

Navigating through the recovery

Task Force on Competitiveness, Productivity and Economic Progress
EIGHTH ANNUAL REPORT, NOVEMBER 2009



Task Force on Competitiveness, Productivity and Economic Progress

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The Task Force on Competitiveness, Productivity and Economic Progress was announced in the April 2001 Speech from the Throne. Its mandate is to measure and monitor Ontario's competitiveness, productivity, and economic progress compared to other provinces and US states. In the 2004 Budget, the Government asked the Task Force to incorporate innovation and commercialization issues in its mandate. The Task Force reports directly to the public.

It is the aspiration of the Task Force to have a significant influence in increasing Ontario's competitiveness, productivity, and capacity for innovation. This, we believe, will help ensure continued success in the creation of good jobs, increased prosperity, and a high quality of life for all Ontarians.

The Institute for Competitiveness & Prosperity is an independent not-for-profit organization established in 2001 to serve as the research arm of the Task Force. The Working Papers published by the Institute are primarily intended to inform the work of the Task Force. In addition, they are designed to deepen public understanding of macro and microeconomic factors behind Ontario's economic progress and stimulate debate on a range of issues related to competitiveness and prosperity. Ideas are shifted from concept to action by using a method that demonstrates value along the way.

Comments on this Eighth Annual Report are encouraged and should be directed to the Institute for Competitiveness & Prosperity. The Task Force and the Institute are funded by the Government of Ontario through the Ministry of Economic Development.

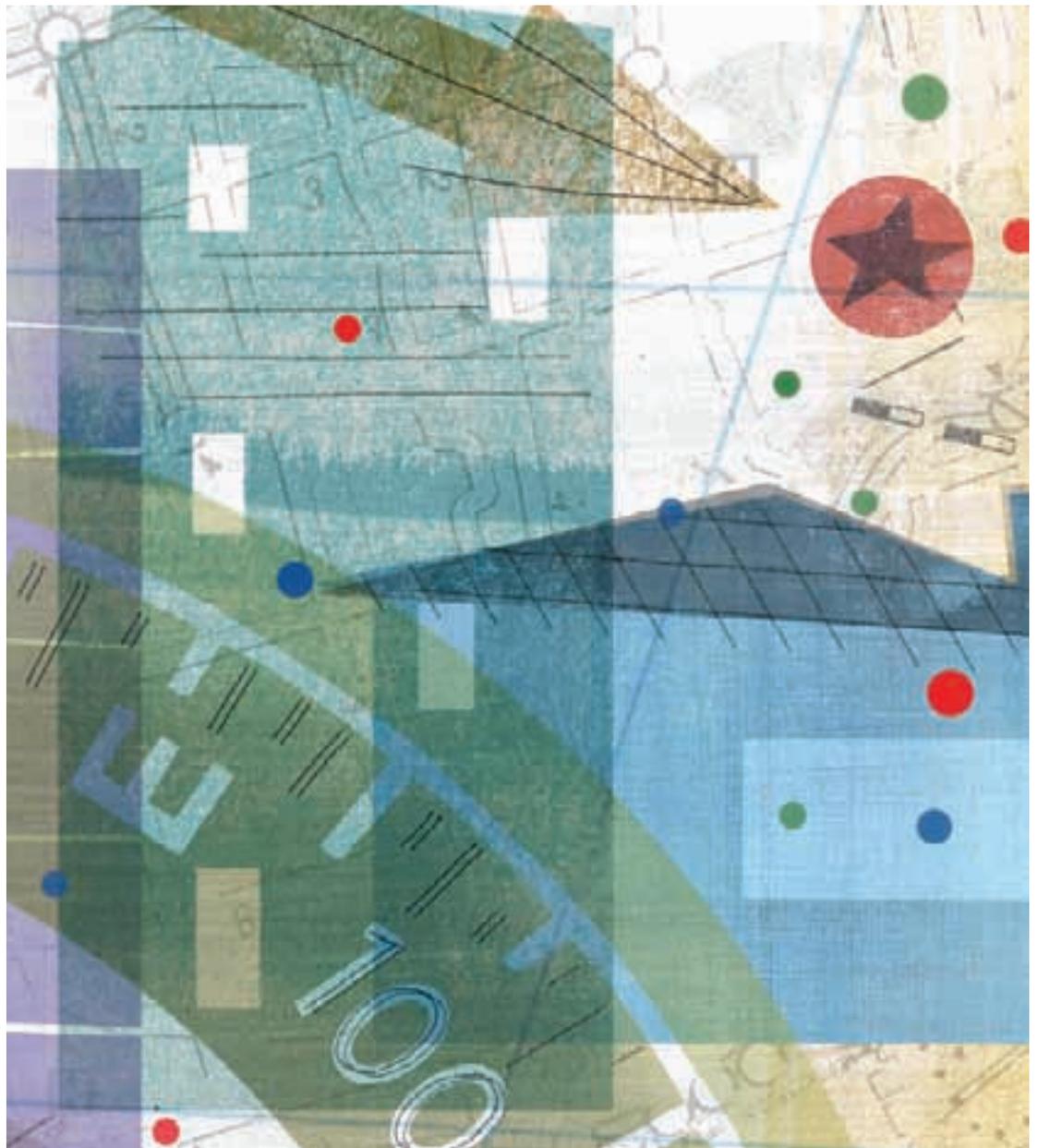
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Foreword and acknowledgements



ON BEHALF OF ONTARIO'S Task Force on Competitiveness, Productivity and Economic Progress, I am pleased to present our Eighth Annual Report to the Ontario public.

We have been through a tumultuous year in Ontario with the global economic slowdown. Like all Ontarians, we are hopeful that the worst is behind us and that we are starting on the road to recovery. But we recognize that the recession may not be over. And even if it is, its effects on unemployment and our government fiscal situation will linger.

Sooner or later, however, the economy will certainly get back on track and resume its long-term advancement. Our challenge is to navigate through this 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 Ontario to achieve its economic potential by 2020.

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. Ontarians 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.

The provincial government has been investing in education in the past five years through Reaching Higher and is considering a new multi-year framework. At the same time, it has to take action with an unprecedented deficit. The risk is that we cut back on our future investment in education. We have been here before and need to avoid taking the wrong path. After the recession of the mid-1990s, when federal and provincial governments had to tackle the deficit, they attacked 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. If we are 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.

“We have good cause for optimism. Our challenge is to steer through the economic turbulence, avoiding the traps of poor economic policy.”

Ontario has made huge progress on our Prosperity Agenda by restructuring the way we tax business investment. Converting our 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. Coupled with the reductions in our corporate tax rates, Ontario will move from one of the worst to one of the best tax regimes in the world for encouraging new business investment. Some have called these changes “business friendly.” We call them “Ontario friendly,” as they will create more high-paying jobs in innovative firms.

Finally, as our economy recovers, we have good cause for optimism. Our prosperity is built on trade, and Ontario and Canada need to take the lead in expanding international arrangements. The leadership Ontario has shown in encouraging the federal government to launch trade negotiations with the European Union is a hopeful sign. We need to pursue other trade expansion opportunities with countries like China and India.

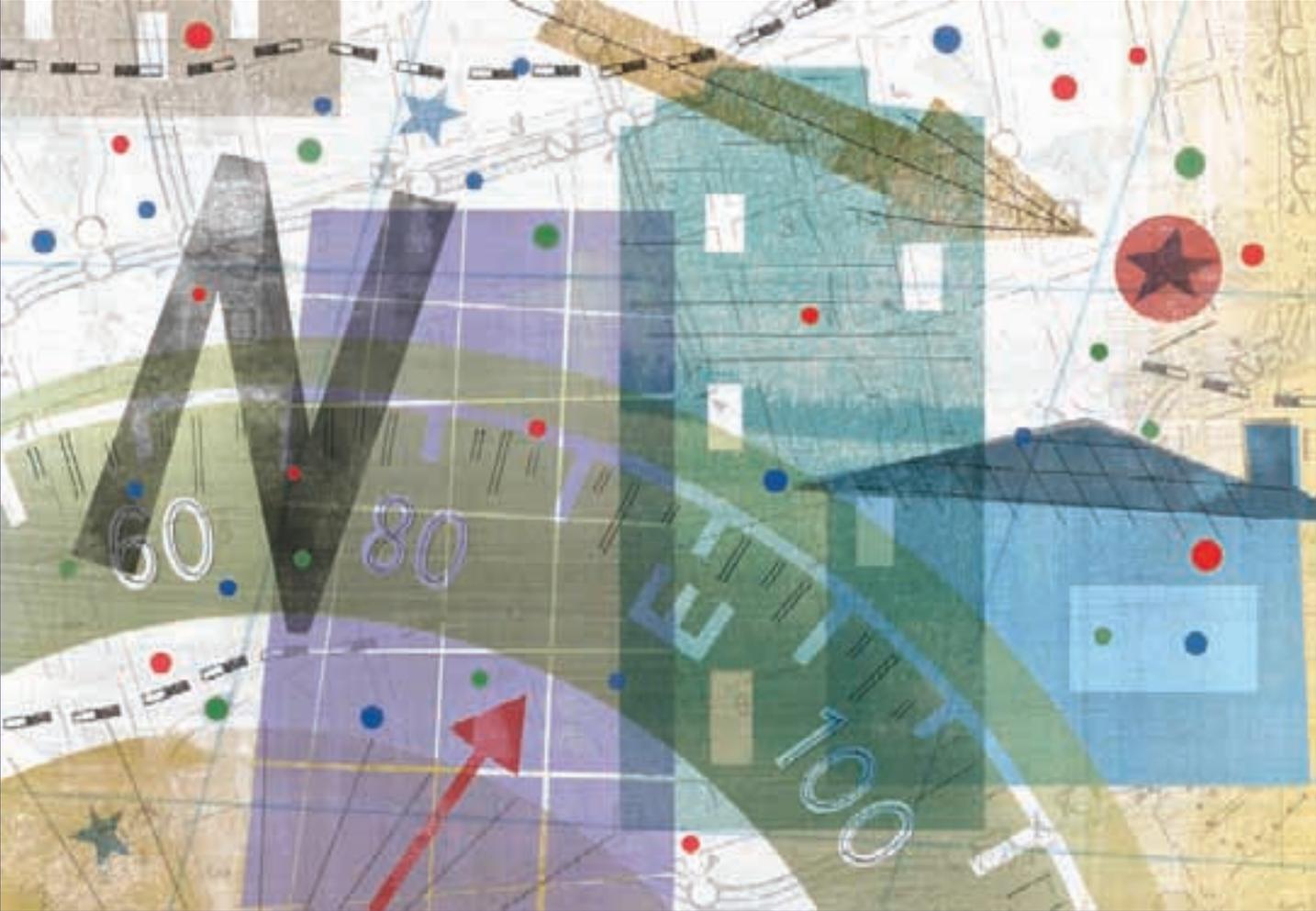
At the same time there are some worrisome trends especially with respect to protectionism. We should be working to reduce protectionist measures. Retaliation is not the answer.

Our challenge is to steer through the currents of turbulence, avoiding the temptation and traps of poor economic policy. We must strive to keep on track to achieve our prosperity potential.

We gratefully acknowledge the research support from the Institute for Competitiveness & Prosperity and the funding support from the Ministry of Economic Development and Trade. We look forward to sharing and discussing our work and findings with all Ontarians. We welcome your comments and suggestions.

A handwritten signature in blue ink, appearing to read 'R. Martin', with a stylized flourish at the end.

Roger L. Martin, Chairman
Task Force on Competitiveness, Productivity and Economic Progress
Dean, Joseph L. Rotman School of Management, University of Toronto



Navigating through the recovery

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

THIS HAS BEEN A REMARKABLE YEAR. Along with the rest of the country – and the world – Ontario has been plunged into its deepest recession since the early 1990s. Our economy had been growing at a real annual rate of 2.4 percent since the start of this decade, but in 2008 economic activity shrank. The impact on our families, businesses, and governments has been devastating.

For families, the scourge of unemployment has returned. After steady declines since the mid-1990s, the unemployment rate shot up to 9.6 percent by June 2009. While our economic output began to contract in late 2007 and early 2008, employment did not start its decline until October 2008. Between that time and May 2009, when employment began to grow again, the province shed 245,000 jobs. The stock market decline has ravaged family savings and pensions, and personal consumption is sluggish.

Businesses have been hit hard by the recession. Corporate profits in Ontario, which were already 14 percent lower in 2008 than 2007, are projected to be down 39 percent in 2009. Business weakness has caused the job losses and swelled the ranks of the unemployed.

Governments' fiscal standings have been devastated by the recession. The slow-down in economic activity has reduced tax revenues, and spending has risen automatically in some areas as social assistance costs rise and deliberately in other areas as governments have responded with huge stimulus spending programs. Where deficits were unthinkable a year ago, the provincial deficit is expected to top \$24 billion in the current fiscal year – a level unseen in Ontario history.

Some experts have now concluded that the recession is over. Others see a slight respite currently, but fear that we will experience a renewed downturn – a w-shape or double-dip recession.

The Task Force has no crystal ball to indicate whether or not the worst is behind us or when things will be back to “normal.” While we are confident that our economy will get back on track and resume its long-term advancement at some point, we see tremendous turmoil ahead as people consider their spending and investment decisions, as businesses assess future investments, and as governments make 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 Ontarians is whether we will be able to navigate through the choppy waters toward a recovery – be it imminent or delayed, be it sluggish or robust. The turmoil we see is occasioned by several factors both global and local.



More than other recessions, this one is truly global in nature – nearly all developed economies have been hit by it simultaneously. As with any other recession, Canada's and Ontario's exports are hurt by weaker world wide demand for our goods and services. Ontario is a trading province, 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 America” leads to admonitions to “buy local” here in Ontario. 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 Ontario and 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 Ontario's 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 Ontario. We can help secure our long-term prosperity by pursuing greater trade with these two economies.

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 America actions. As a high priority, our diplomatic efforts have to focus on securing preferred treatment for Canada and, better yet, 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 NAFTA rules. Ontario has 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, Ontario needs to ensure that interprovincial trade barriers are dismantled; on this dimension, the recently signed Ontario-Quebec Trade and Cooperation Agreement is a hopeful signal.



At home, 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.

We have been here before, and there are lessons to be drawn from our past experience. In the mid-1990s when Ottawa and Queen's Park were 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, and Ontario 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 25 percent by 2002 in Ontario. We are concerned that political pressures will again be such that education spending is deemed expendable as the provincial government works to restore fiscal order.

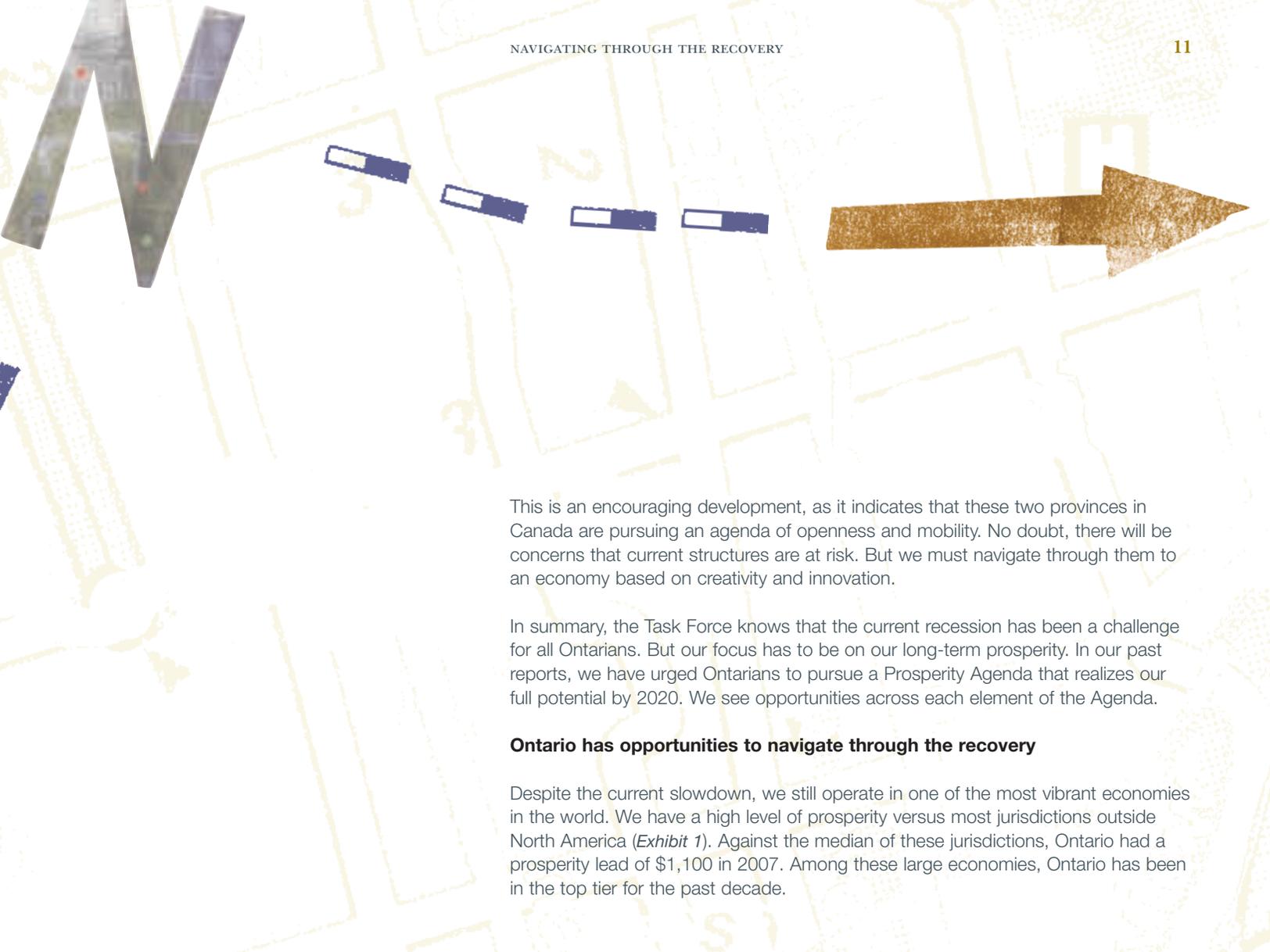
This approach could undo the recovery in education spending initiated by the current Ontario government. Through its Reaching Higher initiative, the province has invested significantly in post secondary education, which in turn has helped narrow the large gap in our per capita investments in education. The recession has not changed the imperative for developing our human assets – if anything it has heightened the need. Our provincial government needs to navigate carefully, scaling back its expenditures to sustainable levels and investing adequately in education for our future prosperity.

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 our 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 the March 2009 budget, the provincial government took the bold steps of dramatically lowering taxes on new business investment by reducing the provincial corporate tax rate and converting our provincial sales tax to a value added tax.

Through these courageous steps, Ontario will become a jurisdiction with below-average taxes on new business investment. Ontario will have a meaningful advantage over our US counterparts, and this will only widen as we expect US tax rates on new business investment will need to increase to reduce their deficits.

The challenge facing Ontario 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 Ottawa and Queen's Park to look first at increasing the goods and services tax and the harmonized sales tax rates.

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, 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."



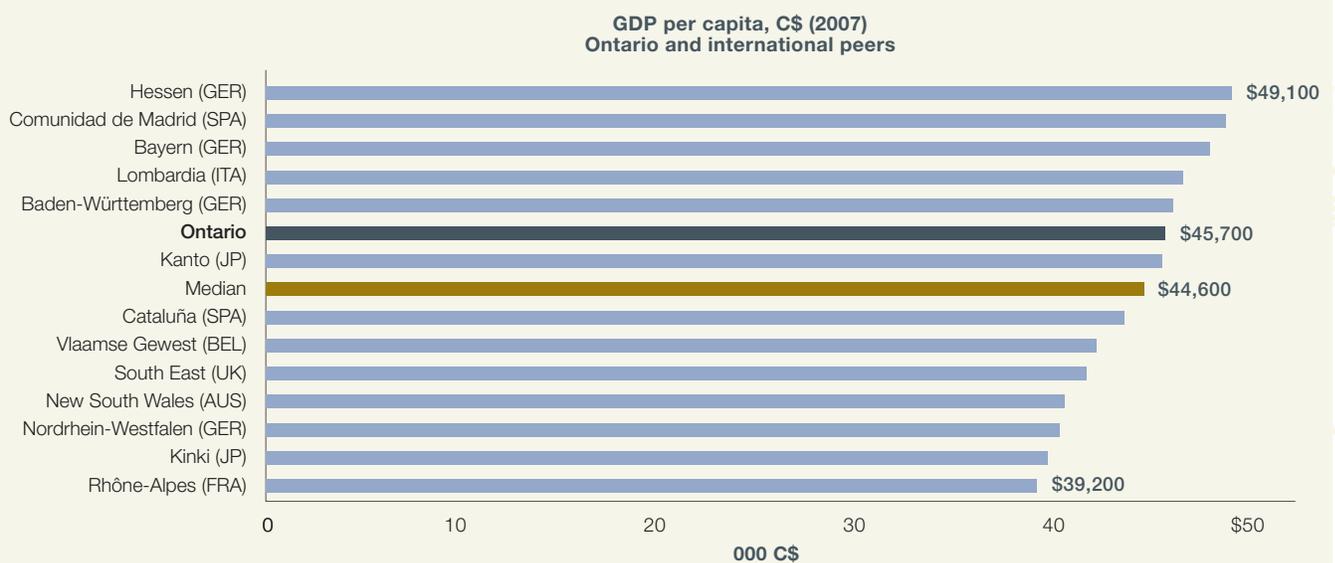
This is an encouraging development, as it indicates that these two provinces in Canada are pursuing an agenda of openness and mobility. No doubt, there will be concerns that current structures are at risk. But we must navigate through them to an economy based on creativity and innovation.

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

Ontario has opportunities to navigate through the recovery

Despite the current 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 1*). Against the median of these jurisdictions, Ontario had a prosperity lead of \$1,100 in 2007. Among these large economies, Ontario has been in the top tier for the past decade.

