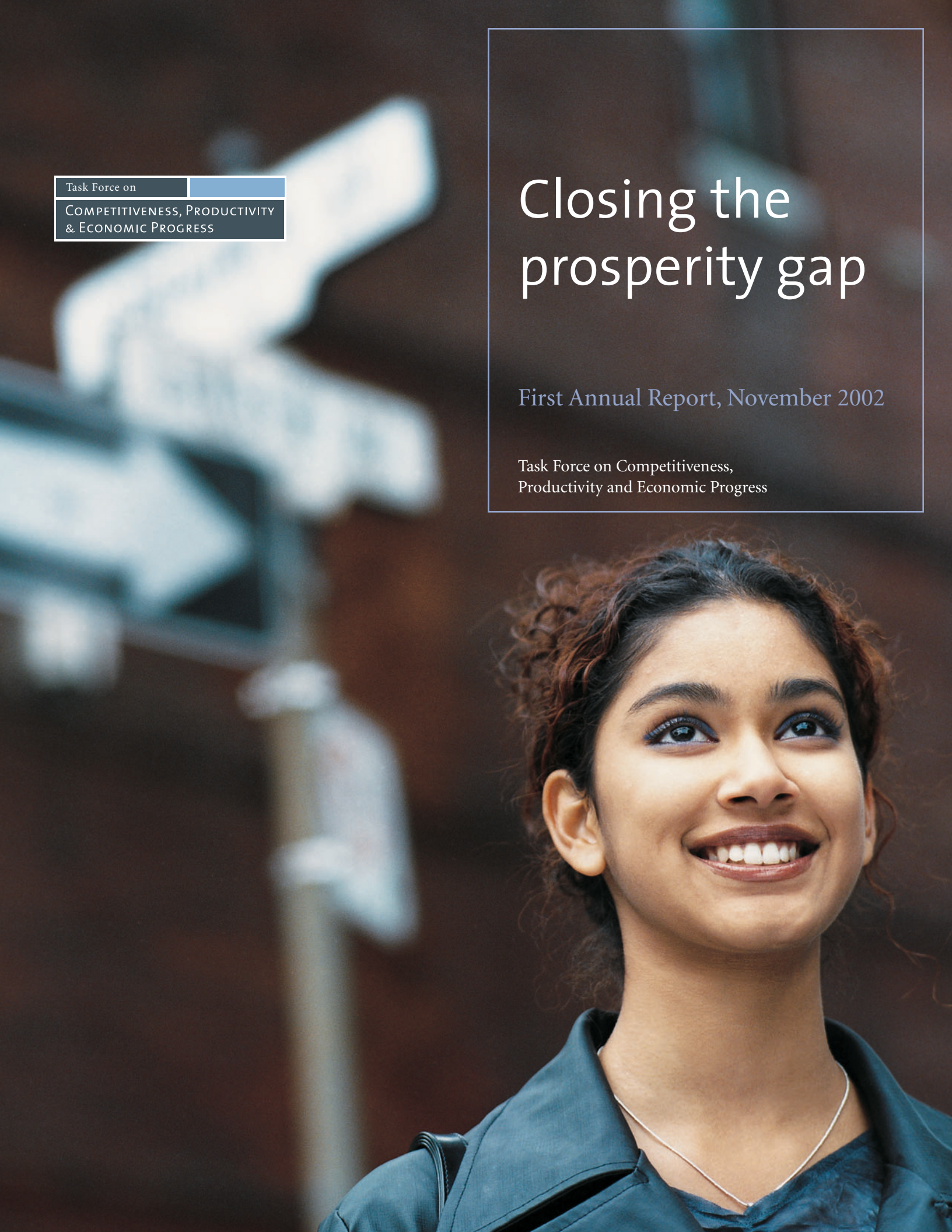
Task Force on
Competitiveness, Productivity & Economic Progress

Closing the prosperity gap

First Annual Report, November 2002

Task Force on Competitiveness,
Productivity and Economic Progress



Task Force on
Competitiveness, Productivity & Economic Progress

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 and to report to the public on a regular basis.

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 Task Force intends to seek breakthrough findings from our research and to propose significant innovations in public policy to stimulate businesses, governments, and educational institutions to take action.

The Institute for Competitiveness and 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 raise public awareness and stimulate debate on a range of issues related to competitiveness and prosperity.

Comments on this First Annual Report are welcome and should be directed to the Institute for Competitiveness and Prosperity.

The Task Force and the Institute are funded by the Government of Ontario through the Ministry of Enterprise, Opportunity and Innovation.

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Closing the prosperity gap

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Task Force on Competitiveness,
Productivity and Economic Progress

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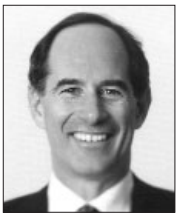

On behalf of Ontario's Task Force on Competitiveness, Productivity, and Economic Progress, I am pleased to present our First Annual Report to the public of Ontario. Much of our effort in the first year focused on measuring Ontario's competitiveness, productivity, and economic progress compared with the results achieved by our peer states and provinces in North America.

Our work has led us to be optimistic about Ontario's future prospects, given our current economic strength vis-à-vis most other regions in the world and our solid competitive platform for further growth. And we think Ontarians should take pride in the strength of our economy.

But we also believe that Ontario must increase the pace of innovation and competitiveness to achieve a place among the leading economic regions in North America. We have identified a prosperity gap among this peer group that we believe Ontarians should strive to close. We have also concluded that our existing set of attitudes, investments, motivations, and structures place us 14th among 16 peer North American jurisdictions in economic prosperity for good reasons. Overall, Ontario individuals, firms, and governments are tackling the task of growing our economy in a fashion that puts us below the first tier of North American jurisdictions by a substantial and widening margin.

We propose that we aim to lift our standing to the median of our peer group over the next decade. This will require moving up one rank every two years.

Our investigations point to raising productivity – the ability of our people, firms, and governments to create value from our labour, intellectual, physical, and natural resources – as the prime opportunity to close the gap. Increasing productivity does not mean we should all work longer hours for less money. In fact, it means the opposite. We should be creating higher value in our economy than ever before by finding smarter ways for individuals to work and for firms to compete.

To accomplish this we need to improve our attitudes, investments, motivations, and structures in important ways that will contribute to productivity gains. Our work to date gives direction on how we can achieve this goal. Most important, we need to ensure that individuals, firms, and governments are investing adequately for our long-term future progress.

We gratefully acknowledge the research support from the Ontario Institute for Competitiveness and Prosperity and the funding support from the Ontario Ministry of Enterprise, Opportunity and Innovation.

In our ongoing research into Ontario's competitiveness, productivity, and economic progress, we are continuing to gain deeper insights to areas of economic strengths and opportunities for future growth. We look forward to sharing and discussing our work and our findings with all Ontarians. We welcome your comments and suggestions.

