



# The Canada We Want in 2020

Towards a strategic policy roadmap for the federal government

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**INCREASING INNOVATION  
AND PRODUCTIVITY**

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# INCREASING INNOVATION AND PRODUCTIVITY

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## ABOUT CANADA 2020

Canada 2020 is a non-partisan, progressive centre working to create an environment of social and economic prosperity for Canada and all Canadians.

Join the conversation at [www.canada2020.ca](http://www.canada2020.ca)

The logo for Canada 2020 features a red curved line above the text "CANADA 2020.CA". The word "CANADA" is in red, "2020" is in grey, and ".CA" is in red.

CANADA 2020.CA

## PREFACE

# MAKING STRATEGIC CHOICES

GOVERNING IS ABOUT making choices. Sometimes the choices governments make are strategic, the product of hard thinking to address major hurdles which coalesce at a particular point in time. It is our belief that Canada is at such a point in time today and it is for this reason that we have produced this collection of papers to kick-start a discussion about the role of the federal government in Canada.

A serious public policy strategy for the country means doing less of some things, while focusing decisively and aggressively on a few important things. This requires in-depth analysis of the really big challenges and opportunities facing the country. It requires governments to be straight with Canadians about the risks and rewards that lie ahead, so that citizens will buy into a clear direction set by government.

The orientation of this volume – indeed the basic orientation of *Canada 2020: Canada's Progressive Centre* – is that the federal government has a vitally important role to play in developing and implementing strategic policies, focussing governments and other institutions in society on the big

challenges the country faces, and mobilizing consensus for action. In other words, we believe that the federal government can be a force for significant and positive change.

This does not mean big government. It means intelligent, innovative, analytical and strategic government. It could conceivably result in smaller government, focussed on a few big and important areas of policy that really matter to the country's future.

### FIVE CHALLENGES FOR 2020

Today, Canada faces challenges and opportunities that are quite unprecedented in our recent history, although they may seem rather opaque to most Canadians. Our ability to overcome these challenges – and seize the opportunities – will determine the future trajectory of Canada's economy and society over the next generation. Our standard of living and quality of life could well hang in the balance. This is why we need federal leadership.

Canada 2020 contends that there are five fundamental, inter-related challenges confronting the country which require strategic political leadership and policy action from the federal government.

## 1 Increasing innovation and productivity

Productivity growth and innovation are the sine qua non for economic prosperity. Canada's lack of productivity growth has been a worrying feature of the economy for decades. Since 1984, relative productivity in Canada's business sector has fallen from more than 90% of the U.S. level to 76% in 2007. There are no signs of things improving: quite the opposite in fact.

Since the 1990s, the federal government has been taking steps to try to reverse this trend, primarily by investing in university-based research and development and by cutting personal income and corporate taxes, the standard policy remedies for dealing with flagging productivity performance. Yet Canada's productivity growth has actually become worse over the past decade.

It is therefore time for a much more aggressive, focussed and creative federal policy response to Canada's productivity growth and innovation challenge. Without this, we risk falling further behind and losing the revenues that enable us to sustain our standard of living.

## 2 Rising to meet the Asia challenge

The global centre of economic power is inexorably shifting from the West to the East. This trend has been underway for twenty years, but it is now reaching a crescendo, partly as a result of the fiscal and economic problems plaguing Europe and the United States. There is no better evidence of this shift in economic and financial power than the recent efforts by the European Union to persuade China to help prop up the teetering European financial system.

Canada has been on a slow boat to China – indeed to Asia, more generally – for many years, notwithstanding the fact that we have some significant advantages over other countries in this region of the world. Over the past fifteen years,

successive federal governments have made incremental attempts to broaden and deepen Canada's trade, investment and economic relationships with Asian economies. Despite such efforts, Canada is not really on the map in China and India today, in stark contrast to many of our major competitors.

It is time for the federal government to take a much bolder, more creative and aggressive approach to help deepen Canadian ties with Asia and enable Canadian businesses to take advantage of unprecedented market opportunities in the region. We must leverage our unique strengths and advantages and become an indispensable part of the new Asian century.

## 3 Squaring the carbon circle

Canada has among the highest *per capita* levels of greenhouse gas (GHG) emissions in the world (although our total contribution to global GHG emissions is low as a result of the relatively small size of the Canadian economy). High Canadian emissions are due in part to our unique geography and harsh climate, but also to a weak culture of conservation and inadequate policy and regulatory regimes.

Modest measures to reduce emissions have been implemented over the past decade. But these initiatives have been neither significant nor strategic; as a result they have had little to no effect on Canada's overall GHG emissions.

Canada is also fast becoming one of the world's leading fossil fuel producers and exporters. It has even been suggested that Canada is "an energy superpower", or at least can realistically aspire to that goal. With that title are likely to come increased emissions, at least in the absence of meaningful measures to combat these.

As a G8 country, an original signatory to the Kyoto Protocol on climate change, and one of the world's largest per capita

carbon emitters, Canada has a moral responsibility to make progress on limiting GHG emissions (if for no other reason than to set an example for the big emitting countries). We are also at serious risk of missing opportunities in the low-carbon economy of the future and of becoming increasingly marginalized economically if we fail to act. It is therefore time for a serious, strategic effort, led by the federal government, to square Canada's carbon circle and put in place policies that will significantly decrease our GHG emissions.

#### **4 Reducing income disparities and polarization**

Income inequality has been a creeping problem in Canada and other advanced economies for many years now. The bottom two quintiles of the income scale have seen their market incomes decline, in real terms, since the early 1980s (though transfers have resulted in some degree of after tax and transfer growth). At the same time, the top 1% of economic families have accumulated an ever-increasing share of Canada's wealth.

Income inequality, a feature of all market economies, is now giving way to income polarization. While this phenomenon is still more acute in the US than in Canada, some recent studies suggest the gap between rich and poor – and between the superrich and the middle class – is now growing faster in Canada than in the US.

Income polarization can have seriously perverse effects on the economy and on society. At an extreme, it can undermine social cohesion, unravelling the fabric of a country. The Occupy Wall Street protests, and their analogue in other countries, including Canada, are one early sign of the social discontent that can arise from income polarization and a growing perception that the economy is not working for most people.

Income polarization has not, up until now, been a big issue on the federal agenda. Various reforms to federal income security programs and the tax-transfer system have been put in place over the past twenty years, but these have not been aimed at dealing with income polarization. It is time for the federal government to analyze and consider the longer term effects of income polarization, and to consider strategic policy reforms to head off a looming problem.

#### **5 Securing our health system for the future**

Universal, high-quality healthcare has been a defining feature of Canada and Canadian citizenship for 40 years. It is the public service Canadians value most. Yet the general consensus among experts is that if we stick with the current funding/administrative models and tax structure, Medicare as we know it is not financially sustainable.

Healthcare costs have been rising significantly as a fraction of our national income and as a share of government budgets (especially provincial budgets) for a generation now. The basic causes of healthcare inflation are well-known: expensive new technologies, procedures and drugs that permit us to live longer, coupled with an aging society.

While healthcare delivery is a provincial responsibility, healthcare financing – paying for the system – has been a dual responsibility, shared by federal and provincial governments, since the beginning of Medicare. In 2004, in response to rising costs and pressures on provincial treasuries, the federal government announced a major increase in federal fiscal transfers to the provinces for healthcare. With some \$41 billion in transfers for health over ten years, the 2004 Health Accord was billed “a fix for a generation”. Unfortunately, it has proven to be little more than a stop-gap for a decade.

As we approach the end of the Health Accord in three years' time, innovative, strategic policy approaches on health-care financing are urgently required. We also need the federal government to provide leadership on the organizational and accountability issues that underpin our health system in Canada.

The scope of federal government activity clearly extends well beyond these five issues. But our belief is that informed, strategic decision-making in these areas will go a long way towards securing the Canada We Want in 2020.

Our choice to address all the issues together has two implications. First, we will, as we move on, have an opportunity to examine the links between areas (for example, the effect carbon policy will have on our trading relations or the links between income inequality and productivity). Second, the broad scope of issues will give us a chance to reflect more critically on the role of the state, and the effectiveness of policy in general in addressing the key issues of our time.

#### **KICK-STARTING THE CONVERSATION**

This volume contains 15 papers, three in each of the five areas identified above. We have brought together a group of authors, all experts in their respective areas, and asked them to approach the issues from a strategic policy standpoint.

For this is what has been missing. The areas have all received attention in the past, but often not in a truly strategic way. Perhaps this lack of policy strategy and priority attention is due to the fact the tipping point has not yet been reached in any given area (although it is looming large in some, notably healthcare financing). Perhaps it is because

governments and politicians lack the ideas to address these issues. Perhaps it is because of scepticism that the federal government can really make a difference. Perhaps we have reached the limits of innovative public policy and governance. Or perhaps we are just avoiding the issues – in a collective state of denial – in the hopes that they will resolve themselves in an acceptable way through incremental policy action.

Whatever the cause, it is time for Canada to break out of this mindset. Many elements of Canadian society – the business community, NGOs, governments at all levels, educational institutions, and Canadian citizens generally – must work to address the challenges. No single entity has the solution. A collective effort is required.

Our goal is to kick-start a strategic policy conversation throughout the country about The Canada We Want in (or by) 2020. Such a conversation has not been evident to date in Parliament, in general elections, in political party platforms, or in the media – indeed in any of the places you would usually expect to see it. The time for that conversation is now. Perhaps it will lead to a consensus among political, business, academic and other leaders in Canadian society that the federal government needs to chart a strategic direction for the country to secure Canada's prosperity and the quality of life Canadians have come to expect. We present this volume as a starting point. ■

# INTRODUCTION TO OUR PROJECT

THIS VOLUME MARKS the culmination of **Phase 1** of our project: *The Canada We Want in 2020*.

The overall aim of the project is to launch a debate about the role of the federal government in Canada. This publication is intended to act as a focus for discussion and a core around which we can bring in ideas from a wider range of people. It is, in this sense, a starting point.

We have called on fifteen authors to share their wide-ranging views in the five areas. Sometimes they agree on policy prescriptions, sometimes they disagree. But what all authors have in common is a belief in the value of discussing the options and thinking strategically about the issues that Canada faces.

In **Phase 2** of the project we will stimulate further conversations in each of our five chosen areas. We will host a series of panel discussions and web-based exchanges that draw on the papers in this volume. These discussions will tease out areas of agreement and disagreement and begin to focus on implementation challenges. We expect to conclude this phase by mid 2012.

**Phase 3** will see us narrowing back down and reaching conclusions. Drawing on the materials from the previous phases, we will produce a final, consolidated publication towards the end of 2012. This document will summarize our conclusions in each of the five areas. It will take into account recent changes and lay out proposed future strategies. ■

## WHAT YOU CAN DO

Our aim is to draw as many viewpoints as possible into this project.

There are several ways you can get involved:

- // Attend our series of panel discussions in 2012**
- // Check our website: download documents, watch interviews and webcasts and make comments**
- // Contact us directly to arrange joint presentations or discussions**

Details are on our project site at: [www.canada2020.ca](http://www.canada2020.ca)

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# INCREASING INNOVATION AND PRODUCTIVITY

**CANADA'S INNOVATION AND** productivity performance – both of which are central to economic growth, competitiveness and our standard of living – have been stagnant for years. This is particularly problematic in light of Canada's low levels of labour-force growth and the competitive challenges from emerging economies.