Exhibit 1 Ontario is more prosperous than most international peers



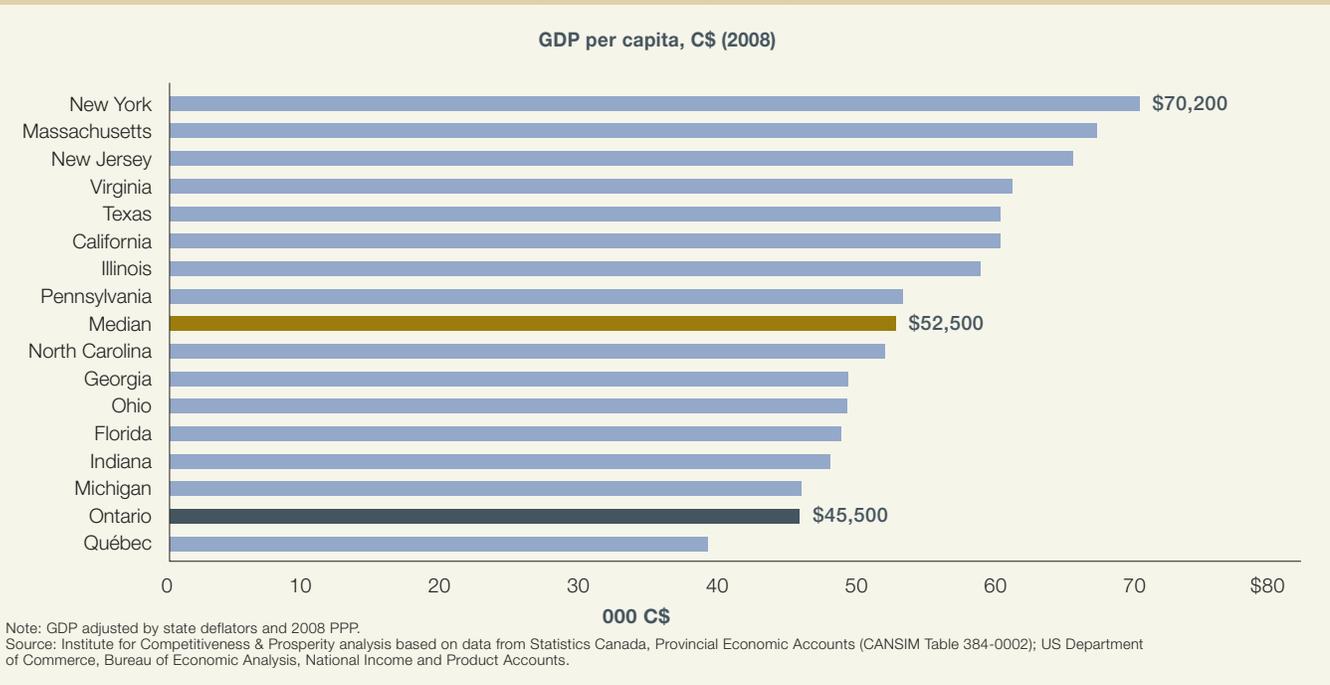
Note: Due to limited GDP data on Kanto & Kinki, Japan's national GDP growth rate from 2006 to 2007 was used to estimate Kanto & Kinki's GDP in 2007. Currency converted at PPP.
 Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada; Australian Bureau of Statistics; National Bank of Belgium; INSEE National Institute for Statistics & Economic Studies; Statistische Ämter Des Bundes Und Der Länder; L'Istituto Nazionale di Statistica; Instituto Nacional de Estadística; UK Office for National Statistics; SNA Statistics National Accounts of Japan; Japan External Trade Organization; OECD; IMF; Eurostat.

But closer to home, among the world's most prosperous regions in North America, Ontario's prosperity continues to lag (*Exhibit 2*). In all our analyses, unless otherwise specified, we use constant 2008 dollars converted at the Canada/US purchasing power exchange rate of 1.196.

In the early 1980s, Ontario ranked in the midst of the most successful economies in the world. But since that time growth in Ontario has lagged that in our US peers – the fourteen states whose population exceeds 6 million, one-half of Ontario's. We have remained ahead of Quebec, the other North American jurisdiction of that size. For nearly all of the last sixteen years, Ontario has ranked fifteenth of the sixteen North American peer jurisdictions. In 2007, Ontario's GDP per capita was \$6,600 below the median of these peers. In 2008, the gap increased to \$7,000 (*Exhibit 3*).

Much of the popular press has concluded that the recession has been much more severe in the United States than in Canada and Ontario. This is true for Canada, but not for Ontario. From the beginning of the recession in late 2007 to the first quarter of 2009, Ontario's real GDP fell nearly 4.1 percent; over the same period, the US GDP fell 3.5 percent. Canada's real GDP fell 2.5 percent. As in the recession of the early 1990s, Ontario was hit harder than the rest of Canada and the United States. We did not fully recover from that recession until the mid-1990s. It is over this period that our prosperity gap widened to its current level.

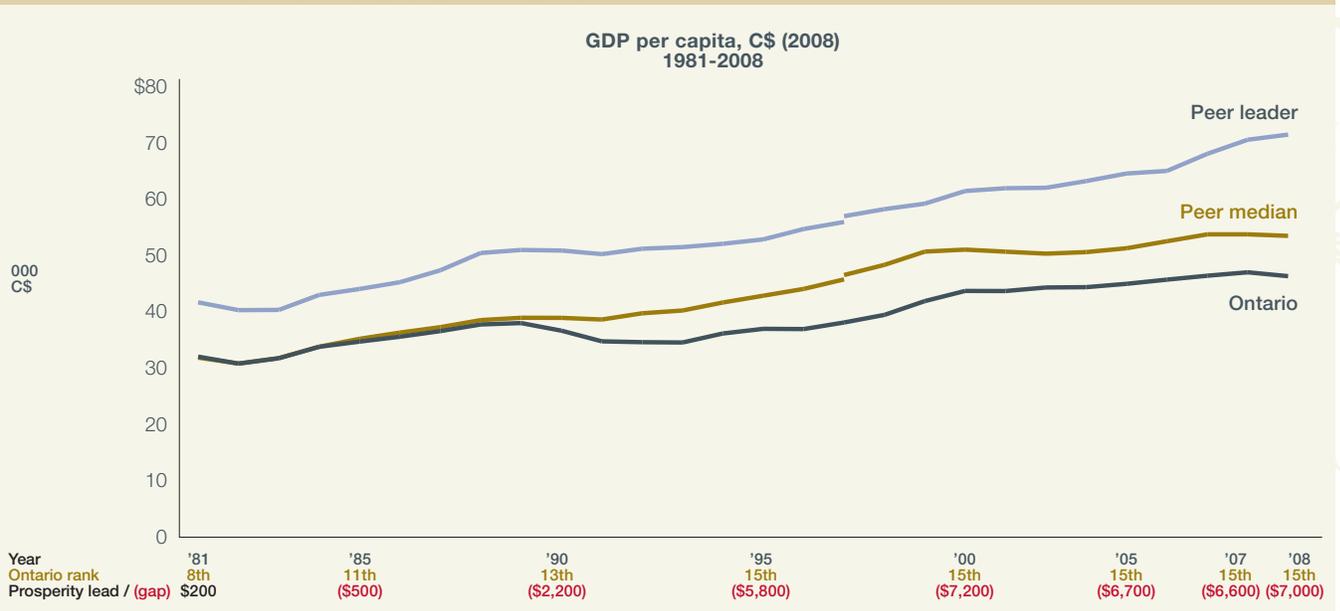
Exhibit 2 Ontario trails its North American peers in GDP per capita



As we 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 \$10,200 in after-tax disposable income for each Ontario household. And closing the prosperity gap would generate \$31.7 billion in tax revenues for all three levels of government in the province.

In our last three Annual Reports we have discussed a Prosperity Agenda for Ontario – an integrated set of actions for achieving our prosperity potential (*Exhibit 4*). We remain committed to this Agenda to close the gap.

Exhibit 3 Ontario's prosperity gap grew slightly in 2008



Note: 1997 shows the break in the US method of calculating state-level GDP from SIC-based to NAICS-based. Numbers are adjusted by provincial/state deflators. US results are converted to Canadian dollars using 2008 PPP.
 Source: Institute for Competitiveness & Prosperity analysis based on data from Provincial Economic Accounts (CANSIM Table 384-0002); US Department of Commerce, Bureau of Economic Analysis. National Income and Product Accounts.

Exhibit 4 **Task Force has set out a 2020 Prosperity Agenda to close the gap**

THE GOAL	Current	Target 2020
Close the prosperity gap	15th in peer group in 2008	At the median – 8th by 2020
Attitudes	Remain complacent	Share determination to close the gap
Investment	Consume today	Invest for tomorrow's prosperity
Motivations	Accept unwise taxation	Move boldly to smarter taxation
Structures	Preserve status quo	Encourage creativity and growth

Attitudes

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

Ontarians 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. Our AIMS framework is an interactive one. While attitudes toward innovation may be positive, if our market structures encourage the status quo and not 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.

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

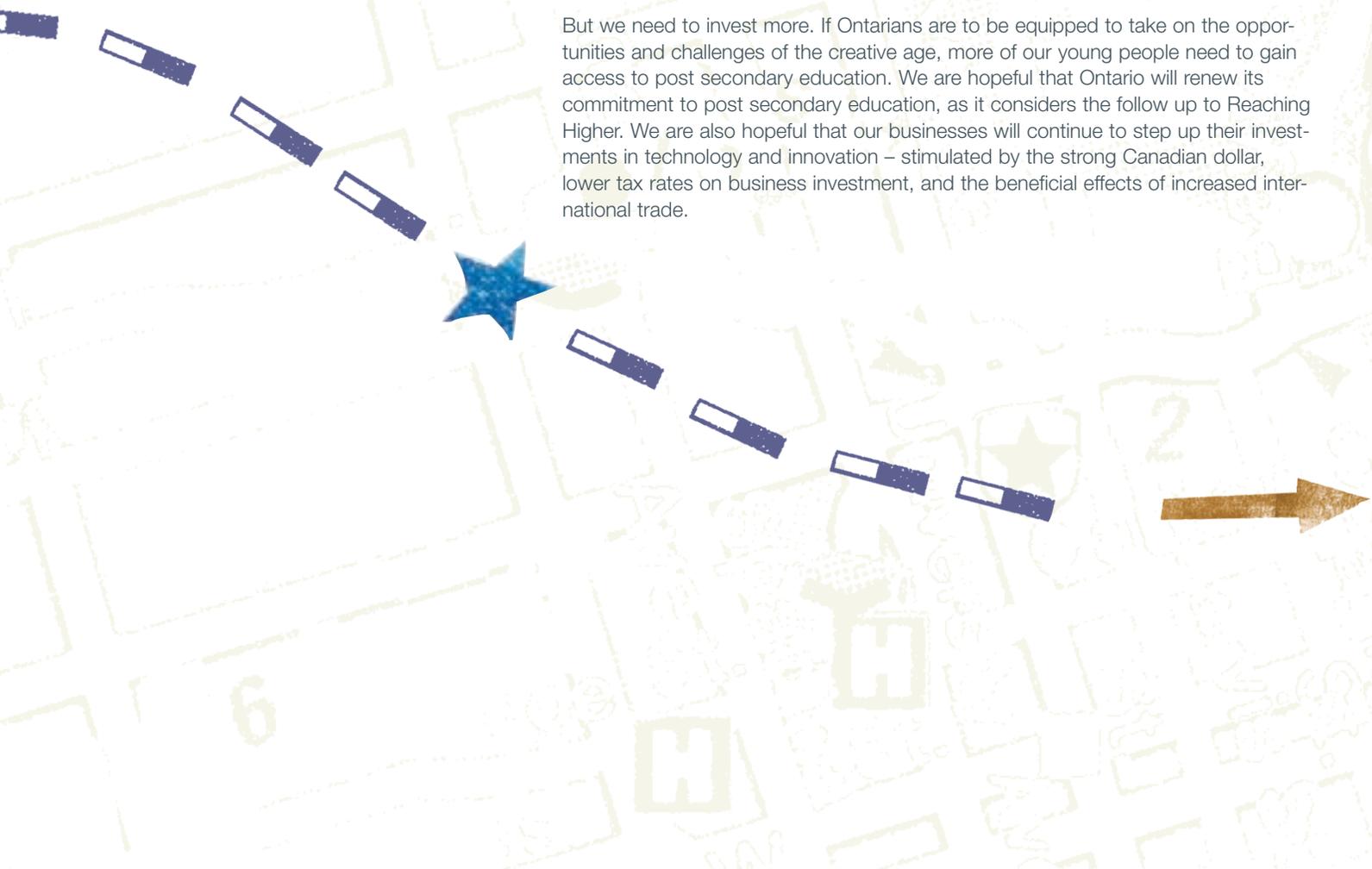
Investments

Invest in the human and physical capital critical for recovery

Investment is the lifeblood of prosperity. Expenditures on research, technology, and advanced education generate no prosperity return today – but they drive our future prosperity. In past reports, we have concluded that Ontarians are consuming our 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. 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 Ontarians 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 Ontario will renew its commitment to post secondary education, as it considers the follow up to Reaching Higher. 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 announced tax changes become a reality

This was a great year for tax policy in Ontario. By announcing the intent to harmonize our provincial sales tax with the federal goods and services tax and to reduce corporate tax rates, the government of Ontario has taken bold strides in improving the motivation for new investment by our businesses. In the past, we have noted that Ontario has been one of the worst jurisdictions among developed economies in its taxation of new business investment. Two factors have contributed to this. First, the relatively high rates of corporate income taxation have discouraged business investment. Second, the provincial sales tax on purchases, including business investments, has undermined investment. 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. Ontario, some other Canadian provinces, and many US states still impose a retail sales tax that penalizes business investment.

In its latest budget, however, the provincial government announced its intent to deal with these two factors in 2010. When fully implemented, tax harmonization and lower corporate taxes will bring Ontario's taxes on new business investment from among the highest in OECD economies to below average. This is a bold initiative that will add stimulus to business investment and help the province recover more quickly from the recession.

Our next taxation challenge is to deal with high marginal tax rates on low income Ontarians. 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 in this report on how to redesign the Working Income Tax Benefit to help reduce the problem of high marginal tax rates for lower income Ontarians.

Structures

Drive innovation through strengthened commitment to trade

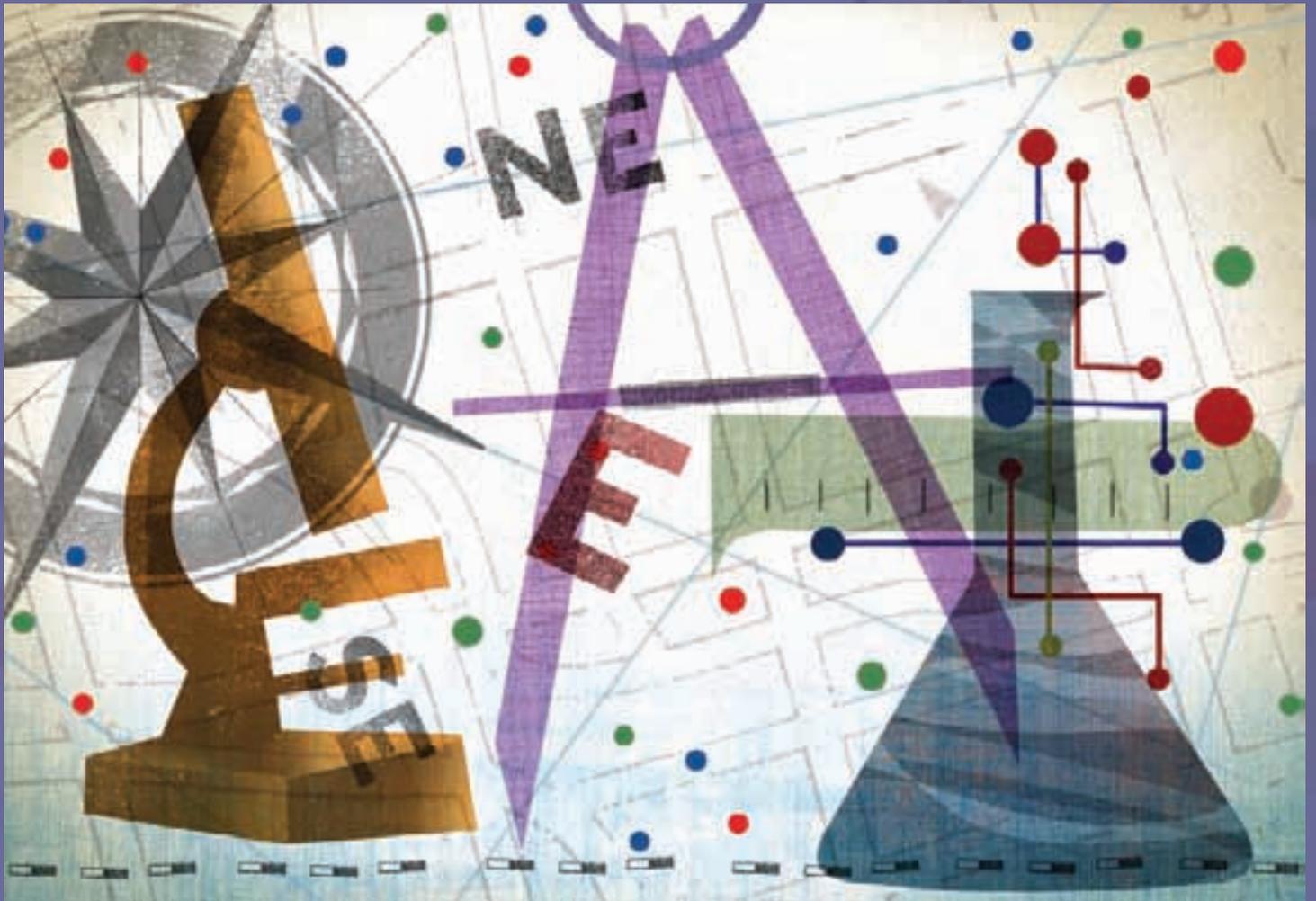
A major challenge to advanced economies is the current mood of protectionism resulting from the economic turmoil. One of the most important factors in Ontario's high prosperity is international trade. International trade promotes innovation through specialized support and competitive pressure. By opening up global markets to Canadian firms, trade creates great 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 Ontario. But current Buy American 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 greatest opportunities.

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

These are turbulent economic times for Ontario's people, businesses, and governments. But there is cause for hope as the recession may be ending, and we have some fundamental strengths on which to build in pursuit of the 2020 Prosperity Agenda. At the same time there are some worrisome trends domestically and globally. Our challenge is to navigate through the turbulence – avoiding the temptations and traps of poor economic policy and striving to keep us on track to achieve our prosperity potential.





Foundations for recovery

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

IN CARRYING OUT ITS MANDATE to measure and monitor Ontario's competitiveness and prosperity, the Task Force has focused on Gross Domestic Product (GDP) per capita as the summary measure of success. It is important to note that GDP represents the value added to our endowed base of human, physical, and natural resources.

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 multidimensional, 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

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.

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 for Competitiveness & Prosperity has begun 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 2008. 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. The only variable that does not seem to have a strong correlation with GDP per capita is self-esteem (under the resilience and self-esteem category in personal well

being), while social well being and well being at work fit closely with GDP per capita.

- **Gallup-Healthways Well Being Index (GHWBI).**

In a forthcoming paper, research by Richard Florida and Charlotta Mellander from the Martin Prosperity Institute shows that well being data for all fifty states and GDP per capita in 2008 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, we chose to use the GSS because it 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 – that could be a reason why average happiness in the Atlantic provinces exceeds that of the urban provinces. John Helliwell of

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, Civic Engagement, Education, Environment, Time Use, Healthy Populations, Living Standards, and Community Vitality; the last three have been completed so far.

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. These Canadian results need to be studied in more detail.

As we have seen, outside of North America, only five regions have greater prosperity per capita than Ontario (see *Exhibit 1*). But closer to home we continue to trail our North American counterparts considerably. Within our peer group of the sixteen North American jurisdictions with a population of six million, half Ontario's or more, Ontario stands fifteenth, ahead of only Québec (see *Exhibit 2*). In our Seventh Annual Report last year, we observed that Ontario had pulled ahead of Michigan in GDP per capita for 2007; however, with revised estimates,

Ontario actually stood fifteenth, behind Michigan, in 2007 and 2008.

Ontario's prosperity gap, the difference in GDP per capita between Ontario and the median of the peer jurisdictions, did not exist twenty years ago, when we held a middle position among these highly competitive and prosperous jurisdictions. Starting with the 1990–92 recession, Ontario's ranking began to fall behind that of the peer states, and we have not been able to resume our earlier standing (see *Exhibit 3*). This prosperity gap matters to Ontarians. 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.

Lagging intensity and productivity remain the biggest hurdles

To understand the reasons for our prosperity gap with the peer jurisdictions, we

draw on the same framework we have used in our previous reports. This framework disaggregates GDP per capita into four measurable elements (*Exhibit 5*):

- **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 are 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.

Exhibit 5 The Task Force measures four components of prosperity

Prosperity		Profile		Utilization		Intensity		Productivity
GDP per capita	=	$\frac{\text{Potential labour force}}{\text{Population}}$	X	$\frac{\text{Employed persons}}{\text{Potential labour force}}$	X	$\frac{\text{Hours worked}}{\text{Employed persons}}$	X	$\frac{\text{GDP}}{\text{Hours worked}}$
				<ul style="list-style-type: none"> • Participation • Employment 				<ul style="list-style-type: none"> • Industry mix • Cluster mix • Cluster effectiveness • Urbanization • Education • Capital investment • Productivity residual

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.

