RC 2010

Beyond the recovery

Institute for Competitiveness & Prosperity
Report on Canada 2010

Institute for
Competitiveness & Prosperity

The Institute for Competitiveness & Prosperity is an independent not-for-profit organization established in 2001 to serve as the research arm of Ontario's Task Force on Competitiveness, Productivity and Economic Progress.

The mandate of the Task Force, announced in the April 2001 Speech from the Throne, is to measure and monitor Ontario's competitiveness, productivity, and economic progress compared to other provinces and US states and to report to the public on a regular basis. In the 2004 Budget, the Government asked the Task Force to incorporate innovation and commercialization issues in its mandate.

Research by the Institute is intended to inform the work of the Task Force and to raise public awareness and stimulate debate on a range of issues related to competitiveness and prosperity.

It is the aspiration of the Task Force and the Institute to have a significant influence in increasing Ontario's and Canada's competitiveness, productivity, and capacity for innovation. We believe this will help ensure continued success in creating good jobs, increasing prosperity, and building a higher quality of life. We seek breakthrough findings from our research and propose significant innovations in public policy to stimulate businesses, governments, and educational institutions to take action.

Comments on this report are welcome and should be directed to the Institute for Competitiveness & Prosperity. The Institute is funded by the Government of Ontario through the Ministry of Economic Development and Trade.

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Beyond the recovery

Institute for Competitiveness & Prosperity

REPORT ON CANADA 2010

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Foreword and acknowledgements

ON BEHALF OF THE INSTITUTE FOR COMPETITIVENESS & PROSPERITY, I am pleased to present our 2010 Report on Canada to the Canadian public.

We have been through a tumultuous year in Canada with the global economic slowdown. Like all Canadians, we are hopeful that the worst is behind us and that we are starting on the road to recovery. But we recognize that the effects of the recession on unemployment and our government's fiscal situation will linger.

The economy will certainly get back on track and resume its long-term advancement. Our challenge is to navigate through and beyond this recovery and ensure that the damage the recession has caused is short lived. We continue to keep our eye on our long-term Prosperity Agenda for Canada to achieve its economic potential by 2020. As we survey the current situation and trends, we see a mix of positive and negative signs.

The recession has had an impact on attitudes here and around the world. The spectre of protectionism has returned in some corners. We have to resist the impulse to get back to some idyllic past and instead move forward, welcoming innovation and competition. Canadians have the DNA to thrive globally. We need now to create the conditions for our positive attitudes to lead to action.

Businesses and governments need to stay on a track that encourages investment in our future prosperity. Businesses have been closing the technology investment gap with their US counterparts as our dollar has strengthened. We encourage them to continue on this path as more needs to be done.

Investments in education are crucial for building our long-term innovation capacity and thus our prosperity risk is that we cut back on our investment in education in the coming years. We have done this before and need to avoid taking the wrong path again. After the recession of the mid-1990s, when federal and provincial governments had to tackle the deficit, they lowered spending on health care and education. As the fiscal pressures eased, growth in health care spending resumed, while that in education spending flat lined. One result was that, by 2000, we had fallen well behind our US counterparts in investing in education for our long-term prosperity. To be serious about competing in the creative age, we have to invest in building the skills and capabilities that will give us the advantage we need. That will come from investing more in education.

Over the past few years, the federal government has made good progress in reducing tax rates on new business investment though its reductions in corporate income taxes. In 2009, Ontario and British Columbia made huge progress on our Prosperity Agenda by restructuring the way they tax business investment in those two provinces. Converting the provincial sales tax to a value added tax and harmonizing it with the federal goods and services tax is a tough sell politically – but it is the right thing to do. The two provinces will move from worse than average to better than average in the world for encouraging new business investment. Some have

"Our challenge is to get through and then beyond the recovery and ensure that the damage the recession has caused is short lived. We continue to keep our eye on a long-term Prosperity Agenda for Canada to achieve its economic potential by 2020."

called these changes "business friendly." We call them "people friendly," as they will create more high-paying jobs and more innovative firms.

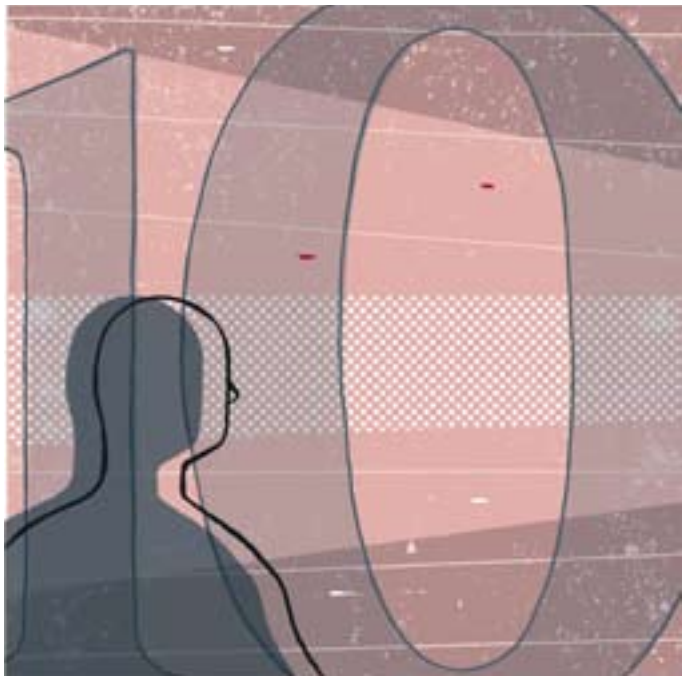
The federal government indicated a renewed interest in an innovation agenda in its 2010 budget; unfortunately, it is taking the traditional, but flawed, approach of excessive focus on building our capacity for scientific invention. But not all inventions translate to innovation and, even more important, not all innovation requires scientific invention. Certainly, investments in the hard sciences for researcher-directed inquiry are important elements of an overall innovation agenda. But we also need to enhance our capabilities in developing innovations in products and services for customers here in Canada and around the world. Until we recognize and acknowledge that invention is but one component of the broader innovation process, our policies and approaches will remain sadly lacking.

Finally, as our economy recovers, we have good cause for optimism. Our prosperity is built on trade, and Canada needs to step up its efforts in expanding international arrangements. We are encouraged by the launch of negotiations with the European Union and the overtures to China and India. At the same time there are some worrisome trends especially with respect to protectionism. We should be working to reduce protectionist measures. Retaliation is not the answer.

Our challenge is to avoid the temptation and traps of poor economic policy so we can move beyond the recovery. We must strive to keep on track so we can achieve our prosperity potential.

We gratefully acknowledge ongoing funding support from the Ministry of Economic Development and Trade. We look forward to sharing and discussing our work and findings with all Canadians. We welcome your comments and suggestions.

Roger L. Martin, Chairman
Institute for Competitiveness & Prosperity
Dean, Joseph L. Rotman School of Management, University of Toronto



Beyond the recovery

This is the time to build on our strengths to keep on track to achieve our prosperity potential

PROMISINGLY, AS WE REPORT THIS YEAR, it appears that Canada has come out of the recession and moved into recovery. But that recession has left us with many challenges.

Along with most other countries, in 2008 Canada plunged into its deepest recession since the early 1990s (*Exhibit 1*). Our economy had been growing at a real annual rate of 2.4 percent from 2000 to 2007, but in 2008 economic activity shrank, with harmful effects on our families, businesses, and governments.

For families, the scourge of unemployment returned. After steady declines since the mid-1990s, the unemployment rate shot up to 8.7 per cent by August 2009. While our economic output began to contract in late 2007 and early 2008, employment did not start its decline until November 2008. Between that time and August 2009, when

employment began to grow again, the country shed 335,000 jobs. The stock market decline ravaged family savings and pensions. Personal consumption was sluggish through 2008 and much of 2009 before turning up in the last quarter of 2009.

Businesses were hit hard by the recession. Corporate profits in Canada, which were already 13 percent lower in 2008 than 2007, dropped another 6 percent in 2009. Business weakness caused the job losses and swelled the ranks of the unemployed.

Governments' fiscal standings were devastated by the recession. The slowdown in economic activity reduced tax revenues. Spending rose automatically in some areas, as social assistance costs rose, and deliberately in other areas as governments responded with huge stimulus spending programs. Where deficits were unthinkable a year ago, the federal deficit was at $54 billion in the 2009/2010 fiscal year and is projected to be $49 billion in 2010/2011.

But current trends are reassuring. The latest jobs report shows that employment grew by 275,300 between March 2009 and April 2010. The Toronto Stock Exchange's price index has been increasing since its low point in February 2009, though it remains below its previous peak achieved in June 2008. Corporate profits have been growing since the low point of the first quarter in 2009. Statistics Canada's leading indicator composite index has grown every month since its April 2009 bottom. The consensus seems to be that the recession is over, although some fear that we will experience a renewed downturn – a w-shape or double-dip recession.

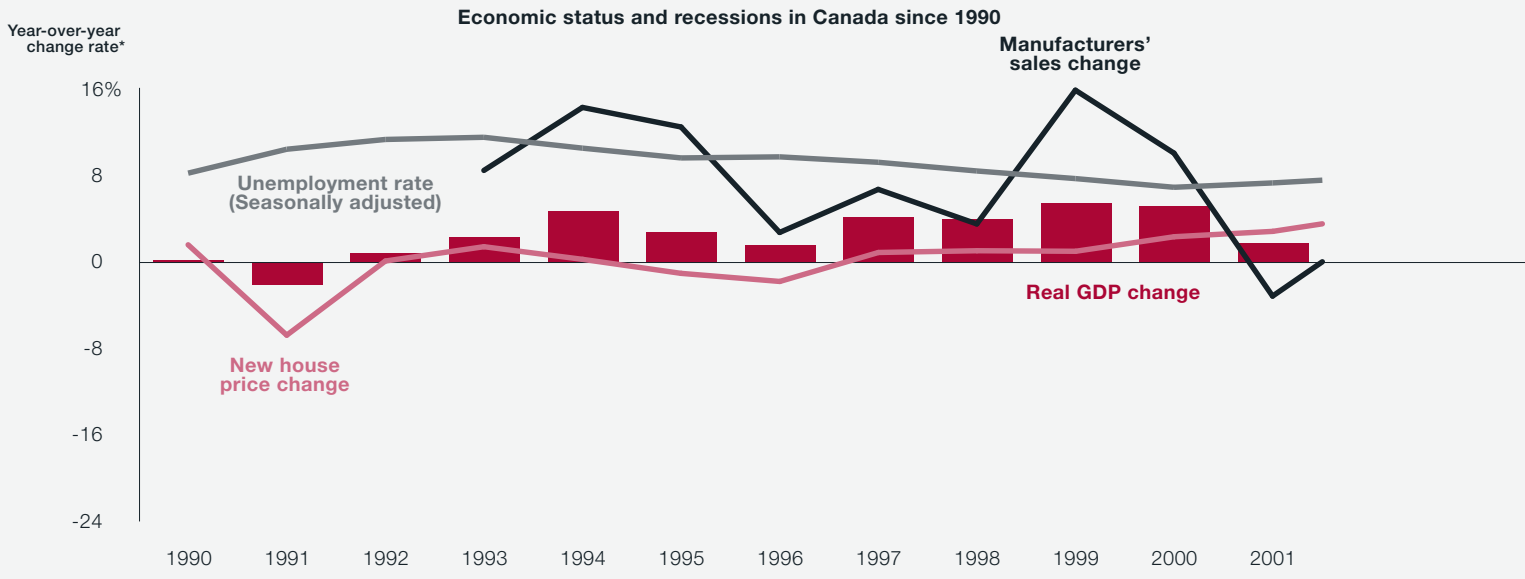
The Institute has no crystal ball to indicate when things will be back to "normal." But we are confident that our economy will get back on track and resume its long-term advancement. Nevertheless, we see turmoil ahead as heavily indebted consumers will be considering their spending and investment decisions, businesses will be assessing future investments, and governments will be making tough tax-and-spend decisions to get their fiscal houses back in order and set the rules for how the economy operates in this new environment. For us the key challenge facing Canadians is how we will get through and beyond the recovery – be it imminent or delayed, be it sluggish or robust – to set our sights on our 2020 Prosperity Agenda once again. Several factors both global and local can get in our way.

More than other recessions, this one has been truly global in nature – nearly all developed economies have been hit by it simultaneously. As with any other recession, Canada's exports were hurt by weaker worldwide demand for our goods and services. We depend on trade, particularly with the United States, and we need to ensure that our export markets are healthy. Normally, we would expect exports to increase as economies recover, thereby adding an extra boost to our growth. But this time may be different. We are hearing the siren call of protectionism around the world, led unmistakably by voices in the United States. Seductive arguments about saving jobs and standing up against unfair trade practices have resurfaced and rebounded around the world. "Buy American" has led to admonitions to "Buy Local" here in Ontario and across Canada. But instead, we need a measured response to these threats, because it is a fact of economic history that protectionism and beggar-thy-neighbour policies were major contributors to the Great Depression in the 1930s. Also, while the rhetoric against foreign investment has cooled down lately – with activity slowed by the recession – it is a safe bet that calls to limit foreign takeovers will return as part of the protectionist threat.

But this presents a great opportunity for Canadian leadership. Rather than succumb to the appeal of restrictions, we can seek out expanded trade agreements and lowered investment barriers. We have begun a process for liberalizing trade with the European Union, and we should pursue it purposefully to ensure that our consumers have access to lower cost products and services and that our businesses benefit from larger markets and greater competitive pressure. Despite the impressive growth of China and India, they are relatively insignificant trade partners for Canada. We can help secure our long-term prosperity by pursuing greater trade with these two economies. Although it does not yet include China or India, pursuit of membership in the growing Trans-Pacific Partnership would be a beneficial way of establishing free-trade agreements with countries in Asia.

Still, our largest trading partner remains and will continue to be the United States, regardless of our success in deepening other relationships. We need to resist natural impulses to strike back at Buy American actions. As a high priority, our diplomatic efforts have to focus on securing preferred treatment for Canada and, better yet, on reminding our US counterparts of the importance of open international trade relationships. These relationships are not simply at the national level; state governments can interfere with trade without breaking North American Free Trade Agreement (NAFTA) rules. Our provinces have to keep working with border states to remind our partners of the importance of well-functioning supply chains for economic well being on both sides of the border. We also need to make sure we are investing adequately in cross-border infrastructure. And of course, we need to ensure that interprovincial trade barriers are dismantled. Nationally, we face the challenge of addressing our federal and provincial deficits, which are unsustainable at their current levels. A return to solid economic growth will go a long way to fixing our deficit problems. But federal and provincial governments will need to make some tough decisions.

Exhibit 1 **Recent economic trends show improvement from 2008/2009 recession**

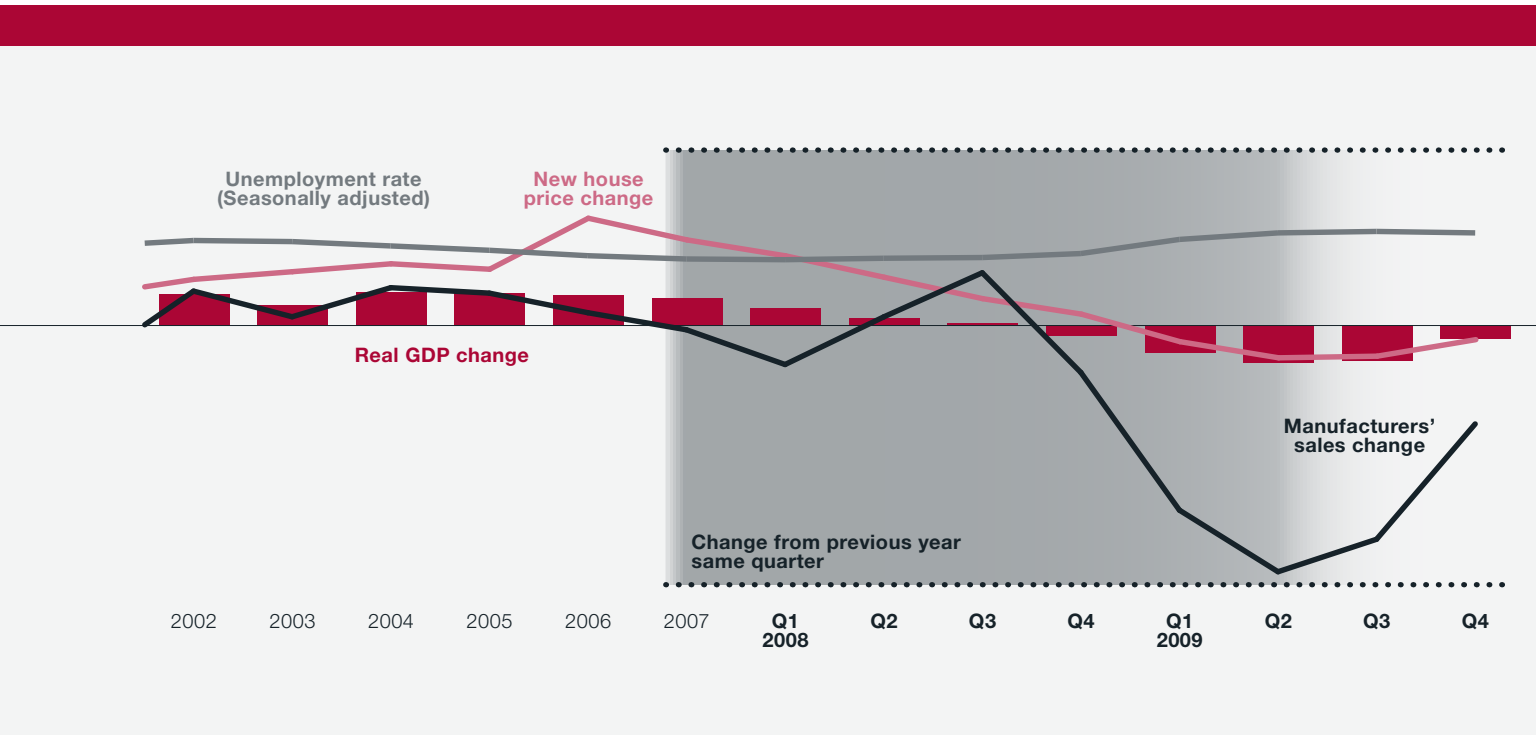


* Growth rates for 1990-2007 are year-to-year change rates; for 2008-2009 they are change rates from previous year's same quarter.
Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada.

We have been here before, and there are lessons to be drawn from our past experience. In the mid-1990s when Ottawa was in deficit-fighting mode, they took aim at the two largest spending items – health care and education. The federal government cut its transfers to the provinces, many of which reacted by reducing spending in both these areas. As the fiscal problems were repaired, health care spending resumed, but education spending largely flat lined. Where we once invested in education at much the same per capita rate as our US counterparts, we fell behind by 21 percent by 2002 across Canada. That gap held steady in dollar and percentage terms up to 2007 (currently the last year of US data). We are concerned that political pressures will again cause governments to place a low priority on education spending as they work to restore fiscal order.

The other side of our fiscal challenge is managing revenues. One of the harmful effects of the need to deal with our deficits in the mid-1990s was poor tax policy. Taxes on business investment remained high by global standards, as the federal and provincial governments maintained relatively high corporate tax rates and harmful capital taxes. Inertia kept the Ontario provincial sales tax in place, and thus the marginal tax rate on new business investment remained at a very high rate.

In recent years, however, the federal government has moved purposefully to reduce corporate tax rates and eliminate taxes on capital assets. And in 2009, the provincial governments in Ontario and British Columbia took the bold step of dramatically lowering taxes on new business investment by reducing their provincial corporate tax rate and converting their provincial sales tax to a value added tax, creating the harmonized sales tax. In its recent budget, the federal government indicated it would keep on track to reducing corporate tax rates. Through these bold federal and provincial steps, Canada will become a jurisdiction with below-average taxes on new



business investment. Our businesses will have a meaningful advantage over their US counterparts, and this will only widen as we expect US tax rates on new business investment will need to increase to reduce their federal and state deficits.

The challenge facing federal and provincial governments will be to ensure that these tax reductions stick, despite the need to restore fiscal balance and the apparent unpopularity of the harmonized sales tax. As odd as it may seem, if taxes must rise, we would encourage governments to look first at increasing the goods and services tax (GST) and the harmonized sales tax (HST) rates. And we encourage the remaining non-HST provinces – Prince Edward Island, Manitoba, and Saskatchewan – to harmonize their provincial sales taxes with the federal GST.

Our other challenge here at home will be to ensure we are relentless in removing structural barriers to innovation and competition. Some see the current recession as evidence that we need more, not less, regulation in our economy. But these conclusions do not stand up to scrutiny. We need to continue to encourage innovation, not to preserve the status quo. The Ontario and Quebec governments have been collaborating in recent years on strengthening ties between the two provinces. At a joint cabinet meeting in September 2009, the provinces signed a trade agreement that will strengthen their common economic zone in central Canada. According to the media release after the meeting, “The Ontario-Quebec Trade and Cooperation Agreement will reduce trade barriers, improve labour mobility for professionals and workers, and help to make the two provinces more competitive in the global economy.” The two provinces have also encouraged the federal government to pursue “trade agreements with the European Union, and with the United States where issues related to the impacts of the Buy American policy need to be addressed.”

This is an encouraging development, as it indicates that these two provinces in Canada are pursuing an agenda of openness and mobility. No doubt, there will be concerns that current structures are at risk. But we must overcome them to achieve an economy based on creativity and innovation.

In addition to removing barriers to competition, our public innovation strategies need to become more sophisticated and balanced. We need to recognize that supporting science for new inventions is not enough; we need to create an environment where business people draw on new science and many other disciplines to innovate, creating new products, services, and processes. We need to ensure that our markets are as open as they can be to foreign competition and foreign investment, because they improve the level of management and innovation in Canada. And we need to be investing adequately in post secondary education to develop world-class management talent.

In summary, the Institute knows that the current recession has been a challenge for all Canadians. But our focus has to be on our long-term prosperity. In our past reports, we have urged Canadians to pursue a Prosperity Agenda that realizes our full potential by 2020. We see opportunities across each element of the Agenda.

Canada has opportunities in the recovery

Despite the slowdown, we still operate in one of the most vibrant economies in the world. We have a high level of prosperity versus most jurisdictions outside North America (*Exhibit 2*). Among these large economies, Canada has been in the top tier for the past decade. In 2009, Canada stood fourth among large economies.

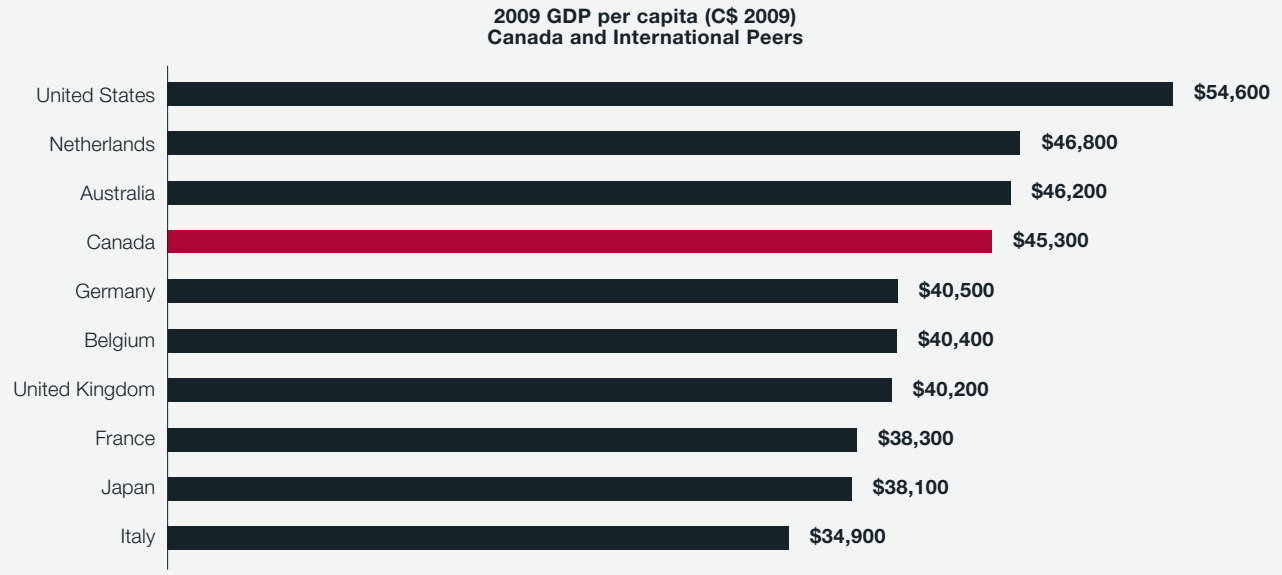
But compared to our neighbour and most significant trading partner, the United States, Canada's prosperity continues to lag. Note that in all our analyses, unless otherwise specified, we use constant 2009 dollars converted at the Canada/US purchasing power exchange rate of 1.176.

In the early 1980s, GDP per capita in Canada was $2,600 behind the United States. But since that time our growth has lagged that in the United States. In 2008, GDP per capita in Canada was $9,400 below that measure in the United States. In 2009, the gap was virtually unchanged at $9,300 (*Exhibit 3*).

Some in the press have concluded that the recession has been much more severe in the United States than in Canada. But, from the beginning of the recession in the last quarter of 2007 to the last quarter of 2009, Canada's real GDP fell nearly 2.2 percent; over the same period, the US GDP fell 1.8 percent.

