individual *i*´s achievement in dimension *j*. The row vector $y_i = (y_{i1}, y_{i2}, ..., y_{id})$ contains individual *i* ´s achievements in the different dimensions; the column vector $y_{.j} = (y_{1j}, y_{2j}, ..., y_{nj})'$ gives the distribution of achievements in dimension *j* across individuals. Let $z_j > 0$ be the sufficiency cutoff value in dimension *j*. The sum of entries in any given vector or matrix *v* is denoted by |*v*|, while $\mu(v)$ is used to represent the mean of *v* (or |*v*| divided by the number of entries in *v*).

For any matrix *y*, it is possible to define a matrix of deprivations from sufficiency $g^0 = [g^0_{ij}]$, whose typical element g^0_{ij} is defined by $g^0_{ij} = 1$ when $y_{ij} < z_j$, and $g^0_{ij} = 0$ when $y_{ij} \geq z_j$.[32] That is, the ij^{th} entry of the matrix is 1 when person *i* has not achieved sufficiency in dimension *j*, and 0 when he/she is sufficient.

For each of the *d* dimensions we apply a weighting vector ω_d such that $\sum_1^j \omega_j = 1$. The insufficiency profile of person *i* is then generated by summing the weights of the dimensions in which person *i* has not achieved sufficiency.

Following the methodology to identify the multidimensionally poor proposed by Alkire and Foster (2007), let ρ_k be the identification method such that $\rho_k(y_i, z) = 1$ when $c_i \geq k$, and $\rho_k(y_i, z) = 0$ when $c_i < k$. That means that a person is identified as not having achieved happiness if he or she does not have sufficiency in at least *k* dimensions. Once identification is applied, a censored matrix $g^0(k)$ is obtained from g^0 by replacing the i^{th} row with a vector of zeros whenever $\rho_k(y_i, z) = 0$. This matrix is used to generate the GNH Index and to analyze how happiness might be increased.

To construct the GNH Index, we first construct an Adjusted Headcount, given by $M_0 = \mu(g^0(k))$, which is the sum of the weighted indicators of those people who do not enjoy sufficiency in any indicator ($|g^0(k)|$) divided by total the number of people (n). It can also be expressed as *HA* where *H* is the Headcount Ratio $H = H(y; z)$ defined by $H = q/n$, where *q* is the number of people in set Z_k. *A* is the average percentage of dimensions in which people who are not yet happy experience insufficiency, and is given by $A = |c(k)|/(q)$. M_0 summarizes information on the incidence of unhappiness and the average proportion of dimensions in which a not yet happy person lacks sufficiency. It satisfies *dimension monotonicity* and is also decomposable by population groups.

The GNH is constructed by subtracting M_0, from unity; that is, it is GNH = 1- M_0.

The measure M_0, like all members of the $M_\alpha(y; z)$ family, is decomposable by population subgroups. Given two distributions *x* and *y*, corresponding to two population subgroups of size $n(x)$ and $n(y)$ correspondingly, the weighted average of sum of the subgroup poverty levels (weights being the population shares) equals the overall poverty level obtained when the two subgroups are merged:

$$M_0(x, y; z) = \frac{n(x)}{n(x, y)} M_0(x; z) + \frac{n(y)}{n(x, y)} M_0(y; z)$$

Clearly, this can be extended to any number of subgroups such as Dzongkhags, women and men, rural and urban, and so on.

Additionally, once the identification step has been completed, the M_0 index can be broken down into indicator. To see this, note that M_0 can be expressed in the following way: $M_0(y; z) = \sum_{i=1}^{n} \mu(g^0_{*j}(k))$, where g^0_{*j} is the j^{th} column of the censored matrix $g^0(k)$. Thus $(\mu(g^0_{*j}(k)))/M_0(y; z)$ is the contribution of indicator *j* to the overall shortfalls in Gross National Happiness. Itemizing these shortfalls clearly provides information that can be useful for government policy.

[1] The guide was carried out in 2010 with funding from UN organizations based in Thimphu particularly UNDP. The analysis of GNH data and reporting was funded by IDRC of Canada. A complete and detailed report on 2010 GNH Index will be printed in May 2012, also funded by IDRC of Canada. The Royal Government of Bhutan and the Centre for Bhutan Studies express their gratitude for the generous support given by IDRC.

2 Extracted from RjeMkhan-po 10, Bstan 'dzinChosrgyal, Lho'ichos 'byungbstan pa rinpoche'i 'phromthud 'jam mgonsmonmtha'i 'phrengbazhesbyaba. Written during the years 1755-59. The Legal Code dated 1729 (earth bird year) is attributed to the 10th Desi-MiphamWangpo while he was serving on the Golden Throne of Bhutan, as representative of the Shabdrung Rinpoche, and based on the Shabdrung's earlier work. KMT, Thimphu has reprinted this book 2004. See p. 253.

3 http://www.educatingforgnh.com/

4 Opening Address of "Educating for Gross National Happiness" Conference: Lyonchhen Jigmi Y. Thinley, Thimphu, Bhutan 7th December, 2009

5 The 10th plan of Bhutan specified GNH by focusing on four pillars: "In order to translate the multi-dimensional concept of GNH into core objectives... four strategic areas were initially defined" (p.16). These areas, called the "four pillars of GNH," are: 1. Sustainable and equitable socio-economic development; 2. Environmental conservation; 3. The preservation and promotion of culture; and 4. Good governance.

6 Royal Government of Bhutan (2008).

7 Royal Government of Bhutan (2009).

8 The report narrates an extensive review of the composition of subjective well-being into two major components; first, the evaluation of a person's life as a whole or of various domains and second, the measurement of the actual feelings. Both the components are reflected in the psychological well-being domain of GNH and were computed separately. The report states, "that these measures provide information about the determinants of quality of life at the level of each person. These determinants include both features of the environment where people live and their individual conditions, and they vary depending on the aspect considered." Further, it highlights that these subjective measures provide information beyond what is being given by income.

9 A five item Likert scale was used rather than the single item question on life satisfaction because dissatisfaction in life is usually due to dissatisfaction in any of multiple areas of life. One of these areas can pull down the satisfaction level (Diener, 2006).

10 A number of different time frames have been used in various studies (Green, Goldman and Salovey 1993; Watson, Clark and Tellegen 1988; Watson and Tellegen 1999). The use of a "few weeks" reference period is not ideal; ideally we would have information on average emotional experiences throughout the past year. But this may be too difficult to recall accurately. The GNH emotional indices will be partly inaccurate as a reflection of annual emotional states at the individual level because "the past few weeks" will not have been representative for all respondents. However they were the best that could be constructed from the available data.

11 Jeffrey Hopkins defines karma as "A general term used loosely for behavioral cause and effect. Also called: karmic impulse." On another occasion, Hopkins has stated that "karma has the dual meaning of past actions that shape the present, and present intentions and actions that will shape the future. Intention is the heart of karma, the very heart. What does intention mean? ...In the teachings, there are descriptions of a mind basis of all, the alaya-vijnana, which serves as a medium for karma. There are also descriptions of a subtle mental consciousness that serves as the medium for the infusion of karma. And then interestingly, there is the description of the person as the medium of karma, which is rather fascinating." Available at < http://archive.thebuddhadharma.com/issues/2002/fall/karma_panel_fall02.htm> Accessed on [2.14.2012]

12 An examination of the underlying factor structure resulted in a single factor with loadings above 0.5. Internal consistency was sufficient (Cronbach's alpha of .65) to allow computation of an indicator.

13 It may be that in future surveys the response categories might be altered.

14 Ura, K., 2012. Dialogue on Time and Time Use, forthcoming.

15 Work encompasses the following activities: Agriculture related activities; Guarding crops from wild animals; Livestock related activities; Forestry related activities and related travels; Horticulture related activities; Processing of foods and drinks; Construction or repair of private infrastructures in GNH 2010 data; Construction or repair of public infrastructure; Weaving and related works; Carpentry and masonry; Others crafts; Business, trade and related travels; Services and related travels; Ferrying, carrying, transporting and related travels; Cooking; Serving or entertaining; Dishwashing; Cleaning or upkeep of dwellings; Building fire; Fetching water; Laundry; Shopping; Arranging, mending household objects; Consultations with, engaged during the visits of official or office visits to professionals; Mining and quarrying related activities; Care of children, old, sick and disabled; Woola (labor contribution to community works); Voluntary works and informal helps. Since time spent on this activities is calculated separately, the classification of work and non-work can be changed easily, if necessary, e.g., care of children, old, sick and disabled can be taken as an activity under social and cultural activities.

16 There are numerous studies that have used different stages of performance indicators such as input, output, outcome etc. (Boyne and Law 1991; Sorber 1993; Duckett and Swerissen 1996; Hedley 1998; Stone and Cutcher-Hershenfeld 2001). A strong association between subjective and objective indicators for outcome performance indicators has been confirmed by Torenvlied and Akkerman (2009) in their multi-stage performance indicator research paper. For Bhutan, the performance index is based on outcome indicators.

17 The response category also has the option of "don't know" that has been re-categorized into mid-value "average," which is considered a deprived category. This has no major impact on the results since individuals are expected to have some knowledge of the functioning of the institutions and so "don't know" is inherently deprived.

[18] Similar concepts can be found in the following reports: Doolittle and McDonald 1978; Ahlbrandtand Cunningham 1979; Wandersman and Giamartino 1980; Riger and Lavrakas 1981; Bachrach and Zautra 1985; Davidson and Cotter 1986.

[19] The poverty line given here is a measure for absolute poverty developed by the National Statistical Bureau of Bhutan in 2007 and is based on food and non-food needs.

[20] See for example, Gordon (2006) and Hillyard *et al* (2003).

[21] The GNH data poverty line has been adjusted for the difference in the medians between BLSSR data and GNH data. Poverty line for GNH data = Poverty line (PAR 2007)*Median (BLSSR data)/Median (GNH data).