• **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 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 Ontarians are expending to create

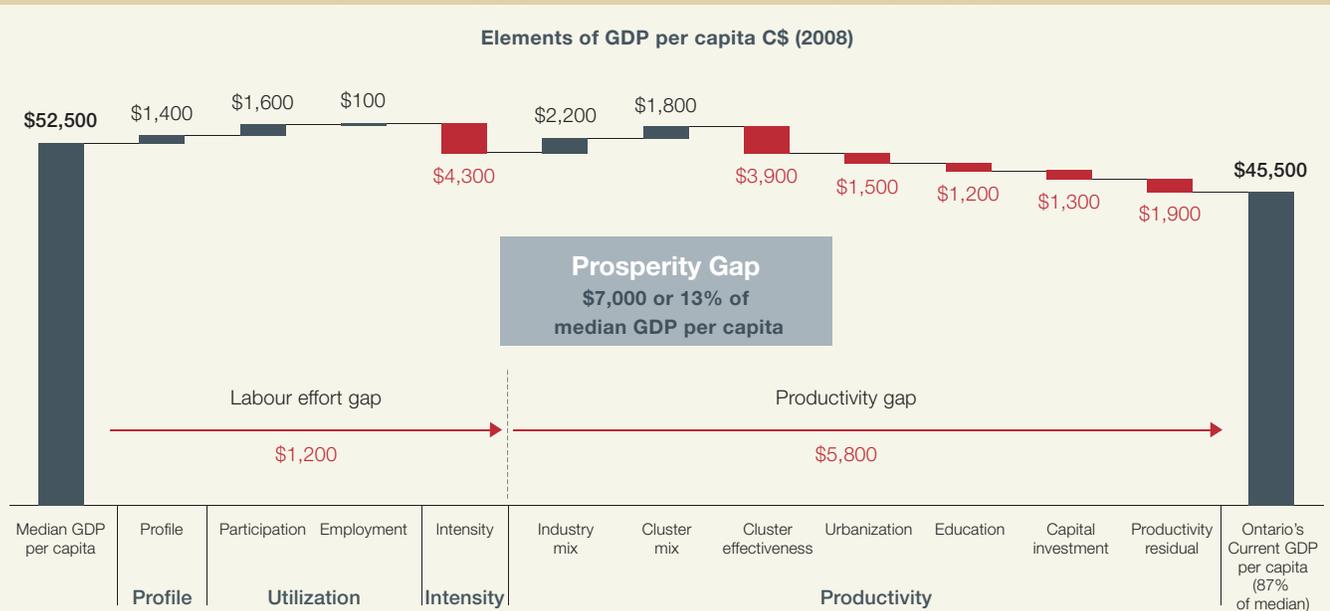
economic value. The fourth factor – productivity – measures how effectively our labour efforts turn resources into economic value and prosperity.

Ontario's divergence from the prosperity performance of our peer 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 peer states. If we are to close the prosperity gap, our Prosperity Agenda has to be a priority for all stakeholders.

Ontario has mixed labour effort performance

Ontario continues to have a demographic profile advantage versus the

Exhibit 6 Labour effort and productivity gaps account for Ontario's prosperity gap



Note: Median of the 16 jurisdictions.
 Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada; US Department of Commerce, Bureau of Economic Analysis.

peer states, an advantage in utilization, but a significant intensity gap (*Exhibit 6*).

Profile remains an advantage for

Ontario. 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 Ontario, 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 Ontario's prosperity.

In 2008, 69.4 percent of Ontarians were aged 15 to 64. Among the peer jurisdictions, only Québec has a higher percentage of working age population. All fourteen peer states have a smaller percentage. Relative to the 67.5 percent median of the sixteen peer jurisdictions, Ontario has a 2.7 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 our peer jurisdictions worth about \$1,400 per capita to our prosperity.

As we discussed in our Fourth Annual Report in 2005, demographic projections indicate that the proportion of Ontarians 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 Ontario will maintain its advantage versus its peers.⁴

Nevertheless, Ontario will have fewer workers to create prosperity in the coming years. We estimate that by 2025 the smaller percentage of working aged Ontarians will reduce GDP per capita potential by \$2,300.⁵ As we discussed in our 2006 Working Paper on intensity, we will need creative retirement solutions to address this decline in our prosperity potential.⁶

One opportunity to improve our prosperity is to reduce participation barriers to persons with disabilities (see *With higher labour force participation, the disabled can contribute significantly to our prosperity*).

More people are working in Ontario than in the peer states. As we discussed in our Fourth Annual Report, Ontario successfully reversed a decline in the utilization of its working aged population during the latter part of the 1990s.⁷ In 1990, Ontario led all its peers except Texas in participation. Ontarians were more eager to work than people in any other state or province in its peer group. As economic conditions improved from the recession of the 1990s, more adult Ontarians rejoined the labour force, contributing to our economic potential. In 2008, 66.4 percent of Ontarians fifteen years of age and older worked or sought work (using data comparable to US methods of calculation). Among the peer jurisdictions, we ranked second to Virginia. The median participation rate was 64.3 percent. This advantage for Ontario translates into \$1,600 in GDP per capita.

In the other component of utilization, employment, Ontario has traditionally trailed its peers, but the gap versus the peer median has accounted for only a small part of our prosperity gap.

Last year, our annual unemployment rate increased to 5.9 percent from 5.8 percent in 2007. This understates the negative monthly trends since November 2007. Unemployment rose steadily through 2008 and 2009, reaching a maximum of 9.1 percent last June – the highest rate we have experienced since May 1994. On the positive side, unemployment rates have been falling since June, declining to 8.5 percent in September.⁸

However, Ontario's unemployment rate has been better than that of the peer states. Our 2008 unemployment rate of 5.9 percent (adjusted to US definition) was marginally lower than the peer median rate of 6.2 percent. In other words, on average through 2008, 94.1 percent of those Ontarians participating in the work force had full-time or part-time work, which for the first time since 1990 was higher than the median performance of the peer jurisdictions, 93.8. This 0.3 percentage point advantage lifted our relative GDP per capita performance by \$100 in 2008.

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 Ontario's growing prosperity gap during those years. Beginning in 1997, Ontario successfully increased the utilization of its human capital; by 2008, Ontario employed 62.4 percent of its working age population, ranking second among the sixteen peer jurisdictions and above the peer median of 60.5 percent. This superior performance translates into a \$1,700 utilization advantage (the combined effect of a \$1,600 participation advantage and a \$100 employment advantage) in GDP per capita.

³ Calculated as $[1 \text{ minus } (67.5 \text{ (Peers)} / 69.4 \text{ (Ontario)})] = 2.7 \text{ percent}$.

⁴ Task Force on Competitiveness, Productivity and Economic Progress, Fourth Annual Report, *Rebalancing priorities for Ontario's prosperity*, November 2005, p. 29.

⁵ This comparison is between Ontario's GDP per capita in 2005 and its potential in 2025; not the difference between Ontario and its peer group.

⁶ Institute for Competitiveness & Prosperity, Working Paper 9, *Time on the job*, September 2006, p. 21.

⁷ 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.

⁸ Note these results are comparable to US data, not the official Canadian figures. Official Ontario 2008 figures are 9.6 percent in June and 9.2 percent in September.

With higher labour force participation, the disabled can contribute significantly to our prosperity

In previous work, we identified persons with disabilities as a group with a high risk of poverty. They made up approximately 16 percent of the Ontario population in 2006, according to the Participation and Activity Limitation Survey (PALS), a part of the Census of Canada. This is a 2 point increase from 14 percent in 2001. Since incidence of disability increases with age, 47 percent of those 65 and over are disabled. This proportion is only expected to grow as Ontario’s population ages.

Disabilities can take many forms. The PALS survey identifies ten different areas of disability: hearing, seeing, speech, mobility, agility, pain, learning, memory, developmental, and psychological.

Among working aged Ontarians, the disabled have lower educational attainment and participate less in the labour market than persons without disabilities (*Exhibit A*). There is a 26 percent gap in labour force participation rate, with only 55 percent of those with disabilities participating in the labour force. Even when they are employed, they only earn on average 72 percent of what a not disabled person will earn.

The average level of highest educational attainment is also lower for this group. While 18 percent of Canadians without a disability have not graduated from high school, this rises to 27 percent for those with a disability. While 21 percent of persons without a disability have a university degree, only 13 percent of the disabled do. A significant number of Canadians who had a disability during their educational years report it affected their schooling and career choices.

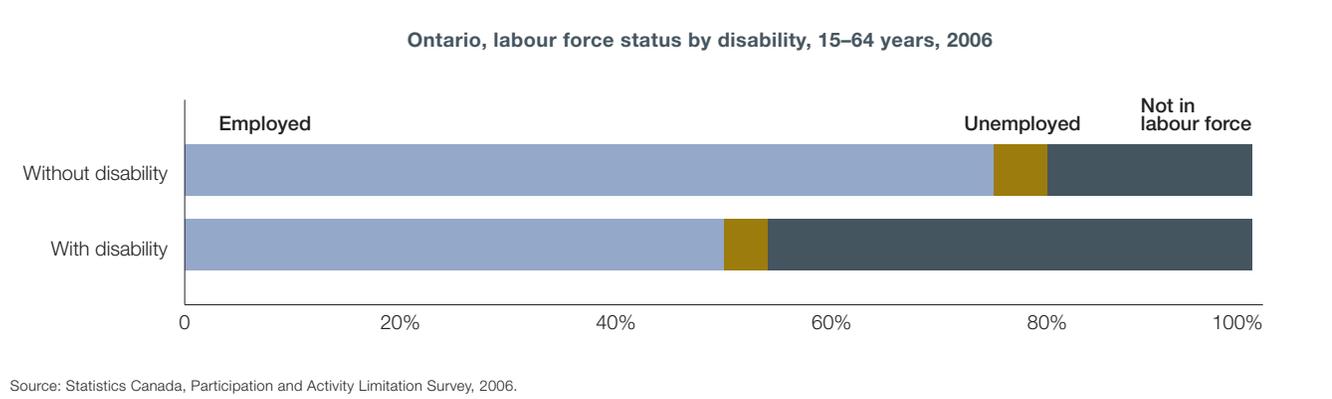
The 2005 Accessibility for Ontarians with Disabilities Act (AODA) is aimed at eliminating barriers they face in every day life. Examples of things covered by the AODA include:

- » **Building codes** – creating new buildings that are designed from the ground up to be more accessible
- » **Public transportation** – accessible vehicles and platforms, audio and visual aids, etc.
- » **Employment practices** – formal recognition the need for accommodation of employees with different limitations
- » **Information and communication** – accessible websites and media

Standards like the AODA will enable a greater part of society to participate in it productively. This is especially important when a larger and larger part of society will depend on such measures in the future.

In our work in collaboration with the Martin Prosperity Institute, we estimate greater participation by those with disabilities in our labour market could increase GDP per capita by up to \$650; higher educational attainment could add another \$200. Together these two factors could close 12 percent of Ontario’s prosperity gap.

Exhibit A Persons with disabilities participate less in the labour force



Ontario employees work fewer hours than their US counterparts – and this intensity gap remains a significant part of our prosperity gap. While Ontario outperforms the peer 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 peer states. In 2008, the average Ontario worker worked 1,691 hours, while in the median of the peer states the average worker worked 1,853 hours. This gap of 162 hours, or 4.3 weeks annually, widened slightly from 2007, when Ontario trailed the peer median by 155 hours weekly or 4.1 weeks. Consequently, the importance of intensity on Ontario's prosperity gap increased slightly from 2007, and is still an important part of our prosperity gap.

In 2006, the Institute conducted significant research into differences in intensity between Ontario workers and their counterparts in the peer states.⁹ We found that half of the intensity gap is due to more weeks of vacation taken by Ontario workers and half is due to fewer hours worked when workers are on the job. Within this shorter work week, we found that the largest component, about half, was the result of more Ontarians working part time. Much of this gap, in turn, was due to an inability of our part-time employees to find full-time work. Fully 32 percent of part-time workers in Ontario over the 1997–2004 period indicated that they worked part time because they could not find full-time work. Across the peer states, this proportion was only 16 percent. Most of our intensity gap reflects the desires of Ontarians to take more vacation, which is a preference, not a weakness.¹⁰ But, in our 2006 research, we found that 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 Ontario's prosperity gap

As we have seen, in the three labour effort factors, Ontario's advantage in the percentage of our population of working age has strengthened slightly, and we have made remarkable progress in the percentage of Ontarians who are working. Still, differences in 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.

Over the last decade, productivity has accounted for the greatest share of the prosperity gap with our peers, and in 2008 this productivity gap widened further. We assess the six sub-elements of productivity to determine the impact of this key driver of our prosperity gap.

Our industry mix contributes positively to our productivity.¹¹ Ontario 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.¹² 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 0.8 percent of employment in Ontario in 2006.

Drawing on Porter's methodology, the Institute has determined that fully 36.4 percent of employment in Ontario is in clustered industries versus the median of 28.8 percent in the peer jurisdictions. We estimate the potential productivity benefit from this higher percentage of clustered industries in our industry mix to be worth \$2,200 per capita. This benefit is derived from a higher output than would be likely if Ontario's mix were the same as that of the peer states.¹³

Within clustered industries Ontario has a beneficial mix. While all clustered industries are positive contributors to productivity and innovation, some have higher potential than others. Ontario's relative employment strength in financial services, automotive, metal manufacturing, publishing and printing, and others has created an attractive mix of traded industries. Our analysis of Ontario's cluster mix indicates a \$1,800 per capita advantage over our peers.

⁹ Institute for Competitiveness & Prosperity, Working Paper 9, *Time on the job*, September 2006.

¹⁰ *Ibid.*, p. 34.

¹¹ In this year's Report, we analyze our overall industry mix separately from our mix of clustered industries. Previously, we grouped these together as "cluster mix." We also reported "cluster content," but as this factor accounts for a small portion of the productivity difference, we have dropped it from our analysis. Our cluster data are now based on North American Industry Classification System (NAICS) to be consistent with the recent change by Harvard's Institute for Strategy and Competitiveness from Standard Industrial Classification (SIC) to NAICS.

¹² 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.

¹³ 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.

Cluster under performance is a significant part of Ontario's productivity gap. While Ontario has an excellent industry and cluster mix, cluster effectiveness is much lower than that in the peer states. In Ontario and the peer states, traded clusters are more productive than local industries, as represented by wages. In Ontario, the productivity premium is 33.3 percent.¹⁴ But across the peer states, the median productivity premium is 56.6 percent. Taking the prevailing wage in local industries as a given, our clusters are under performing their counterparts in the US peers by 17.4 percent (the difference in the peer performance index of 1.57 versus Ontario's 1.33).

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,¹⁵ our structures of specialized support and competitive pressure are inadequate relative to the experience in clusters of traded industries in the peer states.

In new research we conducted this year in collaboration with the Martin Prosperity Institute, we found that Ontario's clustered industries drew less on workers in creativity-oriented occupations than their counterparts in the peer states. (See *Ontario should compete on creativity*.)

If Ontario clusters were as effective as US clusters, wages would be \$9,700 per worker higher. As traded clusters

account for 36.4 percent of Ontario employment and given the relationship between wages and productivity, our overall productivity would rise by 9.9 percent.¹⁶ From this, we estimate the productivity loss from the lower effectiveness of our clusters to be \$3,900 per capita.

Adding together the effects of industry mix (+\$2,200), cluster mix (+\$1,800), and effectiveness (-\$3,900) Ontario's clusters provide a net benefit of \$100 in GDP per capita versus the peer states.

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 Ontario than in the peer states, our relative productivity and prosperity potential are reduced.¹⁷ Our analysis this year indicates that we have a \$1,500 per capita disadvantage against the peer median 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 the increased wages that accrue to more highly educated individuals.¹⁸ And higher wages are the result of higher productivity.¹⁹ Ontario's population has, on average, a lower level of educational attainment compared to those living in the peer states, particularly at the university graduate level. Adjusting the mix of educational attainment in Ontario to match the US mix and holding wages constant at each attainment level, Ontario's productivity would be higher by \$1,200 per capita.

Under investment in capital lowers productivity. Ontario businesses have under invested in machinery, equipment, and software relative to their counterparts in the United States²⁰ so that the capital base that supports workers in Ontario is not as modern as that of their counterparts in the peer states. As a result, Ontario workers are not as productive. We estimate this under investment in capital equipment lowers Ontario's productivity by \$1,300 per capita. This estimate is based on our simulation of Ontario 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 and slightly more in non-ICT machinery, equipment, and software.²¹ Our analysis indicates that Ontario businesses under invest by 15 percent per dollar of GDP.

¹⁴ Institute for Competitiveness & Prosperity, Working Paper 5, *Strengthening structures*, July 2004, p. 26.

¹⁵ Task Force on Competitiveness, Productivity and Economic Progress, Third Annual Report, *Realizing our prosperity potential*, November 2004, pp. 40–48.

¹⁶ We have netted out the effects of Ontario's lower urbanization, our under investment in capital, and our lower educational attainment in this calculation.

¹⁷ See "Prosperity and productivity lag in Ontario cities" sidebar in our Sixth Annual Report, *Path to the 2020 Prosperity Agenda*, p. 24–25.

¹⁸ 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.

¹⁹ See Exhibit D in "Why productivity is important for our prosperity" Sixth Annual Report, *Path to the 2020 Prosperity Agenda*, p. 28–30.

²⁰ 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.

²¹ Fifth Annual Report, *Agenda for our prosperity*, 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.

Ontario should compete on creativity

Ontario has an above average concentration of clustered industries, and this should create a sizable productivity advantage. But we are not benefitting fully from this advantage.

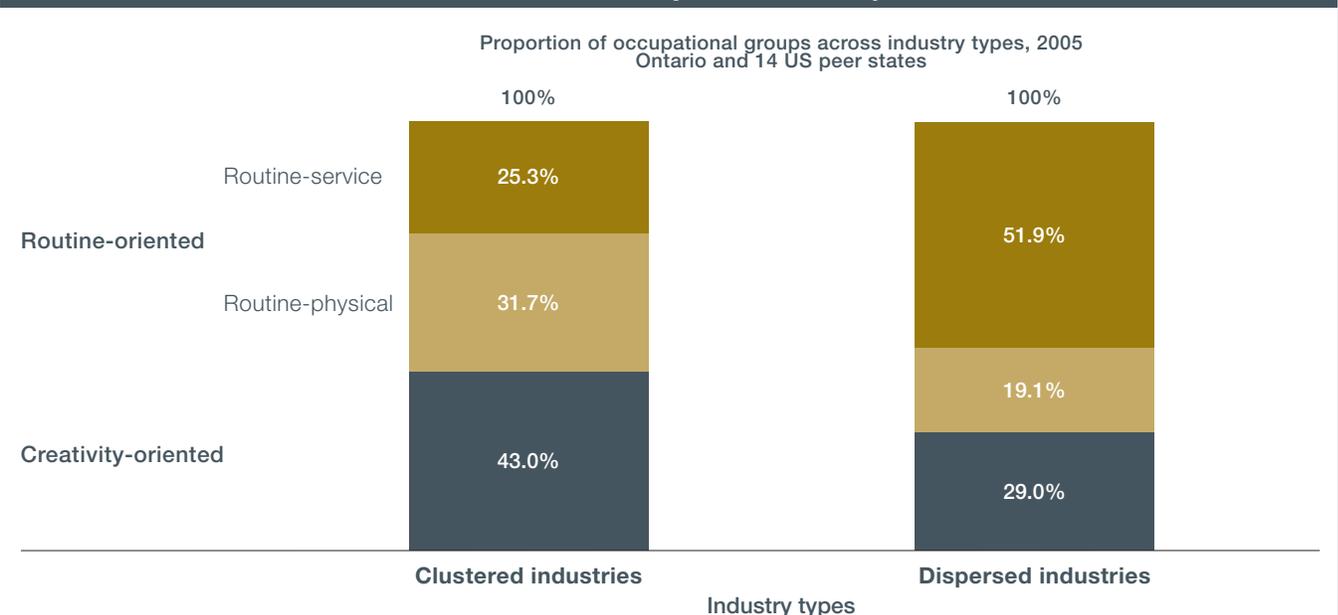
In new research conducted by the Martin Prosperity Institute and the Institute for Competitiveness & Prosperity, we find that our clustered industries have lower creativity content – the percentage of workers in creativity-oriented occupations – than those in the peer states. Clusters with high creativity content can drive much greater productivity and prosperity than other industries. We know that creativity increases economic growth, and we know that clusters increase productivity. But no one had put the two together. So that’s exactly what we did: we combined effects of creative occupations and industry clusters.

This is the first effort, to our knowledge, to examine a regional economy through two lenses – industries and occupations. To do this, we looked at the economy from the perspective of both what workers do and what firms produce – a powerful approach to understanding our economy better. The implications for Ontario are striking.

Clustered industries are more likely to draw on creativity-oriented occupations (*Exhibit B*). The greater propensity to encourage creativity-oriented occupations occurs because these industries compete on productivity and value-added innovation and are more likely to be challenged to upgrade continuously by global competitors. Those in routine-oriented physical occupations are also more likely to be employed in clustered industries. This is driven largely by the need for successful North American manufacturers to achieve scale to compete effectively. Workers in routine-oriented service occupations are more likely to be employed in dispersed industries. Many of these industries are primarily local service providers, like restaurants and local banks, and they rely more on face-to-face or personal service.

Wages are dramatically higher for workers in creativity-oriented occupations in clustered industries. In fact, they are more than twice as high as those in routine-oriented occupations and about 24 percent higher than those in creativity-oriented dispersed industries (*Exhibit C*).

Exhibit B Clustered industries draw more on creativity-oriented occupations



Note: Full time and part time combined.

Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on data from Canadian Census, 2006; Canadian Business Patterns, 2006; American Community Survey, PUMS 2005; US County Business Patterns, 2005.

But our research indicates that our clustered industries do not have the same level of creativity-oriented occupations as those in the peer states. Ontario has a relatively high share of clustered industries that by their nature have high creativity content (e.g., financial services, education and knowledge creation, information technology) – operating with a higher percentage of workers in creativity-oriented occupations.^A This is an important advantage that Ontario can build upon.

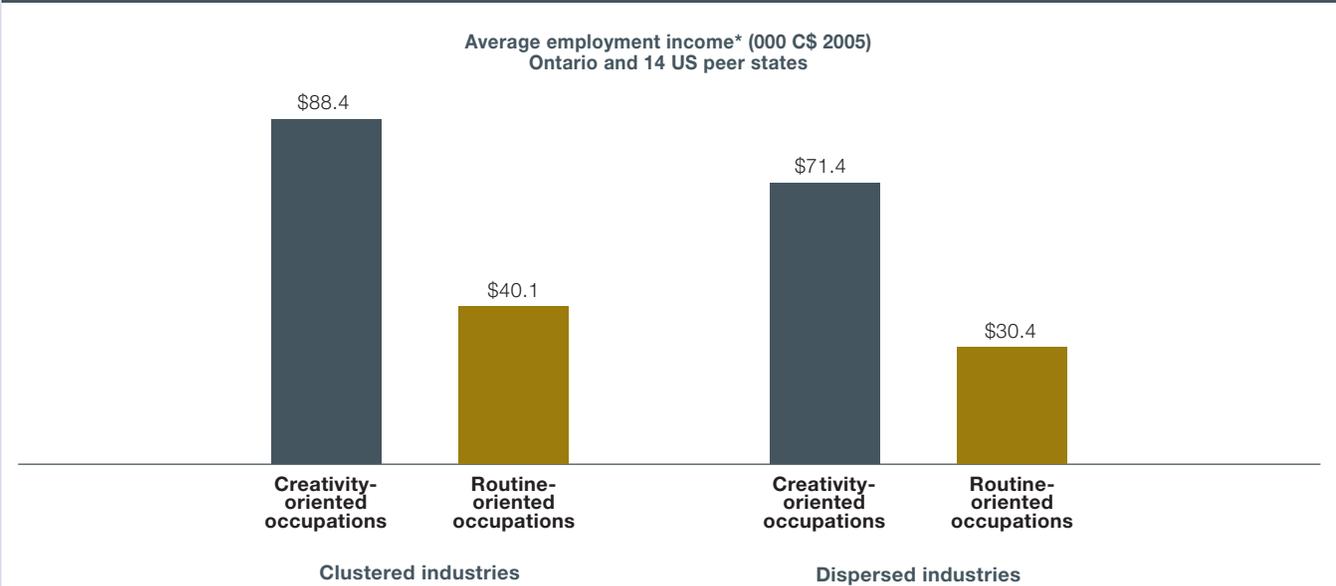
Instead, we dissipate that advantage by operating these industries with lower creativity content than in the peer states (*Exhibit D*). For example, 62 percent of the workers in our information technology cluster are in creativity-oriented occupations, versus 72 percent in the peer states; in biopharmaceuticals, the Ontario cluster has 39 percent of its employment in creativity-oriented clusters, while in the peer states they account for 54 percent of employment. Of the forty-one clustered industries that we analyzed, Ontario has a lower percentage of its employees in creativity-oriented occupations in thirty-seven.