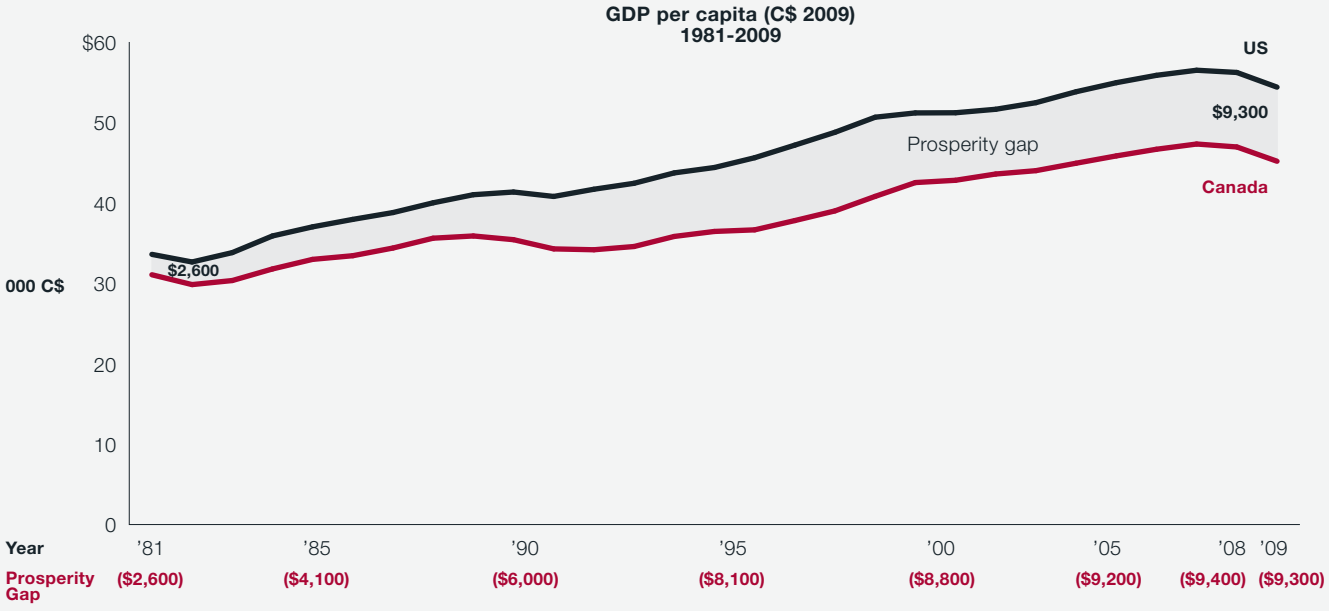
As we have discussed in past reports, the consequences of not realizing our full prosperity potential are very real. Closing the GDP per capita gap would result in an increase of $12,200 in after-tax disposable income for each Canadian household (*Exhibit 4*). And closing the prosperity gap would generate an additional $106.3 billion in tax revenues for all three levels of government across the country.

Exhibit 2 **Canada is among the most prosperous of international peers**



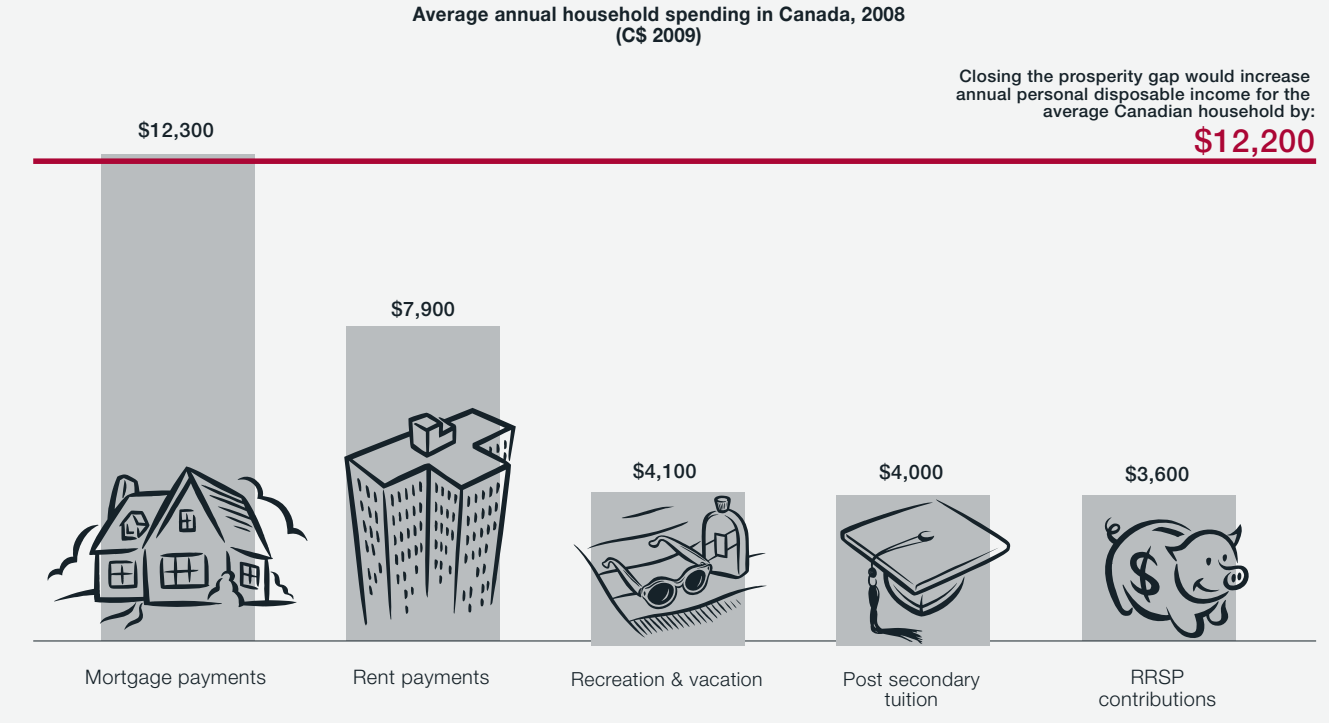
Note: Countries with population greater than 10 million. Currency converted at PPP.
Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada; US Bureau of Economic Analysis; US Census Bureau; Australian Bureau of Statistics; Japan Statistics Bureau & Statistics Center; INSEE - National Institute of Statistics and Economic Studies - France; OECD; and IMF.

Exhibit 3 **Canada trails the United States in GDP per capita**



Note: Currency converted at PPP.
Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada; US Bureau of Economic Analysis.

Exhibit 4 **Canadian families would have higher living standards if the gap were closed**



Note: Among Canadians with some spending in these categories.
Source: Institute for Competitiveness & Prosperity analysis based on Statistics Canada, *Spending Patterns in Canada 2008*.

In our recent Reports on Canada, we have presented our Prosperity Agenda for Canada – an integrated set of actions for achieving our prosperity potential (*Exhibit 5*). We remain committed to this Agenda to close the gap by 2020.

Our AIMS framework is an interactive one. While attitudes toward innovation may be positive, if our market structures encourage the status quo rather than risk taking and innovation, we will be less successful; if our tax system does not work to motivate investments, then our businesses will invest less in innovative machinery and equipment and in R&D; and if we are investing less because of these other factors, we will have a less competitive and innovative economy.

Exhibit 5 **The 2020 Prosperity Agenda creates opportunity to realize Canada's prosperity potential**

The Goal: Realize Canada's prosperity potential	**Target 2020**	**After-effects of downturn**	**Beyond the recovery**
Attitudes	Share determination to close gap	Greater concern for short-term fixes than long-term vision	Address short-term challenges while keeping eye on long-term prosperity potential
Investment	Invest for tomorrow's prosperity	Curtailed investment to recover financial stability	Continue to invest in long-term prosperity
Motivations	Move boldly to smarter taxation	Tax increases to fund spending	Implement bold tax innovations for long-term prosperity
Structures	Encourage creativity and growth	Languishing innovation results	Improve Canada's innovation through greater international trade and better innovation policy

Attitudes

Encourage innovation and competition to win in the recovery

CANADIANS HAVE THE DESIRE TO COMPETE AND TO INNOVATE. We have similar DNA toward these issues as our counterparts in our peer states. But if attitudes are not holding us back, why do we under perform in competitiveness, innovation, and prosperity? For us, it is a question of context or circumstances.

In our view, we start with a solid base of positive attitudes among Canadian people and business leaders. Our challenge as we come out of the recession is to shape the circumstances of our economic system to build on this solid foundation.

Investment

Invest in the human and physical capital critical for recovery

INVESTMENT IS THE LIFEBLOOD OF PRODUCTIVITY and thus of prosperity. Expenditures on research, technology, and advanced education generate no return to prosperity today – but they drive our prosperity in the future. In past reports, we have concluded that Canadians are consuming current prosperity at the expense of future prosperity. Our people do not invest adequately in their own education, thereby reducing their prospects for success in the growing knowledge economy. Our business leaders do not invest adequately to put our firms at the leading edge of technology and research – and thereby cannot compete on the basis of innovation and value added. Our governments have put health care spending ahead of education spending, no doubt reflecting the public view.

Yet there are some encouraging signs. In Ontario, the provincial government has been investing significantly in post secondary education through the Reaching Higher program. Canadian businesses are slowly closing the investment gap in technology versus their US counterparts, driven largely by our stronger Canadian dollar.

But we need to invest more. If Canadians are to be equipped to take on the opportunities and challenges of the creative age, more of our young people need to gain access to post secondary education. We are hopeful that we will renew our commitment to post secondary education. We are also hopeful that our businesses will continue to step up their investments in technology and innovation – stimulated by the strong Canadian dollar, lower tax rates on business investment, and the beneficial effects of increased international trade.

Motivations

Ensure tax changes lead to business investment

THIS WAS A GOOD YEAR FOR TAX POLICY in Ontario and British Columbia. By announcing their intent to harmonize their provincial sales tax with the federal goods and services tax and to reduce corporate tax rates, governments of Ontario and British Columbia have taken bold strides in improving the motivation for new investment by our businesses. In the past, we have noted that Canada has been one of the worst jurisdictions among developed economies in its taxation of new business investment. In addition to relatively high tax rates on corporate income taxation, business investment has been held back by provincial sales taxes on business purchases, including investments. Most jurisdictions around the world have adopted a value added tax, similar to our federal goods and services tax, to ensure businesses are not penalized when they purchase goods and services for their businesses. Some Canadian provinces, and many US states still impose a retail sales tax that penalizes business investment.

The introduction of the harmonized sales tax in Ontario and British Columbia is not a tax grab – corporate, and individual income taxes are being reduced at the same time. There will be no tax change in retail taxes for goods that currently bear the provincial sales tax. The only increase in prices will be on services that will now be taxed provincially for the first time. But the likely net effect is that the overall average prices for goods and services will increase only slightly, as TD Economics concluded.

When fully implemented, tax harmonization and lower corporate taxes will help bring Canada's taxes on new business investment from among the highest in OECD economies to below average. According to research by University of Toronto economist Michael Smart, when Quebec and the three Atlantic provinces made this conversion, they saw their business investment jump 11 percent. This is a bold initiative that will add stimulus to business investment and help us recover more quickly from the recession.

Lowering taxes on business investment is not just favourable for businesses; it is favourable for people. The Ontario and British Columbia governments took very bold action when the easier political strategy would have been to wait until economic conditions were better. Many argue that governments cannot be bold and do the right thing because it is not politically feasible. These two governments show that to be the view of defeatists. They should be congratulated.

Our next taxation challenge is to deal with high marginal effective tax rates on low-income Canadians. Social benefits are structured to deliver benefits to lower income people and our taxes are progressive. An unintended consequence of this structure is that the marginal cost to low-income earners can be quite high as they attempt to work more and move out of poverty. The combination of benefit clawbacks and progressive income taxes can lead people earning about $15,000 to face marginal tax rates of more than 50 percent as their earnings rise. We make recommendations later in this report on how to redesign the Working Income Tax Benefit to help reduce the problem of high marginal effective tax rates for lower income Canadians.

Structures

Drive creativity and prosperity through strengthened commitment to trade and smarter public policy on innovation

A MAJOR CHALLENGE TO ADVANCED ECONOMIES is the current mood of protectionism resulting from the economic turmoil. One of the most important factors in Canada's high prosperity is international trade, which promotes innovation through specialized support and competitive pressure. By opening up global markets to Canadian firms, trade creates more opportunities through expanded markets and economies of scale. Our small population necessitates access to world markets to support the innovation agendas of our businesses. International trade also provides the beneficial impact of competitive pressure on our businesses. As our small population limits our market size, it also reduces the number of sophisticated competitors in most product and service categories. Focusing a business strategy on a limited market with few competitors may be a recipe for increasing firm profitability if trade barriers are present – but not for enhancing our overall innovation, competitiveness, and prosperity.

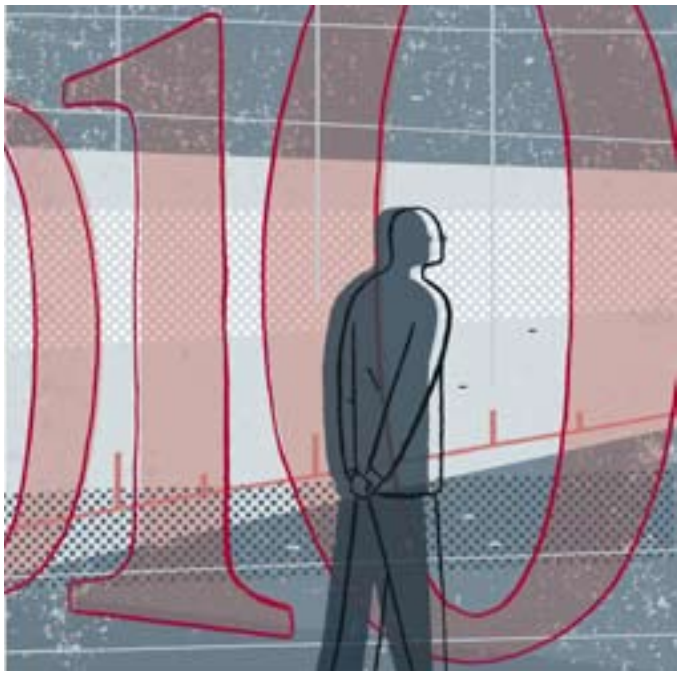
The United States presents us with a major opportunity and a problem. It is our largest trading partner by far, and to the extent we can ensure unimpeded flows of goods, services, and people across our borders, we will thrive in Canada. But current Buy America attitudes, prevailing in the US government, present potential challenges for us. We need to continue working with our US neighbours to battle protectionism and trade barriers. But at the same time, we need to strengthen ties with other partners to expand our trade – the European Union and China present the best opportunities.

With our small markets, Canada has more to gain from international trade than most other countries. We should strive for global leadership in trade expansion.

We can also benefit from smarter innovation policies. As we have seen in our research, our public innovation policy emphasizes the hard sciences and does not recognize the importance of innovation in business and management processes. Our competitiveness and prosperity are built on a solid base of excellence in the sciences. And leading high technology firms are founded by science and engineering graduates. But successful innovation requires a balance of science and other skills, such as management problem solving and communication. These other skills are important to achieve a successful transition from start-up to thriving businesses.

At the federal level, we continue to see an orientation toward the hard sciences in the granting councils related to innovation. Research grants for business school academics represent an insignificant portion of funding overall and within the Social Sciences and Humanities Research Council (SSHRC). And scholarships bypass students in graduate business education programs almost entirely because the professions are not included within the mandate of the granting councils. The recent federal budget only worsened this tendency. Until our federal and provincial governments recognize the need for a balance between hard sciences and the humanities and between science and engineering and management skills, their efforts will lead to more inventions, but inadequate business innovation in the Canadian market.

While these past two years have been turbulent economic times for our people, businesses, and governments, there is cause for hope as the recession seems to be ending. We continue to have fundamental strengths on which to build in pursuit of the 2020 Prosperity Agenda. At the same time, there are some domestic and global obstacles in our way. Our challenge is to avoid the temptations and traps of poor economic policy and to strive to keep us on track to achieve our prosperity potential beyond the recovery.



Foundations for recovery

Navigating through and beyond the recovery toward prosperity requires ongoing attention to innovation, creativity, and productivity

IN CARRYING OUT OUR MANDATE to measure and monitor Canada's competitiveness and prosperity, the Institute has focused on Gross Domestic Product (GDP) per capita as the summary measure of success. GDP represents the value added to our endowed base of human, physical, and natural resources. But GDP is an imperfect measure. It does not measure quality of life or happiness. It focuses strictly on things that can have a dollar value attached to them. And it does not place a value on leisure time.

Recognizing this, in early 2008 French President Nicholas Sarkozy requested that Joseph Stiglitz, Amartya Sen, and Jean-Paul Fitoussi create a commission that would outline and analyze difficulties with using GDP as a measure of economic performance and social progress. The result was an extensive report that spoke of

broadening our current evaluations of overall well being, because many factors that influence people's welfare are wholly missed by our existing measures. They proposed that, since well being is multi-dimensional, key dynamics should be considered simultaneously, including material living standards (income, consumption, and wealth), health, education, personal activities (work, political voice and governance), social connections and relationships, environment (present and future conditions), and insecurity (of an economic as well as a physical nature).[1]

We have reviewed many measures of well being. Because a more prosperous economy creates the opportunity for greater quality of life through better health, longer life expectancy, and widespread literacy, GDP per capita remains a useful and manageable measure of well being. And as long as we maintain the perspective that our focus is on competitiveness and prosperity – which are by nature economic concepts – we conclude that GDP per capita is a sound measure of economic results.

GDP per capita correlates well with other measures of well being

Given that GDP per capita is an imperfect measure of prosperity, the Institute has been assessing different measures of well being, happiness, and life satisfaction in Europe, the United States, and around the world. Our research found that several other such measures correlate quite well with economic prosperity, as indicated by GDP per capita. These tight correlations allow us to remain confident that GDP per capita is indeed a good standard measure of well being. We will continue to seek a way to integrate these and other measures of well being with economic prosperity measures.

- **Human Development Index (HDI)**. This measure of nations' well being, developed by the United Nations, is strongly correlated with GDP per capita and understandably so, since one of the three components of the HDI is, in fact, GDP. The other two components, life expectancy and adult literacy, also correlate with economic prosperity. The 2009 HDI (which uses 2007 data) showed that Canada was in fourth place behind Norway, Australia, and Iceland. Developed nations tend to rank very high in HDI because they do well in the sub-indices, whereas undeveloped nations like Niger fare poorly on the HDI.

- **Index of Economic Well Being (IEWB)**. Andrew Sharpe of the Centre for the Study of Living Standards constructed an Index of Economic Well Being for 1981 to 2009. The index equally weights four components: consumption, wealth, inequality, and economic security. The correlation between this IEWB and GDP per capita in 2008 for the ten provinces was positive and statistically significant. Over time, we observed a positive and statistically significant relationship between the two – as GDP per capita grows, so does the IEWB. This robust correlation may be due to the fact that the separate indices of the IEWB, such as wealth or economic security, share a strong correlation with GDP per capita in general.[2]

- **European Social Survey (ESS)**. Based in London, the new economics foundation (nef) is an independent think tank that has developed the "National Accounts of Well Being" for several European countries. Well being data for twenty-two nations are drawn from the European Social Survey and divided into three categories: personal well being, social well being, and work well being. Personal and social well being are broken into several sub-indices. For instance, personal well being includes emotional well being, satisfying life, vitality, resilience and self-esteem, and positive functioning. Social well being is a single index that incorporates supportive relationships, and trust and belonging. The majority of these subjective well being indices correlate very well with the objective measure of GDP per capita.

- **Gallup-Healthways Well Being Index (GHWBI)**. A 2010 Martin Prosperity Institute working paper, authored by Richard Florida, Charlotta Mellander and Peter Rentfrow, showed that well being data for all fifty states and GDP per capita had a positive and statistically significant relationship. Well being was measured through a very large sampling process in the United States by the GHWBI, which is a composite index of over forty questions about life evaluation, emotional health, physical health, healthy behaviour, work quality, and basic access. Further analysis by the Institute for Competitiveness & Prosperity among Ontario's fourteen peer states shows that a positive and statistically significant relationship still exists.

- **Statistics Canada General Social Survey (GSS)**. From several surveys in Canada that analyze well being, the GSS contains numerous social context variables, one of them being life satisfaction. The question asked in the survey was "using a scale from 1 to 10, where 1 means "very dissatisfied" and 10 means "very satisfied," how do you feel about your life as a whole right now?" The patterns in Canada differed from those found around the world. The highest rankings were in the Atlantic provinces, which have the lowest economic prosperity in Canada. Ontario placed last in self-reported life satisfaction, despite the province's economic strength and high GDP per capita. Well being results tend to be higher in rural areas relative to those in urban areas – and could

[1] Joseph E. Stiglitz, Amartya Sen, Jean-Paul Fitoussi, "Report by the Commission on the Measurement of Economic Performance and Social Progress," Commission on the Measurement of Economic Performance and Social Progress, 2009, pp. 14–15.

[2] Sharpe's economic security component is also part of the Living Standards domain of another well being index: the Canadian Index of Well being (CIW) developed by the Institute of Well being (part of the Atkinson Foundation). The CIW has eight domains of quality of life including Arts, Culture & Recreation, Education, Environment, Time Use, Healthy Populations, Democratic Engagement, Living Standards, and Community Vitality; the last four have been completed so far.

explain why average happiness in the Atlantic provinces exceeds that of the urban provinces. John Helliwell of the Canadian Institute for Advanced Research (CIFAR) correlated life satisfaction from other surveys for previous years with mean income (which is highly correlated with GDP per capita). He also found a downward sloping relationship for the ten provinces.

In collaboration with the Centre for the Study of Living Standards, the Institute is studying these Canadian results in more detail. Work to date indicates that an individual's reported life satisfaction is affected most by five factors – health, mental health, stress, sense of belonging to the local community, and household income. The most important reason for geographical variation in happiness in Canada is differences in the sense of belonging to local communities, which is generally higher in small cities, rural areas, and Atlantic Canada. The results will be published in the fall of 2010.

Lagging productivity and intensity remain the biggest hurdles to closing Canada's prosperity gap

As we have seen, outside of North America, only a few countries have greater prosperity per capita than Canada. But closer to home, we continue to trail the United States considerably. The recession has not changed this, with both Canada and the United States suffering from similar losses in GDP (*Exhibit 6*).

Canada's prosperity gap, the difference in GDP per capita between Canada and the United States, was much smaller twenty years ago. Starting with the 1990–92 recession, Canada began to fall behind the United States, and we have not been able to resume our earlier standing. This prosperity gap matters to Canadians. It represents lost potential for our residents to gain economic security and well being and for our public institutions to provide services and investments for future prosperity.

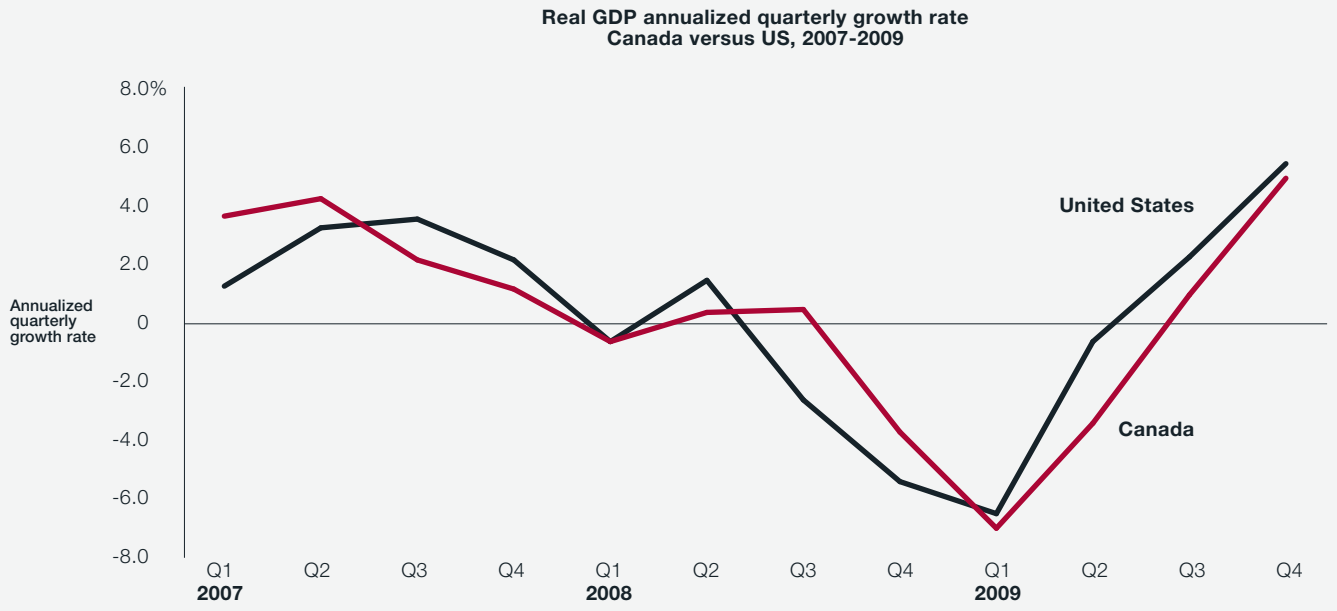
To understand the reasons for our prosperity gap, we draw on the same framework we have used in our previous reports. This framework disaggregates GDP per capita into four measurable elements (*Exhibit 7*):

- **Profile**. Out of all the people in a jurisdiction, what percentage are of working age and therefore able to contribute to the creation of products and services that add economic value and prosperity?

- **Utilization**. For all those of working age, what percentage is actually working to add to economic value and prosperity? To gain further insight into this element, we examine the two contributors to utilization: participation, the percentage of those of working age who are searching for work, whether they are successful or not; and employment, the rate at which those participating in the job market are employed.

- **Intensity**. For all those who are employed, how many hours do they spend on the job in a year? This element measures both workers' desire to work

Exhibit 6 **The recession had similar effects in Canada and the United States**



Note: Annualized quarterly growth rates are seasonally adjusted change rates from previous quarters.
Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada; US Department of Commerce; US Bureau of Economic Analysis.

more or fewer hours and the economy's ability to create demand for work hours.

