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Productivity and the Financial Sector – What's Missing?

Canada's financial sector over the last 15 years has lagged behind other OECD countries in its contribution to productivity growth. Improving the financial sector's productivity would boost not only the sector's performance but also the economy as a whole.

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The Study In Brief

Productivity improvement is considered the primary driver of economic growth in advanced countries because labour and capital are finite resources generating diminishing returns as their utilization increases. The financial services sector contributes to productivity growth in two ways: first, by improving its own output per worker and capital input (internal productivity) and, second, as a byproduct of the financial intermediation services it provides to the rest of economy (external productivity).

Using OECD aggregate and sectoral productivity data, and performing a series of novel calculations, my analysis indicates that Canada's financial sector over the last 15 years has lagged behind other OECD countries in its contribution to productivity growth. As well, Canada has experienced low aggregate productivity levels and growth rates over the same time period. Improving the financial sector's productivity would boost not only the sector's performance but also the economy as a whole.

This *Commentary* shows that part of the explanation for these relatively poor results include a policy approach that does not properly evaluate the link between competition and productivity, a regulatory structure that does not always reflect international best practices, and less efficient allocation of capital.

As a result, this *Commentary* recommends the following:

- Remove barriers to the development of fintechs through a functional approach to regulation;
- Implement regulatory oversight that is proportionate to functional risk;
- Consider whether a more explicit productivity mandate is useful for Canadian regulators, in part based on the innovative ideas coming out of the UK's Financial Conduct Authority's focus on competition and productivity;
- Revise the *Bank Act* and *Insurance Companies Act* to allow more flexibility for banks and insurance companies to make substantial investments in fintechs and insuretechs;
- Since it is unlikely politically to have one (or twin) national financial-sector regulator(s) with legislative/statutory powers, focus on achievable goals such as making clear what arrangements are in place between federal and provincial regulators for the sharing of market data related to, for example, the analysis of financial stability in capital markets, and strengthen links between market-conduct regulators across provinces and functions; and
- Reduce incentives for banks to lend to less productive residential mortgages by charging lenders mortgage-insurance premiums that reflect idiosyncratic risk beyond just loan-to-value ratios.

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Canada's productivity growth lags behind many OECD countries – and this cannot be chalked up simply to a lower starting level. Given the financial services sector's importance to the Canadian economy, it is crucial to maximize its contribution to aggregate productivity growth. This *Commentary* explores how regulatory and policy changes could boost the financial services sector's contribution to productivity growth.

Productivity improvement is considered the primary driver of economic growth in advanced countries because labour and capital are finite resources generating diminishing returns as their utilization increases.[1] The financial services sector contributes to productivity growth in two ways: first, by improving its own output per worker and capital input (internal productivity) and, second, as a byproduct of the financial intermediation services it provides to the rest of economy (external productivity).

Using OECD aggregate and sectoral productivity data, and performing a series of novel calculations, my analysis indicates that Canada's financial sector over the last 15 years has lagged behind other OECD countries in its contribution to productivity growth. As well, Canada has experienced low aggregate productivity levels and growth rates over the same time period. Improving the financial sector's productivity would boost not only the sector's performance but also the economy as a whole.

So what can be done? Empirical literature suggests a clear link between productivity and government policy or regulation (see Levine 1997, 2005; De Serres et al. 2007; Lumpkin 2009; Competition Bureau 2017 and Heil 2017, who does a full literature review). Restrictive regulation and policy hinder productivity growth by leading to less competition for the delivery of financial services, a less attractive environment for foreign capital and distortions to the allocation of credit. So what can be said regarding these three areas in Canada?

On Canada's financial services competitiveness, the evidence is mixed. However, Canada lags behind other OECD countries with respect to the development and growth of technology and so-called fintechs and insuretechs in particular. In a 2017 study, the Competition Bureau points to barriers to entry in explaining low financial services technological innovation. Two related examples from this study stand out. First, regulatory uncertainty in the retail-payment space increases the risks and costs to nascent, unregulated firms

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1 See Solow (1956).

trying to enter the market. Second, regarding lending, technology-based financing platforms are regulated the same way as established bricks-and-mortar institutions, despite posing very different risks to the financial system.

When it comes to attracting foreign capital, data on foreign direct-investment net inflows show that Canada and many other small open-economy OECD members are consistently losing out to the larger US and UK economies, as well as to the Netherlands. Among other things, Canada needs to ensure its policies and regulatory structures create an attractive environment for foreign capital. In this way, Brexit and the uncertainty surrounding the future US role in global markets present an opportunity for Canada.

Lastly, on efficient allocation of capital, data at the sub-sectoral level suggest that banks – by far our largest lenders – lag behind our developed world peers in business lending as a percent of GDP. Demand and supply reasons both help explain why this might be true, but lagging productivity numbers suggest we should look at the underlying regulatory and policy environment.

So what can be done to improve these three areas?

More Competition

Removing barriers to entry would help increase competition in the financial sector. One important suggestion coming out of the Competition Bureau's study is that the regulatory burden should focus on the function of the entity, and not the entity itself, with rules varying accordingly. If a particular function's failure is unlikely to pose a risk to the system, oversight need not be as strict as in the case where failure puts the system in jeopardy. The idea here is to ensure a level playing field for smaller players to innovate.

Also critical for the competition and productivity link is an evaluation of what other jurisdictions are already doing. The UK's Financial Conduct Authority (FCA) has put in motion some ideas worth following. For example, its mobilization program for prospective entrants into the banking sector separates essential regulatory requirements from the non-essential, thereby providing new entrants with operational authorization with restrictions on certain activities while the regulator performs a further evaluation. Other interesting ideas worth following include the UK's Innovation Hub, which incorporates an evaluation of how to adapt the regulatory framework to generate continued innovation while protecting customer interests.

Lastly, legislative restrictions can also hinder scaling up the usage of new technologies. Canada's *Bank Act* and *Insurance Companies Act* restricts banks and insurance companies from making substantial investments in fintechs that – even if they have financial services as their core functions – perform operations outside the financial-services space.[2] Consideration should be given as to whether more flexibility is required as long as the fintech's core function is delivering financial services.[3]

2 Substantial investment is defined as "10 per cent of the voting shares of an incorporated entity; or 25 per cent of the ownership interests of an incorporated or an unincorporated entity." (See http://www.osfi-bsif.gc.ca/Eng/fi-if/app/rla-prl/Pages/Adv_Subs-Inves_2015_01.aspx.)

3 Encouragingly, the *Budget Implementation Act, 2018, No. 1* suggests the federal government is moving in this direction. In it they discuss increases to the substantial investment limit federally regulated financial institution are allowed to take in entities where the majority of their business is the delivery of financial services. As of now, the regulations defining majority have not been issued.

