



# The future of productivity

Clear choices for a competitive Canada



# Executive summary



Over the past several decades, a major gap has emerged between Canada and the U.S. in the most important driver of prosperity – productivity, defined as the average value produced per hour worked. The only way to safeguard our standard of living for future generations is to reset Canada’s productivity trajectory.

---

This report brings new and deeper insight into what must be done to restore our competitiveness; dispels myths which may block our way; and makes specific recommendations for a more prosperous future for Canadians.

### **Dispelling productivity myths**

The positive response to our 2011 report on productivity gave us the opportunity to engage thousands of senior leaders across the country. In addition to broad support and excellent ideas, we encountered a consistent refrain about our nation's structural limitations: "Canada cannot hope to perform as well as the U.S. or some other countries because we have too many small businesses" and/or "We are reliant on natural resources rather than tech clusters like Silicon Valley."

In response, we have invested in developing this report, our second study on Canadian productivity. The objective was to bring new and deeper insight into what must be done to restore our competitiveness; to dispel myths which may block our way; and to make specific recommendations for a more prosperous future for Canadians.

### **Deconstructing Canada's productivity performance**

Regardless of size, sector, business type or location, our productivity performance lags the U.S. in virtually every instance.

#### **Size doesn't matter**

While the U.S. employs more workers in large firms (which are more productive than small firms), shifting more Canadian workers into large firms won't solve the problem. If Canada had the same employment share by firm size as the U.S., only 2% of the \$13 per hour (2010) productivity gap between Canada and the U.S. would be closed. This is because we substantially lag the U.S. in every firm size.

#### **Sector composition doesn't matter either**

Similarly, changing our sector composition to match the U.S. by shifting away from natural resources into other sectors would only reduce the gap in productivity growth by 5.8%. As in size, research shows that we lag the U.S. *in nearly every sector.*

Our examination of relative performance on a sector basis since 2000 is revealing, however, and includes these highlights:

- Manufacturing productivity in the U.S. grew over six times faster than the comparable sector in Canada. U.S. labour costs decreased 12% since 2000, while Canadian costs increased 23% due to low M&E investment, rigid labour contracts and our appreciating dollar.
- Mining, oil and gas productivity declined over the past decade. Interestingly, our research shows that what appears to be a negative is actually a positive story of long-term investment and innovation. Investment has outpaced rising oil prices as the industry transitions to oil sands, which has put downward pressure on productivity in the short term – but should pay dividends in the years to come.
- The Canadian financial services sector’s productivity trails the U.S., in part due to a greater weighting in retail banking than in the more volatile (but very productive) investment banking business. Under-investment in communications and technology also contributes to our sector’s relative negative performance.
- The retail sector is an illuminating bright spot and the most significant contributor to narrowing the gap in productivity growth since 2000. It outperformed the U.S. largely due to aggressive foreign entrants that forced retailers to increase ICT investment and adopt global best practices.

### **Growth: the deceptively simple solution**

A small percentage of firms that achieve high growth drive a disproportionate amount of economic gain – a phenomenon common across all firm sizes and sectors. In Canada, 43% of new jobs come from the fastest growing 5% of all firms. An in-depth U.S. study found that from 1998 to 2008, high growth firms exhibited significantly higher productivity levels than other firms in every size and sector category.

Compared to OECD nations, Canada produces more than its fair share of fast growing firms under five years old. As firms age, however, few Canadian companies are able to sustain growth, while those in countries like the U.S., Sweden and Israel accelerate. Canada has a high level of entrepreneurial activity, but over time several factors – such as risk aversion, low export activity and weak R&D spending – stifle firm growth. Ensuring these growing firms scale and sustain their growth is a key priority.

---

**Canada has a high level of entrepreneurial activity, but over time several factors – such as risk aversion, low export activity and weak R&D spending – stifle firm growth.**

## Recommendations for business

Businesses must aggressively exploit opportunities for growth and continually re-evaluate strategic priorities to address a highly charged competitive environment. Specific recommendations include:

- **Build national and international businesses** – Firms that have successfully launched operations across and outside Canada tend to enjoy higher growth, more innovation and better prospects than businesses that stay local. Competitive intensity is a key driver of their success.
- **Leverage new capital equipment** – Productivity gains, product and service improvements, and competitiveness can all be achieved with the best technologies as new businesses scale and mature firms reshape themselves.
- **Invest in meeting talent needs** – Winning Canadian companies are employing creative strategies to find the skilled employees they need, recognizing that rapid growth strains a firm's talent capabilities in many ways.
- **Create more clusters** – Growing firms benefit through access to distribution channels, manufacturing capability, project funding, capital equipment, knowledge, expertise and intellectual property that clusters provide.
- **Invent and then reinvent** – Innovation provides opportunities, drives growth in new businesses, and refreshes mature firms before they are pre-empted by others. Measured risk and investment in R&D and acquisitions are critical.

## Recommendations for government

Government must make growth a business imperative by developing a national strategy to encourage competition. We recommend that government:

- **Encourage foreign direct investment** – Send a clear message to the world that Canada is “open for business” and understands the importance of foreign acquisitions in maintaining a competitive, highly productive economy, while ensuring reciprocity to provide Canadian firms access to international markets.
- **Continue to improve Canada's immigration system** – Improve the responsiveness and flexibility of the immigration system to shifting labour needs by expanding successful pilot programs, and facilitating immigration of business owners and investors.
- **Provide incentives for growing rather than for being small** – Implement policies that focus on firm growth potential and competitiveness, rather than size, to create incentives for future growth and eliminate disincentives to growth. Such policies also facilitate investment and the development of the talent and IP required.
- **Expand trade inflows and outflows** – Continue progress on signing new trade agreements to reduce our reliance on the U.S., and eliminate interprovincial barriers to best leverage the scale we have as a unified domestic market.
- **Foster fact-based decision making** – Enable the gathering of vital statistics that identify key trends, strengths and weaknesses within our country and in comparison to the rest of the world.

## Recommendations for academia

Academia has important roles to play as educational institutions and centres of research, and in the development of world-class talent for the country. A few of the fundamental ways in which academia can impact a more prosperous Canada are to:

- **Align the curriculum and educational experience** – Develop the talent needed in business leaders, scientists, engineers and the public sector, thus enabling Canada’s agenda of growth and prosperity.
- **Focus on the right collaborations** – Work with leading businesses to develop, protect and exploit intellectual property and commercial opportunities.

## The future of productivity

One of the key lessons we have learned through this research – and in our conversations over the past year – is that government in particular, but also business and academia, have identified the importance of the productivity issue and are accomplishing a great deal.

However, steps taken at the provincial or federal level to address specific issues will not fix a gap that has been created over many decades. To meet the urgent demands of the next generations of Canadians, we must develop a comprehensive, long-term strategy as a country. This national vision must rise above the fragmented approach that has historically characterized Canada’s policy agenda.

The status quo is not an option. We can create a competitive and successful Canada from our natural resources, human capital and overwhelming sense of optimism, but we must act together.



---

To meet the urgent demands of the next generations of Canadians, we must develop a comprehensive, long-term strategy as a country. This national vision must rise above the fragmented approach that has historically characterized Canada’s policy agenda.



# Introduction

Canada urgently needs a new strategy for competing in the modern global economy. Our piecemeal, 20<sup>th</sup> century approach is no longer up to the task. Deloitte's first report on productivity in 2011 made eight detailed recommendations for changes to immigration, education and business activities to improve our country's ailing productivity performance. We stand behind these recommendations, and strongly endorse their integration into a comprehensive strategy for our country. However, with global competition intensifying daily, our business, government and academic institutions must do more – and they must act with a sense of urgency.



Since the release of our 2011 report, we have had many conversations with senior leaders in business, government and academia about the Canadian business psyche. Canadians are more worried about losing what they have than creating something new. Has this focus caused our businesses to shy away from competition? Have our national policies failed to encourage inefficient firms to adapt to change? And most importantly, do we have the will to compete at a level that can sustain and grow our standard of living?

Canadians have demonstrated the ability to compete and win globally – but too few of our business leaders follow this path. We need bold competitors – not just for reasons of national pride, but because demographic factors are already straining the ability of a reduced workforce to support an aging population. If we want our future generations to continue enjoying the high standard of living we have known for the last half century, we must push aggressively for growth. Attempting to protect the status quo will not be sufficient.

### The status quo is not an option

A status quo focus is, by definition, reactive and defensive. As foreign economies continue to raise the bar, protecting “what we have” will only leave us further and further behind. Canada can only become a serious competitor by creating breakthrough innovation in an environment of increased competitive intensity. A strategy that welcomes and embraces growth will generate productivity gains in order to protect and grow our standard of living over the long term.

Can we accelerate productivity? We believe we can! We know how to pioneer innovation. In fact, our research proves that we do this better than the vast majority of OECD countries, including the United States. We are not limited by structural challenges such as “being a nation of small businesses” – a review of the data shows that we are not so different from the U.S. and other countries in this regard. Neither is our combination of industries driving the productivity gap.

Our main challenge is in keeping our companies growing, innovating and competing successfully while we scale them to serve the world market.

### How can Canadian companies rise to the challenge?

We’ve examined the data from numerous angles, and all indications are that a company’s ability to maintain growth – not size, not sector – has the most significant impact on productivity. Growing companies of all types are those most likely to produce strong productivity results. While we generate more of them in the first place, we don’t keep nearly enough of them growing, scaling, and reinvigorating as competitive intensity demands.

---

## Canadians have demonstrated the ability to compete and win globally – but too few of our business leaders follow this path.

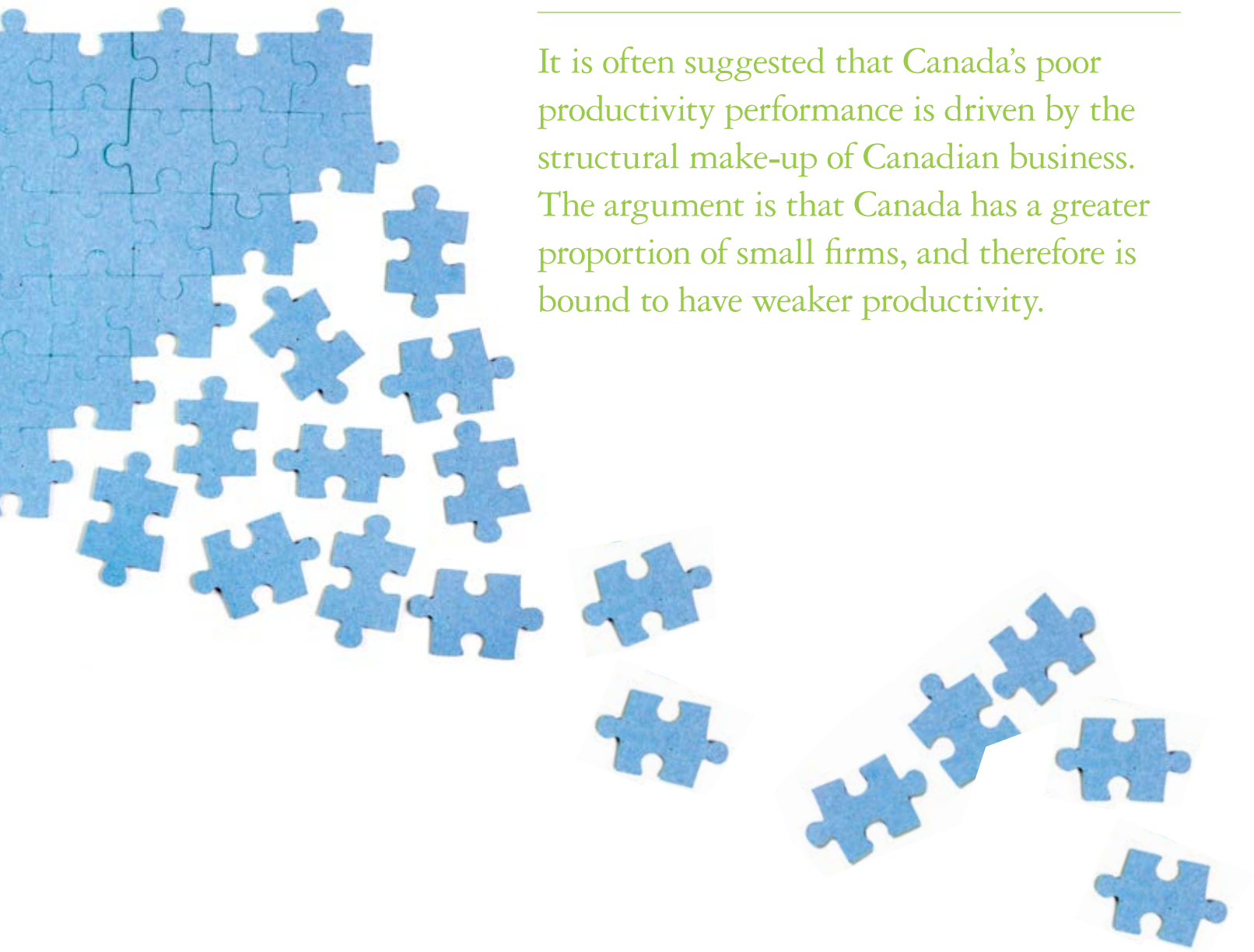
To become a serious competitor, Canada needs more growing companies. We need to provide these companies with the business environment and tools to help themselves – including an understanding of how the traditional business lifecycle has changed so they can seek out the various options, hedges and reinventions necessary to sustain growth. The role of government in this regard is to support disruptive innovation and permit competition to force reinvention so that our companies are in top competitive form.

In this report, we arrive at our recommendations for business, government and academia by deconstructing our productivity performance, and by dispelling some popular myths about the impact of size and sector on the Canadian economy. We then demonstrate the vital importance of growth, and illustrate how competitive intensity in a wide variety of industries has been a critical factor in driving productivity improvements.

Armed with new insights, we present specific, detailed recommendations for the leaders of real Canadian businesses, government and academia – and we ask our business leaders and policy makers to develop a bolder, more integrated strategy for a more productive and competitive business sector for Canada.

# Deconstructing

## Canada's productivity performance



---

It is often suggested that Canada's poor productivity performance is driven by the structural make-up of Canadian business. The argument is that Canada has a greater proportion of small firms, and therefore is bound to have weaker productivity.

## Size doesn't matter

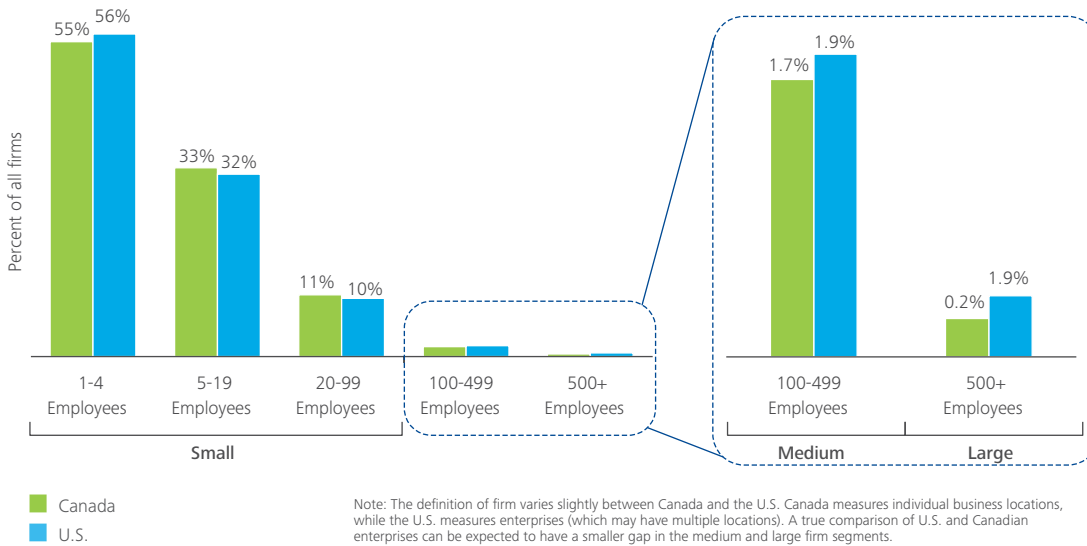
It is often suggested that Canada's poor productivity performance is driven by the structural make-up of Canadian business. The argument is that Canada has a greater proportion of small firms, and therefore is bound to have weaker productivity.