If Ontario’s creativity content in clustered industries matched that in the peer states, we would realize a 4.1 percent wage increase across clustered industries, which translates into a 1.7 percent rise across all industries.

The implication is that Ontario’s economy is not performing as well as it should. Our economy thus appears tuned to a lower level than the peer states’ economies – our clustered industries do not draw on creativity-oriented occupations as much as their counterparts in the United States. As developing economies, like China and India, improve their performance and innovation in these clustered industries, the challenge for Ontario will grow.

For Ontario to prosper, workers in creativity-oriented occupations need the skills necessary to command higher wages, and employers need more sophisticated business models to warrant paying those wages. Otherwise, potential and existing creativity-oriented workers will not invest in acquiring and upgrading the valued skills they need and thus not develop to their full potential. This will result in Ontario’s economy languishing at a lower level of creativity, innovation, and competitiveness.

Exhibit C Creativity-oriented occupations in clustered industries generate the highest earnings



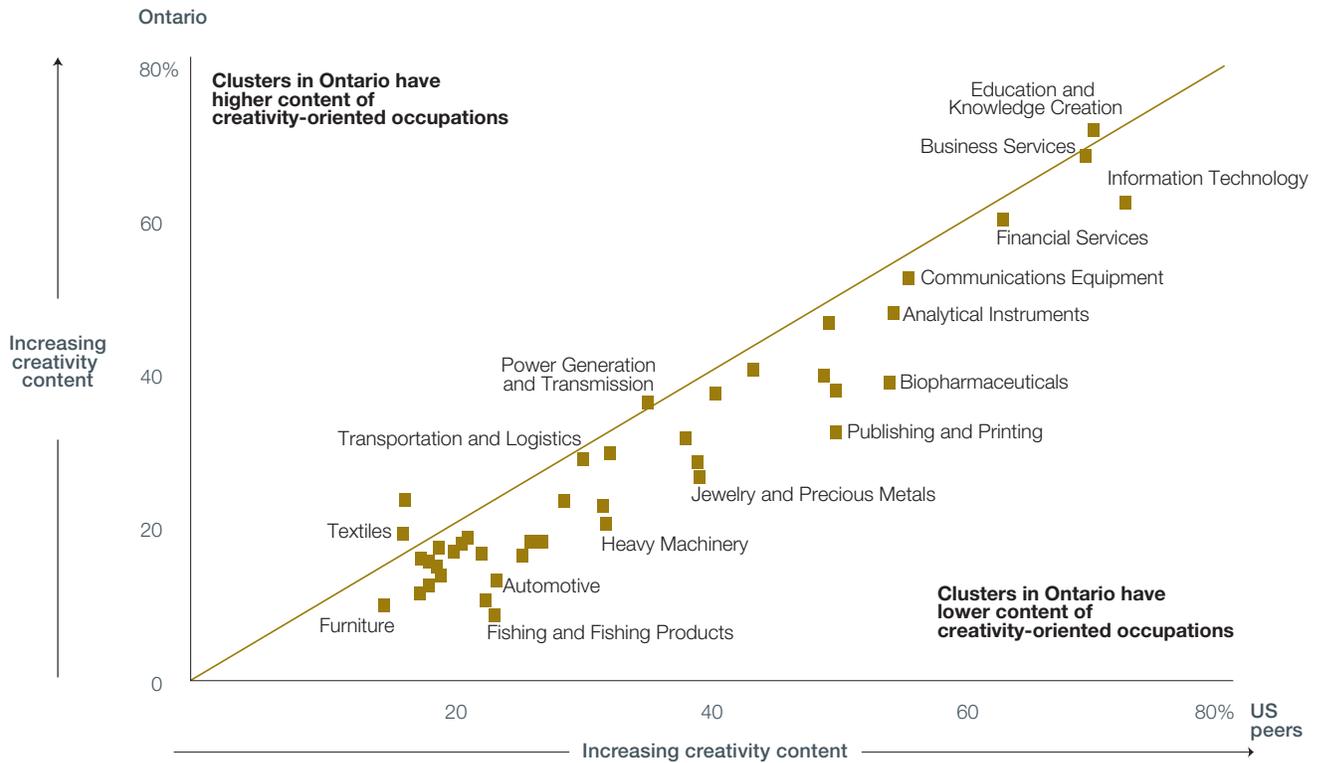
* Weighted average.
 Note: Converted to 2005 Canadian dollar at purchasing power parity; full time and part time combined.
 Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on data from American Community Survey, PUMS 2005; County Business Patterns, 2005; Canadian Census, 2006; Canadian Business Patterns, 2006; Statistics Canada, Table 380-0057.

^A Forest products, furniture, and textile industries are examples of clustered industries that operate with a lower percentage of workers in creativity-oriented occupations.

We must increase the creativity content of all our occupations and industries. The increased efficiency from better job design along with greater use of technology and better management will make these occupations more efficient and thus require fewer workers. This will allow for a shift in employment from dispersed industries to clustered industries. At the same time, we must encourage the greater presence of creativity-oriented occupations in clustered industries.

Exhibit D Ontario's clustered industries have lower content of creativity-oriented occupations

Creativity content in clustered industries, 2005
 % of workers in creativity-oriented occupations in each of 41 clustered industries
 Ontario and 14 US peer states



Note: Full time and part time combined.
 Source: Martin Prosperity Institute and Institute for Competitiveness & Prosperity analysis based on data from American Community Survey, PUMS 2005; County Business Patterns, 2005; Canadian Census, 2006; Canadian Business Patterns, 2006.

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 \$1,900 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, Ontario's prosperity was close to the median of the peer states. During that period, we had a productivity and intensity disadvantage versus our peers – 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

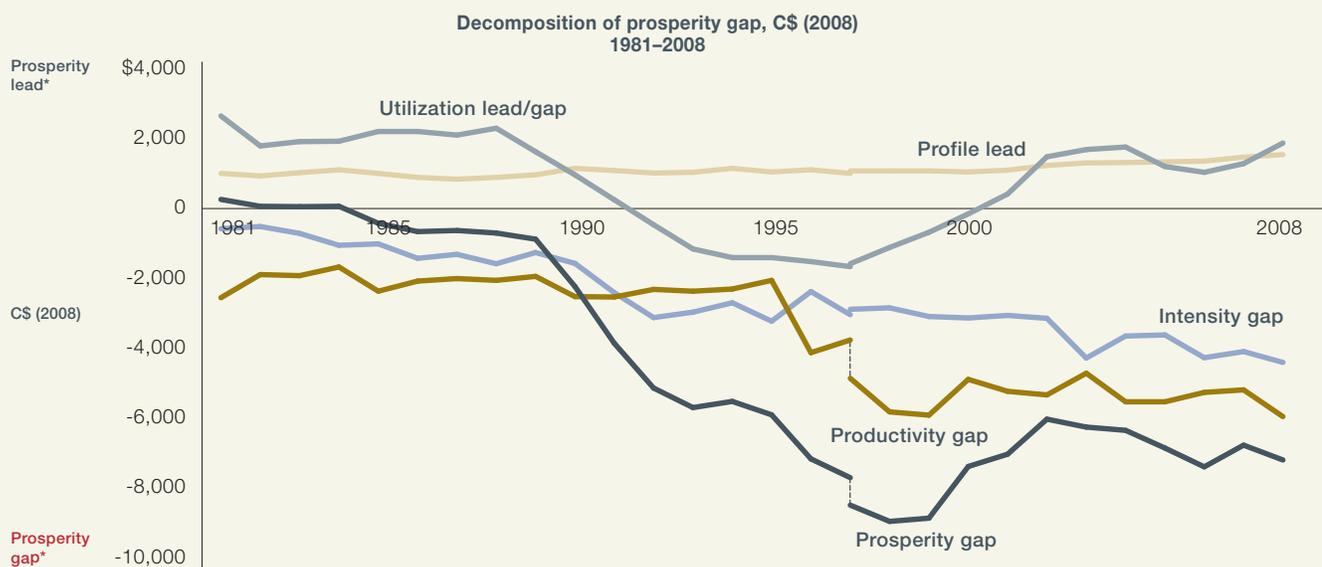
worsened significantly with the recession. Our utilization problem began to dissipate around 1997 and by 2001 it was an advantage again. However, our productivity disadvantage began to grow in 1995 and by 2005 it had more than doubled. Since that time, it has essentially held steady. At the same time, our intensity gap continues to be a significant part of our prosperity gap (Exhibit 7).

In summary, against our North American peers, Ontario 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 Ontario has a prosperity lead, but we still lag in productivity.

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

Ontario's prosperity compares favourably with that in international peer regions – using a similar criterion for identifying North American peers. Few regions are like Canadian provinces and US states in that they are part of a federal state and have their own economic policy levers, including a wide range of tax powers and spending responsibilities. Australia's states and Germany's Länder are the only ones that closely resemble North American provinces and states. Many countries with developed economies – such as the United Kingdom, Japan, and France – are unitary states where regions have little economic control. In most countries, we took their formal structure (e.g., France and departments, Italy and regions, etc.) as the peers for analysis. In Japan, we relied on OECD divisions, which combined prefectures, as several

Exhibit 7 Ontario's prosperity gap continues to be driven by lower intensity and productivity



* Versus median of 16 jurisdictions.
 Note: 1997 shows the break in US method of calculating state-level GDP from SIC-based to NAIC-based.
 Source: Institute for Competitiveness & Prosperity, based on data from Statistics Canada, US Department of Commerce - Bureau of Economic Analysis, US Department of Labor - Bureau of Labor Statistics, US Census Bureau, and OECD.

of these were city based, into regions. However, we have only included the two largest, Kanto, which includes Tokyo, and Kinki, which includes Osaka. These two make up more than 50 percent of Japan's population. Including all regions would add five other regions, all with lower GDP per capita than Ontario. In addition, some of the important data for Japan are only available at the national level. Japan's statistical agencies have ceased to report data that we require to estimate GDP per capita in their economic regions. This may be the last year in which we can make comparisons with sub-national jurisdictions there.

We also removed jurisdictions that were essentially metropolitan areas. Our rule was to exclude jurisdictions or regions whose density exceeded that in the Toronto Census Metropolitan Area or where one city's metropolitan population accounted for more than 65 percent of the state population – the highest

ratio among the North American peer states (Boston and Massachusetts). These filters excluded Île de France (Paris), Greater London, and Randstad (Amsterdam, Rotterdam, the Hague, and Utrecht in The Netherlands).

Among the peer set of fourteen international regions, Ontario stands sixth in GDP per capita (see *Exhibit 1*). It is fair to say that we have built one of the most globally competitive jurisdictions here in Ontario. However, just as we have found in comparisons with North American peers, Ontario'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.

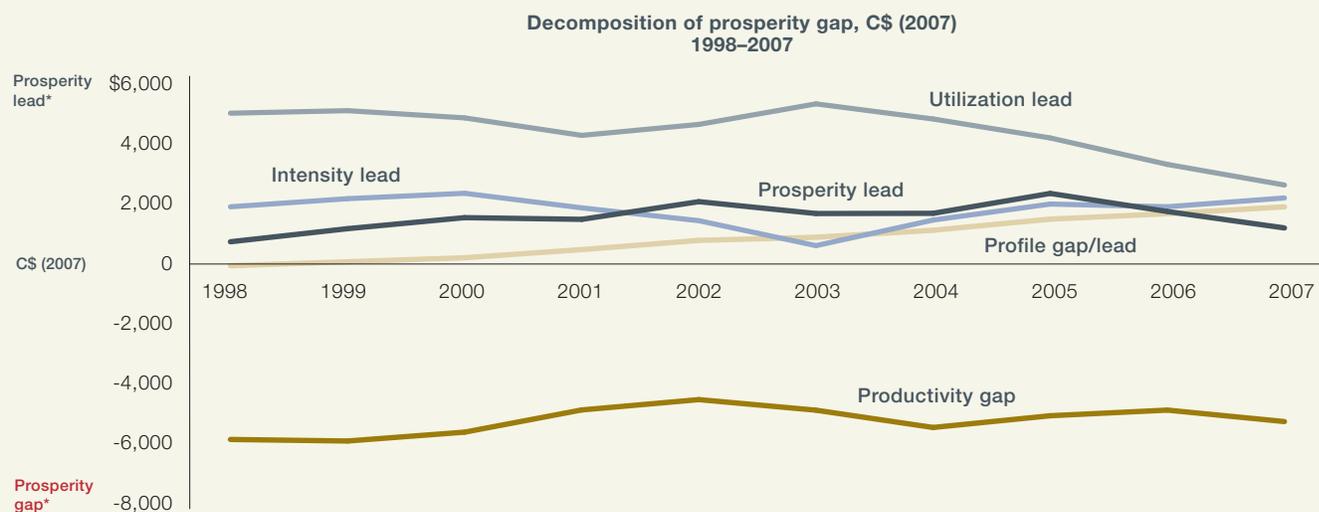
We compared Ontario's sources of prosperity with these international peers using the same waterfall approach we have developed for North American peer

comparisons. Lack of data prevents us from providing the same level of detail, but we can compare Ontario'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 8*).

This international comparison again indicates that lagging productivity is Ontario'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, Ontario'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 Ontarians. Higher productivity is critical to our success.

Exhibit 8 Ontario lags international peers in productivity



* Versus median of 14 world peer jurisdictions (see *Exhibit 1*).
 Note: Currency Converted at PPP
 Source: Institute for Competitiveness & Prosperity, based on data from Statistics Canada; Instituto Nacional de Estadística; Eurostat; OECD; Australian Bureau of Statistics; Statistischen Ämter des Bundes und der Länder; Statistics Bureau of Japan; National Bank of Belgium; INSEE National Institute for Statistics & Economic Studies; L'Istituto Nazionale di Statistica; UK Office for National Statistics; CBS Statistics Netherlands; IMF.



Navigating through the recovery with AIMS

Whether or not the recovery is underway, 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 the public and business leaders believe in the importance of innovation and growth, they are more likely to take the actions to drive competitiveness and prosperity.
- **Investments** 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, Ontarians 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

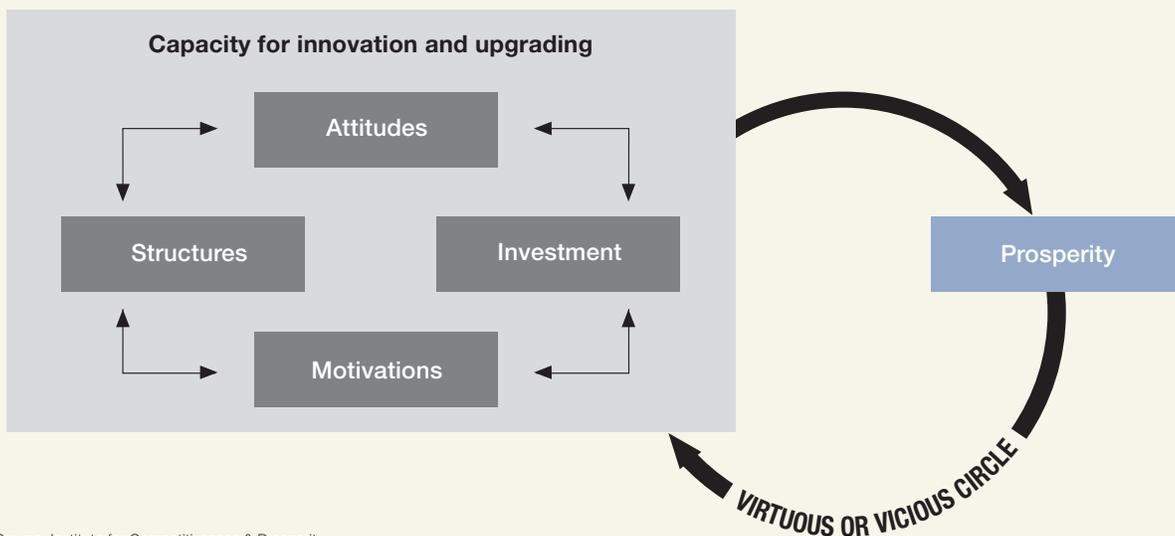
lead to even higher prosperity, which would further strengthen each AIMS element, and so on in a virtuous circle (*Exhibit 9*).

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.

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 9 **AIMS drives prosperity; prosperity drives AIMS**



Source: Institute for Competitiveness & Prosperity.

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

With positive attitudes to open competition, Ontario 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 Ontarians 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. And in our First Annual Report, *Closing the prosperity gap*, we hypothesized that Ontarians might not possess the aspirations to succeed or the willingness to compete. To test this, the Institute conducted attitudinal research among public and business communities. In Working Paper 4, *Striking similarities: Attitudes and Ontario's prosperity gap*, 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.

The survey asked nearly seventy different questions to help us understand the attitudes of Ontarians and their counterparts in the peer states. On most questions, we show similar attitudes toward risk and success; and on several questions, Ontarians' responses indicated more positive attitudes toward competitiveness and innovation than their peers' answers. More generally, we found no differences in the attitudes toward risk-taking, innovation, and the importance and causes of personal success.

Overall, the survey results suggest that, across numerous dimensions, attitudes among the general business population and members of the business community in Ontario and the United States are very similar. In fact, we found significant similarities in key areas that relate to innovation and upgrading and to competitiveness:

- Ontarians view business and business leaders in much the same way as the public in peer group states
- Ontarians have similar attitudes toward risk and success as their US peers
- Ontarians' attitudes toward competition and factors of competitiveness are similar to those in the US peer states

- Ontarians' willingness to take action to achieve a higher standard of living does not vary from US peer responses.

Notably, the survey did identify significant differences in attitudes toward post secondary education that affect our financial and human capital investments, as we shall see. Overall, however, the attitude results are heartening.

But, earlier this year, the Expert Panel on Business Innovation presented its report, *Innovation and Business Strategy: Why Canada Falls Short*, to the government of Canada. Led by Robert Brown, CEO of global leader CAE Inc, the panel comprised leaders in business, academe, and labour. The Panel's mandate 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 reached by the Task Force in its 2007 Annual Report.²² 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.”²³ 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 life 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.”²⁴ 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 Ontario is to overcome the complacency that results from many of the advantages we have.

In 2008, in its Final Report, 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.²⁵ 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 the Institute's 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 liber-

alization with the European Union (EU), 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 next 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.

Now is the time to increase our diversity advantage

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

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.”²⁶

There are several measures of Tolerance, and our research indicates that Canada out performs on nearly all of them. As an example, Ontario out performs the US peer states on the Mosaic Index, which measures the percentage of the population who are immigrants. The population in Ontario has 28 percent immigrants compared to 14 percent for the average of all Ontario's peer regions (*Exhibit 10*). Ontario's openness to gays and lesbians is strongly associated with

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.

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.

higher percentages of well-educated workers and the presence of creativity-oriented occupations.

There is no indication that these positive attitudes are flagging in the current 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 Ontario.

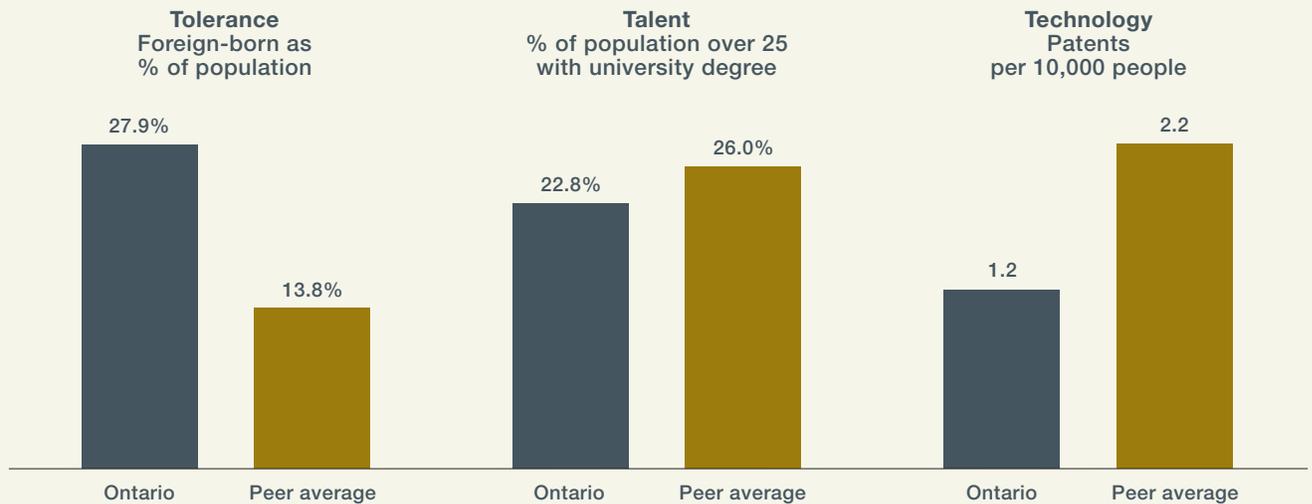
One provision in the US stimulus package is to “prohibit any recipient of TARP funding from hiring H-1B visa holders.” According to the Bank of America, the provision is forcing it to rescind job offers to foreign-born students graduating from US business schools. Contrary to the arguments of protectionists, 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.”²⁷ 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.²⁸

This policy mistake – driven by attitudes of fear – can be Ontario’s opportunity. Our universities are already admitting large numbers of students, including advanced graduate and doctoral

students, from foreign countries. Foreign 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 foreign students. The Ontario government 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 Ontario 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 Ontario gain a global advantage in the search for talent as economic growth resumes.²⁹

Exhibit 10 Among the 3Ts, Ontario leads on Tolerance, but lags on Talent and Technology



Source: Martin Prosperity Institute analysis based on data from Statistics Canada; US Census Bureau, American Community Survey; Patent analysis: Dieter Kogler, Department of Geography, University of Toronto; USPTO (1975-07).