Attracting Foreign Direct Investment

Since the 2008 global recession, many countries have agreed on the need to establish international best practices in financial regulation. These best practices create a more efficient, and less costly, set of rules and standards to increase capital levels. If they produce better sectoral distribution of this capital, productivity gains result. Despite many positives for regulators and market participants in the Canadian financial sector, there are still some major differences between Canada's financial sector regulatory system and its closest international peers – differences that impact Canada's attractiveness. These differences include the following:

- Canada has both federally and provincially regulated deposit-taking institutions and insurance companies. Furthermore, there is no market-conduct authority at the federal level in the insurance space;
- There is no national regulator for securities, with regulation broken down by province. While the Canadian Securities Administrators exists to coordinate national rules, provinces are not obliged to follow these rules;[4] and
- At the comprehensive financial-sector level, there is no formal, statutory body, or twin bodies, in charge of prudential and market-conduct regulation, including systemic risk.

Closing these gaps and ensuring investors understand how coordination in Canada works should improve our ability to attract foreign capital. Political and constitutional considerations restrict what governments can do, but some achievable goals include improving intergovernmental sharing of market data related to, for example, the analysis of financial stability in capital markets and strengthening links between market-conduct regulators across provinces and functions.[5]

Efficient Allocation of Capital

Lastly, it is not easy to determine what efficient allocation of capital looks like. However, it is certainly sub-optimal to have rules and regulations in place such that certain types of lending receive preferential treatment. One possible supply-side explanation for the lower level of business lending in Canada is the 100 percent insurance against mortgage default the Canadian Mortgage and Housing Corporation (CMHC) provides lenders on insured mortgages. This provides increased incentive to lend to the less productive housing sector. However, the knee-jerk reaction of imposing increased deductibles on lenders, thereby limiting the complete guarantee, would largely be ineffective, as deductibles would have to be small given the macroproduential benefits of containing housing-sector downturns and would likely be passed on to consumers in any event (Koeppl and MacGee 2017). A better tool to limit the guarantee would be to address the way mortgage-insurance premiums are charged to lenders. The CMHC should no longer charge a flat percentage based only on loan-to-value, regardless of the borrower's individual risk profile. Charging lenders different premiums based on different risk profiles would likely reduce lending in the mortgage space, perhaps freeing up more lending to productivity-enhancing businesses.

Importance of the Financial-Services Sector in Canada

Financial services – encompassing credit intermediation and related activities, securities and other investments and related services, along with insurance and asset-management services – is an essential component in any well-functioning economy. In Canada, the industry employs relatively

4 The Capital Markets Regulatory Authority, as currently constructed, has signed up five provinces and one territory.
5 See Le Pan (2017).

Table 1: Employment Growth in Canada's Financial and Related Services, and in the Overall Economy, 2001-2016

Industry	Change in Employment (*thousands*)	Change in Employment (*percent*)	Average Weekly Earnings (2016)
Overall Economy	2,770	21.5	$956
Banking	80	27.5	$1,149
Insurance	44	25.5	$1,234
Investments	32	37.1	$1,617
Services Most Related to Financial Services	344	33.4	$1,273

Note: "Services Most Related to Financial Services" are data-processing hosting and related services, other information services, legal services, accounting services, computer design and related services, consulting services, management of companies and enterprises, and administrative and support services.

Source: Statistics Canada Table 281-0047 accessed December 1, 2017.

more people with postsecondary and postgraduate degrees than the rest of the economy. The structure of its capital (excluding financial capital) includes more intellectual property, information technology systems and buildings. The financial-services sector, hence, makes intensive use of human capital, as well as the ingenuity Canada possesses in abundance.

Meanwhile, a number of other service activities tend to grow in tandem with financial services, both because they are directly complementary (for example, accounting or legal services) or because the financial services industry relies on them extensively as inputs (for example, communications, software and other information and business services). These industries are also characterized by their relatively greater intensive use of the more highly educated portion of the Canadian workforce. Together, employment in these industries has grown faster than economy-wide employment while providing relatively well-paying jobs (Table 1).

Whether the success of the financial services sector leads to strong economy-wide productivity growth depends on how efficiently the sector funnels funds toward activities that generate or sustain overall economic growth and the degree to which the sector diverts resources from other productive sectors (Cecchetti and Kharroubi 2015). The extent to which growth in the financial services industry positively contributes to growth in the rest of the economy depends, as well, on the overall regulation and good governance of the financial system, the degree of competition within it and on innovation, including technological changes that benefit customers.

Revealed Comparative Advantage

In a globalized world, it is crucially important that Canada has a comparative advantage in financial services. If it does, Canada benefits in two ways: first by providing productivity-enhancing resources at home and, second, by providing these resources abroad to countries with less sophisticated financial services sectors.

A useful measure of Canada's global competitive position in financial services is the country's "revealed comparative advantage (RCA)," compared to key competitors or potential markets. A country's

Table 2: Financial Services Revealed Comparative Advantage – Canada and Peer Countries, 2001-2014

	UK	US	Netherlands	Canada	Italy	France	Spain	Sweden	Australia	Germany	Japan	Norway
Average	**2.07**	**1.32**	**1.29**	**0.95**	**0.90**	**0.84**	**0.82**	**0.67**	**0.67**	**0.60**	**0.58**	**0.58**
Rank Pre-Crisis	1	2	3	4	7	5	5	8	9	11	10	12
Rank Post-Crisis	1	3	2	5	4	6	7	7	10	11	12	8

Note: Pre-crisis years: 2001-2006. Post-crisis years: 2010-2014.

Source: Author's calculations based on OECD/WTO "trade in value-added" database.

RCA for a given product is measured as the ratio of that product's exports to total exports, divided by the same ratio for all other countries.[6] A reading above one indicates the country is more successful against competitors in that sector in comparison to other goods and services it exports.

The underlying advantages of the economy (skills, knowledge, capital stock and so on) are said to be "revealed" by the country's actual trade flows. However, trade barriers can distort the flows, with a different effect on certain sectors or countries. Therefore, a RCA reading above or below one need not be taken too literally. This is especially true in financial services where prudential barriers to foreign entry are significant.[7]

Additionally, the cross-section of countries used in this *Commentary*, while broad, disproportionately favours developed-world nations, meaning that those with likely lower RCAs will be left out, skewing RCAs downwards.

A better approach is to focus on where Canada ranks compared with other OECD countries. This *Commentary* focuses on countries with similar levels of development as Canada where comparable data are available. The results indicate that Canada's financial services RCA ranking is near the top (Table 2). As such, Canada has a revealed international comparative advantage in financial services when compared with other OECD countries.