Interestingly, small firms do not, as a group, represent a larger proportion of the Canadian economy. Compared

to the United States, the distribution of firms by size is almost identical. For example, small firms employing less than 100 people account for 98% of total companies in both countries. In Canada, 55% of these have less than five employees compared to 56% in the U.S.; 33% have fewer than 20 compared to 32%; and 11% have less than 100 compared to 10%. The same holds true for medium and large firms.<sup>1,2</sup> (Figure 1)



FIGURE 1 Distribution of Canadian and U.S. firms by size, 2010



### Icon legend

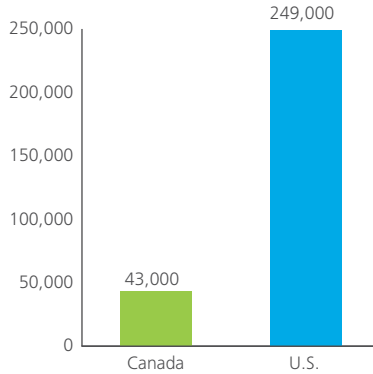
-  Canada
-  Canada vs. U.S.
-  Canada vs. Global
-  Financial services sector
-  Manufacturing sector
-  Mining, oil & gas sector
-  Retail sector





**Top 50 firms by employment, 2010**

Average number of employees at top 50 firms



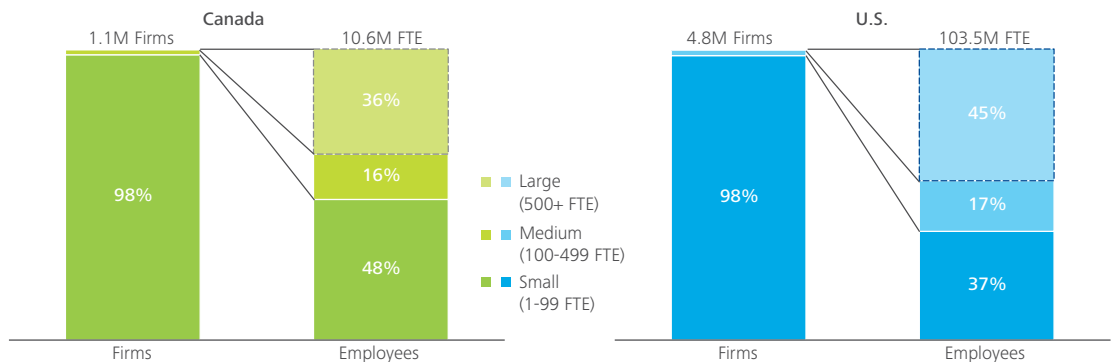
When it comes to size, the difference resides in the nature of large firms, a group that starts at the 500 employee level. In terms of employment and revenue, Canada’s “large firms” aren’t nearly as large as “large firms” in the U.S. The average number of employees in the fifty largest firms in the United States is almost a quarter million compared to forty-three thousand in Canada’s big fifty.<sup>3</sup> (Figure 2) The United States simply has the largest firms in the world, pulling their average number of employees per firm up to 24.5 compared to 18.8 in the UK, 13.4 in Canada, and 4.7 in Australia.<sup>4</sup> (These U.S. firms owe their scale to a huge domestic population but most also have global operations, underscoring the value of expanding internationally – to be discussed in detail later.)

### Different employment distribution

While the distribution of firms in Canada is indistinguishable from the United States, the distortionary impact of these giant firms means that the distribution of employment is very different. A Canadian is much more likely to work for a small firm than an American: 48% of Canadians work for firms with fewer than one hundred employees,<sup>5,6</sup> compared to only 37% of Americans.<sup>7,8</sup> (Figure 3)



**Distribution of firms and employment by firm size, 2010**



Note: FTE = full-time equivalent. Only private sector employer businesses are included in analysis. Canadian employees are categorized by size of enterprise (may have multiple locations, while Canadian firms are categorized by business location. Both U.S. firms and employment are categorized by size of enterprise.

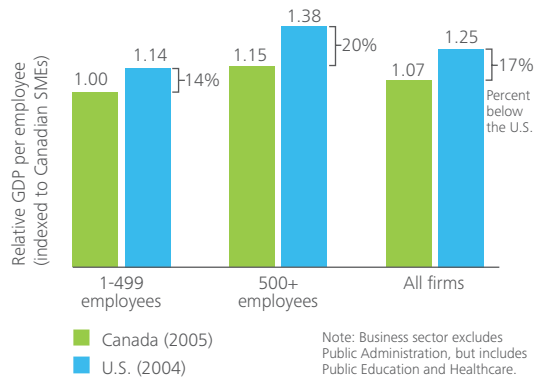
Since productivity measures the value the average worker generates in an hour, one might assume that large firms would have higher productivity than small firms, and that giant firms would drive up the overall productivity of the U.S. Surprisingly, analysis shows that if the distribution of employment in Canada were shifted to match that of the United States, only 2% of the total productivity gap would be closed.

### Lower productivity across sizes

Even though large firms in both countries are indeed more productive, the real problem Canada faces is that productivity levels are lower than those in the U.S. across firms of *every size*. The average productivity of a firm with fewer than 500 employees (i.e. small or medium) in the U.S. is 14% higher than in Canada, and large firms in the U.S. are 20% more productive than in Canada.<sup>9,10,11,12</sup> (Figure 4)



**Relative business sector productivity by firm size, 2005**



If Canada had the same employment share by firm size as the U.S., only 2% of the productivity gap between Canada and the U.S. would be closed. This is because we substantially lag the U.S. in every firm size.



Changing our sector composition to match the U.S. by shifting away from natural resources into other sectors would only reduce the total gap by 5.8%. As in size, research shows that we lag the U.S. in nearly every sector.

## Sector composition doesn't matter either

Popular wisdom also suggests that Canada's sectoral composition plays an important role in our weak productivity performance. Canada, so the story goes, is too focused on natural resources, while the United States is home to Silicon Valley and the Massachusetts life sciences cluster.

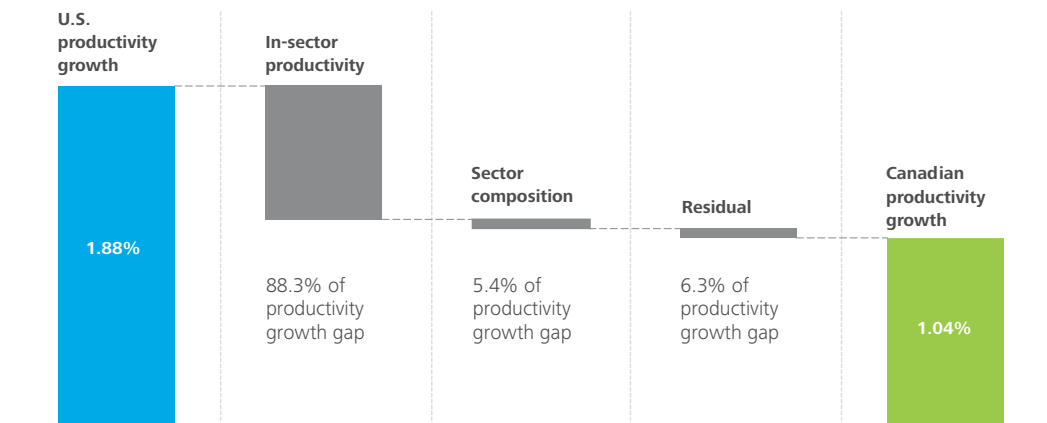
To explore this hypothesis, we deconstructed Canadian and U.S. industry data from 1987 to 2008 into three drivers of the productivity gap: sector composition, in-sector productivity, and the residual impact of the interaction between these two effects. Sector composition measures the impact of industry penetration (i.e. the relative size of sectors) on productivity, while in-sector productivity compares the same sectors in Canada and the U.S.

### Lower productivity across sectors

This analysis showed that sector composition accounted for only 5.4% of Canada's productivity gap with the U.S., and an equally minor 6.3% was attributable to the residual effects between sector composition and in-sector



FIGURE 5 Canada-U.S. productivity growth gap, 1987-2008



performance. An overwhelming 88.3% was attributable to weaker productivity growth within Canadian sectors compared to their American peers. **(Figure 5)**<sup>13,14,15</sup> Although alarming, these numbers show that the vast majority of Canada's poor relative productivity is more about business performance than the structure of our economy.

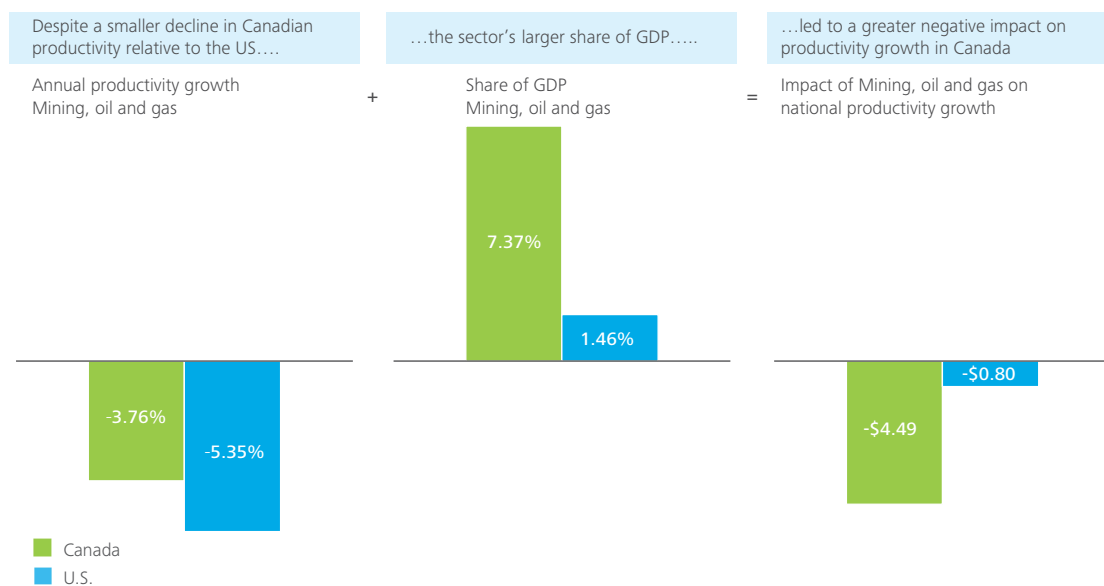
To understand better what is driving productivity challenges and opportunities, we examined four sectors in-depth, chosen for their GDP and productivity growth relative to the United States.

### Mining, oil and gas

From 2000 – 2008, Canadian productivity growth in the mining, oil and gas sector outperformed that of the United States by 1.59 percentage points. A positive story, one would think, evidenced by huge profits in the oil fields. But mining, oil and gas productivity in both countries was still negative – and because this sector has become a larger piece of our economy, it actually increased the size of our national productivity gap with the U.S. **(Figure 6)**<sup>16,17,18,19</sup>



FIGURE 6 Impact of Mining, oil and gas productivity on Canadian productivity



---

## What appears to be poor productivity performance is actually a positive story of long-term investment and innovation.

What's going on here? The devil is in the details – in this case, the productivity calculation. Although productivity is defined as the dollar value of output produced by the average hour of work, we need to investigate the contributing factors: the value added of output (in this case the prices of oil and natural gas); the cost of all the inputs that go into producing that unit (labour, investment into machinery, etc.); and the number of units produced in an hour.

As anyone who regularly fills a gas tank knows, oil prices are on the rise and have been for years. The Edmonton par price has risen at a compounded annual growth rate of 11.2% from 2000 to 2011.<sup>20</sup> Less well known is the fact that there has been an even more rapid growth in capital investment over this period – an astounding 13.5% annually between 2000 and 2007<sup>21</sup> – as well as a steady climb in operating costs as Alberta transitions away from conventional oil sources. So while higher oil prices have improved the price of output – a positive for productivity – higher investment, higher operating costs and lower natural gas prices have created downward pressure. The net effect is a negative productivity trend in oil and gas.<sup>22, 23</sup> (Figure 7)

### **An industry in transition**

What appears to be poor productivity performance is actually a story of an industry in transition. Massive up-front investments may place negative pressure on productivity for years to come; however, the almost \$100 billion invested in Alberta's oil sands since 2000<sup>24</sup> (Figure 8) has driven innovation and many new jobs. While the short-term investments negatively impact the formula that determines productivity, the potential long-term benefits are more important. Newfoundland and Labrador provide a clear example. Large investments made during the 90s to develop offshore oil fields now pay significant dividends, giving the province the highest productivity growth rates in the country.

Today, the Alberta oil and gas sector is making huge investments in machinery and equipment, exploring new processes and taking measured risks. In the process, it is creating fertile ground for new, innovative clusters centered on non-traditional resource extraction. The tendency for major investments in reinventing a sector to have transitory downward impact on productivity is common across all industries. However, the time required for those investments to begin paying off with higher productivity growth can vary significantly depending on the nature of the investments.

Any investment has risks. If growth in demand for oil in markets like India and China continues to place upward pressure on prices, it should translate to productivity improvements for this sector – and for Canada as a whole.

On the other hand, if rising global economic instability or the rapid advancement of alternative technologies like shale, solar and wind power undermine demand for oil, it will create significant challenges for the Canadian oil and gas sector and by extension for Canadian productivity.





FIGURE 7

Alberta's oil and gas sector productivity, investment and commodity prices, 2000-2007

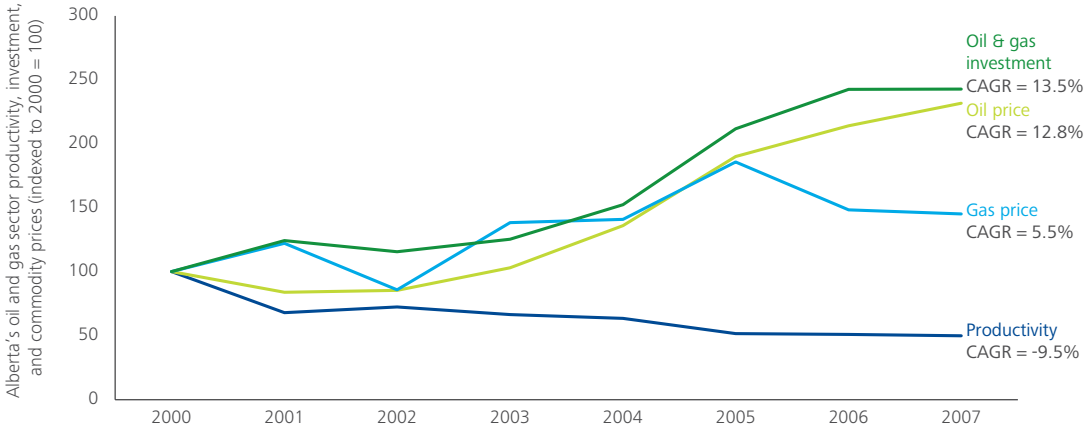


FIGURE 8

Oil and gas investment in Alberta

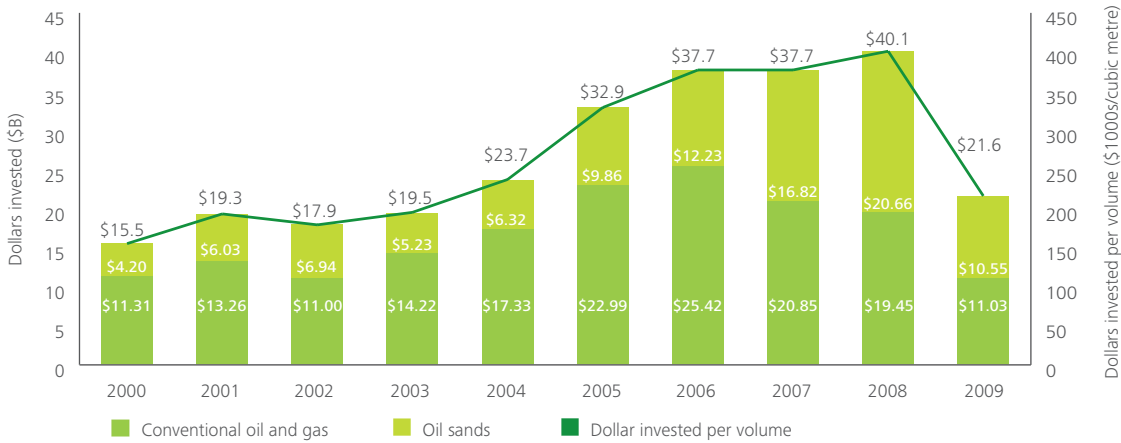
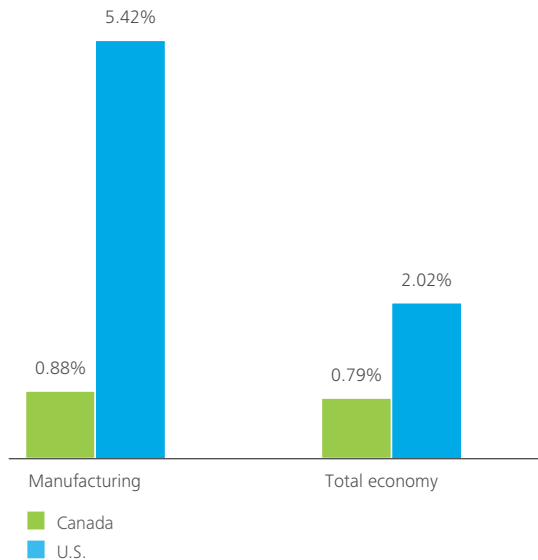




FIGURE 9

### Average productivity growth in Canada and U.S. (2000-2008)



Today, the dollar hovers at par and a rapid expansion of U.S. bilateral trade agreements means that NAFTA no longer provides Canada the competitive advantage it once did.

### Manufacturing

Between 1990 and 2009, Canadian manufacturing posted annual productivity growth of 2.3%, well below the 3.3% rate of the comparable U.S. sector.<sup>25,26</sup> Performance from 2000-2008 was particularly weak at an annual rate of 0.88%, less than one sixth of the U.S. growth rate.<sup>27</sup> The result is a gap in manufacturing productivity growth more than 3.5 times the size of the productivity growth gap across the entire economy. (Figure 9)

The problem in Canadian manufacturing is not unique to a single region, nor is it focused on any one sub-sector. Only two of sixteen sub-sectors – non-metallic mineral products and primary metals – exhibited productivity growth equal to or higher than the U.S.; the rest showed dismal results. The gap in the transportation sub-sector was -5.6%; in paper products and printing it was -3.7%, and in chemical products it was -3.2%. In computer and electronic products, accounting for a not insignificant 4.2% of total manufactured goods output, the gap was 24.5%.<sup>28,29</sup>

### Learn to adapt

Throughout the 1990s, Canada enjoyed a significant cost advantage when exporting to the U.S. due to our low dollar and preferential NAFTA status. Today, the dollar hovers at par and a rapid expansion of U.S. bilateral trade agreements means that NAFTA no longer provides Canada the competitive advantage it once did. Notwithstanding debate around whether Canada is suffering from “Dutch disease,” whereby a country’s manufacturing sector is burdened by high petro-dollars, our businesses must learn to adapt to currency and other competitive pressures over the medium and long term.