[22] The questionnaire for income and expenditure in the GNH Survey differed from the BLSS, and the GNH data had different median and mean values from the BLSS as well as different district rankings by poverty and average per capita income. As a result, in the income indicator, we implemented the sufficiency threshold of 1.5 times the poverty line in the original BLSS 2007 dataset, to obtain the percentage of people who enjoyed sufficiency in income. We then mapped the same percentage onto the GNH income per capita data. In using the percentage from BLSS data we are assuming that the distribution in both surveys is equivalent and that the percentage of people who enjoy 1.5 times the poverty line in 2010 is the same as in 2007, both of which are strong assumptions.

[23] The asset index developed by Filmer and Pritchett (1999) has been used in Demographic and Health Surveys (DHS) to estimate reasonable wealth effects.

[24] Enumerators of the GNH surveys pointed out that the asset index was more accurate since it is easier for respondents to reflect on their ownership than on income. Additionally, enumerators could confirm the ownership by actually seeing goods in the household. So, the asset index is less likely to contain reporting bias.

[25] The analysis is based on focus group discussions conducted by Dr. Alkire, Tshoki Zangmo and Tshering Phuntsho in Wangdiphodrang and Punakha in 2011.

[26] Many studies have confirmed that good housing is at the top of the hierarchy of human needs (Burns and Grebler 1986; Kiel and Mieszkowski 1990).

[27] These are just some of the studies that show the impact of housing quality on welfare. For example, *Housing, Health and Climate Change: Developing Guidance for Health Protection in the Built Environment: Mitigation and Adaptation Responses*, World Health Organisation (2010).

[28] Note that this is a simplification: the actual calculation uses 33 indicators and calculates an individual deprivation profile based on these rather than only nine domains, but the same principles apply.

[29] This is a very simple re-arrangement as follows: GNH $=1- H_nA_n = 1- H_nA_n - H_n + H_n = (1-H_n) + (H_n - H_nA_n) = (1-H_n) + (H_n)(1- A_n) = H_h + (H_n \times A_s)$, since $(1-H_n) = H_h$ and $(1- A_n) = A_s$.

[30] The GNH is subgroup consistent and decomposable and satisfies dimensional monotonicity. It is related to Alkire and Foster's M_0 measures which satisfy key additional properties such as Symmetry, Scale invariance, Normalization, Replication invariance, Poverty Focus, Weak Monotonicity, Deprivation Focus , Weak Re-arrangement, as well as Dimensional Monotonicity, and Decomposability. See Alkire and Foster 2011.

[31] Recall that sample sizes are such that the decompositions by occupational group and higher education cannot be taken to be representative but are shared for illustrative purposes only.

[32] Note that in some cases the sufficiency cut-offs are identified as weak rather than strong; this is explained in the domains and indicators section.

Cited References

Afsa, Cédric; Blanchet, Didier; Marcus, Vincent; Pionnier, Pierre-Alain; Rioux, Laurence; Mira d'Ercole, Marco; Ranuzzi, Giulia Schreyer, Paul (2008). 'Survey of Existing Approaches to Measuring Socio-Economic Progress', Paris: Commission on the Measurement of Economic Performance and social Progress (April) [available at http://www.stiglitz-sen-fitoussi.fr/documents/Survey_of_Existing_Approaches_to_Measuring_Socio-Economic_Progress.pdf accessed on 14 September 2011].

Ahlbrandt, Roger S. and Cunningham, James V. (1979). *A new public policy for neighborhood preservation*, New York: Praeger.

Albritton, Robert B. and Bureekul, Thawilwadee (2009). 'Are Democracy and 'Good Governance' Always Compatible? Competing Values in the Thai Political Arena', Santiago: International Political Science Association - Asian Barometer Project Office, (Working Paper Series: No. 47) [available at http://www.asianbarometer.org/newenglish/publications/workingpapers/no.47.pdf accessed on 10 October 2011].

Alkire, Sabina. (2002). 'Dimensions of human development', *World Development, 30, 2,* 181-205.

Alkire, Sabina. (2008). 'Choosing dimensions: The capability approach and multidimensional poverty.' In N. Kakwani & J. Silber (Eds.), *The Many Dimensions of Poverty* (pp. 89-119). New York: Palgrave Macmillan.

Alkire, Sabina and Foster, James (2011a). 'Counting and Multidimensional Poverty Measurement', *Journal of Public Economics,* 95, p. 476-487.

Alkire, Sabina and Foster, James. (2011b). 'Understandings and Misunderstandings of Multidimensional Poverty Measurement', *Journal of Economic Inequality,* 9, 2, 289-314.

Andrews, Rhys; Boyne, George A. and Walker, Richard M. (2006). 'Workforce Diversity in the Public Sector: An Evaluation of the Performance of English Local Authorities', *Policy and Politics,* 34, 2, pp. 287-306.

Aris, Michael and Hutt, Michael (eds.) (1994). *Bhutan: Aspects of Culture and Development*, Gartmor: Kiscadale (*Kiscadale Asia Research Series No.5*).

Arthaud-Day, Marne L.; Rode, Joseph C.; Mooney, Christine H. and Near, Janet P. (2005). 'The Subjective Wellbeing Construct: A Test of its Convergent, Discriminant and Factorial Validity', *Social Indicators Research,* 74, pp. 445–476.

Bachrach, Kenneth M. and Zautra, Alex J. (1985). 'Coping with a Community Stressor: The threat of a hazardous waste facility', *Journal of Health and Social Behavior,* 26, pp. 127-141.

Baker, Michael; Stabile, Mark and Deri, Catherine (2003). 'What do Self-reported, Objective Measures of Health Measure?', *Journal of Human Resources,* 39, 4, pp. 1067-1093.

Bardasi, Elena and Wodon, Quentin (2009). 'Working Long Hours and Having No Choice. Time Poverty in Guinea', Washington, D. C.: The World Bank (*Policy Research Working Paper,* 4961).

Beach, Betty A. (1987). 'Time Use in Rural Home-Working Families', *Family Relations,* 36, 4, October, pp.412-416.

Belcher, Anne R.; Dettmore, Diane and Holzemer, Stephen Paul (1989). 'Spirituality and Sense of Well-Being in Persons With AIDS', *Holistic Nursing Practice,* 3:4, pp. 16-25.

Bergner, M.; Bobbit, R. A.; Carter, W. B. and Gilson, B. S. (1981). 'The Sickness Impact Profile: development and final revision of a health status measure', *Medical Care,* 19, pp. 787-805.

Blanchflower, David G. and Oswald, Andrew J. (2011). 'International Happiness', Cambridge: National Bureau of Economic Research (*NBER Working Paper Series,* 16668) [available at http://www.nber.org/papers/w16668 accessed on 9 September 2011].

Bohen, Halcyone and Viveros-Long, Anamaria (1981). *Balancing jobs and family life: Do flexible work schedules help?*, Philadelphia, PA.: Temple University Press.

Boyne, George A. and Law, Jennifer (1991). 'Accountability and local authority annual reports: The case of Welsh district councils', *Financial Accountability and Management,* 7, pp. 179–194.

Bradburn, Norman M. (1969). *The structure of Psychological Wellbeing,* Chicago: Aldine Publishing.

Brazier, J. E.; Jones, N. and Kind, P. (1993). 'Testing the validity of the Euroqol and comparing it with the SF-36 Health Questionnaire', *Quality of Life Research,* 2, pp. 169-180.

Bruni, Luigino and Porta, Pier Luigi (eds.) (2007). *Handbook on the Economics of Happiness,* Cheltenham: Edward Elgar.

Burchardt, Tania (2008). 'Time and income poverty', London: London School of Economics, November (*Centre for the Analysis of Social Exclusion Report,* 57).

Canadian International Development Agency (CIDA) (1996). 'Policy for CIDA on Human Rights, Democratization and Good Governance', Quebec: CIDA, December. [available at http://acdi-cida.gc.ca/INET/IMAGES.NSF/vLUImages/HRDG2/$file/HRDG-Policy-nophoto-e.pdf accessed on 15 November 2011].

Canadian International Development Agency (CIDA) (1999). 'CIDA's Policy on Gender Equality', Quebec: CIDA [available at http://www.sice.oas.org/Genderandtrade/CIDA_GENDER-E_Policies.pdf accessed on 9 November 2011].

Case, Karl E.; Quigley, John M. and Shiller, Robert J. (2005). 'Comparing Wealth Effects: The Stock Market versus the Housing Market', *Advances in Macroeconomics,* 5:1, Article 1.

Centers for Disease Control and Prevention (CDC) (2000). 'Measuring Healthy Days. Population Assessment of Health-Related Quality of Life', Atlanta: CDC, November.

Chavis, David M. (1983). 'Sense of community in the urban environment: Benefits for human and neighborhood development', doctoral dissertation, Nashville, TN.: Vanderbilt University.

Choden, D. and Namgay, K. (1996). 'Report on the findings and recommendations of the wild boar survey: project for assessment of crop damage by the wild boar', Thimphu: National Plant Protection Centre–Ministry of Agriculture-Royal Government of Bhutan.

Chophel, Sangay (2010). 'Cultural Diversity and Resilience', Thimphu: The Centre for Bhutan Studies [available at http://ns6.asphostserver.com/surveyReports/culture/culture.pdf accessed on 9 November 2011].

Chouguley, Ulrike; Naylor, Richard and Rosemberg-Montes, Cristina (2011). 'Edinburgh Festivals Impact Study. Final Report', London: BOP Consulting, May.

Chowdhury, N. and Skarstedt, C.E. (2005). 'The Principle of Good Governance', Oxford: Centre for International Sustainable Development Law (CISDL), March.

Clark, Andrew E. and Senik, Claudia (2010). 'Who Compares to Whom? The Anatomy of Income Comparisons in Europe', *The Economic Journal*, 120 (May), pp. 573–594.