6 The denominator used here is the average of each country's share of a given services export in its total exports, rather than the total share of the given service in world exports, as would be done in a simple Balassa index calculation. This allows the derivation of a RCA index that has the same key attributes as the basic Balassa index in terms of country rankings, but unlike that index it is comparable across time because its upper bound (the number of countries) is constant. In both cases, the index's lower bound is zero and a reading above one indicates a comparative advantage, while a reading below one indicates a comparative disadvantage. See Amador, Cabral and Maria (2007).

7 According to the OECD's 2017 services trade restrictiveness index, Canada ranks 16th out of 35 OECD countries in being open to foreign competition in the banking subsector and 25th in openness to foreign competition in insurance.

Is Canada Exploiting its Financial-Sector Potential?

If Canada has a comparative advantage in financial services, is it leading to gains in productivity and, therefore, economic growth? This *Commentary* hones in on productivity because, as we have known for decades, while economic growth in the short run can be achieved through changes to labour and capital, long-run growth can be achieved only through technological progress (Solow 1956). Therefore, for developed-world countries like Canada, there is a ceiling on gains from adding to the quantity of labour and capital – productivity becomes key for sustained growth.

The financial sector – with some caveats (as mentioned above in reference to Cecchetti and Kharroubi 2015) – is invaluable in generating this productivity growth. The sector provides the necessary intermediation for optimal resource allocation. Think, for example, about a business performing research and development activities without access to a government grant, needing a loan to tide it over until it can generate profitable returns. Or think about economic activity that requires large-scale, real-time wholesale payments. And then think about how these transactions could take place without financial institutions with the necessary funds.

With these challenges in mind, what quantitative measures can be used to assess Canada's aggregate and financial-sector productivity, in relation to other OECD countries?

Overall and Sector-Specific Productivity

The OECD collects data on different productivity measures, including in aggregate and by sector. For aggregate productivity, this *Commentary* uses real GDP per person in USD purchasing-power-parity terms.[8] For sectoral productivity, including the financial-services sector, growth rates are analyzed using the OECD's "Industry contribution to business sector labour productivity" dataset. Box 1 provides details on data adjustments needed for cross-country comparisons involving Canada. This *Commentary* uses labour productivity because data availability limits the use of other measures.

Financial sector contribution to aggregate productivity comes in two forms.[9] First, how efficiently the sector uses its internal resources. In other words, can it increase output (provide services) using the same number of inputs (or the same output with less inputs). Adoption of better technology and/or increased competition for the delivery of financial services are examples of how output increases can be achieved.

The second contribution arises from the sector using its resources to generate value-added. This means how does the financial sector's lending and investment activities contribute to aggregate productivity growth.

Productivity Results

Compared with the same set or OECD countries, aggregate productivity results indicate that Canada sits in the bottom half over the period under

8 The OECD total productivity growth data focuses on "the non-agricultural business sector, excluding real estate" and "covers mining and quarrying; manufacturing; utilities; construction; and business sector services." The business sector services include "wholesale and retail trade; repair of motor vehicles and motor cycles; accommodation and food services; transportation and storage; information and communication services; financial insurance activities; and professional, scientific and support activities." (OECD 2017).

9 We acknowledge that financial-services output is notoriously difficult to measure (see Allen et al. 2007) but nevertheless feel the endeavour worthwhile.

Box 1: Data Adjustments

Two issues stand out in the OECD's "Industry contribution to business sector labour productivity" report. First, while the ideal dataset would involve hours worked and not persons employed, the reporting countries and years covered is insufficient in the case of the former.

The second issue is that due to differences in national accounts data between the OECD and Statistics Canada, as a result of different industrial classifications, the data for Canada on the OECD site only cover the 2008-2013 period. However, one can calculate the labour productivity numbers for Canada for both the economy as a whole, as well as for the financial-services sector using real GDP and employment numbers from Statistics Canada and then compare them with the years in common to gauge accuracy.[a]

The average difference (subtracting our data from the OECD's) over the six years in common is only 0.01 percentage points with Canada's overall average ranking remaining the same. Furthermore, in only two of these years does Canada's ranking change, increasing by one spot each year using the OECD data. Clearly, it would be ideal for the numbers to match but the 0.01 percentage-point difference appears not to play a meaningful role.

a Specifically, real gross value added (real GDP) by industry is obtained from Table 383 0021, the weighted contribution by sector comes from Table 379 0031 (since real gross value added in Table 383 0021 is an index), and both employment and weights are determined using Table 383 0031.

analysis, 2001-2015 (Table 3). This ranking remains true over both the 2001-2006 pre-economic crisis and 2010-2015 post-crisis periods. In the small open-economy group, Canada also lags behind direct competitors such as Norway, Australia and Sweden.

With Canada's low aggregate productivity levels in the past, one would have expected catch-up growth over the 2001-2015 period. However, that was not the case. Canada averaged near the bottom in growth rates over this period, although its growth rate moved to the middle of the pack post-crisis.

The next question then is what has been the financial sector's contribution to aggregate productivity growth over this period? What one sees is that the financial services sector has mimicked aggregate growth in terms of its ranking; i.e., near the bottom on average over the period under analysis, though moving up to middle of the pack post-crisis (Table 5). Not shown here is the fact that most of this upward movement in rank post-crisis has more to do with other countries taking a hit rather than large increases in the contribution of Canada's financial-services sector.[10]

10 I also perform the analysis by averaging the financial-sector productivity numbers for each country over each year, calculate the standard deviation and estimate how far below or above the standard deviation a country is in a given year. What this does, for example, is give more credit to being ranked ahead of another country with a productivity growth number that is significantly higher than the average. For example, if Canada had a score of 0.5 and the next highest was 0.2, this would be worth more than if they had a score of 0.5 and the next highest was 0.4.

Table 3: Aggregate Productivity Levels, GDP per Person Employed – Canada and Peer Countries, 2001-2015

	Norway	US	France	Italy	Australia	Sweden	Netherlands	Canada	Germany	UK	Spain	Japan
Average	**110,510**	**102,352**	**86,193**	**84,507**	**83,751**	**83,647**	**83,596**	**78,933**	**78,139**	**76,878**	**74,584**	**68,174**
Rank Pre-Crisis	1	2	4	3	6	7	5	8	9	10	11	12
Rank Post-Crisis	1	2	3	7	5	4	6	8	9	10	11	12

Note: Pre-crisis years: 2001-2006. Post-crisis years: 2010-2015. $US Constant Prices, 2010 Purchasing Power Parity.
Source: Author's calculations based on OECD productivity database.

Table 4: Aggregate Productivity Growth Rate – Canada and Peer Countries, 2001-2015

	Sweden	Australia	US	UK	Netherlands	Japan	Germany	France	Canada	Spain	Norway	Italy
Average	**2.09**	**1.64**	**1.58**	**1.19**	**1.08**	**1.03**	**0.98**	**0.73**	**0.63**	**0.51**	**0.11**	**-0.40**
Pre-Crisis Ranking	1	7	3	2	6	5	4	9	10	12	8	11
Post-Crisis Ranking	1	4	7	10	8	2	3	9	5	6	12	11

Note: Pre-crisis years: 2001-2006. Post-crisis years: 2010-2015.

