PRODUCTIVITY AND LIVING STANDARDS IN CANADA AND BRITISH COLUMBIA

A Paper Prepared for the 2018 B.C. Business Summit

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HIGHLIGHTS

- Growth in Canadian real GDP per person – a key measure of living standards – has trended much lower since the 1960s. Prior to 2000, Canadian incomes were doubling in roughly 30 years (i.e. one generation). At recent growth rates, this feat would take four to five generations.

- There are only two ways to raise GDP per person: higher labour productivity (producing more GDP per hour of work); and working more hours per head of population. In other words, the choice is between "working better" and "working more."

- Since 1870, Canada has maintained GDP per person at roughly 80% of U.S. levels. To sustain this ratio in recent decades, Canada has increasingly relied on working more hours per head of population to offset faltering productivity growth. This strategy has limited further scope to raise living standards.

- Productivity is the efficiency by which inputs (capital and labour) are transformed into outputs. Slowing labour productivity growth in Canada since the 1970s has opened a sizable gap in productivity levels relative to other advanced countries. Canadian workers produce 26% less GDP per hour than American workers and 22-23% less than workers in Germany and France.

- The good news is that British Columbia has recently closed its longstanding labour productivity gap with Canada. B.C.'s improving productivity performance has enabled the province to narrow our gap in living standards with the rest of Canada. In 2001, B.C.'s real GDP per person was $6,600 less than the Canadian average. By 2017, the gap had fallen to $1,450 per person.

- The paramount focus of public policy in Canada and B.C. needs to be on raising *GDP per person*. To do this, we need *productivity-driven* economic growth.

- The key policy reforms we recommend to raise productivity are: (1) overhaul business taxation to incentivize firms to scale up, and to address the erosion of Canada's tax competitiveness vis-à-vis the U.S.; (2) modernize regulatory regimes so as to attract rather than repel productivity-enhancing investments, and to reward innovation and good business performance; (3) promote intense competition in product markets; (4) make Canada and B.C. preferred locations for global talent; and (5) stimulate innovation and commercialization and the scaling up of home-grown technologies.

Productivity isn't everything,
but in the long run it is almost everything.
A country's ability to improve its standard of living
over time depends almost entirely on its ability
to raise output per worker.

Paul Krugman, 1997

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HOW TO RAISE PRODUCTIVITY AND LIVING STANDARDS IN CANADA AND BRITISH COLUMBIA

1. INTRODUCTION

Will our kids be alright? Will they prosper? These are questions all parents ponder. For a child born today, their standard of living during adulthood will hinge upon the success of their parents' generation in raising real gross domestic product (GDP) per person.[1] Small shifts in the trend growth rate of GDP per person lead to substantial differences in living standards over the course of a generation.

Raising GDP *per person* should be the paramount goal of Canadian public policy.[2] There are only two ways to accomplish this: increasing labour productivity, or GDP produced per hour of work; and increasing working hours per head of population. In other words, the choice is between "working better" and "working more." In recent decades, Canada has increasingly relied on the latter by raising labour force participation. This approach has limited further upside as a means of raising living standards.[3]

Canada now needs to make *productivity-driven* economic growth its highest priority. Each year, Canadians strive to be more productive. We upskill, innovate, deploy more capital equipment, and reorganize companies and industries to produce more goods and services than we did last year. However, these days we are doing so at a very languid rate compared to past generations.

For British Columbians, the good news is that the province has closed its longstanding productivity deficit with the rest of Canada. The bad news is that Canada's productivity performance is not impressive compared to other advanced economies.

For British Columbians, the good news is that the province has closed its longstanding 2-5% productivity deficit with the rest of Canada. The bad news is that Canada's productivity performance is not impressive compared to other advanced economies. In the late-1970s, Canada's productivity level was only 10% less than the U.S. Today, Canadian workers produce 26% less per hour than U.S. workers — and 22-23% less per hour than workers in Germany and France.

This paper is focused on productivity trends in Canada and B.C. The structure of the paper is as follows. Section 2 explores the drivers of Canadian GDP per person. Box 1 sets out the arithmetic. Section 3 looks at trend growth rates in GDP per person and the implications for future living standards. Section 4 and 5, respectively, discuss Canada and B.C.'s productivity performances. Section 6 sets out the key policy areas that need to be addressed to raise Canadian and B.C. living standards through productivity-driven economic growth. Section 7 concludes.

[1] GDP is the market value of all goods and services produced over a period of time. Higher GDP per person implies a higher level of material well-being for citizens, on average. Citizens can afford better food, more health and education services, better housing and so on. Higher GDP per person also implies that governments are better able to provide high quality public services.
[2] GDP *per person* is a far more important metric of living standards than GDP. A bigger economy is not necessarily better. Imagine there are two countries, A and B. Country A has a GDP of $100 and a population of 5. Country B has a GDP of $200 and a population of 20. GDP per person for country A and B is $20 and $10, respectively. Country B has twice the GDP of A, but half the GDP per person. Clearly, the average citizen of country A is better off and has a higher material standard of living.
[3] This approach also places no social value whatsoever on the non-market (i.e. unpaid) work of stay-at-home parents, carers and volunteers whose time and efforts contribute to the well-being of families and communities.

Box 1
THE ARITHMETIC OF GDP PER PERSON

There are only two ways a country's population can attain higher GDP per person:

(a) working better (increased output per working hour); or
(b) working more (increased working hours per head of population).

The arithmetic is as follows:

$$\frac{GDP}{Population} = \frac{GDP}{Hours\ Worked} \times \frac{Hours\ Worked}{Population}$$

Or more simply:

GDP per person = Labour productivity × Labour Intensity

The first term in the right-hand side of the simple equation above is **labour productivity**: GDP produced per hour of labour input. Labour productivity measures the efficiency by which the economy transforms inputs into outputs. It is a function of:

(i) *Capital intensity* – the amount of capital (e.g. machinery and equipment) per unit of labour input;

(ii) *Labour quality* – skills per unit of labour input; and

(iii) *Multi-factor productivity* (MFP) – GDP per hour that is not explained by (i) or (ii). MFP is a "catch-all." It captures a range of other influences on labour productivity. These influences include: the ongoing reallocation of the economy's inputs and outputs to achieve best use (e.g. through firm entry, exit, reorganization, offshoring and outsourcing, and worker relocation); technological change (to the extent it is not captured by the measure of capital intensity; capital utilization; and economies of scale (i.e. the ability to increase output with decreasing input costs per unit of output).

The second term is **labour intensity**: hours worked per head of population. Labour intensity is the product of the employment rate (the employment/population ratio) and average working hours (hours worked/employment).

2. WHAT DRIVES CANADIAN GDP PER PERSON?

Since 1870, Canada has maintained GDP per person at roughly 80% of U.S. levels (**Figure 1**).[4] In recent decades, Canada has sustained this ratio through higher labour intensity (i.e. more working hours per head of population) compared to the U.S. This higher labour intensity has been just enough to offset a persistent deterioration in Canada's relative labour productivity (i.e. less GDP produced per working hour compared to the U.S.) **Figure 2** shows this decomposition. Canada's productivity deceleration is due to slowing growth in capital intensity and labour quality, together with outright falls in multi-factor productivity (MFP, **Figure 3**). Canada's very poor performance on MFP is especially worrisome, as MFP captures the improvements in knowledge and management practices that are important in driving business success.

Can Canada continue to keep pace with U.S. living standards in this way – that is, by increasing working hours per head of population? The arithmetic and data suggest not. Canada's labour intensity advantage is mainly due to the large gap in *prime age* labour force participation that opened with the U.S. after about 1999 (**Figure 4**). Among women, Canada's prime age participation rate increased significantly from the early 1980s to the early 2000s, while the U.S. made no further gains after the late 1990s. Among men, the U.S. saw a steady decline in prime age labour force participation,

[4] This section draws on an excellent review of Canada's productivity record by Nicholson (2018).

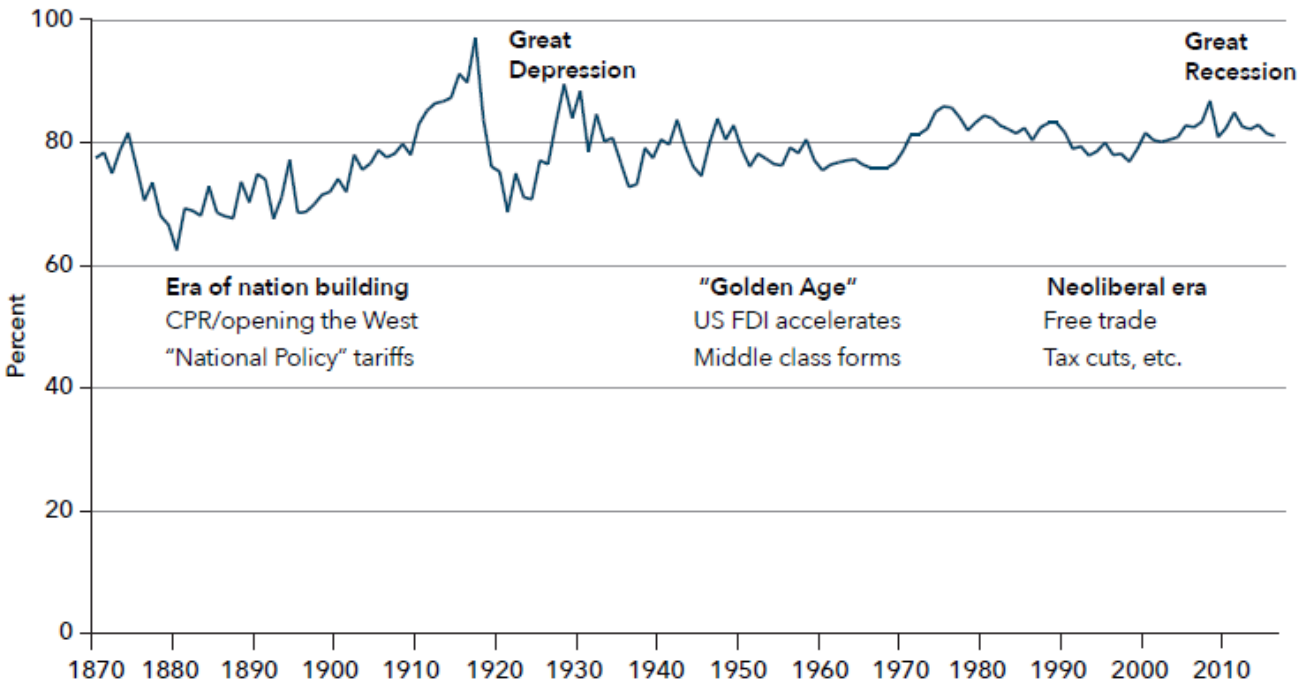
whereas Canada's rate stabilized in the early 1990s. However, Canadian workers work about 2-5% fewer hours annually than American workers, on average (**Figure 5**).[5] Another drag on labour intensity relative to the U.S. is that Canada's unemployment rate has mostly been above the U.S. rate since the 1970s (**Figure 6**).