Commission of the European Communities (1992). 'Eurobarometer 38', Brussels: Commission of the European Communities [available at http://ec.europa.eu/public_opinion/archives/eb/eb38/eb38_en.pdf accessed on 15 November 2011].

Constitution of Bhutan (2008). *The Constitution of the Kingdom of Bhutan*, Thimphu: Constitution of Bhutan [available at http://www.constitution.bt/TsaThrim%20Eng%20%28A5%29.pdf accessed on 15 November 2011].

Cosmides, Leda and Tooby, John (2000). 'The cognitive neuroscience of social reasoning', in Gazzaniga, M. S. (ed.), *The New Cognitive Neurosciences, Second Edition*. Cambridge, MA: MIT Press, pp. 1259-1270.

Cox, Dianne; Frere, Marion; West, Sue and Wiseman, John. (2010). 'The development and use of community wellbeing Indicators: Learning from Community Indicators Victoria', Australian Journal of Social Issues, 45:1, pp. 71-88.

Cummins, Robert A.; Collard, James; Woerner, Jacqui; Weinberg, Melissa; Lorbergs, Markus and Perera, Charini. (2008). 'The Wellbeing of Australians – Who Makes the Decisions, Health/Wealth Control, Financial Advice, and Handedness. Part A: The Report', Victoria: Australian Unity Wellbeing Index (Report 22.0)

Davidson, Richard J. (2004). 'Well-being and affective style: neural substrates and biobehavioural correlates', *Philosophical Transactions of the Royal Society B: Biological Sciences*, 359, pp. 1395–1411.

Davidson, Richard J.; Kabat-Zinn, Jon; Schumacher, Jessica; Rosenkrantz, Melissa; Muller, Daniel; Santorelli, Saki F.; Urbanowski, Ferris; Harrington, Anne; Bonus, Katherine and Sheridan, John F. (2003). 'Alterations in brain and immune function produced by mindfulness meditation', *Psychosomatic Medicine*, 65, pp. 564-570.

Davidson, William B. and Cotter, Patrick R. (1986). 'Measurement of sense of community within the sphere of city', *Journal of Applied Social Psychology*, 16:7, pp. 608-619.

De Jesus, Maria; Puleo, Elaine; Shelton, Rachel C. and Emmons, Karen (2010). 'Associations between perceived social environment and neighborhood safety: Health implications', *Health and Place*, 16:5, pp. 1007-1013.

Deaton, Angus (2007). 'Income, Aging, Health and Wellbeing Around The World: Evidence from the Gallup World Poll', Cambridge, Mass: National Bureau of Economic Research, August (*NBER Working Paper Series*, No. 13317).

Deaton, Angus (2010). 'Price indexes, inequality, and the measurement of world poverty', *American Economic Review*, 100:1, pp. 5–34.

Delaney, Liam and Keaney, Emily (2006). 'Cultural Participation, Social Capital and Civil Renewal in the United Kingdom: Statistical Evidence from National and International Survey Data', London: Institute for Public Policy Research (IPPR), March[available at http://www.ippr.org/uploadedFiles/research/projects/Democracy/cultural%20participation%20social%20capital%20etc.pdf accessed on 24 September 2011].

Department for Environment, Food and Rural Affairs (DEFRA) (2011). 'Life satisfaction and other measures of wellbeing in England, 2007 – 2011. From the survey of public attitudes and behaviour towards the environment', London: DEFRA (April) [available at http://www.defra.gov.uk/statistics/files/Statistical-Release-13-April-2011-wellbeing.pdf accessed on 10 November 2011]

Dessallien, Renata (2005). *Democracy, Good Governance and Happiness. Some views from the Kingdom of Bhutan*, Thimphu: The Centre for Bhutan Studies (Monograph 19).

DeVellis, Robert F. (1991). *Scale Development: Theory and Applications*, Newbury Park CA: Sage Publications.

Dex, Shirley; Clark, Andrew and Taylor, Mark (1995). 'Household Labour Supply', Colchester: University of Essex (Department of Employment Research Series, 43).

Diener, Ed (1984). 'Subjective well-being', *Psychological Bulletin*, 95:3, pp. 542-575.

Diener, Ed (2000). 'Subjective Wellbeing: The Science of Happiness and a Proposal for a National Index', American Psychologist, 55:1, p. 34-43 (January).

Diener, Ed (2006). 'Understanding Scores on the Satisfaction with Life Scale', in Diener, Ed; Emmons, Robert A.; Larsen, Randy J. and Griffin, Sharon (eds.), *Satisfaction With Life Scale Public Domain*, 13 February [available at http://s.psych.uiuc.edu/~ediener/Documents/Understanding%20SWLS%20Scores.pdf accessed on 15 September 2011].

Diener, Ed and Diener, Carol (1996). 'Most people are happy', *Psychological Science*, 7, 3, pp. 181-185.

Diener, Ed and Emmons, Robert A. (1984). 'The independence of positive and negative affect', *Journal of Personality and Social Psychology*, 47, pp. 1105-1117.

Diener, Ed; Emmons, Robert A.; Larsem, Randy J. and Griffin Sharon (1985). 'The Satisfaction With Life Scale', *Journal of Personality Assessment*, 49, 1, pp. 71-75.

Diener, Ed; Helliwell, John F. and Kahneman, Daniel (2010). *International Differences in Wellbeing*, New York: Oxford University Press.

Diener, Ed and Iran-Nejad, A. (1986). 'The relationship in experience between various types of affect', *Journal of Personality and Social Psychology*, 50, pp. 1031-1038.

Diener, Ed and Pavot, William (1993). 'Review of the Satisfaction with Life Scale', *Psychological Assessment*, 5, pp. 164-172.

Diener, Ed and Seligman, Martin (2006). 'Measure for Measure: The Case for a National Wellbeing Index', Science and Spirit, March-April, pp. 36-37.

Diener, Ed; Suh, Eunkook and Oishi, Shigehiro (1997). 'Recent findings on subjective well-being', *Indian Journal of Clinical Psychology*, 24, pp. 25-41.

Dipietro, William R. and Anoruo, Emmanuel (2006). 'GDP per capita and its challengers as measures of happiness', 33:10, p. 698-709.

Diprose, Rachael (2007). 'Physical safety and security: a proposal for internationally comparable indicators of violence', *Oxford Development Studies*, 35(4), 431-458.

Dixon, David H. (ed.) (2000). *Controversies in Macroeconomics Growth, Trade and Policy*, Oxford: Blackwell.

Dolan, Paul; Peasgood, Tessa and White, Mathew (2008). 'Do we really know what makes us happy? A review of the economic literature on the factors associated with subjective wellbeing', *Journal of Economic Psychology*, 29, pp. 94-122.

Doolittle, R. J. and MacDonald D. (1978). 'Communication and a sense of community in a metropolitan neighborhood: A factor analytic examination', *Communication Quarterly*, 26, pp. 2-7.

Doran, S. M.; Van Dongen, Hans P. and Dinges, David F. (2001). 'Sustained attention performance during sleep deprivation: Evidence of state instability', *Archives of Italian Biology: Neuroscience*, 139:3, pp. 253–267.

Duckett, S. and Swerissen, H. (1996). 'Specific Purpose Programs in Human Services and Health: Moving from an Input to an Output and Outcome Focus', *Australian Journal of Public Administration*, 55, pp. 7–17.

Easterlin, Richard A. (2003). 'Explaining Happiness', *Proceedings of the National Academy of Sciences*, 100:19, pp. 11176-11183.

Economic Commission for Latin America and the Caribbean (ECLAC) (2000). 'Role of Environmental Awareness in Achieving Sustainable Development', Santiago: ECLAC, 23 November [available at http://www.eclac.org/publicaciones/xml/4/8824/lcr1961i.pdf accessed on 10 October 2011].

Egloff, Boris (1998). 'The independence of positive and negative affect depends on the affect measure,' *Personality and Individual Differences*, 25:6, pp.1101-1109.

Ekman, Paul, (1992). 'Are there basic emotions?', *Psychological Review*, 99:3, pp. 550-3.

Ekman, Paul; Davidson, Richard J.; Ricard, Matthieu and Wallace, B. Alan (2005). 'Buddhist and Psychological Perspectives on Emotions and Well-Being', *American Psychological Society*, 14:2, pp. 59-63.

Elvik, R. (1995). 'The validity of using health state indexes in measuring the consequences of traffic injury for public health', *Social science & medicine*, 40:10, pp. 1385-98.

Environics (1995). 'The Environmental Monitor: Global Public Opinion on the Environment', brochure.

European Coordination Office (1992). 'Europeans and the Environment. Survey conducted in the context of the Eurobarometer 37.0', Brussels: European Coordination Office, August.

The EuroQol Group (1990). 'EuroQol--a new facility for the measurement of health-related quality of life', *Health Policy*, 16:3, pp. 199-208.

Eurostat (2009). *Harmonised European time use surveys. 2008 guidelines*, Luxembourg: European Communities, (*Eurostat methodologies and working papers*).

Evans, A. Steven (2006). 'Preserving the Consciousness of a Nation: Promoting 'Gross National Happiness' in Bhutan Through Her Rich Oral Traditions', *Journal of Bhutan Studies*, Volume 15, Winter.

Fagan, Jeffrey and Davies, Garth (2007). 'The Political Economy of the Crime Decline in New York City', Presented at the Annual Meeting of the American Association for Advancement of Science, San Francisco, February.

Feeney, J. A. (1995). 'Adult attachment and emotional control', *Personal Relationships*, 2, pp. 143–159.

Fiedler, Klaus and Bless, Herbert (2001). 'The formation of beliefs in the interface of affective and cognitive processes', in Frijda, Nico; Manstead, Antony and Bem, Sacha (eds.), *The influence of emotions on beliefs*, New York: Cambridge University Press.

Field, John (2003). *Social Capital*, New York: Routledge.