Contributors to this section approach the problem from quite different perspectives, and propose sometimes conflicting solutions. **Lawson Hunter and Peter Nicholson** focus on the public sector itself, calling for governments to take urgent steps to put their houses in order on the innovation side. This is important in and of itself. But increased public sector innovation also has demonstration and knock-on effects for the rest of the economy. The authors highlight four critical areas in which there are particular opportunities – and needs – for increased innovation, with federal government leadership: health-care services; kindergarten to grade 12 education; public infrastructure; and regulation.

In healthcare, the authors highlight the need for better cross-country dissemination of locally-relevant best practices (a call echoed in the healthcare section of this report, albeit with a different proposed solution). In education they are looking for radical new approaches that will hold the attention and nurture the talents of the “digital natives” of today. In infrastructure they call for

renewal to meet current demands (including extending access to new, high-growth markets, a key concern in the Asia section of this publication) but also innovation in materials and standards. Innovation within the policy function of the federal government should, according to the authors, take the form of a move towards standards-based regulation. This would bring greater clarity, give market forces more play and provide a framework through which to question the efficacy of entire regulatory regimes.

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## Canada's innovation and productivity performance has been stagnant for years

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**Kevin Lynch's** paper, by contrast, places responsibility for innovation squarely on the shoulders of the corporate sector. Governments have a role to play, but they can only go so far. Indeed, Lynch's view is that many of the pieces are already in place from the government side due to substantial investment in university research capacity and innovation-specific organizations, such as the Canada Foundation for Innovation, in the 1990s. Nonetheless, Lynch, like Hunter and Nicholson, does not think governments should rest on their laurels. He exhorts the federal government to devote

more effort to this area, especially to ensuring that technology, once developed, actually gets commercialized.

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## The vision is of a federal government that would actively strive to ensure particular outcomes

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Federal efforts should be informed by existing resources and proposals, such as the 2008 Competition Policy Review Panel report. To add to this, we now have the Expert Panel Report on Federal Support to Research and Development (October 2011) which – like Lynch’s paper – stresses the importance of ensuring that innovative firms have adequate access to risk capital. Another step that Lynch proposes is to transfer some federal research and development support out of tax credits (which appear to be having a limited effect) and into more direct measures, while making better use of government procurement to reinforce corporate innovation.

In making this last point, Lynch nods in the direction proposed by **Jim Stanford**: that is, away from simply creating an enabling environment and towards much more deliberate measures to secure productivity

improvements in Canada. This is the overall thesis of Stanford’s paper. He presents data that show that Canada’s productivity began to dive just at the point at which we moved into full “liberalization mode”. And the further we have moved down this path, the worse our productivity performance has become.

Stanford’s solution to this problem is to take a leaf out of the book of the states in East Asia that have adopted a far more interventionist approach to industrial development. He terms this “sectoral development policy” (rejecting the “industrial policy” label which conjures images of old-style support to old style industries).

Sectoral development policy should, in Stanford’s view, be a highly strategic and disciplined effort that draws on every available tool to support chosen sectors. The vision is of a federal government that would actively strive to ensure particular outcomes, instead of relying on the vagaries of trade agreements, open regulations on foreign investment, and market allocations more broadly, to secure this country’s future.

Canada’s trade volumes are shifting away from the U.S. and towards Asia (though at nothing like the pace that the authors in the subsequent section of this volume would like to see); perhaps it is time that our policies moved in a similar direction, away from the US model and towards a more interventionist Asian-style solution? ■

# DESPERATELY SEEKING A MORE INNOVATIVE CANADA

KEVIN G. LYNCH

## The Honourable Kevin G. Lynch, P.C.

is Vice Chair of the BMO Financial Group. He was appointed the 20th Clerk of the Privy Council, Secretary to the Cabinet and Head of the Public Service of Canada in 2006, a position he held until 2009. Prior to that he served as both Deputy Minister of Industry and Deputy Minister of Finance, as well as Executive Director at the International Monetary Fund. He was made a Member of the Queen's Privy Council for Canada in 2009.

## INTRODUCTION

We are entering a new global normal. Things will not be as they were.

The international economic geography is shifting to Asia and other dynamic emerging economies. The demographics of aging are creating a global talent hunt. The digital universe is transforming what markets mean and how social interaction and communication take place. There has been a dramatic decline of trust in leadership – whether political, corporate, regulatory or moral – due to the cumulative impact of financial, environmental, corporate governance and regulatory crises. What is emerging is a new multi-polar world: economic power is being dramatically redistributed; political, military and intellectual power will follow.

There are large risks associated with this new global normal. Countries such as the US seem politically unable to deal with their fiscal problems. Europe seems unwilling to confront its policy inconsistencies, and China and other Asian countries are reluctant to address their consumption-saving-export imbalances.

They have relatively stable financial systems and fiscal positions yet inflationary pressures and income inequality challenges threaten. They must also secure the natural resources to satisfy their increasingly affluent citizens and feed their economies.

In such a world, the drivers of success are a global perspective, the capacity to realize economies of scale that transcend traditional markets, and the ability to sustain productivity growth, typically through innovation. Competitive firms are increasingly defined by their ability to shape market tastes and create innovative products that disrupt markets.

How is Canada placed in this new global normal? With our myriad advantages, our biggest risk may be complacency. It is time to acknowledge, in both our public policy and private sector strategy, that the status quo is no longer viable. We need to build on our many strengths, not rest on them. And we need to tackle our weaknesses, two of the most pressing and pervasive of which are our under-performance in productivity and innovation.

## WHAT IS INNOVATION AND WHY DOES IT MATTER?

Innovation is our ability to create new products and services, to produce existing products in different ways, or to develop new markets. It lies at the heart of modern competitiveness. It drives growth. It improves productivity. It raises our living standards. It gives consumers new choices, as users of the BlackBerry, GPS, the iPod, the iPad, digital photography, ATMs and on-line shopping will attest. It is also incredibly important to an economy. As *The Economist* observed, “America gets more than half its economic growth from industries that barely existed a decade ago – such is the power of innovation.”<sup>1</sup>

Overall, innovation increases the value of the output produced by a worker – a firm’s productivity. This improves the firm’s competitiveness and increases what it can pay its workers and earn as its profits. It is the answer to the often-posed question of how a higher-wage economy like Canada can compete with emerging countries with low costs of production. But it also has a public purpose: it is an essential ingredient for raising living standards and ensuring the economic growth we need to meet our priorities as a nation. As Paul Krugman, the Nobel Prize winner, wrote recently in the *New York Times*: “Productivity isn’t everything, but in the long-run, it is almost everything.”

Consider what innovation and productivity mean at the level of an individual firm. A typical business thinks about the products it has to sell, the potential customers that will buy them, and whether it can make a profit and grow by selling them. Once it decides on its products and markets, it has to decide on how to organize efficiently. It has to hire, train and compensate workers, and decide what kind of human resource management policies it needs. It has to choose the best possible production and distribution processes. Then it has to consider whether

and how to fine-tune its products, processes and markets according to what competitors are doing and how consumer tastes are shifting. This is where innovation enters the picture.

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## Innovation is the essence of how a dynamically successful firm “stays ahead of the competitive curve”

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As this typical Canadian firm goes about its planning, the world around it is not static, it is constantly evolving. Consumer tastes are changing. Technology is changing. Markets are changing. Competitors are shifting. The firm has to make decisions about how to cope with this dynamic environment amidst much uncertainty. How well it does depends upon how focussed and disciplined it is in seeking continual innovation and productivity enhancement. Innovation is the essence of how a dynamically successful firm “stays ahead of the competitive curve”.

Corporate innovation does not happen in the abstract; there are four distinct areas of possible innovation in firms:

// **Product Innovation** this is the technological and planning capacity of a firm to introduce new products and services ahead of competitors, to anticipate consumer wants and needs, or even to create them. New products typically carry higher profit margins and encounter less cost competition than established products. Product innovation can be the result of research and development, or the result of integrating existing leading technologies in a new way that better meets consumer demands. It requires a sophisticated understanding of both consumers and technology.

<sup>1</sup> February 18, 1999.

// **Market Innovation** this is the capacity of a firm to alter its market, geographically or virtually (e.g. using the internet to extend reach) or by creating new products, for which there was no previous market.

// **Process Innovation** this is the capacity to change how goods and services are produced and delivered to reduce cost, improve efficiency and increase convenience for customers. Developing global supply chains and identifying risk-sharing partners in manufacturing are prime examples of process innovation. Internet shopping and online banking are two service sector examples. Another possibility is value-based or “frugal innovation” (for which India is increasingly well-known) whereby firms engineer backwards to achieve the best product for a fixed price point.

// **Organizational Innovation** this is the strategic capacity to convert creativity, market and customer knowledge and technology into marketable innovations. It requires active disruption of the status quo and the natural tendency towards incremental improvements. Innovative corporations have business structures that accommodate dedicated innovation teams, working separately to develop new products and processes, but still hard-wired into the corporation. Management creates “innovation supportive” structures that fight the tyranny of short-termism.

In a market-driven economy, innovation essentially has to happen at the corporate level, through one or more of these four channels. Public educational and research policies are vital to nurture it, as are an adequately risk-taking venture capital system and an effective financial system. But innovation itself is largely a corporate responsibility.

#### HOW IS CANADA DOING?

Innovation is vital to our future, yet we are simply not doing well enough. The private sector in Canada has not kept pace with many other countries when it comes to investing in innovation. In the past this problem was essentially counter-balanced by a low Canadian dollar. This is no longer the case. If unaddressed, our poor private sector innovation and productivity performance will increasingly constrain our options for the future. The choice for Canadians – and all of us have a stake in the outcome – is whether our innovation approach merely needs some model restyling or whether it requires a more complete model makeover.

The usual starting point for analysis of innovation is investments in research and development (R&D), by both the public sector and the private sector.

#### Public sector innovation policy

In the public sector, a compelling public narrative about the risks to the nation from a perceived brain drain, together with clear evidence that our university research capacity had deteriorated led, in the 1990s, to a fundamental policy rethink. There was a refocusing on global excellence in higher education to be achieved through a more strategic approach to research prioritization, greater competition among research institutions and far more investment by the government. The imperative of commercialization of research was recognized and strong links between publicly-funded research and the private sector were promoted.

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**The choice for Canadians is whether our innovation approach needs some restyling or whether it requires a complete makeover**

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This renewal went well beyond dollars and cents. Independent institutions, principally the Canada Foundation for Innovation, were created at arm's length from government to build strategic research excellence. The Canada Research Chairs were created, two thousand of them, geared to attracting and retaining world-class researchers to our universities. Major new funding was provided for the Granting Councils and an indirect costs-of-research support program. Dynamic new engines of research such as the Canada Global Excellence Chairs, Centres of Excellence and Genome Canada were established. New excellence-based graduate scholarships (the Vanier Scholarships and the Canada Graduate Scholarships) were introduced. Major tax changes were implemented to put charitable giving to Canadian universities and research hospitals on a par with the US.

In not much more than a decade, there has been remarkable progress in rebuilding the higher education research infrastructure in Canada. University research investments as a proportion of GDP are now higher in Canada than in all other G7 countries, including the US. This is a tremendous achievement and the fruits of these efforts can now be seen in the quality and quantity of research coming out of our university labs.