Roger L. Martin, Chairman
Ontario Task Force on Competitiveness, Productivity, and Economic Progress

Executive summary

→ Closing the prosperity gap

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Closing the prosperity gap

Ontario should aspire to a standard of living that is among the best in the world

TODAY ONTARIO STANDS AT A SIGNIFICANT CROSSROADS. AS WE CONSIDER OUR FUTURE ECONOMIC PROGRESS, OUR PROVINCE IS ALREADY ONE OF THE WORLD'S MOST PROSPEROUS REGIONS IN TERMS OF GDP PER CAPITA. NO COMPARABLE REGION OUTSIDE NORTH AMERICA HAS THE ECONOMIC STRENGTH THAT WE DO. ONTARIANS HAVE RESPONDED WELL TO THE CHALLENGES OF TRADE LIBERALIZATION AND THE NEED FOR STRONGER FISCAL MANAGEMENT.

Yet historical experience and the Task Force's research tell us that we cannot stand still. We know that to ensure our standard of living continues to rise, we need ongoing improvement in our competitiveness. And we see that in the economic comparison that matters most – how well we perform against the benchmark established by our US neighbours and key trading partners – Ontario is lagging.

If we want to have a standard of living that compares with the best in the world, we need a significant change in our economic strategy. Our research indicates that Ontario's strategy, whether conscious or not, has been to stop short in its aspirations and investments compared to its leading North American peers. We have invested in a similar foundation as top-tier peers but, while they keep on investing, we stop. They have raised the bar dramatically over the past 20 years through their continuing strong economic performance.

The Task Force is proposing to Ontarians that we accept the challenge to raise our sights to equal their success. We recommend that we strive to improve our ranking one place every two years over the coming decade to move from our current position as 14th out of 16 to the median of our peers. At that point, we would hope that Ontarians have the momentum and confidence to tackle the challenge of becoming one of the small handful of leading economies.

To that end, Ontario should aggressively pursue opportunities to close the prosperity gap by raising productivity through critical changes that will invigorate the environment for economic growth.

This belief is based on three conclusions emerging from our work:

- Improving productivity is the key to eliminating the prosperity gap
- An invigorating environment of attitudes, investments, motivations, and structures will create opportunities to increase growth and productivity
- Ontario should focus on a select number of upgrading and innovation initiatives to capture productivity improvement opportunities.

Productivity for prosperity

Improving productivity is the key to closing the prosperity gap

IN ITS TWO WORKING PAPERS AND IN ACCOMPANYING RESEARCH, THE INSTITUTE FOR COMPETITIVENESS AND PROSPERITY HAS ASSESSED IN DEPTH THE ELEMENTS THAT CONTRIBUTE TO ONTARIO'S ECONOMIC PROGRESS

Progress was measured in terms of GDP per capita, which is the value per Ontario resident of all goods and services generated in a year. The Institute analyzed the economic performance of this province and its peers against four key elements of GDP per capita:

- the demographic **profile** of the population – What percentage of our people are of working age?
- **utilization** of our human resources – What percentage of our working age people are gainfully employed?
- **intensity** of our work – How many hours on average are workers working?
- **productivity** of our work – How well do we convert our knowledge, resources, and effort into economic value?

This analysis of Ontario's economic performance showed that the first three factors are strengths or only moderate weaknesses of our economy. Improvements in these elements, though valuable, will not easily or quickly close the prosperity gap.

The major finding is that, in our current situation, productivity is the most powerful lever for enhancing Ontario's GDP per capita relative to that of its peer group. Within the productivity measure, two sub-elements – Ontario's lower degree of urbanization and its lower overall effectiveness in adding value to our human, capital, and natural resources – are important areas to explore.

Productivity matters because it drives our standard of living, particularly our wages and incomes. Continuing annual productivity weaknesses will accumulate over time to erode our standard of living and future well being. Raising productivity is possible and will contribute significantly to our prosperity.

AIMS for opportunities

An invigorating environment of attitudes, investments, motivations, and structures will create opportunities to strengthen productivity

ONTARIO'S CAPABILITY FOR STRENGTHENING PRODUCTIVITY IS DRIVEN BY ITS CAPACITY FOR INNOVATION AND UPGRADING. THIS CAPACITY IS BUILT ON AN INTEGRATED SET OF FOUR FACTORS

ATTITUDES towards competitiveness, growth, and global excellence for individuals and businesses

Work completed for the Institute indicates that Ontario's cities have relatively rich endowments of the creative human capital required to power a highly productive economy. However, it appears that, despite this rich endowment, the aspirations, entrepreneurship, and attitudes toward competition and winning may fall short of the requirements for Ontario to become a leading economy among North American peers.

INVESTMENTS in education, machinery and equipment, research and development, and commercialization

Our research shows that Ontario's investment in crucial productivity-enhancing areas of education and machinery and equipment fall short of the investments of our peers. In education, our financial investment in elementary, secondary, and college education is on a par with or better than our peer group's. However, the investment level in universities tapers off, relative to that in the peer group. At the bachelor's level, Ontario produces a similar number of degrees, but at the master's level Ontario trails enormously. We recognize that the important measure is the quality of output at all levels of education and encourage continuing efforts to measure and improve the impact of our educational investment. In another key area, the investment in productivity-enhancing machinery and equipment spending, our US peer group has opened a significant gap over Ontario.

MOTIVATIONS for hiring, working, and upgrading as a result of tax policies and other government policies and programs

Work completed for the Institute indicates that, while progress has been made on tax reduction, Ontario falls short of producing a taxation regime that is as motivating for firms and individuals as in the peer group jurisdictions.

STRUCTURES of markets and institutions and whether they encourage and assist upgrading and innovation

Further research is required to assess the competitive strength of Ontario's clusters and institutional structures in their contribution to Ontario's competitiveness.

The Task Force is focusing its work on a series of questions in each of these areas. In some cases, we have completed work, which forms the basis of our recommendations. The remaining questions will drive our research agenda in the coming year.

Actions for productivity and prosperity

Our work to date has identified a select group of upgrading and innovation initiatives that Ontarians should pursue aggressively to increase productivity and future prosperity

RECOMMENDATIONS TO ONTARIO STAKEHOLDERS

WE ARE PRESENTING FOUR RECOMMENDATIONS AS THE FIRST STEPS IN A JOURNEY TOWARDS GREATER PROSPERITY

→ WE URGE ONTARIANS TO RAISE THEIR ASPIRATIONS FOR OUR ECONOMIC PERFORMANCE AND PROGRESS.

For Ontario to become a leader within a peer group of jurisdictions that are the most successful in the world, individuals must raise their aspirations for personal upgrading of their skills and capabilities. Firms must raise their aspirations to compete globally, not just locally or regionally. Ontario governments at all levels must raise their aspirations to achieve an invigorating environment that encourages individuals and firms to upgrade and innovate and that compares favourably with the environments of the peer group jurisdictions. We will all need to celebrate winners who have set and met high aspirations. We recognize that the prosperity gap we have identified is large, and it will take some years to close it. And we know we must take bold initiatives now if we are to strengthen our prosperity and productivity and climb higher in the ranks of our peer group.