Another way to explore participation is to look at the labour force status for Canada's population aged 15 and over (the "adult population," **Figure 7**).[6] The strong increase in female full-time employment, and the smaller rise in female part-time employment, both stabilized in the 2000s. Male full-time employment has ebbed due to unemployment and withdrawal from the labour force, particularly around economic recessions. The proportion of Canada's adult population not in the labour force (men and women) reached its nadir in the early 2000s and has risen steadily since the 2008-09 recession.

Based on the above, **our conclusion is that Canada has very limited scope to raise GDP per person by increasing labour intensity**. Prime-age labour force participation has stabilized at relatively high levels. Arguably, there is more scope for the U.S. to close these labour intensity gaps with Canada than for Canada to achieve even higher rates of labour intensity vis-à-vis the U.S. Canada could try to reduce structural unemployment or induce workers to work more hours per annum. However, in our view there is little scope to increase labour force participation among prime-age workers, or among the adult population as a whole, given Canada's aging population. The arithmetic therefore strongly suggests that **future gains in Canadian living standards will need to be driven, for the most part, by improvements in labour productivity**.

FIGURE 1: **CANADA'S GDP PER PERSON IS AROUND 80% OF U.S. LEVELS (SINCE 1870)**

Real GDP per person, Canada as a percentage of U.S. levels

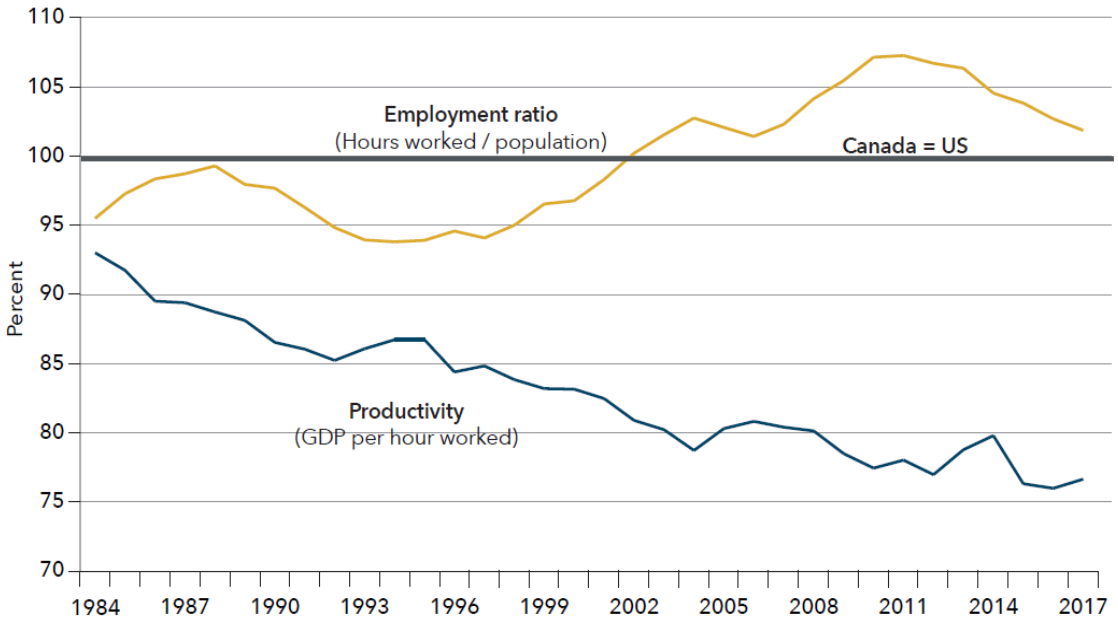


Source: Nicholson 2018; Groningen Growth and Development Centre.

[5] Canadians worked about 85 fewer hours per worker than Americans in 2017. Prior to the 2008-09 recession, the gap was about 50 fewer hours per worker per year.
[6] The categories sum to 100% of the population aged 15 years and over.

FIGURE 2: **CANADA HAS KEPT PACE WITH U.S. GDP PER PERSON BY "WORKING MORE" NOT "WORKING BETTER"**

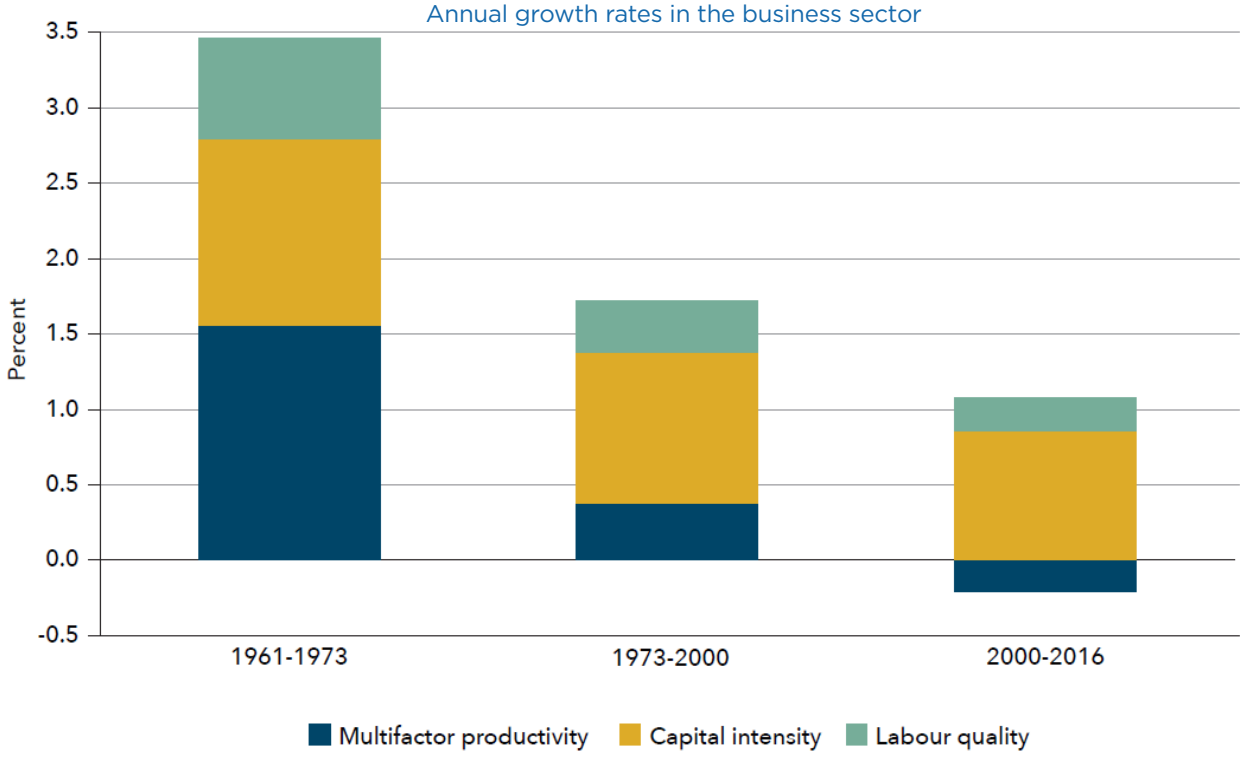
Canada as a percentage of U.S.



Source: Nicholson 2018; Centre for the Study of Living Standards.

FIGURE 3: **CANADA'S DWINDLING LABOUR PRODUCTIVITY GROWTH**

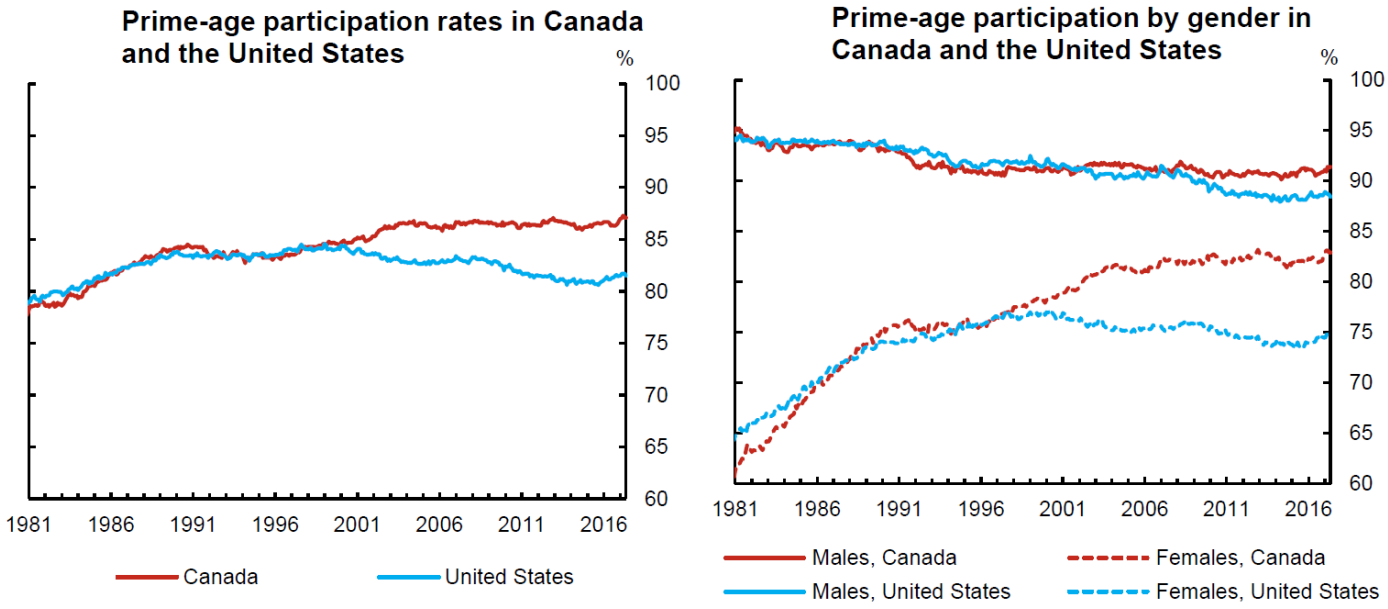
Annual growth rates in the business sector



Source: Nicholson 2018; Statistics Canada, CANSIM table 383-0021.