Source: Author's calculations based on OECD productivity database.

Does Regulation and Policy Matter?

Much has been written on the link between both policy and regulation, and its impact on productivity (Levine 1997, 2005; De Serres et al. 2007; Lumpkin 2009; Competition Bureau 2017 and Heil 2017). Indeed, Heil provides a nice synopsis figure on this link (Figure 1), after providing a full literature review on the subject.

This *Commentary* focuses on the finding that robust productivity growth is spurred by regulations and policies that foster an environment where there is competition for the delivery of financial services and incentivize the efficient allocation of credit. This latter point is also consistent with the fact that innovative firms are often cash constrained. As a result, the more efficient a country's financial system, the more early-stage businesses are able to access the necessary capital, both domestically and from abroad, required to boost innovative performance (Schwanen 2017; Egger and Keuschnigg 2010). On the former, prudential

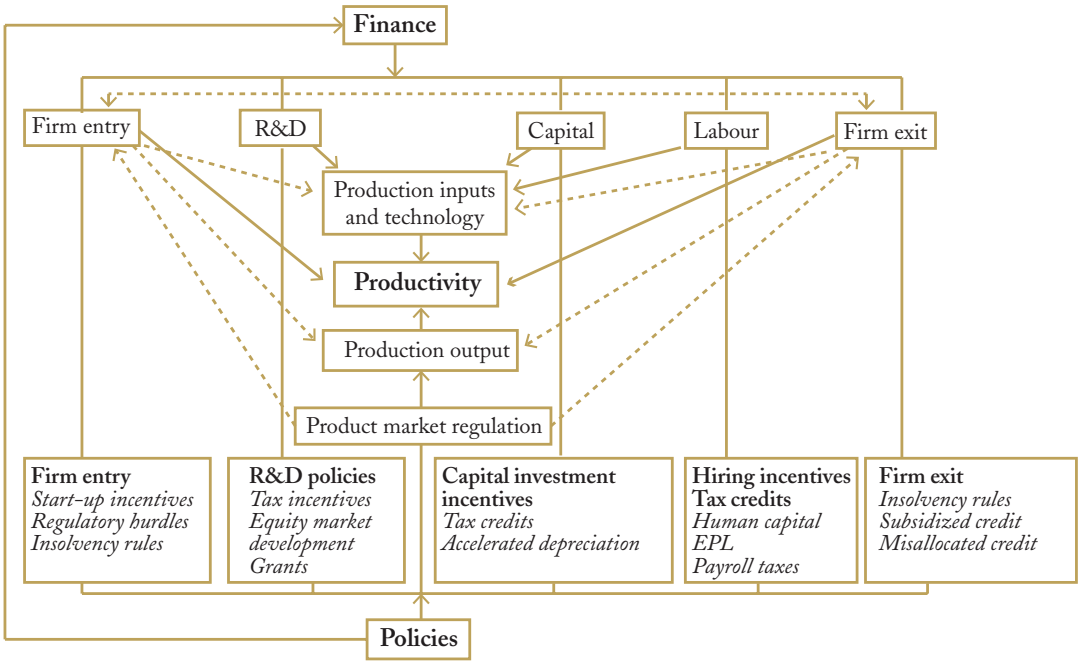
Table 5: Financial-Sector Productivity Growth Contribution, Percentage Points– Canada and Peer Countries, 2001-2015

	Australia	Norway	Sweden	UK	US	Netherlands	Spain	Italy	Canada	France	Japan	Germany
Average	**0.50**	**0.25**	**0.19**	**0.19**	**0.17**	**0.16**	**0.14**	**0.11**	**0.11**	**0.11**	**0.03**	**-0.08**
Rank Pre-Crisis	1	4	7	2	6	5	3	9	8	10	11	12
Rank Post-Crisis	1	6	3	11	2	10	12	7	5	9	4	8

Note: *Pre-crisis years: 2001-2006. Post-crisis years: 2010-2015.

Source: Author's calculations based on OECD productivity database.

Figure 1: A Synopsis of the Productivity, Finance, and Policy Nexus



Source: Heil (2017).

regulation clearly needs to protect consumers and ensure a stable financial system, but we should not lose sight of the importance of competition in generating innovative ideas, leading to robust productivity growth.[11]

Therefore, studying the impact of regulation and policy on productivity requires an investigation of three areas:

- Competition within the financial-services sector;
- How good Canada has been in attracting foreign direct investment; and
- How efficient the sector has been in allocating capital.

What do the Financial Metrics Tell Us?

Competition

There are many ways to evaluate competition in the financial sector. And once that evaluation is performed, there remains the difficult task of determining how much competition is desirable for productivity growth. Research by Howitt (2015) suggests that robust innovation and productivity growth occur when competition lies somewhere between the two extremes of perfect competition and monopoly. We tend to see the lowest level of innovation occurring in sectors characterized by either no competition, because there are no incentives to innovate, or too much competition in which returns are minimal.

Bank competition in Canada can be measured empirically (Allen and Liu 2007; Claessens 2009) using the concept of contestability – barriers to entry and restrictions on the activities of our institutions – from the seminal work of Panzar and Rosse (1987). The basic idea is that by looking at the relationship between input costs and firm revenue we can measure whether an industry is characterized by perfect competition, monopoly/collusive oligopoly or monopolistic competition. This research has ranked Canadian banks in the monopolistic competition range, a positive for innovation and productivity growth.

Looking at the sector as a whole, the Z//Yen Group and China Development Institute think tanks together publish a twice-yearly ranking of financial-centre competitiveness across 29,000 different cities. Five primary areas are evaluated: business environment, financial sector development, infrastructure, human capital, and reputation and other general factors. The most recent 2017 rankings show Canada with three centres (Toronto, Montreal and Vancouver) in the top 17, with Toronto the highest at seventh. London is number one while New York ranks second. In Australia and Sweden, Sydney and Stockholm rank behind Toronto at eighth and 39th, respectively.

Still, significant barriers to entry in crucial areas of financial services continue to exist in Canada, including both in the retail payments and lending fields (Competition Bureau 2017). For retail payments, consumer desire to have instant, real-time payment options has led to the development of payment-service providers (PSPs) outside of traditional providers. However, there remain regulatory gaps between these traditional regulated providers and the new, mostly still unregulated providers. The uncertainty that comes from these gaps creates additional risks and costs to new entrants, which is all the more challenging for nascent, resource-constrained firms:

> …non-traditional PSPs are not subject to any specific regulatory requirements to address operational, financial and market conduct risks. Rather, the current oversight framework focuses

11 Jason (2016) discusses the costs regulatory tightening has imposed on smaller financial institutions trying to compete in the banking sector.