→ WE RECOMMEND THAT ALL ONTARIO STAKEHOLDERS SEEK TO INCREASE INVESTMENTS TO RAISE PRODUCTIVITY AND ENSURE OUR FUTURE PROSPERITY.

In particular, we recommend strengthening the investment in post-secondary education. Our work has shown that we lag our peer group in investing in post-secondary education, which is a major contributor to economic prosperity. While the debate about the adequacy of government spending persists, our research points to the broader need for all Ontarians – individuals, firms, and governments – to explore ways to increase our investments in advanced education and to welcome wider diversity among our institutions. Ongoing improvement in measuring the quality of education at all levels is required.

FUTURE RESEARCH AGENDA →

→ **WE RECOMMEND THAT THE PROVINCIAL AND FEDERAL GOVERNMENT EXPLORE WAYS TO ACHIEVE BREAKTHROUGH TAX REFORM.**

Our new analysis in Ontario, combined with previous work done at the national level, indicates that our marginal effective tax rates are too high. We conclude that these high tax rates are negatively affecting our motivations for upgrading and innovation.

→ **WE RECOMMEND THAT THE ONTARIO GOVERNMENT CONTINUE EXPLORING WAYS TO STRENGTHEN ONTARIO'S CITIES.**

Our work demonstrates the importance of urban areas as attractors of talent and creativity and as engines of productivity and economic strength. Policies at all levels need to ensure that we are supporting the natural growth and development of all our cities with initiatives appropriate to their populations.

In the coming year, the Task Force is directing the Institute for Competitiveness and Prosperity to focus its research agenda in the areas of attitudes, investments, motivations, and structures and to advance the measurement and our understanding of the prosperity gap. The new insights will inform our future recommendations as we continue on the path to becoming one of the most highly productive and prosperous regions in the world.


Closing the
prosperity gap →

Closing the prosperity gap

Ontario should aspire to a standard of living that is among the best in the world.

In today's world, competitiveness is not an option. To ensure Ontario's standard of living continues to rise, our economy must grow. To grow, our economy must be competitive with other jurisdictions, particularly our most significant trading partners.

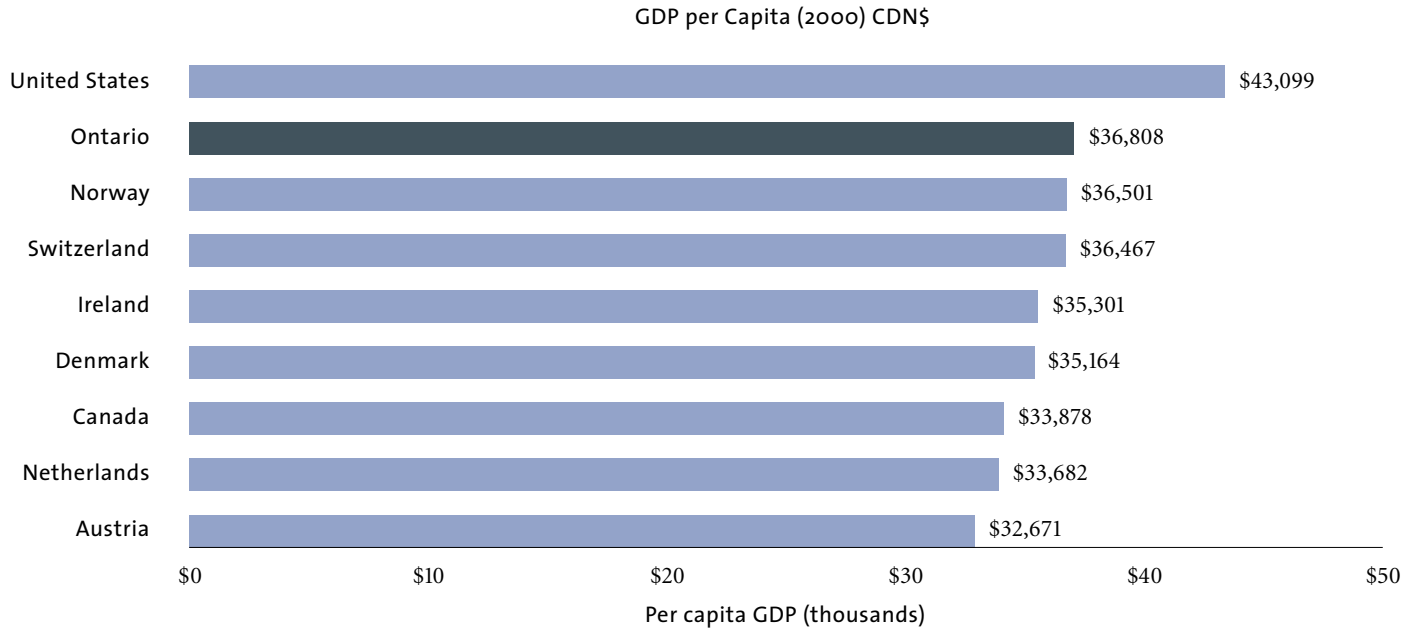
Competitiveness depends on our capability to produce and sell superior products and services that customers in Ontario and the rest of the world are eager to buy. Or it can come from selling our products and services at attractive prices because they are produced at lower costs with superior processes or technologies. Increased international trade and globalization have enabled firms and regions to expand their potential markets and to focus on specific products, services, and capabilities. However, it means that they have to be internationally competitive in their specialization.

Ontario's economy is strong, ranking among the most prosperous regions of the world. But the Task Force has identified a prosperity gap with peer regions of North America that is widening and worrisome. To reverse this trend, Ontario needs to be more effective in generating prosperity from our capital, human, and natural resources. Our efforts today represent our investment for future generations.

Ontario's economy is strong

In Ontario, our economic strength encourages optimism about our future prospects. Our economy continues to grow and is one of the strongest in the world – leading any comparable region outside the United States. By most measures, Ontario's economy is vibrant and robust. In absolute terms, Ontario's economy has performed well – achieving above-average growth in

Exhibit 1: Ontario's economy performs well in international comparisons



Source: OECD Main Accounts, National Data, Statistics Canada

economic output, eliminating government deficits, and purging the curse of inflation.

Ontario continues to be one of the best places in the world to live, work, and invest. We have responded well to the challenges of globalization. Ontario's exports in 2000 recorded a ninth consecutive year of growth and stood at an unprecedented level of $207 billion – more than 50 percent of the province's total output. Ontario leads the world's strongest economies in exports as a share of the economy and on a per capita basis.