FIGURE 4: CANADA'S PRIME-AGE LABOUR FORCE PARTICIPATION IS HIGHER THAN THE U.S.

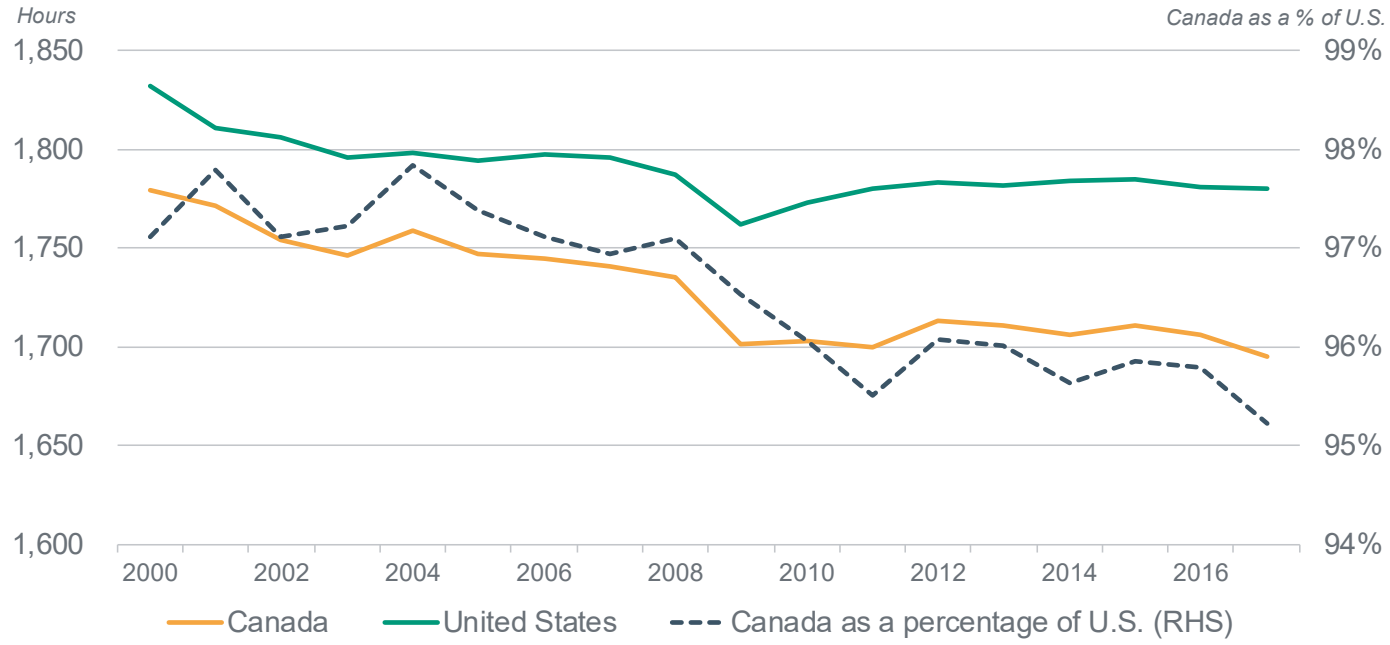
Labour force participation rates for persons aged 25-54 years



Source: Ketcheson et al. 2017; Labour Force Survey (Canada; Current Population Survey (U.S.).

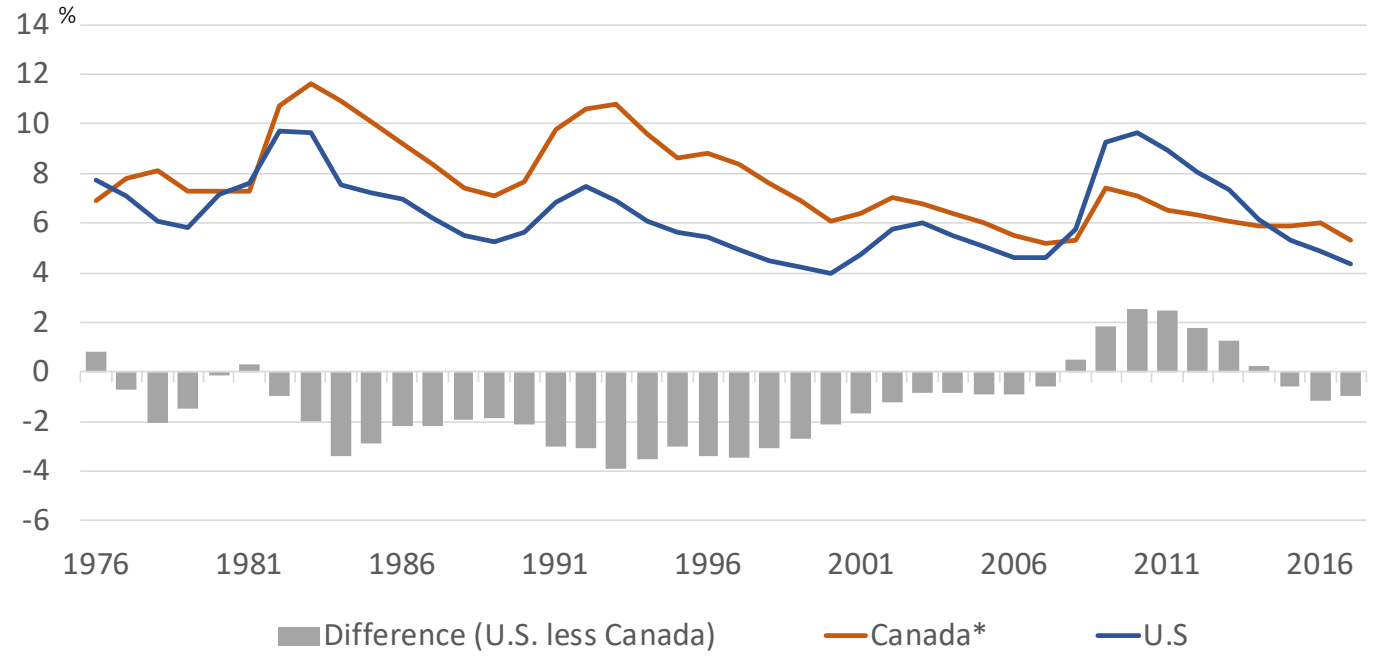
FIGURE 5: AMERICANS WORK MORE HOURS THAN CANADIANS

Average annual hours per worker



Source: OECD.stat; BCBC.

FIGURE 6: **CANADA'S UNEMPLOYMENT RATE IS PERSISTENTLY ABOVE THE U.S.**

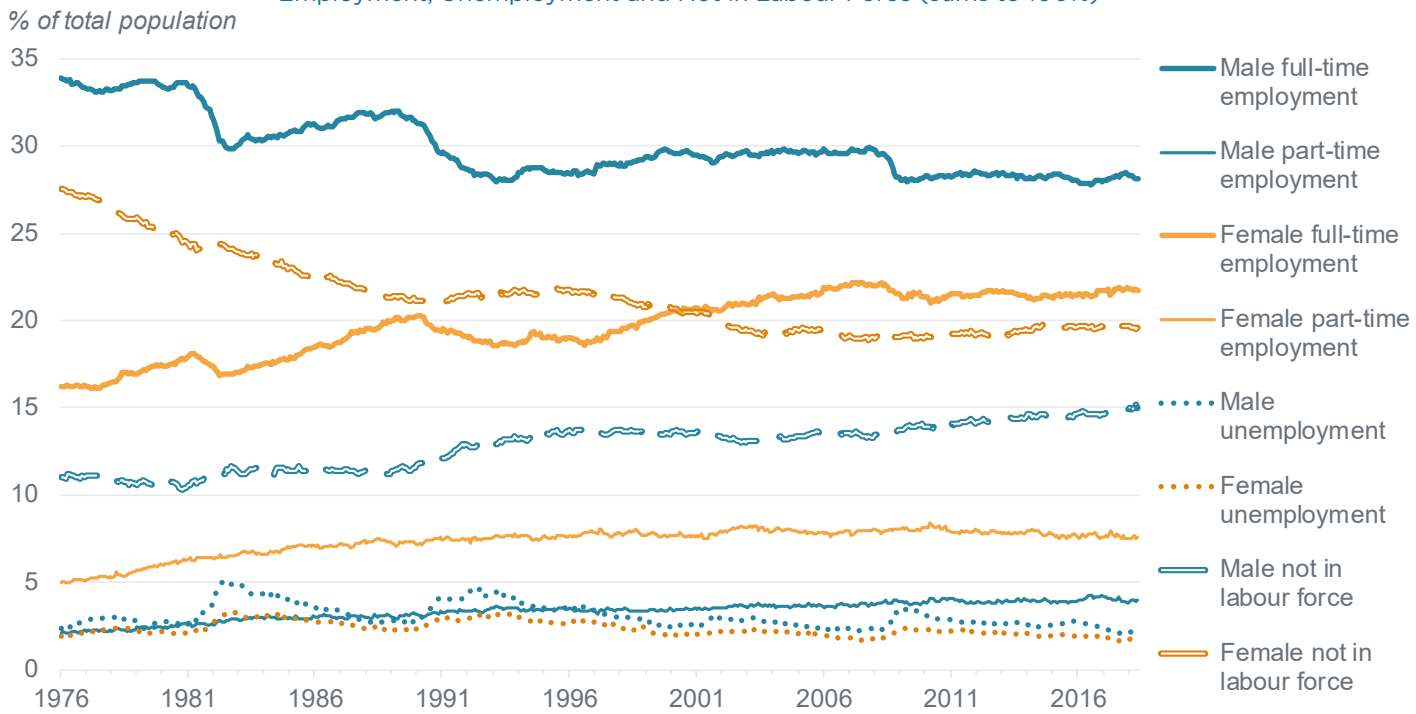


Source: OECD.stat; Statistics Canada; BCBC.

*The Canadian unemployment rate shown is adjusted to be comparable to the U.S. definition.