Exports, which remained flat in the face of rising exchange rates from 2004-2008,<sup>30</sup> declined significantly in 2008 on decreased consumer demand in global markets, particularly in the U.S. Since then, there has been a limited rebound with exports growing 11.2% in 2010 and 7.5% in 2011,<sup>31</sup> but it is unclear if this is a “return to normal” as the United States emerges from the great recession or evidence that the Canadian manufacturing sector is able to compete in a more challenging environment. (Figure 10)

### Labour costs outpace productivity

The most significant challenge that the rising Canadian dollar has created for manufacturers is labour costs. Between 1997 and 2010, the U.S. dollar cost of Canadian wages rose at one of the fastest rates in the OECD; a compound annual growth rate of 5%, 46% of which can be attributed to the appreciation of the Canadian dollar.<sup>32</sup> This increase has brought the Canadian labour rate roughly on par with the U.S., eliminating a traditional cost advantage.

But higher wage rates are not necessarily incompatible with productivity growth. Highly skilled workers producing large volumes of high value items can and should command high wages in a competitive marketplace. If rising labour costs mean workers are producing greater value per hour, the ratio of labour costs to output would begin to decline. Unfortunately, this is not the situation with Canadian manufacturers. Since 2000, manufacturing labour costs per unit of Canadian output have risen rapidly, diverging from the trend in the United States.<sup>33</sup> (Figure 11)



FIGURE 10 Impact of the Canada-U.S. exchange rate on manufacturing exports

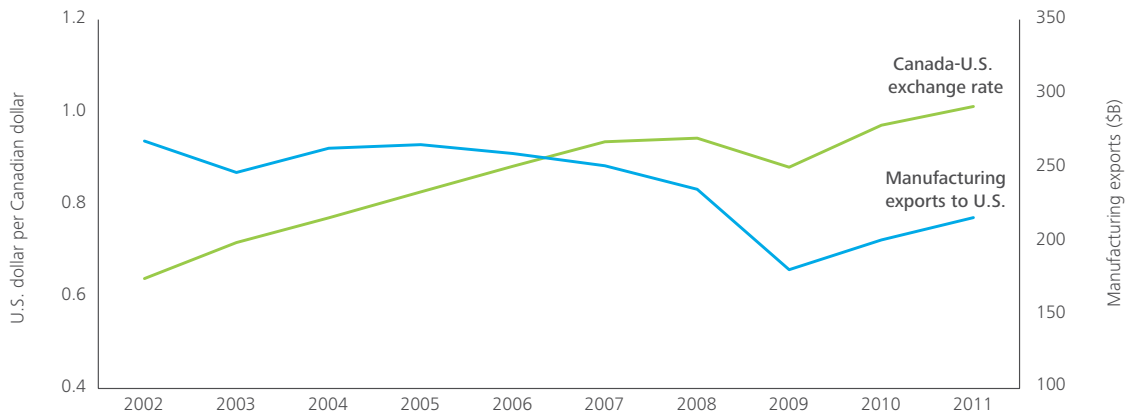


FIGURE 11 Manufacturing labour cost per unit of output, 1990-2010

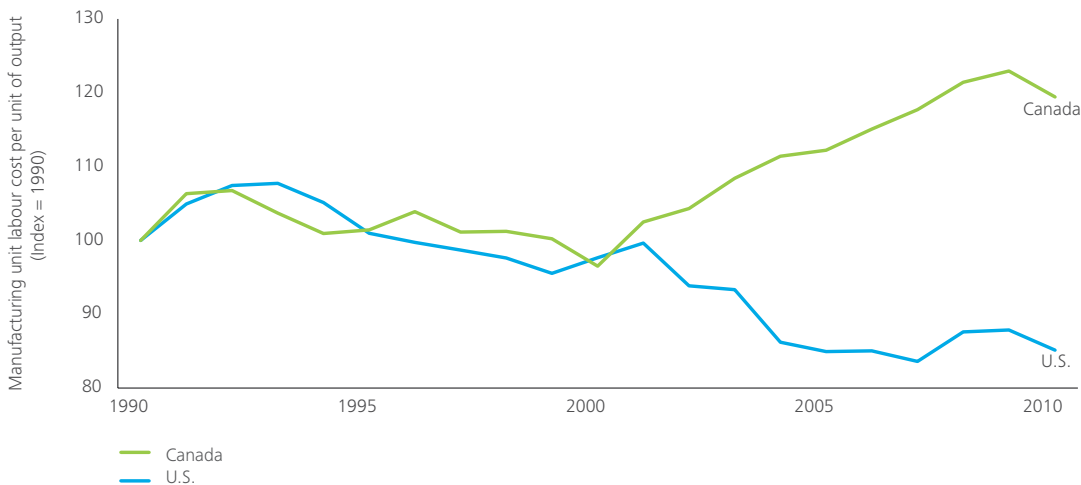




FIGURE 12

### Canadian manufacturing M&E capital intensity, as a % of U.S.

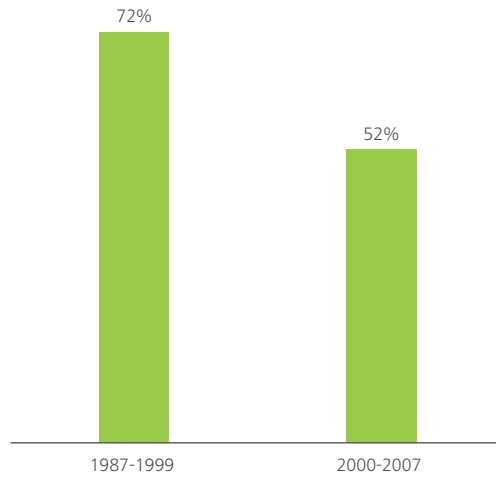
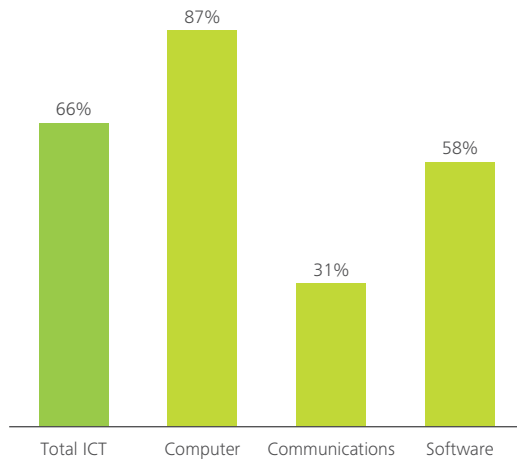


FIGURE 13

### Canadian manufacturing ICT investment per worker, as % of U.S., 2010



A lack of labour cost competitiveness is particularly troubling given that manufactured goods make up 60% of total Canadian exports, the majority of which are bound for the United States.<sup>34</sup> Equally concerning is the limited investment being made by Canadian firms into technologies that could support employees becoming more productive. On average from 2000 to 2007, Canadian manufacturers made only 52% of the U.S. investment per worker on labour-saving machinery and equipment. **(Figure 12)** In the critically important area of ICT (Information and Communication Technology), Canadian manufacturers spent at 66% the U.S. level, with only 31% of their rate on communications.<sup>35</sup> **(Figure 13)**

There is no panacea for the Canadian manufacturing sector. With the traditional business model no longer operational, individual firms must adopt bolder strategies to restore competitiveness.

### Financial services

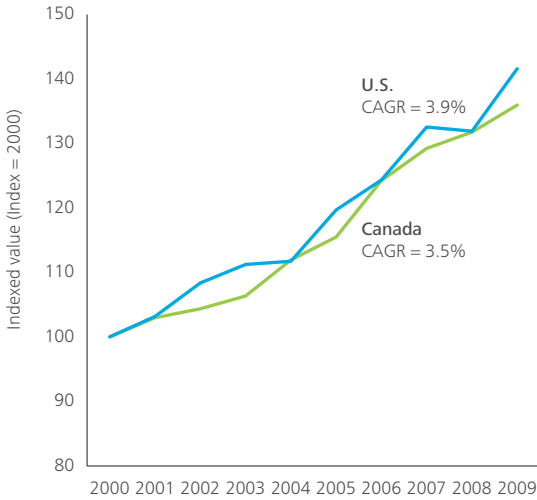
Although the Canadian banking system has been named the soundest in the world by the World Economic Forum for four consecutive years<sup>36,37</sup> and is ranked as significantly more transparent than the U.S. system,<sup>38</sup> we are underperforming in one regard. Productivity growth figures between 2000 and 2009 of 1.86% for the sector<sup>39</sup> lagged the U.S. at 3.53%.<sup>40</sup> Performance was also poor relative to the UK and Australia, which posted compound annual productivity growth rates of 3.93%<sup>41</sup> and 3.94%<sup>42</sup> respectively.

Regional breakdowns do little to explain the cause of this lagging performance, with productivity levels fairly flat across the country.<sup>43</sup> Neither does a comparison of 2000-2009 financial services GDP in Canada and the United States, which show similar rates of growth.<sup>44,45</sup> However, employment growth rates shed some light. From 2000 to 2009, employment in the Canadian financial services sector grew at a compound annual rate of 1.7%<sup>46</sup> compared to only 0.2% in the U.S.<sup>47</sup> **(Figure 14 and 15)**



Financial services GDP and employment, Canada vs. U.S.

Financial services GDP, 2000-2009

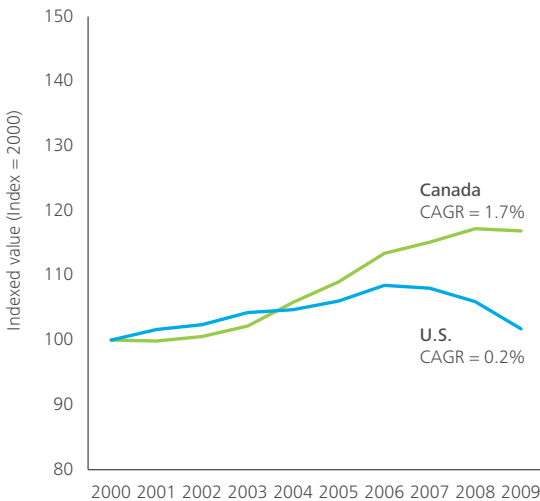


Although the Canadian banking system has been named the soundest in the world by the World Economic Forum for four consecutive years and is ranked as significantly more transparent than the U.S. system, we are underperforming in productivity.



Financial services GDP and employment, Canada vs. U.S.

Financial services employment, 2000-2009



### Comparing apples to oranges

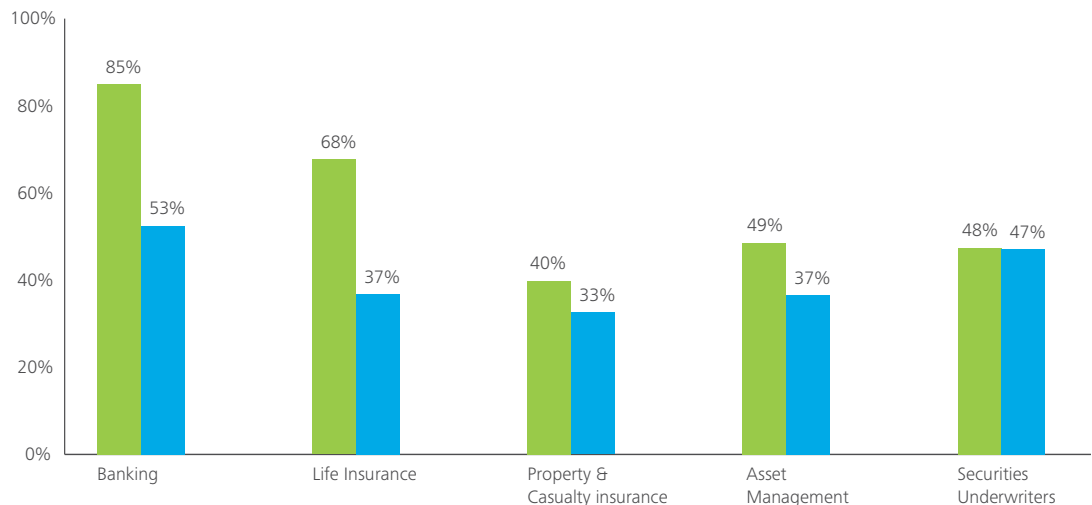
The persistent productivity gap between U.S. and Canadian financial services may be a result of significant structural differences, and thus an “apples to oranges” comparison. The most obvious hypothesis for higher employment growth and weaker productivity is that Canadian banks are subject to less competition, and thus operate less efficiently. Net interest margin (NIM), a key metric of bank profitability data, disputes this thesis. In the United States, the overall banking sector had an average NIM of 3.7% between 2000 and 2010.<sup>48</sup> In Canada over the same period, NIM for the five largest banks, which account for 85% of market share (Figure 16), was only 1.87% suggesting high competitive intensity.<sup>49</sup> (Figure 17)

On average, Canada’s largest banks generate 61% of their revenue from retail banking; in the United States, this number is of 49%.<sup>50</sup> (Figure 18) This suggests that large American banks are more heavily weighted in non-retail activities like investment banking. Using a sample of large U.S. and Canadian banks, we found that the average employee in a retail banking function generates revenue of \$360,000 per year, while the average employee in a non-retail function generates \$790,000.<sup>51</sup> As retail banking activities require higher levels of employment to generate equal revenue, this data suggests that the greater Canadian focus on retail banking places our financial services sector at a structural disadvantage to the U.S. in terms of productivity levels.



FIGURE 16

2011 market share by select sub-sector, top 5 competitors



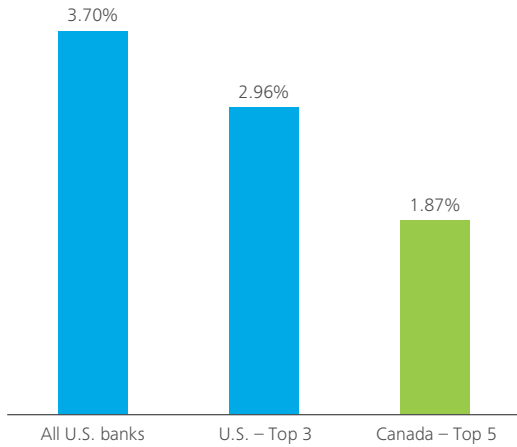
■ Canada  
■ U.S.

Notes:

1. Market size is based on different metrics for each subsector, based on available data (assets held for banking, policies written for insurance, assets under management for asset management, and number of issues for securities underwriters)
2. Banks operate across multiple lines of business; as such there exists some overlap in market share across each subsector held by banks



FIGURE 17 Average 2010 net interest margin



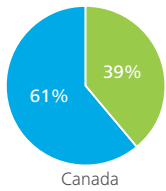
Note:  
Canadian top 5 banks, which account for over 85% of the market,  
U.S. top 3 banks account for approximately 45% of the market

As retail banking activities require higher levels of employment to generate equal revenue, this data suggests that the greater Canadian focus on retail banking places our financial services sector at a structural disadvantage to the U.S. in terms of productivity levels.

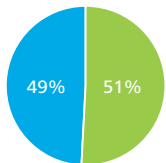


FIGURE 18 Financial services business mix

Financial services business mix,\* 2011

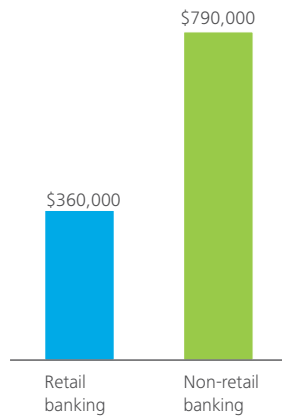


Canada



U.S.

Annual revenue per worker by financial business,\* 2011



■ Retail banking  
■ Non-retail banking

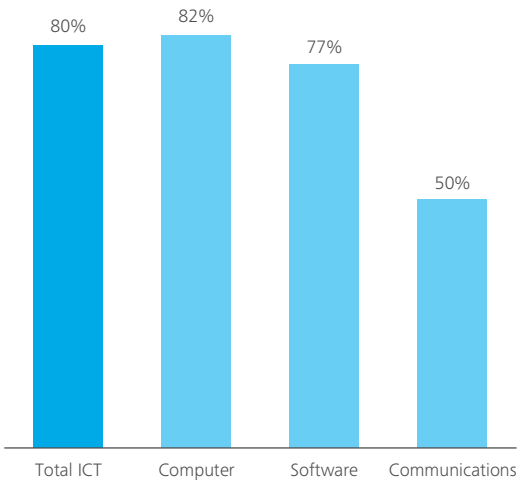
\*Based on a sample of top Canadian and U.S. financial institutions by total assets



FIGURE 19 Average bank return on equity, 1997-2011



FIGURE 20 Canadian financial services ICT investment per worker, as % of U.S. investment per worker, 2010



As a result, one might be tempted to suggest that the Canadian financial services sector should refocus its attention on non-retail banking. However, a quick look at the average return on equity of Canadian banks over the past decade<sup>52</sup> (Figure 19) shows the dangers of this approach. While improved productivity might be the goal, the associated risks are now well known. A business model with greater predictability and sustainability may be a more balanced retail/wholesale mix.