Canada's economic output or GDP per capita ranks sixth among substantially sized countries. But if Ontario is treated as a country, it ranks second, behind only the United States (Exhibit 1). Note that Canadian dollars are used throughout this report (see page 18, "Comparing dollar for dollar using the Purchasing Power Parity Index" for an explanation of currency conversion rates used).

Ontario also outranks all other regions outside North America in like-to-like comparisons. For example, Europe proudly calls its four most prosperous regions the "Four Motors of Europe"; Ontario outperforms them all (Exhibit 2).

Prosperity gap hinders rise in living standards

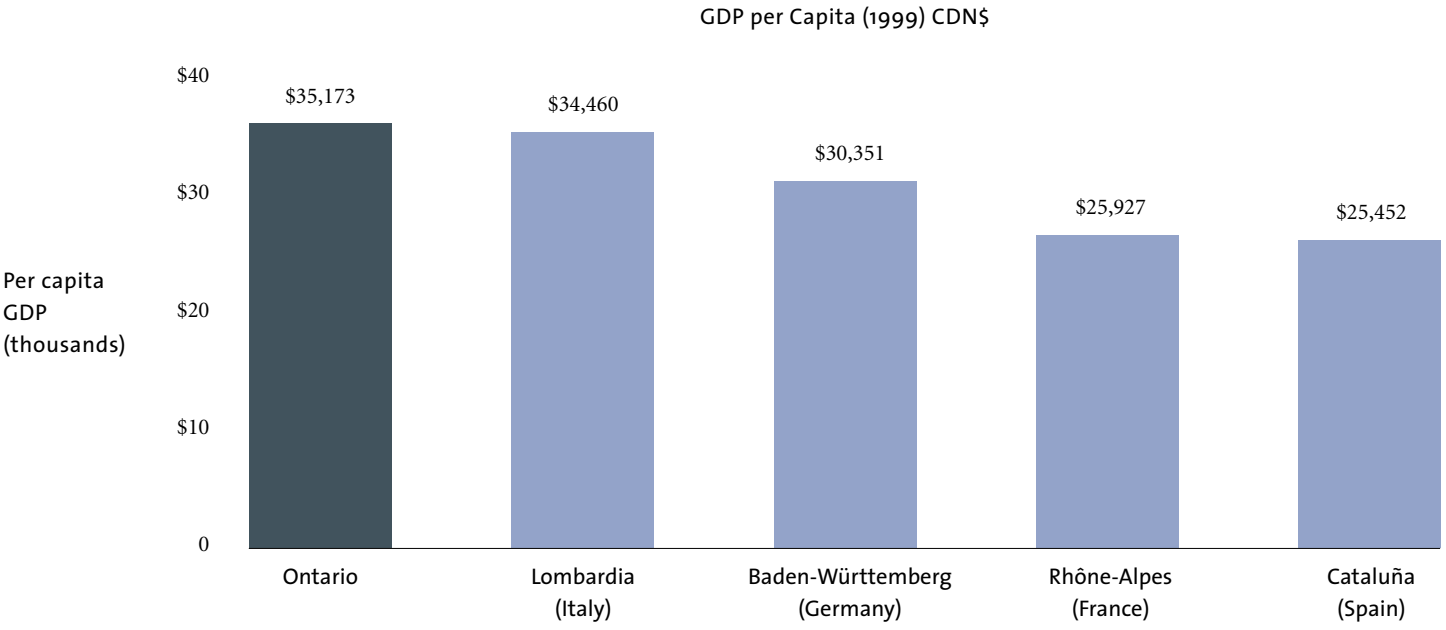
As comforting as Ontario's position may look globally, the Task Force has concluded that a more robust comparison needs to be made with other North American jurisdictions that resemble Ontario in size (population over 6 million or at least half Ontario's size) and economic diversity. We focus on 16 jurisdictions because they have similar backgrounds, resource endowments, and economic mix. They also represent Ontario's leading trading partners. What is different is that almost all of them have higher living standards than Ontario, measured by GDP per capita. We believe they provide appropriate benchmarks for our own economic progress and that we can learn from them.

Against this peer group, we rank 14th out of 16 in GDP per capita, behind Indiana and just ahead of Florida and Quebec (Exhibit 3). Against the median of these 16 jurisdictions, Ontario's GDP per capita is 13.8 percent lower – or fully $5,905 per capita behind the median. Our task is to understand why we trail them and to learn from their experience.

This prosperity gap has been growing slowly, but steadily over the last two decades. In 1980 we stood 11th in the peer group with a prosperity gap of only $841 (Exhibit 4).

This trend is worrisome. If we continue on the same path, we are likely to fall further behind – fully $7,910 by 2010, assuming the same growth rates as achieved over the past two decades. But we can act now to reverse the trend.

Exhibit 2: Ontario outperforms Europe's "Four Motors"



Source: Statistics Canada; Eurostat

Our work has shown that this prosperity gap does not derive from a fundamental weakness in our economy, such as demographics, industry mix, or work force characteristics. The gap indicates that we Ontarians are not gaining as much strength from our available resources as we could. We have found no reason why we should accept a 14th out-of-16 rank within this world-class peer group.

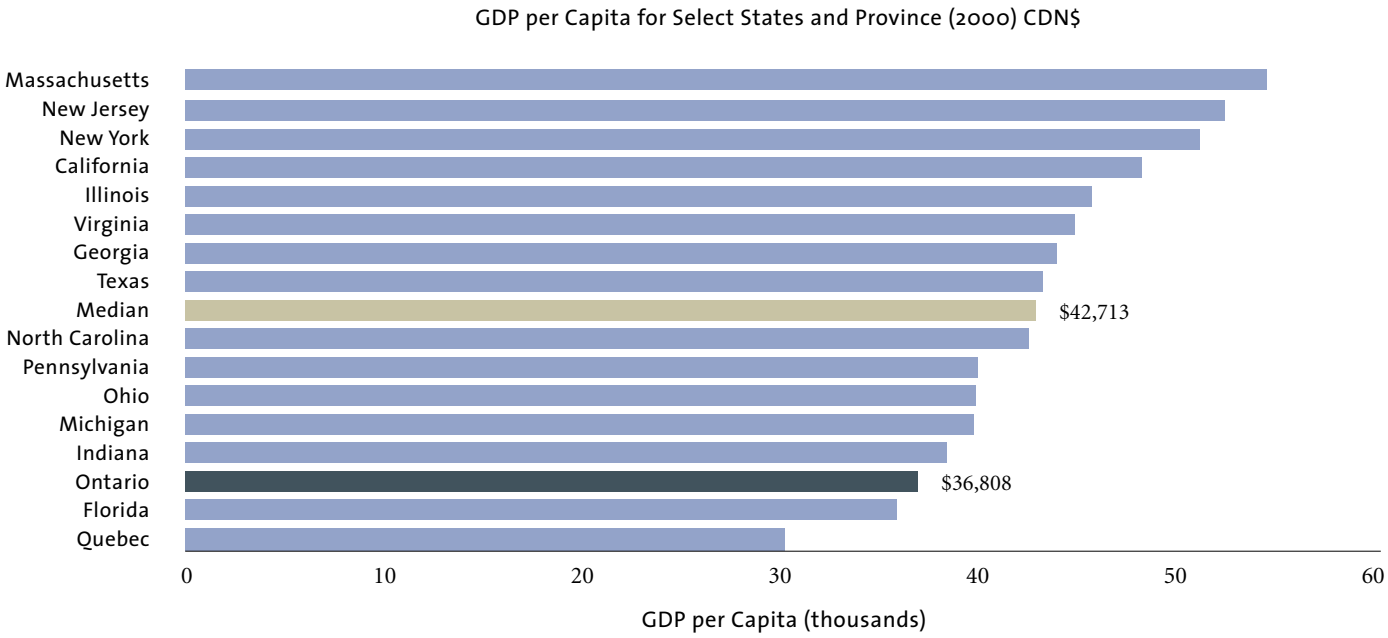
By not realizing our full economic potential we are less able to make the important investments in our economy's capacity for future upgrades and innovations and to support increased spending in areas such as health care. And, without action, we will witness growing disparities in economic well-being with our neighbours to the south.