> on traditional PSPs (e.g., national retail payment systems, deposit-taking institutions, payment card networks)... Reducing the costs, time and risks associated with market entry will encourage competition and spur innovation. (Competition Bureau 2017.)

On lending, as discussed in more detail below, Canada lags behind international peers in capital allocated to small and medium-sized enterprises (SMEs). This has created a market opportunity for new lenders, one that is already well used by Canadian SMEs (Competition Bureau 2017). However, one major hurdle faced by these predominantly technology-driven platforms prevents even greater lending activity in this space, namely the fact that they face the same regulations as traditional financial institutions, despite the fact that they present a much different level of risk to the system.

While these issues reduce competition, one could argue that the current system has led to financial stability, and we should, therefore, leave it alone. If that's the case, then another potential solution for improving productivity is to scale up the fintechs and incorporate their technology directly within incumbent financial institutions. While some of that is no doubt happening, there is some evidence to suggest that Canada's large financial institutions are falling behind in supporting the bulk of innovative ideas coming out of these fintechs. For example, as of 2016 the UK had more than 60,000 employees working in the fintech sector with a total market of more than $C10 billion, while New York State had more than 55,000 fintech workers and a market in excess of $9 billion. Canada's fintech startups, on the other hand, have secured just over $1 billion since 2010 (Deloitte 2017).[12]

In Canada, the pattern historically has been for smaller, more nimble firms to innovate, while the large players adopt or scale up only when it is safe. For example, credit unions were the first to offer daily interest savings accounts, first to offer debit card services and first to offer home-equity lines of credit, among others – all are now widely available at large financial institutions. So what is stopping further innovation from happening today? I discuss potential regulatory/legislative barriers below.

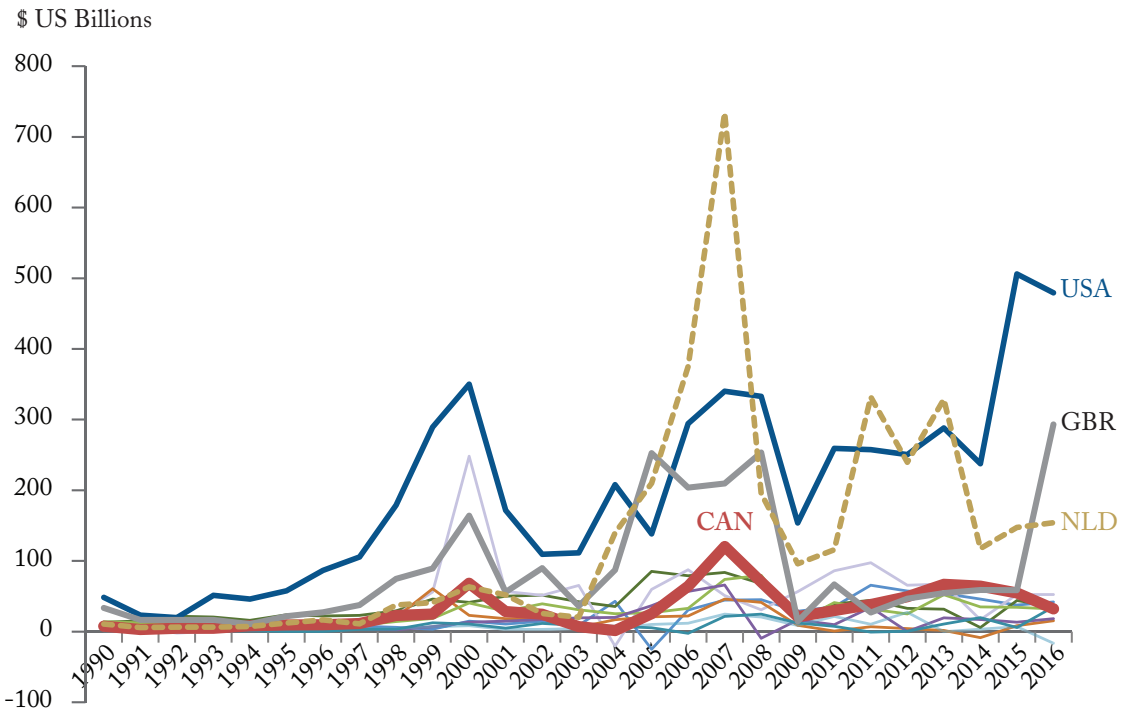
Attracting Foreign Direct Investment

Before assessing the role of policy and regulation in attracting foreign capital, we need to investigate how Canada compares to its peers in net foreign direct investment (FDI) inflows. Results indicate that the US is the clear leader in such inflows, while the UK and the Netherlands are often second and third (Figure 2). Canada and others are well behind. What this means is Canada needs to pay attention to all variables that might affect foreign investment decisions, including government policy and regulatory structure.

On that note, the OECD produces a FDI regulatory restrictiveness index – for the economy as a whole and by sector – with a number closer to zero representing a more open economy/industrial sector, and a number closer to one reserved for a more closed alternative. Results indicate that Canada and many other countries have become much more open over the past two decades, especially post-crisis, which is perhaps a bit counterintuitive – at least for other countries given their current nationalistic rhetoric (Figures 3 and 4). This is true of both financial services and the industrial sector as a whole. However, Canada's

12 Additionally, no Canadian bank made significant investments in venture capital-backed fintechs over the 2015 Q3 – 2016 Q3 period. Citigroup, alone, by comparison, was involved in eight such investments over this time period. See: https://www.cbinsights.com/research/big-banks-fintech-startup-investments.

Figure 2: Foreign Direct Investment Net Inflows – Canada and its Peers



Source: Author calculations based on World Bank database.

restrictiveness index in both remains more closed compared with other OECD countries.[13]