- **Productivity**. For each hour worked in a jurisdiction, how much economic output is created by a jurisdiction's workers? Within productivity there are six sub-elements and a productivity residual:

  Industry mix – how the mix of industries in traded clusters, local industries, and natural resources affects our productivity potential

  Cluster mix – the productivity potential of the clustered industries that drive national productivity and innovation

  Cluster effectiveness – how well our clusters of traded industries compete

  Urbanization – the proportion of our population that lives in urban areas, which typically increases a jurisdiction's productivity

  Education – the educational attainment of our population and its impact on productivity

  Capital investment – the degree to which physical capital supports our workers' productivity

  Productivity residual – a residual value that relates to productivity but remains unexplained.

The first three factors – profile, utilization, and intensity – add up to our labour effort, or the hours worked per capita. That captures the human effort Canadians are expending to create economic value. The fourth factor – productivity – measures how effectively our labour efforts turn resources into economic value and prosperity.

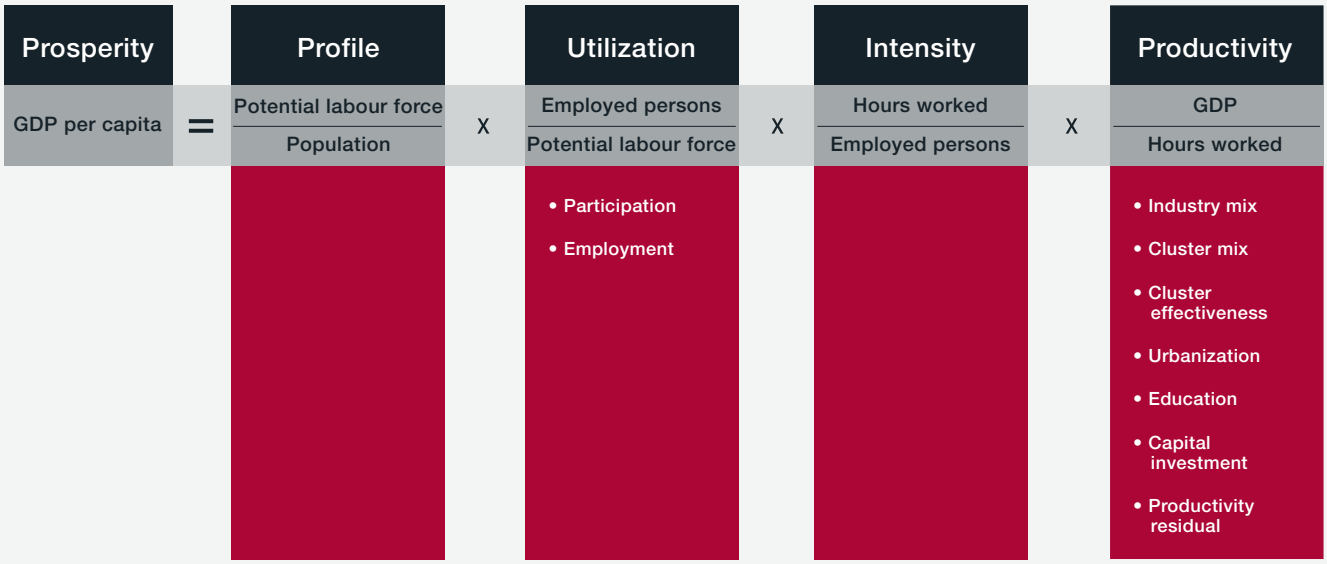
Canada's significant divergence from the prosperity performance of the United States occurred during the recession of the early 1990s. During that time the key factor driving our economic weakness was lower labour effort, especially utilization and its two sub-elements, participation and employment. Since 1995, we have been successfully recovering to 1990 performance levels. But, at the same time, a growing productivity gap has emerged relative to the United States. If we are to close the prosperity gap, our Prosperity Agenda has to be a priority for all stakeholders.

Canada has mixed labour effort performance

Canada continues to have a demographic profile advantage versus the United States, an advantage in utilization, but a significant intensity gap (*Exhibit 8*).

Profile remains an advantage for Canada. The first factor in a jurisdiction's prosperity creation potential is its demographics. The percentage of the population that is of working age – aged 15 to 64 – is a basis for prosperity. With more people in that age range, a higher percentage of the population can work and create economic value. In Canada, this ratio has been stable over the short run and has had no appreciable impact on changes in our prosperity gap versus our peer states. Nevertheless, it does create an ongoing starting advantage in Canada's prosperity.

Exhibit 7 **The Institute measures four components of prosperity**



Source: Adapted from J. Baldwin, J.P. Maynard and S. Wells (2000). "Productivity Growth in Canada and the United States" *Isuma* Vol. 1 No. 1 (Spring 2000), Ottawa Policy Research Institute.

In 2009, 69.5 percent of Canadians were aged 15 to 64. Relative to the 67.1 percent in the United States, Canada has a 3.5 percent potential profile advantage.[3] Holding all other factors constant, we calculate this advantage to be worth $1,400 in per capita GDP. In other words, because we have a higher proportion of our population able to add to our prosperity, we have a profile advantage versus the United States.

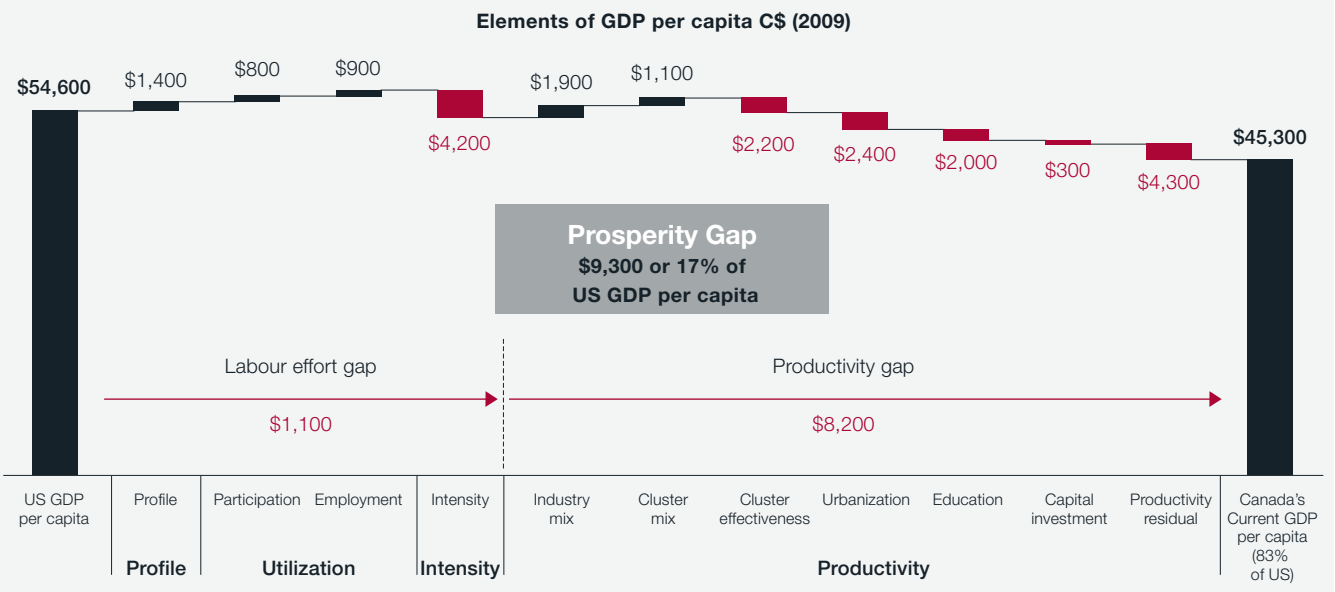
Demographic projections indicate that the proportion of Canadians of working age will decline over the coming decades as baby boomers retire and are not replaced by equal numbers in subsequent generations. Still, the projections indicate that Canada will maintain its advantage versus the United States.[4]

Nevertheless, Canada will have fewer workers to create prosperity in the coming years. We estimate that by 2025 the smaller percentage of working aged Canadians will reduce GDP per capita potential by $2,300. We will need creative retirement solutions to address this decline in our prosperity potential.[5]

One concern that has been raised in the context of an aging workforce is whether a shortage of skilled trades workers is imminent. Our research shows that there is no cause for concern, as our skilled trades are performing well (see *Do we really have shortages in the skilled trades?*).

Utilization is higher in Canada than the United States. Canada successfully reversed a decline in the utilization of its working aged population during the latter part of the 1990s.[6] In 1990, Canada led the United States in *participation*. As economic conditions improved from the recession of the 1990s, more adult Canadians rejoined the labour force, contributing to our economic potential. In 2009, 64.6 percent of Canadians fifteen years of age and older worked or sought work (using data comparable to US methods of calculation). The US participation rate was 63.2 percent. This advantage for Canada translates into $800 in GDP per capita.

Exhibit 8 **Lower productivity and intensity are the main sources of Canada's prosperity gap with the United States**



Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada; US Department of Commerce, Bureau of Economic Analysis.

[3] Calculated as [1 minus (67.1 (US) / 69.5 (Canada))] = 3.5 percent.
[4] Task Force on Competitiveness, Productivity and Economic Progress, Fourth Annual Report, *Rebalancing priorities for Ontario's prosperity*, November 2005, p. 29.
[5] Institute for Competitiveness & Prosperity, Working Paper 9, *Time on the job*, September 2006, p. 21.
[6] Task Force on Competitiveness, Productivity and Economic Progress, Fifth Annual Report, *Agenda for our prosperity*, November 2006. Labour statistics base participation, unemployment, and hours worked estimates on all workers, including those who are 65 and over; we follow this convention for utilization and intensity.

Do we really have shortages in the skilled trades?

Many Canadian business leaders and educators are concerned about a shortage of workers in the skilled trades. Before the recession, there seemed to be daily press coverage highlighting the lack of plumbers, pipefitters, and plasterers to respond to residential and business needs. Governments have responded to this perceived shortage with a panoply of programs, including the Apprenticeship Incentive Grant, the Apprenticeship Job Creation Tax Credit, and the Tradesperson's Tool Deduction. Campaigns to encourage young people to go into the skilled trades have also been initiated, on the premise that too few young people are seeking a career in the trades.

Economists are more skeptical of the risk of a long term shortage of trades people. In economic terms, a real labour shortage will drive up wages which in turn will attract more workers into the skilled trades. Obviously, the real world is a lot more complicated, and there can be severe shortages at specific times and in specific regions.

Let's examine the evidence. We start by looking at the **supply** of skilled trades people. The concern here is that young people are not joining the trades and that a high percentage of trades people are older and close to retirement. Our review of Statistics Canada data suggests that these concerns are unfounded. The average age for skilled trades workers has been steady since 2004, while it has increased for all other occupations. Moreover, the number of older workers (55+) is about the same as younger workers (15-29), and this has been the case since 1992. Other research also supports this conclusion. For instance, Wendy Pyper finds that the ratio of new-entrants to near-retirees in the trades is more balanced among the trades than among other occupations across the economy.[a]

Another indicator of the labour supply trend is to look at registration rates for apprenticeship programs. Our research finds that new registrations for apprenticeship programs grew at an average annual rate of 9 percent between 1996 and 2005, while employment growth among the trades averaged 2 percent in that same period. This points to a challenge. The issue does not appear to be that young people do not want to get into the trades, it is that completion rates are poor. If we want apprenticeships to be more effective, we need to address their relatively high attrition rates, especially among trades where certification is not compulsory.

Finally, another factor that could be constraining the supply of trades people is the bottlenecks in supply created by legislation. In particular, restrictive apprentice-journey-person ratios may mean that too few workers with the necessary skills are available.

Turning now to the **demand** side of the shortage issue, our research shows that growth in employment in the skilled trades has been slower than growth across all other occupations. Moreover, the unemployment rate for the skilled trades matches that of all other occupations – the major exceptions being during the recession of the early 1990s, where skilled trade unemployment exceeded all other occupations by about 2 to 3 percentage points, and during the current recession.

[a] Wendy Pyper, "Skilled trades employment," Statistics Canada, Perspectives, Catalogue no. 75-001-X, October 2008.

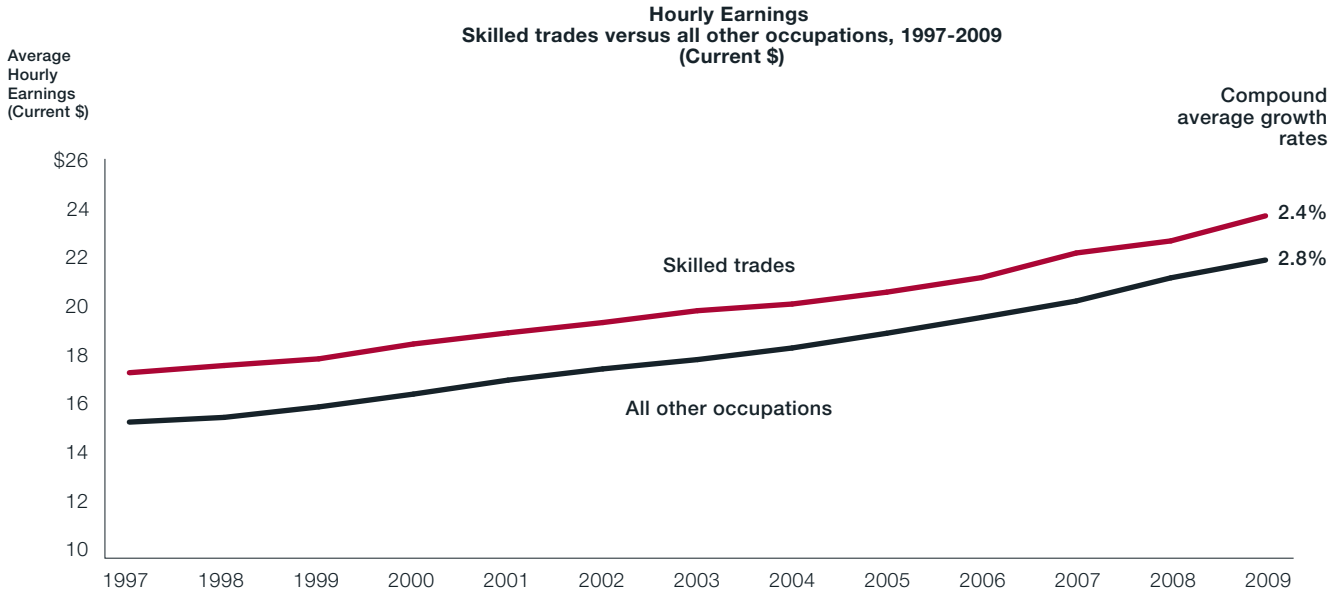
But these national statistics smooth over regional disparities. While growth in eastern Canada has been nil, it has been very buoyant in the west – home of the resource industries. Furthermore, unemployment among the skilled trades was particularly low in western Canada just prior to the current recession. These findings suggest that strong economic growth in the west may have strained the available supply of trades people, leading to temporary labour shortages there.

Still, if there were shortages, we would also expect to see wages growing faster among the trades than among all other occupations. Our research, however, finds that growth in compensation has been slower among the skilled trades than among all other occupations. While wages are higher than the average for all occupations, they're not growing any faster (*Exhibit A*). Andrew Sharpe of the Centre for the Study of Living Standards, in his analysis of reported skilled trades shortages in manufacturing, argues that shortages in that sector are partially driven by the inability of manufacturers to attract workers at wages they can competitively sustain.[b] Thus, the observed lack of wage growth may still coincide with shortages, at least in that sector. This isn't just a problem of labour shortages, but of unsustainable business models.

On balance, it would appear that strong economic growth in western Canada may have created temporary trades person shortages. With the current economic slowdown, the issue has been made less pressing.

In summary, at a national level, there is little evidence to support the existence of a secular trades person shortage. However, there still remain issues of effectiveness in our trades and apprenticeship strategies. The issues of poor apprenticeship completion rates, as well as legislative bottlenecks such as restrictive apprentice-journeyperson ratios will need to be addressed if we are to avoid future trades person shortages.

Exhibit A **Wages among skilled trades and other occupations have grown at the same rate**



Note: Skilled Trades are defined as NOC-S groups H1 (Construction trades), H2 (Electrical trades), H3 (Machinists) & H4 (Mechanics).
Source: Institute for Competitiveness & Prosperity analysis based on Statistics Canada, Labour Force Survey.

[b] Andrew Sharpe, Jean-Francois Arsenault, and Simon Lapointe, "Apprenticeship Issues and Challenges Facing Canadian Manufacturing Industries," Centre for the Study of Living Standards, February 2008.

In the other component of utilization, *employment*, Canada has traditionally trailed, but in 2009 the United States suffered from higher unemployment, 9.4 percent, than Canada. Last year, our annual unemployment rate increased to 7.3 percent from 5.3 percent in 2008. This under states the negative monthly trends since November 2007. Unemployment rose steadily through 2008 and 2009, reaching a maximum of 7.9 percent in May and July of 2009 – the highest rate we have experienced since April of 1999.[7] Overall, on average through 2009, 92.7 percent of those Canadians participating in the work force had full-time or part-time work, which for the first time since 1980 was higher than the US performance of 90.6 percent. This 2.1 percentage point advantage lifted our relative GDP per capita performance by $900 in 2009.

In the recession and its aftermath in the first half of the 1990s, the combined effect of more discouraged workers and increased unemployment was a key driver of Canada's growing prosperity gap during those years. Beginning in 1997, Canada successfully increased the utilization of its human capital; by 2009, Canada employed 59.9 percent of its working age population, above the US result of 57.2 percent. This superior performance translates into a $1,700 utilization advantage (the combined effect of an $800 participation advantage and a $900 employment advantage) in GDP per capita.

Canada's employees work fewer hours than their US counterparts – and this intensity gap remains a significant part of our prosperity gap. While Canada out performs the United States in profile and utilization, we have a significant intensity gap – our workers are on the job fewer hours in a year than their counterparts in the United States. In 2009, the average Canadian worker worked 1,642 hours, while in the United States, the average was 1,816 hours. This gap of 174 hours, or 4.6 weeks annually, narrowed slightly from 2008, when Canada trailed the United States by 180 hours weekly or 4.8 weeks. Consequently, while the importance of intensity on Canada's prosperity gap decreased slightly from 2008, it is still an important part of our prosperity gap.

Our previous research on differences in hours worked points to more vacation weeks taken by Canadians, greater incidence of part-time work in Canada, and fewer workers on the job for long work weeks (greater than 50 hours). Much of our intensity gap reflects the desires of Canadians for more leisure time, which is a preference, not a weakness. But nearly a quarter of the gap is because our economy does not create adequate opportunities for full-time work.

Productivity continues to be the key to closing Canada's prosperity gap

As we have seen, in the three labour effort factors, Canada's profile advantage, the percentage of our population of working age, has strengthened slightly, and we have made remarkable progress in utilization, the percentage of Canadians who are working. Still, differences in intensity, the number of hours worked, continue to be a major contributor to our prosperity gap. Even with the overall gains in utilization, our prosperity gap persists in our labour effort.

Added to this, over the last decade, productivity has accounted for the greatest share of the prosperity gap with our peers, and in 2009 this productivity gap widened further. We assess the six sub-elements of productivity and a residual to determine the impact of this key driver on our prosperity gap.

Our industry mix contributes positively to our productivity. Canada benefits from a mix of industries that is more heavily weighted toward clustered industries, and within these clustered industries, we have a more favourable mix for productivity and prosperity.[8] As research by Michael Porter of the Harvard-based Institute for Strategy and Competitiveness has shown, the geographic clustering of firms in the same and related industries increases productivity and innovation. These clustered industries, or traded clusters as Porter calls them, typically sell to markets beyond their local region. In addition, the presence of clustered industries in a region has a spillover effect, in that they typically generate opportunities for increased success of the local economy.

The other major industry type is dispersed industries, or local industries. These industries, such as retailers and restaurants, tend only to serve their local markets and so do not realize economies of scale and are less challenged to be innovative. As a consequence, they have lower rates of productivity, innovation, and wages.

Porter identifies a third industry type, natural endowment industries, whose location is driven by the presence of natural resources. These include forestry, mining, and agriculture. These are very small industries – accounting for 1.4 percent of employment in Canada in 2006.

Drawing on Porter's methodology, the Institute has determined that fully 34.8 percent of employment in Canada is in clustered industries versus 27.4 percent in the United States. We estimate the potential productivity benefit from this higher percentage of clustered industries in our industry mix to be worth $1,900 per capita. This benefit is derived from a higher output than would be likely if Canada's mix were the same as that of the United States.[9]

Within clustered industries Canada has a beneficial mix. While all clustered industries are positive contributors to productivity and innovation, some have

[7] Note these results are comparable to US data, not the official Canadian figures. Official Canadian unemployment reached its highest at 9.0 percent in August 2009.

[8] Institute for Competitiveness & Prosperity, Working Paper 1, *A View of Ontario: Ontario's Clusters of Innovation*, April 2002, and Working Paper 5, *Strengthening structures: Upgrading specialized support and competitive pressure*, July 2004.

[9] It is important to note that our measure focuses on the mix of industries only. It calculates the productivity performance we could expect in Canada if each cluster were as productive as its US counterpart. It does not measure the effectiveness of our industries in Canada.

higher potential than others. Canada's relative employment strength in financial services, oil and gas products and services, heavy construction services, entertainment, and others has created an attractive mix of traded industries. Our analysis of Canada's cluster mix indicates a $1,100 per capita advantage over the United States.

Cluster under performance is a significant part of Canada's productivity gap. While Canada has an excellent industry and cluster mix, cluster effectiveness is much lower than that in the United States. In both countries, traded clusters are more productive than local industries, as represented by wages. In Canada, the productivity premium is 32.4 percent.[10] But across the United States, the productivity premium is 54.3 percent. Taking the prevailing wage in local industries as a given, our clusters are under performing their counterparts in the United States by 16.5 percent (the difference in the US performance index of 1.54 versus Canada's 1.32).

Porter has observed that greater competitive intensity comes from sophisticated customers and vigorous rivals. In addition, specialized support from excellent factor conditions, capable suppliers, and related industries pushes productivity higher in traded clusters. As we discussed in our 2004 Annual Report,[11] our structures of specialized support and competitive pressure are inadequate relative to the experience in clusters of traded industries in the United States. In new research we conducted last year in collaboration with the Martin Prosperity Institute, we found that Canada's clustered industries drew less on workers in creativity-oriented occupations than their counterparts in the United States.[12]

If Canada's clusters were as effective as US clusters, wages would be $8,300 per worker higher. As traded clusters account for 34.8 percent of Canada's employment and given the relationship between wages and productivity, our overall productivity would rise by 8.1 percent.[13] From this, we estimate the productivity loss from the lower effectiveness of our clusters to be $2,200 per capita.

Adding together the effects of industry mix (+$1,900), cluster mix (+$1,100), and effectiveness (-$2,200) Canada's clusters provide a net benefit of $800 in GDP per capita versus the United States. This finding is similar to the results of a recent study by the McKinsey Global Institute, which concluded that a country's industry mix was much less important than the effectiveness of the industries.[14]

Relatively low urbanization is a significant contributor to our productivity and prosperity gap. In our work, we have established the higher level of productivity that results from greater rates of urbanization. This is the result of the increased social and economic interaction of people in firms in metropolitan areas, the cost advantages of larger scale markets, and a more diversified pool of skilled labour. The interplay of these factors promotes innovation and growth in an economy.

Since fewer people live in metropolitan areas in Canada than in the United States, our relative productivity and prosperity potential are reduced.[15] Our analysis this year indicates that we have a $2,400 per capita disadvantage against the United States that is related to our lower level of urbanization.

Lower educational attainment weakens our productivity. Economists agree that a better educated workforce will be more productive. Education increases workers' base level of knowledge necessary for improved job performance. It increases workers' flexibility so that they are able to gain new skills throughout their lifetime. Many studies show that increased wages accrue to more highly educated individuals.[16] And higher wages are the result of higher productivity.[17] Canada's population has, on average, a lower level of educational attainment compared to those living in the United States, particularly at the university graduate level. Adjusting the mix of educational attainment in Canada to match the US mix and holding wages constant at each attainment level, Canada's productivity would be higher by $2,000 per capita.

Under investment in capital lowers productivity. Canadian businesses have under invested in machinery, equipment, and software relative to their counterparts in the United States[18] so that the capital base that supports workers in Canada is not as modern as that of their counterparts in the United States. As a result, Canada's workers are not as productive. We estimate this under investment in capital equipment lowers Canada's productivity by $300 per capita. This estimate is based on our simulation of Canada's GDP if we had matched the rate at which the US private sector invested in machinery, equipment, and software. For our estimate, we assumed that higher growth in this investment would translate directly into higher growth in GDP. The primary source of this capital investment gap is in information and communications technology (ICT). Canada's businesses invest about a third less per dollar of GDP in ICT

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[10] Institute for Competitiveness & Prosperity, Working Paper 5, *Strengthening structures*, p. 26.
[11] Task Force on Competitiveness, Productivity and Economic Progress, Third Annual Report, *Realizing our prosperity potential*, November 2004, pp. 40–48.
[12] Institute for Competitiveness & Prosperity and Martin Prosperity Institute, Report on Canada, *Opportunity in the Turmoil, April 2009*, pp. 28-29.
[13] We have netted out the effects of Canadas's lower urbanization, our under investment in capital, and our lower educational attainment in this calculation.
[14] James Manyika *et al*., *How to compete and grow: A sector guide to policy*, McKinsey Global Institute, March 2010.
[15] See "Prosperity and productivity lag in Ontario cities" sidebar in our Sixth Annual Report, *Path to the 2020 Prosperity Agenda*, November 2007, p. 24-25.
[16] For example, see Ana W. Ferrer and W. Craig Riddell, "The Role of Credentials in the Canadian Labour Market," *Canadian Journal of Economics*, 2002 Vol. 35, No. 4; Statistics Canada, "Education and earnings," *Perspectives on Labour and Income*, 2006, Vol. 38, No. 3; and Anil Verma, "Low Wage Service Workers: A Profile," Working Paper Series: Ontario in the Creative Age, Martin Prosperity Institute, March 2009.
[17] See Exhibit D in "Why productivity is important for our prosperity," Sixth Annual Report, *Path to the 2020 Prosperity Agenda*, pp. 28-30.
[18] Capital investment results are not available at the state level. Our analysis uses US results to estimate peer state investments and compares these to Ontario.
[19] Fifth Annual Report, *Agenda for our prosperity*, November 2006, pp. 34-35. See also Andrew Sharpe, "What Explains the Canada-US ICT Investment Intensity Gap?" Centre for the Study of the Living Standards, December 2005.

and less in non-ICT machinery and equipment.[19] Our analysis indicates that Canada businesses under invest by 18 percent per dollar of GDP.