FIGURE 7: **LABOUR FORCE STATUS OF THE CANADIAN POPULATION AGED 15+**

Employment, Unemployment and Not in Labour Force (sums to 100%)



Source: Labour Force Survey; BCBC.

3. IMPACT ON FUTURE GENERATIONS

Let's now think about the impact of growth in GDP per person across generations.[7] We start by asking, "How long would it take to double income per person?" **Table 1** lays out some simple (compound interest) arithmetic.[8] If Canada could consistently grow real GDP per person at 6% per annum (we achieved this only in one year, 1973), income per person would double in just 12 years. That's less than half a generation (a generation is 25-30 years). The average child would end up earning more than four times the income of an average parent.

TABLE 1: **THE ARITHMETIC OF GROWTH**

Growth rate of GDP per person (p.a.)	Years to double GDP per person
6%	12
5%	14
4%	18
3%	23
2%	35
1%	70
0.5%	139

At a sustained growth rate of 5% per annum (seen on three occasions: 1962, 1966 and 1984), incomes would double in 14 years. At 4% (seen on seven occasions: 1964, 1965, 1969, 1976, 1985, 1999 and 2000), incomes would double in 18 years. At 3% (seen on 10 occasions since 1961), income per person would double in 23 years. At 2% (seen on 12 occasions since 1961), incomes double every 35 years. The corollary is that when GDP per person grows by a little more than 2% per annum, incomes double in about one generation or less.[9]

Now let's look at Canada's actual performance over time (**Table 2**). From 1961 to 2000, GDP per person grew at an average rate of 2.3% per annum. This meant it was doubling every 31 years: a parent could expect their children, once grown up, to earn about *twice* their income. However, since 2000, growth in GDP per person has slowed to about 0.9% per annum. At this rate, it takes 74 years for incomes to double: a parent can only expect their great grandchildren to earn twice what they are earning (i.e. three generations hence).

TABLE 2: **CANADA'S PERFORMANCE**

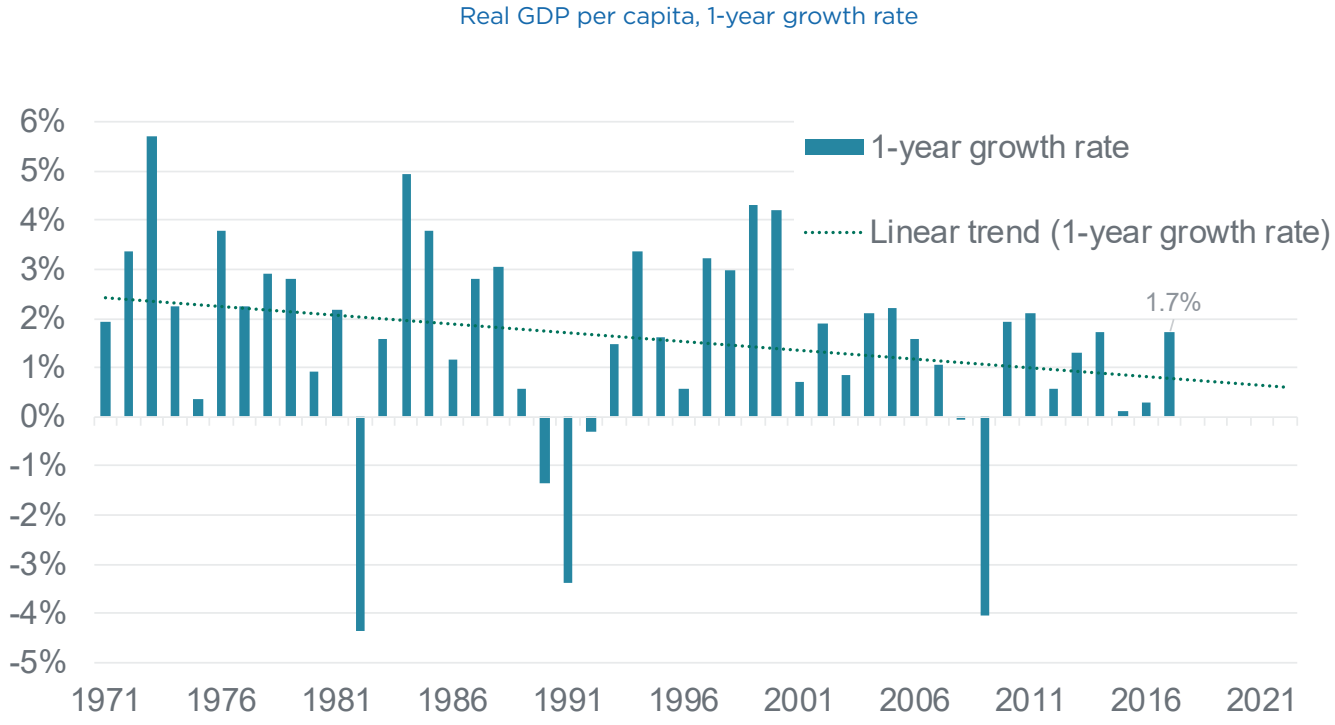
Period	Growth Rate of GDP per person (p.a.)	Years to double GDP per person
1961-2000	2.3%	31
2000-2017	0.9%	74
2007-2017	0.6%	126

In the past decade, growth in Canadian GDP per person dwindled to just 0.6% per annum. If sustained, it will take 126 years – four to five generations – for real incomes to double! A parent could only expect their great-great or great-great-great grandchildren to earn twice their income today.

In 2017, Canada recorded 1.7% growth in GDP per person (**Figure 8**). This was one of the best years since the 2008-2009 recession, along with 2014 (1.7%), 2011 (2.1%) and 2010 (1.9%). Nonetheless, there is a clear, multi-decade decline in the *trend* growth rate of real GDP per person. **Today's economy is no longer delivering incomes per person that double every generation.**

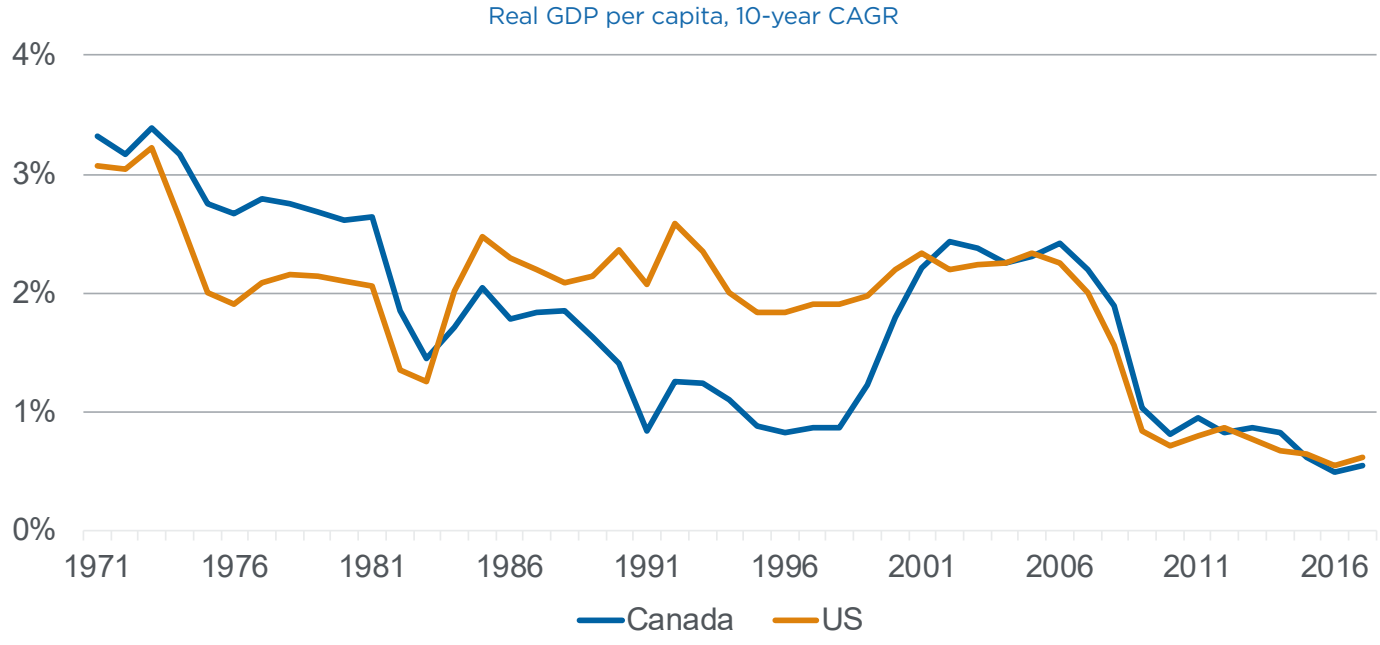
[7] This section is based on Williams (2018c).
[8] All figures are cited in real terms (i.e. inflation-adjusted). Inflation causes a loss of purchasing power, so it is important to report income after controlling for its effects.
[9] To be precise, if GDP per person grows at an average rate of 2.3-2.8% per annum, incomes double in 25-30 years (i.e. one generation).