Filmer, Deon and Pritchett, Lant (2001). 'Estimating Wealth Effects Without Expenditure Data—Or Tears: An Application To Educational Enrollments In States of India', *Demography*, 38:1, pp. 115–132.

Fischer, Justina AV, (2009). 'Subjective Wellbeing as Welfare Measure: Concepts and Methodology', Paris: OECD, (July) [available at http://mpra.ub.uni-muenchen.de/16619/1/MPRA_paper_16619.pdf accessed on 9 September 2011]

Fleming, Robin and Spellerberg, Anne (1999). *Using Time Use Data. A history of time use surveys and uses of time use data*, Wellington: Statistics New Zealand TeTariTatau.

Francis, Paul (2002). 'Social Capital at the World Bank Strategic and Operational Implications of the Concept', Washington, D. C.: The World Bank, March.

Fredrickson, Barbara L. (2000). 'Cultivating positive emotions to optimize health and well-being', *Prevention and Treatment,* 3:1, article ID 1.

Frey, Bruno S. and Stutzer, Alois (2007). 'Should National Happiness Be Maximized?', University of Zurich, March (*Working Paper Series,* No. 306).

Friedman, Danny (2010). 'Social impact of poor housing', London: ECOTEC, March.

Friedman, Danny (2010). 'Social impact of poor housing', London: ECOTEC, March.

Fujiwara, Takeo and Kawachi, Ichiro (2008). 'Social Capital and Health. A Study of Adult Twins in the U.S.', *American Journal of Preventive Medicine*, 35:2, pp. 139-144.

Galay, Karma (2009). 'Time Use and Happiness', Thimphu: The Centre for Bhutan Studies.

Gallup (2011). 'Environment', Washington, D. C.: Gallup [available at http://www.gallup.com/poll/1615/environment.aspx accessed on 13 November 2011].

Goldberg, David P. and Blackwell, B. (1970). 'Psychiatric illness in general practice: a detailed study using a new method of case identification', *British Medical Journal*, 2, pp. 438-443.

Gordon, D. (2006). 'The concept and measurement of poverty', in Pantazis, C.; Gordon, D. and R. Levitas (eds.), *Poverty and Social Exclusion in Britain: The Millennium Survey*, Bristol: The Policy Press, pp. 29–69.

Graham, Carol (2005). 'The Economics of Happiness.Insights on globalization from a novel approach', *World Economics*, 6:3, July–September, pp. 41-65.

Granger, C. V.; Cotter, A. C.; Hamilton, B. B. and Fiedler, R. C. (1993). 'Functional assessment scales: a study of persons after stroke', *Archives of Physical Medicine and Rehabilitation*, 74:2, pp. 133-138.

Green, Donald Philip; Goldman, Susan L. and Salovey, Peter (1993). 'Measurement error masks bipolarity in affect ratings', *Journal of Personality and Social Psychology*, 64, pp. 1029-1041.

Harvey, Carol; Pantelis, Christos; Taylor, Jason; McCabe, Patrick; Lefevre, Karen; Campbell, Patrick and Hirsch, Steven R. (1996). 'The Camden schizophrenia surveys: II. High prevalence of schizophrenia in an inner London borough and its relationship of sociodemographic factors', *British Journal of Psychiatry*, 168, pp. 418–426.

Heberlein, Thomas A. (2005) 'Environmental Attitudes', *Abhandlungen*, 2, 81,241—270 [available at http://www.drs.wisc.edu/documents/articles/heberlein/EnvironmentalAttitudes.pdf accessed on 24 September 2011].

Hedley, T. P. (1998). 'Measuring Public Sector Effectiveness Using Private Sector Methods', *Public Productivity and Management Review*, 21, pp. 251-258.

Helliwell, John F. and Wang, Shun (2011). 'Trust and wellbeing', *International Journal of Wellbeing*, 1, 1, pp. 42-78.

Hennessy, Catherine Hagan; Moriarty, David G.; Zack, Matthew M.; Scherr, Paul A. and Brackbill, Robert (1994). 'Measuring health-related quality of life for public health surveillance', *Public Health Reports*, 109, pp. 665-672.

Hillyard, Paddy; Kelly, Grace; McLaughlin, Eithne; Patsios, Demi and Tomlinson, Mike (2003). *Bare Necessities: Poverty and Social Exclusion in Northern Ireland – Key Findings*, Belfast: Democratic Dialogue.

Hötte, Michiel and Bereznuk, Sergei (2001). 'Compensation for livestock kills by tigers and leopards in Russia', Carnivore Damage Prevention News, 3, pp. 6–7.

Huppert, Felicia A. (2005). 'Positive emotions and cognition: developmental, neuroscience and health perspectives' in *Hearts and minds: Affective influences on social cognition and behavior*, Proceedings of the 8th Sydney Symposium 2005, New York: Psychology Press.

Ibrahim, Solava and Alkire, Sabina (2007). 'Agency and empowerment: a proposal for internationally comparable indicators', *Oxford Development Studies*, 35(4), 379-403.

Iizuka, Michiko (2000). 'Role of Environmental Awareness in Achieving Sustainable Development', Santiago: Economic Commission for Latin America and the Caribbean [available at http://www.eclac.org/publicaciones/xml/4/8824/lcr1961i.pdf accessed on 14 November 2011].

International Labour Organisation (ILO) (1919). *Convention Limiting the Hours of Work in Industrial Undertakings to Eight in the Day and Forty-eight in the Week*, Washington: ILO.

Inter-university Consortium for Political and Social Research (ICPSR) (1996). 'International Social Survey Program: Environment, 1993' Ann Arbor: ICPSR.

Ironmonger, D (1999). 'An Overview of Time Use Surveys'. Paper presented at UNESCAP Time Use Seminar Ahmedabad, India, 7-10 December 1999. Available at <http: //www.economics.unimelb.edu.au/ Household / Papers/1999/ AhmedabadPaper2.pdf> [Accessed on 19.1.2012]

Itay, Anat (2009). 'Israel's Progress Index: A Multi-Layered Model for Measuring Progress and Quality Of Life', presented in The 3rd OECD World Forum on 'Statistics, Knowledge and Policy' Charting Progress, Building Visions, Improving Life, Busan 27-30 October [electronic source http://www.oecd.org/dataoecd/53/20/44096120.pdf, accessed on 6 September 2011]

Jabeen, Nasira (2007). 'Good or good enough governance in South Asia: constraints and possibilities', Address at Utrecht University, April 2.

Johns, Helen and Ormerod, Paul (2007). *Happiness, Economics and Public Policy*, London: The Institute of Economic Affairs.

Johns, Helen and Ormerod, Paul (2008). 'The unhappy thing about happiness economics', *real-world economics review*, 46, March, pp. 139-146[available at http://www.paecon.net/PAEReview/issue46/JohnsOrmerod46.pdf accessed on 9 September 2011]

Johns, Helen and Ormerod, Paul (2009). Reply to Dan Turton. *real-world economics review*, 49 (March), pp. 91-93. Available at <http://www.paecon.net/PAEReview/issue49/Johns49.pdf accessed on 9 September 2011>

Jylhä, Marttila (2009). 'What is self-rated health and why does it predict mortality? Towards a unified conceptual model', *Social Science and Medicine*; 69:3, pp. 307-16.

Kahneman, Daniel and Deaton, Angus (2010). 'High income improves evaluation of life but not emotional wellbeing', *Proceedings of the National Academy of Sciences of the United States of America*, September [available at www.pnas.org/cgi/doi/10.1073/pnas.1011492107 accessed on 9 September 2011]

Kahneman, Daniel; Fredrickson, Barbara L.; Schreiber, Charles. A. and Redelmeier, Donald A. (1993). 'When more pain is preferred to less: Adding a better end', *Psychological Science*, 4, pp. 401-405.

Kahneman, Daniel and Krueger, Alan B. (2006). 'Developments in the Measurement of Subjective Wellbeing', *Journal of Economic Perspectives*, 20:1, pp. 3-24.

Kahneman, Daniel; Krueger, Alan B.; Schkade, David; Schwarz, Norbert and Stone, Arthur (2004). 'The Day Reconstruction Method (DRM): Instrument Documentation', July [available at www.krueger.princeton.edu/drm_documentation_july_2004.pdf accessed on 15 September 2011].

Kahneman, Daniel; Krueger, Alan B.; Schkade, David, Schwarz, Norbert and Stone, Arthur A. (2006). 'Would You Be Happier If You Were Richer? A Focusing Illusion', Brussels: The Centre for European Policy Studies, May (CEPS Working Paper No. 125) [available at: http://www.princeton.edu/ceps/workingpapers/125krueger.pdf accessed on 9 November 2011].

Kalmijn, W. M.; Arends, L. R. and Veenhoven, R. (2011). 'Happiness Scale Interval Study. Methodological Considerations', *Social Indicators Research*, 102, pp. 497–515.

Kaplan, Robert M. and Bush, James W. (1982). 'Health-related quality of life measurement for evaluation research and policy analysis', *Health Psychology*, 1, pp. 61-80.

Kaufmann, Daniel; Kraay, Aart and Mastruzzi, Massimo (2005). 'Governance matters IV: governance indicators for 1996-2004', Washington, D. C.: The World Bank (*Policy Research Working Paper Series* 3630).

Kinga, Sonam (2001). 'The Attributes and Values of Folk and Popular Songs', *Journal of Bhutan Studies*, 3, pp. 132–170.

Kleinman, Arthur (1995). *Writing at the Margin: Discourse Between Anthropology and Medicine*, Berkeley: University of California Press.

Kleitman, Nathaniel (1963). *Sleep and Wakefulness*, Chicago: Chicago University Press, Second edition.

Larsen, Jeff T.; McGraw, A. Peter and Cacioppo, John T. (2001). 'Can people happy and sad at the same time?', *Journal of Personality and Social Psychology*, 81, pp. 684-696.

Leahy, Robert L. (1997). 'Introduction: Fundamentals of Cognitive Therapy' in Leahy, Robert L. (ed.), *From Practicing Cognitive Therapy: A Guide to Interventions*, Northvale: Jason Aronson, pp. 1-11.