However, more remains to be done. Spending is not the only measure of university research success. Commercialization still lags significantly, resulting in fewer new firms and jobs and less new wealth than should be the case. Interactions between our research-intensive institutions and the private sector are still too limited and achieving global excellence in education and research requires continuous effort.

#### Private sector innovation performance

University research is on a decided upswing; private-sector innovation is another matter. A recent report by the Council of Canadian

Academies makes a compelling case that Canada has a real business innovation problem.<sup>2</sup> This can be appreciated by looking at the international comparisons in **Figure 1**. In 2008, Canada ranked 15th among all OECD countries in terms of business R&D expenditures as a % of GDP.

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## Commercialization still lags significantly, resulting in fewer new firms and jobs and less new wealth than should be the case

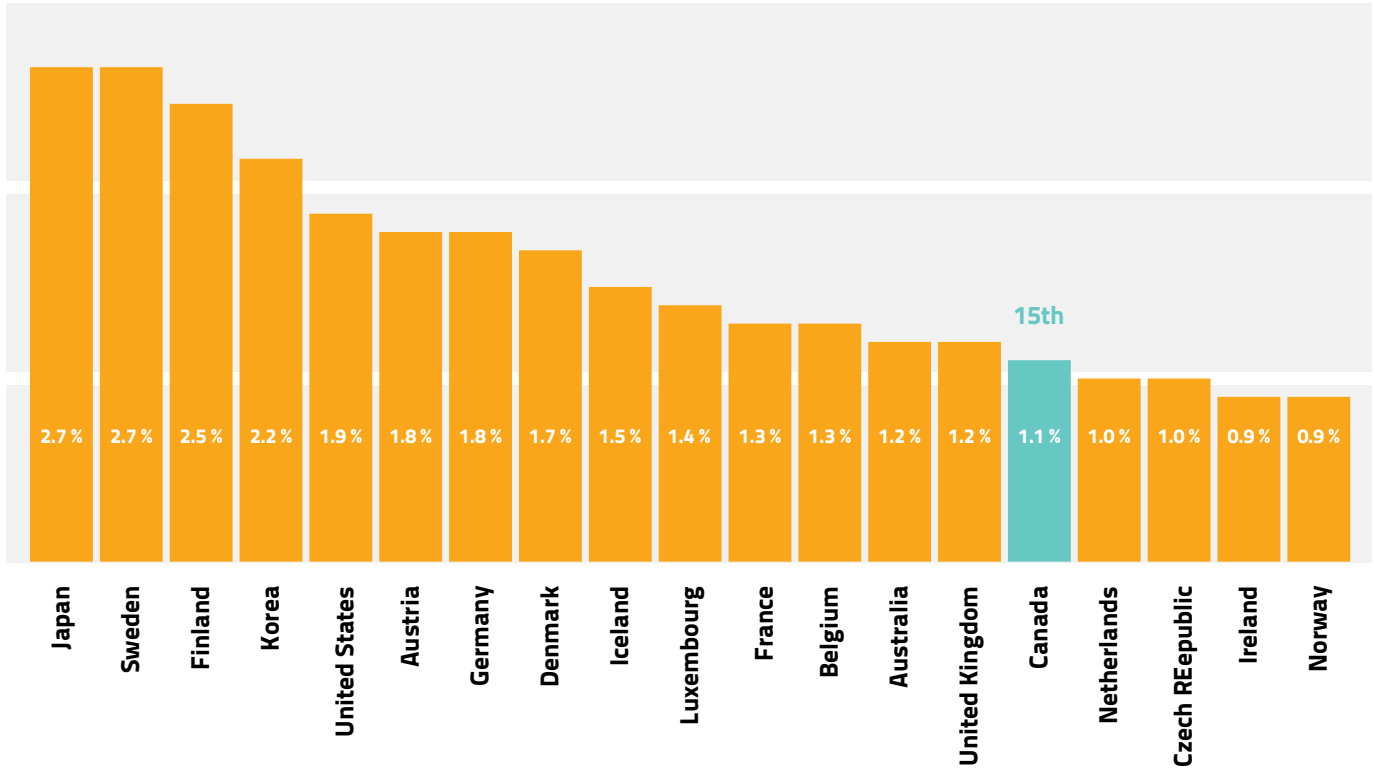
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Canadian business spending on R&D was only 1% of GDP. This is well below the OECD average of 1.6% of GDP, roughly half of what the US spends and almost as low as a third of what the leaders, Sweden, Finland and Korea, spend. Moreover, Canada's R&D spending is highly concentrated in a few sectors. The service sector accounts for 70% of Canadian GDP. It spends only 0.6% of its sectoral GDP on R&D. The natural resource, utilities and construction sectors together represent over 16% of Canadian GDP and spend barely 0.3% of sectoral GDP on R&D.

It is not just R&D expenditures that are low. The 2011 Report of the Federal Science, Technology and Innovation Council presents data that show aggregate Canadian business productivity levels to be more than 25% lower than those of the US (**Figure 2**), with rates in some sectors being less than half those in the US (though there are some "star performers" such as the construction industry). Canadian business invests only about 75% as much as US business in leading-edge machinery and equipment and a shockingly low 47.9% as much as American firms in information and communications technologies (ICT). In short, there is a real and present innovation and productivity problem in Canadian business.

<sup>2</sup> Council of Canadian Academies (2009) *Innovation and Business Strategy: Why Canada Falls Short*. (<http://www.scienceadvice.ca/en/assessments/completed/innovation.aspx>)

## Business sector R&D expenditures as a percentage of GDP (BERD ratio)



SOURCE: OECD (2010) *Main Science and Technology Indicators*, Volume 20.

Figure 1

### HOW DO WE TACKLE OUR INNOVATION DEFICIT?

Given the magnitude of our problem, a “business-as-usual” approach to innovation will not be enough. Tweaking existing programs and incentives will not turn things around. We need instead a broad public discussion

about what it will take to maintain our competitiveness, growth and standard of living. Productivity and innovation should not be feared but tackled: they are not about working more for less; quite the opposite, they are essential for raising our living standards.

The federal government is not the main driver of private sector productivity and innovation in Canada. That is the responsibility of business itself. It does, however, have a clear role to play both in framing the required public discussion and in ensuring that business in Canada is underpinned by effective economic measures and an enabling policy environment.

**Productivity and innovation lie at the intersection between public policy and private sector behaviour**

## Canada–US labour productivity and selected capital intensities (US = 100)

SECTOR	LABOUR PRODUCTIVITY (2007)	MACHINERY & EQUIPMENT* (2000-07 avg.)	ICT (2000-07 avg.)
<b>AGRICULTURE, FORESTRY, FISHING AND HUNTING</b>	86.4	70.5	79.1
<b>MINING</b>	88.0	80.0	31.2
Mining except oil and gas	47.3	57.0	35.1
Oil and gas extraction	81.6	100.5	25.6
<b>UTILITIES</b>	62.7	51.0	73.6
<b>CONSTRUCTION</b>	192.5	79.2	14.7
<b>MANUFACTURING</b>	73.2	91.1	36.6
<b>SERVICES SECTOR</b>			
Wholesale trade	90.0	29.9	45.6
Retail trade	75.6	70.4	72.1
Transportation and warehousing	108.1	86.8	19.7
Information and cultural industries	46.6	82.8	98.5
Finance, insurance, real estate and leasing	72.1	105.4	72.2
Professional, scientific and technical service	38.6	45.7	42.3
Administrative and waste management	107.6	39.9	49.9
Education, healthcare and social assistance	95.9	34.2	17.8
Arts, entertainment and recreation	39.0	39.3	128.7
Accommodation and food services	72.2	28.3	47.1
<b>AVERAGE FOR ALL SECTORS AND INDUSTRIES</b>	72.1	74.5	47.9

\* includes information and communications technology (ICT)

SOURCE: Science, Technology and Innovation Council (2010) *State of the Nation 2010 Report*.

### Figure 2

#### Leadership is needed

It will take leadership – in government, business, universities and labour – to focus attention on the new global normal and how a mature economy such as our own should respond to this. Simply put, productivity and innovation lie at the intersection between public policy and private sector behaviour.

The leaders of both need to be involved in crafting an effective national response.

Below are eight concrete steps the federal government should take to substantially improve our innovation and productivity performance. Those in which it plays a lead role are presented first, followed by those in which its role is more supportive.

## GOVERNMENT TO LEAD

**1** Competition matters to corporate behaviour. Governments – both federal and provincial – need to **change regulation** to increase market competition in Canada, particularly in more protected sectors where productivity and innovation gaps are largest. As Tom Jenkins recently argued: “The motivation to be productive and to innovate is a primal one related to competition... If you want to have better productivity in our economy we cannot “suggest” to our executives that it would be a good idea. Instead, we must “force” their firms to change and become more productive by increasing the competitive intensity.”<sup>3</sup> A starting point would be for the government to revisit the competition policy proposals of the Canadian Competition Policy Review (2008).

**We have one of the most generous research and development tax credits in the world. Unfortunately this mechanism is not working as intended**

**2** Information matters to corporate behaviour. By creating a national **Productivity and Innovation Council** the federal government could introduce more ‘information-driven competition’ into Canadian business decision-making. Such a Council should produce global productivity and innovation benchmarks for key sectors. It should research what firms in each sector in the top five competitor countries are doing to excel

in innovation and productivity. These benchmarks would be made available to the public, and both markets and boards of directors would be encouraged to take these into account in evaluating corporate performance. Market discipline should drive more corporate management focus on innovation.

**3** **Trade agreements** with dynamic emerging economies help reinforce a global mindset and orientation amongst Canadian business, and also contribute to increased competition. We need to complement NAFTA by negotiating new economic arrangements with a range of countries, including: Brazil, a country of 200 million people that will soon be the sixth largest economy in the world; China, the second largest global economy; India, the dynamic emerging economy with which we share much, but not trade and investment; and with South Korea and Japan. We need to be more strategic, more focussed and to proceed with a greater sense of urgency.

**4** In Canada, government support for business innovation is predominately delivered through the tax system. Indeed, we have one of the most generous research and development tax credits in the world. Unfortunately, judging by corporate R&D levels, this mechanism is not working as intended. Consideration should therefore be given to redirecting some of these innovation tax expenditures to **direct support for innovation** (which is more the norm, amongst OECD countries, including the US).

<sup>3</sup> Jenkins, T. (2011) “A simple solution to Canada’s innovation problem”. *Policy Options*. 32 (8), 12-21.

This could be channelled through a revamped and expanded IRAP (Industrial Research Assistance Program) that has a greater focus on helping small- and medium-sized enterprises adopt leading edge technologies and best management practices. Other possibilities include creating a Canadian equivalent of DARPA (the US Defense Advanced Research Projects Agency, one of the most successful US government agencies) and providing more direct support for developing new, common purpose technologies in key sectors. Opportunities for such technology development exist in many areas, including: agriculture, to meet the emerging demands of new middle class consumers in Asia; the oil sands, for water and soil remediation; medicine and medical devices; information technology; and renewable energy. In addition, the Government of Canada could be much more aggressive as a purchaser of innovative goods and services, reducing the risk faced by innovative Canadian companies and helping them build market share.