FIGURE 8: **LONG-TERM SLOWING IN GROWTH OF CANADIAN REAL GDP PER PERSON**



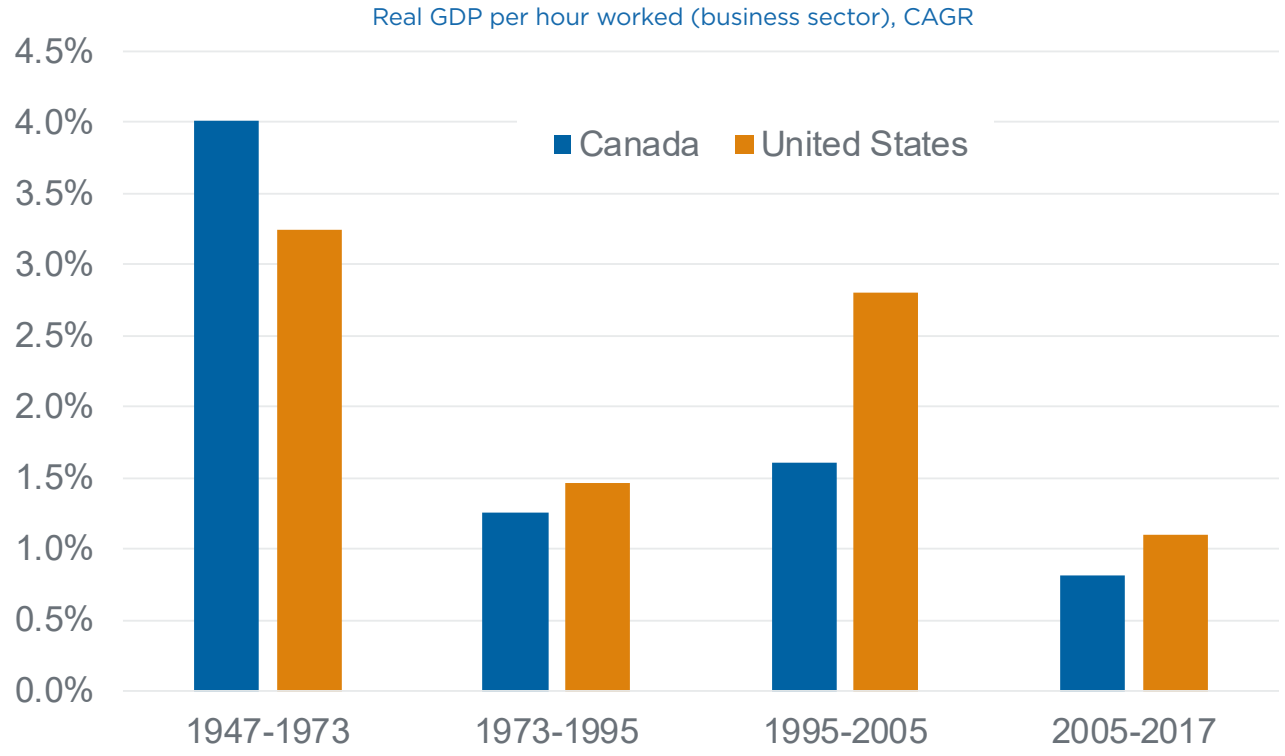
Source: Centre for the Study of Living Standards.

FIGURE 9: **AGGREGATE LIVING STANDARDS IN CANADA AND U.S. ARE STAGNATING**



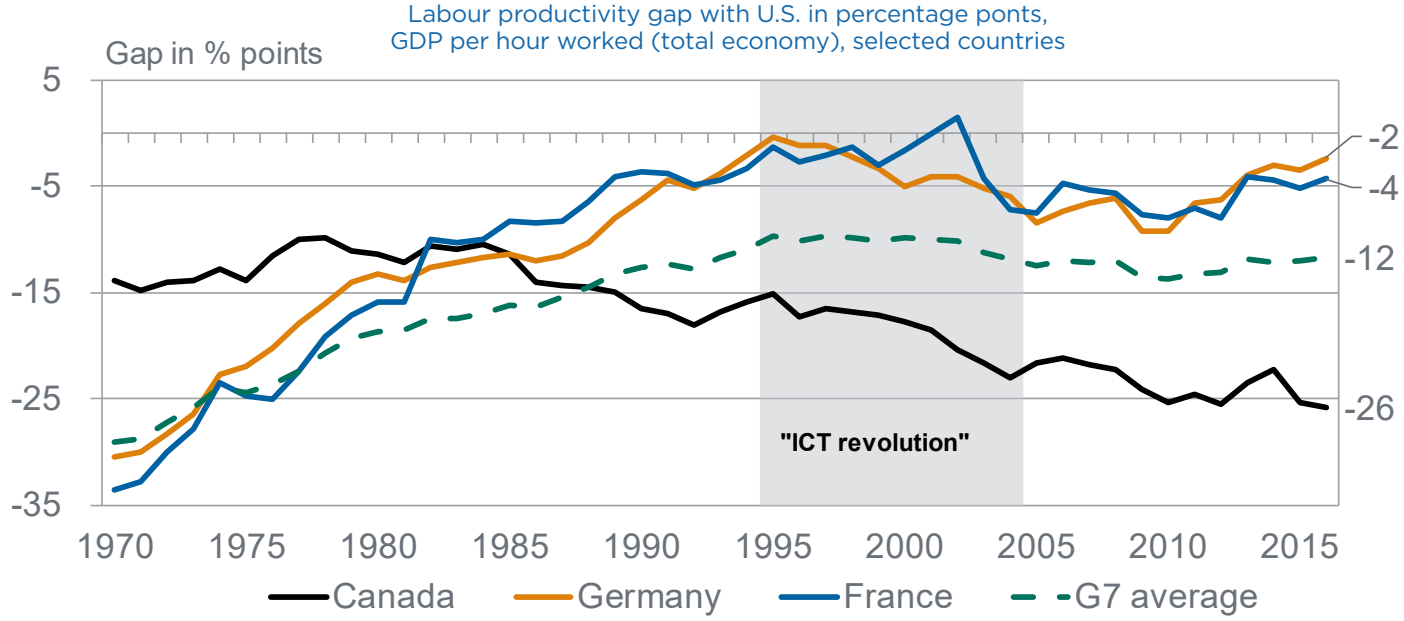
Source: Centre for the Study of Living Standards; BCBC.

FIGURE 10: **LABOUR PRODUCTIVITY GROWTH BY ERA**



Source: Centre for the Study of Living Standards.

FIGURE 11: **CANADA'S RELATIVE PRODUCTIVITY PERFORMANCE HAS STEADILY DETERIORATED SINCE THE LATE 1970s**



Source: OECD; BCBC.

The United States has been experiencing a similar sustained slowdown. Over the past 10 years, growth in GDP per person has averaged just 0.6% per annum in both Canada and the U.S. (**Figure 9**). The U.S. had previously almost always enjoyed average 10-year annualized growth of 2% or more, all the way back to the 1960s. Before the post-recession era, the only period of persistent sub-2% growth in U.S. real GDP per person was in the decade up to the early 1980s. By contrast, Canada managed to achieve decade-long average annual growth in real GDP per person above 2% prior to 1980, and again briefly in the pre-recession 2000s. This means that living standards, as measured by real GDP per person, have essentially stagnated in Canada and the U.S. in the post-recession era.

4. A CLOSER LOOK AT CANADA'S PRODUCTIVITY PERFORMANCE

The key contributor to the stagnation in Canadian GDP per person is the sustained slowdown in labour productivity growth. From 1947-1973, labour productivity in the business sector grew at 4% per annum, about 1 percentage point faster than in the U.S. (**Figure 10**).[10] Productivity growth slowed in both countries over 1973-1995, then accelerated in the U.S. to 3.1% per annum during 1995-2005. Canada saw only a mild pick-up in productivity during this period coinciding with the peak of the information and communications technology (ICT) revolution. As the impetus from the ICT revolution faded, productivity growth in both countries has trended down.

Table 3 presents productivity growth by era. During the post-World War Two period up to 1973, a worker could double real output produced per hour in less than one generation: 18 years in Canada and 22 years in the United States. American workers achieved a similar pace during the peak of the ICT revolution over 1995-2005. However, by contrast, since the early 1970s Canadian workers have only been able to double output per hour every 2-3 generations.

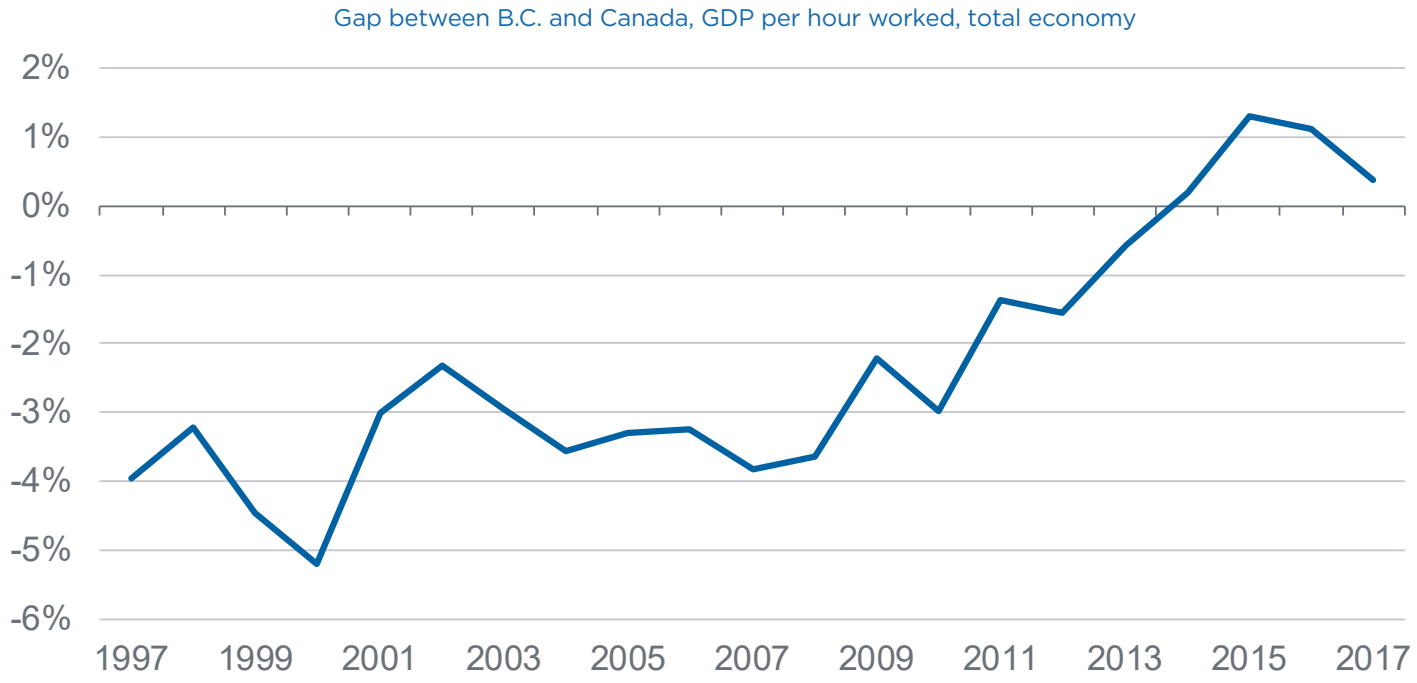
As foreshadowed earlier, the differential in Canada-U.S. labour productivity growth has led over time to the emergence of a sizable gap in productivity *levels* (i.e. GDP per hour worked) between the two national economies. **Figure 11** shows Canada's level of labour productivity for the total economy, relative to the U.S. In the late-1970s, Canadian workers' output per hour was only about 10% less than that of U.S. workers. Thereafter, Canada's relative performance deteriorated, especially during the peak of the ICT revolution during 1995-2005. By 2016, Canadian workers were producing 26% less output per hour than their American counterparts — a significant gap. By contrast, in 2016 the average worker in a G7 country produced 12% less output per hour than a similar worker in the United States. **Advanced countries like Germany and France closed their post-war productivity gaps with the U.S. by 1995 and have mostly kept pace with the U.S. since then. Clearly, Canada has fared less well.**