²⁷ “Turning Away Talent,” *Wall Street Journal*, March 11, 2009, p. A14

²⁸ 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

²⁹ Roger Martin and Richard Florida, *Ontario in the Creative Age*, Martin Prosperity Institute, 2009, p. 33.

Our Tolerance advantage is not, however, translating into more innovation and higher prosperity. This is certainly the case when we contrast Ontario with its US peer states. US states and cities achieve more leverage from diversity and openness in their economic performance. So, while we are more tolerant than our US counterparts and this Tolerance does generate economic advantage, we gain less than we could because we have not developed the other Ts to their full potential.

The second T of economic development is Talent. Prosperity is closely associated with concentrations of highly educated people. With 30 percent of our work-force employed in creativity-oriented occupations, Ontario nearly matches the level in the peer states of 32 percent. Still, our work force overall is less well educated. As we saw in our research on our productivity gap, our less educated population is a barrier to achieving our economic potential.

The third T, Technology, is critical to economic growth. Technology is a public and private good that increases wealth, attracts Talent to regions, and leads to economic growth. Innovation, often associated with Technology, can come in the form of product or process improvement, and the benefits of these improvements accrue widely across individuals, firms, and regions. As a share of total employment, Ontario's high-tech industry employment is among the highest in North America. However, Ontario has a low level of innovation as measured by patents. Our firms also perform less R&D.

On balance, our lower performance on Talent and Technology contributes to our lower "yield" from our diversity and Tolerance advantage.

We conclude that, on most issues of competitiveness, Ontarians 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 Ontarians may become more defensive toward international competition. Our political leaders must work to strengthen our competitive offence. Ontarians have very positive attitudes toward diversity. We can widen this advantage in the current economic downturn, as US attitudes toward skilled immigrants harden.

Investments: 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

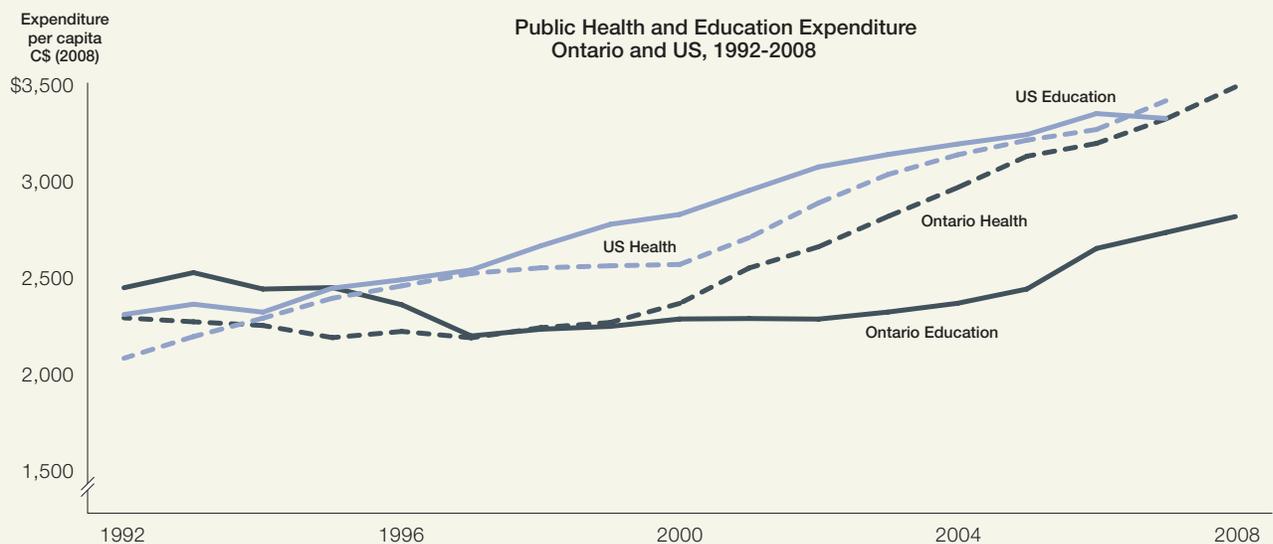
AS GOVERNMENTS, businesses, and individuals recover from the recession, their fiscal situation has no doubt been impaired. Prudence will require that spending be restricted to absolutely necessary current expenditures, since they cannot be avoided. While we recognize this practical reality, we argue 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 ensure that we stay on a track that sets out

adequate investment in our long-term prosperity.

A clear example of this is our public investment in education. As we compare our current public spending patterns in Ontario 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 in the province spent \$2,400 per capita on education (in 2008 dollars) – 6.8 percent more than we spent on health care (*Exhibit 11*).

In 1992, investment in education was not on many Ontarians' radar screens. Our attention was 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 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

Exhibit 11 Public investment in Ontario education trails US expenditure, but is now growing faster than in the past



Note: 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 2008 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.

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 worth of 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.

Ontario had still not recovered from the deep deficits created during the recession in 1995, and the new provincial government had to make spending cuts to get its fiscal house in order. In response to dire economic times, our politicians responded by cutting education. This is in keeping with our governments' deep bias toward consumption.

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 Ontario 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 4.9 percent between 1998 and 2008, while education spending increased only 2.4 percent annually. Last year, per capita public spending on health care outpaced spending on education by 24 percent – a significant reversal over the decade.

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 in the US across all levels of government 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 US did not need to engage in the dramatic deficit fighting seen in Canada. State systems, such as education, therefore did not experience the kind of shock to Canadian education. So, over the same period, spending by governments in the United States grew at about the same rates for health care and education.

It is encouraging to note that public spending on education in Ontario has turned up in recent years, led by the investments of the Ontario government in post secondary education. While constant dollar per capita public investments in education increased slightly at a rate of 0.8 percent annually between 1997 and 2003, this annual growth rate increased to 4.3 percent between 2003 and 2008. In the United States,

the annual growth in constant dollar public expenditure on education was 1.7 percent between 2003 and 2007.

Still, much remains to be done, as the gap to be closed remains 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 with the long-term in mind.

Continue investing in people for Ontario's competitiveness

Since our First Annual Report in 2002, we have identified the importance of investing in post secondary education for Ontario's prosperity. There is much research that shows the positive impact of such investment on prosperity for regional economies and for individuals.

Post secondary education has a significant impact on a regional economy

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, researchers found a positive and significant relationship between number of years of schooling and per capita growth in output.³⁰ Craig Riddell also found a strong correlation between labour force quality (as measured by test scores) and per capita economic growth rates.³¹

³⁰ 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.

³¹ 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. 01-06, 2001.

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.³² But 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 spillover effects, generating 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.³³ 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.³⁴

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.³⁵

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.³⁶

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 the firm's interactions with university researchers, whose primary function is to discover new ideas. Spinoff companies and technology transfer are common results of university-industry relationships.

The US state of Georgia provides a case study on the beneficial impact of investments in education. As the Institute for Competitiveness & Prosperity observed in its Working Paper 2, economic development in Georgia advanced significantly through investments in all stages of the commercialization process; a major part of this investment was in its post secondary education system.³⁷ With the accession of Carl Sanders to the post of Governor in 1963, expenditures on education, particularly the state's university system, grew dramatically. In his first year,

Sanders devoted 56 percent of the state's budget to education. He viewed a superior university system as critical to attracting high-tech industries and federal research grants to the state.³⁸ Sanders also ensured greater access to Georgia's universities by all students through the Hope Scholarship, which guarantees tuition at any state university for any high school senior with a B average. The scholarship can also be used toward tuition at a private university in the state. Through the 1990s, Georgia GDP per capita growth out paced that in the rest of the country, moving from below-average to above-average.

Another case study of the beneficial impact of education is in Ireland, which the Institute discussed in Working Paper 8. Observers of Ireland's economic success in the last decade conclude that Ireland's long tradition of educational attainment was an important foundation for its economic take off in the mid-1990s.³⁹

Education makes a difference to individual's 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.⁴⁰

Our own research has shown the impact of various levels of educational attainment on individuals' earnings

³² Richard Florida, *Technology and Tolerance: The Importance of Diversity to High Technology Growth*, Center on Urban and Metropolitan Policy, 2001.

³³ PriceWaterhouseCoopers, *The University of Waterloo: Regional Economic Benefits Study*, 2001

³⁴ Bank of Boston Economics Department, *MIT: The Impact of Innovation*, 1997

³⁵ Institute for Competitiveness & Prosperity, Working Paper 11, *Flourishing in the global competitiveness game*, September 2008, p. 27.

³⁶ 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.

³⁷ Institute for Competitiveness & Prosperity, Working Paper 2, *Measuring Ontario's Prosperity: Developing an Economic Indicator System*, August 2002, pp. 36-37.

³⁸ J.F. Cook, *Carl Sanders: Spokesman of the New South*, Macon: Mercer University Press, 1993.

³⁹ Institute for Competitiveness & Prosperity, Working Paper 8, *Fixing fiscal federalism*, October 2005, p. 32.

⁴⁰ 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.

(Exhibit 12). In its study of poverty in Working Paper 10, the Institute concluded that post secondary education was a critical ingredient in reducing poverty.⁴¹ The Institute identified several groups who had a higher-than-average propensity for being in poverty – high school dropouts, single mothers, Aboriginals, the disabled, recent immigrants, and unattached individuals between the ages of 45 and 64. Except for recent immigrants, educational attainment 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.⁴²

Wider access, more master’s graduates, and better student experiences are priorities for the future

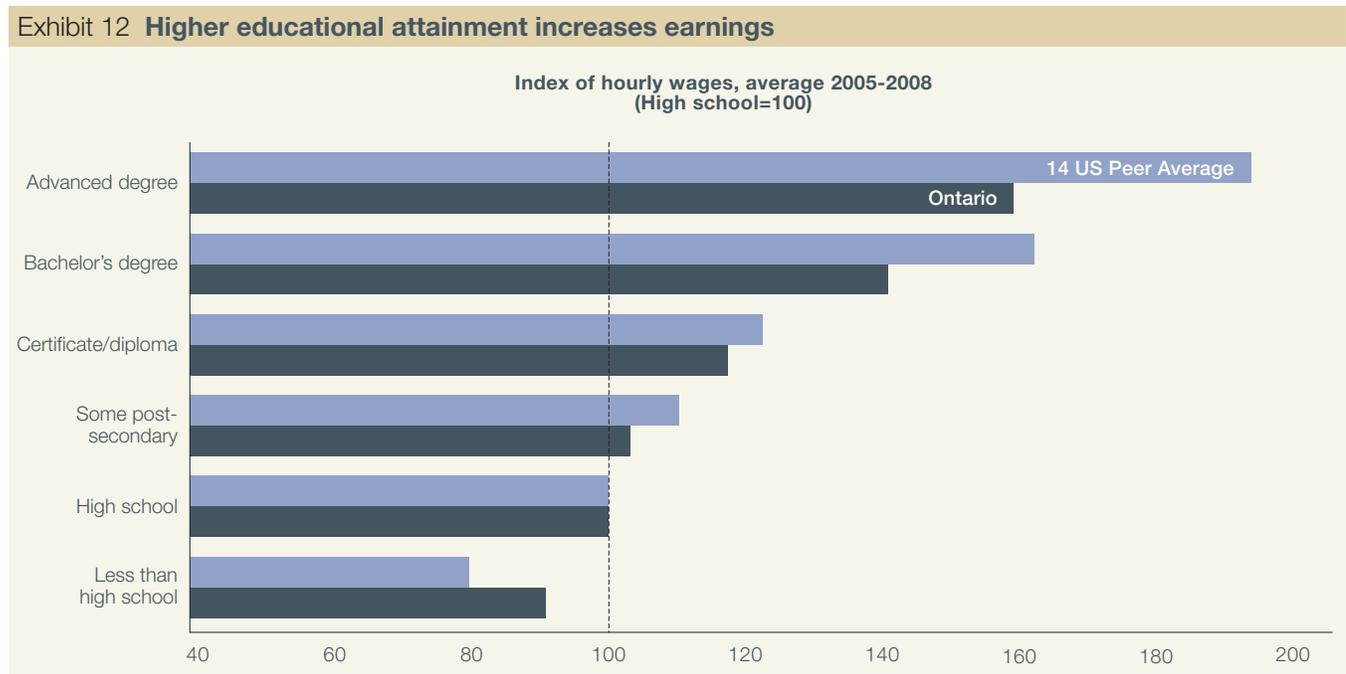
In a 2006 HRSDC report, *Looking Ahead: A 10-Year Outlook for the Canadian Labour Market (2006–2015)*, it concluded that “over the next ten years, 69.2 percent of the 1.7 million new non-student jobs created are expected to be in occupations usually requiring postsecondary education (university or college) 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.⁴³

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.

As we have seen above, research by the Institute has shown the higher returns from a university degree. Recent research by the Organization for Economic Co-operation and Development (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 13).

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,



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 Statistics Canada - Labour Force Survey; U.S. Bureau of Labor Statistics - Current Population Survey.

⁴¹ Institute for Competitiveness & Prosperity, Working Paper 10, *Prosperity, inequality, and poverty*, September 2007, pp. 46-47.

⁴² Institute for Competitiveness & Prosperity, Working Paper 9, *Time on the job*, September 2006, pp. 25-26.

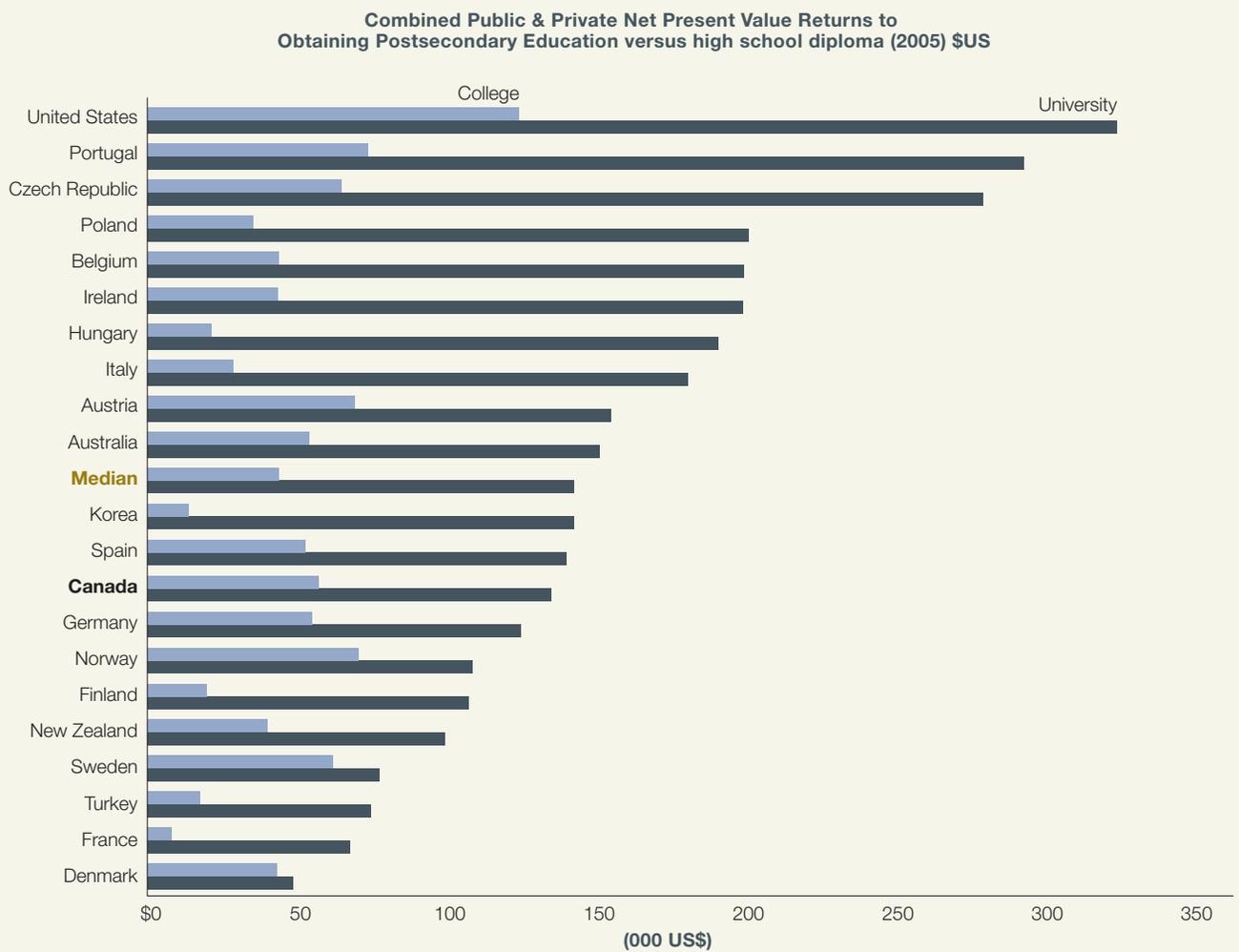
⁴³ Analysis conducted by Institute for Competitiveness & Prosperity for *Ontario in the Creative Age* based on projections by US Bureau of Labor Statistics and O*NET 12.0 database – developed for US Department of Labor.

as we examine attainment rates and post secondary educational premiums, we find no relationship. That is to say, 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.

Greater 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 29 percent less likely to achieve a university degree 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 attain a university degree

Exhibit 13 Returns to individuals and society are positive for university and college education



Note: Public NPV returns include Public Direct cost, Public forgone revenues, income tax revenues, social contribution revenues, transfer revenues and unemployment 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*.

- Adults (20–64) with disabilities are 41 percent less likely to achieve a university degree
 - 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 17 percent less likely than females to graduate from university

- Rural residents are two-thirds as likely as urban residents to achieve a university degree

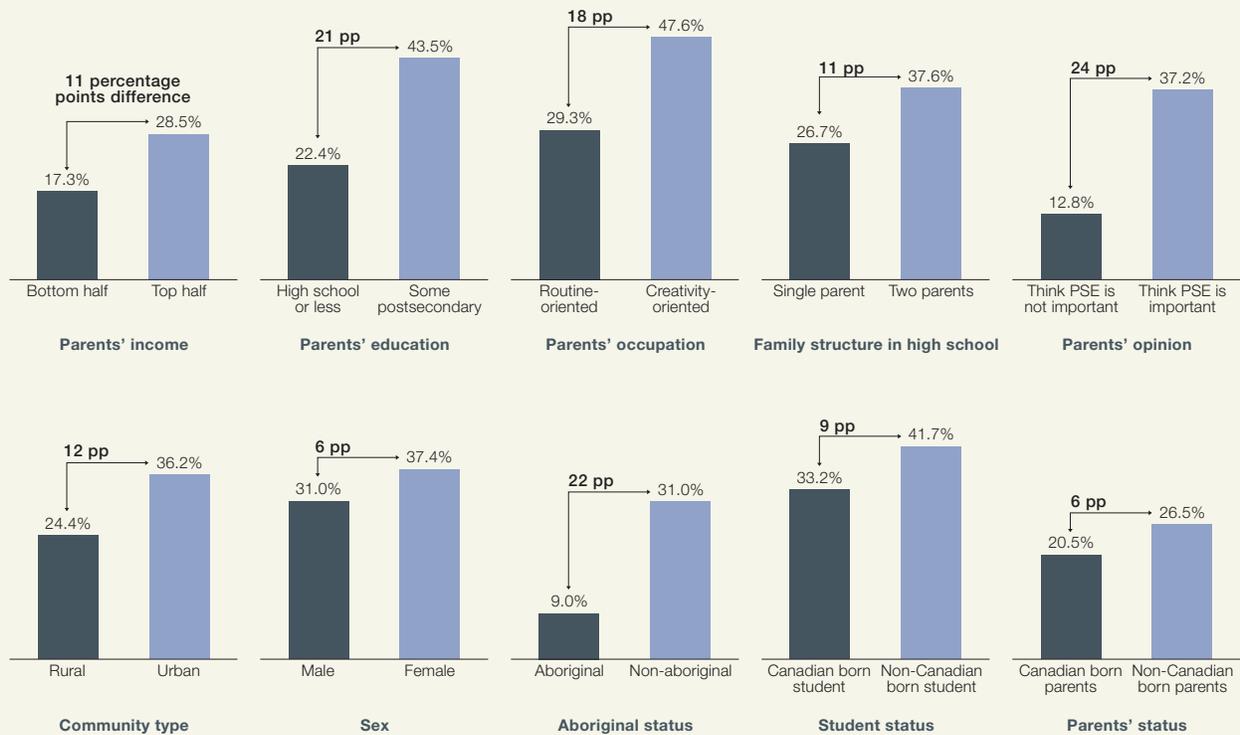
While higher parental income is associated with greater likelihood of attending university, most researchers in Canada conclude that factors such as parental attitudes toward education and a home environment that encourages education are the key factors – and these are typically associated with more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

Ross Finnie, Arthur Sweetman, and Eric Lascelles in 2005 found that while affordability is very important to participation, family background and the circumstances in which a student lives prior to considering pursuing 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

Exhibit 14 Except for immigrants to Canada, children from high-risk groups are less likely to graduate from university than others

University attainment by selected characteristics, Ontario (age 26-28)



Note: University attainment measures Bachelor's Degree and above. Aboriginal Status is from Cohort B, Cycle 4 (24-26 year olds) and for Canada, estimate is taken from Tomasz Gluszynski and Danielle Shaienks publication. It measures off-reserve Aboriginals. The estimates for university attainment by Parents' Status and Parents' Income come from Cohort A, Cycle 5 (23-year olds), whereas the rest of the 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; Tomasz Gluszynski and Danielle Shaienks, "Education and Labour Market Transitions in Young Adulthood," July 2009.

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 14*).

Increasing the number of master’s degrees granted is a priority for Ontario’s investment in post secondary education. Ontario under performs relative to the United States in university graduation rates. For the latest year for which we have results, Ontario universities granted 6.81 degrees per thousand population, while US universities granted 7.52. This difference is almost totally at the master’s level (*Exhibit 15*).

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.