#### GOVERNMENT PLAYS A SUPPORTING ROLE

**1 Financing** is crucial, both for innovative start-ups and established firms looking to invest more in innovation and productivity. The venture capital industry in Canada is simply not functioning in the way it should. We seriously lag other countries as diverse as the US, Israel, Singapore and the UK in this key supporting element for increased innovation. As a new Business Development Bank of Canada (BDC) study clearly stated: “Although the venture capital industry is only one element of the innovation ecosystem, examples from countries such as the US and Israel show the potential impact this industry can have in creating technology champions. Unfortunately, Canada is ‘punching below its weight’.”<sup>4</sup> As a way

to catalyze renewal in this area, the federal government should consider establishing a Venture Capital Industry Review Panel.

**2 Education** clearly matters in a knowledge-based economy. It is essential for our education systems to be geared to the needs of a globally-oriented, knowledge-based economy. Graduates need to emerge with multiple language skills and with meaningful knowledge of other countries, their cultures and markets. Managers and business graduates need to be experts in global marketing, to understand the core technologies for their sectors and to be comfortable in risk assessment of product innovation. If they are not, they will be overtaken in the global search for talent and will not be able to lead Canadian businesses to the innovative future that we need. One way to achieve this is to design incentives to increase the interactions between research universities and businesses.

**3 Research excellence in our universities** is the backbone of an effective innovation system. We need to continue to fund this public good, building on the innovative re-investments of the last decade. But we also need to insist on accountability from the institutions to ensure that they are focussed on global excellence in their research. And, we have to become better at commercializing the fruits of this research. This will help create a virtuous circle of research leading to innovative ideas, new products, more competitive firms, jobs and growth, and ultimately the capacity continually to re-invest. An examination of the role of intellectual property (IP) rights and whether certain IP regimes provide better incentives to commercialization would be timely.

<sup>4</sup> BDC (2011) *Venture Capital Industry Review*. Ottawa: BDC. ([http://www.bdc.ca/EN/Documents/other/VC\\_Industry\\_Review\\_EN.pdf](http://www.bdc.ca/EN/Documents/other/VC_Industry_Review_EN.pdf))

**4 Public-private partnerships** can be an effective way of diffusing research and supporting innovation. More leading edge technology demonstration projects, focussed in sectors where Canada has inherent comparative advantages, are one route (carbon capture and storage pilot projects in Saskatchewan and Alberta would be one example). Another way for the government to promote innovation would be to support the establishment of more cooperative technology development centres, which would bring together university researchers and private sector businesses and give all partners the right to use and customise common intellectual property.

## CONCLUSION

Canada is blessed with much, and yet there is much we need to do. First and foremost, we must avoid complacency.

Today, we have a strong dollar and weak productivity. We have strong public research capacity in our universities, and weak private sector innovation and commercialization. We have deep trade links with the US, and weak linkages with the dynamic emerging economies. Canada is in an excellent position to prosper, provided we tackle our weaknesses, with productivity and innovation being front and centre. We should be desperately seeking a more innovative Canada well before 2020. ■

# AN INNOVATION AGENDA FOR THE PUBLIC SECTOR

LAWSON HUNTER AND PETER NICHOLSON

Innovation is the principal driver of productivity growth and economic prosperity. Contemporary discussion focuses almost exclusively on innovation by businesses and on what governments can do to support this. While this emphasis is appropriate up to a point, it ignores the elephant in the room: the public sector itself, the activities of which contribute more than a quarter of Canada's GDP and whose regulatory policies profoundly affect the behaviour of the private sector.

The thesis of this paper is that government can make a greater contribution to Canada's innovation performance by putting its own house in order, than by focusing almost exclusively on the acknowledged innovation short-comings of businesses. To illustrate the possibilities, we cite some major challenges and opportunities in four broad domains: healthcare services, K-12 education, public infrastructure and regulatory policy. The proposals are necessarily high-level but they demonstrate the relevance of the thesis and help prompt a new focus for innovation policy on the public sector itself, where opportunities for creativity abound and where the power of governments to effect change is greatest.

## THE CASE FOR PUBLIC SECTOR INNOVATION

Governments need to do much more to promote innovation in their own domains for the following reasons.

- 1 The government sector of Canada's economy currently accounts directly for about 26% of GDP (up from 23% pre-downturn, due to a significant temporary increase in capital spending), comprising \$367 billion in expenditures on goods and services and \$72 billion in capital spending.<sup>1</sup> The public sector is thus a very big "business" in its own right – far larger in terms of both employment and output than the entire manufacturing sector. Canada's economic performance is therefore heavily and directly influenced by the productive efficiency of the public sector. The more efficiently the public sector does its job, the better the value for the taxpayer.

[It should be noted that there is a structural tendency for the cost of public services to grow faster than overall GDP. This is because public services

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<sup>1</sup> Estimates in current dollars based on Q2 2011 GDP at annual rates (Statistics Canada).

## Incentives and cultures in public service organizations are too often hostile to innovation

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are not subject to the cost-constraining discipline of competition and they are more labour-intensive than the average for the rest of the economy. They therefore benefit less from the progressive reduction in capital costs due to technological innovation. Productivity-increasing innovation is the only way to mitigate this tendency without reducing the level/quality of the services.]

**2** Innovation – defined in simplest terms as *new or better ways of doing valued things*<sup>2</sup> – within the public sector is the means by which the quality, accessibility, and cost-effectiveness of public goods and services are improved to meet people’s evolving needs and expectations. Innovation can be “internally generated” but it often results from adopting and adapting appropriate innovations that originate elsewhere. Unfortunately, incentives and cultures in public service organizations are too often hostile to innovation and discourage the experimentation and calculated risk-taking required to achieve it.

<sup>2</sup> Simply coming up with a bright new idea or invention is not sufficient to qualify as innovation. The new ideas must eventually “work” – i.e. result in improvements in the efficiency, effectiveness or quality of outcomes.

- 3** Many of the biggest challenges and opportunities facing Canada today lie squarely within the domain of the public sector. They include:
- // delivery, in a fiscally-sustainable way, of high-quality, universal healthcare to an aging population;
  - // discovery and implementation of effective methods to educate new generations of “digital natives”;
  - // investment in a new generation of public infrastructure that incorporates the information and communications technology (ICT) revolution, addresses the challenge of environmental sustainability, and provides more efficient access to growth markets beyond North America; and
  - // design of smarter regulation that identifies, and regularly re-calibrates, the balance between what markets can be trusted to sort out, and what they cannot.

These challenges call for radically innovative approaches.

- 4** A more innovative public sector will be a better enabler of business innovation and productivity. Innovative competition policy, in particular, is needed to spur businesses to be more innovative themselves.

This is not to say that governments’ efforts to support innovation by businesses (for example R&D subsidies and tax breaks, incentives for venture capital, programs to promote collaboration with university researchers) are not important – but their effects are indirect. We are arguing that much greater attention needs to be paid to direct actions that the public sector in general, and the federal government in particular, can take to improve overall Canadian innovation and productivity.

## WHY HAS PUBLIC SECTOR INNOVATION BEEN OVERLOOKED?

A cynic might argue that governments simply wish to evade responsibility and keep the focus on the private sector as the source of Canada's weak innovation/productivity performance. And productivity growth – that is, the annual percentage change in output per hour worked – has, indeed, been very weak. Between 1984 and 2009, productivity in the business sector grew at an average of only 1.1% per annum, or half the rate in the US. Between 2005 and 2009 it did not grow at all.

Cynical interpretations aside, there are more fundamental reasons why the innovation/productivity agenda has not resonated inside the public sector.

Foremost, perhaps, is a philosophical (or ideological) view that the public sector is simply not about productivity or the kind of innovation that is directed toward improving efficiency. While this is patently untrue, the priorities and incentives in most public sector entities do not, in practice, promote innovation. Most public sector entities have highly risk-averse cultures and disincentives to match. This is due in part to the disproportionate emphasis that the media and political opposition place on “failures”, coupled with public resignation in the face of services that are merely “good enough”.

More rationally, risk aversion is due to the high stakes involved given the sheer scale of many public sector activities: failure can have a major social or economic impact. The gross imbalance between risks and rewards thus inhibits the managed risk-taking on which innovation depends. The current emphasis on accountability in the public sector has only exacerbated this tendency and further discourages innovation.

There is also a more technical factor at play. A fundamental difference between the business and public sectors is that most public goods and services are provided free at the point of consumption. There are no competitive markets to gauge their value via

## The current emphasis on accountability in the public sector further discourages innovation

prices.<sup>3</sup> When computing their contribution to GDP, statistical agencies, essentially by default, define the output value of most public services as equal to the monetary value of the wages, capital and other purchased inputs that go into their production. With output thus defined as equal to input, total productivity – which is the ratio of output to input – is always equal to one. Thus measured (multifactor) productivity does not grow.

There is an old adage that “what gets measured gets done”. Without available measures of productivity improvement, it is much harder to design incentives to stimulate the kind of innovation that yields productivity growth. Considerable effort is nevertheless underway in some countries – for example the UK, Scandinavia and Australia – to develop appropriate and operationally practical measures of output and productivity for several types of public services (notably health, education and municipal services). The 2008 UK government White Paper, *Innovation Nation*, stated that: “The Government is uniquely placed to drive innovation in public services, through allocating resources and structuring incentives. Major forces such as attitudes to risk, budgeting, audit, performance measurement and recruitment must be aligned to support innovation”. Governments in Canada should be playing a greater role in this innovative movement.

### OPPORTUNITIES FOR PUBLIC SECTOR INNOVATION

Below we highlight four key areas that would benefit enormously from greater public sector innovation. While these involve all jurisdictions, and often the provinces or

<sup>3</sup> Commercial crown corporations are a partial exception. User fees have some of the characteristics of prices but they are generally not determined via competitive market processes.

municipalities are most directly responsible, we highlight the specific role of the federal government.

## The challenge is to channel the mounting global torrent of data and experience in healthcare innovation into locally-relevant best practices

### 1. Healthcare services

In 2009 Canadians spent \$175 billion on healthcare, an amount equivalent to 11.4% of GDP. Despite some modest efforts to bend the cost curve, healthcare spending – driven by technology, demographics and public expectations – continues to outpace by some margin the growth of both the economy and government revenue. Overall it increased by 90% between 2000 and 2009 and it now consumes, on average, about a third of provincial budgets. The situation is insidious: the current fiscal trajectory is unsustainable in the long run but the “crisis” is unfolding only gradually. The urgency of day-to-day pressures trumps the major behavioural changes required.

There is no silver bullet to solve this complex problem. Canada should, though, be advantaged in healthcare innovation due to our public insurance model and the fact that we have a multiplicity of jurisdictions in which to innovate and experiment. What is needed is innovation on many fronts, some technical, many behavioural and systemic. Fortunately, we do not need to reinvent the wheel. We can benefit from the experiments of others. The challenge is to channel the mounting global torrent of data and experience in healthcare innovation into locally-relevant best practices that will actually be

embraced by the multitude of stakeholders in Canada’s various healthcare systems.

One especially puzzling feature of our present system illustrates the difficulty we have in doing this (and the clear need for an innovative approach). In spite of readily available evidence and best practice guidelines, treatment approaches for virtually every medical condition vary widely even within small geographic regions (e.g. among neighbouring hospitals in a city). Several factors contribute to this paradox: physicians are heavily influenced by the treatments in vogue when they were first trained; the supply of treatment facilities (e.g. beds, diagnostic services) affects treatment choice as do implicit financial incentives (e.g. physician-owned services); busy doctors may simply be unaware of current best practice or there may not be a solid consensus as to what is “best”; and of course patient variability militates against a formulaic, textbook approach.