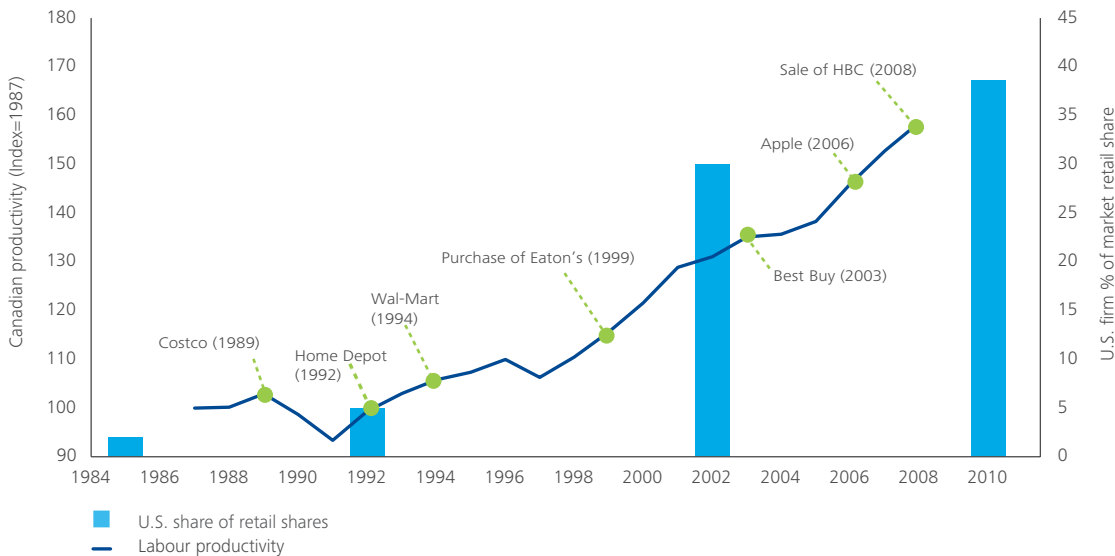
That being said, difficulties comparing the productivity performance between the financial services sectors in Canada and the U.S. should not be a rationale for complacency. Some Canadian financial services institutions may want to examine their ICT spend, for example, as the average investment per worker in our sector is only 80% of the U.S. level.<sup>53</sup> (Figure 20)





FIGURE 21

Canadian retail productivity and U.S. firm share of Canadian retail sales, 1984-2010



### Retail trade

Between 2000 and 2008, Canada’s retail sector saw average productivity gains of 3.4% compared to 1.3% in the U.S.<sup>54</sup> This performance clearly demonstrates the impact of competitive intensity on productivity. Unlike other sectors of the Canadian economy which are sheltered through regulations or government intervention, retail trade has been exposed to the full force of global competition. Yet at 5.4% of GDP in 2010,<sup>55</sup> our sector has remained relatively stable since 2004 while the U.S. sector has declined.<sup>56</sup>

The retail environment is intensive, with firms frequently facing outright business failure. Ironically, a high rate of turnover appears to be the primary driver of retail’s impressive productivity improvements. As uncompetitive, low productivity firms leave the market, they are replaced by higher productivity firms.<sup>57, 58</sup>

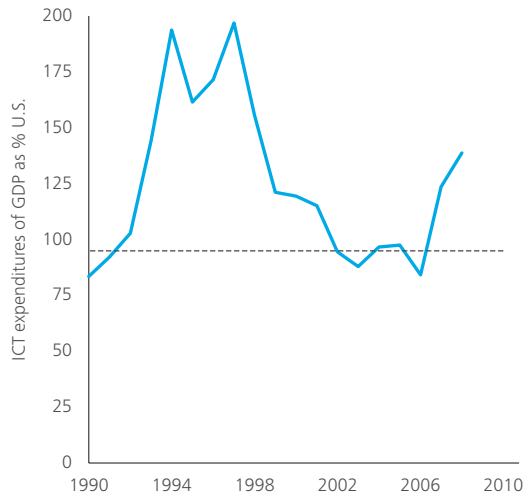
The mid-eighties and early nineties were periods of significantly increased competition in the Canadian retail trade sector, with the arrival of U.S. firms Costco (1989), Home Depot (1992) and Walmart (1994). More than 60% of retail firms operating in 1984 closed their doors by 1998, and 47% of market share shifted from declining and exiting firms to growing or newly entering firms. (Figure 21) Firms entering over this period could be shown to have productivity levels 20% higher those leaving, which drove 70% of total productivity growth over that period.<sup>59</sup>

A high rate of turnover appears to be the primary driver of retail’s impressive productivity improvements.



FIGURE 22

### Canadian retail ICT investment per dollar of sector GDP, as a % U.S.



### Ahead in ICT investment

The business models adopted by these new entrants to drive productivity relied heavily on sophisticated information technology that facilitates global supply chains, improved inventory management, and just-in-time delivery. Retail trade investment in ICT as a percent of total sector investment rose steadily from 9.8% in 1985 to 27.7% in 1996. As a percentage of GDP, Canadian retail trade investment in ICT actually exceeded that of its U.S. counterpart from 1992 to 2002, reaching a high of almost twice the U.S. investment in 1997.<sup>60</sup> (Figure 22)

Not surprisingly, this transformation saw an increase in the presence of U.S. firms in the Canadian retail space, from 2% of the sector in 1985 to 30% in 2002.<sup>61</sup> However, this certainly did not mean that Canadian firms, as a class, have been unable to compete. There are a multitude of success stories where Canadian firms reinvented themselves in the face of competitive pressures and succeeded in continuing their growth. Examples include Shopper's Drug Mart and Mark's Work Wearhouse (owned by Canadian Tire), which have achieved impressive annual same-store sales growth figures of 5.1% and 5.5% respectively since 2001.<sup>62</sup>

There is compelling evidence of a continued focus on competitiveness and innovation in this sector. After a period of relatively flat investment in ICT from 2002 to 2006, firms are refocusing on this area. From 2006 to 2010 (the most current data available), Canadian retail trade spending in ICT has risen from 54% of U.S. levels (on a per worker basis) to 103%.<sup>63</sup> This new wave of investment has the potential to drive continued productivity growth and to position top Canadian retailers as globally competitive.

### Regional productivity

Sectoral composition in Canada varies significantly by region, and each region's productivity performance depends on a particular sector. The manufacturing sector pulled down overall productivity in Quebec, where it accounts for 16.3% of GDP, and in Ontario where it accounts for 15.1%. Ontario also has significant exposure to financial services, which make up 23.6% of its GDP.<sup>64, 65, 66</sup>

However, averages can mask regional differences due to the maturity of given sectors, as discussed earlier in the Alberta oil and gas sector where recent investments have yet to translate into productivity gains. By contrast, Newfoundland and Labrador provide evidence of the fruition of significant investment in offshore platforms during the 1990s. Mining, oil and gas is now a major component of the economy, contributing 27.4% of GDP and posting productivity growth of 5.85% from 2000 to 2010. The rising tide of oil and gas productivity appears to have lifted all boats, resulting in higher than average productivity growth across a range of sectors in Newfoundland and Labrador.<sup>67, 68</sup>

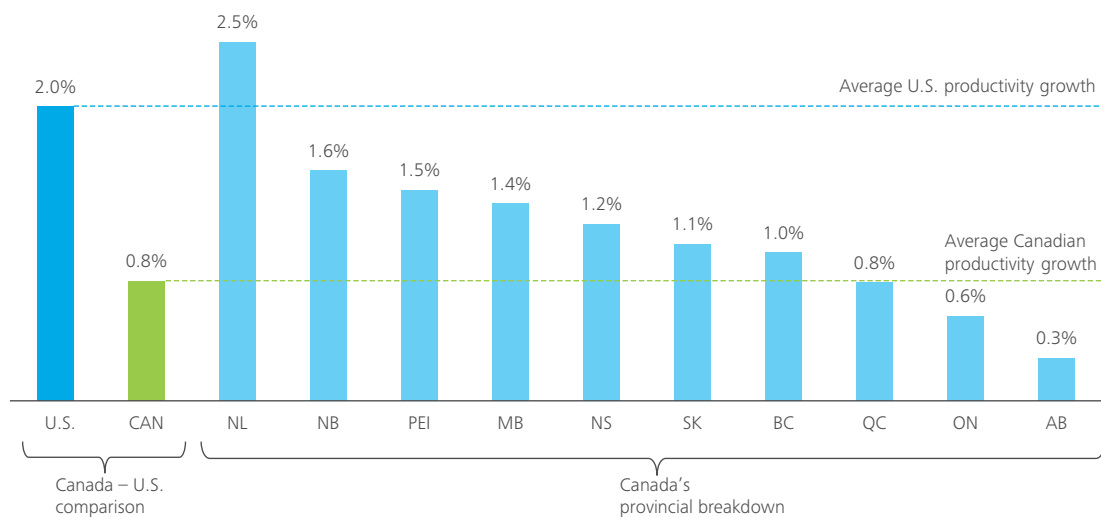
The lag between capital investment and productivity is an important consideration when it comes to understanding the current topsy-turvy economic landscape in Canada. Newfoundland and Labrador, long dependent on wealthier regions, was the only province whose average productivity growth from 2000 to 2010 exceeded that of the United States. Ontario and Alberta, previously the engines of Canadian growth, performed dismally.<sup>69</sup> (Figure 23)

Despite regional challenges, there were examples all across the country of organizations of various size and sector that succeeded in cracking the productivity code. What was their secret?

The lag between capital investment and productivity is an important consideration when it comes to understanding the current topsy-turvy economic landscape in Canada.



FIGURE 23 Productivity growth in U.S. and Canada, 2000-2010



Note: Productivity levels are in indexed 2002 dollars

# Growth: the deceptively simple solution



Examining our economy by size and sector did not yield a hard-and-fast solution to our productivity problems, but that is not to say that Canada's highly productive companies lack distinctive features worth emulating. We must look outside the conventional groupings to identify what these are.

Fortunately, a promising model for productivity growth is hiding in plain sight. A detailed survey of U.S. firms from 1998 to 2008 explored characteristics of companies showing rapid growth in both revenue and employment.<sup>70</sup> The study concluded that these firms demonstrated extremely strong *growth in revenue per employee* – a proxy for firm level productivity – when compared to all other firms. In other words, intuitive recognition that successful, rapidly growing firms drive high productivity is supported by the data.

Drilling down further, we observe that a disproportionate level of total employment growth is generated by a small number of high growth firms.

Statistics Canada data from 2001 to 2006 (the most recent of its kind) shows that 43% of all new private sector jobs in that period came from the 5% of firms with the fastest employment growth rates.<sup>71</sup> The same dataset shows similar results for revenue growth, with the top 7% of firms generating 41% of net growth in private sector revenues.

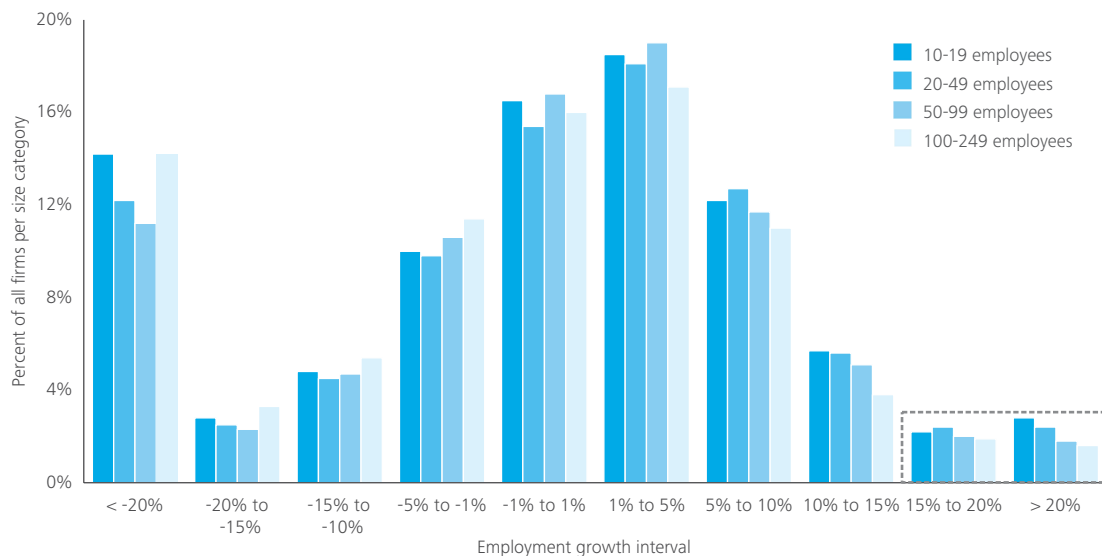
### High growth can happen anywhere

With high growth firms such an important contributor to productivity growth, it is important to understand their distribution in the economy. As previous findings suggest, high growth firms exist in each size grouping (Figure 24) and are also quite broadly distributed across sectors.<sup>72</sup> Mining, oil and gas is an outlier with nearly one in four firms qualifying as high growth, but a number of other sectors show strong growth characteristics.<sup>73</sup> For example, while the national average is 7%, 11% of firms in the construction, finance and professional and scientific services sectors are high growth.

From 2001 to 2006, 43% of all new private sector jobs came from the 5% of firms with the fastest employment growth rates. The top 7% of firms generated 41% of net growth in private sector revenues.



FIGURE 24 Distribution of Canadian firms by employment growth and size, 2001-2006



Note: "Growth interval" measures annualized growth over a 5 year period. Scope is limited to private sector firms with 10-250 employees and \$30K-\$50M revenues in first year of period.

The importance of high growth firms is by no means unique to Canada. Studies of other countries have consistently shown that a small percentage of high growth firms account for the lion's share of job and revenue growth; however, high growth firms in Canada exhibit some unique characteristics.

### Gazelles to water buffalos

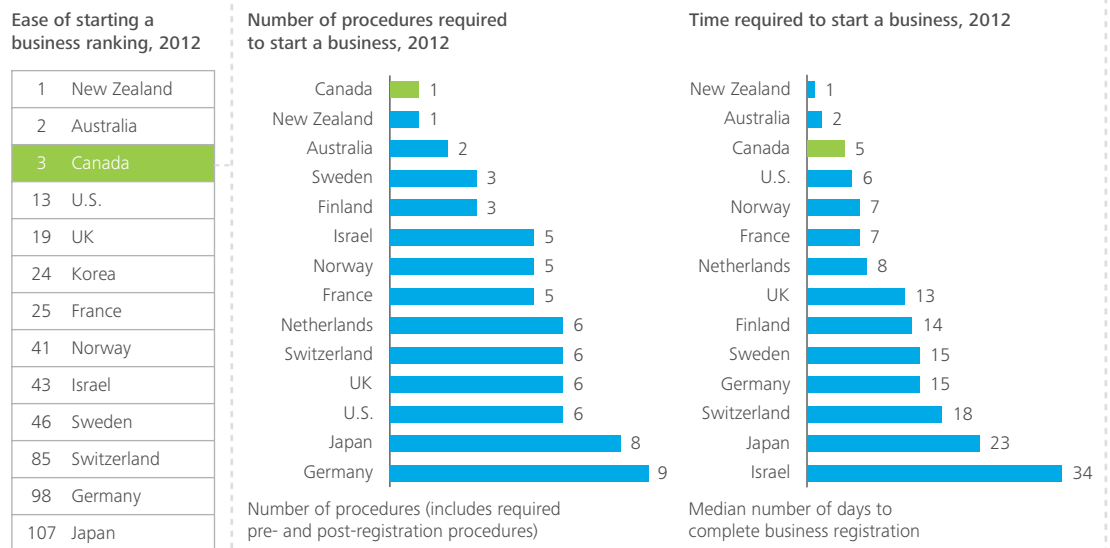
Many Canadian firms are successful in achieving high rates of growth within their first five years.<sup>74</sup> Commonly known as "gazelles," these firms are defined by the OECD's 2011 *Entrepreneurship at a Glance* report as being less than five years old with greater than 20% annualized employment growth in the last three years.<sup>75</sup> This report shows Canada to have a strong penetration of gazelles in both the services and manufacturing sectors – exceeding that of in Norway, Sweden, and even the start-up hotbed of Israel. Perhaps most interesting was the absence of a significant gazelle presence in the United States which, as a percentage of total firms, had barely one quarter the share of manufacturing gazelles and less than one third the number of service sector gazelles in Canada.

The high penetration of gazelles among Canadian manufacturing and services firms is less surprising when viewed in light of firm entry and exit rates within those sectors. Canada has one of the highest rates of new firm entry in the OECD services sector,<sup>76</sup> and the highest reported rate for OECD countries in the manufacturing sector.<sup>77</sup> This rate, over 25% higher than those of both the U.S. and Israel, suggests a dynamic business environment with an active pool of risk-embracing entrepreneurs.<sup>78</sup>

Canada's streamlined approach to the creation of new enterprises is likely a contributing factor to these conditions. The World Bank has consistently ranked Canada as one of the world's most favorable regulatory environments for starting a new business.<sup>79</sup> Canadian entrepreneurs face the smallest number of procedures required to start a business (tied with New Zealand), and the third shortest time required to complete registration. In terms of overall ease of starting a business, Canada ranked at third compared to the United States at 13<sup>th</sup>, Israel at 43<sup>rd</sup> and Switzerland at 85<sup>th</sup>. (Figure 25)



FIGURE 25 Ease of starting a business in Canada



Ease of starting a business is a composite measure of the number of procedures (required interactions with third parties), time (median duration indicated by incorporation lawyers), and cost (requires fees as a percent of income per capita) to start a business. World Bank analysis assumes the business is started in the country's largest business city.