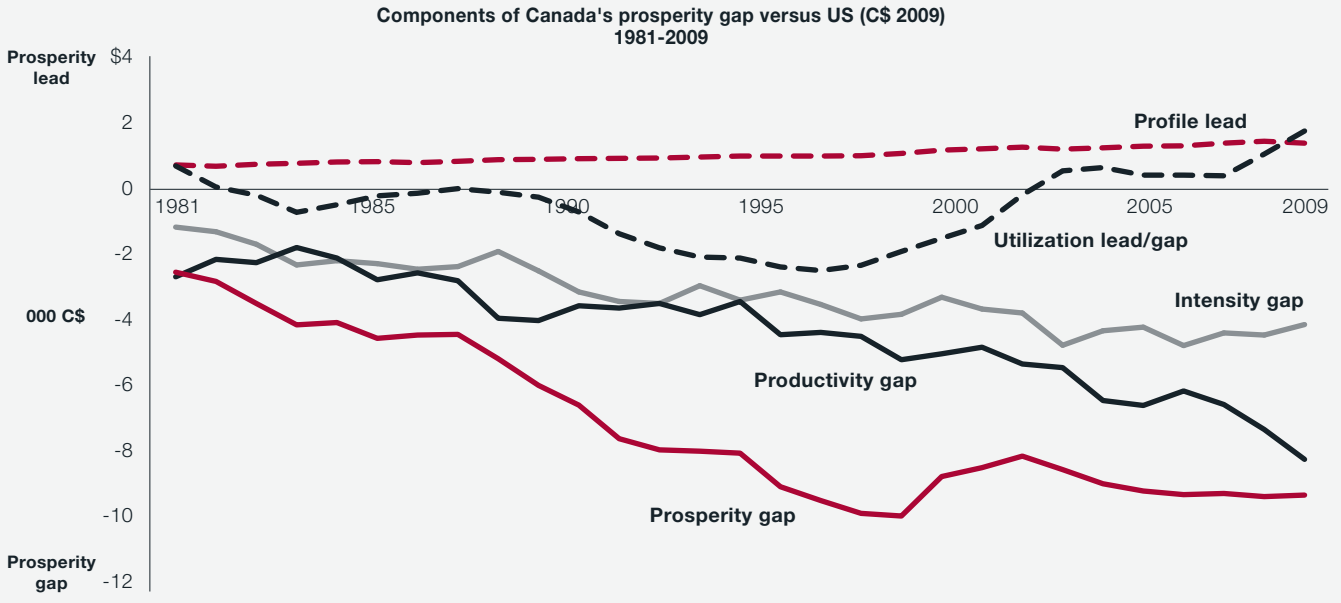
The residual is related to productivity. We have been able to account for the impact of profile, utilization, and intensity on prosperity. We have also accounted for the effects of several elements of productivity. The $4,300 per capita gap that remains is related to productivity on the basis of like-to-like cluster mix and strength, urbanization, education, and capital intensity.

Productivity gap continues to be important

As we have seen, through most of the 1980s, Canada's prosperity was close to that in the United States. During that period, we had a productivity and intensity disadvantage versus the United States – but our utilization advantage compensated for this. Our prosperity gap began to develop at the outset of the 1990–92 recession. It was driven mostly by our poor utilization performance – both participation and employment worsened significantly with the recession. Our utilization problem began to dissipate around 1997 and by 2001 it was an advantage again. However, our productivity disadvantage began to grow in 1995 and by 2005 it had more than doubled. Since that time, it has essentially held steady. At the same time, our intensity gap continues to be a significant part of our prosperity gap (*Exhibit 9*).

In summary, against the United States, Canada has a wide and growing prosperity gap; sluggish productivity growth is a critical reason we are not realizing our prosperity potential. As we broaden our perspective beyond North America, we see that Canada has a prosperity lead, but we still lag in productivity.

Exhibit 9 **Widening productivity gap is the major source of Canada's prosperity gap**



Note: Currency converted at PPP.
Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada; US Bureau of Economic Analysis; US Bureau of Labor Statistics; US Census Bureau.

Canada's prosperity compares well globally, though productivity still trails

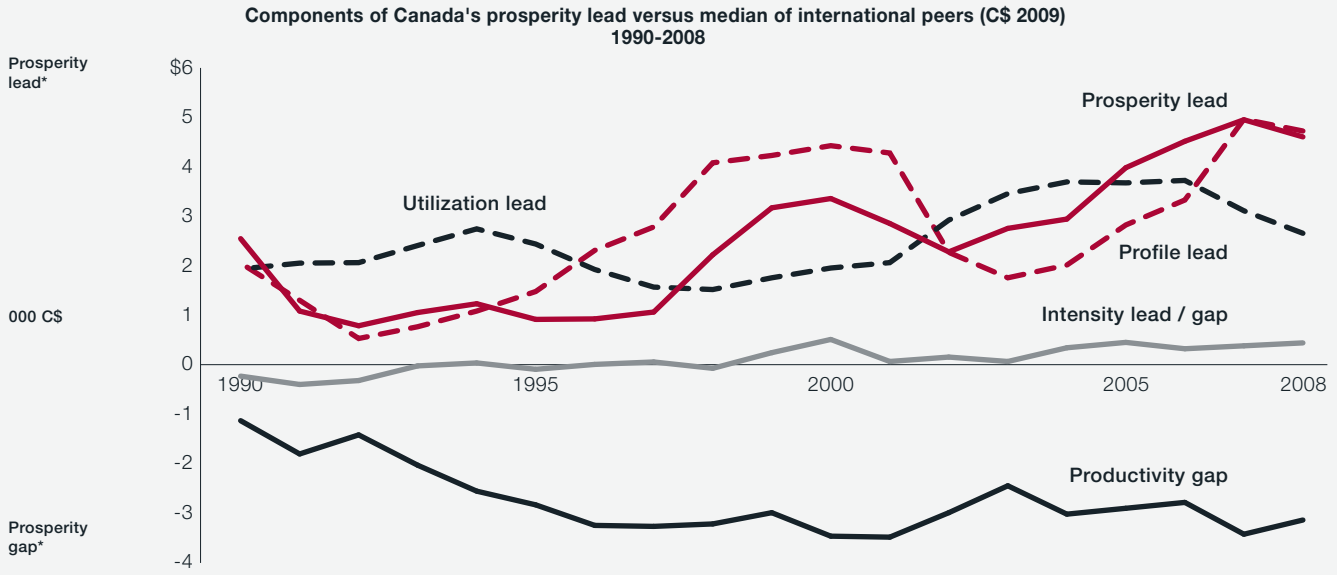
Among the most populous countries, Canada stands fourth in GDP per capita (*see Exhibit 2*). It is fair to say that we have built one of the most globally competitive jurisdictions here. However, just as we have found in comparisons with the United States, Canada's main challenge is to improve its productivity. We are out performing international peers through more labour effort, but we trail the median of our international peers in productivity.

We compared Canada's sources of prosperity with these international peers using the same waterfall approach we applied for US comparisons. Lack of data prevents us from providing the same level of detail, but we can compare Canada's work effort – comprising demographic profile, utilization of adults in the work force, and intensity of hours worked per worker – and productivity – the value created in the average hour of work effort (*Exhibit 10*).

This international comparison again indicates that lagging productivity is Canada's challenge – we work more than those outside North America, but we are less successful at creating economic value in the hours we work.

Even in today's recessionary environment, Canada's economy is one of the most successful in the world. Our challenge is to recover from the recession on a sound footing to build our full prosperity potential for the benefit of all Canadians. Higher productivity is critical to our success.

Exhibit 10 **Canada's productivity trails that in international peers**



* Versus median of 10 peer countries
Note: Currency converted at PPP.
Source: Institute for Competitiveness & Prosperity based on data from Statistics Canada; US Bureau of Economic Analysis; US Bureau of Labor Statistics; US Census Bureau; OECD; IMF.

Moving beyond the recovery with AIMS

As the recovery progresses, we will need to be skillful in navigating toward our prosperity potential

OUR AGENDA FOR PROSPERITY builds from the AIMS framework that guides our work. AIMS is built on an integrated set of four factors – the foundation for a prosperity eco-system:

- **Attitudes** toward competitiveness, growth, and global excellence. Our view is that an economy's capacity for competitiveness is grounded in the attitudes of its stakeholders. To the extent that public and business leaders believe in the importance of innovation and growth, they are more likely to take the actions necessary to drive competitiveness and prosperity.

- **Investment** in education, machinery, research and development, and commercialization. As businesses, individuals, and governments invest for future prosperity they will enhance productivity and prosperity.

- **Motivations** for hiring, working, and upgrading as a result of tax policies and government policies and programs. Taxes that discourage investment or labour will reduce the motivations for investing and upgrading.

- **Structures** of markets and institutions that encourage and assist upgrading and innovation. Structures, in concert with motivations, form the environment in which attitudes are converted to actions and investments.

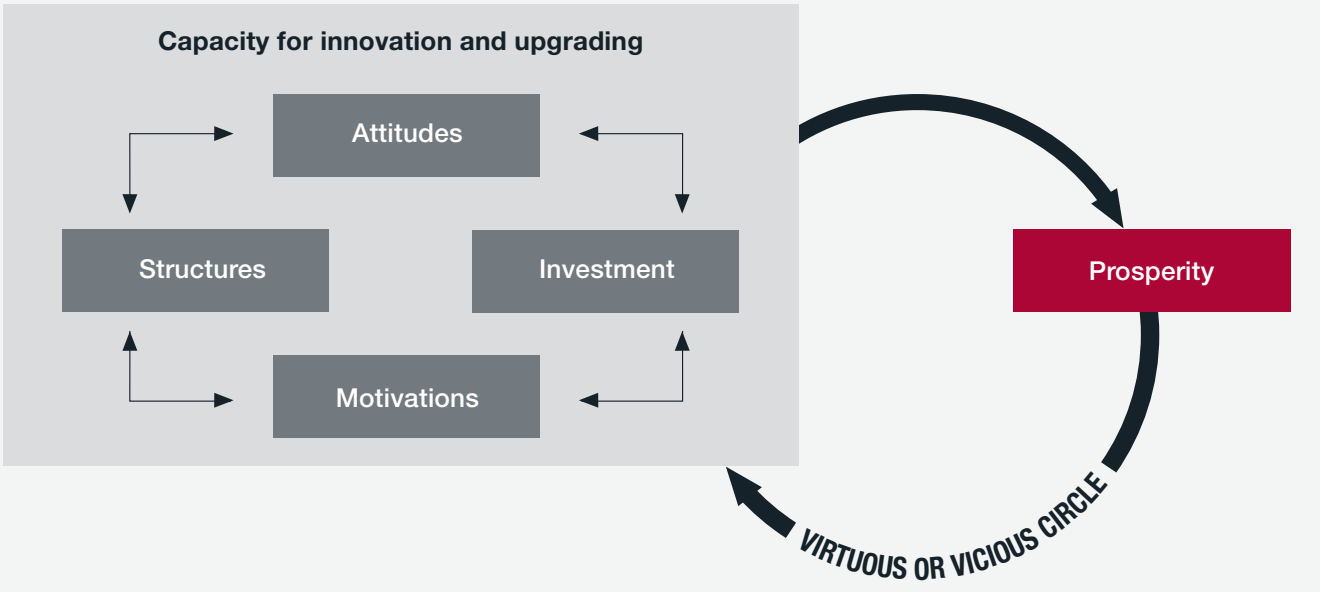
These four factors create an ongoing reinforcing dynamic. When AIMS drives prosperity gains, each one of the four factors would be reinforced. In an economy of increasing prosperity, attitudes among business and government leaders and the public would be more optimistic and welcoming of global competitiveness, innovation, and risk taking. Given these positive attitudes and with the greater capacity for investment generated by prosperity, Canadians would invest more in machinery, equipment, and software and in education. Motivations from taxation would be more positive, as governments would not see the need for raising tax rates. And greater economic prosperity would improve structures as more opportunities for specialized support were created. Then increased economic activity would drive more competitive intensity. These developments would lead to even higher prosperity, which would further strengthen each AIMS element, and so on in a virtuous circle (*Exhibit 11*).

But this AIMS-prosperity dynamic could also create a vicious circle. Unrealized prosperity potential could create pessimism and concerns about competitiveness and innovation rather than openness to them. These less positive attitudes would be less conducive to investments, and reduced prosperity would also lead to fewer investment opportunities anyway. Unrealized economic potential means tax revenues would not meet fiscal needs, leading governments to raise tax burdens, thereby de-motivating investments. And reduced economic activity would create fewer nodes of specialized support and less openness to the public policies that would result in more competitive intensity.

While the elements of the AIMS framework work reasonably well, we are concerned that if we do not address the current challenges of our complacent attitudes, under investment, de-motivating tax burdens, and inadequate market structures, we will be on the trail to a vicious circle. We must avoid this trend and ensure we maintain our economy on the virtuous circle track.

Our 2020 Prosperity Agenda comprises elements in each of the four AIMS factors. Our agenda for the coming year does likewise.

Exhibit 11 **AIMS drives prosperity; prosperity drives AIMS**



Source: Institute for Competitiveness & Prosperity.

Attitudes: Encourage innovation and competition to win in the current global economic turmoil

With positive attitudes to open competition, Canada can gain competitive advantage from the current global economic turmoil

ATTITUDES ARE an important foundation for a region's competitiveness and prosperity. In our previous work, we found that Canadians do not have a fundamentally different outlook on many aspects of competitiveness than our US counterparts. But we should encourage more competitive offence rather than defence as the recovery progresses.

Our leaders need to help strengthen positive attitudes toward international economic openness

Attitudes that lead to high aspirations, self-confidence, the desire to succeed, an entrepreneurial spirit, and creativity are important drivers of economic success. In previous research, we concluded that attitudinal differences between the public and businesses in Ontario and the peer states are not significant roadblocks to closing the prosperity gap. In contrast to commonly held perceptions, we differ very little from our counterparts in how we view business and business leaders, risk and success, and competition and competitiveness.[20]

At the national level, the Expert Panel on Business Innovation presented its report, *Innovation and Business Strategy: Why Canada Falls Short*, in 2009. Led by Robert Brown, CEO of global leader CAE Inc, the panel comprised leaders in business, academe, and labour. The Panel's mandate from the government of Canada was to assess the innovation performance of Canadian business and to identify the contributing factors to this performance.

The Panel assembled an array of evidence to show that Canada's productivity challenge is tied directly to our weak innovation performance, a conclusion we reached in 2007.[21] In its review of the various factors behind our weak innovation performance, the Panel addressed the issue of business ambition – "the attitudes that many believe have reduced the supply of entrepreneurial talent, the appetite for risk, the urge to grow and the propensity to innovate."[22] It observed that there is a widespread conviction in the Canadian business community that there is a deficiency of business ambition in Canada. Yet it could find no hard, quantitative evidence that supported the view that Canadian business people had fundamentally different outlooks on business from those in other countries.

The Panel concluded that, while there are not enough Canadians with the necessary aggressiveness, risk outlook, and outward perspective to compete in global markets, this "is not due to any lack of innate capacities of business people – it is not in the 'DNA' so to speak. Rather, the traditional attitudes of business people have been shaped over a very long time by particular circumstances of Canada's economy."[23] These circumstances include easy access to the large US market, limited domestic competition, the smallness of our domestic market, and inertia from our traditional success. A key challenge for us in Canada is to overcome the complacency that results from many of the advantages we have.

In its Final Report in 2008, the Competition Policy Review Panel had already called on Canadians to accept the challenge of globalization – to move from defence to offence to increase our competitiveness.[24] This Panel challenged governments, businesses, and the public to be more ambitious, to raise their sights, and to take control of their destiny in facing the issues of globalization. The Panel made important specific recommendations to realize the vision they set out for Canadians. Most of these are consistent with our own 2020 Prosperity Agenda.

The federal and provincial governments should not shy away from taking strong stands in support of international openness. Rather than following the current US Buy American plan or adopting disastrous beggar-thy-neighbour policies, we need to accelerate free trade negotiations with other significant economies. It is heartening to note that the federal government, with urging by the provinces of Ontario and Quebec, has begun negotiations for trade liberalization with the European Union (EU),

[20] Institute for Competitiveness & Prosperity, Working Paper 4, *Striking similarities: Attitudes and Ontario's prosperity gap*, September 2003.
[21] Task Force on Competitiveness, Productivity and Economic Progress, Sixth Annual Report, *Path to the 2020 Prosperity Agenda*, November 2007, pp. 29 – 31.
[22] The Expert Panel on Business Innovation, *Innovation and Business Strategy: Why Canada Falls Short*, Council of Canadian Academies, April 2009, p. 167.
[23] *Ibid.*, p. 174.
[24] Competition Policy Review Panel, *Compete to Win*, Final Report, June 2008.

our second largest trading partner. Of course, this will do little to help us in the current downturn. But if we start the negotiation process now, we may be able to accelerate the economic upturn with expanded trading. More trade also means more foreign direct investment, and this will help our economy expand. There is also a psychological benefit to this. One of the drivers of the Great Depression was the erection of trade barriers. If we are looking to widen our network of trading partners, we must avoid the temptation to close off trade. Trade liberalization with either the EU or the Trans-Pacific Partnership will move Canada in the right direction of more open trade.

Now is the time to increase our diversity advantage

As research by Richard Florida and the Martin Prosperity Institute has concluded, economic development is driven by 3Ts: Tolerance, Talent, and Technology. All three are critical to generating sustained economic growth and prosperity. The first "T," tolerance, is driven by attitudes.

Canada's long legacy of Tolerance and diversity makes it a good and inclusive place to live. But it also adds an important "non-market" advantage that can be an even more significant advantage if other countries are becoming less tolerant of "outsiders." [25]

There are several measures of Tolerance, and our research indicates that Canada out performs on nearly all of them. As an example, we out perform all other countries, but Singapore, on the Mosaic Index, which measures the percentage of the population who are immigrants.

There is no indication that these positive attitudes flagged in the economic downturn. The same cannot be said south of the border, where recent legislation has raised barriers for highly skilled immigrants. This creates a significant opportunity for Canada.

One provision in the US stimulus package is to "prohibit any recipient of TARP funding from hiring H-1B visa holders." According to the Bank of America, the provision is forcing it to rescind job offers to foreign-born students graduating from US business schools. Contrary to the arguments of protectionists, skilled immigrants make an economy stronger. In fact, according to research conducted by the US National Foundation for American Policy, for every H-1B position they requested, US technology companies in the S&P 500 increased their employment by five workers. As the *Wall Street Journal* concluded, "if US companies can't hire these skilled workers – many of whom graduate from US universities, by the way – you can bet foreign competitors will."[26] In the same *Wall Street Journal* issue, the leaders at Dartmouth's Tuck School of Business expressed concern that these provisions will reduce the dynamism of the US post secondary education system. They concluded that with foreign-born students finding less attractive employment prospects in the United States, it is quite likely that fewer will enroll there.[27]

This policy mistake – driven by attitudes of fear – can be Canada's opportunity. Our universities are already admitting large numbers of advanced graduate and doctoral students from foreign countries. International students represent a huge potential advantage because they bring skills and energy to Canada. But, as the Martin Prosperity Institute found in Ontario for example, there are currently economic disincentives for our universities to admit international graduate students, since the provincial government there provides no support to foreign doctoral students, and doctoral students are the most expensive to train. Given that many doctoral students end up staying in Canada following graduation and have the skills and capabilities that are vital to our competitiveness in key fields, we should extend normal domestic doctoral student funding to foreign students. This will ensure that we can compete for the world's best and brightest students – and help us gain a global advantage in the search for talent as economic growth resumes.[28]

In its recent Speech from the Throne and Budget, the Ontario government announced its intent to promote the province's post secondary institutions abroad, and increase international enrolment by 50 per cent while maintaining spaces for Ontario students. We hope that other provinces will follow as well as coordinate a national initiative. This will help Canada draw on excellent students from around the world and strengthen our schools and economy.

We conclude that, on most issues of competitiveness, Canadians have positive attitudes that help shape actions and policies favourable to raising our prosperity. Our attitudes toward economic openness are less well developed, and a potential risk of the current downturn is that Canadians may become more defensive toward international competition. Our political leaders must work to strengthen our competitive offence. Canadians have very positive attitudes toward diversity. We can widen this advantage in the current economic downturn, as US attitudes toward skilled immigrants harden.

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[25] Ronald Inglehart, *Modernization and Postmodernization: Cultural, Economic, and Political Change in 43 Societies*, Princeton: Princeton University Press, 1997; S. Page and L. Hong, "Groups of diverse problem solvers can outperform groups of high-ability problem solvers," *Proceedings of the National Academy of the Sciences*, 16385-16389, 2004; M. Noland, "Tolerance Can Lead to Prosperity," *Financial Times*, August 18, 2009.

[26] "Turning Away Talent," *Wall Street Journal*, March 11, 2009, p. A14.

[27] Paul Danos, Matthew J. Slaughter and Robert G. Hansen, "It's a Terrible Time to Reject Skilled Workers," *Wall Street Journal*, March 11, 2009, p. A13.

[28] Roger Martin and Richard Florida, *Ontario in the Creative Age*, Martin Prosperity Institute, 2009, p. 33.

Investment: Invest in the human and physical capital critical for recovery

This is not the time for suspending investments in education; they are more critical now than ever

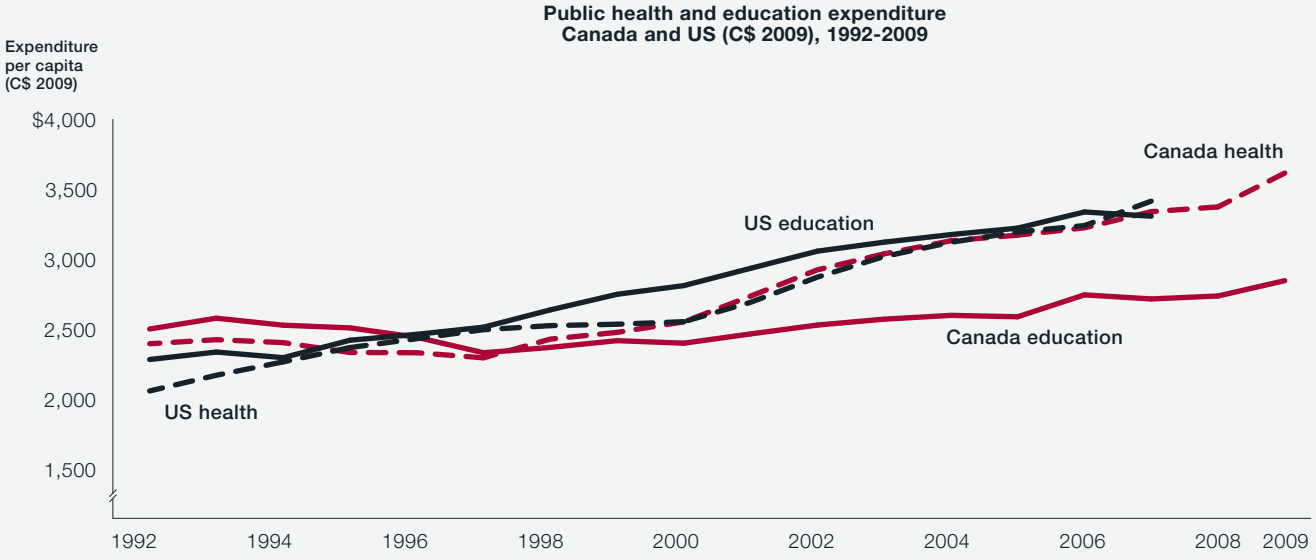
AS GOVERNMENTS, businesses, and individuals recover from the recession, their fiscal situation has no doubt been impaired. Prudence will require that spending be restricted to absolutely necessary current expenditures, since they cannot be avoided. While we recognize this practical reality, we argue that spending in areas that strengthen our human and physical resources needs to be a high priority. While investments may be curtailed in the near term, we urge that decision-makers in the public and private sectors ensure that we stay on a track that sets out adequate investment in our long-term prosperity.

Continue to invest in people's capabilities for Canada's competitiveness

A clear example of the need to step up investments is our public expenditure in education. As we compare our current public spending patterns in Canada with those in the previous decade and in the United States, we find that we are falling behind in education. As recently as 1992, all levels of government across Canada spent $2,500 per capita on education (in 2009 dollars) – 4.4 percent more than we spent on health care (*Exhibit 12*).

In 1992, investment in education was not on many Canadians' radar screens. Our attention focused on debt and deficits. Federally, the deficit had ballooned from $1 billion in 1971 to $33 billion in 1984. Despite the concern expressed by the new federal government, annual

Exhibit 12 **Since 1996 public investment in education in Canada has trailed US spending significantly**



Notes: US health spending includes workers' compensation, medical benefit outlays and excludes administrative and other costs; Canada health spending includes all workers' compensation. Values deflated using appropriate deflators. US dollars converted to Canadian dollars at 2009 PPP.
Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada, Consolidated Government Revenue and Expenditures (CANSIM Table 385-0001); US Census Bureau, State and Local Government Finances; Office of Management and Budget, Historical Tables; National Academy of Social Insurance, "Workers' Compensation: Benefits, Coverage, and Costs, 2007," August 26, 2009.

budget deficits remained standard practice, and by 1992–93, the deficit had tipped over the $40 billion mark. When S&P downgraded Canada's credit rating, the federal and provincial governments owed $665 billion among them, about $300 billion of which was foreign debt. The total amounted to over 96 percent of the country's Gross Domestic Product.