TABLE 3: **CANADA VS U.S. LABOUR PRODUCTIVITY GROWTH (BUSINESS SECTOR)**

	Canada		United States	
Period	Growth in labour productivity p.a. (business sector)	Years to double output per hour	Growth in labour productivity p.a. (business sector)	Years to double output per hour
1947-1973	4.0%	18	3.2%	22
1973-1995	1.3%	53	1.5%	45
1995-2005	1.8%	39	3.1%	23
2005-2017	0.9%	79	1.2%	58

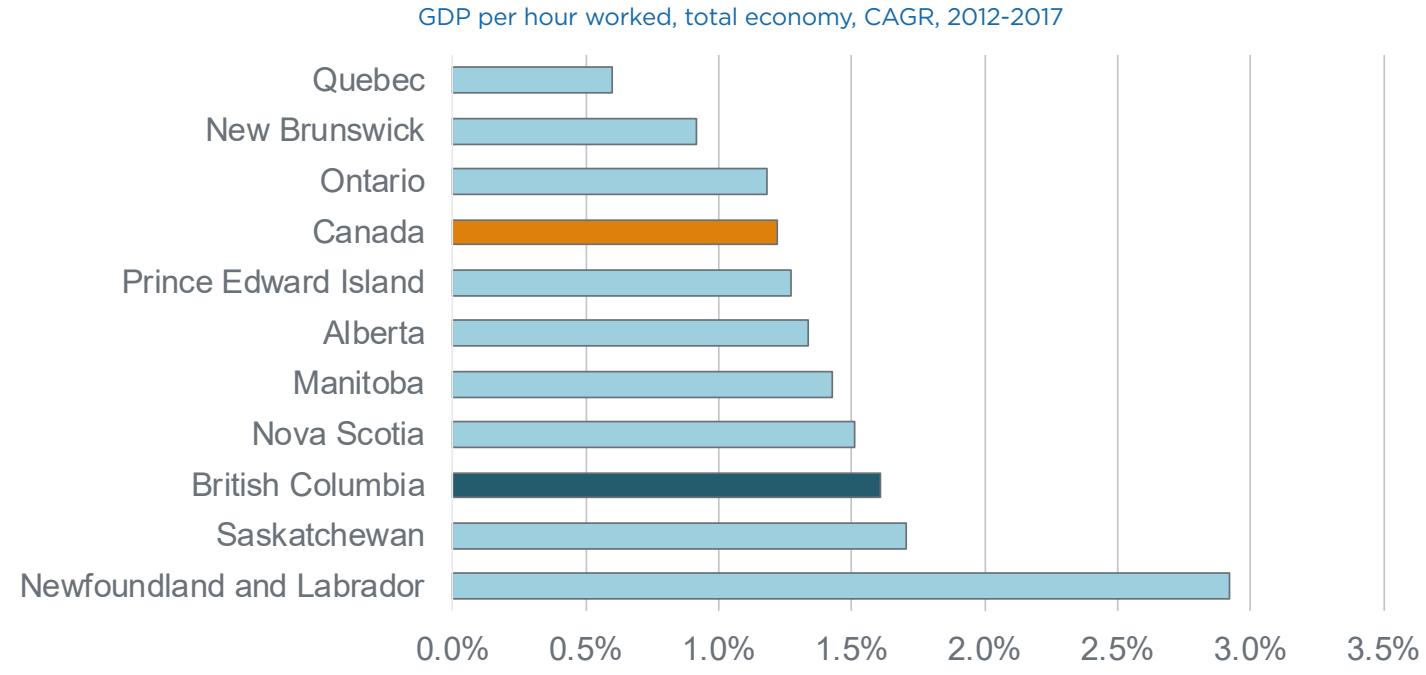
[10] Economists often focus on business sector productivity, because this large sector of the economy is the main driver of technological progress. That said, productivity in the total economy can also be useful when comparing performance across countries (as in Figure 11).

FIGURE 12: **B.C. HAS CLOSED ITS PRODUCTIVITY GAP WITH CANADA**



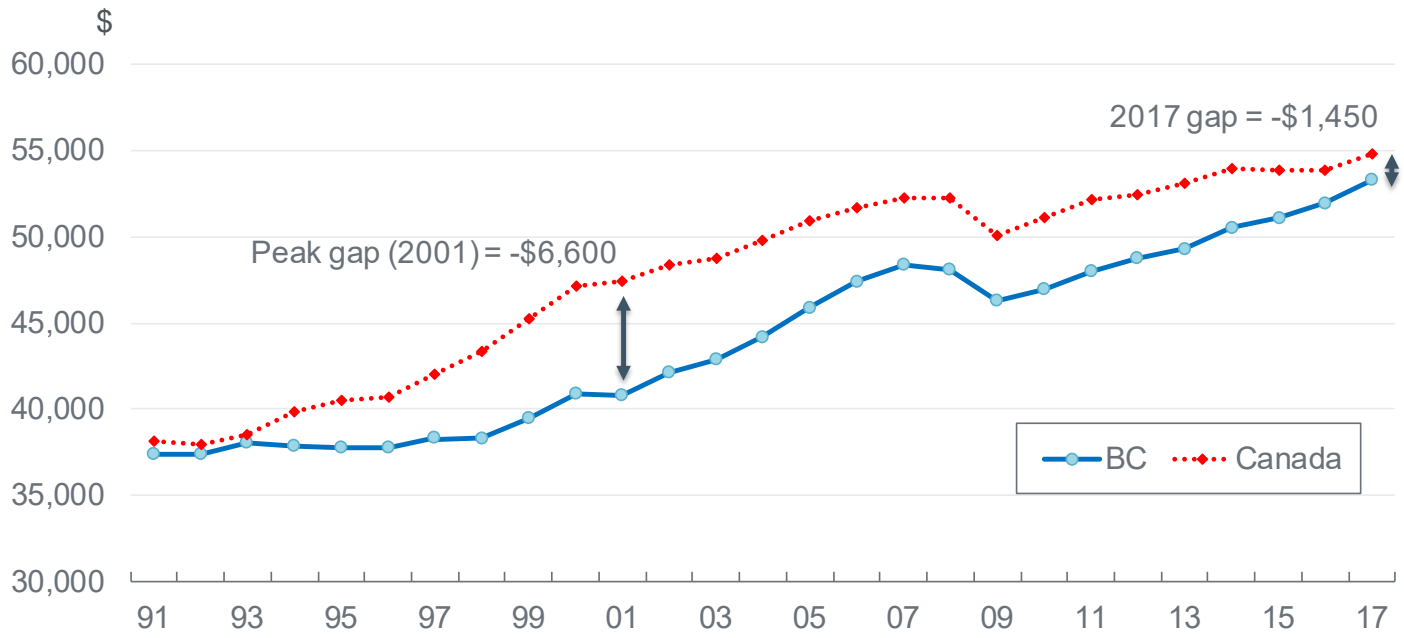
Source: CANSIM 383-0033; BCBC.

FIGURE 13: **B.C. SAW THE THIRD HIGHEST LABOUR PRODUCTIVITY GROWTH OVER THE PAST FIVE YEARS**



Source: CANSIM 383-0026; BCBC.

FIGURE 14: **B.C. IS (SLOWLY) CLOSING THE GAP IN REAL GDP PER PERSON**



Source: Statistics Canada, Table: 36-10-0222-01 and 17-10-0005-01 (for population). Note: 2012 chained $

5. B.C.'S PRODUCTIVITY PERFORMANCE

What has been British Columbia's contribution to national productivity? B.C. has long had *lower* labour productivity levels compared to the Canadian average. That is no longer the case, however. B.C.'s productivity levels, which were once around 2% to 5% below the Canadian average, started to gain ground relative to Canada in the aftermath of the 2008-09 recession. Over the past four years, B.C.'s labour productivity has been 1% higher, on average, compared to the Canadian benchmark (**Figure 12**). Unfortunately, the catch-up is more due to a period of anemic productivity growth in central Canada (in part due to the underutilization of manufacturing capacity after the 2008-09 recession), rather than to a stellar performance on the part of B.C.[11]

B.C. ranks third among the ten provinces in recent productivity growth (**Figure 13**). Labour productivity growth in B.C. averaged 1.6% per annum over the period 2012-2017. At this pace, output per hour would double every 43 years. That is not impressive. But it compares to a post-2012 productivity growth rate of just 1.2% for Canada, which implies that output per hour would double every 57 years. Canada's productivity growth weakness is concentrated in the largest economies of Ontario and Quebec, which have struggled with excess capacity, in part due to eroding manufacturing competitiveness since the 2008-09 recession.

B.C.'s better productivity performance is paying dividends through rising living standards. In the early 1990s, B.C.'s real GDP per person was close to the national average (**Figure 14**). B.C. then fell well behind. By 2001, British Columbians were earning $6,600 per person less than Canada each year. It has taken almost two decades for B.C. to narrow that gap and the task remains incomplete. In 2017, British Columbia still earned $1,450 per person less than the national average. Further improvements in B.C.'s productivity performance can help fully close this gap in living standards.

[11] See Gu and Wang (2013).

6. POLICY DIRECTIONS FOR RAISING PRODUCTIVITY AND LIVING STANDARDS

British Columbia and Canada must find ways to raise labour productivity by achieving faster growth in capital intensity, labour quality and multi-factor productivity (see **Box 1**). Failure to do so will severely limit the scope for future gains in real incomes and living standards. Below are five areas where public policy and institutional changes can help to foster conditions that lead to stronger productivity growth over time.

A Comprehensive Review of Tax Policy is Well-Overdue

Tax policy in Canada and B.C. does little to encourage the types of investments that drive productivity in the private sector. Statutory and effective tax rates are much higher for large- and mid-sized companies than for micro-businesses and sole proprietors. Sharp disparities in tax rates blunt incentives for some companies to grow and can discourage the entrepreneurial risk-taking that's required to build substantial enterprises. The details of tax assistance for research and development (R&D) and for business innovation generally — which in Canada is heavily focused on small firms — compound the problem. B.C.'s new Employer Health Tax (EHT), set to kick in next year, is another example of how certain features of tax policy can act as an obstacle to business growth.[12]

Well-crafted tax policy should incent firms to grow, invest and export. Larger firms typically have higher productivity and pay higher average wages than smaller firms. They also spend more on R&D and other forms of innovation and are more likely to participate in global markets (Finlayson and Peacock 2017). To boost productivity, tax policy should encourage firms to scale up, and reduce the tax-related incentives to stay small.