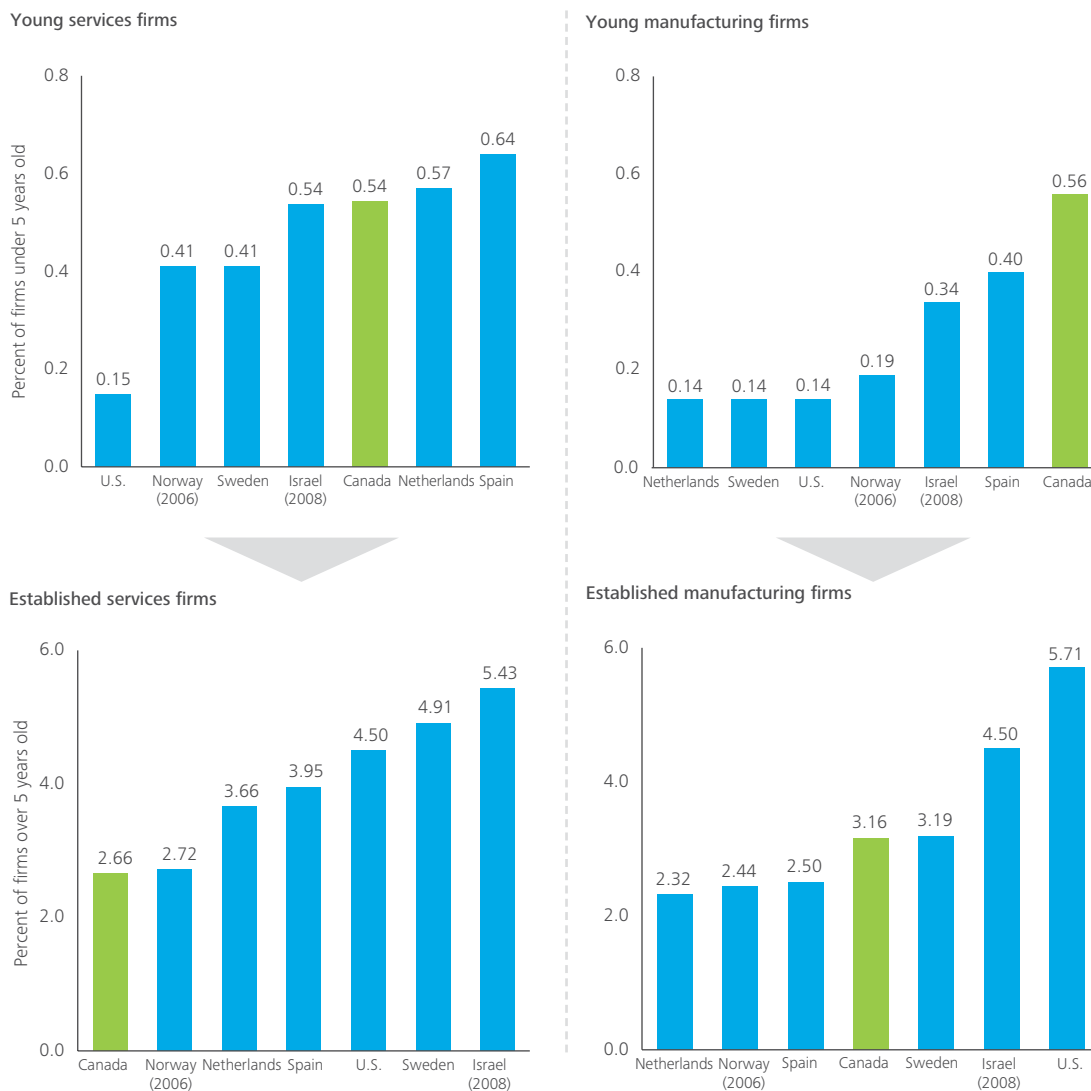
Unfortunately, evidence shows that as Canada's gazelles mature, they are less successful in maintaining high growth rates. Among firms more than five years old, only 2.66% of Canadian services firms and 3.16% of Canadian manufacturers qualify as high growth, ranking them third from last and fifth from last, respectively, among reporting OECD countries. (Figure 26) The United States' rate of high growth firms as a proportion of the services sector at this stage was 69% higher than Canada's, and Israel's was 104% higher. In the manufacturing sector, Israel had a 42% greater presence of mature high growth firms while the United States had an 80% higher one.<sup>80</sup>

To solve Canada's productivity problem, we don't have to focus on a single industry or increase the average size of our businesses. We need to prevent our gazelles from turning into water buffalos.

Before we introduce our recommendations, we'll explore three hypotheses that attempt to explain why these businesses lose their momentum.



FIGURE 26 Young vs. established high growth firms, 2005-2007

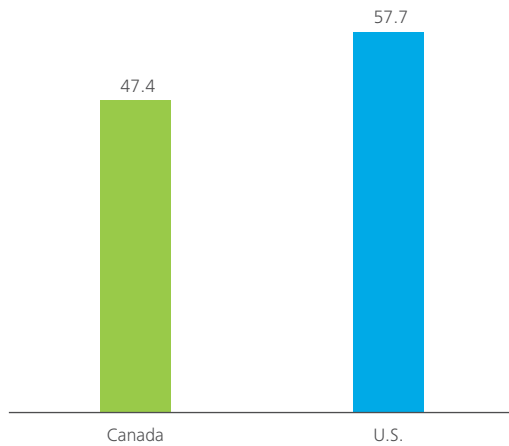


Note: High growth firms have >20% annualized employment growth over a 3 year period. Scope of firms limited to those with 10-250 employees with \$30K-\$50M revenues in first year of period; Canadian manufacturing data excludes mining, oil & gas and utilities. Percentage of high growth firms is relative to all active firms at the end of the 3 year period.



FIGURE 27

### The Deloitte executive risk behaviour index



### The downside of risk aversion

Perhaps the most significant factor contributing to the lacklustre growth of Canadian firms is an inability to overcome risk and uncertainty. Deloitte’s 2011 report on productivity included a survey of 450 Canadian and 452 U.S. business leaders from small, medium and large firms across a wide assortment of sectors. Results showed that Canadian business leaders were substantially more risk averse than U.S. leaders, and more reliant on government assistance to pursue new projects.<sup>81</sup> (Figure 27)

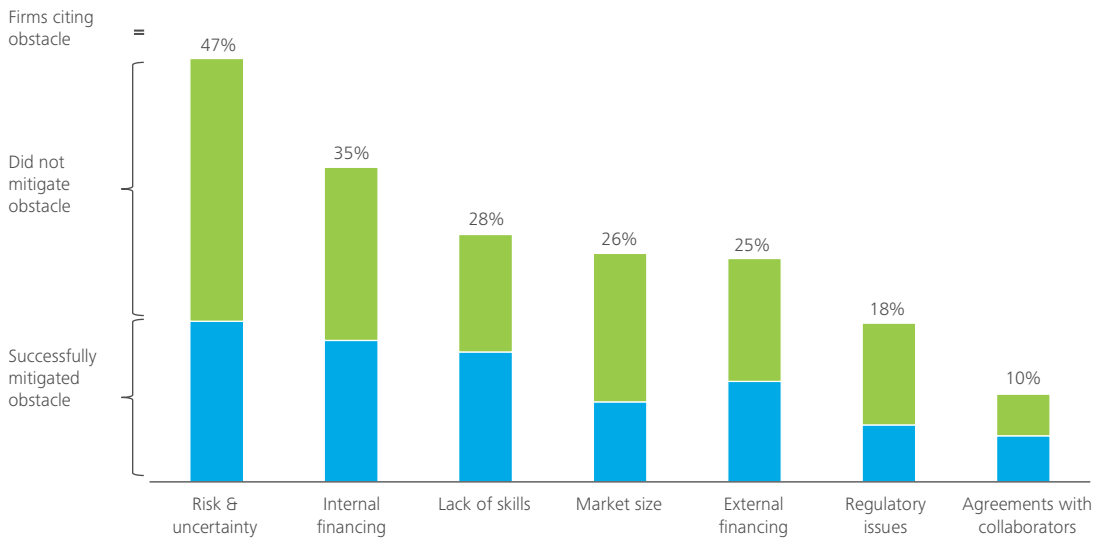
The 2011 *Industry Canada Survey of Business and Innovation Strategy* echoes this finding. Among 6,233 enterprises with more than 20 employees, the most frequently cited obstacle to growth through innovation was risk and uncertainty (47%), beating out internal financing (35%), market size (26%) and external financing (25%) by a substantial margin.<sup>82</sup> (Figure 28)

Results showed that Canadian business leaders were substantially more risk averse than U.S. leaders, and more reliant on government assistance to pursue new projects.



FIGURE 28

### Canadian obstacles to innovation, 2007-2009





While risk and uncertainty are serious concerns, firms have the power to mitigate these obstacles by hedging and compensation tactics. But firms aren't just acknowledging the difficulty of risk and uncertainty; they seem unable to deal with these factors successfully. It would be logical to assume that as firms grow and become more financially stable and diversified, their comfort with taking risks would increase. However, data suggests the opposite. As Canadian firms mature, they become less likely to engage in the kind of activities that contribute to rapid growth.

### Low R&D spending

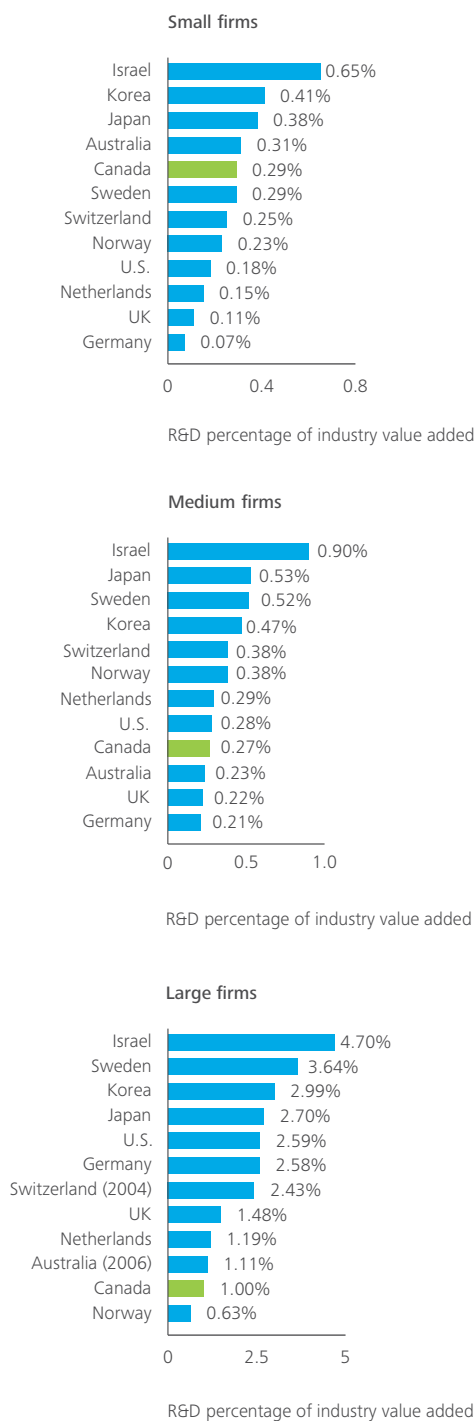
For example, it is well known that Canadian private sector investment in R&D as a percentage of GDP substantially lags other OECD countries. Surprisingly, this behavior is particularly pronounced among more established firms. OECD data from 2007 (**Figure 29**) shows Canadian firms with fewer than 50 employees spend 0.29% of GDP on R&D, giving them a ranking of eighth among 27 OECD countries. As firms become bigger (50-250 employees in this study), other jurisdictions increase R&D spending – but Canadian firms invest less at only 0.27%, giving us a ranking of 15<sup>th</sup>. And while we do increase R&D spending in firms with more than 250 employees to 1%, Canada's ranking is still low at 16<sup>th</sup>.<sup>83</sup>

More established Canadian firms are also less likely than their OECD counterparts to engage in collaborative research with public institutions such as universities or governmental agencies. Among less established Canadian manufacturing firms, 12.4% do so, placing them firmly in the middle of the pack. However, only 23.3% of more established Canadian firms collaborate, the second lowest ranking in the OECD.<sup>84</sup>

These results, which show a lack of investment in growth and innovation among more mature firms, are consistent with Canada's lacklustre penetration of high growth firms over five years old.



**FIGURE 29 Business R&D intensity, 2007**

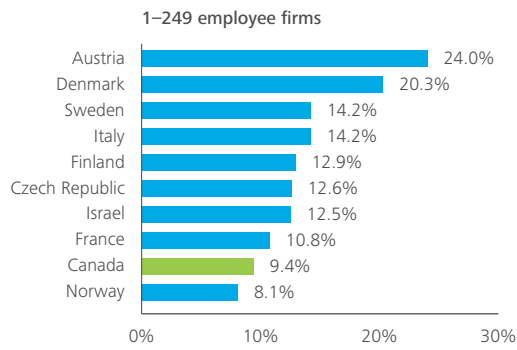


Note: Israel and Japan R&D intensity data was not available by firm size; the average OECD ratio of SME to large firm R&D intensity was applied to Israel and Japan to approximate a size breakdown. R&D intensive firms are defined as firms that spend over 20% of business investment budget on R&D. High growth firms are defined here as firms that achieved annual employment growth of 20% or more for the period of 2001-2004.

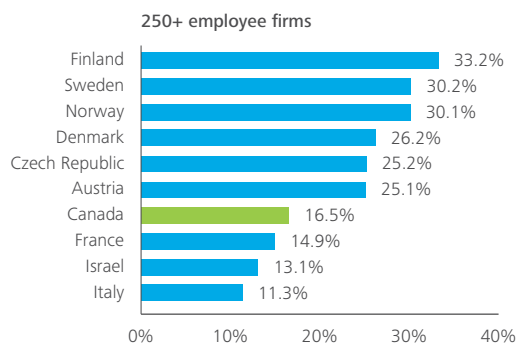


FIGURE 30

### Export value by firm size, 2007



Export value as a percentage of GDP



Export value as a percentage of GDP

### The import of exports

One obvious lever firms can use to grow revenues and headcount rapidly is expansion to international markets. Again, OECD data shows that Canadian firms have very poor export intensity compared to their counterparts in advanced economies.<sup>85, 86</sup> (Figure 30)

Improving Canada's export performance is particularly important in light of a 2012 Statistics Canada study showing that exporting firms in the manufacturing sector outperformed their non-exporting peers in terms of productivity growth.<sup>87</sup> (Figure 31) The study examines the productivity performance of a large group of manufacturing plants between 1990 and 1996 and a second group between 2000 and 2006. Firms initiating export activities between 1990 and 1996 exhibited annual productivity growth of 2.9% compared to -2.3% among firms that did not export.

This phenomenon is somewhat self-selecting, as highly competitive firms are more likely to expand internationally than their less successful peers. For example, the productivity of firms that began exporting between 1990 and 1996 was 30% higher at the beginning of the period than those firms never engaging in any kind of export activity.<sup>88</sup> Exporting firms also tended to be more focused on market expansion, both internationally and domestically, than non-exporting firms, and had stronger track records for process innovation. They incorporated flexible job design, self-directed work groups, information sharing between employees and joint labour-management committees into their business activities.<sup>89</sup>

---

A 2012 Statistics Canada study showed that exporting firms in the manufacturing sector outperformed their non-exporting peers in terms of productivity.

### Competitive intensity drives productivity

However, these selection effects do not fully explain the productivity boost among newly exporting firms, where productivity growth was higher than those who began their export activities prior to 1990. This suggests that entry into new markets launches a temporary period of particularly high productivity growth, followed by a higher baseline level. This burst of productivity growth is likely driven by changes in firm behavior in response to the greater competitive intensity of international markets. Newly exporting firms increased investment in R&D, formed a greater number of research collaboration agreements with foreign firms, and significantly expanded the use of foreign technology. Access to a larger, more international, pool of potential clients also tended to increase plant and product specialization among these firms.<sup>90</sup>

Growing export participation yields an assortment of benefits, but they do not occur in a vacuum. Evidence shows that macro factors such as the rate of trade liberalization and relative currency values impact both a firm's decision to enter international markets and the resulting productivity benefits.<sup>91</sup> From 1990 to 1996, free trade agreements and our low dollar created an extremely favourable environment for Canadian exports, which grew at an annual rate of 7.5%.<sup>92</sup> Between 2000 and 2006, however, few new bilateral agreements were signed,<sup>93</sup> and the added impact of a strong Canadian dollar meant that average growth in exports dropped to only 0.5% annually.<sup>94</sup>

Entry into new markets launches a temporary period of particularly high productivity growth, followed by a higher baseline level. This is likely driven by changes in firm behavior in response to the greater competitive intensity.