Lee, Sangheon; McCann, Deirdre and Messenger, Jon C. (2007). *Working Time Around the World. Trends in working hours, laws and policies in a global comparative perspective*. New York: Routledge – International Labour Organization.

Legatum Institute (2010). 'Methodology. The Legatum Prosperity Index', Dubai: The Legatum Institute.

Lepper, Jonathan and McAndrew, Siobhan (2008). 'Developments in the economics of wellbeing', London: HM Treasury, November (*Treasury Economic Working Paper*, No.4).

Levine, Edward L. and Xu, Xian (2005). 'Development and Validation of the State-Trait Emotion Measure (STEM)', *Paper presented at the 20th Annual Conference of the Society for Industrial and Organizational Psychology,* Los Angeles, April.

Lupton, Ruth and Power, Anne (2005). 'Disadvantaged by where you live? New Labour and neighbourhood renewal', in Hills, John and Stewart, Kitty (eds.), *A More Equal Society? New Labour, Poverty, Inequality and Exclusion*, Bristol: The Policy Press.

Mahoney, Florence I. and Barthel, Dorothea W. (1965). 'Functional evaluation: the Barthel Index', *Maryland State Medical Journal*, 14, pp. 56-61.

McBride, Michael (2010). 'Money, happiness, and aspirations: An experimental study', *Journal of Economic Behaviorand Organization*, 74, pp. 262–276.

McDowell, Ian and Newell, Claire (1996). *Measuring health: A guide to rating scales and questionnaires,* New York: Oxford University Press, Second ed.

McGillivray, Mark and Clarke, Matthew (eds.) (2006). *Understanding Human Well-being*, New York: United Nations University Press.

McHorney, Colleen A. (1999). 'Health status assessment methods for adults past accomplishments and future challenges', *Annual Review of Public Health*, 20, pp. 309-335.

McHorney, Colleen A.; Ware, J. E. and Raczek, A. E. (1993) 'The MOS 36-Item Short-Form Health Survey (SF-36): II. Psychometric and clinical tests of validity in measuring physical and mental health constructs', *Medical Care*, 31, pp. 247-263.

McMillan, David (1976). 'Sense of community: An attempt at definition', unpublished manuscript, Nashville, TN.: George Peabody College for Teachers, Vanderbilt University.

Michalos, Alex; Sharpe, Andrew; Arsenault, Jean-François; Muhajarine, Nazeem; Labonté, Ronald; Scott, Katherine; Shookner, Malcolm; Moore, Kelley; Swystun, Lenore; Holden, Bill; Bernardin, Heather; Dunning, Beth and Graham, Paul (2010). 'An Approach to the Canadian Index of Wellbeing. Methodology Report', Waterloo: The Canadian Index of Wellbeing Network – University of Waterloo.

Montgomery, Mark R.; Gragnolati, Michele; Burke, Kathleen A. and Paredes, Edmundo (2000). 'Measuring Living Standards With Proxy Variables', *Demography*, 37:2, pp. 155–74.

Morris, Saul S.; Carletto, Calogero; Hoddinott, John and Christiaensen, Luc J. M. (2000). 'Validity of rapid estimates of household wealth and income for health surveys in rural Africa', *Journal of Epidemiology and Community Health*, 54, pp. 381-387.

Nesse, Randolph M. (2004). 'Natural selection and the elusiveness of happiness', *Philosophical Transactions of the Royal Society B: Biological Sciences*, 359, 1333–1347.

Nunnally, Jum C. (1978). *Psychometric theory*, New York: McGraw-Hill, 2nd edition.

Organisation for Economic Co-operation and Development (OECD) (1995). 'Toward a Framework for Re-evaluating the Policy Implications of Unpaid Work', Paris: Working Party on the Role of Women in the Economy 20th Meeting, October.

OECD (2009). *Society at a Glance. OECD Social Indicators. Special Focus: Measuring Leisure in OECD Countries,* Paris: OECD.

OECD (2010). 'Eurostat: Feasibility study for Subjective Wellbeing indicators. Task 4: Critical review', March. [available at http://epp.eurostat.ec.europa.eu/portal/page/portal/gdp_and_beyond/documents/Feasibility_study_Wellbeing_Indicators.pdf accessed on 9 September 2011].

OECD (2011). 'Key Findings on Chapter 1: Unpaid Work', in OECD, *Society at a Glance 2011 – OECD Social Indicators,* 12 April [available at www.oecd.org/els/social/indicators/SAG accessed on 22 September 2011].

Office for National Statistics (2011). 'Measuring wellbeing. Measuring what matters?', National Statistician's Reflections on the National Debate on Measuring National Wellbeing', London: ONS (July).

Oswald, Andrew (2010). 'Emotional Prosperity, not GDP', *The Economist,* April.

Paloutzian, Raymond F. and Ellison, Craig W. (1982). *Manual for the Spiritual Well-being Scale,* Nyack, NY: Life Advance, Inc.

Parke, Ross D. and O'Neil, Robin L. (1999). 'Neighborhoods of southern California children and families', *Future of Children*, 9:2, pp. 58-63.

Pavot, William and Diener, Ed (1993). 'Review of the Satisfaction with Life Scale', *Psychological Assessment*, 5:2, pp. 164-172.

Penjore, Dorji and Rapten, Phuntsho (2008). 'Political Pursuit of Gross National Happiness', Bangkok: International Conference on 'Buddhism in the Age of Consumerism', Mahidol University (1-3 December).

Pentland, Wendy E. and McColl, Mary Ann (1999). 'Application of Time Use Research to the Study of Life with a Disability' in Pentland, Wendy E.; Harvey, Andrew S.; Lawton, M. Powell and McCoil, Mary Ann (eds.), *Time Use Research in the Social Sciences,* New York: Kiuwer Academic / Plenum Publishers, pp. 169-188.

Prakke, Diederik (2005). 'The Buddhist Truth of Happiness, Spirituality and Development. The case of governance in Bhutan', *Journal of Bhutanese Studies*, 12, pp. 119-165.

Putnam, Robert D. (1993). *Making democracy work: Civic traditions in modern Italy*, Princeton: Princeton University Press.

Putnam, Robert D. (2000). *Bowling Alone: the Collapse and Revival of American Community,* New York: Simon and Schuster.

Qi, Yaqiang; Hu, Peifeng and Mason, William M. (2009). 'A Comparative Analysis of Self-Rated General Health in Three Developing Countries', Paper presented at the Annual Meeting of the Population Association of America, Detroit 29 April-2 May.

Rahman, Omar; Menken, Jane and Kuhn, Randall (2004). 'The Impact of Family Members on Self-Reported Health of Elderly Men and Women in Rural Bangladesh', *Ageing and Society*, 24, pp. 903-920.

Rapten, Phuntsho (2010). 'Good Governance and Gross National Happiness', Thimphu: The Centre for Bhutan Studies [available at http://www.grossnationalhappiness.com/surveyReports/goodGovernance/Good_Governance_final.pdf accessed on 14 September 2011].

Reed, Pamela (1987). 'Spirituality and Well-Being In Terminally Ill Hospitalized Adults', *Research in Nursing and Health*, 10, pp. 335-344.

Renn, Daniela; Pfaffenberger, Nicole; Platter, Marion; Mitmansgruber, Horst; Cummins, Robert A. and Hofer, Stefan (2009). 'International Wellbeing Index: The Austrian Version', *Social Indicators Research*, 90, pp. 243–256.

Reyles, Diego Z. (2007). 'The ability to go about without shame: a proposal for international comparable indicators on shame and humiliation', *Oxford Development Studies*, 35(4), 405-430.

Riger, S. and Lavrakas, P. (1981). 'Community ties: Patterns of attachment and social interaction in urban neighbourhoods', *American Journal of Community Psychology*, 9, pp. 55–66.

Rinzin, Chhewang; Vermeulen, Walter J. V. and Glasbergen, Pieter (2007). 'Public Perceptions of Bhutan's Approach to Sustainable Development in Practice', *Sustainable Development*, 15, pp. 52-68.

Robinson, John and Godbey, Geoffrey (1997). *Time For Life. The Surprising Ways Americans Use Their Time,* University Park, PA: The Pennsylvania State University Press.

Rondinella, Tommaso; Segrez, Elisabetta and Mascherinix, Massimiliano (2011). 'Wellbeing in Italian Regions. Measures, Civil Society consultation and Evidence', Social Indicators Research, 102:1, pp. 47-69 (May).

Rosenberg, Erika L. and Ekman, Paul (1994). 'Coherence Between Expressive and Experiential System Of Emotions', *Cognition and Emotion*, 8, pp. 201-229.

Royal Government of Bhutan (1999). *Bhutan 2020: A Vision for Peace, Prosperity and Happiness*, Thimphu: The Planning Commission [available at http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan005249.pdf accessed on 15 November 2011].

Royal Government of Bhutan (2000). *Bhutan National Human Development Report 2000*, Thimphu: The Planning Commission Secretariat [available at http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan005248.pdf accessed 15 November 2011].

Royal Government of Bhutan (2007). 'Poverty Analysis Report 2007', Thimphu: National Statistics Bureau [available at http://www.undp.org.bt/assets/files/publication/PAR_2007.pdf accessed on 15 November 2011].

Royal Government of Bhutan (2009). 'Tenth Five-Year Plan. 2008-2013', Thimphu: Gross National Happiness Commission [available at http://www.unpei.org/PDF/Bhutan-TenthFiveYear-Plan_GrossNationalHappinessCommission.pdf accessed on 15 November 2011].

Russell, James A. and Carroll, James M. (1999). 'On the bipolarity of positive and negative affect', *Psychological Bulletin*, 125, pp. 3-30.

Saamah, Abdallah; Thompson, Sam; Michaelson, Juliet; Marks, Nic and Steuer, Nicola (2009). 'Happy Planet Index 2.0', London: The New Economic Foundation (June).