Improving the student experience is an important priority for Ontario. Recent research results from the Times Higher Education 2009 rankings confirm other research that shows that Ontario needs to improve the experience of students in university.

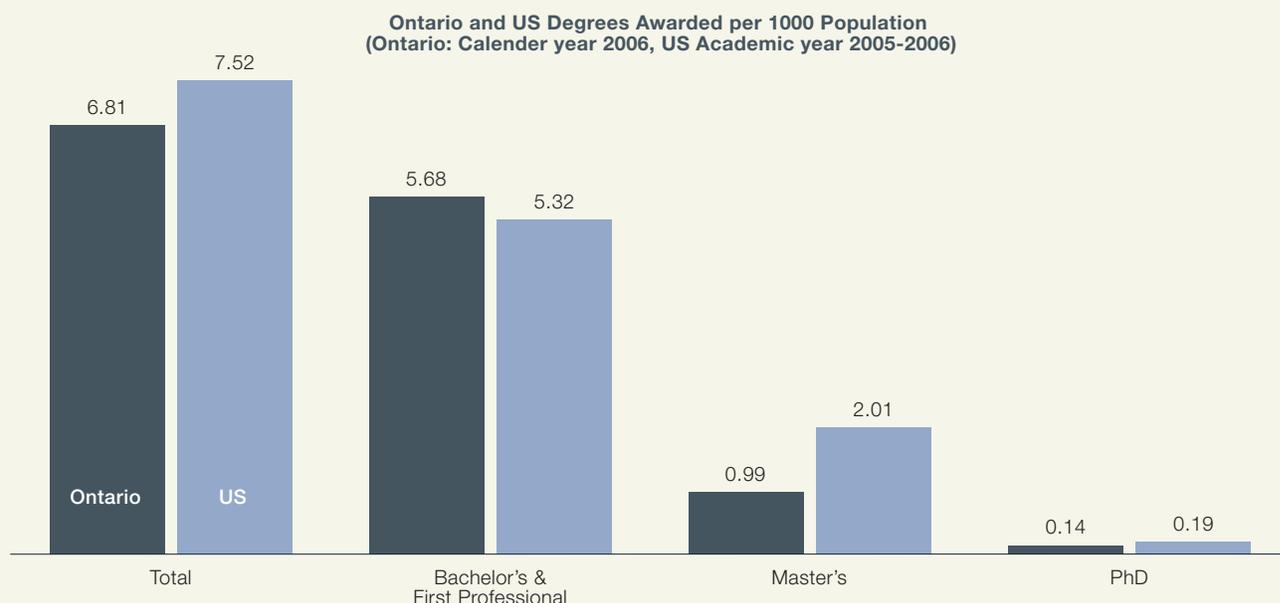
The Times’ rankings attempt to identify the 200 leading universities in the world with an undergraduate program.⁴⁴ It collects quantitative measures such as citations by staff, percentage of international faculty and staff, and staff-student ratios as well as qualitative measures like perceptions by employers and professors. As an indication of the strength of Ontario’s universities, five were ranked in the world’s top 200 universities. In per capita performance among the sixteen peer states and provinces, Ontario stood third behind Indiana and Massachusetts. These results are similar to the findings from the 2009

Shanghai Jiao Tong university rankings in natural and social sciences, with nine Ontario universities placing in the top 500 worldwide.⁴⁵ While these rankings are by no means definitive, they do indicate the relative strength of Ontario’s universities.

The Times reports rankings on six elements that make up the overall ranking. Although we perform admirably on measures such as peer review and citations per staff, Ontario’s universities score terribly on the staff per student component. In fact, the average staff/student score for ranked Ontario universities is just half the average for ranked universities in the peer states – the largest discrepancy between us and our peers on any measure (*Exhibit 16*).

This result is consistent with the Institute’s calculations of ratios for each Ontario university and similar institutions

Exhibit 15 Ontario graduates fewer MAs than the United States



Note: First professional degrees include primarily those for legal professionals, medical doctors, and dentists.
 Source: Institute for Competitiveness & Prosperity Analysis using Statistics Canada, CANSIM Table 477-0014 & US Department of Education, National Centre for Education Statistics.

⁴⁴ The Times rankings cover universities that "operate in at least two of five major academic fields: natural sciences; life sciences and biomedicine; engineering and information technology; social sciences; and arts and humanities." Rankings are available online: <http://www.timeshighereducation.co.uk/Rankings2009-Top200.html>
⁴⁵ Rankings are available online: <http://www.arwu.org/ARWU2009.jsp>

in the fourteen peer states. On average, student-faculty ratios are 38 percent less favourable in Ontario than in their US public peers and more than three times as bad as in private peers. Taking an average of the US student-faculty ratios (based on public and private universities' share of enrolment), we see that the ratio is 75 percent less favourable in Ontario than in a comparable set of universities in the peer states.

Other research among university students confirms this finding. In 2008, Ontario's universities participated in the National Survey of Student Engagement (NSSE), a US-based survey that measures students' experiences in their universities.

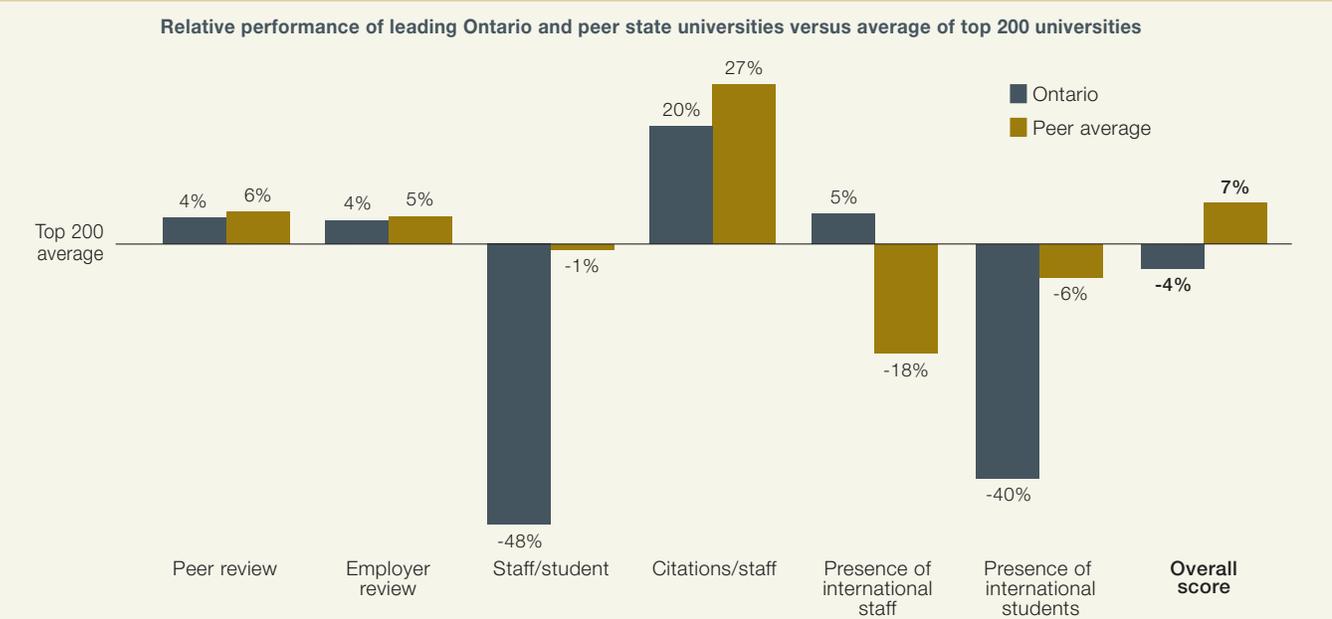
The results indicated that Ontario universities compare favourably with their US peers in providing a solid academic challenge to their students. But in other areas – enriching

educational experiences, active and collaborative learning, and student-faculty interactions – our students are much less positive about their experiences. Typically, our universities are in the bottom third of ratings in these factors.⁴⁶

We think university administrators, leaders in public policy, and the research community should investigate this issue further to ensure that we are striking the right balance in research and teaching in Ontario's universities. It is possible that in gradually increasing the student-teacher ratio over time, we have failed to recognize the impact on student experience.

We should celebrate Ontario's prowess in higher education research. But we also need to ensure we are as focused on the quality of our students' experiences.

Exhibit 16 Ontario's leading universities compare well with US and international peers on most scores, with the notable exception of staff/student ratios



Source: Times Higher Education - QS World University Rankings, 2009, available online: <http://www.timeshighereducation.co.uk>

⁴⁶ National Survey of Student Engagement (2008), Special Analysis, available online: <http://nsse.iub.edu/index.cfm>

Businesses need to step up their investments in technology

Ontario 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. While data on these allocations are available only at the national level in Canada and the United States, we have made estimates of investments in Ontario. These results indicate our major gap is in ICT investment. On a current dollar basis, as a percentage of GDP, Ontario busi-

nesses lag their US counterparts in traditional (non-ICT) machinery and equipment and ICT investments. The gap is wider for ICT investment as a percentage of GDP.

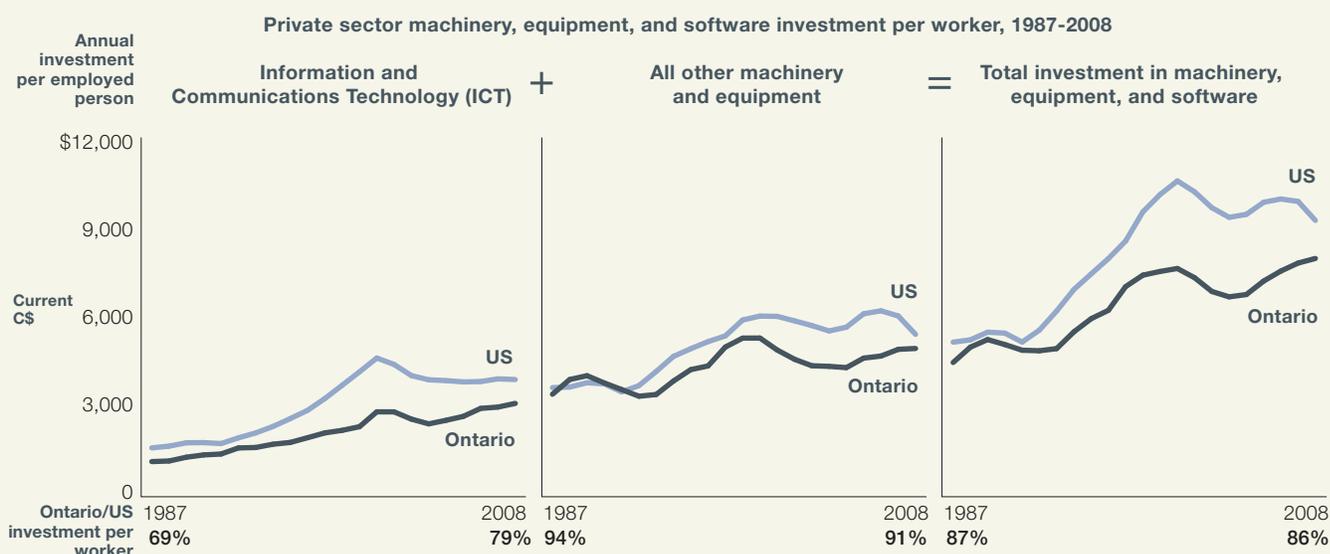
On a per worker basis, US businesses out invest Ontario businesses in machinery and equipment overall with the gap being larger in ICT. As much of machinery and equipment is imported, changes in the currency exchange rate match changes in purchasing power parity for machinery and equipment (even though PPP for the whole economy does not follow exchange rate changes). Consequently, the gap between Ontario and US investment per worker began to narrow slightly in 2003 and more significantly beginning in 2005. In 1987, our businesses invested

13 percent less per worker in all machinery, equipment and software; in 2003, this gap had grown to 24 percent; and in 2008, it returned to 14 percent (*Exhibit 17*).

In 2008, the Ontario-US gap in ICT investment per worker was \$812 or 21 percent, while in other machinery and equipment the gap was \$380 or 9 percent. It is a positive step that we are gradually closing the machinery and equipment investment gap – but it appears that this is driven by relatively lower costs in Canada as our dollar has strengthened rather than a fundamental change in the investment stance of our businesses.

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

Exhibit 17 Ontario businesses under invest in ICT, but the gap with the United States has been narrowing



Note: US dollars converted to Canadian dollars using PPP for M&E. Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada (special tabulations); Labour Force Survey (CANSIM Table 282-0008); 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>

⁴⁷ 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

Institute assessed the lower adoption of ICT by Canadian businesses, particularly small and medium enterprises.⁴⁷ 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 profound transformation of businesses through changes in business processes or organizational design or both.

We conclude that the lack of investment in ICT can be attributed to factors we have identified in previous annual reports – lack of competitive pressure to spur Canadian businesses to adopt technology, less adequate management capabilities to discern the benefits of technology and to capitalize on them, and higher taxation on business investment.

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 government has announced 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.

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

Motivations: Ensure announced tax changes become a reality

The provincial government has announced bold improvements in our tax system that will benefit all Ontarians

IN OUR PREVIOUS annual reports we have been critical of the Ontario government for the structure of taxation in the province. Last year, we said that Ontario needed to pursue tax reform as a high priority. Our key recommendations were to harmonize the provincial sales tax (PST) with the federal goods and services tax (GST) and to bring down corporate income tax rates that penalized new productivity-enhancing investments by business.

We are pleased that these recommendations were adopted in the March 2009 provincial budget. The tax changes announced in this budget will help all Ontarians.

Changes in tax regime benefit Ontarians

We need more investment by Ontario businesses to improve prosperity for the average Ontarian. As we have seen, our businesses do not invest as much as their peer counterparts in machinery and equipment, particularly high technology equipment and software. In 2008, the difference businesses in Ontario invested was \$1,291 per worker – or 14 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.⁴⁸

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, Ontario 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 Ontario is one of the highest among the world's advanced economies. Why is this? First, we have relatively high tax rates on corporate profits. Businesses make investments to earn profits, so when we tax profits, we in effect tax

investments. Second, our provincial sales tax, as currently structured, is charged on business investments. Ontario's 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 the provincial government has 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.

By changing our provincial sales tax to a value added tax, Ontario 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.⁴⁹

But won't consumers pay more? 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.⁵⁰

⁴⁸ Task Force on Competitiveness, Productivity and Economic Progress, Annual Report 7, *Leaning into the wind*, November 2008, pp. 39-41.

⁴⁹ 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.

⁵⁰ TD Economics, "The Impact of a Sales Tax Harmonization in Ontario and B.C. on Canadian Inflation," September 18, 2009.

It is fair to say that converting the provincial sales tax on goods to a value added tax on goods and services will affect lower income Ontarians more than others. But the government has exempted items like books and children's clothing from the new tax. It has also reduced personal income taxes and introduced tax credits for lower income Ontarians. For many families, these measures compensate for the higher sales tax.

Introducing the harmonized sales tax in Ontario is a tough sell politically, largely because so many myths have emerged (*Exhibit 18*).

In addition to sales tax harmonization, the budget also lowers income taxes for businesses from the current 14 percent (12 percent for manufacturers and processors) to 10 percent by 2013 – another stimulus to business investment. Finally, while not a new item in the 2009 budget, taxes on capital assets will be finally eliminated by 2010.

Taken together these measures take Ontario from being one of the world's highest tax regimes for new business investment to being better than average (*Exhibit 19*).

And the tax changes will also eliminate the huge disparity faced by businesses in the service sector, which has been disadvantaged much more from our tax system than manufacturers.⁵¹ A more level playing field will benefit workers and businesses in the service sector – the largest part of our economy.

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.⁵² This occurs in two ways. First, firms are able to 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 Mirtz concludes that the province's new tax structure will benefit Ontarians significantly. He 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.

Lowering taxes on business investment is not just business friendly; it is Ontario friendly. The government took very bold action when the easier political

Exhibit 18 Most HST myths do not stand up to scrutiny

The Harmonized Sales Tax...	Myths	Realities
	increases prices paid by consumers	<p>Only partly true:</p> <ul style="list-style-type: none"> Consumers already pay sales tax on goods. These prices will come down as manufacturers and retailers pay lower sales taxes themselves. In Atlantic Canada prices on goods fell when they harmonized the sales tax. For services, prices will increase. But not by the full 8%. In Atlantic Canada, prices on all items fell by 0.3%.
	is an excuse for producers and service providers to gouge consumers	<ul style="list-style-type: none"> Competition will prevent that – that was the experience in Atlantic Canada.
	raises costs for small businesses	<ul style="list-style-type: none"> Costs will decrease as small businesses recover sales taxes they have to pay on goods and services they purchase – just like the federal GST today. Harmonizing the provincial sales tax with the federal GST lowers administrative costs for small businesses.
	hurts lower income Ontarians	<ul style="list-style-type: none"> Not really. Lower income Ontarians may pay more for some services. But they will benefit from enhancements to property and sales tax assistance and personal tax adjustments.
	is a tax grab	<ul style="list-style-type: none"> Increased revenue from the harmonized sales tax is matched by reductions in corporate and personal taxes and by tax credits. The effect is revenue loss.
	is “business friendly”	<ul style="list-style-type: none"> It's Ontario friendly. The harmonized sales tax will increase investments by our businesses and this will create new, better paying jobs.
	should be delayed until the recovery is underway	<ul style="list-style-type: none"> If we want to encourage business investment for job creation, now is the best time for the harmonized sales tax.

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

⁵¹ Institute for Competitiveness & Prosperity, *Leaning into the wind*, pp. 41, 44.

⁵² Wiji Arulampalam, Michael P. Devereux, and Georgia Maffini, “The Incidence of Corporate Income tax on Wages,” Oxford University Centre for Business Taxation, Oxford, WP 07/07, April 2007.

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. This government, with its recent budget, shows that to be the view of defeatists. It should be congratulated.

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

A more difficult challenge is for the federal and provincial governments to address high marginal tax rates faced by low-income earners as they attempt to improve their economic circumstances. Because many social benefits are means tested, benefits are “clawed back” as incomes increase. As an example, for every new dollar earned by a single earner on welfare, 50 cents of the welfare benefit will be reduced. This clawback feature is present in all social benefits. Adding in the progressivity of income tax,

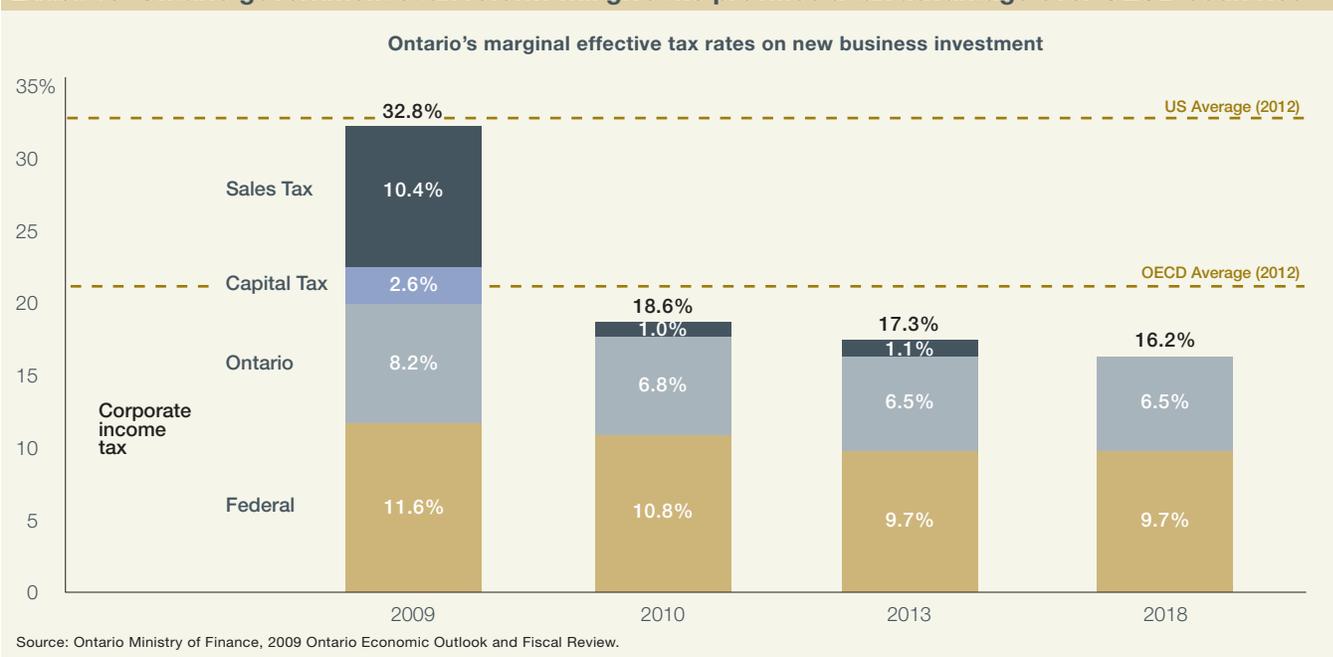
our tax and welfare system can result in exceedingly high marginal effective tax rates. A single earner in Ontario in 2009 with annual earnings around \$15,000 will lose 54 cents of every dollar of increased earnings through benefit clawbacks and tax increases.

This is a difficult problem to fix, as it is the result of two fundamentals in our tax and social benefit policies: benefits should accrue to those with lower, not higher incomes, and our income tax system should be progressive. Each program needs to be assessed with respect to its impact on marginal effective tax rates of low income earners on top of all other programs. Earlier this year, the Institute conducted research and made recommendations to improve the design of the Working Income Tax Benefit (WITB). This benefit is an income supplement for low-income earners and is designed to supplement low earnings for people trying to move out of welfare through employment.

While benefits are fairly small currently, with more funding WITB, represents a significant opportunity to help low-income earners break out of poverty. But it needs to be redesigned to encourage full-time work, rather than part-time employment. It currently reaches its maximum benefit around 14 hours of work weekly for a single earner. It should be changed to reach its maximum around 32 hours – closer to full-time employment (see *Time for a 'Made in Ontario' Working Income Tax Benefit*).

Recent changes in Ontario’s tax regime are welcome measures. They will provide benefits to all Ontarians, 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.

Exhibit 19 Ontario government’s tax reform will give the province a tax advantage over OECD countries



Time for a “Made in Ontario” Working Income Tax Benefit

With very little certainty about Ontario’s economy, one thing we do know is that, within one year, every EI claim that is currently being paid will be exhausted. Many “exhaustees” will get work, others may go back to school or retrain, and still others will rely on their families for support.