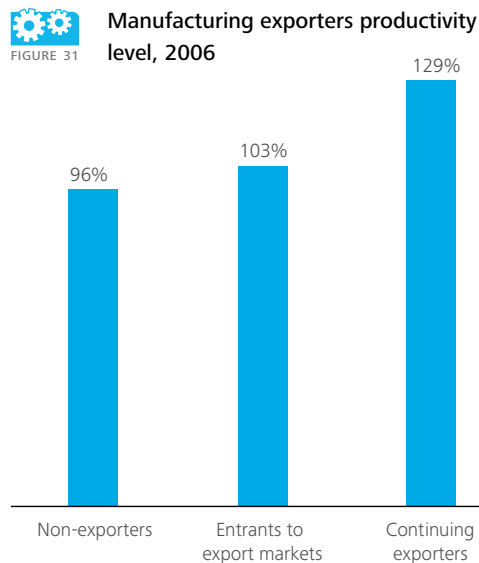
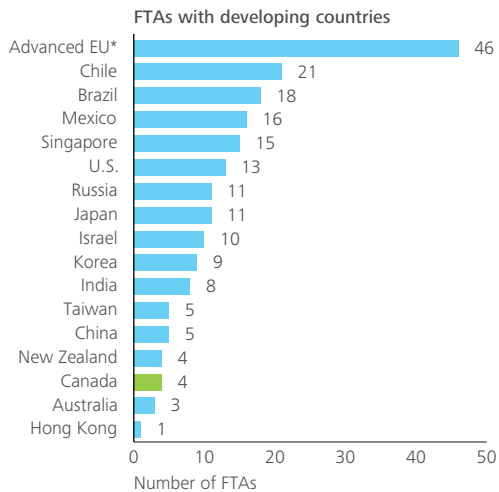
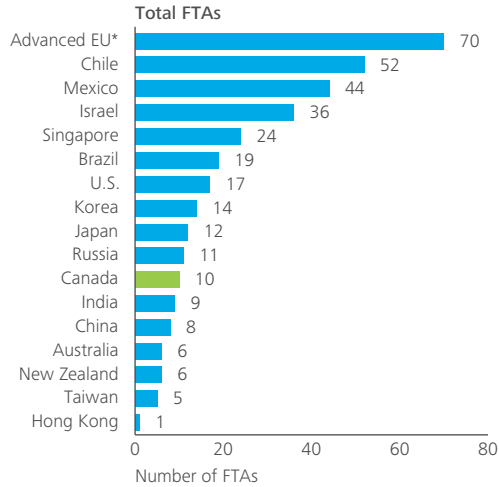




FIGURE 32

### Canada's Free Trade Agreements (FTAs)

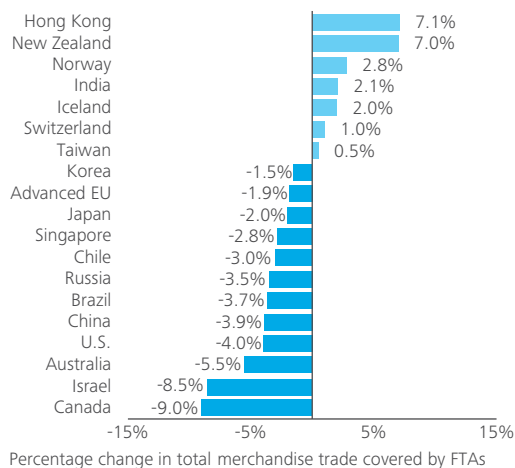


\*Advanced EU includes 26 (19 advanced) internal EU partner countries



FIGURE 33

### Change in merchandise trade covered by FTAs, 2000-2008



### But macro effects reduce the impact

One such macro effect, lack of market diversification, is particularly troubling given that Canada's exports to the most promising destinations (i.e. the BRIC countries) did not grow markedly between 1999 and 2009.<sup>95</sup> Firms choosing to enter international markets during this period saw their productivity grow at less impressive rates than firms not entering international markets or those exporting prior to 2000.<sup>96</sup> Growth of +0.3% was much smaller than the +5.2% posted from 1990 to 1996.<sup>97</sup> Analysis suggests that this weaker productivity growth was almost entirely attributable to the offsetting impact of macro effects.<sup>98</sup> (See **Figures 32** and **33** for free trade agreement data)

### Capital availability: chicken or egg?

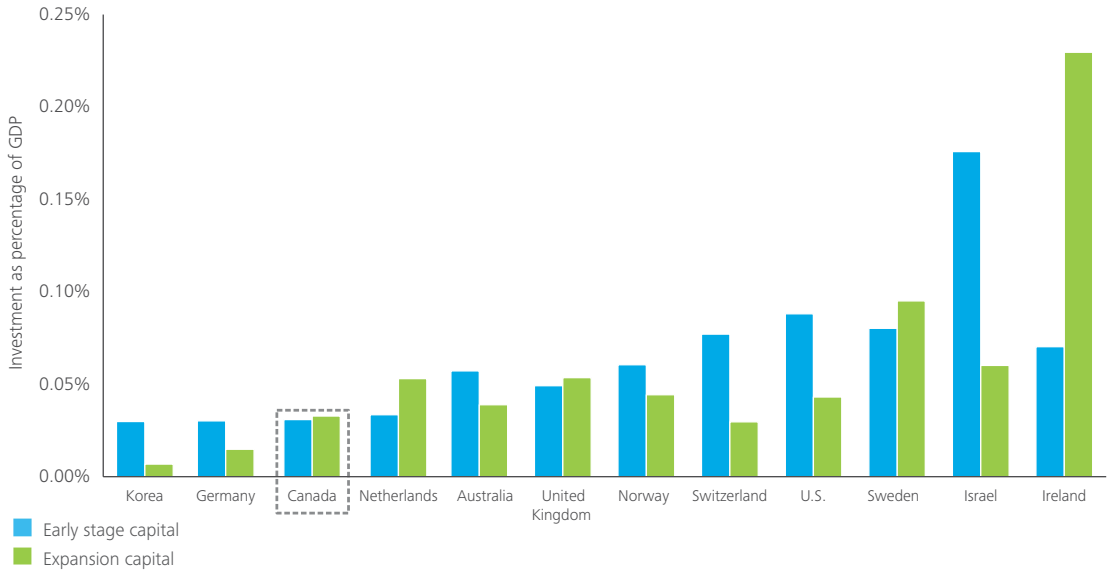
While Canadian entrepreneurs can find early stage capital to launch their businesses, they have significantly less access to the greater financing needs of growth and expansion. Early stage businesses in Canada can secure only 35% of the funding available to American startups (as a percentage of GDP) and 17% of the funding allocated to Israeli start-ups.<sup>99</sup> (**Figure 34**) This dearth of capital not only limits the ability of Canadian start-ups to successfully grow past the seed stage, it may also encourage gifted entrepreneurs to sell their companies or leave Canada for jurisdictions where risk capital is more readily available.

### Many underserved firms

One explanation for this lack of funding may be attitudinal differences between Canadian and other entrepreneurs. In a 2006 CIBC survey, 57% of Canadian small business owners said they were "interested in using their businesses as a means of generating income while balancing other commitments or lifestyle choices."<sup>100</sup> (**Figure 35**) By comparison, in a 2009 survey of American entrepreneurs by the Kauffman Foundation, 75% of participants responded that the desire to build wealth was an important, very important, or extremely important motivation.<sup>101</sup> This raises an interesting "chicken and egg" question: do attitudinal differences lessen demand for growth financing, or do Canadian entrepreneurs choose to focus on lifestyle due to limited opportunities? Interviews conducted for the 2011 productivity report and our more recent sector study suggests that while the lifestyle effect has put some downward pressure on demand for capital, there are also a significant number of underserved firms.<sup>102</sup>



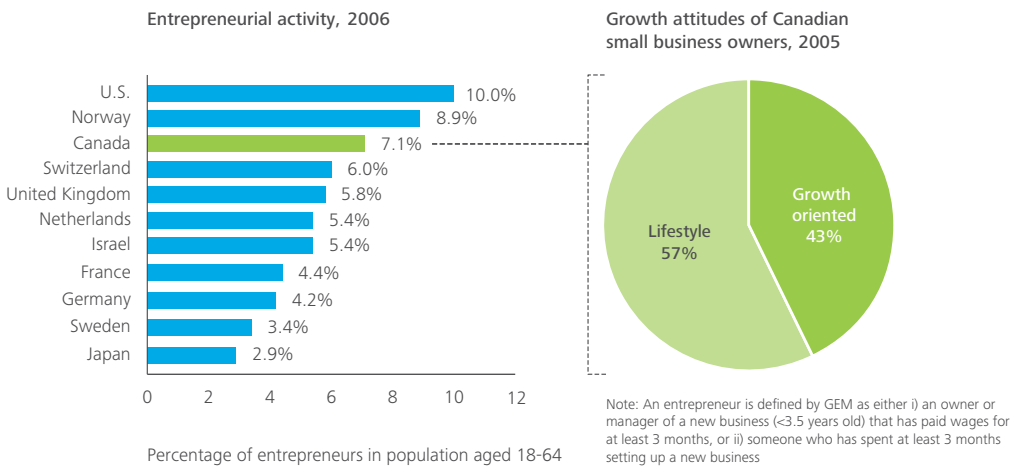
FIGURE 34 Risk capital investment, 2009



Early stage businesses in Canada can secure only 35% of the funding available to American startups (as a percentage of GDP) and 17% of the funding allocated to Israeli start-ups.



FIGURE 35 Canadian attitude towards entrepreneurship



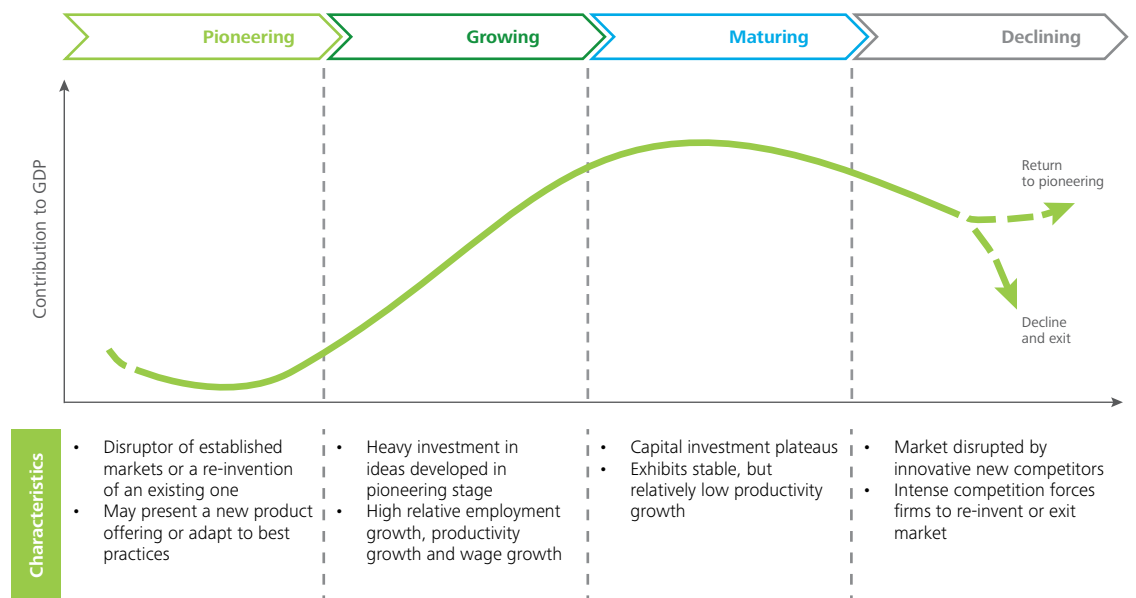
## Creative destruction replaces the business lifecycle

To understand the dynamics of growth, it helps to examine the business lifecycle, a pattern traditionally followed by firms in competitive markets. **(Figure 36)** Firms must understand how the lifecycle functions in today's world, and exploit that knowledge so they can shift strategic priorities and access the right kind of support to overcome the challenges presented by each stage – which can now occur and reoccur at breakneck speeds.

While the business lifecycle provides a textbook framework for understanding the challenges of sustaining

growth, it also demonstrates how profoundly the world has changed. Creative destruction driven by innovative new firms is today's constant. Profitable business models may cease to be profitable a year from now – let alone in a decade. The result is an environment where innovative products, processes and business models are leveraged in rapid succession for short-term market dominance. In such an economy, the capacity of firms to generate new sources of productivity-enhancing growth consistently is a key determinant of success. On a broader scale, a nation's ability to help a wide variety of firms invent and reinvent themselves – rather than trying to freeze established ones in place – will dictate which countries can preserve and grow their standard of living.

Figure 36 Traditional business lifecycle



A nation's ability to help a wide variety of firms invent and reinvent themselves – rather than trying to freeze established ones in place – will dictate which countries can preserve and grow their standard of living.

# Recommendations



## Recommendations for business

With a clear understanding of the need for growth and how to navigate the lifecycle, companies can undertake efforts to reinvigorate their business as needed. Unfortunately, Canadian companies don't do this often enough – many appear to accept the traditional progression as inevitable, blaming their eventual decline on circumstances beyond their control. As discussed earlier, Canadian companies in large numbers who settle for the status quo – or worse – are a formula for national economic disaster.



Deloitte believes that Canadian businesses have as much potential to compete and win globally as the firms of any nation. We have spoken to numerous successful Canadian entrepreneurs who have identified ways to grow and thrive in a competitive environment. Companies such as these, which occur across all sectors, sizes and regions of Canada, have the following action-oriented best practices to offer.

### 1. Build national and international businesses

Firms that have successfully launched operations outside Canada tend to enjoy higher growth, more innovation and better prospects than those businesses limiting themselves to Canadian markets. The increased exposure to competitive intensity demands that these organizations are focused, creative and always improving. By leveraging government programs where they exist, new exporters can reduce risks and learn valuable lessons about foreign markets. They are a material driver of productivity improvement in Canada.

### 2. Leverage new capital equipment

We continue to be both surprised and concerned by the lack of capital spending in Canada relative to the U.S. This phenomenon was thoroughly explored in our 2011 study when we noted that machinery and equipment (M&E) investment per worker in Canada was at only 65.2% the U.S. rate in 2010 – but the challenge continues and the learning bears repeating.

Investment in new capital assets is closely tied to productivity improvements and innovation. To remain competitive and pre-empt slippage into decline, it is imperative that firms in the mature stage continue to make these investments. Currently, many Canadian firms exhibit very low spending on machinery and equipment, particularly in the realm of ICT.

Mature firms can immediately improve their productivity by taking advantage of improvements developed by others. Ongoing reinvestment in capital can also help them adopt new best practices (particularly in the case of ICT) and create logical opportunities for the implementation of process innovations, such as changes to plant floor layout or revisions of sales scripts.

## Bioteq

### Focused approach to exports

After initial attempts to enter China met with little success, Vancouver's Bioteq Environmental Technologies Inc., a developer of waste water treatment facilities, revised its strategy to specifically target mining firms in a region with more stringent water-treatment regulations. This strategy led to a 2007 deal with Jiangxi Copper for \$4.2 million in plant-construction fees and \$2.5 million in recurring annual revenues.<sup>103</sup>

## Mad Rock

### Leverage government support

Mad Rock, a St. John's-based producer of lifeboat safety release hooks for large oceangoing vessels, leveraged accounts receivable insurance from EDC (Export Development Canada) to qualify for trade financing. This allowed the firm to ramp up production to meet growing international demand.<sup>104</sup>

## Oxford Frozen Foods

### Increased efficiency through new M&E investment

Oxford Frozen Foods is the world's largest supplier of frozen wild blueberries and Canada's largest processor of frozen carrot products. To reduce costs and emissions, the firm replaced five existing Freon refrigeration units and air coils with a single, highly efficient ammonia system, and plans to switch from Bunker C fuel to natural gas at its largest facility. Although this will require a substantial investment, the long-term savings are environmentally and financially significant.<sup>105</sup>

## Chrislan Ceramics

### Process innovation through the introduction of new M&E

Chrislan Ceramics and Glassware Decorating Inc. is a BC-based manufacturer of ceramic beer-tap handles. Their process required 18 employees to pour liquid ceramic into molds; the defect rate was close to 30%. To automate production, an industry first, the firm repurposed a German-made machine to allow casting to be performed by three employees. The defect rate dropped to 2%, and the skilled staff were redeployed to higher value jobs within the firm.<sup>106</sup>

**Suncor**

**Partnering with educational institutions**

In 2008, Petro-Canada (now Suncor) partnered with Women Building Futures (WBF), a non-profit organization that provides training and job placement for women wishing to enter the trades. Petro-Canada funded the construction of the WBF Suncor Training Centre and Housing Facility. As women make up half of the Alberta workforce but just 4% of trades, this initiative is developing a previously untapped source of labour.<sup>107</sup>

**Boston Pizza**

**Leveraging immigration opportunities**

When Boston Pizza faced difficulty attracting and retaining trained workers in their Northern Alberta operations due to competition in the oil and gas sector, the firm engaged an immigration agency to identify potential candidates for temporary visas and successfully recruited skilled chefs from Sri Lanka.<sup>108</sup>

**eSight**

**Collaborating within a cluster**

eSight, an early-stage developer of intelligent video eyewear for people with degenerative eye diseases, chose to locate close to nearly 100 life sciences companies in Ottawa. By establishing itself in the heart of this cluster, eSight was able to develop a large number of collaborative partnerships for prototype development and testing, including ones with the University of Ottawa and the Eye Institute of the Hospital of Ottawa.<sup>109</sup>

**Sweet Tooth Rewards**

**A global partnership between online organizations**

Sweet Tooth Rewards is a Waterloo, Ontario based software developer whose products allow online retailers to implement fully customizable loyalty and rewards programs. Sweet Tooth negotiated a partnership with California based Magento, one of the world's fastest growing e-commerce platform providers. This partnership allowed Sweet Tooth to leverage Magento's client development activities, driving an average growth in monthly revenues of 12%.<sup>110</sup>

**Communtech and MaRS**

**Leading incubators**

Communtech is a not-for-profit high-tech industry network that supports technology startups in Waterloo Region. It has directly contributed to the creation of 573 jobs, \$84M in client capital raised and \$154M in client revenue. MaRS provides dedicated research commercialization and startup incubation service in the heart of Toronto with research labs, offices, and shared event space. It accommodates companies across information, communication and entertainment, clean tech, life science and social innovation.

**3. Invest in meeting talent needs**

Rapid growth strains a firm's capabilities, not only in terms of machinery and equipment, but also in the ability to staff effectively. To keep pace with demand and take advantage of new opportunities, companies must have enough qualified people. Many organizations are dealing with this challenge proactively by collaborating with colleges and universities to develop specific programs that ensure a pipeline of skilled individuals. Others are using agencies to widen the recruiting net through targeted immigration programs to identify people who are willing, for example, to move to remote locations.

**4. Create more clusters**

Successful Canadian firms use strategic relationships to extend their capabilities. Co-located for convenience and synergy, these partners provide access to distribution channels, manufacturing capability, project funding, capital equipment, knowledge, expertise and intellectual property. Firms can concentrate on their core capabilities while learning from their partners, and deploy that learning in other aspects of their business. We have spent considerable time and energy understanding what makes each cluster successful in Canada, and believe they are powerful collaborative organizations that drive growth.