Samman, Emma (2007). 'Psychological and Subjective Well-being: A Proposal for Internationally Comparable Indicators', *Oxford Development Studies, 35*(4), 459-486.

Schimmel, Jiirg (2009). 'Development as Happiness: The Subjective Perception of Happiness and UNDP's Analysis of Poverty, Wealth and Development', *Journal of Happiness Studies*, 10, pp. 93-111.

Schwarz, Norbert (2007). 'Retrospective and Concurrent Self-Reports: The Rationale for Real-Time Data Capture' in Stone, A.; Shiffman, S. S.; Atienza, A.; and Nebeling, L. (eds.), *The science of real-time data capture: Self-reports in health research,* New York: Oxford University Press, pp. 11-26.

Schwarz, Norbert (2011). 'Why Researchers Should Think 'Real-Time': A Cognitive Rationale', preliminary draft for M. R. Mehl and T. S. Conner (eds.), *Handbook of Research Methods for Studying Daily Life*, New York: Guilford (12 Dec).

Schwartz, Shalom H. (1992). 'Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries', *Advances in Experimental Social Psychology,* 25, pp. 1-65.

Schwartz, Shalom H. (2002). 'Value Priorities and Behaviour: Applying a Theory of Integrated Value Systems', *Psicodebate: Psicologia, Cultura y Sociedad*, 2, pp. 119-144.

Sen, Amartya K. (2002). 'Health: perception versus observation. Self-reported morbidity has severe limitations and can be extremely misleading', *British Medical Journal*, 324, 13 April, pp. 860-861.

Sen Gupta, Bhabani (2009). *Bhutan: Towards a Grass-Root Participatory Polity*, New Delhi: The Center for Studies in Global Change, 1999.

Singleton, Jerome F. and Harvey, Andrew (1995). 'Stage of Lifecycle and Time Spent in Activities', *Journal of Occupational Science*, 2:1, pp. 3-12.

Sirken, Monroe; Jabine, Thomas; Willis, Gordon; Martin, Elizabeth and Tucker, Clyde (eds.) (1999). 'A New Agenda for Interdisciplinary Survey Research Methods Centers for Disease Control and Prevention', Hyattsville: Centers for Disease Control and Prevention - U. S. National Centre for Health Statistics, January 1999.

Smith, Melinda; Robinson, Lawrence and Segal, Robert (2011). 'How Much Sleep Do You Need?', *Helpguide.org*, October [available at http://helpguide.org/life/sleeping.htm accessed on 10 November 2011].

Sorber, A. (1993). 'Performance Measurement in the Central Government Departments of the Netherlands', *Public Productivity and Management Review*,17:1, pp. 59-68.

Sorokin, Pitirim and Berger, Clarence (1939). *Time-budgets of human behavior*, Cambridge, Mass.: Harvard University Press.

Sousa, Lorie and Lyubomirsky, Sonja (2001). 'Life satisfaction', in J. Worell (ed.), *Encyclopedia of women and gender: Sex similarities and differences and the impact of society on gender. Volume 2*, San Diego, CA: Academic Press, pp. 667-676.

Staines, Graham L. and Pleck, Joseph H. (1983). *The impact of work schedules on the family*, Ann Arbor: University of Michigan-Institute for Social Research.

Steinmann, Ralph M. (2010). 'Spirituality – The Fourth Dimension of Health. An Evidence-Based Definition', Geneva, presentation in the 20th IUHPE World Conference on Health Promoting Theory: Missing Elements and New Approaches, 11-15 July.

Stiglitz, Joseph; Sen, Amartya K. and Fitoussi, Jean-Paul (2009a). 'Report by the Commission on the Measurement of Economic Performance and Social Progress', Paris: Commission on the Measurement of Economic Performance and Social Progress (14 September) [available at http://www.stiglitz-sen-fitoussi.fr/documents/rapport_anglais.pdf accessed on 14 September 2011].

Stiglitz, Joseph; Sen, Amartya K. and Fitoussi, Jean-Paul (2009b). 'The Measurement of Economic Performance and Social Progress Revisited. Reflections and Overview', Paris: Commission on the Measurement of Economic Performance and Social Progress (16 September) [available at http://www.stiglitz-sen-fitoussi.fr/documents/overview-eng.pdf accessed on 14 September 2011].

Stock, William A. and Okun, Morris A. (1982). 'The Construct Validity of Life Satisfaction among the Elderly', *Journal of Gerontology*, 37:5, pp. 625-27.

Stone, Melissa M. and Cutcher-Gershenfeld, Susan (2001). 'Challenges of measuring performance in nonprofit organizations', in Flynn, Patrice and Hodgkinson, Virginia A. (eds.), *Measuring the impact of the non-profit sector*, New York: Kluwer Academic, pp. 33-54.

Szalai, Sandor (1972). *The use of time: Daily activities of urban and suburban populations in twelve countries*, The Hague: Mouton.

Tara, Green. *Two meditation practices* [available at www.losangsamten.com/sadhana/green_tara_2.pdf accessed on 15 September 2011].

Thinley, Lyonpo Jigmi Y. (1998). 'Values and Development: 'Gross National Happiness'', Seoul: The Millennium Meeting for Asia and the Pacific, (30 October-1 November).

Thirgood, Simon J. and Redpath, Steve (2008). 'Hen harriers and red grouse: science, politics and human–wildlife conflict', *Journal of Applied Ecology*, 45, pp. 1550–1554.

Tomkins, Silvan S. (1981). 'The quest for primary motives: Biography and autobiography of an idea', *Journal of Personality and Social Psychology*, 41:2, pp. 306-329.

Tooby, John and Cosmides, Leda (2000). 'Toward mapping the evolved functional organization of mind and brain', in Gazzaniga, Michael S. (ed.), *The New Cognitive Neurosciences, Second Edition*. Cambridge, MA: MIT Press, pp. 1167-1178.

Torenvlied, René and Akkerman, Agnes (2009a). 'Organizational Environment: Effects of Network Ambition on Agency Performance', paper prepared for presentation at the 10th Public Management Research Conference (PMRC), Columbus, Ohio, October 1-3.

Torenvlied, René and Akkerman, Agnes (2009b). 'Subjective and Objective Agency Performance: A Multilevel—Multistage Approach', paper prepared for presentation at the 10th Public Management Research Conference (PMRC), Columbus, Ohio, October 1-3.

Turton, Dan (2009). 'The real dirt on happiness economics: A reply to 'The unhappy thing about happiness economics'', *real-world economics review*, 49, March, pp. 83-90[available at http://www.paecon.net/PAEReview/issue49/Turton49.pdf accessed on 9 September 2011]

United Nations Development Programme (UNDP) Bhutan (2008). 'Bhutan's Progress: Midway to the Millennium Development Goals', Thimphu: UNDP, November 2008 [available at www.undp.org.bt/assets/files/publication/MDG_Midway.pdf accessed on 10 October 2011].

United Nations Environment Programme and Louis Harris and Associates (1989). 'Harris 1989 Environmental Survey in Four Continents, study no. 884002', New York: Louis Harris and Associates [available at http://hdl.handle.net/1902.29/H-884002 accessed on 15 November 2011].

United States Bureau of Labor Statistics (BLS) (2010). 'American Time Use Survey (ATUS) —2009 Results' 22 June. [available at http://www.bls.gov/news.release/archives/atus_06222010.pdf accessed on 22 September 2011].

United States Department of Health and Human Services. (2000). *Healthy People 2010*, Washington, DC: U.S. Government Printing Office.

United States Government Accountability Office (2011). 'Key Indicator Systems. Experiences of Other National and Subnational Systems Offer Insights for the United States', Washington, D. C.: GAO - Report to Congressional Addressees (March) (GAO 11-396)

Ura, Karma (2008). 'An Approach to the Indicators of GNH', document presented at the Regional Conference on 'Revitalizing Primary Health Care', Jakarta: World Health Organization, 6-8 August. [available at http://www.searo.who.int/LinkFiles/Conference_Panel-B3.pdf accessed on 9 November 2011].

Ura, Karma (2009a). 'A Proposal for GNH Value Education', Thimphu, Bhutan.

Ura, Karma (2009b). 'Live Interview with Dasho Karma Ura by the Bhutan Broadcasting Service (BBS) Radio Programme', Thimphu: BBS, 14 September.

Ura, Karma (2011a). 'Explanation of the GNH Index', Thimphu: The Centre for Bhutan Studies [available at http://www.grossnationalhappiness.com/gnhIndex/intruductionGNH.aspx accessed on 9 September 2011].

Ura, Karma (2011b). 'The Bhutanese Development Story', Thimphu: The Centre for Bhutan Studies [available at www.bhutanstudies.org.bt/pubFiles/mono-1en-bt-dev-stry.pdf accessed on 14 September 2011].

Van de Walle, Steven and Bouckaert, Geert (2003). 'Public service performance and trust in government: the problem of causality', *International Journal of Public Administration*, 29 :8 & 9, pp. 891-913.

Van Eerden, Mennobart R. (1990). 'The solution of goose damage problems in the Netherlands, with special reference to compensation schemes', *Ibis*, 132, pp. 253-261.

Van Hoorn, Andre (2007). 'A Short Introduction To Subjective Well-Being: Its Measurement, Correlates And Policy Uses', paper prepared for the international conference 'Is happiness measurable and what do those measures mean for policy?', Rome, April.

Van Praag, Bernard M. S. (2007). 'Perspectives from the Happiness Literature and the Role of New Instruments for Policy Analysis', *CESifo Economic Studies*, 53, 1, pp. 42–68.

Varni, James W.; Seid, Michael and Kurtin, Paul S. (1999). 'Pediatric health-related quality of life measurement technology: A guide for health care decision makers', *Journal of Clinical Outcomes Management*, 6, pp. 33-40.