We recognize that economic prosperity is only one dimension of the quality of life. Like all Ontarians we value the quality of life that we have established here and across Canada. It is our considered view that what we are recommending does not represent a trade-off of economic prosperity against quality of life. In fact, our recommendations are necessary for maintaining our important values, such as the provision of quality health care, enhancement of the environment, and maintenance of a strong social safety net. As economist Pierre Fortin noted in his 1999 C.D. Howe Institute's Benefactors Lecture, *The Canadian Standard of Living: Is There A Way Up:*

A rising standard of living provides not only more resources for materialistic individualistic consumption, but also for improved health, intellectual and social welfare, and cultural undertakings, increased leisure, a cleaner environment, and better social relations....

Real economic growth also facilitates the fight against inequality and poverty, because people are always more ready to share part of an increasing income than to absorb an absolute reduction in a stagnant income. Growth is clearly not sufficient for all these things to happen, but it is certainly a necessary precondition.

Exhibit 3: Ontario ranks 14th of 16 in its peer group



Source: Statistics Canada; CANSIM II; US Department of Commerce, BEA (June 2002); OECD PPP indices: Institute for Competitiveness & Prosperity analysis

Like all Ontarians, we also take pride in Canada's high standing on the United Nations Human Development Index and we want to maintain that standing. In fact, economic prosperity is one of the four measures in the Index. The other three – literacy, life expectancy, and education enrolment – improve as economic prosperity increases. To keep the Human Development Index in perspective, differences in scores between 1st (Norway, 0.942) and 3rd (Canada, 0.940) and 6th (US, 0.939) are so minimal as to be insignificant.

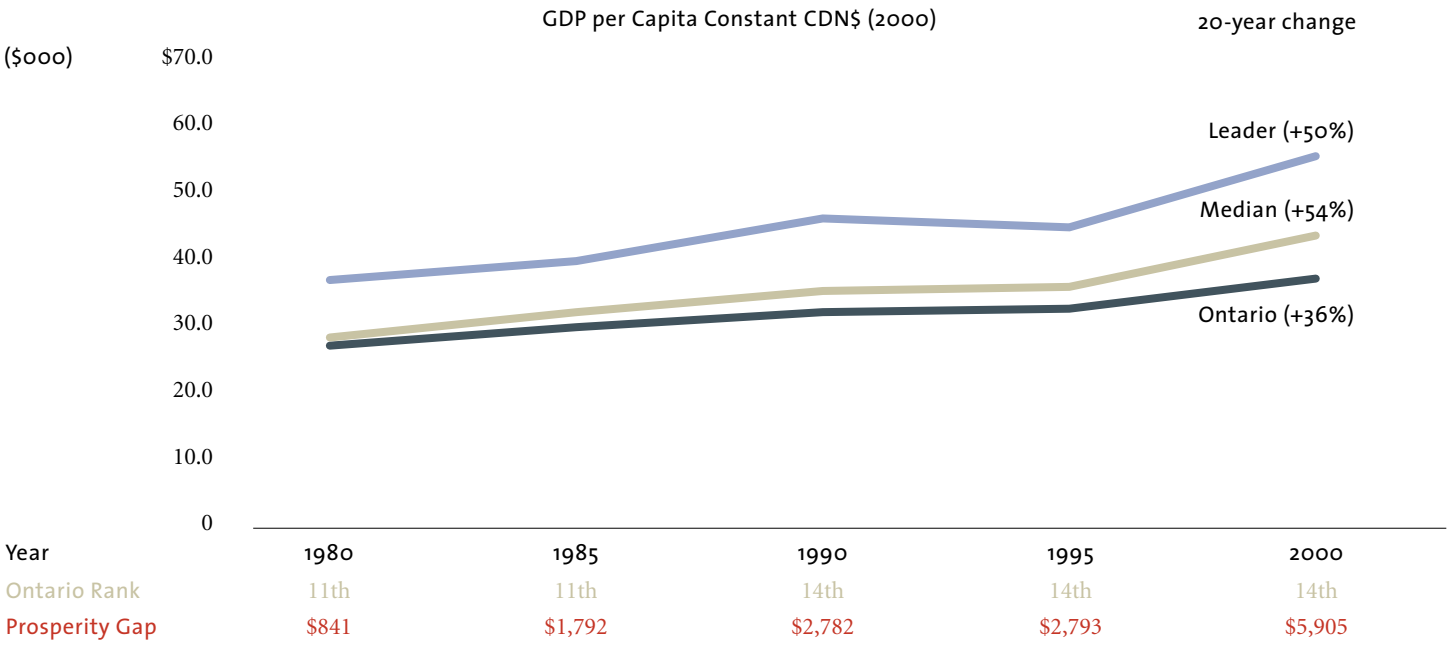
Ontario's future prosperity requires closing the gap

In our view, our economic progress is inextricably tied to the economies of our peer group. They are our leading trading partners. To maintain our strong position among them, we have no choice but to strive to perform as well or better economically than this peer group.

We think Ontarians ought to aspire to reach the median of our peer group over the next decade. That will provide Ontarians in 2012 the momentum and confidence to raise our performance further to equal the top handful of performers in the peer group. This will require bold initiatives both in public policy and in private strategies.

In this First Annual Report, the Task Force focuses on understanding the reasons for the prosperity gap and on recommending a set of initial actions for closing it. ■

Exhibit 4: Ontario s economy is growing but still falling behind its peer group



Source: OECD; Statistics Canada; US Department of Commerce, BEA; Institute for Competitiveness & Prosperity analysis

Comparing dollar for dollar using the Purchasing Power Parity Index

Throughout this First Annual Report and in the Institute's working papers, conversions between the Canadian and US dollar were calculated using the "purchasing power parity" index. We used this index rather than the currency exchange rates familiar to most people and quoted in the daily press to give us the most rigorous comparisons of standard of living in Ontario and the US peer group jurisdictions.