Well-crafted tax policy should incent firms to grow, invest and export. Larger firms typically have higher productivity and pay higher average wages than smaller firms. They also spend more on R&D and other forms of innovation and are more likely to participate in global markets.

British Columbia is far from having a pro-productivity tax regime today. As a start, the province should consider implementing a more graduated business tax rate structure, rather than jumping from a statutory provincial tax rate of 2% to 12% — a six-fold increase — as soon as a company's earnings reach $500,000/year.[13] For example, a provincial statutory rate of 5% could be levied when net business income reaches $5 million, with the 12% rate applying on incomes of $10 million and above.

There are also issues around the use of tax incentives to support economic and industrial development. In the last two decades, B.C. has adopted tax preferences for a handful of narrowly defined industries. While this has produced some benefits, it is not the right approach if the goal is to bolster productivity across the overall business sector. Instead, tax policy should support investments in assets and activities that fuel productivity – for example, new machinery, up-to-date equipment, modern production facilities, advanced process technologies, digital tools and skills training — and do so for all industries, rather than just a favoured few.

We believe the province should revamp the business tax rate schedule (as suggested above). It should reform the retail sales tax system (the PST) to reduce the fiscal burden on investments in productivity-enhancing capital inputs like machinery and equipment, advanced process technologies, and construction materials. The province's current PST regime raises the cost of investing and producing goods and services in B.C. by well over $2 billion every year — costs that firms in most other provinces and advanced economies do not face. As now constituted, the PST is the single biggest policy-related barrier to achieving faster productivity growth in B.C.

[12] The EHT will not be paid by businesses with annual payrolls below $500,000, and it will be set at a lower rate on payrolls between $500,000 and $1.5 million. The standard EHT rate (1.95%) will be charged starting at $1.5 million of payroll. We anticipate that the EHT will encourage some businesses to break up their operations by establishing separate companies as a way to keep reported payroll below $500,000 for each individual enterprise.
[13] The federal government imposes a general corporate tax rate of 15% but levies a lower rate (10% in 2018) on small business income. For a mid-sized or large company operating in B.C., this means that the combined federal-B.C. corporate tax rate is 27%, versus 12% for small businesses organized as Canadian-controlled private corporations (CCPCs).

Canada and B.C. need to own a larger piece of the digital, post-industrial North American and global economy. Digital technologies allow service companies to produce at vast scale. They also enable manufacturers to increase efficiency, customize production, and accelerate speed-to-market. The so-called FAANG companies are examples of service companies at the forefront of the emerging digital economy (Facebook, Apple, Amazon, Netflix and Google/Alphabet). A fresh look at tax policy could identify ways to align tax rules with the realities and opportunities presented by the emerging digital economy.

Finally, let's address the recently enacted U.S. business tax reforms. With much lower American corporate tax rates and the adoption of full expensing for most categories of business investment[14], any business tax advantage that Canada (and B.C.) previously enjoyed vis-à-vis the U.S. has disappeared. The risk is that a more attractive U.S. tax regime will cause more Canadian companies to shift investment dollars south and deter inward foreign direct investment in Canada. This is not helpful at a time when Canada and B.C. need to find ways to increase productivity.

The changes in U.S. tax policy reinforce the case for re-tooling the tax system in Canada. In the near term, the federal government should move quickly to allow full expensing for new capital investments by companies operating in Canada. More broadly, it should launch a comprehensive review of the tax system. The Chartered Professional Accountants of Canada described our tax system as "bloated, complex and inefficient," as well as outdated, amid ongoing shifts in demographics, technology and the wider competitive landscape facing Canadian businesses and workers.[15]

In 2019, the Business Council of B.C. will be undertaking research and policy work aimed at coming up with ideas for a modernized tax system that provides the revenues government needs to fund services and income transfer programs, while supporting productivity-driven economic growth.

Modernize and Streamline Regulatory Processes

Capital deepening raises productivity. So do new projects that lead to the development of modern industrial facilities and physical infrastructure. However, Canada's current regulatory processes, notably for infrastructure and large-scale industrial projects, increasingly resemble Shelob's Lair in J.R.R. Tolkien's *Lord of the Rings* trilogy. Put simply, byzantine government regulation is a hindrance to investment in Canada – and thus to the productivity growth that follows from such investment. A negative assessment of the Canadian regulatory environment is now commonly heard across the business community and was recently echoed in the final report of the "Economic Strategy Tables" created by the federal government to develop ideas to strengthen competitiveness.[16]

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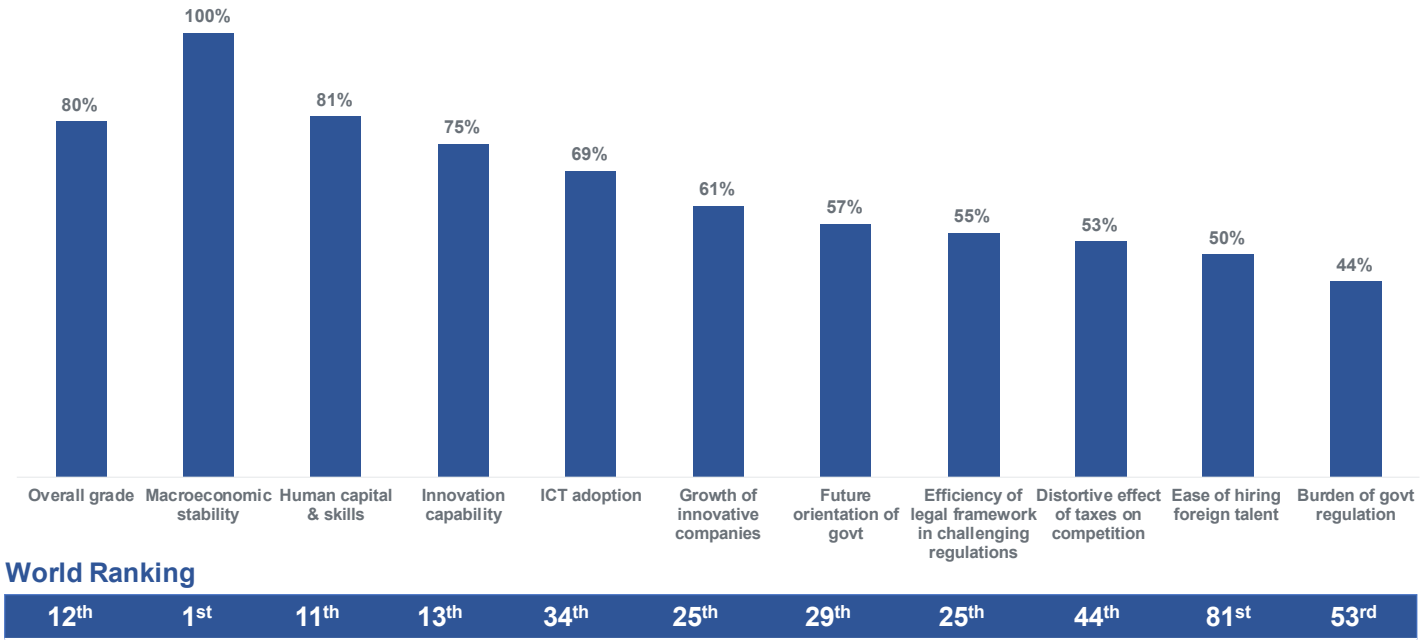
In the latest World Economic Forum report, Canada ranks 12th among 140 countries in overall competitiveness — a decent albeit far from outstanding showing (**Figure 15**). However, Canada comes up well short on measures related to regulatory efficiency and effectiveness. For example, we rank 52nd in the "burden of government regulation"; 25th in the "efficiency of the legal framework" governing regulatory activity; and 39th in the "quality of land administration." These findings speak to regulatory systems that are embarrassingly creaky, cumbersome, and increasingly out-of-date.

According to the World Bank (2016), Canada ranks 34th out of 35 countries in the Organization of Economic Cooperation and Development (OECD) in the time required to obtain a permit for new general construction projects (**Figure 16**). That is four times longer than Denmark, three times longer than the United States, and a third longer than France. Indeed, every major economy in the world ranks ahead of Canada on major project approval and permitting.

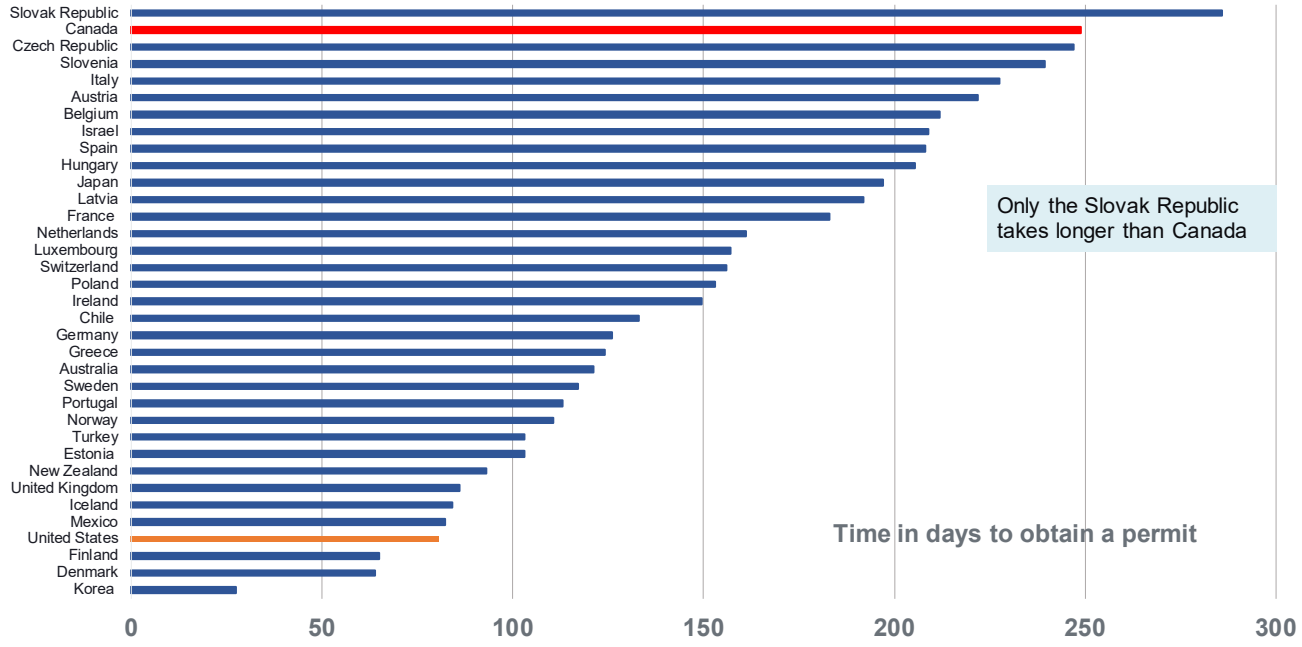
[14] The latter applies for the next five years.
[15] CPA Canada, *International Trends in Tax Reform: Canada is Losing Ground* (2018).
[16] *The Innovation and Competitiveness Imperative: Seizing Opportunities for Growth*, A Report from Canada's Economic Strategy Tables (2018).