Efficient Allocation of Capital

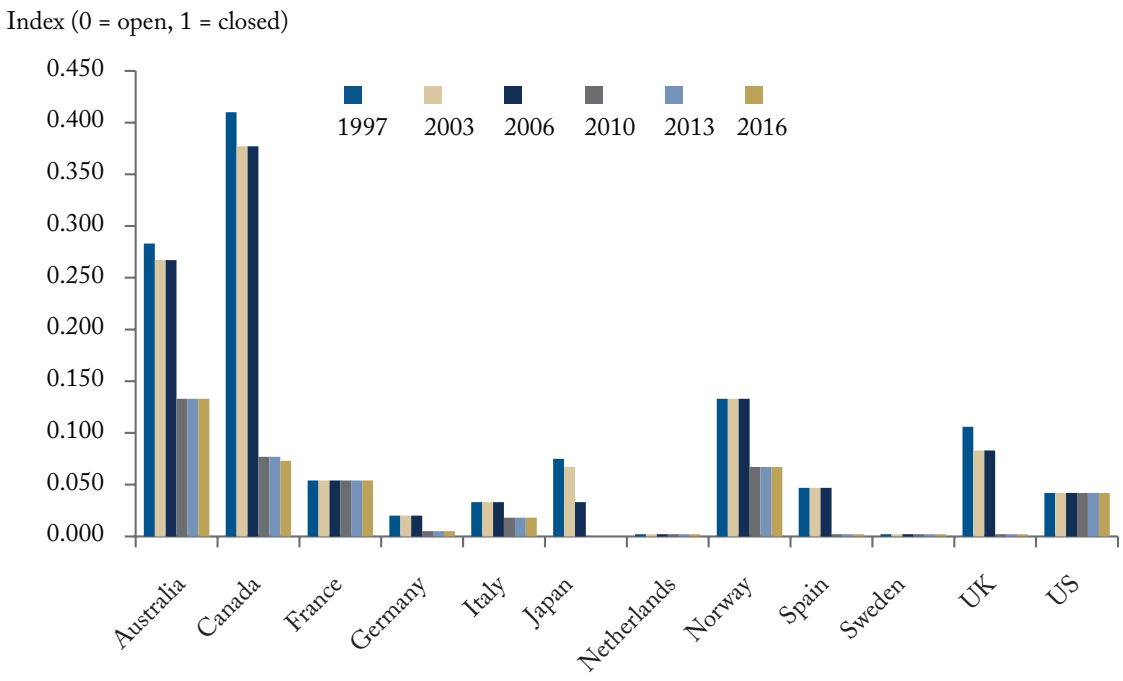
What about the efficiency of Canada's financial institutions in allocating capital? First, the data show that the ratio of assets to GDP uniformly increased across subsectors from the pre- to post-crisis period (Figure 5). Banks are the natural driver of this trend, reflecting their importance as investment and lending institutions.[14] Indeed, 80 percent of lending in the first quarter of 2017 came from banks. However, increases in the assets-to-GDP ratio reflect only the degree to which capital is being allocated to the economy, not necessarily allocation efficiency.

To judge efficiency in lending behaviour, one should evaluate how Canadian banks compare to international peers when it comes to business

13 It should be pointed out that EU countries must have open borders with other EU countries, and the data does not separate out how EU countries treat non-EU countries. That said, we should also not discount the fact that EU countries have accepted these open-border rules.

14 This *Commentary* notes that foreign investments are included in assets, which can be distortive in that they may reflect a desire by Canadian financial institutions to look abroad for return. However, they are included as they also reflect healthy institutions looking for a diversified asset base.

Figure 3: Foreign Direct Investment Regulatory Restrictiveness Index – Financial Services Sector



Source: Author calculations based on OECD database.

lending. While one cannot separate out demand versus supply issues, with our productivity growth lower than that of our peers, we can use the data to investigate potential regulatory and policy explanations.

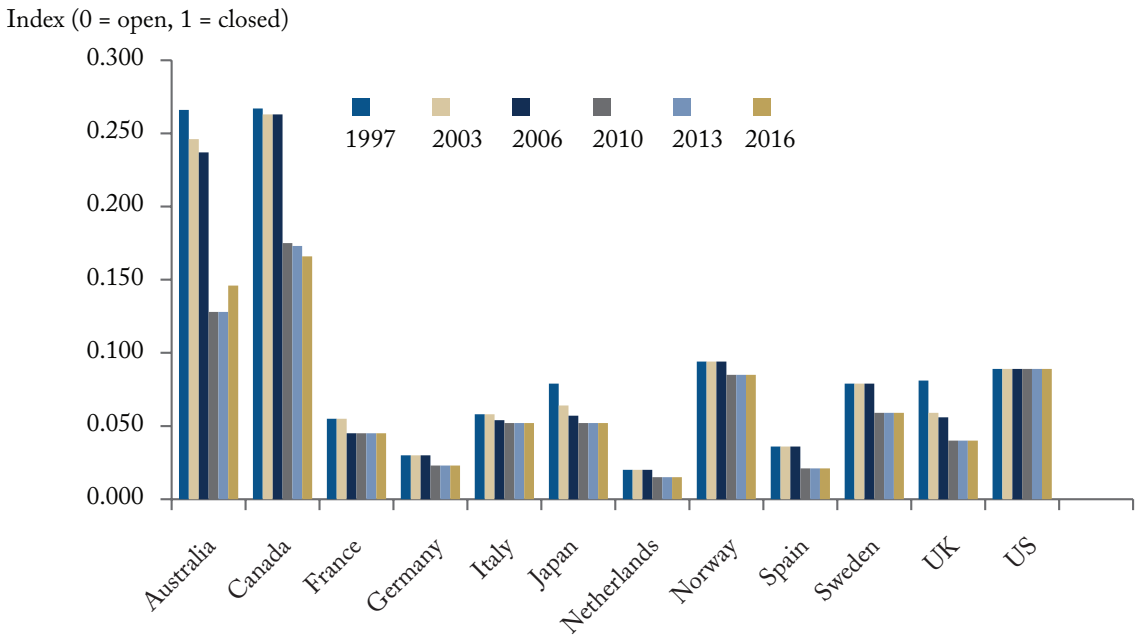
What the data show is that Canada ranks near the bottom in both overall bank business lending and lending to small businesses (percent of outstanding loans) as a percentage of GDP (Table 6). Not shown here is that Canada also ranks last in the share of small business loans as a percentage of total business loans. Not surprisingly, then, Canada also ranks at the bottom with the largest spread between the interest rate for loans to SMEs and those offered to large firms (Table 6). Overall, Canada does not appear to be keeping up with its peer countries in terms of business-lending behaviour, which is the preferred source of productivity growth.

The analysis in this section suggests there is room for improvement in the areas of financial-services competition, attracting foreign capital and in efficiency of capital allocation. As acknowledged at the outset of this section, these are results that have been linked to lower productivity in part due to regulatory structure and government policy.

Regulatory and Policy Recommendations

This section breaks down the recommendations into similar buckets as in the previous discussion. Namely, how better to link competition with productivity and innovation, how international best

Figure 4: Foreign Direct Investment Regulatory Restrictiveness Index – Total FDI



Source: Author calculations based on OECD database.

practices can help make Canada more attractive for investment flows, and how to improve on the efficiency of allocating capital.