Then, over the two fiscal years between 1995–96 and 1997–98, the federal government achieved an impressive $33 billion turnaround in Ottawa's fiscal position, moving from a $30 billion deficit to a $3 billion surplus. The economy had helped by providing $21 billion of that figure in increased revenues, but the government also cut $12 billion in federal spending; by 1997–98, the federal government was in surplus, a task thought five years earlier to be impossible.

But where did the federal government find that $12 billion in cuts? The biggest rollback was in transfers to the provinces – money used to fund education and health care, the two biggest provincial expenditures. Ottawa chopped almost $8 billion, or 24 percent, from this budget line between 1995–96 and 1997–98, a time when the provinces were all dealing with their own fiscal challenges. Ironically, by 1999–2000 provincial transfers were nearly back to the level they were at in 1995–96. But by then the provinces had already changed their approaches to spending.

Broadly speaking, public expenditures can be broken into two fundamental buckets: investment in building future prosperity, and consumption of current prosperity. As governments at both levels tackled deficits, they cut real per capita spending on education at a much faster rate than that on health care spending. By 1998, governments in Canada were spending more on health care than on education. This gap widened considerably as health care spending per capita increased at an annual trend-line real rate of 3.6 percent between 1998 and 2009, while education spending increased only 1.6 percent annually. Last year, per capita public spending on health care outpaced spending on education by 27 percent – while a decade ago, spending levels were about the same. In effect, they spent more on health care consumption than on investment in education.

Contrast our response to the 1990–93 economic downturn with that of the United States, which admittedly entered the recession in better fiscal shape than Canada: total deficits across all levels of government there represented 4.2 percent of GDP in 1990, before the recession struck. That figure grew as high as 5.8 during the recession, but by 1995 it was back down to 3.1 percent. By comparison, in 1990 Canada had federal and provincial deficits amounting to 5.8 percent of GDP, and by 1992 that figure had reached 9 percent. The United States did not need to engage in the dramatic deficit fighting seen in Canada. So, over the same period, spending by governments in the United States grew at about the same rates for health care and education. Across Canada, while constant 2009 dollar per capita public investments in education increased slightly at a rate of 1.5 percent annually between 1997 and 2005, this annual growth rate increased to 1.9 percent between 2005 and 2009.

Still, much remains to be done, as the gap to be closed is still considerable. As federal and provincial governments turn their attention to the massive deficits they have generated in the past two years, they need to ensure that spending cuts are made appropriately and with the long-term in mind.

Post secondary education has a significant impact on an economy.

Over the years, we have identified the importance of investing in post secondary education for Canada's prosperity. There is much research that shows the positive impact of such investment on prosperity for regional economies and for individuals.

Traditionally, the inputs for economic growth have been understood to be capital and labour. But economists now conclude that knowledge plays a critical role in economic growth. Human capital – the ideas, skills, and expertise of people – is a fundamental input into the economic process. The education of the workforce is therefore a fundamental driver of economic growth.

Recent research has tied national investment in post secondary education to economic growth. In an international study by the Organization for Economic Co-operation and Development (OECD), researchers found a positive and significant relationship between number of years of schooling and per capita growth in output.[29] Craig Riddell also found a strong correlation between labour force quality (as measured by test scores) and per capita economic growth rates.[30]

In addition to providing for a better educated workforce, spending on post secondary education has been positively correlated with both innovation and high-technology industrial activity.[31] And investing in universities also results in more basic research. If the university is embedded within what researchers call the regional innovation system, this research flows to the private sector, where it can be commercialized and drive economic progress.

Spending on post secondary education is also believed to have several kinds of regional spillover effects. Universities have been shown to be the source of direct economic spillovers, generating

[29] Andrea Bassanini and Stefano Scarpetta, "Does Human Capital Matter for Growth in OECD Countries? Evidence from Pooled Mean-Group Estimates," OECD Working Paper No. 282, 2001.
[30] Craig Riddell, "Education and Skills: An Assessment of Recent Canadian Experience," University of British Columbia and Canadian Institute for Advanced Research, Discussion Paper No. 01-06, 2001.
[31] Richard Florida and Gary Gates, "Technology and Tolerance: The Importance of Diversity to High Technology Growth," The Brookings Institution: Centre on Urban and Metropolitan Policy, 2001.

new businesses and spinning off billions in economic activity. In 1999, for example, the University of Waterloo in Waterloo, Ontario, accounted for over $1 billion in economic activity in the local region and $1.6 billion province-wide.[32] An earlier study found that graduates of the Massachusetts Institute of Technology had created over 4,000 companies world wide, with total sales of US $232 billion.[33]

Research has indicated that the presence of research universities is also a key factor for multinational corporations as they make their R&D location decisions. Multinational firms seek out the benefits of spillovers from other companies in their industry, a highly qualified labour force, first-class infrastructure, and access to specific research universities.[34]

Universities also indirectly stimulate economic growth through the spillover of knowledge through their graduates. As centres for discovery, universities express purpose is to generate ideas. In this way, they engender an environment where continuous learning is supported. The leagues of graduates who enter the local economy interact with university-based researchers, thereby creating the flow of tacit knowledge and ideas from industry, to university, and back again.[35]

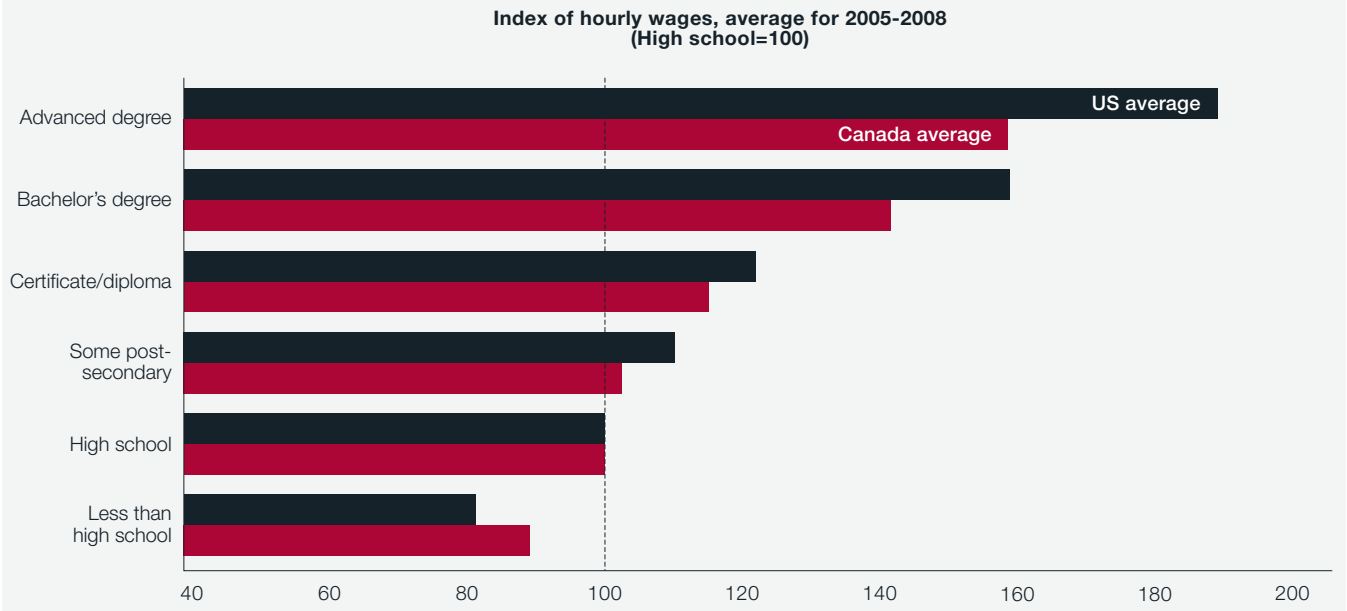
Linkages between universities and industries facilitate this knowledge flow. Cooperative education programs, industry-sponsored research, and joint industry-university research organizations are a few examples of such linkages. The result is a network of people that share knowledge continuously. The presence of such a network is a critical component to the culture of relentless upgrading and innovation. Innovation at the firm level is reinforced by its interactions with university researchers, whose primary function is to discover new ideas. Spinoff companies and technology transfer are common results of university-industry relationships.

Education makes a difference to individuals' economic well being

Ample research has shown that level of schooling is one of the best predictors of the relative wealth of individuals. Highly educated individuals have higher wages and experience less unemployment. They are healthier, live longer, and are less likely to be involved in crime than those with fewer years of schooling.[36]

Our own research has shown the impact of various levels of educational attainment on individuals' earnings (*Exhibit 13*). In our study of poverty in Working Paper 10, the Institute concluded that post secondary education was a critical ingredient in reducing poverty.[37] The Institute identified several groups who had a higher-than-average propensity for being in poverty – high school drop-outs, single mothers, Aboriginals, the disabled, recent immigrants, and unattached individuals between the ages of 45 and 64. Except for recent immigrants, educational attainment

Exhibit 13 **Higher education is rewarded more in the United States than in Canada**



Note: Premium based on linear regressions using microdata for the period 2005-2008 and controlling for demographic, state, and year effects.
Source: Institute for Competitiveness & Prosperity based on data from Statistics Canada - Labour Force Survey; U.S. Bureau of Labor Statistics - Current Population Survey.

[32] PriceWaterhouseCoopers, *The University of Waterloo: Regional Economic Benefits Study, 2001.*
[33] Bank of Boston Economics Department, *MIT: The Impact of Innovation*, 1997
[34] Institute for Competitiveness & Prosperity, Working Paper 11, *Flourishing in the global competitiveness game*, September 2008, p. 27.
[35] David Wolfe, "Social Capital and Cluster Development in Learning Regions," in A. Holbrooke and D. Wolfe (eds.) *Knowledge Clusters and Regional Innovation*. Montreal: McGill-Queens University Press, 2002.
[36] See for example W. Craig Riddell, *Education and Skills: An Assessment of Recent Canadian Experience*. The University of British Columbia and Canadian Institute for Advanced research, Discussion Paper No. 01-23, 2001; Ana W. Ferrer and W. Craig Riddell, "The Role of Credentials in the Canadian Labour Market," *Canadian Journal of Economics*, 2002 Vol. 35, No. 4; Statistics Canada, "Education and earnings," *Perspectives on Labour and Income*, 2006, Vol. 38, No. 03.
[37] Institute for Competitiveness & Prosperity, Working Paper 10, *Prosperity, inequality, and poverty*, September 2007, pp. 46-47.

across each risk group was below the Ontario average. In general, within each risk group, those with more education achieved better economic outcomes than those with less.

Higher levels of educational attainment also mean people face less likelihood of working part-time involuntarily – a cause of reduced economic success. In its study of hours worked in Working Paper 9, the Institute found that the incidence of involuntary part-time work decreased as educational attainment increased.[38]

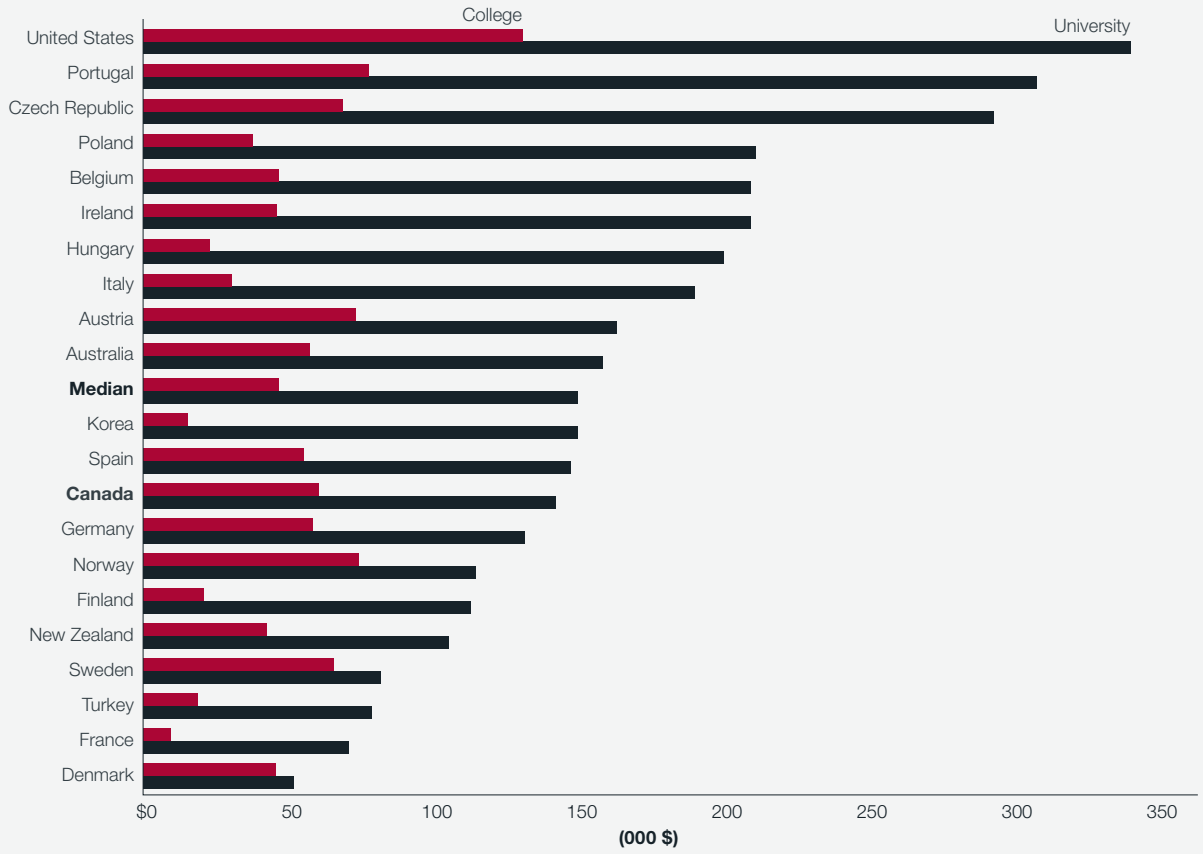
As we have seen above, research by the Institute has shown the higher returns from a university degree. Recent research by the OECD shows the positive returns for individuals and for society from post secondary education. Both are positive (after considering the costs of attaining post secondary education) and this net return is higher for university education (*Exhibit 14*).

A common objection to increasing the percentage of people with post secondary education is that the increased supply of graduates will depress wages and therefore lower the returns to education. However, as we examine attainment rates and post secondary educational premiums, we find no relationship. That is, on average, countries with a high percentage of their population with post secondary degrees do not generate higher or lower returns to education than countries with a low percentage of their population with post secondary degrees.

It is fair to say, however, that education, while an antidote to poverty, is also related to greater inequality. As developed economies become more sophisticated, the economic returns to more education increase. Many economists conclude that this "skills-biased technical change" in our economies has been the leading contributor to increasing inequality. Those with the skills necessary for success in more sophisticated economies do well; those without the skills do badly.[39] Where these returns are higher, as shown in

Exhibit 14 **Canada's lifetime returns to post secondary education fall below international median**

Combined Public & Private Net Present Value Returns to Obtaining Postsecondary Education versus High School Diploma (C$ 2009), 2005



Notes: Public NPV returns include public direct cost, public forgone revenues, income tax revenues, social contribution revenues, transfer revenues and unempoyment effect. Private NPV returns include direct costs, forgone earnings, gross earnings benefits, income tax effect, social contribution effect, transfer effect and unemployment effect.
Source: Institute for Competitiveness & Prosperity Analysis based on data from OECD *Education at a Glance 2009*.

[38] Institute for Competitiveness & Prosperity, Working Paper 9, *Time on the job*, September 2006, pp. 25-26.
[39] Institute for Competitiveness & Prosperity, Working Paper 10, *Prosperity, inequality, and poverty*, September 2007, pp. 12-15.

Exhibit 14 and adjusted for average incomes, inequality tends to be higher (*Exhibit 15*). Our challenge is to increase our economy's sophistication and ensure that as many Canadians share the benefits as possible. Greater access to post secondary education is one important part of this solution.

Wider access and more master's graduates are priorities for the future

In a 2006 HRSDC report, *Looking-Ahead: A 10-Year Outlook for the Canadian Labour Market, 2006–2015*, it concluded that "over the next ten years, 69.2 percent of the 1.7 million new non-student jobs created are expected to be in occupations usually requiring postsecondary education (university or college) or in management." This is in line with projections done for the US economy, indicating that 67 percent of all jobs created between 2006 and 2016 will require some post secondary education.[40]

We need to close a considerable gap. Only about 40 percent of 20 to 24 year olds participated in post secondary education in 2007. If we are to develop the knowledge and skills necessary for advantage in the creative age, we will need to step up our participation rates in post secondary education.

Increased access to post secondary education will also help reduce poverty for current and future generations. Our analysis of the Youth in Transition Survey and the Participation and Activity Limitation Survey conducted by Statistics Canada indicates fewer university graduates among groups we previously identified as being at high risk of poverty:

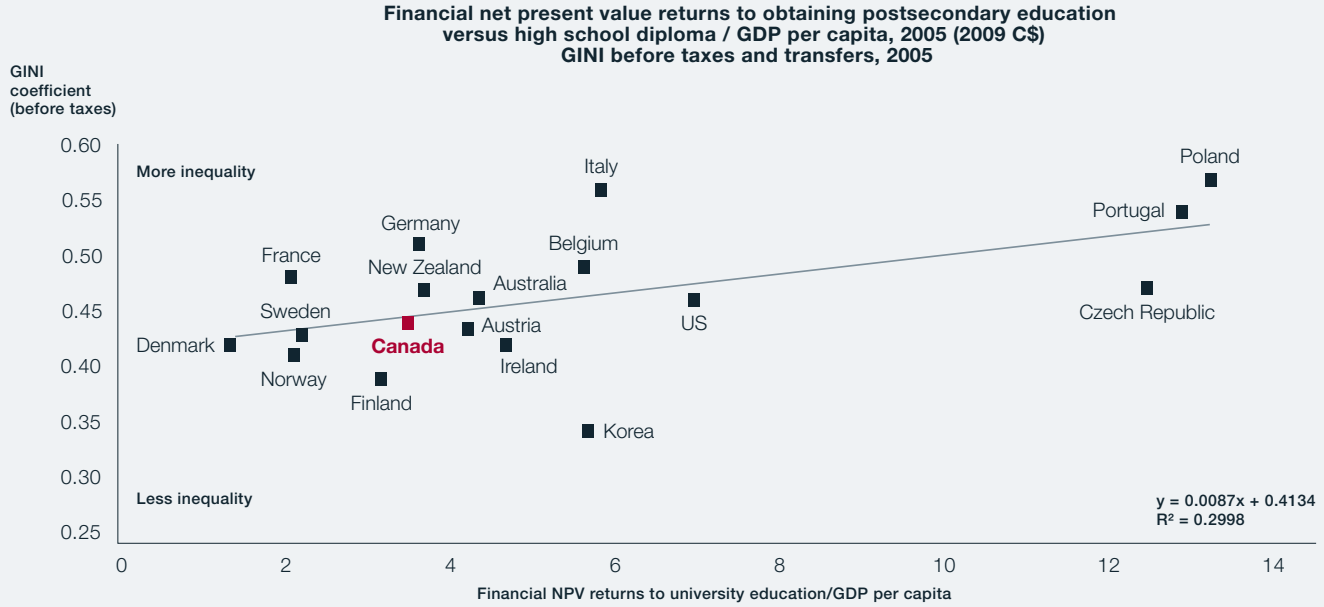
- Young adults from single-parent families are 33 percent less likely to graduate from university than those from two-parent families
- Young adults whose parents have high school education or less are half as likely as those whose parents have at least some post secondary education to graduate from university
- Adults (20–64) with disabilities are 41 percent less likely to graduate from university
- Aboriginals are less than one-third as likely to graduate from university than non-Aboriginals

In addition, other identifiable groups are less likely to graduate from university:

- Males are 25 percent less likely than females to graduate from university
- Rural residents are two-thirds as likely as urban residents to graduate from university.

While higher parental income is associated with greater likelihood of attending university, most researchers in Canada conclude that factors such as parental attitudes toward education and a home environment that encourages education are the key factors – and these are typically associated with more highly educated and higher income parents. Research conducted by economists Ross Finnie, Arthur Sweetman, and Eric Lascelles in

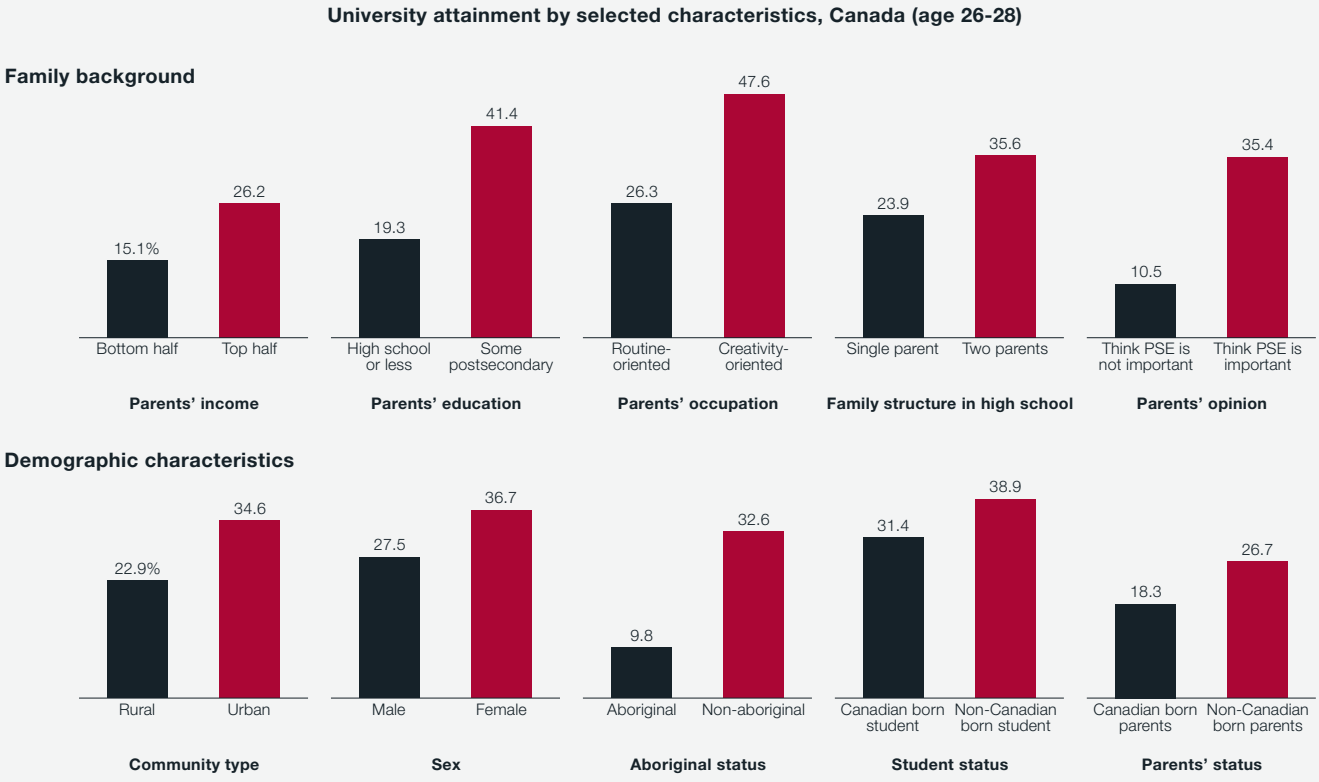
Exhibit 15 **There is a positive correlation between returns to education and inequality**



Note: Financial NPV returns to education account for both public & private costs.
Source: Institute for Competitiveness & Prosperity analysis based on data from the OECD.

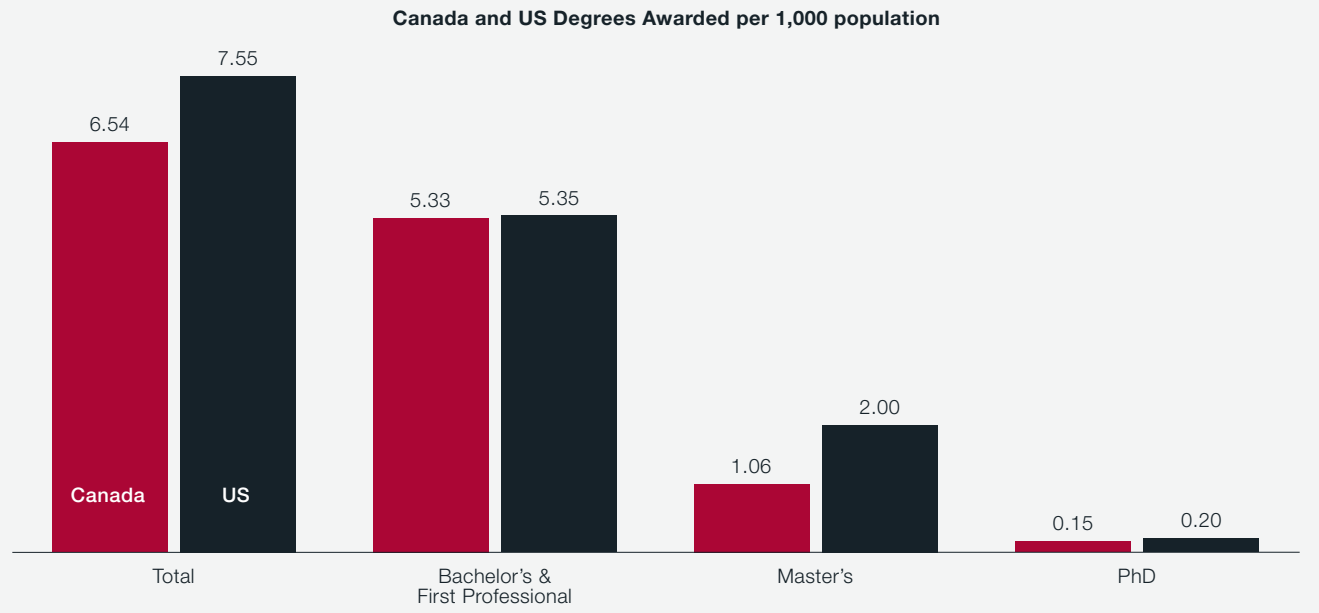
[40] Analysis conducted by Institute for Competitiveness & Prosperity for *Ontario in the Creative Age* based on projections by US Bureau of Labor Statistics and O*NET 12.0 database – developed for US Department of Labor.