To address this problem the federal government could establish a system loosely modelled on the “Ag. Reps” employed to disseminate science-based best practices to family farms in the early 20th century. With the support of the provinces, a cadre of physicians (“Med. Reps”) could disseminate detailed, location-specific and individualized data on treatment practices, outcomes and costs. (These data are already being collected in most cases.) Small teams would go from hospital to hospital, and from service to service, meeting face-to-face with doctors, administrators and other health professionals to discuss variances between their particular practices/results and those of comparable facilities and to talk about accepted best practice.

Although such comparative information can readily and confidentially be made available on-line, this is no substitute for at least some face-to-face dialogue with well-informed peers (the Med. Reps), in the presence of one’s colleagues. Over time, such evidence-based discussions should

lead to much greater efficiency, a tighter variance around best practices and a more nuanced and circumstantial interpretation of such practices. Systems of compensation and other incentives could also be adapted to reflect best practice, further affecting behavioural change.

The federal government is best placed to lead this initiative in view of the broad national benefit. It is also the agent that is best able to draw on data and expertise from across the country and to disseminate the lessons learned most widely. The federal government should provide the majority of funding, with some cost-sharing from provinces as they decide to opt in.

## 2. K-12 education

Unless it is crowded out by health spending, the cost of K-12 education in Canada – \$51 billion in 2009, or a little less than 10% of total provincial and federal government program spending, is fiscally manageable, thanks in part to moderating demographic pressure. The overwhelming issue is therefore not financial, but finding the best way to educate successive generations of digital natives. How do we hold their attention? How do we inculcate the critical faculties appropriate for an information-besotted culture? How do we equip them to exploit the mind-amplifying potential of information technology?

The stakes are monumental. The base of skills and cultural preparation that we instil today – in schools, at home and in the community – will substantially shape Canada's stock of human capital, and thus our capacity for innovation and responsible citizenship, for the next four to five decades.

The traditional teacher-centric, lock-step classroom paradigm is no longer appropriate. Technology puts virtually all codified human knowledge a few mouse clicks away (at least in principle). This fundamentally transforms the nature of fact-based knowledge acquisition: from storage in one's own memory

("just in case" one might need it), to storage in external memory and online search (that can be accessed "just in time"). Information technology creates, finally, a realistic option of individually-paced, student-centric learning. The genie cannot be put back in the bottle. Radically new approaches to mass education are needed.

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## How do we inculcate the critical faculties appropriate for an information-besotted culture?

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But which approaches are likely to work, and what do we mean by "work" in this context? There are theories, and plenty of passionate advocates on all sides, but the inconvenient truth is that we simply don't know. So the field of education cries out for realistic experimentation and open-mindedness. Nowhere is there a greater need, and more exciting opportunity, for public sector innovation.

Some of this has been happening from the ground up, thanks to the commitment and ingenuity of individuals and small groups of teachers. But the inertia and inherent conservatism of the education establishment will not yield to isolated grassroots innovation. Top-down, determined leadership is needed to discover and eventually to implement a new education paradigm. While we cannot move too quickly, because we do not yet know what is appropriate, we must not continue to plod along with traditional models. We require a sense of urgency.

A major commitment to focused and practical research is called for. All governments in Canada have roles to play but the federal government, in collaboration with the provinces, is best positioned to lead a national research strategy toward a new education paradigm appropriate for the digital age. This might begin with the creation of a "Canada

Foundation for Innovation and Research in Education” (C-FIRE), analogous in concept (but not necessarily in modus operandi) to the Canada Foundation for Innovation.

## Investments in public infrastructure need to be given greater priority in the innovation/productivity agendas of governments in Canada

As in the case of healthcare, Canada is well-placed to be a global leader in education innovation by virtue of our multiple jurisdictions (which create opportunities for realistic experimentation); our cultural and linguistic diversity; and our ICT-savvy population. The great benefit of being in the vanguard of education innovation would be: (i) a head-start in building, from a Canadian perspective, the appropriate skills for the future, and (ii) a proving ground to help Canadian developers of new education products (such as the white “smart” boards produced by Calgary-based Smart Technologies).

### 3. Public infrastructure

In 2007, the per capita stock of public infrastructure in Canada was about 23% below the peak achieved in 1980.<sup>4</sup> Apart from the general public inconvenience and potential safety risks this entails, inadequate investment in public infrastructure has very significant economic consequences.

In 2009, Wulong Gu and Ryan Macdonald of Statistics Canada analysed the impact on business productivity of government investment in infrastructure. They concluded that over the period 1962–2006, this accounted, on average, for 9% of labour productivity growth in the business sector, and that the contribution was much greater in the early

years of heaviest infrastructure investment (1962 – 1973). Professor James Brox of the University of Waterloo has modelled the impact of public infrastructure on manufacturing productivity and come to broadly similar conclusions.

The message of these findings is: (i) that investments in public infrastructure need to be given greater priority in the innovation/productivity agendas of governments in Canada, and (ii) that the hiatus in investment since the 1970s has left an infrastructure deficit that needs to be addressed systematically. (While the recent economic stimulus measures were a good start, their main objective was to “make work” and they were designed to be temporary).

A new, long-term infrastructure investment strategy must encompass the municipal, provincial and federal governments.<sup>5</sup> It should be undertaken with the promotion of productivity growth as a principal objective. Thus it should focus on issues such as how to facilitate the movement of Canadian products to new high-growth markets. And it should be innovative. For example, we should strive to develop and use new high-performance construction materials and methods (building codes must become more innovation-tolerant), to incorporate ICTs to create “smarter” infrastructure and to be more energy-efficient.

In almost every case there will be opportunities for public–private partnerships, the optimal structuring of which will also require innovative approaches. Such partnerships not only facilitate business sector productivity but also build the capability of Canadian companies to compete in the burgeoning global market for infrastructure planning, engineering and construction.

### 4. Regulation

The examples thus far have focussed on the public sector as the delivery agent. But the innovation agenda must also encompass the public policy function itself. The exercise

<sup>4</sup> Brox, J. (2008) “Infrastructure Investment: The Foundation of Canadian Competitiveness”. *IRPP Policy Matters*. Vol. 9, no.2.

<sup>5</sup> Approximately 55% (by value) of public infrastructure in Canada is within municipal jurisdiction, 45% is under the provinces, and only about 5% is federally owned. The federal contribution to infrastructure investment is now largely through shared-cost transfers.

of this has stagnated over the past 25 years, at least relative to the remarkably innovative decades after World War II. New thinking – including a fundamental reappraisal of our approach to regulation – is badly needed. [As a starting point, we should dust off the recommendations in the September 2004 report of the External Advisory Committee on Smart Regulation and give much greater priority to the findings of the Competition Policy Review Panel (the Wilson panel) that reported more than three years ago in June 2008.]

Despite some deregulation in the last 25 years – principally in the areas of transportation, energy and, to some extent, telecommunications – Canada still has a significant regulatory burden. Much of this is federally mandated. A 2006 multi-country OECD study estimated that if Canada were to have adopted, in each sector of the economy, the least restrictive regulations among the countries surveyed, the nation's average annual productivity growth would have been 0.75% higher every year over the period 1985–2003.<sup>6</sup> Even allowing for uncertainties in these econometric estimates, this is an extremely large effect that demonstrates the very substantial impact that regulation can have on productivity.

Supply management in the agricultural area provides a good example of regulation that inhibits productivity and innovation. By inhibiting the ability to exploit economies of scale and scope, supply management results in higher prices for consumers and adversely affects the ability of food processors to compete with imported product. Another example of negative fallout from regulation comes from foreign ownership restrictions that deter innovation by preventing Canadian firms from reaching international scale. The airline industry in Canada is a case in point.

In facing up to this problem, a number of immediate issues arise. First, regulators regulate: regulatory bodies are focused

on regulating, rather than deregulating. Second, regulation begets regulation. This is particularly true for attempts to restrain market behaviour, such as supply management in the agricultural sector. Competition inevitably keeps breaking out in unregulated areas, begetting new regulations to fill the gaps. There is rarely any fundamental reassessment as to whether the entire regulatory scheme remains appropriate for the purpose for which it was first enacted.

Forward-looking, innovative regulatory policy should seek to identify the many valid public policy purposes served by regulation and establish whether there are alternatives that achieve the same regulatory objectives with a lesser impact on innovation and productivity. Such policy should be based on three pillars:

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## Forward-looking, innovative regulatory policy should seek to identify the many valid public policy purposes served by regulation

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### Standards-based regulation

Most regulations are imposed under statutes that delegate to the executive branch the authority to determine what is in the public interest. In effect, they create an unconstrained discretionary model of intervention. Our belief is that that discretion should be limited. All regulation, whether economic or social, should instead be subject to a rigorous, standards-based test to ensure that it is efficient and minimally intrusive in achieving its objectives.

One way to do this would be to rely on the test developed by the Supreme Court in *R vs. Oakes* (the “Oakes test”). This sets out five conditions that must be met before

<sup>6</sup> Conway, P., de Rosa, D., Nicoletti, G. & Steiner, F. (2006) “Regulation, Competition and Productivity Convergence”. *OECD Economics Dept. Working Paper No. 509*. Paris: OECD.

governments can be justified in encroaching on fundamental rights and freedoms under the Charter (the criteria could apply equally in the regulatory context).

1. The intrusion or limit must have a pressing and substantial objective.
2. The limit must be proportionate to the objective.
3. The limit must be rationally connected to the objective (i.e. the government must demonstrate how the objective would be advanced).
4. The limit must be minimally impairing (i.e. it must interfere to the minimum extent with normal activity).
5. The positive outcomes of the intrusion must outweigh its negative effects.

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## It is time for the federal government to step forward to reset the regulatory agenda

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Applying the Oakes test broadly to all policy and regulations would bring much needed discipline and rigour to the regulatory process.

An example of the approach would be the government's 2006 policy directive to the Canadian Radio-television and Telecommunications Commission (CRTC). In setting telecommunications regulation, the CRTC was required to: (a) rely on market forces to the maximum extent feasible; (b) adopt regulation that was efficient and proportionate; (c) interfere with the operation of competitive market forces to the minimum extent necessary; and (d) ensure regulation did not deter efficient entry or encourage economically inefficient entry.

### Accountability

Standards-based regulation is effective only if complemented by an objective accountability regime for governments and regulators. Two things are required. First, the Oakes test must be legally binding on all regulatory agencies. Second, affected parties must be permitted to challenge an agency's compliance with the test and there must be an effective legal review mechanism. In principle, the review function might be handled by the courts were it not for the fact that courts in Canada – as contrasted, for example, with the US – have adopted an extreme curial deference when reviewing activities of all specialized regulatory agencies.

An appropriate alternative review body for federal regulatory initiatives would be the Competition Tribunal. The Tribunal has a number of advantages:

- // it comprises judges and non-judges, so specialized sectoral expertise can be readily brought in;
- // its expertise in developing competition policy links well to the objective of identifying minimally-intrusive regulatory measures; and
- // because of its Federal Court members, it would likely act with a high degree of fairness and rigour in the application of legal tests and standards.

### Periodic reviews

The increased speed of technological and other change means that regulatory adjustment must accelerate. There is no evidence in Canada that it has, perhaps not surprising given the powerful bias towards continued regulation and incremental change.