FIGURE 15: CANADA'S PERFORMANCE IN THE WORLD ECONOMIC FORUM'S 2018 "GLOBAL COMPETITIVENESS REPORT"



Source: World Economic Forum, The Global Competitiveness Report 2018,

FIGURE 16: CANADA RANKS 34TH OF 35 OECD COUNTRIES IN TIME TO OBTAIN A PERMIT FOR A NEW GENERAL CONSTRUCTION PROJECT



Source: World Bank (2016).

Along with taxation, regulation is an area where policy change can make a positive difference in creating conditions supportive of productivity growth. Regrettably, most governments in Canada are charting a course that is making it harder for many businesses to justify deploying capital to and expanding their presence in Canada. For example, the new environmental assessment and project approval process developed by the federal government is likely to make project reviews even more complex, costly and delay-prone. We fear the same is true of B.C.'s proposed new environmental assessment regime.

Regulation is a vital part of any modern economy. But Canada (including B.C.) is in desperate need of new approaches to regulation. These new approaches should leverage data and digital technologies to streamline decision-making and provide better information, borrow from successful models used in other jurisdictions, weigh both the benefits and costs of new measures, and closely monitor the cumulative effects of regulatory interventions across multiple domains of government activity. As stated in the final report of the federal government's Economic Strategy Tables, Canada should aim to "...establish a modern regulatory system that fosters innovation...by focusing on outcomes, not prescriptions."[17] The report calls on policy-makers to commit to "an agile, modernized regulatory system that ranks within the top quartile globally, is conducive to innovation, creates public trust and attracts investment."[18] The Business Council of B.C. endorses the regulatory recommendations outlined by the Economic Strategy Tables. In 2019, we will be working to develop a framework and action plan to achieve smarter regulation in the British Columbia context.

Promote Competition and Open Markets

Economic renewal involves "creative destruction." Innovative firms and ambitious entrepreneurs force outdated and less successful firms to exit or alter course. Scarce labour and capital are freed and can be reallocated to better uses, which in turn raises business productivity and living standards (Williams 2018b). The principal catalyst for innovation is product market competition. Competition requires opening markets and minimizing government restrictions on business — except when private sector actions produce externalities, in which case government intervention of some kind is usually warranted.

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Canada's product markets are relatively sheltered, which dampens the imperative for firms to innovate to survive and grow.[19] The World Economic Forum awards Canada low marks in several areas that touch on competition: the extent to which government taxes and subsidies distort and limit competition; the intensity of competition in domestic markets for some services; and the prevalence of government-fostered non-tariff barriers in goods and services markets.[20] Souare (2013) finds that the lack of competition in Canadian product markets and low levels of investment in R&D and M&E (machinery and equipment) are mutually-reinforcing features of the Canadian economic environment that contribute to Canada's significant and persistent productivity gaps relative to the United States.

For the federal government, fostering competition and open markets requires robust anti-trust policies, continued support for new trade agreements, scaling back outdated and often costly import barriers, and taking aggressive steps to make it easier and less costly for companies to do business across the country. For B.C., promoting competition and open markets means limiting the role of state-owned monopolies in commercial sectors, encouraging competition and choice in public sector procurement markets, and working with other provinces to eliminate internal barriers to trade, capital flows and labour mobility.

[17] Ibid., p. 4.
[18] Ibid., p. 11.
[19] For example, Industry Canada (2013) found that four or fewer companies control more than half the market in pharmacy and personal care; electronics and appliances; general merchandise; home improvement; and food and groceries.
[20] See the 2018 WEF report. Measures of market competition are grouped under "pillar 7" in the WEF's analytical framework.

Develop, Attract and Retain "Talent"

In the digital age, the scarcest resource in a productive economy may be human capital (i.e. "talent") rather than physical or financial capital. Firms increasingly need people with social and creative intelligence and advanced skills in entrepreneurship, management, and science, technology, engineering and mathematics (STEM). During the information and communications technology (ICT) revolution, firms with high-quality management and organizational practices, and with ready access to pools of skilled labour, reaped large productivity gains from their investments in technology (Bloom, Sadun and Van Reenen (2012) and Van Reenen et al. (2010)). In contrast, firms lacking these attributes struggled to realize the full benefits of their investments in new technologies. Management talent and technical expertise is crucial for spurring innovation and growth at the enterprise level.

Immigration policies should be carefully designed considering future technological developments (Williams 2018d and Williams 2018e). Future production processes will be (and should be) more capital-intensive. Labour's role will increasingly be to provide advanced skills involving creative and social intelligence, and perception and manipulation. Production will not require large numbers of low- or mid-skill workers performing routine agricultural, industrial or clerical tasks. Those eras are long gone or soon will be.

Well-designed immigration programs can support productivity-driven economic growth and mitigate inequality in market wages by increasing the supply of high-skilled workers. Conversely, poorly-designed immigration programs that increase the supply of workers with automatable skill sets could exacerbate the costs of labour market adjustment and income inequality. This could also suppress wage growth for lower skill workers and in doing so, reduce firms' incentives to invest in new labour-saving technologies – leading to slower growth in capital intensity, labour productivity and living standards.

Canada and B.C. have done a reasonably good job building a skilled workforce. Canada is near the top among the advanced economies in the share of the population with post-secondary credentials. The World Economic Forum ranks Canada 3rd for "mean years of schooling."[21] By any measure, educational attainment is high. But do our businesses have access to top managerial, professional and technical talent? Do they have the talent to innovate, scale up and realize the full benefits of their investments in emerging technologies? If not, what can be done to address any shortfalls?

Through well-designed education policies and immigration programs, Canada and B.C. should prioritize developing and attracting highly-skilled labour. Canada should be a magnet for talent. This includes not just STEM workers, but also skilled trades-persons, experienced managers and individuals with other sought-after professional qualifications that our companies and academic institutions need to scale up and thrive.

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Support Research and Innovation...and Stimulate Commercialization

Canada has world-leading research institutions but has long struggled to commercialize its innovations. New technologies created in Canada but sold to non-Canadian companies will lead to Canada missing out on the lion's share

[21] 2018 WEF report.

of the economic benefits from scaling up locally-developed technologies. These are missed opportunities in a world where intellectual property (IP) and intangible capital are playing larger roles in economic growth. Digital technologies are capital-biased: the economic gains from their adoption tend to be skewed toward the owners and developers of the technologies (i.e. firm owners, managers, and highly-skilled workers with technology-complementary skills, see Williams 2018a). Canadian firms need to scale up and retain ownership of Canadian innovations if our country is to reap more of the economic benefits of IP, digitalization and associated business growth.

With respect to encouraging business innovation, policy-makers would be wise to put a greater emphasis on "demand-side" measures to speed the adoption and use of new technologies, products and leading-edge services across the economy. This implies moving way from the historic Canadian focus on "supply-push" policies that appear to be delivering diminishing returns judged by the country's lacklustre productivity growth and weak performance on many key metrics of innovation. The authors of this paper agree with the assessment and suggested policy directions provided by Peter Nicholson (2018) in his recent study, *Facing the Facts: Reconsidering Business Innovation Policy in Canada*. Broadly speaking, Nicholson's main recommendations point to:

1. the careful use of public sector procurement to expand market opportunities for innovative domestic companies;
2. an increased focus on export facilitation for mid-sized firms;
3. incorporating the promotion of business innovation into the design of government regulations; and
4. strengthening competition policy to increase the incentives for firms operating in Canada to become more innovative.

The B.C. government is committed to developing a new provincial IP strategy.[22] We encourage the province to accelerate this work and to embed it in a broader policy agenda that seeks to boost productivity across the business sector. B.C. should also collaborate with the federal government as it advances its "supercluster" strategy. Finally, we recommend that B.C. review and, where appropriate, act on the ideas to stimulate innovation and commercialization developed by the Economic Strategy Tables that recently reported to the federal Minister of Innovation, Science and Economic Development.[23] As the federal government has more policy levers that affect — and devotes far more resources to support — research, innovation and commercialization than the province, B.C. should be looking to leverage and benefit from national initiatives and programs in the areas of innovation, technology-diffusion, and commercialization.

7. CONCLUSION

Population aging, slower labour force growth, and the intensification of competitive pressures on many Canadian industries mean that the time is right for a renewed focus on improving productivity in Canada. Sluggish productivity growth limits our ability to increase real incomes and to fund and deliver high quality public services. Currently, Canadian workers in the business sector are on average 26% less productive than their U.S. counterparts. Narrowing that gap should be a priority for policy-makers and leaders in all segments of our society.

In recent decades, Canada and B.C. have largely relied on rising labour force participation to crank out gains in real GDP per person. That strategy has limited further scope to raise living standards. In the future, economic growth will have to become *productivity-driven* rather than labour input-driven. Making this transition calls for changes and fresh thinking in several important areas of public policy, including taxation, regulation, competition, talent development and attraction, and innovation.

[22] Tyler Orton, "B.C. IP exodus or capital injection opportunity?" *Business in Vancouver* on-line edition (November 8, 2018).
[23] The six Economic Strategy Tables focused on the following sectors: advanced manufacturing; agri-food; clean technologies; digital industries; health and biosciences; and natural resources. The final synthesis report from the Tables was referenced above.

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