An excellent way for young firms to access the benefits of clusters is through business incubators (also known as accelerators), which provide critical services such as

mentorship, collaborative workspaces and access to financing. Effective incubators are able to catalyze regional innovation by connecting complementary businesses, researchers, investors and other key players. By supporting the growth and retention of Canadian companies, mature incubators can have a tremendous economic impact on productivity. Incubator-supported companies may generate hundreds of millions of dollars for the local economy through revenues, new jobs and investment.

In our travels over the past 18 months, we have met with many leaders and participants of clusters across Canada and have learned some key lessons for success. Perhaps the most important of these is that clusters must be a partnership of business, academia and government, but they must be driven by business. Where government or academia tries to take a lead in building an effective cluster, it almost always fails to achieve the intended benefits. Business must step up to ensure that these initiatives become part of the fabric of the local business community and receive the support needed to thrive.

### 5. Invest and then reinvent

To prevent decline, mature firms must keep their offerings fresh and exciting. By introducing unique product, service and business model innovations in adjacent spaces, they can appeal to new markets and clients – which will in turn drive growth and sustainability. When they enter new markets as the “last in,” mature firms can be extremely profitable. They should reinvest these profits to invent and disrupt their own business. Harvesting is healthy as long as it is connected to reinvention and investment in the future.

Mature firms should also consider acquiring non-core technologies that have the potential to disrupt their business. This investment will give them the “just in case” option of pre-empting the actions of current and potential competitors.

**Successful Canadian firms use strategic relationships to extend their capabilities. Co-located for convenience and synergy, these partners provide access to distribution channels, manufacturing capability, project funding, capital equipment, knowledge, expertise and intellectual property.**

#### MW Inc.

##### Deploying innovative products

The North American textile sector has come under intense pressure by highly cost competitive imports from Asia. A few firms, such as Montreal based MW Inc., have managed to succeed through innovation. MW, which once produced basic wool products, made significant investments in R&D, new equipment, and staff retraining to allow it to produce a range of “engineered materials” including highly customized fabrics for blinds, filter media materials for waste water treatment, and anti-microbial fabrics for use in the health-care sector.<sup>111</sup>

#### Oil producers

##### Investing in “just in case” disruptive technologies

A number of Canadian oil producers are making substantial investments in disruptive technologies. Suncor has set aside \$750 million dollars for investment in renewable energy facilities including wind farms and an ethanol plant, while Enbridge operates an eighty megawatt solar plant.<sup>112</sup>



## Recommendations for government

While businesses must take responsibility for exploiting growth opportunities, the government must establish conditions that support them, which includes making growth a business imperative by increasing competition. The eight recommendations we put forward in our previous report on the nation's productivity are even more relevant in the context of this strategic imperative. Some of these recommendations have seen progress; we can now supplement and deepen them with insights from our recent research.

In recent months, governments at all levels have taken a number of positive steps, which we strongly support. However, disparate policy initiatives that support a region or a specific national program lack the cohesion of an overall plan. They may not prioritize opportunities or deal with cross-border issues – and can damage our competitiveness as a country.

The goal must be to continue advancing various agendas in a more strategic national context with a laser focus on increasing competitiveness, which we believe is the best fuel for an affluent Canada.

### 1. Encourage foreign direct investment

Although foreign acquisitions are frequently blamed for the “hollowing out” of Canada, there is no supporting evidence. In 1982, foreign entities owned 4.73% of total Canadian business assets; as of 2011 that number is little changed at 5.16%.<sup>113</sup> With multinational entities, particularly those in the United States, able to ship goods to Canada at zero or very low tariff rates, the choice to build or acquire an operation in Canada is a conscious one that benefits our own economy. Foreign controlled firms tend to spend more on R&D than domestic ones; they innovate more; and they are more likely to seek patent protection.<sup>114</sup> Data shows that foreign controlled manufacturing firms were more capital intensive than their Canadian counterparts, paid higher wages and hired more non-production (management and head office) workers.<sup>115</sup> These are not the “branch plants” of history or the hollowed out shells we fear.

The time has come to view Canada’s resistance to foreign acquisition in declining sectors for what it is: an emotional response that does little to serve productivity growth or the long-term interests of workers in the affected sectors. Canada must send a clear message to the world that it is “open for business” and understands the importance of foreign acquisitions in maintaining a competitive, highly productive economy. We need to have clearly defined parameters around the net benefit test and the conditions under which Canadian firms may be acquired. We also need to be clear about what industries are protected, and ensure that those protections serve the interests of the broader Canadian public.

### 2. Continue to improve Canada’s immigration system

Government has an important role to play in supporting the evolution of the workforce to meet the needs of Canada’s business sector. This can be done by improving the responsiveness and flexibility of the immigration system to shifting labour needs. Recently, some good ideas have been piloted – including a new approach to Canada’s immigration backlog and the Accelerated Labour Market Opinion initiative, designed to improve the integrity of the temporary foreign worker program. We encourage the full implementation of these programs as well as increased action on credential recognition.

We also support the recommendation put forth in Deloitte’s recent study on the workforce of the future, *Canada works 2025*, that a significant increase in immigration should be considered in light of the economic implications of an aging population and the requirement to feed industries with new talent.

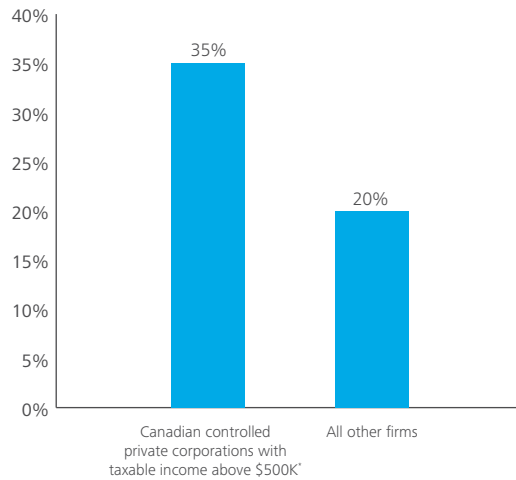
---

The time has come to view Canada’s resistance to foreign acquisition in declining sectors for what it is: an emotional response that does little to serve productivity growth or the long-term interests of workers in the affected sectors.



FIGURE 37

### Magnitude of SR&ED credits by firm size



\*Applies to first \$3 million in R&D expenditures

Canadian policy makers have tended to design policies that favor small firms. Our analysis shows this strategy is unbalanced, as small firms are no more likely than their larger peers to drive growth.

### 3. Provide incentives for growing, rather than for being small

Traditionally, Canadian policy makers have tended to design policies that favor small firms (Figure 37). One example of this is support for R&D, where Scientific Research and Experimental Design (SR&ED) credits are significantly higher for small firm than for large ones. This gap is much more pronounced than in comparable countries: a 2008 OECD study of tax subsidies for R&D showed that Canada's support for small business ranked third, while support for large businesses ranked ninth. Our analysis shows this strategy is unbalanced, as small firms are no more likely than their larger peers to drive growth. The result is public policy that potentially focuses on one sector at the expense of others, inhibiting productivity growth. If R&D support were normalized across firm sizes, funds could be made available to support activities that drive firm growth, such as further tax credits for incremental R&D.

Another shortcoming is limiting refundability of the SR&ED tax credit to Canadian-controlled private corporations below a revenue threshold. This not only wreaks havoc on firms in cyclical industries, it creates a disincentive for R&D investment among firms at risk of entering the decline phase – as these firms are both the most likely to incur an operating loss and the most in need of investment that will help them regain competitiveness.

Perhaps even more troubling are recent changes to the SR&ED program that restrict credits to spending on R&D labour, eliminating support for R&D-related investments in capital. Not only do these changes disproportionately harm sectors where R&D is highly capital intensive, such as aerospace and life sciences, they discourage investment in the types of machinery and equipment most likely to drive productivity growth – and threaten to widen an already large and persistent gap between Canadian and U.S. investment in M&E.

If the government is committed to preserving this SR&ED policy change, it should explore ways to mitigate these undesired impacts on investment. Similarly, provincial governments should consider the creation of a refundable supplementary R&D tax credit, similar to that currently offered by Quebec, but specifically targeted towards supporting capital investments in R&D.

#### 4. Expand trade inflows and outflows

As the importance of developed nations is eclipsed by the rapid growth of emerging economies, we must be conscious of our enormous reliance on the U.S. market and continually seek to develop new trading partners. The Canadian government is an essential enabler in this regard; the recent signing of trade agreements with Columbia and Peru is an encouraging move.

Free trade agreements open the door for Canadian firms to enter new international markets, where they must respond to high levels of competitive intensity with productivity-enhancing improvements. The reverse is also true: exports of cheaper, higher quality or more innovative products by foreign firms into Canada can improve the productivity of the Canadian firms purchasing these items, and place competitive pressure on our businesses to improve or reinvent their offerings.

To achieve the benefits of greater trade inflow and outflow, the Canadian government should continue to support agencies that help our firms enter external markets, such as Export Development Canada. We also encourage the government to pursue new free trade agreements, re-examining protectionist factors and weighing them against the significant productivity boost available.

Separately, governments are encouraged to eliminate interprovincial trade barriers, which minimize competitiveness within Canada and fragment our country into inconsequential micro-markets for global trading partners.

#### 5. Foster fact-based decision making

In researching Canada's productivity, we have identified that size and sector composition are not the limiting factors widely perceived. Relying on intuition rather than fact can lead to inappropriate action, highlighting the need for comprehensive, transparent and consistent data

As we accelerate our efforts to improve Canada's productivity performance, collecting and releasing statistics is vital for identifying key trends, strengths and weaknesses within our country and in comparison to the rest of the world. While we recognize the need for fiscal restraint, we recommend that the government continue to support Statistics Canada and other essential data collection services. Insufficient data collection could undermine our national ability to help leaders make decisions that generate growth, jobs and revenue.

We applaud the move to release more information online for free, particularly the full CANSIM database (Canadian Socio Economic Information Management System), which includes more than 25 million data series.

---

**Free trade agreements open the door for Canadian firms to enter new international markets, where they must respond to high levels of competitive intensity with productivity-enhancing improvements.**



## Recommendations for academia

Academia has important roles to play – both as educational institutions and centres of research – in supporting productivity improvements through the growth of Canadian businesses.

Canada's science and engineering academics perform admirably in international publication rankings, but our performance in the global intellectual property statistics suggests that many of our great ideas are failing to make their way out of the lab. Universities should see themselves as part of a larger system that fosters the commercialization of new ideas.



Through a series of interviews with the Technology Transfer/Industry Liaison Offices at several Canadian and American universities, we have identified a number of best practices for increased commercialization:

- Liaison offices should build strong relationships with academics, particularly in applied sciences, whose research and discoveries have the potential to be commercialized. They must establish straightforward processes that do not interfere with academic goals such as publication, and be given a budget to incent collaboration from professors.
- These offices should “protect first, ask later” when it comes to rapidly pursuing patents and intellectual property rights. Patenting a new discovery does not interfere with publication in an academic journal; however, once a finding has been published, it can no longer be patented.

While professors often feel their discoveries should be placed in the public domain as “gifts to the world,” this is often counter-productive. Firms are much less likely to invest in making a new idea a reality if it is in the public domain than if they are able to obtain intellectual property rights.

- Liaison offices should act as a guide and first point of collaboration for interactions between universities and business. A promising example of this is MaRS Innovation, a collaboration of sixteen universities, hospitals, and research institutes in the Toronto area that provides a single point of access to their combined research efforts for businesses.

### **Create the curriculum to support productivity**

As Canada’s demographic and industrial mix changes, the skills required by business and government to improve productivity are also changing. Colleges and universities can respond to this challenge by building new programs tailored to address specific labour market needs.

As expressed in our previous report on productivity, Deloitte believes that the traditional siloed approach to education no longer fits the needs of modern employers, nor does it support the development of innovators willing to take big risks on new ideas. Interdisciplinary programs – such as business/engineering or entrepreneurship/computer science – produce graduates with a better understanding of the broader context of their specializations, improving their usefulness to employers and the economy. McGill University and the University of Toronto have made progress in this regard, permitting engineering students to enroll in business courses. At the same time, universities should collaborate with businesses and government on internships and co-ops that allow students to develop real-world business experience.

---

Canada’s science and engineering academics perform admirably in international publication rankings, but our performance in the global intellectual property statistics suggests that many of our great ideas are failing to make their way out of the lab.

# Closing thoughts

## The future of productivity

Since publishing our first report on productivity in June 2011, we have spoken with thousands of Canadian government, business and academic leaders across the country. These discussions have given us an increasingly confident view of where we are today as a country, and what we must do in the future.

For better or for worse, Canada is a nation built on compromise. The balance between federal and provincial jurisdictions is a planned response to concerns over centralized authority. While this response made sense for the purpose of uniting disparate interests, it has left us with some competitive disadvantages that are difficult to overcome.

Governments at all levels have responded to Canada's obvious challenges through a series of well-intentioned or politically expedient measures that often serve to protect established interests at the expense of growth and competitiveness. As a result, our already small market is fragmented into many regional markets that are microscopic from a global perspective.

In addition to the fundamental disadvantages created by a two-tier system for financial services, labour markets and health care, we are also challenged to create national strategies for critical assets such as energy. Many of the other protections afforded the provinces are historic relics which create friction and do not support Canada from a competitive perspective. In summary, our well-intentioned policies have created a poorly integrated, dysfunctional patchwork of regulations and laws that impedes growth and competitiveness.





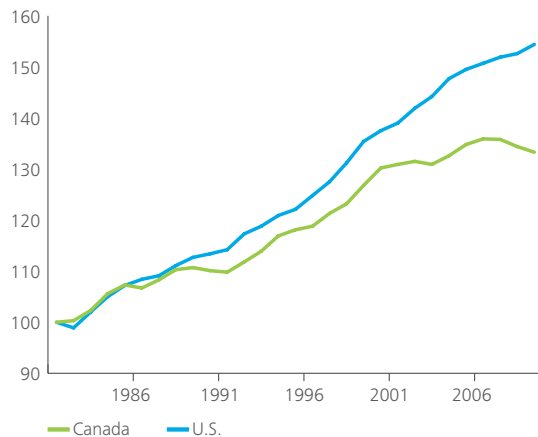
# A productivity primer

In an economic sense, productivity is the amount of value (as measured in contribution to GDP) created by the average worker in an hour of their time. When we discuss improving productivity, it is not about working longer hours for lower pay. Rather, it is about finding ways to produce greater value in the same amount of time.



FIGURE 38

Canada and U.S. GDP per worker, indexed to 1981



Accomplishing high levels of productivity means thriving firms, but it also means their employees are producing non-commoditized products able to command a premium in global markets. As a result, highly productive modern economies tend to be characterized by skilled employees who are paid higher wages and enjoy superior working conditions than those of the average worker in less productive economies.

In the early 1980s, productivity levels in Canada were comparable to those of the United States. Over the ensuing decade, the rate of growth in Canadian productivity consistently lagged the U.S., creating a gap between the two countries. This gap was sustained throughout the 90s and grew rapidly over the next decade. From 2009 – 2011, U.S. productivity continued to grow at a healthy clip of 2.1%, while Canadian productivity grew by an average of 1.1% per year. Consequently, as of 2011 output per worker in Canada was only 78.3% of an American worker's.

Canada's poor productivity performance is not limited to comparisons with the U.S. From 2001-2009, Canada's annualized growth of 0.7% was in the bottom quartile of the OECD, far below traditional comparators like Australia (1.1%), and other small economies like Austria (1.4%) and Israel (1.3%).

Higher levels of productivity in the U.S. mean the average American worker needs to work fewer hours than the average Canadian to create the same value, as measured by GDP. In dollar terms, the average Australian generates \$2 more per hour than the average Canadian, an American generates \$13 more, and a Norwegian generates \$29 more.

### Standard of living

GDP per capita is, in the opinion of most economists, the single most important factor in determining a country's overall standard of living. This measure comprises three factors: the employment rate of the country; the number of hours worked by the average employed resident of the country, and the productivity of the work done by those employed citizens. Of these three factors, productivity is by far the most important, with growth in GDP per worker contributing 78% of total growth in Canadian GDP per capita between 1976 and 2009.

In Canada, employment rates and hours worked have both shown solid performance relative to OCED comparators over the past decade. This means that if we want to improve the standard of living in Canada, productivity growth is the most effective lever.

Figure 40 Factors influencing standard of living

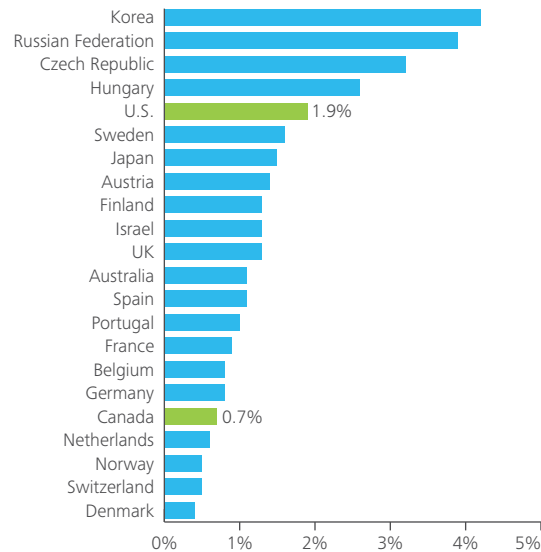


In the context of shifting demographics, the situation becomes even more serious. Over the coming decade, both the employment rate and hours worked will come under intense pressure as baby boomers exit the workplace. In Canada, as in most advanced economies, the proportion of the population over 65 relative to those 20 – 64 is forecast to grow from 23% today to 31% in 2021, reaching 47% by 2050. At the same time, older individuals deferring retirement are expected to work fewer hours, driving down the average hours worked per employee. Given the unavoidable prospect of a falling employment ratio and declining hours worked, Canada must determine a way to drive higher productivity growth or expect a decline in their standard of living.