Regulatory regimes therefore require objective and regular review to determine whether they remain effective in achieving their intended policy objectives. Reviews should allow for the possibility that the regulatory policy framework may need to be fundamentally amended or even laid to rest. They should be wide-ranging, covering

all manner of regulation, and should be conducted by objective third parties to avoid the dangers of regulatory capture (a symbiotic relationship developing between regulator and regulatee). Because part of the objective is to ensure that regulation does not stand in the way of market forces, it may be appropriate to involve the Commissioner of Competition (either as an advocate or “friend of the court”, or, possibly, as the lead reviewer).

It is time for the federal government to step forward to reset the regulatory agenda. An aggressive, forward-looking approach, as outlined above, would have a meaningful impact on business sector productivity. It would limit non-market distortion to the minimum needed to achieve regulatory objectives and, by vigorously promoting competition, it would spur businesses in Canada to be more innovative and thus more productive.

## A CONCLUDING OBSERVATION

The objective of this paper has been to build the case for a powerful commitment to innovation across the public sector in Canada. Throughout our nation’s history there have been epochs of spectacular public sector creativity (for example opening the West, binding the country together with crown initiatives in transportation and communications, creating Canada’s unique model of the modern welfare state, defining our citizenship through the Charter of Rights and Freedoms, and establishing a confident role in the North American economy through the Auto Pact and the FTA, then NAFTA).

Today, the opportunities and challenges are different but, as this paper has sought to illustrate, no less in need of imagination and commitment. The public sector needs to get its “mojo” back. It needs to harness the talent and idealism of a new generation. The agenda is there. All that’s needed is leadership. ■

## SOURCES AND REFERENCES

- Australian National Audit Office (2009) *Public Sector Innovation: A Review of the Literature*. (<http://www.anao.gov.au/bpg-innovation/lit-index.html>)
- Brox, J. (2008) Infrastructure Investment: The Foundation of Canadian Competitiveness. *IRPP Policy Matters*. Vol. 9, no.2.
- Conway, P., de Rosa, D., Nicoletti, G. & Steiner, F. (2006) “Regulation, Competition and Productivity Convergence”. *OECD Economics Dept. Working Paper No. 509*. Paris: OECD.
- Council of Canadian Academies (2009) *Innovation and Business Strategy: Why Canada Falls Short*. (<http://www.scienceadvice.ca/en/assessments/completed/innovation.aspx>)
- Education Week (2011) *Technology in Education*, 1 September, 2011. ([www.edweek.org](http://www.edweek.org))
- Gawande, A. (2009) “Testing, Testing”. *The New Yorker*, 14 December, 2009.
- Gu, W. & Macdonald, R. (2009) *The Impact of Public Infrastructure on Canadian Multifactor Productivity Estimates*. Ottawa: Statistics Canada.
- National Endowment for Science, Technology and the Arts, UK (2011) *Innovation in Public Sector Organisations*. ([http://www.nesta.org.uk/about\\_us/assets/features/innovation\\_in\\_public\\_sector\\_organisations](http://www.nesta.org.uk/about_us/assets/features/innovation_in_public_sector_organisations))
- United States Department of Education (2010) *Evaluation of Evidence-based Practices in Online Learning: A Meta-analysis and Review of Online Learning Studies*. (<http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>)
- Wennberg, J.E. (2010) *Tracking Medicine: A Researcher's Quest to Understand Healthcare*. Oxford: OUP.

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# CANADA'S PRODUCTIVITY AND INNOVATION FAILURES: QUESTIONING THE CONVENTIONAL WISDOM

JIM STANFORD

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Traditional economists believe that unregulated, competitive markets are the best mechanism for allocating economic resources (capital, labour, etc.) and ensuring that they are used to maximum human benefit. They believe that these private markets are inherently efficient and self-adjusting. The best thing for government to do is set stable “ground rules” for the operation of markets (protecting property rights, and so on), and then get the heck out of the way – letting the forces of self-interest and competition take care of the rest.

When it comes to Canada's long-standing preoccupation with improving our dismal record on productivity and innovation, the standard prescription of these traditional economists is, therefore, clear. To improve efficiency, improve markets. Eliminate the “distorting” effects of taxes. Eliminate regulations or barriers to full competition (through free trade agreements, deregulation of product markets and business conditions, and other efforts to “cut red tape”). Use “tough-love” labour and social policies to strengthen personal incentives and produce a more disciplined, “flexible” labour market. That will then unleash the full potential of the private sector to innovate and optimize.

Until the financial crisis and resulting recession of 2008–09, of course, the US economy was often held up as the prototype of a rational and efficient, if unforgiving, market-driven economy. US productivity growth was high, the standard story went, because Americans have freed markets to work their magic. If we want high productivity too, we should do the same thing. This storyline was never fully consistent with the facts: many other countries with big government, high taxes, and stronger government regulations demonstrate productivity and productivity growth records equal or superior to the US. And the debacle of the financial crisis and subsequent stubborn recession have obviously reduced the appeal of the US approach.<sup>1</sup>

Nevertheless, the traditional faith of economists in markets ultimately underpins the dominant trend in Canadian policy in recent decades, and explains why Canada's overall society has become more market-sensitive, even market-dominated, during this period.

During this time we have also become more similar to the US. For example, the Conference Board of Canada recently reported that income inequality in Canada was growing faster than and converging with the US, undermining

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<sup>1</sup> Canada's claim to fame through that difficult period has been that we avoided bank failures and hence experienced a less painful recession than did the US. It is interesting that Canada's stronger banking regulations and our publicly-owned mortgage insurer are acknowledged to be crucial factors in explaining that success.

## What if markets work more productively and creatively when they are guided, supported, and constrained?

<sup>2</sup> *How Canada Performs*, September 2011. (<http://www.confererenceboard.ca/hcp>)

<sup>3</sup> Sharpe, A. (2010) “The Paradox Of Market-Oriented Public Policy and Poor Productivity Growth in Canada”. *CSLS Research Report 2010-01*, p.iii. (<http://www.csls.ca/reports/csls2010-01.pdf>)

<sup>4</sup> *Royal Commission on the Economic Union and Development Prospects for Canada*, tabled before the Mulroney government in 1985 following three years of consultations and research.

<sup>5</sup> For more on the use, and misuse, of economic models in selling free trade agreements, see Stanford, J. (2003) “Economic Models and Economic Reality: North American Free Trade and the Predictions of Economists”. *International Journal of Political Economy* 33(3), 28-49.

Canada’s traditional reputation as a more egalitarian society.<sup>2</sup> Ironically, however, the more vigorously we have pursued the vision of a self-adjusting, disciplined market economy, the worse our productivity and innovation performance has become – relative to both the US and the broader set of industrialized nations. As illustrated in **Figure 1**, over the last decade, Canada ranked 30th out of the 34 countries in the Organization for Economic Cooperation and Development (OECD) according to average annual growth in labour productivity.

This seeming contradiction between Canada’s increasingly business-friendly policy environment, and the failure of the resulting empowered private sector to deliver innovation and productivity growth, has puzzled many of the economists who advocated market-driven approaches. For example, Andrew Sharpe of the Canadian Centre for the Study of Living Standards (CSLS, Canada’s foremost experts on productivity) writes of the “paradox” of poor productivity performance in our increasingly market-oriented economy.<sup>3</sup> The Centre’s own data indicate that Canada’s productivity performance began to weaken at precisely the point in history when Canadian policy-makers embraced a more hands-off, *laissez-faire* approach.

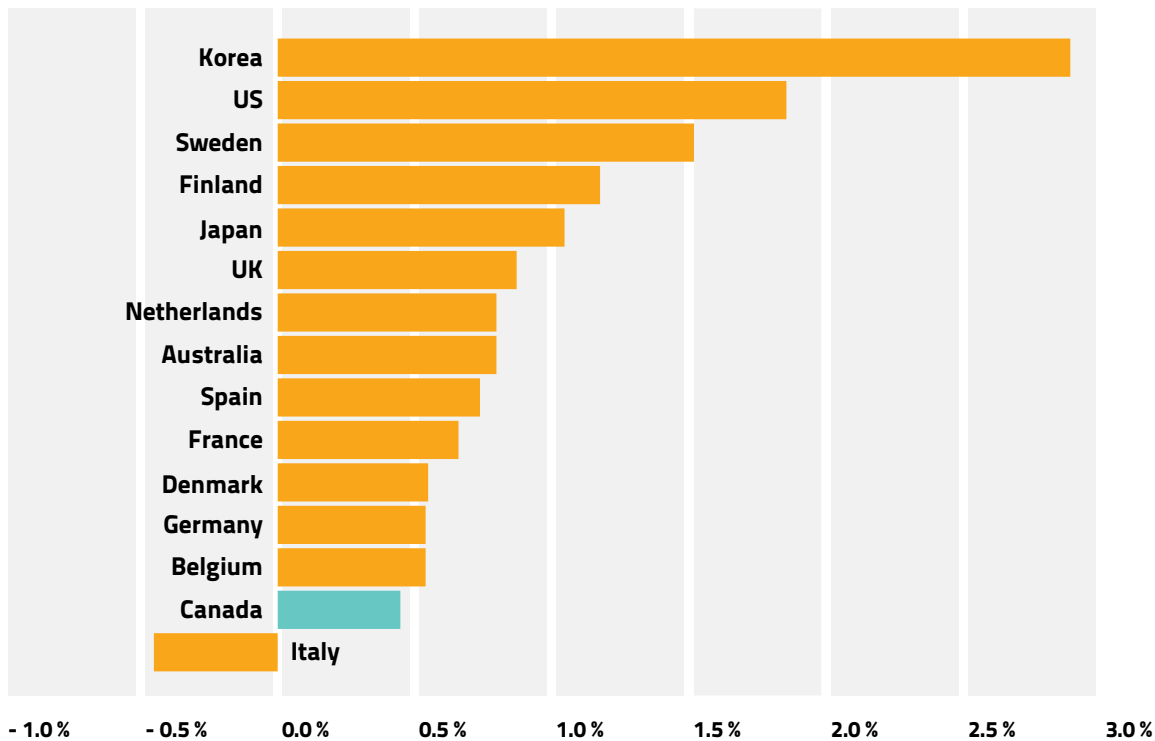
**Figure 2** plots average labour productivity in Canada’s business (private) sector, as a proportion of corresponding productivity levels in the US, as estimated by the CSLS. From the 1960s until the mid-1980s, Canadian productivity was catching up to US levels, fuelled by rapid industrialization, sectoral

change and urbanization. Those were years when Canadian governments grew substantially (relative to GDP), regulations were strengthened, enormous investments were made in public infrastructure and public services, union membership expanded rapidly, and tax rates increased. The convergence reached a peak in 1984, when Canadian private sector productivity reached over 90% of US levels. But then the trend reversed, and Canadian productivity growth fell consistently behind US levels – to the point today where our average private-sector productivity is only 70% of US levels.