However, a significant number of exhaustees will reluctantly face the difficult choice of working at low-paid jobs or making an application for welfare. This is one of the unfortunate things that can happen in a recession.

With full-time minimum wages paying more than twice what a welfare cheque pays to a single person, choosing work ought to be the preferred alternative to welfare. So if there were a program out there that could tip the balance even more toward working and away from welfare, wouldn’t that be good thing? The Working Income Tax Benefit (WITB) is one such program and, with our proposed changes, the WITB could encourage people to work rather than discourage them.

In 2007, the federal government introduced the Working Income Tax Benefit (WITB) to remove barriers to work, often termed collectively as the “welfare wall.” The WITB is a refundable tax credit offered to low-income earners as a supplement to low earnings from employment. Its initial aim was to encourage low-income earners to break out of welfare by seeking more work – to “make work pay.”

However, the current WITB program is not doing the job as well it could here in Ontario, because it does not fit well with the structure of our income-security system. This is not surprising, since this nominal design cannot completely accommodate thirteen provinces and territories, each with its unique welfare programs. Because of this, the federal government also extended an invitation for provinces and territories to modify the design to suit their welfare programs.

Ontario has not yet accepted the federal government’s invitation to align the new WITB supplement more closely with its own programs, like Quebec, British Columbia, and Nunavut have done. The current WITB benefit combines with Ontario welfare to maximize total benefits at approximately 14 hours a week of minimum-wage work for single earners and 20 hours for single parents. In effect, this means that the WITB provides the highest incentive for low-participation part-time work and inhibits the effort required to achieve full-time hours.^A Worse, the WITB benefits then phase out as earners take on more hours, disappearing before recipients have earned enough to get off welfare. Instead, for the WITB to meet its stated objectives, we propose its maximum benefits should be shifted to support full-time work, topping out at 32 hours for both groups (*Exhibit E*).

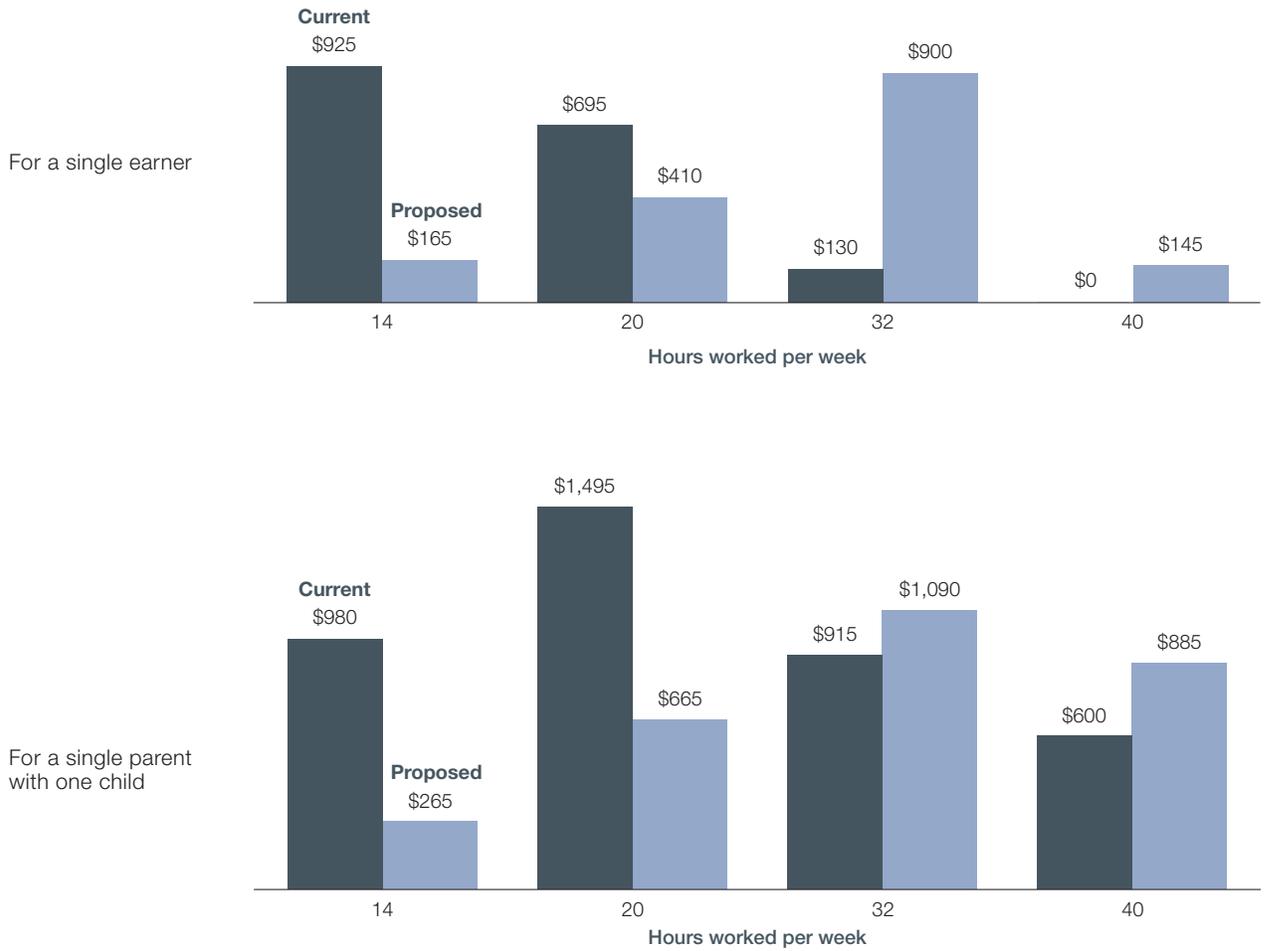
We believe this shift will support more hours of work by low-income earners and provide them needed cash to help make ends meet. In addition, the modified WITB supplement can help low-income earners more effectively move from social assistance to full-time employment, cushioning the impact of losing welfare with work.

We recognize that our proposal will not solve the hardships many Ontario families face – that is asking too much. But it is time that Ontario accept the federal government’s invitation to integrate its WITB program with its own social assistance system, and develop the new “made in Ontario” WITB that the working poor need. This is a step in the right direction to help low-income earners overcome the welfare wall and achieve full-time employment.

^A Full-time employment is defined here as 32 hours of work per week, drawn from empirical observation on the number of hours worked by low-income Ontarians earning the minimum wage in Modernizing Income Security for Working-Age Adults (2006), “Time for a Fair Deal,” Toronto, page 20.

Exhibit E Proposed WITB design for Ontario shifts benefits toward full-time employment

Benefits for current and proposed WITB in Ontario, 2009



Source: Institute for Competitiveness & Prosperity analysis based on data from Don Drummond and Gillian Manning, "From Welfare to Work in Ontario: Still the Road Less Travelled," TD Economics Special Report, Toronto 2005; John Stapleton, Open Policy Ontario; Canada Revenue Agency; Ontario Ministry of Community and Social Services.

Structures: Drive innovation through strengthened commitment to trade

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 Ontario 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 Ontario and 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.

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 reduce 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 Krugman⁵³ 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 Dan Trefler⁵⁴ 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 industries 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.

Ontario'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 20*). In the current environment, we have the opportunity to work more closely with the United

⁵³ Paul Krugman, "Increasing Returns, Monopolistic Competition, and International Trade," *Journal of International Economics* 9-4, November 1979, p. 469-479.

⁵⁴ Daniel Trefler, "The Long and Short of the Canada-U.S. Free Trade Agreement," *American Economic Review* 94, September 2004, p. 870-895.

States to firm up our trade relationship, while expanding opportunities with our next two most significant partners.

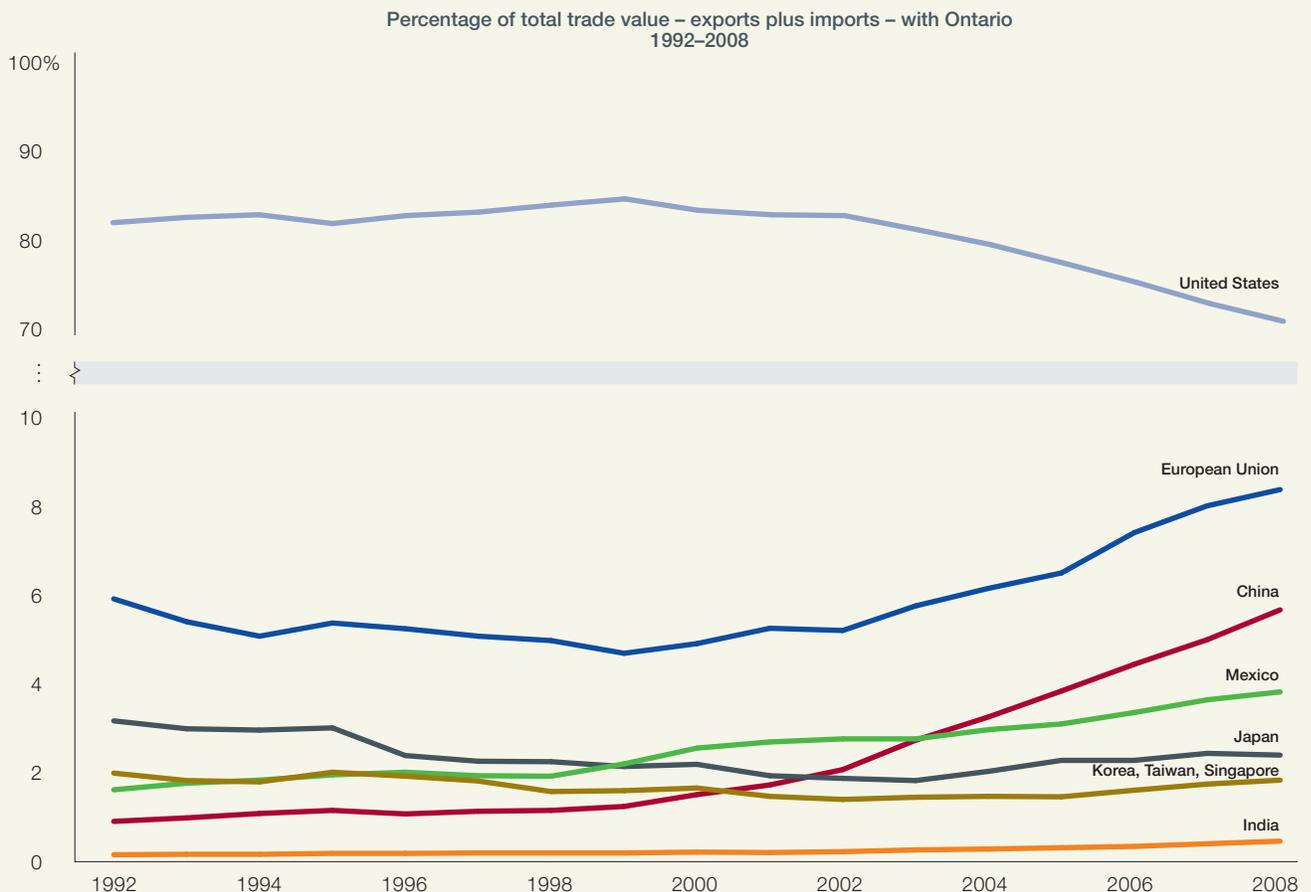
Ontario-US trade faces challenges

Trade barriers are hard to bring down when economic times are tough. In the current recession, the US government has adopted Buy America policies in the hopes of aiding their local economy and decreasing unemployment. In February 2009, the Senate passed a protectionist provision that requires that

“iron, steel and manufactured goods used in projects funded by the \$790 billion economic stimulus bill must be produced in the United States.”⁵⁵ To protect US jobs, the administration recently increased tariffs on tires imported from China from the existing 4 percent to 35 percent in the first year to be lowered to 30 percent in the second year and 25 percent in the third.⁵⁶ Recently China put tariffs on US nylon, though did not indicate that this was in direct retaliation.⁵⁷

Even before the current protectionist initiatives emerged in the United States, trade between Ontario 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

Exhibit 20 The United States is still our dominant trade partner, but the importance of China and the EU has risen



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

⁵⁵ William Matthews (February 12, 2009) “Buy-American Provisions Survive in Stimulus Bill”, DefenseNews, available online: <http://www.defensenews.com/story.php?i=3946283>.

⁵⁶ Xinhua (September 15, 2009) “China wants talks with US on tire tariff dispute,” *Global Times*, available online: <http://business.globaltimes.cn/china-economy/2009-09/467800.html>.

⁵⁷ Victoria Ruan (October 20, 2009) “China set to impose new tariffs on nylon.” *The Wall Street Journal*, p. A15.

slowed the flow of goods, the movement of people, and even the exchange of ideas between our two countries.”⁵⁸ It does appear that the traffic tie-ups at the borders between Ontario and the United States are lengthening lead times for goods shipments. The logistical impact is to add costs through delays and out-of-stocks in processing facilities. 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.⁵⁹

Ontario needs to continue its investments in border crossing infrastructure. And it needs to work with the federal government to challenge US protectionist tendencies. At the same time, it needs to avoid protectionist tendencies here in Ontario and Canada.

We see mixed signals. On a positive note, the Federation of Canadian Municipalities decided to suspend its October 4 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.⁶⁰

Given the current recessionary climate, loss of manufacturing jobs, the threat of protectionist policies, and the apparent flood of Chinese products in 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.

Ontario-China trade encounters the “dragon myth”

In the past few years, Canadian manufacturing employment has been hit hard. For some, much of the blame can be attributed to the flood of cheap imports from China. When it seems like every product we buy is Made-in-China and

Exhibit 21 Ontario’s imports from China are heavily weighted toward consumer products



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

⁵⁸ John Manley at Rx&D National Innovation Roundtable, October 15, 2009.

⁵⁹ 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.

⁶⁰ Government of Ontario, available online: www.ontario.ca

every service we consume has been outsourced to India, it is only natural to blame those countries for the loss of our manufacturing jobs. Most of the imports from China are consumer goods, which make up a much smaller share of the goods that we produce across our economy (*Exhibit 21*). It is no wonder that we are conscious of the Made-in-China label.

On average, each Canadian spends \$1,300 on Chinese imports, or 2.7 percent of his or her annual income. However, this over states the economic impact, since just over half, or 54 percent, of China's exports represent value added activities in China. Thus, each Canadian actually spends only 1.4 percent of annual income on what is truly "made" in China. 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.

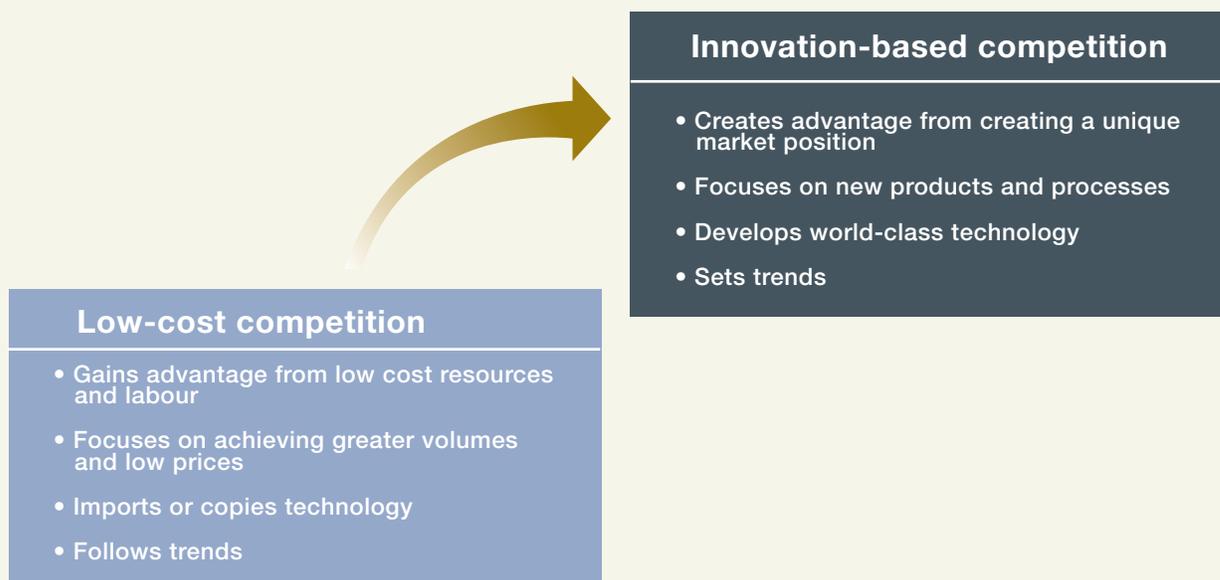
Is China nearing the tipping point?

To be sure, China is making great strides as it transitions 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 Dan Treffer has observed,⁶¹ to date China and India have not moved from competing on the basis of low wages to innovation and sophistication. 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 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

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



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

⁶¹ Daniel Treffer, "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.

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 the global economy will have arrived at an innovation tipping point. Once past the innovation tipping point, world leadership in innovation could migrate away from the less innovative countries in the developed world and toward China and India. As Treffer 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 6 percent in 2008 (see *Exhibit 20*). Since 2004, China has been the second largest source of Ontario imports, behind only the United States. In the service trade market, China's share remains negligible, but is growing fast.

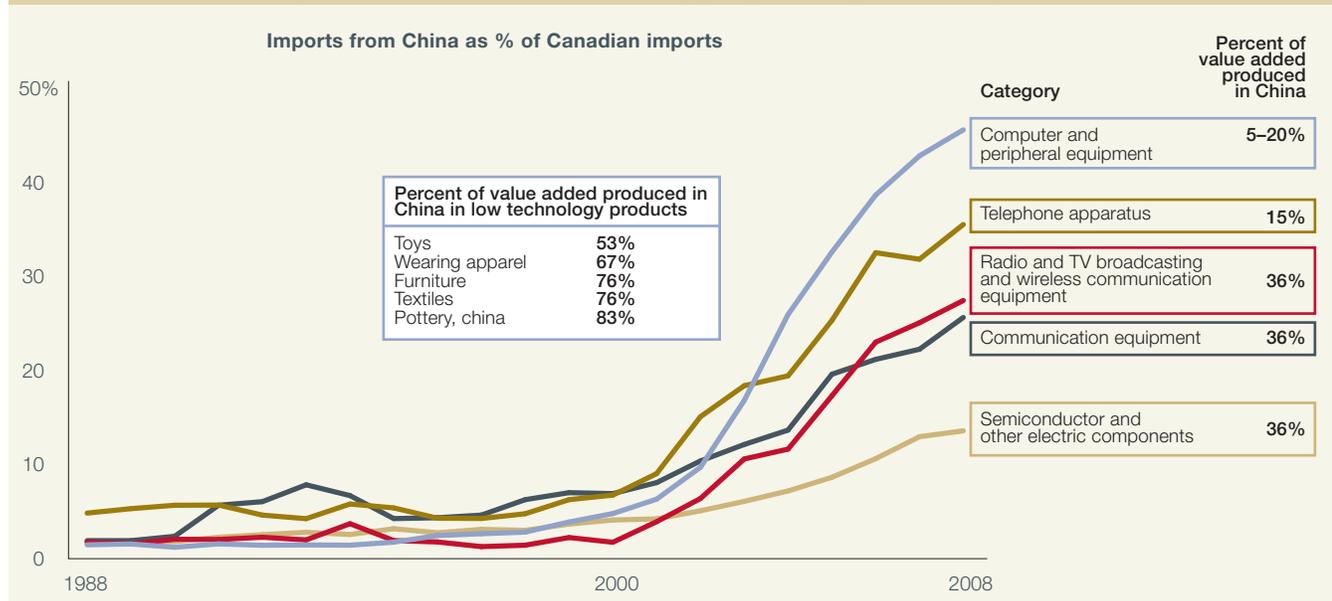
China is increasingly emphasizing technology and innovation, and this evolution can be seen in the mix of products it exports to Ontario. In 1990 the top ten imports were toys, leather bags, dolls, clothing, and other low-tech items. In 2008, laptop computers, telephones, monitors, and printers were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

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 Merchandise 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>.

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 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.⁶²

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 2007.⁶³ The number of patents in high-technology industries grew from a mere 410 in 1995 to 13,386 in 2007 – a 32-fold increase.⁶⁴

In 2006, the OECD assessed the innovative capacity of various nations by comparing average annual investment in R&D by the private sector relative to the average annual number of patents filed with the Triadic Patent Office (US Patent and Trademark Office, the Japan Patent Office and the European Patent Office) between 1996 and 2002.⁶⁵ The research showed that, while China spends considerably on R&D, the focus of that spending was imitation not innovation. 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. During that time, China filed an average of 386 triadic patents annually. However, based on China's average annual investment in R&D by the private sector, China would have been expected to file an average of 2,932 triadic patents annually between 2003 and 2007.

What is the quality of China's human capital? A commonly cited statistic for engineering graduates in the United States, China, and India has been 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 statistic 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 137,000.⁶⁶ China is producing 270 undergraduate

engineers per million people, while the United States is producing 470. In another assessment, a McKinsey & Company survey has found that Chinese engineering graduates (2003 result) were not as employable as North American graduates.⁶⁷ The main reason behind that variation is that the Chinese engineering student experience emphasizes theory, while North American students undergo various projects in a team environment.

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.

Another way to assess the strengthening of China's human capital and its economic sophistication is to look at the return of its Diaspora. Ireland is a good example of transition to the innovation-competition wave. Ireland finished the transition to innovation-based competition in the 1990s, and net migration patterns in Ireland can be considered a good gauge of transition from one wave to the next. After decades when more Irish people left the country than returned, the tide reversed in the early 1990s as the Irish economy advanced (*Exhibit 24*). While we do not have exactly comparable statistics for China, we can see that only a third of Chinese overseas students returned to China in 2008 – and that this pattern has not changed appreciably over the last decade.

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 China National Bureau of Statistics (2008) China Statistics Yearbook High Technology Industry.

⁶⁴ *Ibid.*

⁶⁵ 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>.

⁶⁶ 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.

⁶⁷ Diana Farrel, "Don't Be Afraid of Offshoring", McKinsey analysis, 2006, available online: <http://www.mckinsey.com/mgi/mginews/businessweek/>.