FIGURE 39

Labour productivity growth, 2001-2009



## About the authors



### Bill Currie

**Deloitte Canada Vice Chair and Americas Managing Director, Consulting**

bicurrie@deloitte.ca

416-874-3173

Bill Currie is Deloitte's Managing Director for the Americas, a business with over 80,000 employees and almost \$14 billion in revenue across 29 countries. He is also Vice Chair of Deloitte Canada and sits on the Canadian Board of Directors. Bill is the author of a number of studies at Deloitte including last year's *The future of productivity – An eight-step game plan for Canada*, and has been widely quoted in the Canadian and international media.



### Lawrence W. (Larry) Scott

**Deloitte Canada Vice Chair and Global Chief Strategy Officer**

lscott@deloitte.ca

416-874-3331

Lawrence (Larry) Scott is a Vice Chair of Deloitte Canada, and the Global Strategy Officer for the global organization Deloitte Touche Tohmatsu Limited (DTTL). He is responsible for strategy, innovation and corporate development. DTTL is one of the largest private professional services firms in the world with over 180,000 people in 140 countries.



### Andrew W. Dunn, FCA

**Managing Partner and Chief Operating Officer, Altas Partners**

Adunn@altaspartners.com

416-564-7967

Andrew Dunn, named one of Canada's leading tax advisors by the International Tax Review, is the Managing Partner and Chief Operating Officer of Altas Partners. He was previously a Vice Chair of Deloitte Canada, Chair of the Client Cabinet and a member of Deloitte's Global Tax Executive. While with Deloitte, Andrew led Deloitte's Future of Canada vision, including *The future of productivity* and *The future of tax* reports.

## Acknowledgements

The Deloitte *Future of Productivity* team is indebted to Jesse McWaters and Elliot Morris, who co-authored this paper with the research support of Matt McLeod and Natasha Sadr along with Aneerudha Borkotoky, Jackson Hounsell, Michael Kilgour, Vikram Somasundaram and Emily Yorke. We would also like to thank the many interviewees who took the time to speak to us and share their insights on Canada's productivity challenge.

## Endnotes

- 1 Industry Canada (2011). Key Small Business Statistics, July 2011. Table 2: Number of Business Locations by Sector and Firm Size (Number of Employees), December 2010.
- 2 Bureau of Labor Statistics (2012). Business Employment Dynamics. Table G – Distribution of Private Sector Firms by Size Class: 1993/Q1 through 2011/Q1, not seasonally adjusted.
- 3 Globe & Mail, Report on Business 1000 (2011). The Globe and Mail.
- 4 Conference Board of Canada (2008). Sluggish Productivity in Canada: Could Urbanization be a Factor? Table 6 – Average Firm Size (Number of Employees).
- 5 Industry Canada (2011). Key Small Business Statistics, July 2011. Table 2: Number of Business Locations by Sector and Firm Size (Number of Employees), December 2010.
- 6 Industry Canada (2011). Key Small Business Statistics, July 2011. Table 5: Number of Private Sector Employees by Industry and Size of Business Enterprise, 2010.
- 7 Bureau of Labor Statistics (2012). Business Employment Dynamics. Table G – Distribution of Private Sector Firms by Size Class: 1993/Q1 through 2011/Q1, not seasonally adjusted.
- 8 Bureau of Labor Statistics (2012). Business Employment Dynamics. Table F – Distribution of Private Sector Employment by Size Class: 1993/Q1 through 2011/Q1, not seasonally adjusted.
- 9 Leung, D., and Rispoli, L. (2011). The Contribution of Small and Medium-Sized Businesses to Gross Domestic Product: A Canada-United States Comparison. Economic Analysis Research Paper Series - Statistics Canada.
- 10 Industry Canada (2006). Key Small Business Statistics, July 2006. Table 5: Number of Private Sector Employees by Industry and Size of Business Enterprise, 2005.
- 11 Bureau of Labor Statistics (2012). Business Employment Dynamics. Table F – Distribution of Private Sector Employment by Size Class: 1993/Q1 through 2011/Q1, not seasonally adjusted.
- 12 Statistics Canada (2012). Purchasing Power Parities for Gross Domestic Product (GDP), Organisation for Economic Co-Operation and Development (OECD) Countries. CANSIM Table 380-0037.
- 13 Bureau of Economic Analysis (2012). Sector GDP.
- 14 Statistics Canada (2012). Gross Domestic Product (GDP) at Base Price in Current Dollars, System of National Accounts (SNA) Benchmark Values, by North American Industry Classification System (NAICS). CANSIM Table 379-0023.
- 15 Centre for the Study of Living Standards (2011). International Productivity Monitor, Number 22, Fall 2011. Industrial Structural Change and the Post-2000 Output and Productivity Growth Slowdown: A Canada-U.S. Comparison, Table 7.
- 16 *ibid*
- 17 Statistics Canada (2012). Gross Domestic Product (GDP) at Base Price in Current Dollars, System of National Accounts (SNA) Benchmark Values, by North American Industry Classification System (NAICS). CANSIM Table 379-0023.
- 18 Statistics Canada (2012). Gross Domestic Product (GDP) at Basic Prices, by North American Industry Classification System (NAICS) and Province. CANSIM Table 379-0025.
- 19 Statistics Canada (2012). Labour Productivity and Related Variables by Business Sector Industry, Consistent with the North American Industry Classification System (NAICS) and the System of National Accounts (SNA). CANSIM Table 383-0011.
- 20 Bloomberg (2012). Edmonton Par Price Index.
- 21 Statistics Canada (2012). Capital and Repair Expenditures, by Sector and Province, Annual (Dollars x 1,000,000). CANSIM Table 029-0005.
- 22 Statistics Canada (2012). Gross Domestic Product (GDP) at Basic Prices, by North American Industry Classification System (NAICS) and Province. CANSIM Table 379-0025.
- 23 Centre for the Study of Living Standards (2009). A Detailed Analysis of the Productivity Performance of Oil & Gas Extraction in Canada, Companion Database of Mining and Oil and Gas Extraction Productivity Measures.
- 24 Government of Alberta, Office of Statistics and Information (2012). Alberta Annual Oil and Gas Investment.
- 25 Statistics Canada (2012). Labour Productivity and Related Variables by Business Sector Industry, Consistent with the North American Industry Classification System (NAICS) and the System of National Accounts (SNA). CANSIM Table 383-0011.
- 26 Bureau of Labor Statistics (2012). Table 1: Manufacturing Sector: Productivity and Related Measures of the 1987-2009 Period.
- 27 Centre for the Study of Living Standards (2011). International Productivity Monitor, Number 22, Fall 2011. Industrial Structural Change and the Post-2000 Output and Productivity Growth Slowdown: A Canada-U.S. Comparison, Table 7.
- 28 *ibid*
- 29 Statistics Canada (2012). Gross Domestic Product (GDP) at Base Price in Current Dollars, System of National Accounts (SNA) Benchmark Values, by North American Industry Classification System (NAICS). CANSIM Table 379-0023.
- 30 Bank of Canada (2012). Monthly and Annual Average Exchange Rates.
- 31 U.S. Energy Information Administration (2012). Petroleum & Other Liquids – Cushing, OK WTI, Spot Price FOB Annual.
- 32 Bureau of Labor Statistics (2010). International Comparisons of Hourly Compensation Costs in Manufacturing.

- 33 Organisation for Economic Co-Operation and Development (2012). OECD StatExtracts, Quarterly Benchmarked Unit Labor Cost Indicators – by Economic Activity.
- 34 Industry Canada (2011). Canadian Trade by Industry (NAICS Codes).
- 35 Centre for the Study of Living Standards (2012). Database of Information and Communication Technology (ICT) – Investment and Capital Stock Trends: Canada vs. United States.
- 36 World Economic Forum (2012). The Global Competitiveness Report 2011-2012.
- 37 Canadian Bankers' Association (2010). Good News for All Canadians: World Economic Forum again ranks Canada's Banks as World's Soundest.
- 38 Economist Intelligence Unit (2012). Canada – Country Finance Report – 2012.
- 39 Statistics Canada (2012). Real Gross Domestic Product (GDP) and Labour Productivity in the Provinces and Territories, by select North American Industry Classification System (NAICS), indexed 2002 dollars (unpublished data).
- 40 Bureau of Labor Statistics (2012). Labor Productivity Estimates of NAICS 52, 1987 to 2009, indexed to 2005 (unpublished data).
- 41 U.K. Office for National Statistics (2012). Labour Productivity, Q1, 2012.
- 42 Australian Bureau of Statistics (2012). Experimental Estimates of Industry Multifactor Productivity, Australia, Detailed Productivity Estimates.
- 43 Statistics Canada (2012). Real Gross Domestic Product (GDP) and Labour Productivity in the Provinces and Territories, by select North American Industry Classification System (NAICS), indexed 2002 dollars (unpublished data).
- 44 *ibid*
- 45 Bureau of Labor Statistics (2012). Industry Labor Productivity and Costs: Indexes – May 31, 2012.
- 46 Statistics Canada (2012). Real Gross Domestic Product (GDP) and Labour Productivity in the Provinces and Territories, by select North American Industry Classification System (NAICS), indexed 2002 dollars (unpublished data).
- 47 Bureau of Labor Statistics (2012). Employment, Hours and Earnings from the Current Employment Statistics Survey (National).
- 48 Federal Reserve Bank of St. Louis (2011). Federal Reserve Economic Data. Net Interest Margin for All U.S. Banks (USNIM) – 1984-2011.
- 49 Deloitte research, 2012.
- 50 *ibid*
- 51 *ibid*
- 52 *ibid*
- 53 Centre for the Study of Living Standards (2012). Database of Information and Communication Technology (ICT) – Investment and Capital Stock Trends: Canada vs. United States.
- 54 Centre for the Study of Living Standards (2011). International Productivity Monitor, Number 22, Fall 2011. Industrial Structural Change and the Post-2000 Output and Productivity Growth Slowdown: A Canada-U.S. Comparison.
- 55 Statistics Canada (2012). Gross Domestic Product (GDP) at Base Price in Current Dollars, System of National Accounts (SNA) Benchmark Values, by North American Industry Classification System (NAICS). CANSIM Table 379-0023.
- 56 Bureau of Economic Analysis (2012). GDP by Industry Data.
- 57 Baldwin, J.R., and LaFrance, A. (2012). Firm Turnover and Productivity Growth in the Canadian Services Industries, 2000 to 2007. Statistics Canada.
- 58 Baldwin, J.R., and Gu, W. (2008). Firm Turnover and Productivity Growth in the Canadian Retail Trade Sector. Economic Analysis Research Paper Series – Statistics Canada.
- 59 *ibid*
- 60 Centre for the Study of Living Standards (2012). Database of Information and Communication Technology (ICT) – Investment and Capital Stock Trends: Canada vs. United States.
- 61 Deloitte research, (2011). What's in Store for Canadian Retail in 2012 and beyond?
- 62 Deloitte research, 2012.
- 63 Centre for the Study of Living Standards (2012). Database of Information and Communication Technology (ICT) – Investment and Capital Stock Trends: Canada vs. United States.
- 64 Statistics Canada (2012). Real Gross Domestic Product (GDP) and Labour Productivity in the Provinces and Territories, by select North American Industry Classification System (NAICS), indexed 2002 dollars (unpublished data).
- 65 Statistics Canada (2012). Labour Productivity and Related Variables by Business Sector Industry, Consistent with the North American Industry Classification System (NAICS) and the System of National Accounts (SNA). CANSIM Table 383-0011.
- 66 Statistics Canada (2012). Gross Domestic Product (GDP) at Basic Prices, by North American Industry Classification System (NAICS) and Province. CANSIM Table 379-0025.



- 67 ibid
- 68 Statistics Canada (2012). Gross Domestic Product (GDP) at Basic Prices, by North American Industry Classification System (NAICS) and Province. CANSIM Table 379-0025.
- 69 Statistics Canada (2012). Labour Productivity and Related Variables by Business Sector Industry, Consistent with the North American Industry Classification System (NAICS) and the System of National Accounts (SNA). CANSIM Table 383-0011.
- 70 U.S. Small Business Administration (2011). Accelerating Job Creation in America: The Promise of High-Impact Companies.
- 71 Industry Canada (2010). Key Small Business Statistics (January 2010). Special Edition: Growth Map of Canadian Firms, January 2010.
- 72 ibid
- 73 ibid
- 74 Organisation for Economic Co-Operation and Development (2011). Entrepreneurship at a Glance.
- 75 ibid
- 76 Statistics Canada (2012) Firm Dynamics – Firm Entry and Exit in Canada, 2000 to 2008.
- 77 Organisation for Economic Co-Operation and Development (2009). Measuring Entrepreneurship.
- 78 ibid
- 79 World Bank (2012). Doing Business, Starting a Business.
- 80 Organisation for Economic Co-Operation and Development (2011). Entrepreneurship at a Glance.
- 81 Deloitte research, 2011.
- 82 Industry Canada (2010). Business Innovation and Strategy: A Canadian Perspective (based on the Survey of Innovation and Business Strategy), 2010.
- 83 Organisation for Economic Co-Operation and Development (2009). Measuring Entrepreneurship.
- 84 Science, Technology and Innovation Council of Canada (2008). State of the Nation.
- 85 Organisation for Economic Co-Operation and Development (2012). Stats Extract, TEC by Size Classes Dataset – Export Value.
- 86 Organisation for Economic Co-Operation and Development (2012). Stats Extract, Gross Domestic Product (Annual) – U.S. \$, current prices, current PPPs.
- 87 Statistics Canada (2012). Market Expansion and Productivity Growth: Do New Domestic Markets Matter as Much as New International Markets?
- 88 Baldwin, J.R., and Gu, W. (2003). Participation in export markets and productivity performance in Canadian manufacturing. Economic Analysis Research Paper Series - Statistics Canada.
- 89 Baldwin and Yan 2012.
- 90 Baldwin, J.R., and Gu, W. (2003). Participation in export markets and productivity performance in Canadian manufacturing. Economic Analysis Research Paper Series - Statistics Canada.
- 91 Baldwin, J.R., and Yan, B. (2010). Export Market Dynamics and Plant-Level Productivity: Impact of Tariff Reductions and Exchange Rate Cycles. Economic Analysis Research Paper Series - Statistics Canada.
- 92 ibid
- 93 Foreign Affairs and International Trade Canada (2010). Canada's free trade agreements in an international perspective.
- 94 ibid
- 95 Industry Canada (2011). Key Small Business Statistics – Special Edition: Canadian Small Business Exporters.
- 96 Statistics Canada (2011). Export Growth, Capacity Utilization, and Productivity Growth: Evidence from Canadian Manufacturing Plants.
- 97 ibid
- 98 Baldwin, J.R., and Yan, B. (2010). Export Market Dynamics and Plant-Level Productivity: Impact of Tariff Reductions and Exchange Rate Cycles. Economic Analysis Research Paper Series - Statistics Canada.
- 99 Organisation for Economic Co-Operation and Development (2011). Entrepreneurship at a Glance.
- 100 CIBC World Markets (2005). For Love or Money? A Study of Entrepreneurship in Canada.
- 101 Kauffman Foundation (2009) The Anatomy of an Entrepreneur – Family Background and Motivation
- 102 Deloitte research, 2011.
- 103 Export Development Canada (2009). Mining the Middle Kingdom.
- 104 Export Development Canada (2010). If You Can't Beat 'Em, Then Change the Rules.
- 105 Oxford Frozen Foods (2012), Oxford Frozen Foods Switching To Natural Gas. Press release.

- 106 Beaton, E. (2010). Swimming against the currency tide. Canadian Business.
- 107 Suncor (2008). Petro-Canada Helps Women "Trade Up" to a Brighter Future. Suncor Press Release.
- 108 Boston Pizza Laments Labour Shortage (2007). Calgary Herald.
- 109 Schmucl, J. (2011). Critical mass: Ottawa's life-sciences cluster provides new vision for eSight, National Post.
- 110 Reinhart, J. (2011). Sweet Tooth feeds craving for customer rewards, Communitelch.
- 111 Simone, R. (2010). Innovation is part of the fabric at Montreal Woollens. The Record.
- 112 Macleod, S. (2011) "Measured investments in green power begin to post gains", Alberta Oil Magazine.
- 113 Deloitte analysis of statistics Canada data extending work of Guillemette, Y. and Mintz, J (2004) "A Capital Story – Exploding the Myths around Foreign Investment in Canada", C.D. Howe Institute.
- 114 Baldwin and Gellatly, Global Links: Multinationals in Canada: An Overview of Research at Statistics Canada, 2007.
- 115 Baldwin and Gu, Global Links: Foreign Ownership and Productivity Growth in Canadian Manufacturing, 2005.





**[www.productivity.deloitte.ca](http://www.productivity.deloitte.ca)**  
**[productivity@deloitte.ca](mailto:productivity@deloitte.ca)**

Deloitte, one of Canada's leading professional services firms, provides audit, tax, consulting, and financial advisory services through more than 8,000 people in 56 offices. Deloitte operates in Québec as Samson Bélair/Deloitte & Touche s.e.n.c.r.l. Deloitte & Touche LLP, an Ontario Limited Liability Partnership, is the Canadian member firm of Deloitte Touche Tohmatsu Limited.

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee, and its network of member firms, each of which is a legally separate and independent entity. Please see [www.deloitte.com/about](http://www.deloitte.com/about) for a detailed description of the legal structure of Deloitte Touche Tohmatsu Limited and its member firms.

© Deloitte & Touche LLP and affiliated entities.  
Designed and produced by the Deloitte Design Studio, Canada. 12-2826