Veenhoven, Ruut (1991). 'Is happiness relative?', *Social Indicators Research*, 24, pp. 1-34.

Veenhoven, Ruut (2004). 'Happiness as an Aim in Public Policy. The greatest happiness principle'. In Linley, Alex and Joseph, Stephen (eds.) *Positive Psychology in Practice,* Hoboken, NJ: Wiley, Chapter 39.

Veenhoven, Ruut (2007). 'Quality-of-Life Research', in Bryant, C.D. and Peck, D.L., *21st Century Sociology, A Reference Handbook. Volume 2*, Thousand Oaks: Sage, pp 54-62.

Wandersmand, A. and Giamartino, G. A. (1980). 'Community and individual difference characteristics as influences on initial participation', *American Journal of Community Psychology*, 8, pp. 217-228.

Wang, Sonam W.; Curtis, Paul D. and Lassoie, James P. (2006). 'Farmer perceptions of crop damage by wildlife in Jigme Singye Wangchuck National Park', *Wildlife Society Bulletin*, 34:2, pp. 359-365.

Wangchuk, Dorji (2008). '*Country Report: Bhutan*', document prepared for the 'Training Course for Safeguarding of Intangible Cultural Heritage', Tokyo: Asia/Pacific Cultural Centre for UNESCO, 11-17 December [available at http://www.accu.or.jp/ich/en/training/country_report_pdf/08_09/country_report_bhutan_03.pdf accessed on 24 September 2011].

Wangdi, Karma (2009). 'Health indicators', Thimphu: The Centre for Bhutan Studies.

Wangyal, Tenzin (2001). 'Enormous Compassion. An interview with Tenzin Wangyal Rinpoche', *Voice of Clear Light*, Shipman VA: Ligmincha Institute September 18 [available at http://www.snowlionpub.com/pages/wangyalteaching1.html accessed on 14 November 2011].

Ware, John E. (1995). 'The status of health assessment 1994', Annual Review of Public Health, 16, pp. 327-54.

Ware, John E. and Sherbourne, Cathy D. (1992). 'The MOS 36-item short-form health survey (SF-36)', *Medical Care*, 30:6, pp. 473-483.

Watson, David; Clark, Lee A.; and Tellegen, Auke (1988). 'Development and validation of brief measures of positive and negative affect: The PANAS Scales', *Journal of Personality and Social Psychology*, 47, 1063–1070.

Watson, David and Tellegen, Auke (1999). 'Issues in the dimensional structure of affect: Effects of descriptors, measurement error, and response formats: Comment on Russell and Carroll (1999)', *Psychological Bulletin*, 125, pp. 601-610.

Watson, David; Wiese, David; Vaidya, Jatin and Tellegen, Auke (1999). 'The two general activation systems of affect: Structural findings, evolutionary considerations, and psychobiological evidence', *Journal of Personality and Social Psychology*, 76, pp. 820-838.

Weitz-Shapiro, Rebecca and Winters, Matthew S. (2008). 'Political Participation and Quality of Life', Washington, D. C.: Inter-American Development Bank, July (Working Paper, 638).

White, Michael J. and Hunter, Lori M. (2005). 'Public Perception of Environmental Issues in a Developing Setting', Providence: Brown University, 17 May [available at http://www.pstc.brown.edu/ghana/Papers/EnvPerc_White_Hunter.pdf accessed on 24 September 2011].

Wiseman, John, and Brasher, Kathleen (2008). 'Community Wellbeing in an Unwell World: Trends, Challenges and Possibilities', *Journal of Public Health Policy*, 29, pp. 353–366.

Wilkinson, Diana (1999). 'Poor Housing and Ill Health: A Summary of Research Evidence', Edinburgh: The Scottish Office – Central Research Unit [available at http://scotland.gov.uk/Resource/Doc/156479/0042008.pdf accessed on 10 October 2011].

The World Bank (1992). *Governance and Development*, Washington, DC: World Bank.

World Health Organization (WHO) (2010). 'International Workshop on Housing, Health and Climate Change: Developing guidance for health protection in the built environment mitigation and adaptation responses', Geneva: WHO, 13-15 October.

Yoshida, Rie and Nakano, Sachiko (2007). 'Changes and Trends in Media Use: From the Results of the 2005 Japanese Time Use Survey', NHK Broadcasting Studies, 5, pp. 117-142 [available at http://www.nhk.or.jp/bunken/english/reports/pdf/06-07_no5_07.pdf accessed on 10 November 2011].

Zeppa, Jaime, (2006). 'Surviving Happiness. Can happiness be a gross national product? The myth and reality of 'progress' in Bhutan', *Ascent Magazine*, 32, Winter.

Zurick, David (2006). 'Gross National Happiness and Environmental Status in Bhutan', *Geographical Review*, 96, 4, pp. 657-681.

Part II.

Case Study: ONS

MEASURING SUBJECTIVE WELL-BEING:

THE U.K. OFFICE FOR NATIONAL STATISTICS EXPERIENCE

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Introduction

The U.K. Office for National Statistics (ONS) has recently established the "Measuring National Well-being Programme" to provide wider measures of the nation's progress beyond just focusing on Gross Domestic Product (GDP) and to capture more fully economic performance, quality of life, and environmental sustainability issues. In one sense this is not a new initiative. Over 40 years ago Social Trends was launched in the U.K. with an understanding that "economic progress must be measured, in part at least, in terms of social benefits" and the fact that "it is just as important to have good statistics on various aspects of social policy [than it is economic statistics]."[1]

However, recent international initiatives, as well as increased domestic demand from policy-makers within the U.K., have acted as a stimulus for ONS to establish this new program of work. The report by the *Commission on the Measurement of Economic Performance and Social Progress* (the Stiglitz-Sen-Fitoussi report) published in 2009 concluded that "the time was right to shift emphasis from measuring economic production to measuring people's well-being."[2] Also within that report, specific recommendations to National Statistics Offices were provided, and other initiatives such as the European Commission's *GDP and Beyond* project and the OECD's *Global Project on Measuring the Progress of Societies* have added to the impetus to look for new approaches to the measurement of quality of life.

Following the wide ranging "National Debate" on Measuring National Well-being, ONS has more recently undertaken a public consultation from October 2011 to January 2012 on initial proposals of domains and headline measures of national well-being. The aim of this consultation was to gather feedback on whether the domains and measures proposed reflected the broad scope of well-being, were easy to understand, and whether users felt there should be any additions or changes. ONS recently published a report summarizing the responses, which showed that there was broad support for the proposed domains and measures.[3]

The Measurement of Subjective Well-Being

One approach to measuring quality of life is the measurement of subjective well-being, which within the U.K. has not traditionally been carried out by the National Statistics Office. Indeed the *Commission on the Measurement of Economic Performance and Social Progress* made a specific recommendation that national statistical agencies should collect and publish this type of information and noted that:

> *Research has shown that it is possible to collect meaningful and reliable data on subjective well-being. Subjective well-being encompasses three different aspects: cognitive evaluations of one's life, positive emotions (joy, pride) and negative ones (pain, anger, worry). While these aspects of subjective well-being have different determinants, in all cases these determinants go well beyond people's income and material conditions... All these aspects of subjective well-being should be measured separately to derive a more comprehensive measure of people's quality of life and to allow a better understanding of its determinants (including people's objective conditions).*[4]

In April 2011, four experimental subjective well-being questions were introduced in ONS's household surveys with a view to allow further analysis of the determinants of subjective well-being. The large sample has already allowed for analysis by small sub-groups of the population and comparisons below the national level. As the sample grows further detail will be available and will allow users with a large dataset to undertake further analysis, and for ONS to present estimates at a more local level and for small sub-groups of the population with more precision. These subjective well-being estimates will complement objective measures of well-being and progress and help provide a fuller picture of the well-being of people in the U.K.

A balanced approach to the measurement of subjective well-being was recommended and adopted by ONS to reflect the distinct aspects outlined in the literature.[5] This included life evaluation (a cognitive assessment of how life is going), positive affect (the experience of positive emotions) and negative affect (the experience of negative emotions), as recommended by the Stiglitz-Sen-Fitoussi report. Also included, however, was a question looking at to what extent people felt that the activities in their lives were worthwhile. This question was taken from the eudaimonic perspective, which is concerned with positive functioning, "flourishing" and having a sense of meaning and purpose in life.[6]

The four experimental questions are therefore as follows:

- Overall, how satisfied are you with your life nowadays? *(evaluative)*
- Overall, to what extent do you feel the things you do in your life are worthwhile? *(eudaimonic)*
- Overall, how happy did you feel yesterday? *(experience – positive affect)*
- Overall, how anxious did you feel yesterday? *(experience – negative affect)*
  (All asked using a 0 to 10 scale where 0 is "not at all" and 10 is "completely")[7]

Further Testing and Development of Subjective Well-Being Measures

Alongside the introduction of these questions in the constituent surveys of the Integrated Household Survey (the largest of which is the Annual Population Survey (APS)) ONS has also used the monthly Opinions Survey (OPN) to carry out further testing and development of these experimental subjective well-being questions. Estimates from the several months of the OPN and APS were published in December 2011 and February 2012 and show broadly similar results of overall subjective well-being of adults in the U.K.[8]

The benefit of the OPN is that this provides a vehicle from which additional subjective well-being questions can be asked and tested against one another. ONS has taken a modular approach each month by asking various questions from the different approaches to measuring subjective well-being, investigating how best to take into account wider societal aspects into subjective measurement, and just focusing on the individual's views about their own well-being. This is important in its own right but also because it tests some of the proposed questions for the EU-SILC 2013 ad-hoc module on the measurement of well-being.