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.⁶⁸ 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.⁶⁹

As China nears the innovation tipping point, Ontario is vulnerable. China represents untapped potential for

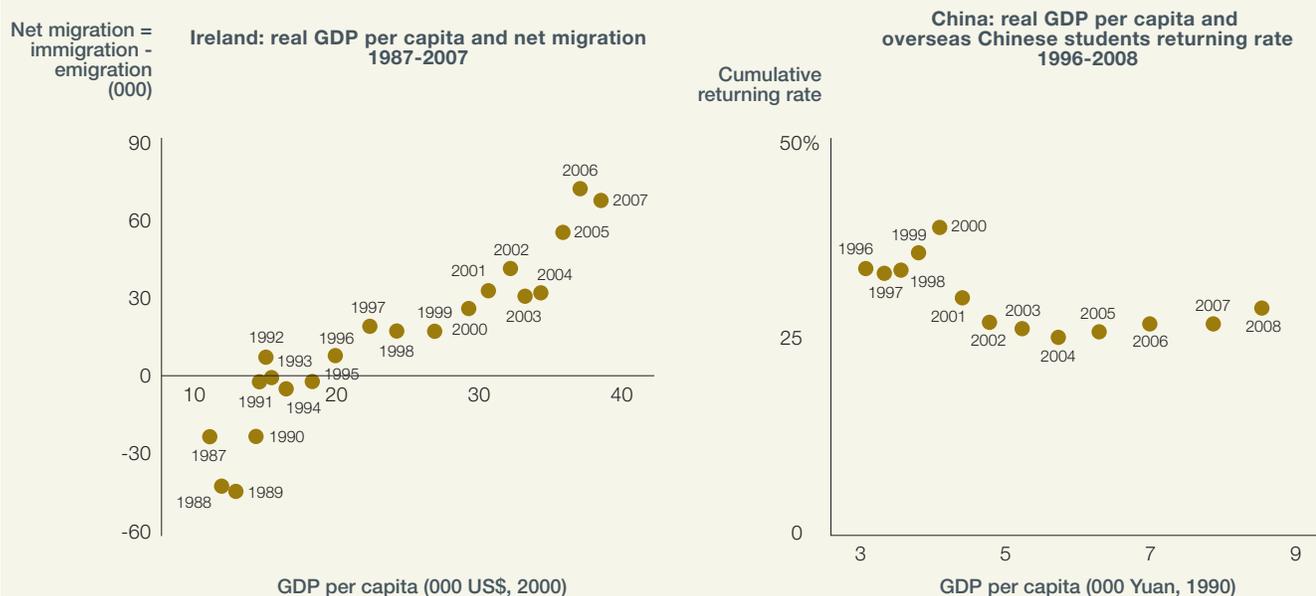
Ontario trade. It is still largely competing on the basis of low-wage labour, and we should welcome these goods to our province as they increase our standard of living. But quality remains an issue. At this point, then, we should not fear being overwhelmed by imports of sophisticated goods and services, as their economy has not yet reached that tipping point. But China is moving inexorably to that point. Using Trefler's framework, Ontario 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 unique features and innovation.

Ontario 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 (see *Whither manufacturing in Ontario?*). But Ontario also needs to provide and encourage the specialized support for

Exhibit 24 Despite higher GDP, the percentage of Chinese overseas students returning home remains flat



Source: Institute for Competitiveness & Prosperity analysis based on data from Ministry of Education of the People's Republic of China, International Monetary Fund, World Economic Outlook Database, October 2009.

⁶⁸ 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>.

⁶⁹ World Economic Forum, *The Global Competitiveness Report, 2009-2010*.

Whither manufacturing in Ontario?

It is hard to avoid news about the decline in manufacturing in Ontario during this recession. With headlines of plant closures and the continuing saga of the auto industry's troubles, it is easy to conclude that all is "doom and gloom."

There are some hard data to support this conclusion. For starters, jobs in the manufacturing sector now accounted for about 13 percent of jobs in Ontario in 2008, down from 23 percent in 1976. Over the last ten years 1998-2008, manufacturing's share of the economy, as represented by its contribution to the dollar value of GDP, has fallen from about 17 percent to 13 percent. While we do not have final statistics for 2008, no doubt these trends have since continued or even accelerated.

But there is more to these results than meets the eye. On the employment front, manufacturing's share of total employment has indeed fallen. And the industry has shed more than 200,000 jobs since 2004. But actual employment in manufacturing – as measured by numbers of employees or by hours worked – is about the same as it was in 1976. Along the way, there have been cyclical ups and downs, but the long-term direction is essentially flat.^A

In fact, manufacturing employment has held up much better over the past quarter century in Ontario than in other developed economies, including the United States, Japan, and the United Kingdom. Unlike these other economies, our manufacturing employment grew dramatically between 1994 and 2004. Part of this was due to the weak Canadian dollar over that period. The current weakness is due to the global recession and our stronger dollar.

Something that has received less attention is that, over time, manufacturing's real output has been growing steadily over the past decades – through employment gains and losses. Factoring in the low price inflation for our manufactured products, we see that constant dollar value added has actually doubled over the past forty years. One benefit is that consumers actually get a lot more for their dollar when they buy automobiles, food, and telecom products that are manufactured in Ontario rather than in other places.

So we have dramatically increased our manufacturing output with a modest increase in workers. The net effect is a huge increase in real value added per worker – or productivity.

Nevertheless, economists and thinktanks have long been exhorting our manufacturers to compete on the basis of higher value added products through more innovation and higher productivity. But many of our manufacturers have actually been doing just that for the past forty years. These include our automotive industry with global leaders like Husky Injection Molding Systems, whose innovative designs in plastics moulding reduce costs significantly for their customers, and Magna, which has grown to be one of the world's most important automotive parts companies.

Some smaller, less well-known innovators have also succeeded. Keilhauer Industries, working closely with ergonomics experts, has developed internationally renowned office furniture. Patriot Forge has drawn on technology breakthroughs and skills upgrading to improve its manufacturing process for forging metal. EnerWorks is an innovative solar thermal technology manufacturer. Gourmet Settings has developed creative designs in stainless steel flatware, as well as streamlined the production process. These firms are succeeding on the basis of innovations in products or processes or both. Some have outsourced manufacturing to lower wage countries, but they maintain much of the design and marketing skills here in Ontario.

In addition, our recent research indicates that plant management by Ontario manufacturers is among the best in the world, as measured by implementation of Lean Manufacturing, performance management, and people management initiatives. We need to ensure that our plant level management strengths are matched by excellence in company leaders who are developing strategies for long-term competitive advantage.

Still, headlines of plant closures and job losses in manufacturing have alarmed many Ontarians. The reality is mixed. A recent Statistics Canada report showed that the jobs being shed are the lower paying jobs, and that, in fact, there has

^A Our analysis is based on Statistics Canada's Labour Force Survey (LFS). The Survey of Employment, Payrolls and Hours (SEPH) provides another set of data. SEPH estimates that employment peaked in 2000. After 2000, both surveys show a similar decline. LSF and SEPH estimates are not the same because of conceptual and methodological differences. LFS provides information on the employment characteristics of individuals, based on a survey of households, whereas SEPH provides information related to jobs based on a census of administrative data from businesses.

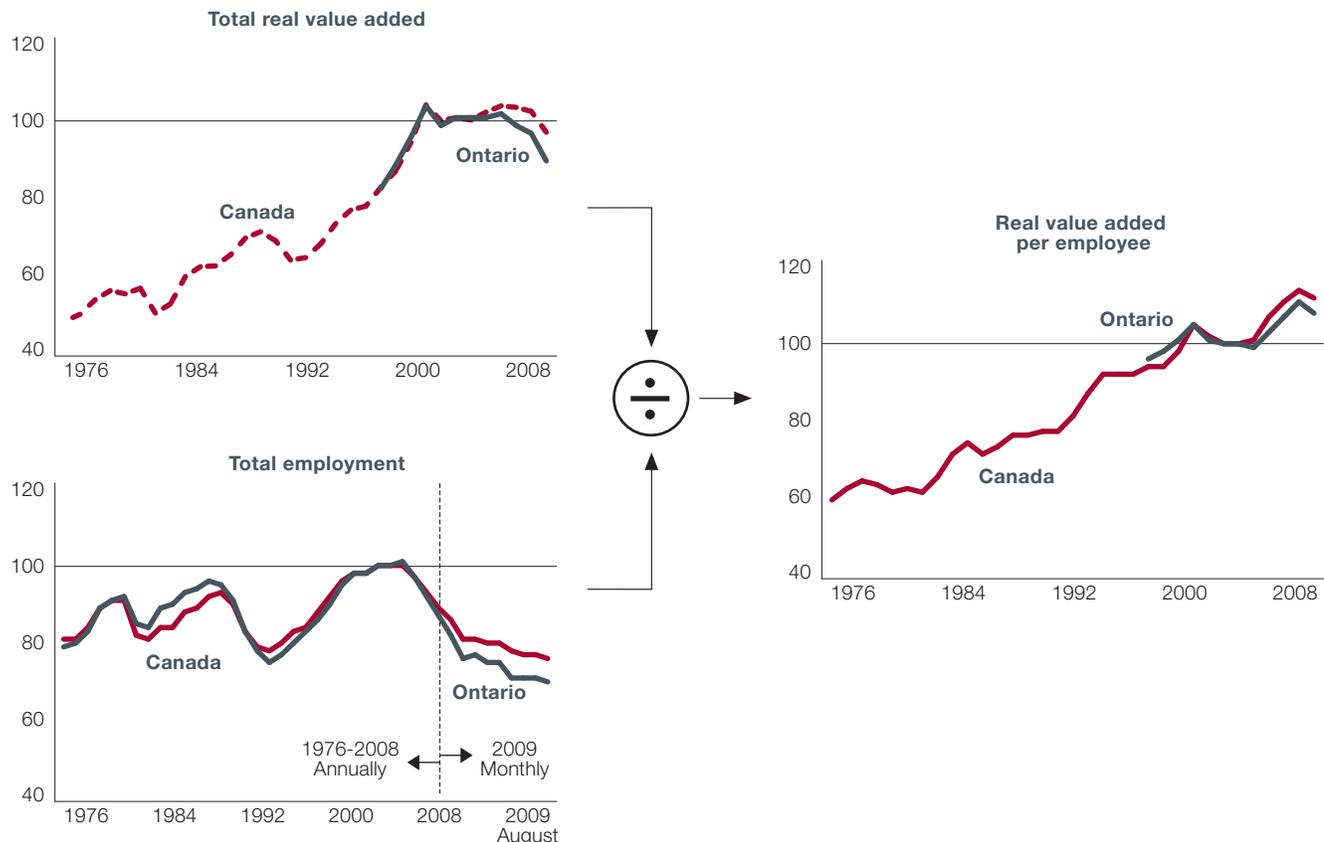
been a net increase in the high-paying manufacturing jobs.^B No doubt, however, many high-wage workers in Ontario manufacturing have lost their jobs – and will not find similar compensation in their new jobs.

We need innovative public policy tools to help these workers. One idea worth pursuing is wage insurance – a system that helps fill the wage gap for workers who have to move to a lower paying job after a plant closure or mass layoff. This may be an effective way to help these workers take on new jobs that enable them to develop new skills.

There is much to be concerned about in manufacturing in Ontario. Long-term employment growth has trailed that in the rest of the economy. And the current downturn may be a real crisis for the industry. Yet, on the positive side, some of Ontario’s manufacturers have been productivity dynamos. They will have to continue that track record of competing on creativity and skills to survive and thrive. Their success is a model for others to follow to rebuild a vibrant manufacturing sector in Ontario that can compete easily in global markets.

Exhibit F Ontario manufacturers have shed jobs but increased productivity

Manufacturing industry indexes, Canada and Ontario 1976–2008 (2002=100)



Source: Institute for Competitiveness & Prosperity analysis based on data from Statistics Canada.

^B Jane Lin "Trends in employment and wages, 2002 to 2007" Statistics Canada – September 2008 Perspectives – Catalogue no. 75-001-X.

our industries that will create market opportunities.

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

While China represents opportunities for increased trade as it becomes more sophisticated, the EU 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 \$54 billion of Canada's imports and \$36 billion of Canada's exports in 2008. 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 also shows that there are important benefits to pursuing a closer economic partnership. Liberalizing trade in goods and services could bring a potential 20 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 will gain the most.

Canada is actively pursuing more international trade. The government of Canada's trade authority recently suggested eliminating all tariffs on manufacturing machines and equipment, so that Canadian producers could get access to lower price machines and equipment. 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 Ontario that we advance on this front, not retreat. We need to work closely with our US partners 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 Ontario 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 these capabilities.

Canada continues to have many global leaders

Canadians can pride themselves on the numerous Canadian companies which are in the top five in their market niche based on revenue or market share worldwide. And despite the concerns expressed by some about “hollowing out,” the number of our global leaders have increased substantially from 1985 to 2009. In 1985, we had 33 global leaders and in 2003 this had grown to 87. Last year Canada had 85 global leaders.^A This year, the number stands at 85 (*Exhibit G*).

Since last year’s Annual Report, nine companies joined our list of global leaders. Six of the companies were already global leaders, but this year they achieved annual revenues of \$100 million. Arctic Glacier became a global leader because of its aggressive acquisition strategy. The Royal Bank of Canada and Pason Systems moved into the top five in their industry.

- » **Allen-Vanguard**, one of the five largest in personal security devices for military use
- » **Arctic Glacier**, second largest ice distributor in the world
- » **Coastal Contacts**, the world’s largest online optical goods seller
- » **Fortress Paper**, a global leader in non-woven wallpaper
- » **Gennum**, the global leader in serial digital interface technology
- » **Pason Systems**, the world’s leader in rental oilfield instrumentation and data acquisition systems
- » **Royal Bank of Canada**, one of the top five money centre banks in the world, in market capitalization
- » **Village Farms**, a leader in the North American tomato greenhouse growing market
- » **ZCL Composites**, a global leader in underground fibreglass storage tanks

However, we lost nine global leaders since last year:

- » **CGI Group, Russel Metals**, no longer in the top five globally in their market niches
- » **CHC Helicopter, Connors Brothers, and Ashton Potter**, sold to US private equity firms
- » **Nortel**, which is in the process of selling off its assets
- » **George Weston**, sold its US commercial bakery business
- » **Patheon**, moved to the US
- » **Fording**, merged with Teck-Cominco, another global leader

Of Canada’s global leaders, 37 are in Ontario, off from 39 in 2008.

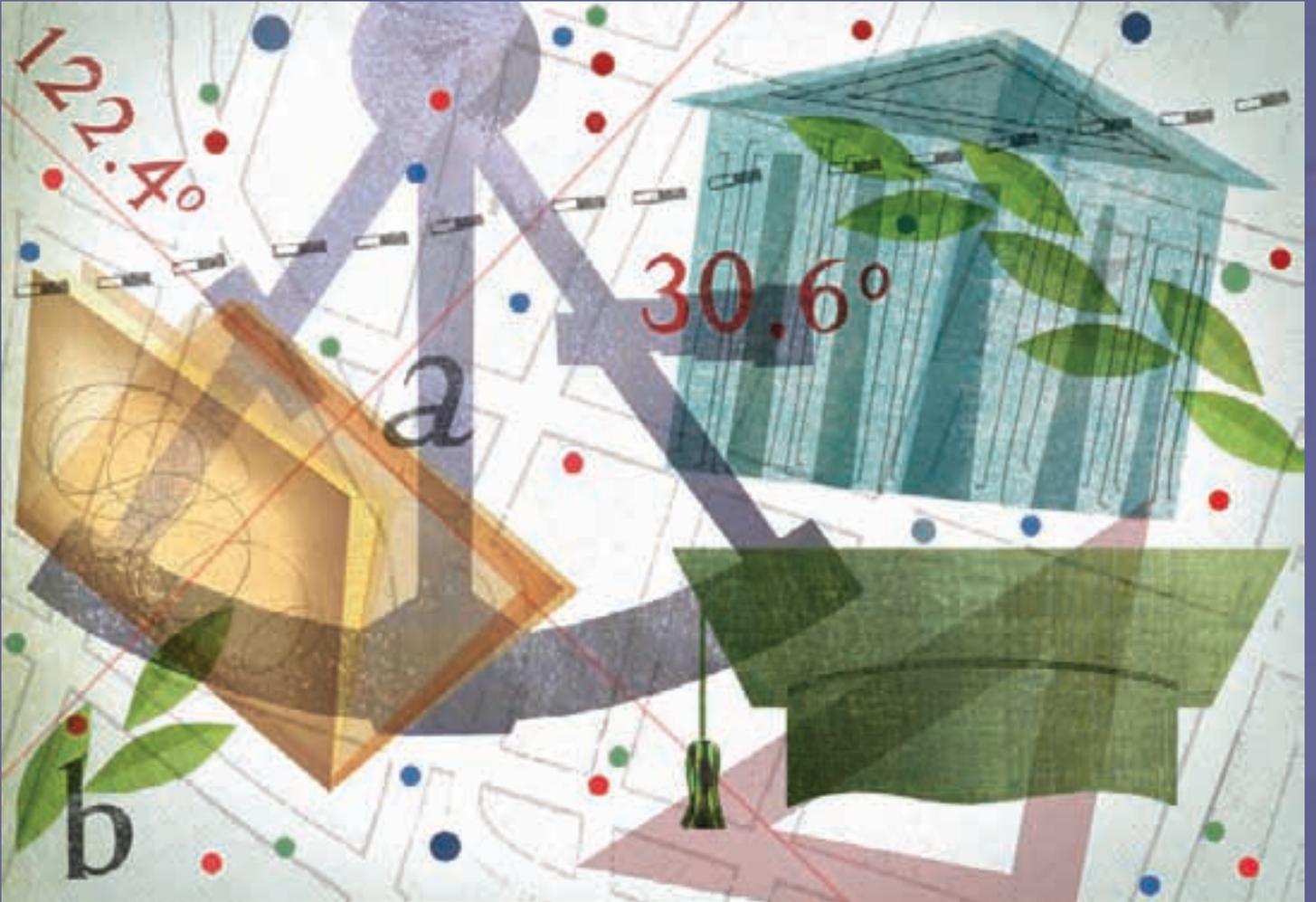
We conclude that the myth of hollowing out is not the case with our global leaders, which have been increasing steadily over time. Policies should continue to foster a supportive environment for domestic as well as internationally competitive Canadian companies. As we navigate our way through the economic recovery, Canadian companies should not be complacent, but innovate and invest more in research and development to gain a competitive advantage for the future.

^A The Institute for Competitiveness & Prosperity constantly updates the global leaders lists based on further research. Four global leaders were subsequently added to the 2003 list (Superior Plus Income Fund (ERCO), MEGA Brands, Can-Oat Milling and Lallemand) and nine were subsequently added to the 2008 list (Superior Plus Income Fund (ERCO), MEGA Brands, Lallemand, Catalyst Paper Corporation, Russel Metals, FirstService Corporation (Colliers International), AG Growth Income Fund, Can-Oat Milling, and Samuel, Son & Co).

Exhibit G Canada has 85 global leaders

AbitibiBowater	Genum	Royal Bank of Canada
AG Growth Income Fund	Gildan	Samuel, Son & Co
Agrium	Goldcorp	Scotia Mocatta
Allen-Vanguard	Harlequin	Shawcor
Arctic Glacier	Husky Injection Molding	Sierra Wireless
ATCO	Imax	SMART Technologies
ATS	Lallemand	SNC-Lavalin
Barrick Gold	Linamar	Spectra Premium
Bombardier	MAAX Holdings (Tricap Properties)	SunGro Horticulture
CAE	Magna	Superior Plus Income Fund (ERCO)
Cameco	Major Drilling Group	TD Waterhouse
Canam	Manulife Financial	Teck-Cominco
Canfor	McCain	Tembec
Can-Oat Milling (Viterra)	MDS	The Jim Pattison Group
Catalyst Paper	MEGA Brands	Thompson Creek Metals (Blue Pearl)
CCL Industries	Methanex	Thomson Corporation
Celestica	Mitel Networks	Timminco
Chemtrade Logistics	Neo Material Technologies	TLC Vision
Cinram International	Norbord	Transat A.T.
Cirque du Soleil	North American Fur Auctions	Trimac
CN Rail	NOVA Chemicals	Velan
Coastal Contacts	Open Text	Village Farms
Cott	Pason Systems	Wescast Industries
Couche-Tard	Peerless Clothing	Zarlink
DALSA	Pollard Holdings	ZCL Composites
EXFO Electro-Optical Engineering	PotashCorp	
Finning	Premier Tech	
FirstService (Colliers)	Quebecor World	
Fortress Paper	Research in Motion	
Garda	Ritchie Bros. Auctioneers	

Note: Bold denotes Ontario head office. Foreign acquisition of Allen-Vanguard is expected to be completed by end of 2009.
Source: Institute for Competitiveness & Prosperity.



Navigating toward prosperity

Our challenge is to steer through the currents of turbulence, avoiding the temptation and traps of poor economic policy and striving to keep us on track to achieve our prosperity potential.

AS WE ENDURE THE RECESSION, realizing our prosperity potential is not something that most Ontarians are thinking about. But with the recovery, we need to ensure that we thrive, not just survive. We encourage stakeholders in Ontario's prosperity to keep the imperative for the 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 current global economic turmoil

We need to remain determined to close the prosperity gap. We Ontarians 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 that global market.

Investments

Invest in the human and physical capital critical for recovery

Continue investing in people for Ontario's competitiveness. Our governments face a critical balancing act. Current deficits are unsustainable, and spending has to be reined in. As the provincial government considers its spending priorities, we urge that it continues to place post secondary education high on the list. With the five-year plan, Reaching Higher, coming to a close, new multi-year funding ought to focus on three priorities: increasing the number of masters 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 Ontario 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

Implement announced changes in Ontario's sales and corporate tax structures.

The provincial government took a major step forward for Ontario's prosperity in improving our tax regime. By converting our 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, the government has improved the motivations for investing in innovation and productivity.

We have been urging this kind of reform since our First Annual Report, and we understand the courage required by the government to introduce these changes. To compete globally and create high paying jobs, Ontario needs a tax system that encourages business investments.

Ensure special tax treatment for Labour Sponsored Investment Funds

is ended. The government should continue on its plan to end special tax incentives for Labour Sponsored Investment Funds. The government revenue lost as a result of these incentives stands in the way of deficit reductions. Currently, the special tax treatment is scheduled to end after the 2011 tax year. The government should consider ending it sooner.

Structures

Drive innovation through strengthened commitment to trade

Continue to encourage federal efforts to expand international free trade agreements, lead national discussions on changing regulations in financial services, and investigate the benefits of more interprovincial trade.

Along with Quebec, Ontario has been a leader in calling for trade negotiations between Canada and the European Union. The Union 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.

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

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.

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