The purchasing power parity index equates currencies, based on what each can purchase in its home country. The basis for the index is the "law of one price": over time, ignoring transportation and other transaction costs, prices of identical goods will be equalized in markets with many buyers and sellers.

For example, a bicycle that sells for $100 US in Detroit should cost about $150 Canadian in Windsor given current exchange rates. But, if the price in Windsor is $125 Canadian, Americans will flock to Windsor to buy the bicycle. Ultimately, this process, called arbitrage – if carried out by many consumers and for many goods – will lead to an increase in the value of the Canadian dollar, until prices are comparable.

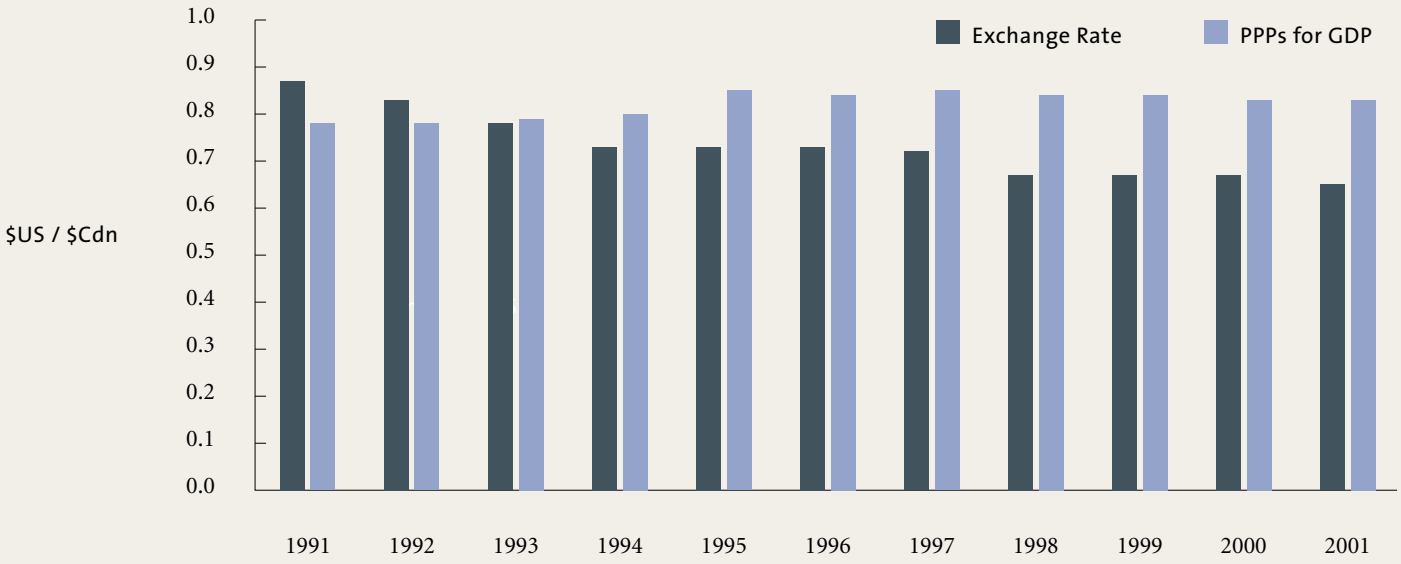
However, as we know, many real obstacles prevent this arbitrage from happening with many goods and services – food, housing, and cable television to name a few. So it is important to recognize that, while the price of the bicycle in Windsor should rise to $150 Canadian or the Canadian dollar should rise, this does not happen quickly. Thus we need to adjust for the reality that the Canadian family can buy the bicycle for less than the US family, especially one living far from the Canadian border.

The Organization of Economic Cooperation and Development (OECD) calculates purchasing power parity or "PPP" indices for member countries each year by comparing the price of a standard basket of goods and services across the countries. Below we show the average exchange rate between the Canadian and US dollars and the OECD PPP index for the years we have used in this report. Note that when the Canadian dollar reached its most recent peak in 1991, it was over-valued versus purchasing power by 12 percent, but by 2001 it had reversed to being under-valued by 22 percent.

The use of PPP rather than the real exchange rate has its downside. Economic theory holds that PPP and the real exchange rate will converge over time. If Ontario's purchasing power falls to the value of the Canadian dollar in real exchange terms, then the analysis in this report overstates Ontario's performance and understates the prosperity gap. And we know that we cannot buy goods on vacation in the United States using PPP dollars. Nor can Ontario firms make US acquisitions or buy US machinery and equipment with PPP dollars. The sobering reality is that, at real exchange rates, Ontario would not rank ahead of Florida and $5905 behind the peer group median, but rather fall behind Florida and more than $15,000 behind the peer median.

So, even though most economists would agree that using PPP indices is the best way to compare standards of living across economies, it is important not to lose track of the potential for our purchasing power to experience downward pressure from the real exchange rate.

Foreign Exchange Rates versus PPP Rates



Source: Bank of Canada, OECD.


Productivity for
prosperity →

Productivity for prosperity

Improving productivity is the key to closing our prosperity gap

In carrying out our mandate "to measure and monitor Ontario's productivity, competitiveness, and economic progress compared to other provinces and US states," the Task Force has conducted intensive analyses to develop new insights into the explanations of the differences in performance. In this chapter, we argue that Gross Domestic Product (GDP) per capita is the key measure of economic progress, review the elements that drive its growth, and show that strengthening productivity has the most potential for improving our standard of living.

GDP per capita is the best measure of economic progress and prosperity.

We concur with most economic observers that GDP per capita is the best measure of how an economy is performing over time and against its peer group. GDP per capita measures the output of an economy, or the "value added." We can think of this as the value created in the conversion of the province's natural, labour, and capital resources into products and services that consumers buy here and around the world.

GDP captures costs of inputs and value of outputs. To the extent that we offer better or more innovative products and services that command higher prices, our GDP increases. Similarly, to the extent that we can generate increasing demand for attractively priced products by using our inputs more productively, our GDP increases.

Another important reason for choosing GDP per capita as our measure of prosperity is that it allows us to benchmark our progress against most other jurisdictions in North America and around the world. It is the most commonly reported statistic at national and regional levels. Some observers prefer other measures of prosperity such as National Income, Personal Income, or Personal Disposable Income. Given that GDP correlates very closely with these measures and is generally accepted around the world, we chose GDP per capita as our measure of economic prosperity.

Exhibit 5: Task Force assessed elements of GDP per capita

	Profile		Utilitization		Intensity		Productivity
GDP Per Capita =	Potential labour force / Population	X	Jobs / Potential labour force	X	Hours Worked / Jobs	X	GDP / Hours Worked
			• Participation • Employment				• Cluster mix • Cluster content • Urbanization • Effectiveness

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

Four elements drive GDP per capita.