Ironically, the reversal in that trend coincides with a landmark exercise in Canadian economic policy-making that played a significant role in ushering in a more “rational,” market-oriented approach to most policy matters: the Macdonald Commission.<sup>4</sup> Its core recommendations – to enter a comprehensive free trade agreement with the US, and to restructure social programs so as to reduce their “distorting” impact on labour markets – are fully consistent with the market-centred lens used by traditional economists. Continental free trade was explicitly premised on the grounds that it would help to eliminate Canada’s residual productivity disadvantage relative to the US. The resulting agreement, signed in 1988, was then sold to Canadian voters (in the famous “free trade election” of that year) with the help of quantitative economic models which explicitly built in the assumption that free trade would enforce the harmonization of Canadian productivity levels with the US.<sup>5</sup>

In practice, free trade and the restructuring of social programs have not harmonized our productivity with US levels – and both may, in fact, have undermined it. Indeed, Canada’s productivity differential relative to the US, which was supposed to disappear under free trade, has tripled since 1985. Tax cuts, deregulation, privatization, cutbacks in income security programs, and government downsizing have not done the trick either.

## Average annual labour productivity growth, selected OECD countries 2001 – 2010



SOURCE: Author's calculations from OECD, *Economic Outlook* (2011), Table 12.

Figure 1

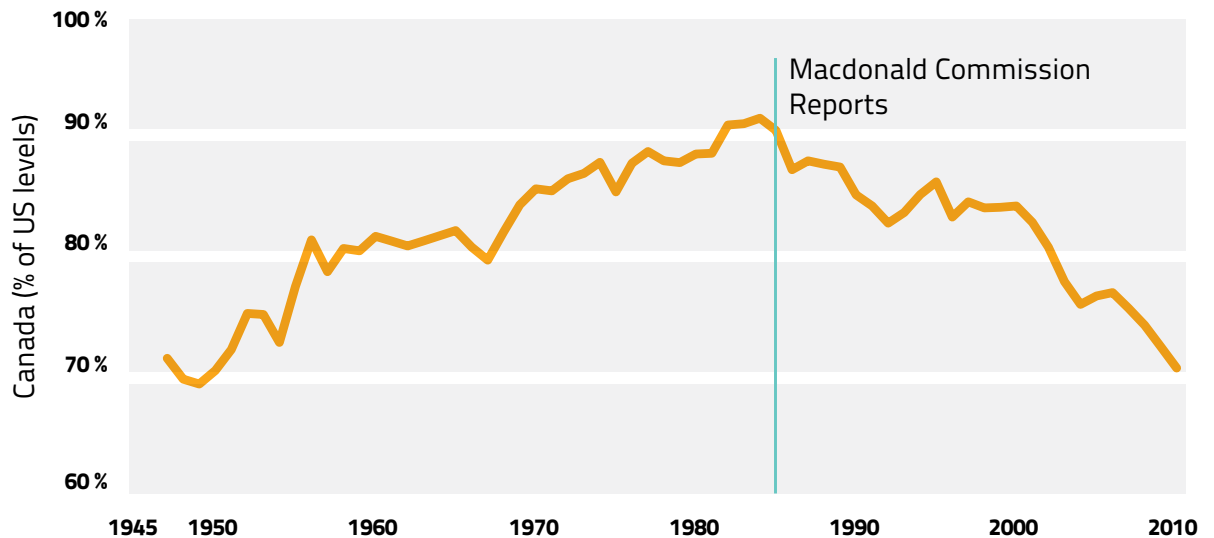
Economists who are puzzled by the seeming contradiction between business-friendly and supposedly productivity-enhancing policies, and the failure of Canadian productivity to improve, search for some remaining imperfections or residual market impediments to explain the failure of Canadian productivity and innovation to take off. But what if the starting assumption of their model – namely, faith that the unconstrained operation of private market forces is the most efficient, innovative way to organize economic activity – is not justified? What if, in fact, markets work more productively and creatively when they are guided, supported, and constrained, rather than simply being unleashed? What if the best approach is to challenge and direct markets toward more

productive and innovative outcomes?

There is a theoretical basis for this approach in the economic literature on the so-called “developmental state.” The idea, based on the successful state-led industrialization of several East Asian and Latin American economies in recent decades, is that innovative, productivity-enhancing growth in globally-competitive, value-added industries will not generally occur spontaneously as a result of the freeing of market forces and “getting prices right.” In fact, historical experience suggests that the “visible hand” of government intervention, manifested in a wide range of forms, is more strongly associated with qualitative and quantitative economic progress.

The *laissez faire* policies advocated internationally under the so-called Washington

## Average labour productivity, business sector, Canada vs. US, 1947 – 2010



SOURCE: Centre for the Study of Living Standards, [www.csls.ca](http://www.csls.ca).

Figure 2

Consensus (and aped in Canada through the pursuit of free trade agreements, business and personal income tax cuts, the weakening of income security policies, etc.) have in fact been associated with weakness in growth, economic structure, and productivity. Countries which have more successfully transformed their role in global markets, developed innovative industries and expanded productivity (from South Korea to Brazil to Finland) have generally done so on the strength of conscious, interventionist strategies.

policy over the last quarter-century and the simultaneous decline in our absolute and relative productivity performance. Our poor performance, from this viewpoint, is a consequence of our liberalization – not a paradox.

Consider Canada's dismal ranking among OECD countries according to average productivity growth over the last decade (discussed above and illustrated in **Figure 1**). Most of the countries that did better than Canada on that criterion demonstrate larger government, higher taxes, and more intrusive regulations than Canada. Indeed, the only countries that did worse than Canada in this period were New Zealand, Luxembourg, Mexico and Italy – three of which are marked by even smaller, less intrusive government than Canada. Of course, large government by itself is no more a guarantee of productivity success than small government (as evidenced by the case of Italy). Interventions must be smart, efficient, and disciplined. But both the international and the Canadian experience suggest clearly that

### Interventions must be smart, efficient, and disciplined

From this perspective, there is no contradiction between the overwhelmingly market-friendly orientation of Canadian economic

market forces on their own cannot be counted on to guide the economy toward its innovative, efficient potential.

I attribute Canada's lousy innovation and productivity performance over the past decade to several aspects of the current market-driven structure of our economy:

### // Growing dominance of resource extraction

Led by surging global commodity prices, the most vibrant sector in Canada's economy in the past decade has been resource extraction – especially minerals, and above all petroleum. Immense profits have been enjoyed by some stakeholders from this resource boom. But in terms of innovation, productivity and sustainability, the growing resource-dependence of Canada's economy leaves much to be desired.

Resource firms invest far less in research and other innovation than manufacturing firms generally do. Productivity in resource extraction trends downward over time, as the most accessible deposits of resources are exhausted and more difficult and costly reserves have to be tapped. (For example, average real labour productivity in the mining and oil and gas extraction industry declined by one-third between 1999 and 2010 – compared to a 15% improvement in productivity in manufacturing in the same time.<sup>6</sup>) The more our economy specializes in resources (with declining productivity), the more our average productivity performance is pulled down. The long-run economic and environmental sustainability of our dependence on non-renewable resource extraction also raises fundamental questions about our future prosperity and well-being.<sup>7</sup>

// **Deindustrialization** The flip side of Canada's emerging resource-dependence has been a dramatic erosion of our manufacturing base, experienced over the same period. Indeed, a key factor in that deindustrialization has been the impact of a dramatic appreciation in the Canadian currency which has made Canadian costs look 65% more expensive relative to international benchmarks than they appeared in 2002. That appreciation, in turn, is in large part the result of Canada's resource-dependence – and in particular the perception among currency traders that the Canadian dollar is now somehow a “petro-currency.”<sup>8</sup>

Some “tough-love” economists predicted that an appreciating currency would foster productivity growth (by preventing exporters from relying on an “undervalued” currency to remain competitive, and also by reducing the cost in Canadian dollars of imported capital equipment). Real-world experience has not borne out this hopeful judgment: as a soaring currency undermines Canadian competitiveness, investment, employment and exports in all cost-sensitive industries (including tourism and tradable services, as well as manufactures) have declined, reinforcing our one-note dependence on resources.

Manufacturing is a source of higher-productivity, higher-income employment and accounts for a vastly disproportionate share of total business innovation activity. In 2010 manufacturing accounted for almost half of all business R&D spending in Canada, even though manufacturing accounted for just 12% of GDP.<sup>9</sup> The decline of manufacturing, therefore, has been a key factor behind Canada's poor performance on both counts. Since 2000, manufacturing has shrunk by over one-third as a share of total GDP in Canada, from 19% to 12%.<sup>10</sup>

<sup>6</sup> Author's calculations from Statistics Canada, CANSIM Table 3830011.

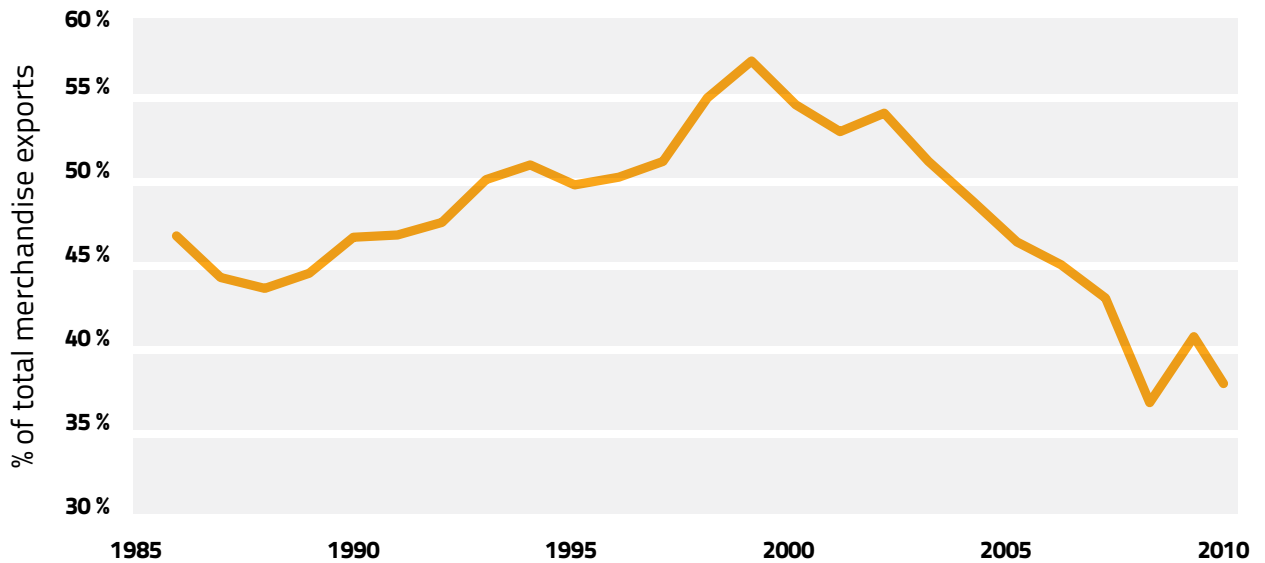
<sup>7</sup> See Stanford, J. (2008) “Staples, Deindustrialization, and Foreign Investment: Canada's Economic Journey Back to the Future”. *Studies in Political Economy* 82, 7-34.

<sup>8</sup> That perception may not be justified. After all, despite the energy boom of the last decade, petroleum still accounts for only about 3% of Canada's total GDP: shouldn't the exchange rate be influenced more by the other 97% of our output?

<sup>9</sup> Author's calculations from Statistics Canada, CANSIM Table 3580024.

<sup>10</sup> Author's calculations from Statistics Canada, CANSIM Table 3790027.

## Value-added products as share of total Canadian merchandise exports, 1986 – 2010



SOURCE: Author's calculations from Statistics Canada, CANSIM Table 2280043.