Exhibit 16 Except for immigrants to Canada, children from high-risk groups are less likely to graduate from university than others



Note: University attainment measures Bachelor's Degree and above. The estimates for university attainment by Parents' Status and Parents' Income come from Cohort A, Cycle 5 (23-year olds), whereas the other estimates are for Cohort B, Cycle 5 (26-28 year olds).
Source: Institute for Competitiveness & Prosperity analysis based on Statistics Canada Youth in Transition Survey (YITS) cycle 5, cohort A and B.

Exhibit 17 Canada graduates fewer Master's than the United States



Note: Data for Canada are for 2007 calendar year; US data are for 2006-2007 academic year.
Source: Institute for Competitiveness & Prosperity Analysis using data from Association of Universities and Colleges of Canada & National Centre for Education Statistics.

2005 found that, while affordability is very important to participation, family background and the circumstances in which a student lives prior to considering post secondary education are the principal variables in the participation equation. These variables include parental education, family type, place of residence, language, and ethnicity.

The Youth in Transition research indicates that lower educational attainment among these risk groups is primarily the result of not pursuing any post secondary education – as opposed to choosing college over university or dropping out (*Exhibit 16*).

Increasing the number of master's degrees granted is a priority for Canada's investment in post secondary education

Canada under performs relative to the United States in university graduation rates. For the latest year for which we have results, Canadian universities granted 6.54 degrees per thousand population, while US universities granted 7.55. This difference is almost totally at the master's level (*Exhibit 17*).

As we have seen, post secondary education provides great economic return for individuals and for society. We have also seen that individuals with master's degrees earn more than those with bachelor's degrees.

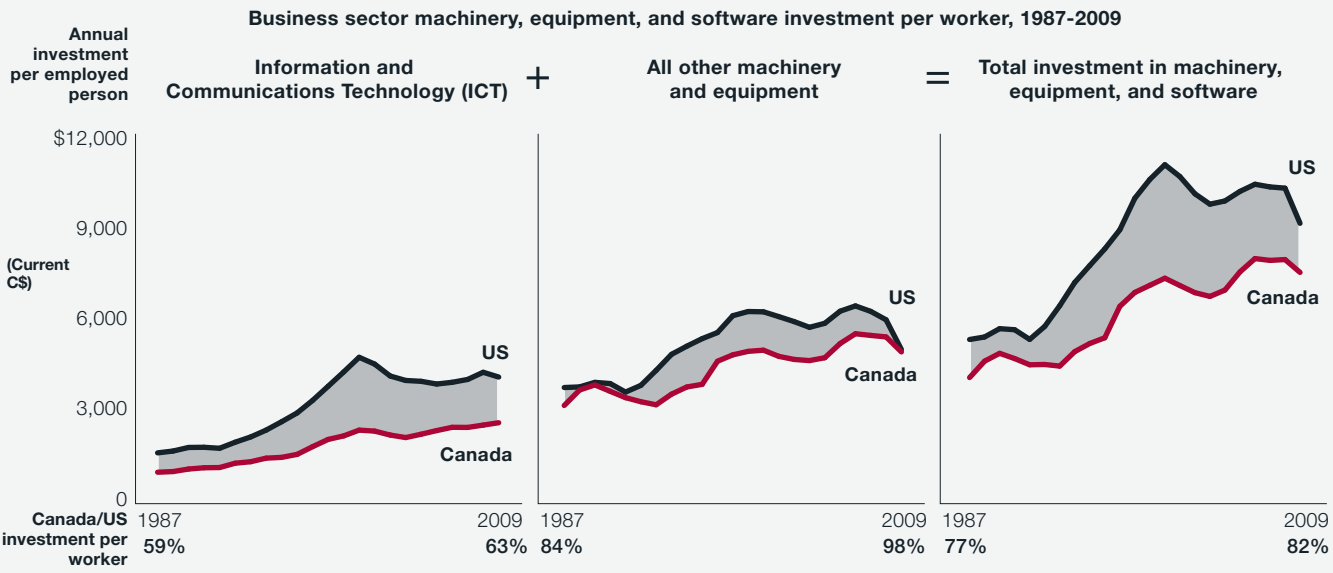
Businesses need to step up their investments in technology

Canadian businesses continue to trail their US counterparts in investing in machinery, equipment, and software to make their workers more productive. Such investments that are made are typically allocated to information and communications technology (ICT) and to all other categories, such as transportation equipment and traditional factory equipment. ICT accounts for about a third of investment in machinery, equipment, and software. And our major gap is in ICT investment.

On a per worker basis, US businesses out invest Canadian businesses in machinery and equipment overall with the gap now almost entirely in ICT. As much of machinery and equipment is imported, changes in the currency exchange rate match changes in purchasing power parity for machinery and equipment (even though PPP for the whole economy does not follow exchange rate changes). Consequently, the gap between Canada and US investment per worker began to narrow slightly in 2002 and more significantly beginning in 2005. In 1987, our businesses invested 23 percent less per worker in all machinery, equipment and software; in 2000, this gap had grown to 34 percent; and in 2009, it declined to 18 percent (*Exhibit 18*).

In 2009, the Canada-US gap in ICT investment per worker was $1,506 or 37 percent, while in other machinery and equipment there was a small gap, with the United States out investing Canada by $78 per worker, or 2 percent. While most emphasis of the impact of a strengthening Canadian dollar is on its harmful effect on employment in our export industries, one of the positive outcomes is that we are gradually closing the machinery and equipment investment gap.

Exhibit 18 Canada has failed to close the gap in information and communication technology investment



Note: US dollars converted to Canadian dollars using 2008 PPP for M&E.
Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada (special tabulations); Labour Force Survey (CANSIM Table 282-0002); US Department of Commerce, Bureau of Economic Analysis; US Bureau of Labor Statistics, Current Population Survey; CSLS Database of Information and Communication Technology (ICT) Investment and Capital Stock Trends: Canada vs United States, available online: http://www.csls.ca/data/ict.asp.

Nevertheless, the accumulated effect of this under investment by Canadian businesses each year means that their workers have less capital to support them on the job. In a recent *Globe and Mail* article (May 14, 2010) TD Bank's chief economist Craig Alexander reported that the stock of machinery and equipment per worker in Canada was only half of the investment level in the United States.

Closing the investment gap offers the potential for closing the prosperity gap. With higher machinery, equipment, and software investment, our workforce could be more productive. In 2006, the Institute assessed the lower adoption of ICT by Canadian businesses, particularly small and medium enterprises.[41] The research we reviewed indicates that investment in ICT enhances productivity at three levels. At the most basic level, research by OECD and others indicates that equipping staff with computers and software increases firm and national productivity. At the second level, connecting computers in networks and drawing on more technologies can drive productivity even higher. But the most significant benefit of ICT adoption can be that it enables the profound transformation of businesses through changes in business processes or organizational design or both.

In past reports we have concluded that two critical factors have dampened business investment in technology and also in R&D – our relatively high rates on capital investment and the lack of competitive pressure on our businesses. The Ontario and British Columbia governments are enacting significant tax reform that will eliminate the tax disadvantage. And opening up trade with Europe and China will increase the pressure and support for investment. We discuss both these factors in the next sections.

Investments in our own skills and knowledge and in assets like machinery and technology are critical drivers of increased productivity, and productivity growth is necessary if we are to realize our full prosperity potential. Canadians need to step up our investments.

[41] Roger Martin and James Milway, "Enhancing the Productivity of Small and Medium Enterprises through Greater Adoption of Information and Communication Technology," Information and Communication Technology Council, Ottawa, March 2007, available online: **http://www.ictc-ctic.ca/uploadedFiles/Labour_Market_Intelligence/Enhancing-the-Productivity-of-SMEs.pdf**

Motivations: Continue trend to lower taxes on business investments

Ontario and British Columbia are implementing bold improvements in their tax system; other provinces should follow

IN OUR PREVIOUS REPORTS, we have been critical of the structure of taxation across Canada. Two of our recurring recommendations have been that all provinces with a retail sales tax should harmonize them with the federal goods and services tax (GST), and they should bring down corporate income tax rates that penalize new productivity enhancing investments by business.

We are pleased that these recommendations were adopted in Ontario's and British Columbia's 2009 provincial budgets. These tax changes will enhance the competitiveness of the provincial economies and the prosperity of their residents.

Changes in tax regimes benefit the average citizen

We need more investment by our businesses to improve prosperity for the average Canadian. As we have seen, our businesses do not invest as much as their US counterparts in machinery and equipment, particularly high technology equipment and software. In 2009, the difference Canadian businesses invested was $1,584 per worker – or 18 percent less than their competitors in the United States. This matters because our workers could create more value if they were supported by the most advanced software or equipment. Our wages are directly related to the amount of value our workers create – through more innovative products or services or greater efficiency. If we want higher wages and more secure jobs, we need more investment by our businesses.

Do taxes de-motivate investment? In past reports, we have cited research by tax experts and other economists to show that new business investments increase when taxes on them are reduced.[42]

One study by Finance Canada economists indicates that for every 10 percent reduction in taxes on business investment, the expenditure on machinery and equipment increases by 10 percent. Our work and that of others reach the same general conclusion – lowering the cost of business investment means more investment. And this means more high paying jobs. Other research by Finance Canada shows that a reduction in business taxes does more for the average family than an equal reduction in the sales tax. This paradoxical result comes about because more business investment drives wages and job creation higher.

Unfortunately, Canada has been a high cost jurisdiction when it comes to taxing new business investment. When we add up all the taxes businesses have to pay when they invest in new equipment and technology, we find that this rate in Canada is one of the highest among the world's advanced economies. But this is changing for the better.

First, we have had relatively high tax rates on corporate profits. Businesses make investments to earn profits, so when we tax profits, we in effect tax investments. Federal and several provincial government corporate income tax rates have been decreasing over the past few years. In its 2010 budget, the federal government confirmed its commitment to having the lowest corporate income tax rate in the G7 by 2012. This commitment is important to our realizing our full investment and prosperity potential.

Second, provincial sales taxes, as currently structured in all but Newfoundland and Labrador, New Brunswick, Nova Scotia, and Quebec, are charged on business investments. Where still in place, the retail sales tax applies not just to people buying clothing or appliances; it also applies to businesses when they invest. To be sure, there are many exemptions, as provincial governments have recognized the problem with charging sales taxes on business investments. But still, about a third of Ontario's "retail" sales tax is paid by businesses making investments in or purchasing goods for their operations. In British Columbia, about 40 percent of the provincial sales tax is borne by businesses.

[42] Task Force on Competitiveness, Productivity and Economic Progress, Seventh Annual Report, *Leaning into the wind*, November 2008, pp. 39-41.

By changing their provincial sales taxes to a value added tax, Ontario and British Columbia will eliminate those taxes on business investments and other inputs. When Quebec and the three Atlantic provinces made this conversion, they saw their business investment jump 11 percent.[43]

But won't the harmonized sales tax mean that consumers pay more? The introduction of the harmonized sales tax in Ontario and British Columbia is not a tax grab – corporate, and individual income taxes are being reduced at the same time. There will be no tax change at retail for goods that currently bear the provincial sales tax. In fact, retail prices will actually decline as the producers of those goods see their costs go down as they stop paying sales taxes on their purchases – and competition forces them to pass on these savings in lower prices. This was the experience in Quebec and the Atlantic provinces. To be sure, prices will increase on services that will now be taxed provincially for the first time. But the likely net effect is that the overall average prices for goods and services will increase only slightly, according to TD Economics.[44]

It is fair to say that converting the provincial sales tax on goods to a value added tax on goods and services will affect people with lower incomes more than others. But the governments have exempted items like books and children's clothing from the new tax. And both governments have introduced tax credits for those with lower income to help alleviate the tax on services. For many families, these measures compensate for the higher sales tax.

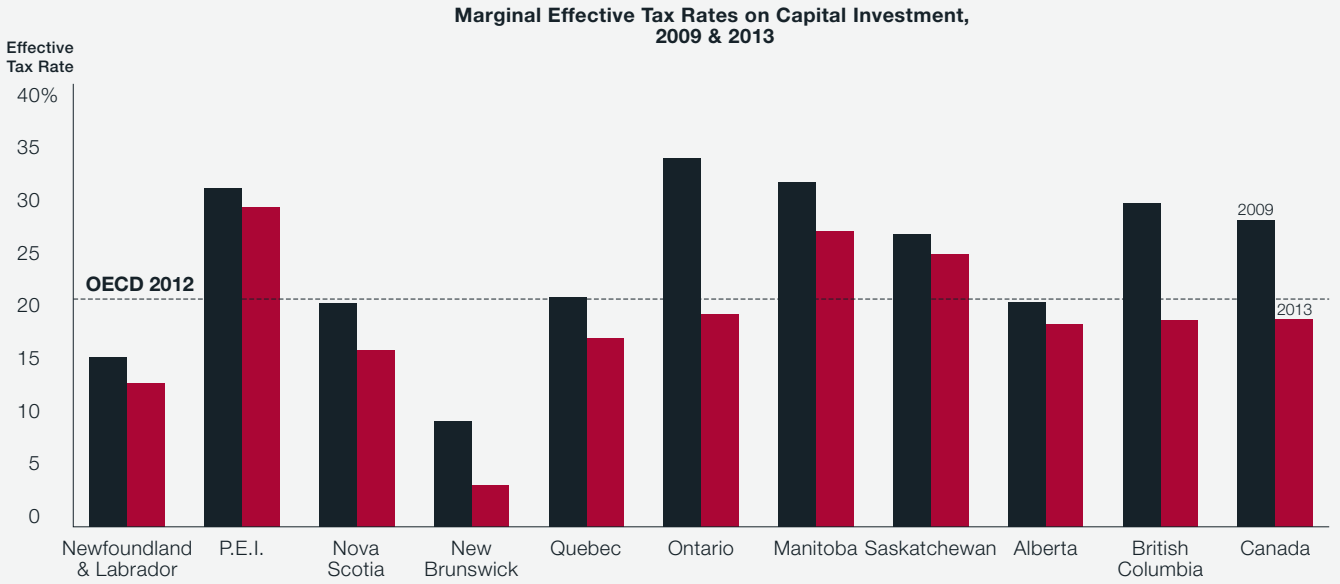
Taken together these measures take Ontario and British Columbia from having above OECD and Canadian averages for tax regimes for new business investment to being better than average (*Exhibit 19*).

Some have leveled the charge that the conversion to a harmonized sales tax and the reduction in corporate income taxes are just part of a business agenda. This does not stand up to scrutiny, because the research indicates that most corporate taxes are borne by workers.[45] This occurs in two ways. First, firms pass on a significant portion of the additional costs of corporate taxation to their employees in the form of lower wages. Second, as we have said, workers suffer from high corporate taxes, as the lower investment in productivity- and wage-enhancing investments in machinery, equipment, and software hurts job creation and wages.

Research recently completed by international tax expert Jack Mintz concludes that the adoption of a harmonized sales tax and the reduction of corporate income tax rates will benefit the two provinces significantly.

In Ontario, Mintz estimates that, within ten years, the tax change will stimulate increased capital investment by $47 billion. This business expansion will create an estimated 591,000 net new jobs, 103,000 of which will be in manufacturing. The new investment and the new jobs will lead to a combined increase in labour and investment income of $29 billion or 8.8 percent of 2008 labour income.[46]

Exhibit 19 **PEI, Manitoba, and Saskatchewan will be Canada's high-tax provinces by 2013, unless they adopt tax reform**



Source: Chen, Duanjie & Jack M. Mintz "The Path to Prosperity: The 2009 Federal-Provincial Tax Competitiveness Report," C.D. Howe Institute , Commentary No. 295, September 2009; Government of Canada. "Budget 2010: Leading the Way on Jobs and Growth," Department of Finance Canada, March 2010.

[43] Michael Smart, "Lessons in Harmony: What Experience in the Atlantic Provinces Shows About the Benefits of a Harmonized Sales Tax," C.D. Howe Institute Commentary No. 253, July 2007.
[44] TD Economics, "The Impact of a Sales Tax Harmonization in Ontario and B.C. on Canadian Inflation," September 18, 2009.
[45] Wiji Arulampalam, Michael P. Devereux, and Giorgia Maffini, "The Incidence of Corporate Income tax on Wages," Oxford University Centre for Business Taxation, Oxford, WP 07/07, April 2007.
[46] Jack Mintz, "Ontario's Bold Move to Create Jobs and Growth," SPP Communiqué, School of Public Policy, University of Alberta, November 2009.

In British Columbia, he concludes that by 2020 the improved tax regime will increase the province's capital stock by $14.4 billion and add 141,000 new jobs, equal to 6 percent of the current labour force there; sales tax harmonization alone will account for $11.5 billion of the increased investment and 113,000 of the new jobs.[47]

Lowering taxes on business investment is not just favourable for businesses; it is favourable for people. The Ontario and British Columbia governments took very bold action when the easier political strategy would have been to wait until economic conditions are better. Many argue that governments cannot be bold and do the right thing because it is not politically feasible. These two governments show that to be the view of defeatists. They should be congratulated.

With Ontario and British Columbia adopting the harmonized sales tax, only three holdouts remain – Prince Edward Island, Manitoba, and Saskatchewan. If theses provinces do not modernize their tax structures, they will be distinct outliers within Canada. By 2013, Canada and most of its provinces will have marginal effective tax rates below the average for OECD developed economies. However, the three provinces with non-harmonized provincial sales tax will be well above the Canadian and OECD average. We encourage those provinces to join with the other provinces in making their jurisdictions and Canada more open to job creating investment.

Next challenge is to lower marginal effective tax rates for lower income Canadians

The Working Income Tax Benefit (WITB) is a potentially effective approach to fighting poverty in Canada. Low-income families who are trying to break out of poverty to achieve financial sustainability often find barriers in their way. In fact, many who try to break away from welfare and find employment face strong disincentives to work, such as insufficient work hours, low wages, and welfare clawbacks – often termed collectively as the "welfare wall."

In 2007, the federal government introduced the Working Income Tax Benefit (WITB), designed to support the working poor to overcome this welfare wall. The WITB is a refundable tax credit offered to low-income earners as a supplement to low earnings from employment, therefore encouraging them to break out of welfare by seeking more work and to "make work pay."

However, the current WITB program is not doing the job as well as it could in many provinces and territories. This is because its current nominal design does not lace well with all thirteen provinces and territories, each with its own unique income-security structure. Though the federal government has extended an invitation to their provincial counterparts to modify the design of the WITB to suit their welfare programs, only Quebec, British Columbia, and Nunavut have done so.

For instance, in Ontario, the nominal WITB currently provides the highest incentive for low-participation part-time work and inhibits the effort required to achieve full-time hours.[48] Worse, these WITB benefits then phase out as earners take on more hours, disappearing before recipients have earned enough to get off welfare. For the WITB to meet its stated objectives, we propose that its maximum benefits should be shifted to support full-time work, where a modified WITB supplement can help low-income earners move more effectively from social assistance to full-time employment, cushioning the impact of losing welfare with work.

We recommend, therefore, that the federal government place more emphasis on coordinating the WITB with provincial income-security programs. A mandatory harmonization of its WITB design against these individual social assistance structures can effectively shift the maximum benefit to support more hours of work, and therefore provide low-income earners with the needed cash to help make ends meet.

We also believe that the WITB program has a strong potential to help create a real incentive to help low-income earners onto the path to financial independence. We commend the federal government's recognition of the WITB as an effective aid to the working poor by its $580 million injection in the 2009 Federal Budget. We urge them to consider investing more in this program.

We recognize that our proposals will not solve the hardships that many low-income families face – that is asking too much. But it is time that more is done to integrate the federal WITB program with all provincial social safety nets that could help make the WITB do what it is designed to do. This is a step in the right direction to help the working poor overcome the welfare wall and achieve full-time employment.

Recent changes in provincial tax regimes are welcome measures. They will provide benefits to all Canadians, through lower taxes on businesses and eventually through falling prices for goods and services as competition increases. The next challenge is to reduce marginal effective tax rates for those attempting to climb over the welfare wall.

[47] Jack Mintz, "British Columbia's Harmonized sales Tax: A giant leap in the province's competitivenesss," SPP Briefing Papers, School of Public Policy, University of Alberta, March 2010.
[48] Full-time employment is defined here as 32 hours of work per week, drawn from empirical observations on the number of hours worked by low-income Ontarians earning the minimum wage in "Time for a Fair Deal," *Modernizing Income Security for Working-Age Adults*, Toronto, 2006, p. 20.

Structures: Drive innovation through more intelligent innovation policy and strengthened commitment to trade

CANADA NEEDS more robust public policies to build a more innovative economy and strengthen our foreign trade

Government policies and market structures are important determinants of innovation and trade relations. Currently, there are opportunities for Canada's public policies to bolster competitive pressure and specialized support for innovation and international trade to increase our prosperity.

Public policies should be geared more toward innovation

As we have seen in our past research, our public innovation policy emphasizes the hard sciences and does not adequately recognize the importance of business and management processes for innovation. Our competitiveness and prosperity are built on a solid base of excellence in the sciences. And leading high technology firms are founded by science and engineering graduates. But successful innovation requires a balance of science and other skills. These other skills are important to achieve a successful transition from startup to thriving businesses.

In Ontario, we have been critical of the government's innovation policy – with its emphasis on supporting the hard sciences. We have acknowledged that its innovation policy has been moving to recognize that innovation is most effective when the process is customer or market driven and that management skills are important.

At the federal level, we see an orientation toward the hard sciences in the granting councils related to innovation. Research grants for business school academics represent an insignificant portion of funding overall and within the Social Sciences and Humanities Research Council (SSHRC). Scholarships bypass students in graduate business education programs almost entirely because the professions are not included within the mandate of the granting councils.

In the 2010 federal budget, Ottawa highlighted its innovation initiatives, but it continued its misdirected focus on invention through the hard sciences and humanities. As one example, the budget increased funding for the research granting councils by $32 million. Of this increase, $29 million was directed to the Natural Science and Engineering Research Council (NSERC) and the Canadian Institute for Health Research (CIHR). Only $3 million was directed to social sciences and humanities through SSHRC.[49]

Current public policy is directed towards invention, not to innovation. Inventions are driven by the researcher's desire to discover something new and unique – whether or not it adds value to people's lives and our prosperity. Obviously, invention is important for human progress, but it should not be confused with innovation, which improves products or processes to enhance economic value. (See *"What is innovation – really?"*)

Until our federal and provincial governments recognize the difference between invention and innovation and the need for a balance between hard sciences and the humanities and between science and engineering and management skills, their efforts will lead to more inventions, but inadequate innovations in the market by Canadian businesses.

Strong management is a critical element in the innovativeness of our economy, and hence its productivity and prosperity. Strong management drives the demand for innovation through well developed and ably executed business strategies; it affects the ongoing supply of high quality innovation by setting research priorities and orchestrating technical resources; and it is key to the financing of innovation by assembling resources and allocating them wisely to promising investments.

Research shows that the development of new management techniques, such as Just-In-Time logistics and Lean operations, can lead to economy-wide growth in productivity and prosperity. Research conducted by the Institute

[49] Finance Canada, Budget 2010, *Leading the way on jobs and growth*.

reveals that our manufacturing management is among the best in the world, though it trails the United States. And in our latest research on the retail sector, we find that store-level management in Canada is as strong as that in the United States.[50]

The research also finds a strong connection between the quality of a retailer's management and whether it competes only in the domestic market. Large-scale multinational retailers are better managed than those that focus only on their home market. This holds true in Canada and other countries. Our findings conclude that firms that expand globally have dramatically better management, though we acknowledge that determining a cause-and-effect relationship is harder. More than likely, there is a virtuous circle at work – where firms with global aspirations need effective management to expand, and expanding firms attract better managers.

Therefore, we continue to call on public policy to ensure that developing strong management is an important element of research and innovation strategies – recognizing that there is more to the success of these policies than a focus on research in the hard sciences. Both the federal and provincial governments need to strengthen their commitment to business education. We have a significant gap versus our US counterparts in business degree holders – and this gap is the result of fewer spaces in our schools, not the lack of demand by students. More alarming is the lower educational attainment of those in management occupations, irrespective of field of study.

Just over a third of our managers have a university degree, compared to half in the United States. If we believe that education is important to the development of human capital and prosperity, this situation seems competitively dangerous.

Quality venture capital can bolster innovation

As we strengthen our innovation infrastructure through innovation supporting public policy, we can bolster the conditions necessary for better quality venture capital. In recent years, there has been a decline in the amount of venture capital disbursements in Canada. In our previous reports, we have argued that one of the primary problems Canada faces is not the amount of venture capital investments, but rather the quality of the investments. A central point of this issue has been the labour sponsored investment funds (LSIFs), which gave tax credits and attracted smaller investors thereby displacing more effective venture capital funds and even lowering the level of capital available to entrepreneurs.[51] Because the quality of venture capital is low, Canada has suffered low returns on investment compared to the United States. In 2007, the average three-year venture capital annualized returns for Canada was only 2.5 percent compared to 9.6 percent for the United States.[52] In 2005, the Ontario government took the lead and announced the termination of the LSIFs, which will be completely eliminated in the province by 2012.