The OPN not only allows for further collection of information that is not captured by the four overall questions, but allows for comparisons between the results from different questions, for example the differences between answers provided for the Cantril Ladder with the Life Satisfaction question. It has also provided the opportunity to undertake split sample trials to see how different questions, question wording, question order, response scales, mode of interview and use of show cards impact on the estimates that are derived. ONS reported on some of the results from this testing in December 2011, for example showing that the order in which positive and negative affect questions are asked can influence the results that respondents give and also how the mode of interview (self-complete using a laptop vs. the interviewer recording the answer themselves) can affect the estimates.[9] Further testing in the other areas mentioned above is being undertaken and ONS plans to make the results of these tests available later in 2012. Alongside this quantitative testing, ONS has also been undertaking further cognitive testing of subjective well-being questions to better ascertain how respondents view them.

This research, along with other initiatives (for example OECD's *Guidelines on the Measurement of Subjective Well-being*) may well lead to further refinement of the overall subjective well-being questions currently on the ONS surveys. ONS considers these as experimental statistics that are undergoing further testing and development, which have been published at an early stage to get feedback from users. Further investigation on the uses of these measures within the policy arena will be an important aspect of that work. One of the quality criteria that will be used to make an assessment on whether these statistics should become National Statistics is their relevance to customers. One of these areas is for the formulation and evaluation of policy for which there appears to be a promising interest within the U.K.[10] However, it goes further than that, as there is likely to be an increasing

demand for these types of measures for international benchmarking as well as allowing ONS to provide the general public in the U.K. statistics to better understand how U.K. society is doing. There would also appear to be an interesting and important research agenda to better understand the determinants of subjective well-being that the large data set available to "approved researchers" for this type of analysis will help with.

Conclusion

To measure well-being and progress adequately in our rapidly changing societies requires new approaches. Subjective well-being measurement is one of these approaches, but there is also a need to supplement these measures with already existing objective measures. Despite the significant step forward that has been made, ONS does not believe that subjective well-being estimates alone provide the whole answer. They will need to be considered against other more traditional socio-economic indicators appropriate for measuring National Well-being. The interaction between more objective indicators and subjective well-being ratings is important, not least because people's experiences do not necessarily tie up with the objective measures. Although they may correlate in ways we may expect on the whole, the divergence between objective and subjective measures illustrates the importance of this kind of information as a complement to the objective approach for making a full assessment of the well-being of the nation.[11]

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[1] Nissel, M. (1970), Social Trends, Vol. No. 1, Central Statistics Office, Her Majesty's Stationary Office.

[2] Stiglitz-Sen-Fitoussi (2009), *Report by the Commission on the Measurement of Economic Performance and Social Progress*. Available at: www.stiglitz-sen-fitoussi.fr/documents/rapport_anglais.pdf

[3] ONS 2012(a), *Initial findings from the consultation on proposed domains and measures of national well-being*, Office for National Statistics. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/well-being/publications/index.html

[4] Stiglitz-Sen-Fitoussi (2009), *Report by the Commission on the Measurement of Economic Performance and Social Progress*. Available at: www.stiglitz-sen-fitoussi.fr/documents/rapport_anglais.pdf

[5] Dolan, P., Layard, R. & Metcalfe, R. (2011), *Measuring subjective well-being for public policy*, Office for National Statistics. Available at: http://www.statistics.gov.uk/articles/social_trends/measuring-subjective-wellbeing-for-public-policy.pdf;

[6] Huppert, F. et. al. (2009), *Measuring Well-being Across Europe: Description of the ESS Well-being module and preliminary findings*, Social Indicators Research, pp301-315; nef (2011), 'Measuring our progress', new economics foundation. Available at http://www.neweconomics.org/publications/measuring-our-progress

[7] Hicks, S. (2011), *Spotlight on: Subjective Well-being,* Office for National Statistics. Available at: http://www.statistics.gov.uk/articles/social_trends/spotlight-on-subjective-wellbeing.pdf

[8] ONS 2011(b), *Initial investigation into Subjective Well-being data from the ONS Opinions Survey*, 1 December 2011, Office for National Statistics. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/well-being/publications/index.html; ONS 2012(c), *Analysis of experimental subjective well-being data from the Annual Population Survey, April - September 2011*, 28 February 2012, Office for National Statistics. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/well-being/publications/index.html

[9] Hicks, S. (2011), *Spotlight on: Subjective Well-being,* Office for National Statistics. Available at: http://www.statistics.gov.uk/articles/social_trends/spotlight-on-subjective-wellbeing.pdf

[10] Fujiwara, D. & Campbell (2011), Valuation Techniques for Social Cost Benefit Analysis: Stated Preference, Revealed Preference and Subjective Well-being Approaches. HM Treasury. Available at: www.hm-treasury.gov.uk/d/green_book_valuationtechniques_250711.pdf

[11] Diener, E. & Seligman, M.E.P. (2004), Beyond money: Toward and economy of well-being, Psychological Science in the Public Interest, Vol. 5, No. 1. pp 2-3; Watson, D., Pichler, F. and Wallace, C. (2010), Subjective Well-being in Europe, Second European Quality of Life Survey, European Foundation for the improvement of Living and Working Conditions.

Part II.

Case Study: OECD

OECD GUIDELINES ON THE MEASUREMENT OF SUBJECTIVE WELL-BEING

The OECD is currently developing *Guidelines on the Measurement of Subjective Well-being*. These guidelines will outline why measures of subjective well-being are relevant for monitoring and policy purposes, and why national statistical agencies have a critical role to enhance the usefulness of existing measures. The guidelines will identify the best approaches for measuring in a reliable and consistent way the various dimensions of subjective well-being, and provide guidance for reporting on such measures. As part of the project, prototype survey modules on subjective well-being will be developed that national and international agencies could use in their surveys. It is intended that the *Guidelines on the Measurement of Subjective Well-being* will be a step towards the development of a recognized standard adopted by national statistical agencies and other producers and users of survey-based subjective well-being data.

Rationale

Modern societies are increasingly complex, and ill-informed policy choices may incur high costs and be difficult to reverse. Fundamental to high-quality decision-making is a sound evidence base on whether, where, and when conditions in society are improving, and on what conditions matter most to people's well-being. Measures of subjective well-being offer policy-makers a valuable tool in assessing the impact of policy, and offer both policy-makers and the general public an important tool for assessing progress. To be of most value, however, measures of subjective well-being need to be drawn from large sample high-quality surveys. Because the impact on subjective well-being from a change in a person's circumstances can be relatively small, a large sample is needed to identify a significant effect. In most countries only national statistical offices regularly conduct surveys of the required scale and quality.

A key obstacle to official statistical offices moving to produce subjective well-being measures of this sort is a lack of commonly accepted standards and protocols for the collection and dissemination of such data. Standards are needed because responses to subjective well-being questions are strongly affected by question structure and context, and differently worded questions (or even a different ordering of similar questions) will yield different results. Yet comparability is a key value for official statisticians and comparisons are a key point of interest for decision-makers. It is important that, where there are differences in measured levels of subjective well-being (whether between regions, countries, times, or population sub-groups) these are not falsely attributed with some significance when, in fact, they are purely a symptom of question wording or context.

Following the release of the *Report of the Commission on the Measurement of Economic and Social Progress* (Sen, Stiglitz, and Fitoussi, 2009), and with an increasing realization of the importance of monitoring progress, many national statistical agencies have taken steps to produce measures of subjective well-being. This is an opportunity to significantly improve the availability of subjective well-being data, but it also presents a risk. In particular, it is possible that, as more data becomes available, these are collected in different ways and using different questions or methodologies in different countries. To the degree that this is the case, it would represent a lost chance to address a number of fundamental questions about how subjective well-being varies between countries and about the range of factors (including differences in policy settings) shaping it. The OECD *Guidelines on the Measurement of Subjective Well-being* aim to reduce this risk by providing a common reference point for national statistical offices in producing their own measures.

Scope

The OECD *Guidelines* will consider three distinct elements of subjective well-being: i) *evaluative* measures, regarding assessments of life overall; ii) *affective* measures, capturing recent experiences of positive and negative feelings and emotions; and iii) *eudaimonic* measures, linked to the idea of positive psychological functioning and having a sense of meaning or purpose in life. While the main focus of the OECD *Guidelines* will be on over-arching measures of subjective well-being – relating to life as a whole – they will also cover

questions focused on more specific "life domains" such as their health, their work, their financial conditions, or their relationships. The OECD *Guidelines* will also consider different vehicles for measuring subjective well-being, including both general household surveys and more specialized tools such as time use surveys, relating experienced well-being to daily activities.

The OECD *Guidelines* will have four sections. These are as follows:

- *Concept and validity* - setting out the rationale for national statistical agencies producing subjective well-being data, and including a brief overview of the policy uses of such measures. The validity, reliability and limitations of subjective well-being measures will also be addressed.

- *Methodological issues* - summarizing available evidence on how survey methodology can affect subjective well-being measures, and the implications for good measurement practice, with a particular focus on mitigating the effects of various sources of bias. This will include consideration of question wording, scale formats and labeling, question placement within the survey, question order, response styles, survey mode, and the wider study context.

- *A measurement approach* - outlining an over-arching strategy for the measurement of subjective well-being, in both household surveys and in more detailed time-use studies. This will cover the range of concepts that should be measured and the choice of survey vehicles for measuring them, as well as issues of sample design and the most appropriate variables to collect alongside subjective well-being data. Specific suites of measures will also be proposed, including short headline questions for national surveys and international comparisons, and a more comprehensive suite of questions suitable for examining the different aspects of subjective well-being in more depth.

- *Output and analysis* - providing guidelines for the release and use of subjective well-being data. This will revisit the policy and broader public interest in the data, before covering how information can be reported and analyzed – including both presentation of headline indicators, and a more detailed treatment of the use of subjective well-being data in policy design, development and evaluation.

The OECD *Guidelines* are being developed under the *aegis* of the OECD Committee on Statistics (CSTAT) in close consultation with national statistical agencies, and with the support of a technical advisory group including academic experts and policy-makers with expertise in the area. It is envisaged that the OECD *Guidelines* will be published towards the end of 2012.

WORLD HAPPINESS REPORT

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