Figure 3

### Other successful exporters pro-actively seek to build advantage in key desirable sectors

// **The impact of NAFTA-style trade agreements** Orthodox economic theories of free trade focus on the purported benefits to a country available from trade-driven specialization in the industries corresponding to its so-called “comparative advantage.” Canada’s comparative advantage in the eyes of global markets is clearly in the production and export of non-renewable resources. The effect of *laissez faire* trade deals has clearly been to accentuate this pigeon-hole. As illustrated in **Figure 3**, the proportion

of Canadian merchandise exports consisting of value-added manufacturing products (such as automotive products, machinery, and consumer goods) grew during the post-era, peaking at close to 60% of all exports by the late 1990s. At that point Canada could claim to have largely escaped the status of “hewer of wood, drawer of water” that marked our traditional, subordinate role in global trade.

That progress has been reversed, and quickly, in the past decade. Value-added products now account for less than 40% of total exports; the bulk of our export portfolio is once again made up of unprocessed or barely processed resources (agriculture, forestry products, energy, minerals, bulk ores, etc.). Energy exports alone now account for one-quarter of Canada’s total exports (triple their share in 1999) and Canadians now produce more energy for export than for our own use.

A key goal of the original 1988 Canada–US trade deal was precisely to secure long-run US access to Canadian energy (as reflected in the infamous and unprecedented “proportional sharing” clause of that deal). Subsequent trade deals have clearly reinforced the growing reliance of our foreign trade on the extraction and export of non-renewable resources – not to mention constraining (to some extent, but not totally) the ability of government to moderate or reverse that dependence.

I stress that it is not international trade *per se* which is the source of this weakness: China, Korea, Brazil, and other successful industrializers all rely heavily on exports as an outlet for the production of targeted high-value sectors. However, while these countries have exploited trade opportunities as part of their broader industrial strategy, I would argue that none has practiced “free trade” in the *laissez faire* spirit of the NAFTA. Other successful exporters of value-added products do not sit back and wait for the laws of “comparative advantage” to dictate what they will sell to the world. By contrast, they pro-actively seek to build advantage in key desirable sectors – namely, those characterized by increasing returns, technology-intensity, trade-intensity, and positive regional externalities.

**// Foreign investment and the dearth of Canadian-based multinationals** Foreign investment has complex effects on productivity. Economic evidence suggests that, other things being equal, incoming foreign investment is generally associated with productivity improvements in the host country (thanks to new technology and other firm-specific attributes which the multinational brings to the industry). On the other hand, foreign investment may also alter the industrial structure of

the host economy in unpredictable (and undesirable) ways; in Canada’s case, this is manifested in the clear and growing concentration of foreign investment in resource industries.

Canada’s recent relaxation of regulation on incoming foreign investment has been associated with a large inflow of such investment, aimed particularly at the resource extraction and bulk commodity sectors.<sup>11</sup> On balance, however, despite high-profile takeovers of resource companies, more capital has left Canada than entered it during the post-free-trade era (with the result that Canada’s net foreign investment position has shifted more toward surplus than deficit). A disproportionate share of that outflow of capital from Canada to other countries has been associated with offshore investments by Canadian banks.

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## How do you support “national champion” companies? Using every policy lever in the toolkit

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In general, Canada possesses less than a proportionate share of successful, globally-engaged multinational firms. The very few exceptions (RIM, Magna, Bombardier) tend to prove the rule. This dearth of home-grown, globally-successful firms, which I argue is the flip side of unregulated inflows of foreign investment (and the resulting unhelpful impact on our overall industrial structure), undermines our innovation, productivity and trade performance. Don’t get me wrong: Canadian investments by foreign-owned firms can add mightily to our prosperity and productivity (think of our auto assembly sector, one of our

<sup>11</sup> Since the Investment Canada Act was implemented in 1984, only two foreign takeovers have been turned down (out of 1650 reviewed applications, and over 14,000 acquisitions in total).

## Merely striving to construct an amenable economic and social context for private business has simply not worked

rare productivity success stories... and 100% foreign-owned!). But it is equally clear that we need to be deliberate and active in assisting promising Canadian-based firms to succeed on the global stage – the same way that other small countries (such as Korea, Netherlands, Sweden, and Finland) have done, and in regulating incoming foreign investment to maximize its productivity upside.

How do you support “national champion” companies? Using every policy lever in the toolkit: favourable access to capital and technology; close alignment with public training and technology programs; leveraging public procurement to give these firms a head start in their home market; strategic promotion of their interests through trade policy (rather than continuing to believe like Boy Scouts, on faith, that simply “following the rules” will help our firms succeed). That’s how other exporters, even small countries, have built and expanded their foothold in high-value global markets.

**// Weak business investment in machinery and equipment** Economists agree that the concrete installation of new capital and machinery is essential to capture most of the productivity benefits of new knowledge and technology. There are very few innovations that can be accessed or implemented without investing in new machinery.

Unfortunately, the performance of Canada’s business sector on this score has also been disappointing. Business investment as a share of Canadian GDP has declined markedly in recent years. And the phenomenon cannot be blamed on inadequate profits or excessive taxation: pre-tax corporate profits have increased as a share of GDP, and that trend has been reinforced by a decline in business taxation (producing a two-fold improvement in after-tax profitability of Canadian businesses).<sup>12</sup> Business profits in Canada are higher than in the US (perhaps partly due to the ready abundance of lucrative resource opportunities), yet Canadian firms consistently invest less in real capital (not to mention innovation and intangible capital) than their US counterparts.

Explaining the weakness of business investment in Canada, despite strong profitability and a very stable, business-friendly macroeconomic and policy climate, is a challenge for economists. What is undeniable, however, is that by this metric (as well as others), merely striving to construct an amenable economic and social context for private business, and then waiting for the private sector to lead the way to an innovative and productive future, has simply not worked.

**// Lack of sector-focused development strategies** In earlier decades, Canadian governments – keen to escape the resource dependence which was the legacy of our earlier “staples-based” economy – would intervene proactively to foster investment, production and export opportunities in targeted high-value industrial sectors. These policy efforts, often referred to as “industrial policy,”<sup>13</sup> took many forms and utilized many different policy levers: national preferences in trade deals (such as the Canada-US Auto Pact), the leveraging of

<sup>12</sup> See Stanford, J. (2011) *Having Their Cake and Eating It Too: Business Profits, Taxes, and Investment in Canada, 1961 Through 2010*. Ottawa: Canadian Centre for Policy Alternatives. The gap between corporate cash flow and investment spending is reflected in deleveraging and the accumulation of liquid assets by Canadian business.

<sup>13</sup> “Industrial policy” is a misnomer for modern strategic development efforts, many of which target sectors of the economy very different from traditional “smokestack” industries. I prefer the term “sectoral development policy.”

public procurement (as in the Defence Production Sharing Agreement and similar initiatives), direct public equity ownership (in the aerospace sector and elsewhere), and the provision of direct or subsidized technological inputs (which were crucial to the success of early Canadian technology companies such as Bell-Northern Research or Telesat).

Since the 1980s, these sector-focused strategies have fallen by the wayside. Canada's one and only industrial strategy, in the wake of free trade, became (by default) promoting and leveraging our convenient access to the US market. Of course, that's hardly enough to attract mobile, innovative industries here: many other jurisdictions make the same claim (including, of course, the US itself).

The demise of Canadian sector strategizing in the 1990s reflected a combination of ideology and fiscal constraint. But abandoning these proactive efforts ran counter to the practice of virtually all other advanced jurisdictions (including, notably, the US, which has effectively used defence, energy, and other departmental resources to foster US industrial investment and innovation). A recent review of innovation activity by Canadian businesses concluded that policy-makers should "support areas of particular Canadian strength and opportunity through focused, sector-oriented strategies," following the experience of past success stories in this regard (such as automotive, aerospace, and telecommunications).<sup>14</sup> Sector development interventions must be modern, creative, disciplined, and flexible.

The sectors targeted will differ from those in the past: we must pursue investment and production opportunities in sectors like biotech, green energy, telecom equipment, public transit equipment, and other modern, growing, technology-intensive sectors. The tools must also be

flexible – not least in order to avoid the strictures on some traditional policy tools that have been imposed by free trade deals (although those deals leave plenty of room for creative governments actively to foster domestic investment and sectoral development, as the interventionists in China, Brazil, Korea, and elsewhere readily prove). The overall goal is more investment, innovation, production and exports in key tradeable sectors. The specific tools to be used (investment policy, technology policy, training policy, procurement policy, trade policy, even environmental policy) are limitless, so long as a government has a commitment to apply them creatively.

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## Sector development interventions must be modern, creative, disciplined, and flexible

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This depiction of Canada's loss of innovative leadership as the result of competitive market forces (rather than their inhibition) runs contrary to the conventional wisdom in my profession. However, it is consistent, I argue, with the experience of most of the countries (both developing and advanced) that have successfully achieved structural change, export success in innovative sectors, and a consequent boost in living standards and economic opportunity for their citizens. To meaningfully address and reverse the continuing failure of Canadian innovation and productivity we therefore need to adopt a more open-minded approach to economic policy. We must set aside our expectation that private market forces will produce an optimal, innovative development trajectory.

Instead, we should view effective public interventions and leadership as a key asset

<sup>14</sup> Council of Canadian Academies (2009) *Innovation and Business Strategy: Why Canada Falls Short*, p. 211.

in nurturing investment and growth in the more desirable industries of the future – rather than as a barrier or inhibitor to private sector innovation and accumulation. This will require a longer-term, deliberate effort to rebuild the capacities of federal and provincial agencies in this regard (which have atrophied after decades of ideological and fiscal neglect). Governments must be equipped with both the resources and the business acumen to play an effective role as a full partner in high-value developments. Some examples already exist: the government of Newfoundland and Labrador has creatively fostered provincial investment and value-added capabilities in the mining and energy sectors, through the use of public equity and in other ways; the Ontario government has stimulated a provincial green energy industry, supported by pro-active measures in energy supply, pricing, and domestic content.

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## We should abandon the faith that NAFTA-style trade deals will boost innovation-intensive industries

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We must continue to make world-class investments in public education, training, and research (Canada's record on this score is quite positive). But we must do a much better job of ensuring (including through public-private ventures) that the fruits of those efforts are utilized in the made-in-Canada development of high-value industries and jobs.

We should abandon the faith that NAFTA-style trade deals will boost innovation-intensive industries here; quite to the contrary, these agreements are clearly reinforcing the deindustrialization and emerging resource-dependence of the national economy (and future potential agreements, such as with the EU and Korea, would clearly have the same effect). Instead, Canadian trade officials should take a page from Chinese and Brazilian strategists, to maximize the opportunities for domestic exporters through reciprocal trade and export-oriented development plans, rather than blithely assuming that “free” trade will lift all boats.

Finally, government should work with all stakeholders (business, labour, educational institutions and others) to devise focused strategies to promote the presence of key valuable industries here – and to nurture Canadian-based globally-oriented firms in those industries.

All these strategies have been derided as “picking winners” by a generation of market-worshipping economists, who believe that only the private sector can pick winners. (In fact, the private sector has done a terrible job of picking winners ... as almost any mutual fund investor can attest!) But the evidence is clear that we cannot continue to wait for the forces of unregulated private competition to develop Canada's economy in a sustainable, diversified manner. If we want to maximize Canadians' potential for innovation and productivity, we will have to collectively step into the fray and make it happen. ■

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