We have shown how Ontario lags its peer group in North America and how our prosperity gap has grown over the last two decades. To understand the reasons for this performance trend, we have built on the framework developed by John Baldwin and others at Statistics Canada to disaggregate GDP per capita into measurable elements (Exhibit 5):

- **Profile –** the proportion of our total population who are of age to contribute to our economic performance

- **Utilization –** the proportion of working-aged population who actually look for and find employment

- **Intensity –** the amount of time those who do work are actually working

- **Productivity –** the success in translating working hours into products and services of value to customers in Ontario and around the world.[1]

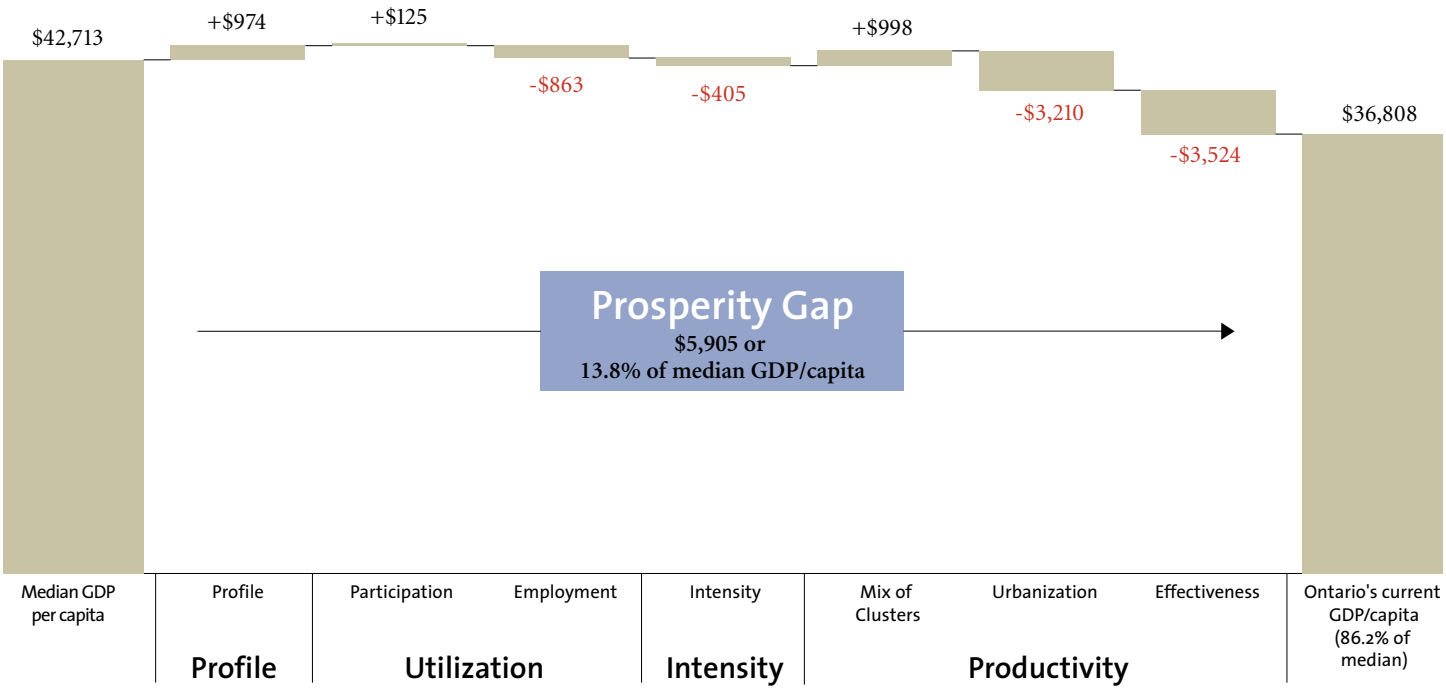
To gain further insight into these elements, we have sub-divided two of them further.

We examine two sub-elements of utilization – the rate at which working aged Ontarians participate in the labour force by being employed or seeking employment, and the proportion of labour force participants who are successful in finding employment.

We examine four sub-elements of productivity – the mix of our industries into traded clusters, local industries, and natural resources; the sub-industries that make up our industry clusters; the degree to which our population lives in urban centres; and the effectiveness with which we generate value based on the platform created by all of the other sub-elements. Over time we expect that the list of the sub-elements of productivity will grow as our research further disaggregates the drivers of productivity.

We use this framework for measuring the elements of GDP per capita to gain insights into the factors contributing to our economic performance.

Exhibit 6: Productivity gap accounts for most of Ontario's prosperity gap



Source: Institute for Competitiveness and Prosperity

[1] In its Working Papers, the Institute for Competitiveness and Prosperity used the term "effectiveness" here. Based on comments received during the consultation process, we are using the term "productivity" as it is generally understood by the economic and broader communities to express the concept behind this element. The term effectiveness is maintained for the sub-element within productivity that had been referred to "other effectiveness drivers" in the Institute's Working Paper 2.

Productivity is the most powerful lever for enhancing Ontario's GDP per capita

The Institute's Working Papers identified raising productivity as the greatest opportunity for growth in our prosperity given our current economic performance. This conclusion was based on an exhaustive analysis of each of the following elements and sub-elements and their contribution to the economic performance of Ontario and its peer group (Exhibits 6 and 7).

Profile, utilization, and intensity have low potential to close the prosperity gap

The analysis in the Institute's Working Paper 2 showed that profile, utilization, and intensity are actually strengths of our economic performance or only moderate weaknesses. The impact of improvements in these elements will not likely be strong enough to close the gap given our current economic situation.

Our demographic profile is one of our economy's strengths The demographic analysis of Ontario and its peer group shows only a moderate gap from highest to lowest performance – with performance defined as the percentage of the population who were of working age, between 15 and 64 inclusive. The analysis in Working Paper 2 showed that Ontario's slightly better demographic profile results in a benefit of $974 per capita versus median performance.

Utilization is a minor part of our prosperity gap As discussed above, we divide utilization into the two sub-elements, participation and employment.

- Ontario's **participation** rate – the percentage of working-age Ontarians who choose to work – compares favourably with the median of the other 15 jurisdictions in our peer group. As with profile, this has a positive impact on our GDP per capita performance relative to our peer group. In GDP per capita terms, this advantage translates to $125. The analysis completed by the Institute indicates that efforts to improve our participation rate may have limited impact on closing our prosperity gap.