During the recent financial and economic turmoil, both Canada and the United States underwent a challenging reduction in venture capital disbursements. In 2009, we had a second consecutive year of venture capital market slowdown in Canada and around the globe, with the US venture capital market activity also experiencing a second year of down-cycle in 2009.[53] In constant 2009 Canadian dollars, venture capital declined by $16 billion in the United States versus $11 billion in Canada between 2007 and 2009 (Canadian figures were multiplied by ten to allow for comparison to the US market). Investment was at its lowest level in 2009 over six years for both countries (*Exhibit 20*). This illustrates that

[50] Institute for Competitiveness & Prosperity, Working Paper 12, *Management Matters*, March 2009; Institute for Competitiveness & Prosperity, Working Paper 13, *Management Matters in Retail*, April 2010
[51] Task Force on Competitiveness, Productivity and Economic Progress, Sixth Annual Report, *Path to the 2020 Prosperity Agenda*, November 2007, pp. 51-52
[52] Task Force on Competitiveness, Productivity and Economic Progress, Seventh Annual Report, *Leaning into the wind*, November 2008, p. 45
[53] "Canada's Venture Capital Industry in 2009," Thomson Reuters, available online: **http://canadavc.com/info.aspx?page=stats**

What is innovation – really?

by **ROGER MARTIN**

Public policy to increase innovation is not working. A major part of the problem is that our governments have developed policies to drive invention, not innovation. The two are not the same, and we must recognize this to achieve effective public policy for the twenty-first century.

What is the difference between invention and innovation?

Invention can be defined as the creation or discovery of something new to the world. Inventions are often producer-driven, following an inventor's curiosity or area of expertise. While they are new, inventions in scientific institutes or corporate labs may or may not have any use in the world.

Innovation is customer-driven, providing a new product or process that adds value to somebody's life. Innovations can improve economic, health, or social well being.

Innovations are often built from inventions. Mobile telephony required new findings in cellular technology; the Internet became widespread after invention of fibre optic technology. But we should not just assume that inventions naturally lead to innovation. And even if they do, that often takes a long time. The US National Research Council found that, in the communications and computer technologies, the average time from invention to market was more than twenty years. As scientist and designer, William Buxton put it, "innovation is far more about prospecting, mining, refining, and adding value to gold than it is about alchemy."[a]

Invention and innovation: What's the difference?

INVENTION	INNOVATION
A new-to-the-world discovery/creation	A product, service, or process that creates net new value for customers
Driven primarily by inventor curiosity or research interest	Driven primarily by desire to add customer value
Merit defined by uniqueness	Merit defined by profitable deployment
Based primarily on scientific skills	Based on a broad set of strategic, marketing, operational and technical skills

Innovation creates value in several ways:

- It can make it possible for consumers to do something that they could not have done at all or as well before, or
- It can reduce the cost of doing what consumers were previously doing – in two ways:
  - Delivering the same benefits as existing offerings, but at a lower price,
  - Maintaining the price of the product or service, but reducing overall costs of use.

Canada's global leaders provide examples of these sources of innovation.

Innovation enables a superior consumer experience

Four Seasons, the world's leading luxury hotel chain, has succeeded by offering a different guest service model than its competitors. From research, it concluded that luxury for guests meant not grand architecture and décor, the prevailing approach in the luxury hotels business, but rather service that made them feel like they were special. Acting on that insight, the Four Seasons has achieved the highest guest ratings and the best customer loyalty in the industry.

In a similar way, the Cirque du Soleil, the world's leading circus, recognized that circus acts did not fulfill consumers' desires. It reinvented the whole concept of a "circus" and appealed to a wider and more affluent audience.

Innovation reduces costs and consumer prices

Harlequin, the world's leading publisher of romance fiction, realized that if each of its books had exactly the same number of pages and that this number equaled one sheet on the printing press, it could print its books at a lower cost than its competitors. The books could also be shipped in identical cube-efficient boxes and more easily displayed on uniform retailers' shelves. Harlequin also developed mail-order book clubs for their most loyal readers, lowering distribution costs and eliminating the hassle of going to book stores.

[a] William Buxton, "Innovation vs. Invention," Rotman Magazine, Fall 2005, p.52.

Innovation to reduce customers' costs

McCain is the leading producer and seller of frozen potato products in many parts of the world. Most of us would likely expect that its main business is in branded consumer products. But it's not. Its biggest business by far is selling frozen french fries to restaurants and other food-service organizations. Food service operators save considerable labour costs because they no longer have to peel, cut, and fry potatoes from scratch.

Manulife, one of the world's five largest life insurance companies, provides another example of innovation to reduce customer costs. It assembled the technology and developed business processes to create the Manulife One account, enabling home owners to optimize their use of any excess cash to pay down their mortgage or to pay off their credit card debt, thus allowing significant savings on interest costs. In addition, it used its experience with individual and group RRSPs in Canada to become a global leader in more consumer-friendly retirement savings products across the globe.

Does our innovation policy support invention or innovation?

Federal and provincial innovation policies have done little, if anything, to fuel the consumer-driven innovations that made these companies global leaders. Current public policy assumes that if a scientist working in a laboratory or an R&D department comes up with something new, that is innovation. And anything else is not. But that is invention – which should not be confused with innovation.

Obviously, invention is important. But little that our governments do in their current innovation policies helps inventors better understand consumers. Without intimate understanding of consumers or without the pressure of a competitor trying to win them away, it is very unlikely that an inventor will be an innovator. Unless policy changes, we will continue to spend billions of dollars funding invention and get little innovation to show for it.

Of course, there are notable examples of success in our governments' innovation policy. R&D support helped Nortel create the world's first Class 5 fully digital network communications switch, the DMS 100. This was an example of consumer-driven innovation. Existing analog switches were not up to the task of carrying growing telephone traffic speedily and reliably; carriers needed something better. Nortel sales and marketing people saw this opportunity and collaborated with their research colleagues at Bell Northern Research to produce the digital innovation. Even though AT&T Network Systems (later Lucent) dominated the US telecommunications market at the time, Nortel was more customer-focused and won.

Certainly, too, R&D support helped RIM to invent and improve the BlackBerry, now Canada's most important technology product. But the BlackBerry success story is much to do with innovative distribution agreements with telecommunications carriers.

So what?

We will not progress on innovation in Canada, until our policies focus broadly on innovation rather than narrowly on invention. It is important to support a higher education system, where curiosity -based research is funded. But we should not assume that much of this will lead to innovation. Inventions searching for a use have never been a high-payoff endeavour.

If we want more innovation, public policy can help in four ways.

- Design innovative educational programs that connect inventors, who care about innovation, with business people, who want to pull inventions to consumer-relevant innovations. These programs would be more than coursework; instead, they would match up people to create real innovations and involve innovation financiers. Public funding could be available for winning innovations.
- Ensure that our innovation policy is balanced between developing the hard science skills and the softer skills that enhance communications skills, consumer understanding, and team building.
- Recognize that necessity is the mother of invention – and innovation – and ensure that our markets are intensely competitive to pressure our firms to look for ways to add consumer value to their products and processes.
- Think more broadly about how we finance innovation within existing companies. If we really want to promote more innovation, we should loosen the definition of fundable R&D. Currently the definition is far too tight. None of Four Seasons, Cirque du Soleil, Harlequin, McCain, or Manulife, would have qualified for funding for the innovations that made them world leaders.

With these innovation initiatives, public policy will help us have a vibrant twenty-first century economy.

the venture capital issue is a nationwide problem that needs to be addressed. Over the years, Canada has been funding proportionately more companies versus the United States, but we continue to trail our southern neighbours significantly in venture capital investment per company. In constant 2009 Canadian dollars, we invested a mere $3.0 million per company, while the United States invested almost three times more than us at $8.8 million per company. Given the turmoil in global financial markets, it is also not surprising that venture capital disbursements as a percentage of GDP have declined from 2007 to 2009 for both nations. However, if we want to nurture innovation in Canada, we need to provide a suitable environment that attracts higher quality venture capital necessary for our companies to excel.

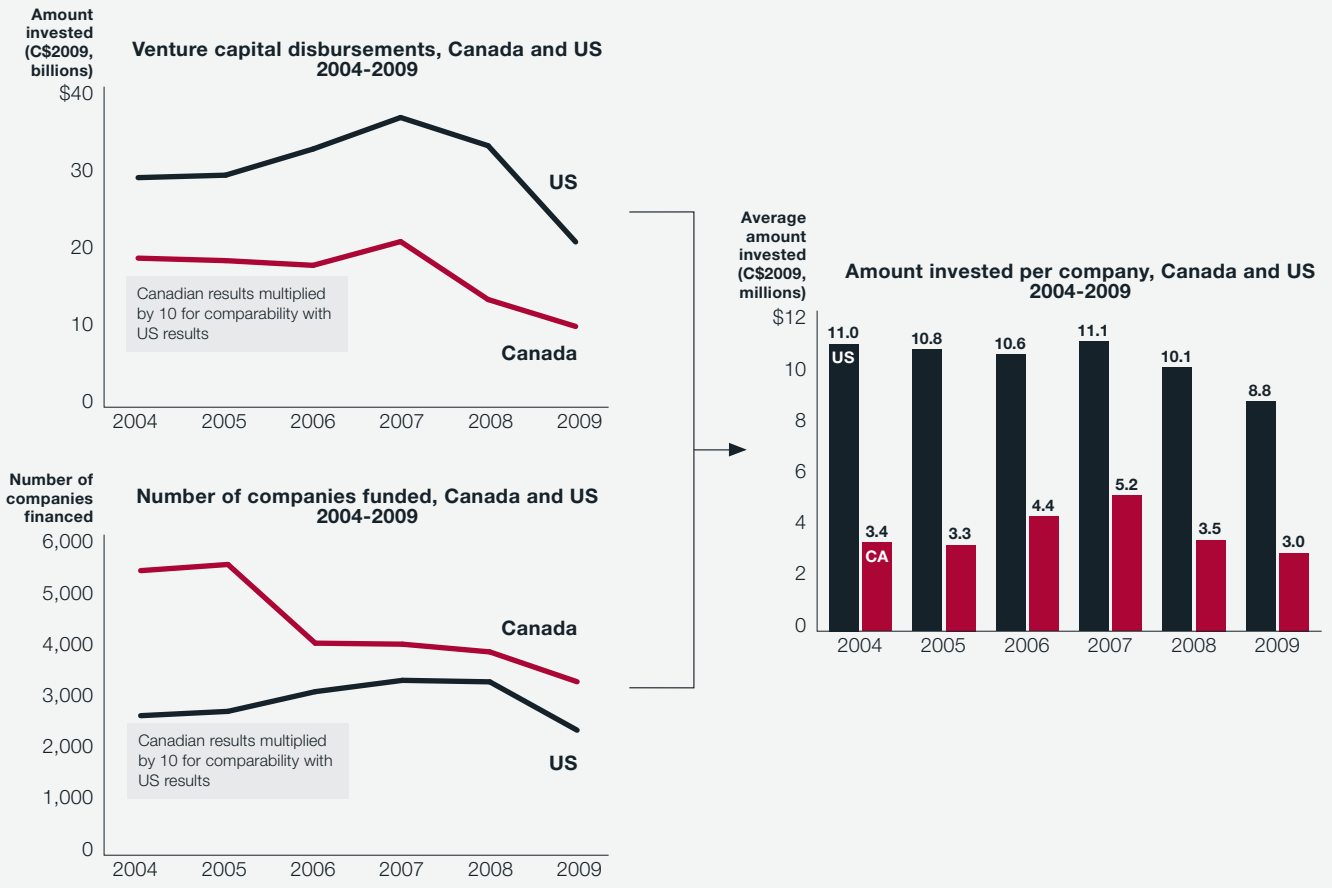
International trade provides both specialized support and competitive pressure to enhance Canada's innovative capacity

Trade increases the size of markets available to support Canada's and Ontario's firms. Our work shows that small market size in Canada is an ongoing challenge to raising our productivity and innovation. This is a key reason why exporting to the United States has been so important to the success of our firms. The impact of increasing scale by adding US customers to our potential sales is huge.

Trade also strengthens the pressure for our firms, workers, and managers to become more competitive. By opening our markets to more competitors, we increase rivalry from competing firms. That also exposes our firms to more sophisticated customers, who provide pressure for more upgrading and innovation.

The current global environment may not seem conducive to expanding international trade, but we think it is important that Canada take the lead in its expansion. It is a very positive development that negotiations for liberalizing trade between Canada and the European Union (EU) have begun, and we encourage our governments to see them through to a successful conclusion.

Exhibit 20 **The average size of Canada's venture capital investments continues to be much smaller than those in the United States**



Notes: All figures are in Canadian dollars, expressed in real terms (figures are adjusted by GDP deflator).
For conversion from US to Canadian dollars, PPP for 2009 is used.
Source: Institute for Competitiveness & Prosperity analysis based on data from Thomson Reuters.

Trade matters

Thanks to sophisticated production techniques, highly advanced transportation networks, transnational corporations, outsourcing of manufacturing and services, fast development of ICT, and rapid industrialization, the international trade system continues to expand and evolve rapidly. Generations of economists have analyzed and assessed the impact and effects of trade. From Adam Smith's absolute advantage to David Ricardo's comparative advantage, from the Heckscher-Ohlin model to Markusen's Trade under Increasing Returns to Scale, economists have concluded that international trade enhances domestic competitiveness, improves productivity, and increases sales and profits by expanding international markets. This creates an opportunity to lower dependence on existing markets and smooth seasonal market fluctuations.

In an environment that encourages trade, we can reap the rewards of international technology exchanges and low-wage markets to improve global competition. Ultimately, these benefits translate into more choices for consumers and improved general well being.

Nobel Laureate Paul Krugman[54] concluded that consumers gain from a greater variety of products and higher real wages with free trade. University of Toronto economist and Task Force member Daniel Trefler[55] carefully analyzed the Canada-US Free Trade Agreement of 1988 to conclude that Canadian labour productivity rose by 15 percent and wages rose 3 percent overall. For Trefler, the major finding was that wages did not fall as a result of the added pressure of US competition. The impact on the level of employment was neutral. Trefler concluded that the net impact on Canadian consumers was positive.

However, Trefler found that in the transition period related to Canada-US free trade, 5 percent of Canada's manufacturing jobs – or 100,000 – were lost as our companies moved out of low end, heavily protected industries. While subsequent growth in higher paying jobs made up for this lost employment, the transition was painful. While these negative effects are visible in a particular part of the economy, the positive effects in new job creation, lower consumer prices, and more variety in products and services are dispersed broadly.

Canada-US trade faces challenges

Canada's competitiveness and prosperity depend heavily on trade with the United States, by far our most significant trading partner. Its importance, however, has declined relative to that of China and the European Union over the past decade (***Exhibit 21***). In the current environment, we have the opportunity to work more closely with the United States to enhance our trade relationship, while expanding opportunities with our next two most significant partners.

Trade barriers are hard to bring down when economic times are tough. In the current recession, the US government has adopted Buy American policies in the hopes of aiding their local economy and decreasing unemployment.

Even before the current protectionist initiatives emerged in the United States, trade between Canada and the United States had been under pressure. One reason is that our infrastructure has not kept pace with increased traffic and tightening security demands. Former Deputy Prime Minister John Manley recently observed that, because of technology and the growth of services, "national borders are becoming less and less trade inhibiting, with one exception – the one between Canada and the United States. Tightened security since 9/11 slowed the flow of goods, the movement of people, and even the exchange of ideas between our two countries."[56]

Traffic tie-ups at the border appear to be increasing lead times for goods shipment. One study estimates the impact of increased costs and delays in crossing the Canada-US border to be the equivalent of a 2.7 percent tariff on all merchandise trade and about 4 percent for truck trade.[57]

We need to continue our investments in border crossing infrastructure. And our federal government needs work to challenge US protectionist tendencies. At the same time, it needs to avoid protectionist tendencies here in Canada.

We see mixed signals. On a positive note, the Federation of Canadian Municipalities decided to suspend its October 4, 2009, deadline on a fair trade resolution that would support member municipalities that choose to stop purchasing goods and services from the United States. But, on the negative side, the Ontario government recently introduced its Green Energy Act, which provides that at least 25 percent of wind projects and 50 percent of large solar projects must contain Ontario goods and labour. These shares will increase for solar on January 1, 2011, and for wind on January 1, 2012. A 25 percent content rule already applies for public-transit vehicles. As worthy as the objectives of this act may be, protectionist measures such as these will be counter productive and will make it difficult to discuss the importance of keeping international trade growing with our US and European trade partners.[58]

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[54] Paul Krugman, "Increasing Returns, Monopolistic Competition, and International Trade," *Journal of International Economics* 9-4, November 1979, pp. 469-479.
[55] Daniel Trefler, "The Long and Short of the Canada-U.S. Free Trade Agreement," *American Economic Review* 94, September 2004, pp. 870-895.
[56] John Manley at Rx&D National Innovation Roundtable, October 15, 2009.
[57] John C. Taylor, Douglas R. Robideaux, and George C. Jackson, "U.S.-Canada Transportation and Logistics: Border Impacts and Costs, Causes, and Possible Solutions," *Transportation Journal*, Volume 43, No. 4, 2004, p. 5-21. However, one study concludes that tightened security has had little impact on Canada's exports to the United States. See Michael Burt, "Tighter Border Security and Its Effect on Canadian Exports," *Canadian Public Policy*, vol. XXXV, No. 2 2009.
[58] Government of Ontario, "Ontario Makes It Easier, Faster To Grow Green Energy," September 24, 2009, available online: **http://news.ontario.ca/mei/en/2009/09/ontario-makes-it-easier-faster-to-grow-green-energy.html.**

Given the current recessionary climate, the loss of manufacturing jobs, the threat of protectionist policies, and the apparent flood of Chinese products into the Canadian market, it is a vital time for Canada to rethink its international trade strategy and assess its role in an increasingly complex and fast evolving landscape. Ensuring that our trade with the United States remains vigorous has to be our top priority. But, at the same time, we need to pursue stronger ties with our other important partners – China and the European Union.

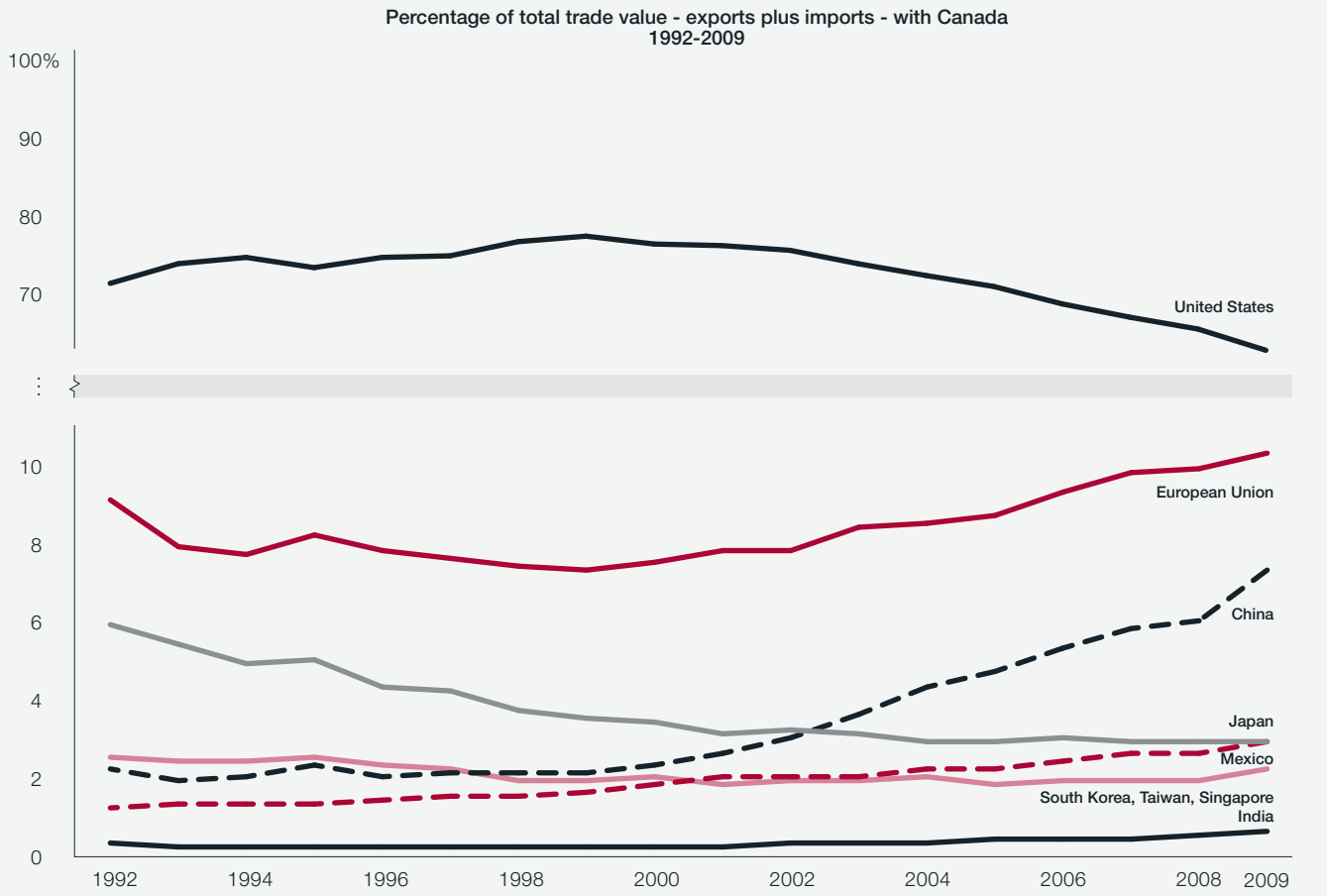
Is China nearing the tipping point?

Much of what we import from China is assembled or produced there by workers earning low wages. Clearly, the Chinese economy has not yet evolved to a sophisticated one that competes on the basis of innovation and design. Rather, it still operates on the basis of low-wage competition. To be sure, China is making great strides as it evolves from a low-wage economy to an innovation economy. In the early 1990s, China underwent major reforms that opened up its economy and moved significant segments of it from a command-and-control to globally market-oriented system. The use of more sophisticated information and communications technologies in the same period moved apace, thus combining low-wage domestic labour with advanced imported technology. This induced fast-growing foreign direct investment in these Asian markets and created a new kind of global production network.

Still, China has not yet completed the transition from an economy competing on the basis of low wages to one that competes on innovation (*Exhibit 22*).

As Trefler has observed, to date China and India have not moved from competing on the basis of low wages to innovation and sophistication.[59] One reason for this is that these countries do not yet have the institutions in place to sustain innovation. Another reason is that innovative firms need to be close to where the most sophisticated customers are if they want to respond rapidly

Exhibit 21 **The United States is still our dominant trade partner, but the importance of China and the European Union has risen**



Source: Institute for Competitivenss & Prosperity analysis based on data from Industry Canada.

[59] Daniel Trefler, "Canadian Policy Responses to Offshore Outsourcing," Summary of the conference on Offshore Outsourcing: Capitalizing on Lessons Learned, Rotman School of Management, University of Toronto, October 26-27, 2006.

to customer needs. For most goods and services, the most sophisticated customers are still in North America and Western Europe. Sophisticated demand is one of the drivers of the location of R&D, design, and other creative elements in an economy. Our economies have succeeded by competing on the basis of creativity and sophistication; we have not relied on low wages as our source of competitive advantage in decades. But as China and India become richer, some customers are becoming more sophisticated in these countries. Already innovations are directed at Chinese customers, such as Nokia's Chinese-character text messaging.

When Chinese and Indian innovation-sustaining institutions are in place and there are enough sophisticated customers located in Shanghai and Mumbai to support innovative domestic firms, then these economies will have arrived at an innovation tipping point. At that point, world leadership in innovation could migrate away from the less innovative countries in the developed world and toward China and India. As Trefler notes, when this happens, China and India will have unglued themselves from their past and become significant competitors to every profitable corporation in the industrialized world.

Since China's entry into the World Trade Organization in 2001, China's presence in international markets has already grown significantly. China's share of Canadian trade (exports and imports combined) jumped from 1 percent in 2000 to 7 percent in 2009. Since 2002, China has been the second largest single-country source of Canada's imports, behind only the United States. In the service trade market, China's share remains negligible, but is growing fast.

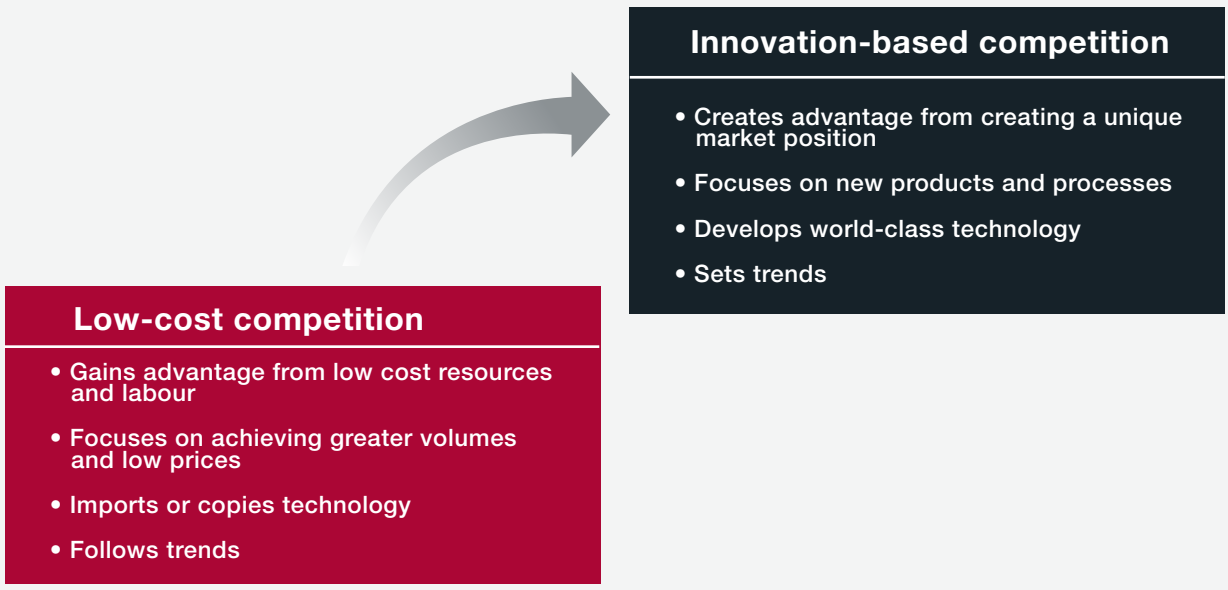
China is increasingly emphasizing technology and innovation, and this evolution can be seen in the mix of products it exports to Canada. In 1990 the top ten imports were toys, leather bags, dolls, clothing, and other low-tech items. In 2008, laptop computers, telephones, and monitors were among toys and table games at the top of the list.