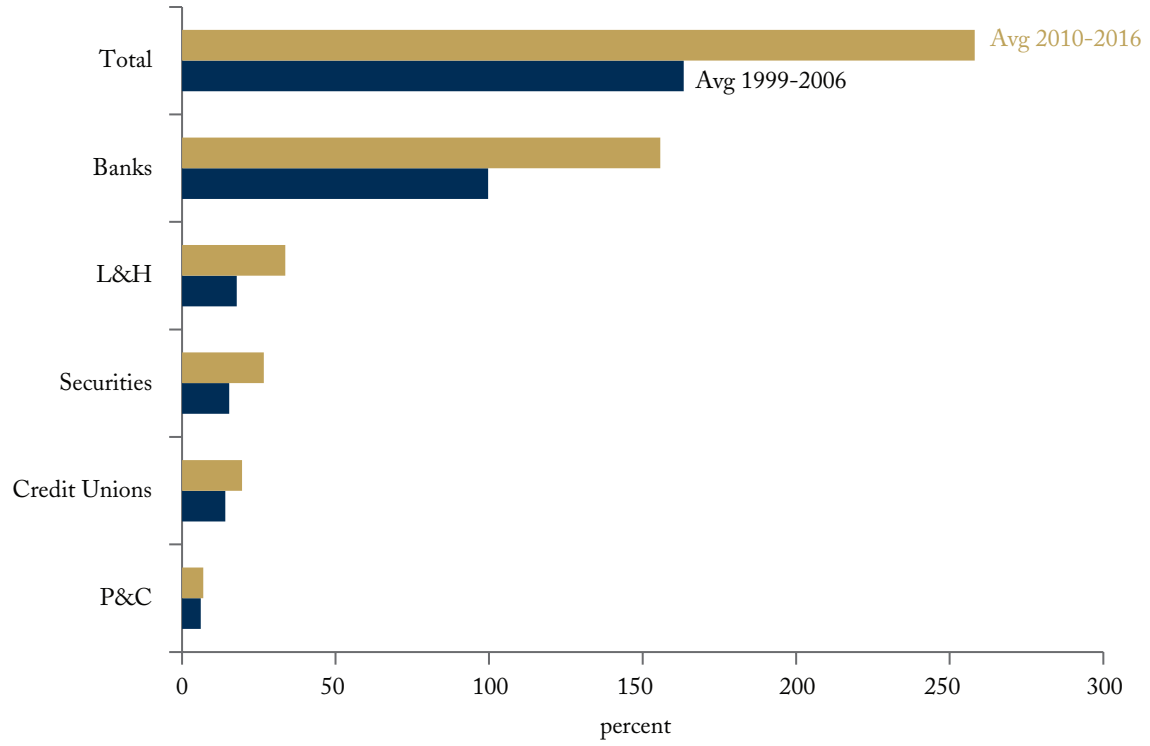
Competition and Productivity Link

Competition in the delivery of financial services can be improved by removing regulatory barriers that prevent fintechs from competing with incumbents. Alternatively, if we are comfortable with the current competition level, we can scale up the fintechs by making it easier for incumbents to make substantial investments in these companies.

The Competition Bureau (2017) study has some helpful suggestions for removing barriers. The challenge is finding the right balance between consumer protection on the one hand and innovation on the other. One suggestion is to make the regulatory burden based on the function of the entity and not on the entities themselves. Current regulations are not well tailored to smaller players and regulating by functions would help close the gap, while preserving consumer protections.

However, this has to be balanced with regulation that is proportional to risk. Take payments, for example. There are multiple functions within payments, with differing levels of risk to the system. At the two extremes, consider small retail payments such as buying your daily coffee versus larger interbank settlement payments. The failure of the former function is much less risky to the system than is the latter. Regulatory oversight can, therefore, be tailored to the risk of failure the

Figure 5: Growth in Ratio of Assets to GDP – Total Financial Services Sector and Subsectors



Source: Authors' calculations based on CANSIM Table 187 0001. "Tot Fin" represents financial sector as a whole, "Banks" include Banking and Other Depository Credit Intermediation, "L&H" is life, health, and medical insurance carriers, "Securities" includes Securities, commodity contracts, and other financial investments and related activities, "Credit Unions" include local and central credit unions, and "P&C" is property and casualty insurance carriers.

function poses. The idea here is to ensure a level playing field for smaller players to innovate.

Also, looking at what other jurisdictions are doing with respect to competition and innovation can prove quite fruitful. For example, the UK, explicitly mandates its FCA to promote competition. In the FCA's view: "Firms strive to win custom on the basis of service, quality, price and innovation. This helps generate better outcomes for consumers. Markets are open to entry and innovation, and successful, innovative firms thrive, while unsuccessful firms change or exit."[15] The FCA has also established a clear link between competition and productivity, and this focus makes sense in light of the UK's falling productivity numbers post-crisis. However, in Canada productivity, through innovation, is not an explicit part of the mandate of any of our regulators.[16]

Another example of an FCA initiative, which Canada should monitor, is its mobilization option

15 See https://www.fca.org.uk/about/promoting-competition.

16 There are references to competition with reasonable risks in OSFI's mandate, and efficient, competitive capital markets in the consultation draft that would be administered by the Capital Markets Regulatory Authority (CMRA).

Table 6: Business Lending Data, Canada and Peers – Average 2010-2015

	Netherlands	Japan	Spain	Sweden	Norway	Australia	Italy	France	UK	Canada	US
Small Business Lending (% of GDP)	**52.2**	**49.3**	**27.2**	**25.4**	**15.7**	**15.5**	**11.9**	**10.2**	**6.0**	**4.9**	**3.7**
Business Lending (% of GDP)	19.0	74.3	50.2	72.1	40.6	48.5	64.0	48.7	27.5	31.2	14.2
Interest Rate Spread (Large versus Small business)	1.72	N/A	1.69	0.79	N/A	1.86	1.77	0.76	1.26	2.48	1.57

Note: Germany business lending data unavailable. Ranked according to small business lending data. In business lending, as a percentage of GDP, Canada ranks 8th out of 11. In interest rate spread, Canada ranks dead last (11th out of 11).

Source: OECD and authors' calculations.

for the authorization of prospective entrants into the banking sector. This program separates essential regulatory requirements from the non-essential, giving new entrants operational authorization but with restrictions on the types of activities performed while further regulatory evaluations are proceeding.

Additionally, along with its Prudential Regulation Authority counterpart, the FCA launched a New Bank Start-up Unit in 2016. This unit represents a one-stop shop for potential entrants, which offers support to nascent authorized banks, as well as those considering applying.

Lastly, on the innovation side, in addition to being the leader in the regulatory sandbox, the FCA launched the Innovation Hub where financial-services firms that meet certain criteria are offered a dedicated team to help them understand regulation and how it applies to their work, help in their authorization applications and provide direct support up to a year after they have been approved. The Hub also spends resources studying how the regulatory framework needs to change to generate continued innovation with customer interests in mind (see Woolard 2017 for details on all these FCA projects).