But does that mean that China is reaching the tipping point towards innovation-based competition? We are by no means suggesting that complacency is in order. But our analysis of several questions indicates that China's tipping point is still a way off.

How high tech are China's products?
China's exports of technology products to Canada have increased dramatically. Yet in the biggest category, computer and peripheral equipment, which accounted for half our high-tech imports, the value added in China through design, high-wage manufacturing, and other sources is less than 20 percent of total value (*Exhibit 23*). In essence, China is using low-cost wage earners to assemble high-value components designed and produced elsewhere. In contrast, China adds significant value to low-tech products, such as furniture and textiles.

As an example of this phenomenon, a study of its production shows that, in a $300 iPod, imports from China represent just under half of the shipment value – $144. But because the

Exhibit 22 **Countries' trade evolves from competing on the basis of low costs to innovation**



Source: Institute for Competitiveness & Prosperity, based on Daniel Trefler, "Of Dragons and Elephants: Responding to the Rise of China and India," presentation to the University of Alberta, October 15, 2009.

components were finally assembled in China, this amount shows up in trade data as an import from China – even though the assembly cost there was only $4. In fact, only a small share of the $144 total value was added in China, and the bulk of this was low-wage labour with miniscule profit margins. The majority of the $144 shipment value remaining was created in Japan, the United States, and Korea. In fact, of the $300 retail price, $155 accrued to US workers and owners, because the concept was created and the product designed in the United States.[60]

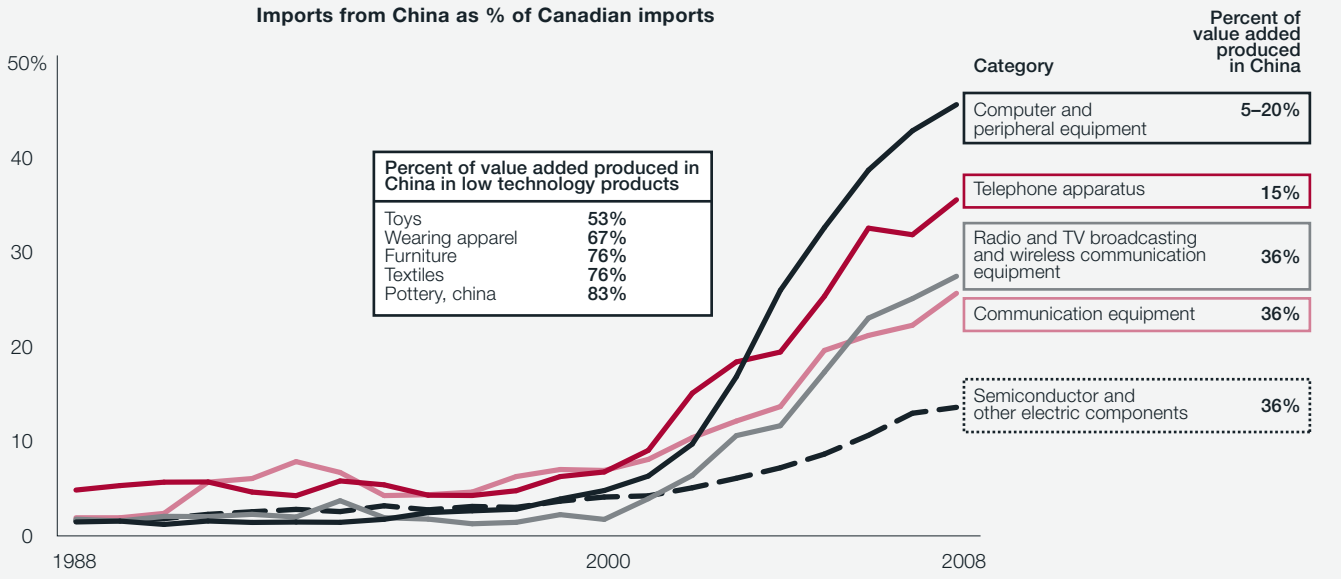
China is also still competing at the low-price end of technology. The average price of computer products imported from China to Canada is about a fifth of that of imports from the United States. This is not a comparison of similar products; instead, it shows that China is competing in products that are in the low-price segment of computers and accessories.

How sophisticated are China's R&D and patents? China has increased its R&D and its patent output considerably over the past decade. Chinese businesses increased their spending on R&D in high technology industries from 0.4 percent of sales in 1995 to 1.1 percent in 2007.[61] The number of patents in high-technology industries grew from a mere 410 in 1995 to 13,386 in 2007 – a 32-fold increase.[62]

OECD research in 2006 indicates that, while China spends considerably on R&D, the focus of that spending was imitation not innovation.[63] The Institute has conducted the same research using data from 2003-2007 and concluded that China's research spending remains geared toward imitation rather than innovation.[64]

What is the quality of China's human capital? Commonly cited statistics for engineering graduates in the United States, China, and India have been

Exhibit 23 **Canada's imports from China are increasingly high tech, yet relatively little value is added there**



Source: Institute for Competitiveness & Prosperity analysis based on data from Canadian International Merchandised Data, Industry Canada; Short Version revised from Table 5 in "*How Much of Chinese Exports is Really Made in China? Assessing Domestic Value-Added When Processing Trade is Pervasive*" by Robert Koopman, Zhi Wang and Shang-Jin Wei, NBER Working Paper 14109, 2008, available online: http://www.nber.org/papers/w14109.

[60] Greg Linden, Kenneth L. Kraemer, and Jason Dedrick, "Who Captures Value in a Global Innovation System? The Case of Apple's iPOD", 2007, available online: **http://pcic.merage.uci.edu/papers/2007/AppleiPod.pdf.**

[61] China National Bureau of Statistics, *China Statistics Yearbook High Technology Industry*, 2008.

[62] Greg Linden, Kenneth L. Kraemer, and Jason Dedrick, "Who Captures Value in a Global Innovation System? The Case of Apple's iPOD," 2007, available online: **http://pcic.merage.uci.edu/papers/2007/AppleiPod.pdf.**

[63] Dirk Pilat, Agnes Cimper, Karsten Olsen and Colin Webb, "The Changing Nature of Manufacturing in OECD Economies," STI Working Paper 2006/9, available online: **http://www.oecd.org/dataoecd/44/17/37607831.pdf.**

[64] Task Force on Competitiveness, Productivity and Economic Progress, Eighth Annual Report, *Navigating through the recovery*, Nov. 2009, p. 59.

used to prove the point that we in North America are losing the technology race because of our lower levels of talent production. One oft-cited number is that China is graduating 600,000 engineers at the baccalaureate level annually (2004 results) compared to only 70,000 in the United States.

However, when Duke University researchers adjusted these results to ensure comparability, China's engineering graduates were scaled down to 352,000 and the US numbers rose to 137,000.[65] China is producing 270 undergraduate engineers per million people, while the United States is producing 470.

According to Institute analysis, Canada is producing more engineers per capita than China, as well as India and the United States. This is not to say that China is not making great strides in its human capital – but simply that it is still a long way from competing on the basis of innovation and sophistication.

Do China's institutions support an innovation economy? Researchers on economic development have noted the importance of institutions that support the rule of law in a sophisticated economy. While there have been improvements in China's institutions, there is still room for improvement. Research by Daniel Kaufmann, Senior Scholar at the Brookings Institution and previously with the World Bank, and his colleagues suggest that the quality of these institutions is a necessary condition for innovation. China currently ranks 116th out of 210 countries studied.[66] From another source, the 2009–2010 World Economic Forum's Global Competitiveness Report, the quality of China's institutions ranks 48th among the 133 nations participating in the study.[67]

As China nears the innovation tipping point, Canada is vulnerable. China represents untapped potential for Canadian trade. It is still largely competing on the basis of low-wage labour, and we should welcome these goods to our province as they increase our standard of living. But quality remains an issue. At this point, then, we should not fear being overwhelmed by imports of sophisticated goods and services, as their economy has not yet reached that tipping point. But China is moving inexorably to that point.

Using Trefler's framework, Canada may be one of the developed economies at risk as China advances to the innovation tipping point. As we and others have observed, our innovative accomplishments need to improve to build our capability to win against emerging competitors.

R&D is an important signal of an innovation economy; yet Canada's businesses invest at a rate well below that in other developed economies and at about the same rate as China. While we depend heavily on international trade, Canada's exports are not particularly innovation-based. Canadian trade data show that Canada is surprisingly tilted toward natural resources rather than innovation-based competition. Results from Michael Porter's Business Competitiveness Index through the World Economic Forum indicate that our businesses compete more on the basis of cost and imitation than on unique features and innovation.

Canada needs to welcome the development of Chinese industries and the opportunities they open. Their impact will be beneficial, as they create more competition and more pressure for our industries to meet their new rivals.[68] But Canada also needs to provide and encourage the specialized support for our industries that will create market opportunities.

Canada also has an opportunity to expand trade with the European Union

While China represents opportunities for increased trade as it becomes more sophisticated, the European Union is already a large and sophisticated trade partner. We have the opportunity to increase that trade.

At the Canada-EU Summit on May 6, 2009, in Prague, Czech Republic, leaders announced the launch of negotiations toward a Comprehensive Economic and Trade Agreement (CETA). This new agreement will move beyond the 2004 Canada-EU Trade and Investment Enhancement Agreement (TIEA) with a much broader and more ambitious scope, focusing on trade in goods and services; investment; government procurement; regulatory cooperation; intellectual property; temporary entry of business persons; competition policy and other related matters; labour; and the environment.

According to Canadian data, the EU is Canada's second largest trading partner, accounting for $45 billion of Canada's imports and $30 billion of Canada's exports in 2009. Total trade volume (imports plus exports) is twice as strong as that with China, Canada's third largest trading partner. The EU is Canada's second largest source of foreign direct investment (FDI), and Canada is the EU's fourth largest source of FDI. Such close and fruitful relationships must be nurtured as global competition intensifies.

As previously discussed in a joint Canada and EU publicly released study, "Assessing the Costs and Benefits of a Closer EU-Canada Economic Partnership," the EU-Canada trade relationship is significantly under used, as "total trade between the EU and Canada is about the same size as the EU's total trade with India, even though the Canadian economy is one and half times larger than India's." This study

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[65] Gary Gereffi, Vivek Wadhwa, Ben Rissing, and Ryan Ong, "Getting the Numbers Right: International Engineering Education in the United States, China and India," *Journal of Engineering Education*, 97-1 , January 2008; and Vivek Wadhwa (December 13, 2005), "About That Engineering Gap," *Business Week*, available online: **http://www.businessweek.com/smallbiz/content/dec2005/sb20051212_623922.htm.**

[66] Daniel Kaufmann, Aart Kraay, and Massimo Mastruzzi ,"Governance Matters VIII: Governance Indicators for 1996-2008," World Bank Policy Research Working Paper No. 4978, available online: **http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1424591**; and **http://info.worldbank.org/governance/wgi/index.asp.**

[67] World Economic Forum, *The Global Competitiveness Report, 2009-2010*.

[68] Institute for Competitiveness & Prosperity and Martin Prosperity Institute, Report on Canada, *Opportunity in the Turmoil*, April 2009, pp. 61-62.

Canada continues to have many global leaders

The number of Canadian global leaders has increased over time. This is significant because more and more of these companies are generating more wealth for our economy.

The creation of competitive firms that compete both nationally and internationally helps to drive a vibrant economy with strong competition, higher productivity, more innovation, and smarter investment. The attitudes and goals of our companies should increasingly be focused on becoming not only national leaders, but also world leaders.

In our analysis we tracked what we term "global leaders." These are firms with revenues greater than $100 million who are in the top five in their industry based on revenue or market share worldwide.[a]

In total, in 1985, Canada had 33 global leaders, and by 2003 this had grown to 87. In 2008 and 2009, we stabilized at 86.[a] It is encouraging to find that almost half of all our global leaders are billion-dollar companies.

Despite the argument that Canadian companies are being hollowed out, we find that the number of billion-dollar leaders increased substantially from 1985 to 2010 – by 24 companies, from 15 to 39, as excellent firms such as Bombardier, Couche-Tard, Garda, and McCain joined the list (Exhibit B).

At the same time, 2009 was a tough year for the world economy, and Canada was not spared. In 2009, five global leaders slipped below the $1 billion threshold or were lost based on other criteria:

- **Chemtrade Logistics Income Fund** and **Norbord.** Both slipped below the $1 billion dollar revenue benchmark.
- **MDS.** After the sale of certain operations, their "go forward" stand-alone business will be MDS Nordion, which had revenue of less than $1 billion in 2009
- **Nortel.** No longer a global leader after the sale of its assets.
- **NOVA Chemicals.** Acquired by Abu Dhabi state enterprise IPIC (International Petroleum Investment Company).

To summarize, Canada continues to show that it has world class firms that can compete on the global stage. There is little evidence that our economy is being hollowed out. But we need to do more. Now more than ever Canadian companies must strive to innovate aggressively and become more productive to lead their industries. Public policies should continue to sustain a supportive environment and our firms must focus on serving both domestic and international markets.

[a] Task Force on Competitiveness, Productivity and Economic Progress, Eighth Annual Report, *Navigating through the recovery*, November 2009, pp. 64-65

Exhibit B **As of June 2010, Canada has 39 billion-dollar global leaders**

1985
15 Companies

Abitibi-Price
Alcan
AMCA
Atco Ltd.
Bombardier
Cominco
CCL Industries
Falconbridge
Hiram Walker
Inco
Lavalin
McCain
Moore Corporation Ltd.
Northern Telecom
Seagram Co.

2003
39 Companies

Abitibi-Price
Agrium
Alcan
Atco Ltd.
ATI Technologies
Barrick Gold
Bombardier
CAE
Canfor
CCL Industries
Celestica
CGI
CN Rail
Cott
Couche-Tard
Domtar
Falconbridge
Finning International
Inco
Intrawest
Linamar
Magna
Manulife Financial
Masonite International Corporation
McCain
MDS
Methanex
Moore Corporation Ltd.
Nexfor (Norbord)
Nortel
NOVA Chemicals
Placer Dome
Potash Corp
Quebecor World
SNC-Lavalin
Teck-Cominco
Tembec
Thomson Corporation
Weston Foods

2008
44 Companies

AbitibiBowater
Agrium
Atco Ltd.
Barrick Gold
Bombardier
Brookfield Asset Management
CAE
Cameco
Canfor
Catalyst Paper Corporation
CCL Industries
Celestica
CGI
CHC Helicopters
Cinram
CN Rail
Connors Bros.
Cott
Couche-Tard
Finning International
First Service Corp (Colliers International)
Fording (Elk Valley Coal)
Goldcorp Inc
Linamar
Magna
Manulife Financial
McCain
MDS
Methanex
Norbord
Nortel
NOVA Chemicals
PotashCorp
Quebecor World
Research in Motion
Russel Metals
Samuel, Son & Co.
Shawcor Ltd.
SNC-Lavalin
TD Waterhouse
Teck-Cominco
Tembec
Thomson Corporation
Weston Foods

April 2009
44 Companies

AbitibiBowater
Agrium
Atco Ltd.
Barrick Gold
Bombardier
Brookfield Asset Management
CAE
Cameco
Canfor
Catalyst Paper Corporation
CCL Industries
Celestica
Chemtrade Logistics Income Fund
Cinram
CN Rail
Cott
Couche-Tard
Finning International
First Service Corp (Colliers International)
Garda World
Gildan Activewear Inc
Goldcorp Inc
Linamar
Magna
Manulife Financial
McCain
MDS
Methanex
Norbord
Nortel
NOVA Chemicals
(Onex) Husky Injection Molding
PotashCorp
Quebecor World
Research in Motion
Royal Bank of Canada
Samuel, Son & Co.
Shawcor Ltd.
SNC-Lavalin
TD Waterhouse
Teck Resources
Tembec
Thomson Corporation
Transat AT

June 2010
39 Companies

AbitibiBowater
Agrium
Atco Ltd.
Barrick Gold
Bombardier
Brookfield Asset Management
CAE
Cameco
Canfor
Catalyst Paper Corporation
CCL Industries
Celestica
Cinram
CN Rail
Cott
Couche-Tard
Finning International
First Service Corp (Colliers International)
Garda World
Gildan Activewear Inc
Goldcorp Inc
Linamar
Magna
Manulife Financial
McCain
Methanex
(Onex) Husky Injection Molding
PotashCorp
Research in Motion
Royal Bank of Canada
Samuel, Son & Co.
Shawcor Ltd.
SNC-Lavalin
TD Waterhouse
Teck Resources
Tembec
Thomson Corporation
Transat AT
World Color Press

Departures between 1985 and 2003 | *Departures* between 2003 and 2008 | *Departures* since 2008 | *Departures* since 2009 | No arrivals since 2009

Note: Companies in this list have sales revenue above $100 million and are in the top five of their market globally between 2008 and 2009; 39 have revenues over $1 billion.
Source: Institute for Competitiveness & Prosperity analysis.

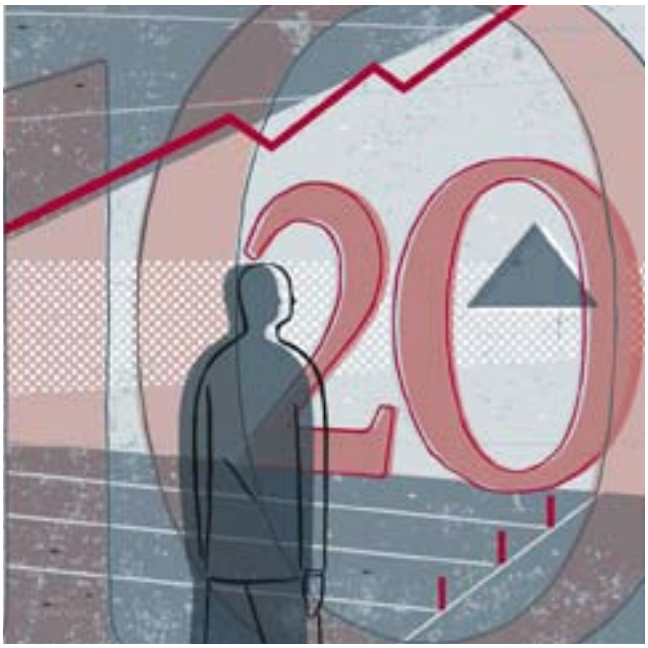
also shows that there are important benefits to pursuing a closer economic partnership. Liberalizing trade in goods and services could bring a potential 23 percent increase to bilateral trade and GDP gains of up to $12 billion for Canada by 2014. With the elimination of trade tariffs, the Canadian metals, transport equipment, and electronic equipment sectors will gain the most.

It is heartening to see Canada actively pursuing more international trade. In its 2010 budget, the government of Canada eliminated most tariffs on manufacturing machines and equipment, with the intention of fully eliminating them by 2015. Canadian manufacturers can now access lower priced machinery and equipment from international markets. Such a policy will also help reduce the gap in total investment in machinery and equipment between Canada and the United States, estimated at $1,584 per employed person in 2009. The EU negotiations are currently underway at both the national and provincial levels. Such policies will be very helpful to the recovery of the Canadian economy. There are, without a doubt, new opportunities for expanding Canada-EU trade with the upcoming negotiations.

However, we should not ignore the increased competition from other innovation-based competitors. Competition will also come from other groups of advanced economies. For example, when the United States and Japan combine their advanced technology and China's and India's low wages, they increase their ability to compete. We must remain attentive to these changing competitive dynamics and prepare for intensifying competition. Our global leaders are showing the way (see *Canada continues to have many global leaders*).

The current global environment is less conducive to international trade than in the past. It is critical for the ongoing competitiveness and prosperity of Canada that we advance on this front, not retreat. We need to work closely with the United States to ensure that the scourge of protectionism does not grow. At the same time we need to open up trade with China and Europe, our next most important partners. As we do so, the challenge of stepping up our capabilities becomes ever more important.

If Canada is to compete and prosper, it has to be on the basis of innovation, sophistication, and creativity. International trade creates competitive pressure and the specialized support needed to spur the development of advanced skills.



Thinking beyond the recovery

AS THE RECESSION ABATES and we turn to the recovery, our challenge is to avoid the temptation and traps of short-term economic policy and to strive to keep us on track to achieve our prosperity potential by 2020. With the recovery, we need to ensure that we thrive, not just survive. We encourage stakeholders in Canada's prosperity to keep the imperative for sustainable productivity growth at the forefront of our debate and discourse. That growth comes from innovation and upgrading – creating unique products, services, and processes that truly add value to people's lives. Higher productivity is our main opportunity for realizing our prosperity potential.

Attitudes

Encourage innovation and competition to win in the global economic resurgence

We need to remain determined to close the prosperity gap. Canadians do not have an attitude deficit in our will to win, our desire for innovation, and our recognition of the benefits of risk taking. Our real challenge is to master the conditions and context in which we compete globally. Public policy, effected through our regulatory environment and our openness to international trade and investment, needs to encourage innovation and competition. The stakes are high, for the protectionist sentiment in some corners could derail the fragile recovery and take us down the path toward economic depression.

Instead, we need to be a global leader in creating the climate for increased trade. Then we need to pursue opportunities in those global markets.

Investment

Invest in the human and physical capital critical for recovery

Continue investing in people for Canada's competitiveness. Our federal and provincial governments face a critical balancing act. Current deficits are unsustainable, and spending has to be reined in. As governments consider their spending priorities, we urge that they continue to place post secondary education high on the list. Funding ought to focus on three priorities: increasing the number of master's degrees attained; expanding access to our universities, especially for youth from demographic groups who tend less than others to participate in post secondary education; and improving the student experience in our universities.

We have to avoid the mistakes we made in the mid-1990s when we faced similar pressures to control spending. Back then, the government curtailed spending on both health care and education. But in the ensuing recovery, when deficits disappeared, health care spending was put back on track, while education spending flat lined.

If Canada is to be an economy that is competing on creativity and innovation, our workers and managers need the skills and knowledge to thrive and many of these come from robust educational opportunities.

Increase business investment in information and communication technology. Our businesses need to navigate through the recovery by taking full advantage of the improvements that technology can make to their top and bottom lines. We challenge business leaders to invest in technology from Canada and around the world. The stronger Canadian dollar has helped close our technology gap with our US peers; the improved tax structure will also help.

Motivations

Ensure announced tax changes become a reality and pursue opportunities for reducing tax rates for lower income Canadians

Implement announced changes in Ontario's and British Columbia's sales and corporate tax structures and encourage governments in Saskatchewan, Manitoba, and Prince Edward Island to follow their lead. Two provincial governments took a major step forward for our prosperity in improving our tax regime. By converting their provincial sale tax into a value added tax and harmonizing it with the federal goods and services tax and by reducing our corporate tax rates, they improved the motivations for investing in innovation and productivity. The remaining holdouts should follow suit for the benefit of their own residents and all Canadians.

Lower marginal effective tax rates for lower income Canadians. The Working Income Tax Benefit (WITB) is a potentially effective approach to fighting poverty in Canada. A refundable tax credit for low-income earners, it is designed to supplement low earnings from employment, therefore encouraging them to break out of welfare by seeking more work and to "make work pay."

However, the current WITB program is not doing the job as well as it could in many provinces and territories. This is because its current nominal design does not lace well with all thirteen provinces and territories, each with its own unique income-security structure. Though the federal government has extended an invitation for their provincial counterparts to modify the design of the WITB to suit their welfare programs, only Quebec, British Columbia, and Nunavut have done so. In Ontario, our research indicates that WITB could be redesigned to promote more hours worked; currently the design promotes part-time work by low-income earners.

The provincial and federal governments should strengthen incentives for more hours worked and co-ordinate better with provincial social assistance structures. This is a step in the right direction to help the working poor overcome the welfare wall and achieve full-time employment.

Structures

Drive innovation through more intelligent public policy and strengthened commitment to trade

Balance our public innovation strategies. Our public innovation policy emphasizes the hard sciences and does not recognize the importance of innovation in business and management processes. Our competitiveness and prosperity are built on a solid base of excellence in the sciences. And leading high technology firms are founded by science and engineering graduates. But successful innovation requires a balance of science and other skills. These other skills are important to achieve a successful transition from start-up to thriving businesses.

Continue to encourage federal efforts to expand international free trade agreements. We are encouraged by the decision to begin negotiations for expanded trade between Canada and the European Union. The EU is already one of our important trade partners, and negotiations should be aimed at expanding this relationship further. We need to recognize that more trade benefits not only our exporters through access to larger markets, but also our consumers and all our businesses, who must rise to the challenge from the added pressure of stiffer competition.

Keep the friendly pressure on our US neighbours to resist protectionist impulses and, in fact, look for even more opportunities to expand our trade. Federal and provincial governments need to be in constant contact with their US counterparts. Our business and labour leaders have excellent contacts with US leaders through ownership and affiliation. It is in their interest to persuade their counterparts that protectionism is unhealthy on both sides of the border.

Step up our efforts to increase trade with China and the European Union, our next largest trading partners after the United States. Our trade has been growing rapidly with China, but this expanding market offers more opportunities for us than we are currently realizing.

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