Some examples of policies in support of innovative new firms are also happening in Canada. For example, the Ontario Security Commission's regulatory "sandbox," and Ontario's "super sandbox" and FinTech Accelerator Office are all meant to create an experimental environment for innovative firms with a lower regulatory burden. Nevertheless, we should monitor the FCA's innovation initiatives since it has been the leader in this area.

If the goal, instead of increased competition, is scaling up fintechs to enhance efficiency in the delivery of financial services, rules surrounding "substantial investments" on the part of banks and insurance companies as per the *Bank Act* and *Insurance Companies Act* may be slowing things down. One of the big hurdles is the fact that banks and insurance companies are prohibited

from making a substantial investment in fintechs if these companies perform activities outside of the financial-services space – even if financial services remains their core function. This limits the financing that banks and insurance companies can provide these innovative technology companies. It also limits the financing from a risk perspective, as large banks and insurance companies do not want to have to divest these investments if fintech companies decide to add other functions to their operations.

One counter suggestion is to loosen the rules such that banks and insurance companies can make substantial investments in fintechs whose core functions remain financial services, even if they have other business operations. The challenge will be determining how much financial service focus is required to be considered a core function. But legislative flexibility would help scale up some of Canada's more innovative firms. This may not generate more competition itself, but will make better use of the competition we do have.

Using International Best Practices to Attract Foreign Capital

While certainly not the only factor that attracts capital, the regulatory structure of a country matters. In Canada's case, its regulatory environment has received much well-deserved praise. For example, the IMF (2014) states, "Canada's regulatory and supervisory framework is strong and is complemented by a credible federal system of safety nets."

However, Canada's regulatory environment, both in terms of prudential and market conduct, is fragmented from a function and geography perspective. A full review of Canada's regulatory structure and those of its peers can be found in an online appendix. The countries considered are those that ranked near or at the top of the productivity rankings – and ahead of Canada - including Australia, the Netherlands, Norway, Sweden, the UK and the US. Compared to these countries (except for the US[17]), the major differences with Canada are:[18]

- Canada has both federally and provincially regulated deposit-taking institutions and insurance companies. Furthermore, there is no market-conduct authority at the federal level in the insurance space;
- There is no national regulator for securities, with regulation broken down by provinces; and
- There is no formal statutory body (or twin bodies) in charge of prudential and market-conduct regulation, including systemic risk, at the comprehensive financial-sector level.

By contrast, Sweden and Norway have a single authority that looks after prudential and market-conduct issues for all deposit-taking, insurance and capital market institutions while Australia, the Netherlands and the UK have a national dual authority system, one for prudential and one for market conduct. Politically and constitutionally, though, there are difficulties in Canada moving to the single (or twin) regulator model.

So how can financial regulations change to meet international best practices while not losing

17 This *Commentary* argues that it is wrong to say that Canada's fragmented regulatory system works well because the US system is also fragmented and they still have high productivity. Among the reasons for the American performance is that the US is the largest and, arguably, most important economy in the world. While regulatory structure matters, there are certain advantages the US has in attracting capital that other countries do not.

18 Pan 2009 discusses all these except for Sweden and Norway, where information is sourced directly from their websites: http://www.fi.se/en/about-fi and https://www.finanstilsynet.no/en/about-finanstilsynet/ respectively. The IMF Financial Sector Stability Assessments also provide complementary discussions on each jurisdiction.

sight of pragmatic issues and differences that have historically worked well for the country?

The IMF (IMF 2014) and Le Pan (2017) provide high-level recommendations, some of which could work in Canada's system. They include:

- Expansion of financial-sector data collection and sharing across regulators – both by function and geography;
- More stress testing of both federally and provincially regulated entities;
- A more open and consistent regulatory approach to group-wide insurance supervision, focusing on business-conduct concerns for which, at present, there is no federal presence; and
- Subjecting any financial institution deemed systemically important to clearly defined cooperative supervision.

How to Ensure More Efficient Allocation of Capital

While it is difficult to determine exactly what efficient allocation of capital looks like, business lending is more likely to lead to productivity growth than other forms of lending; e.g., mortgage lending. We saw above that Canada ranks behind its peers both in business lending and SME lending, the latter often the driver of innovative ideas.[19] One possible explanation is that Canada incentivizes greater lending for residential mortgages. This is because the CMHC insures lenders against mortgage default on insured mortgages at 100 percent.

The easy answer, then, is to say increase the deductibles, which makes residential lending less attractive. However, it is not that simple. Mortgage insurance has been shown to be an effective macroprudential tool to insulate the financial system from a housing crash (Koeppl and MacGee 2017). A change in structure, whereby lenders face increased deductibles would largely be ineffective, as deductibles would have to be small enough to maintain these macroprudential benefits and would likely be passed on to consumers in any event.

A better tool would be to address the fact that mortgage-insurance premiums do not take into account the differences in default risk across mortgages with the same loan-to-value ratio. In other words, a flat percentage based on loan-to-value is charged by the CMHC regardless of individual factors related to the borrower. Charging lenders different premiums based on different risk profiles would better address the moral hazard concerns – and some of the incentive for lenders to focus on mortgage lending – arising from the 100-percent CMHC guarantee (see Koeppl and MacGee 2017 for more detail). Ideally, this would open up room for more productivity-enhancing business lending in Canada.

Conclusion

This *Commentary* argues that a developed country, having reached the stage of diminishing returns in labour and capital, must rely heavily on productivity growth to generate sustainable economic growth. Furthermore, policies meant to enhance productivity should focus on industries where Canada has an international comparative advantage. While Canada has a comparative advantage in the financial services sector, that has not yielded strong productivity growth.

This *Commentary* shows that part of the explanation for these relatively poor results in the financial services sector include a policy approach that does not properly evaluate the link between competition and productivity, a regulatory structure that does not always reflect international best

19 See, for example, Decker et al. (2014) who show that productivity slowdowns can result from declining small-business activity.

practices, and less efficient allocation of capital due to disproportionate mortgage lending incentives.

As a result, this *Commentary* recommends the following:

- Remove barriers to the development of fintechs through a functional approach to regulation;
- Implement regulatory oversight that is proportionate to functional risk;
- Consider whether a more explicit productivity mandate is useful for Canadian regulators, in part based on the innovative ideas coming out of the FCA's focus on competition and productivity;
- Revise the *Bank Act* and *Insurance Companies Act* to allow more flexibility for banks and insurance companies to make substantial investments in fintechs and insuretechs;
- Since it is unlikely politically to have one (or twin) national financial-sector regulator(s) with legislative/statutory powers, focus on achievable goals such as making clear what arrangements are in place between federal and provincial regulators for the sharing of market data related to, for example, the analysis of financial stability in capital markets, and strengthen links between market-conduct regulators across provinces and functions; and
- Reduce incentives for banks to lend to residential mortgages by charging lenders mortgage-insurance premiums that reflect idiosyncratic risk beyond just loan-to-value ratios.

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