- Our **employment** rate is a weakness, but only a minor one. Results for the latest four-year period (1997-2000) indicate that Ontario's employment rate – the percentage of the labour force who are employed – is somewhat lower than median performance of the peer group,

Exhibit 7: Productivity gap accounts for Ontario's low ranking among peers

		PROFILE	UTILIZATION		INTENSITY	PRODUCTIVITY			PERFORMANCE LEAD OR GAP
	GDP per capita	Profile	Participation	Employment	Intensity*	Cluster mix	Urbanization	Effectiveness	
Massachusetts	$54,302	$164	$907	$794	-	$1,208	$5,383	$3,134	$11,590
New Jersey	$52,213	$0	$89	$58	-	$542	$1,108	$7,820	$9,500
New York	$50,960	$154	$3,571	$466	-	$348	$3,263	$8,827	$8,247
California	$48,034	$0	$119	$732	-	$382	$5,027	$763	$5,321
Illinois	$45,527	$207	$788	$51	-	$1,158	$1,071	$46	$2,814
Virginia	$44,676	$1,119	$62	$761	-	$210	$1,213	$1,445	$1,963
Georgia	$43,771	$1,159	$888	$208	-	$484	$4,069	$3,357	$1,059
Texas	$43,073	$65	$1,663	$192	-	$44	$1,096	$2,316	$360
Median	$42,713								
N. Carolina	$42,353	$630	$59	$557	-	$1,099	$4,834	$4,445	$360
Pennsylvania	$39,803	$1,113	$2,330	$48	-	$176	$176	$933	$2,910
Ohio	$39,715	$547	$579	$146	-	$44	$1,666	$307	$2,997
Michigan	$39,615	$180	$302	$213	-	$67	$182	$2,943	$3,097
Indiana	$38,246	$116	$1,362	$619	-	$142	$4,987	$36	$4,466
Ontario	$36,808	$974	$125	$863	$405	$998	$3,210	$3,524	$5,905
Florida	$35,742	$1,697	$2,524	$158	-	$1,210	$3,450	$5,148	$6,970
Quebec	$30,313	$1,356	$1,602	$1,730	$333	$123	$4,939	$5,274	$12,400

* Comparable data not available for individual US states
Source: Statistics Canada; Bureau of Economic Analysis; Institute for Competitiveness and Prosperity

although this gap has been closing. Based on this four-year period, the underperformance in employment represents $863 of the prosperity gap.

Taken together the two utilization sub-elements account for a small proportion of our prosperity gap.

Intensity does not appear to be an important contributor to the gap This element, which measures hours worked by the average employed person, presents comparability problems between Canadian provinces and US states. At the national level, Canadians worked fewer hours than Americans in nearly every year since 1981. Results for the two countries are converging, as intensity in the US is in slight decline while in Canada it is flat. If Ontario's actual intensity were the same as Canada's and the US peer group's average were the same as the US average, the intensity under-performance would represent $405 of the prosperity gap. In our work going forward, we will seek to get data at the peer-group level.

Productivity is the key to closing our prosperity gap

Productivity is the element that presents the major opportunity to close Ontario's prosperity gap. We discuss the four sub-elements of productivity and their impact on performance individually.

Our mix of clusters improves our productivity Work done by Michael Porter and the Harvard-based Institute for Strategy and Competitiveness has established the importance of clusters of traded industries to an economy's productivity and the wages earned in it. Ontario's Institute for Competitiveness and Prosperity has adapted their work to the Canadian context and has been able to show the importance of clusters of traded industries in Ontario and Quebec[2].

The Institute's assessment of the impact of Ontario's industry mix shows that, in fact, we have an attractive mix of industries. The current mix raises our average wages above what would be expected if our mix were the same as that in our peer group. This derives from our strength in automotive, business services, financial services, metal manufacturing, and other traded clusters. Based on the relationship between wages and productivity, this translates to a GDP per capita advantage of $998 from our industry mix.

It is unclear whether the content of our clusters is an advantage or disadvantage As discussed in the Institute's Working Paper 1, Porter's Cluster Mapping Project also identified sub-clusters that make up each cluster of traded industries[3]. One of the issues being discussed by business analysts and economists is "hollowing out." Some observers believe that Ontario is losing the high value-added component of its industries, as head offices and decision makers relocate outside of Canada. At this point we have performed a sub-cluster analysis of the content of 24 of the 41 clusters of traded industries for Ontario against five of the peer group states – California, Georgia, Illinois, Massachusetts, and Michigan. This initial analysis shows that relative to these states Ontario has a more favourable mix of sub-clusters.

In summary, this preliminary work found that:

- For half the 24 clusters analyzed, Ontario had a superior mix of sub-clusters, as represented by average US wages; in the other half, Ontario's mix was inferior
- The cluster with the most superior mix was financial services with a 13 percent better mix, driven largely by the proportion of our cluster in the high-wage securities brokers sub-cluster
- The cluster with the most inferior sub-cluster mix was communications equipment with an 11 percent worse mix, because of our higher weight in the relatively low-wage components sub-cluster and lower weight in the high-wage equipment sub-cluster
- The net effect of the sub-cluster mix across the 24 clusters is that wages in Ontario are 5.1 percent higher than would be expected if our sub-cluster mix matched that of the five peer group states. Given the percentage of Ontario employment in traded clusters and the relationship between wages and productivity, this translates to a 1.6 percent productivity advantage which in turn translates to $606 in GDP per capita. In other words, our preliminary analysis indicates that the content of our clusters is a strength of Ontario's economy.

We have not included these results in the assessment of our prosperity gap. The next phase of our work will explore the content of Ontario's clusters more broadly.

Our low urbanization is part of our productivity weakness City regions of reasonable size are increasingly important drivers of economic activity. Three factors interact to improve productivity in urban areas:

- **Network effects drive innovation.** Close proximity of people and firms increases the frequency and quality of social and economic interactions, which spur innovation. This innovation strengthens and

[2] Institute for Competitiveness and Prosperity, A View of Ontario: Ontario's Clusters of Innovation, April 2002, pp 18-20
[3] *Ibid.*, p 19, pp 35-43

promotes the growth of the cluster, which draws more firms and people, which produces greater interaction, and so on.

- **Scale reduces unit costs.** Unit costs fall as the local markets grow in size. With a strong cost position from a larger local urban base, firms can supply other cities and regions cost effectively.

- **"Thick" labour markets benefit workers and firms.** Cities have a greater concentration and variety of skilled personnel. Firms locate in urban areas to draw on diversified pools of skilled labour. Likewise, individuals have a form of "labour market insurance" when they live in a city where there is more than a single employer (Glaeser, 2000).

In Exhibit 8 we map productivity of the 16 jurisdictions against the percentage of their population living in city areas of greater than 100,000 people. For Ontario it includes our ten largest cities ranging in size from Toronto to Thunder Bay.

The exhibit gives us four important insights.

- There appears to be a positive correlation between degree of urbanization and productivity. The analysis indicates that 44 percent of the variance in productivity between jurisdictions is related to their degree of urbanization.

- The correlation is even stronger when the two outliers, Florida and New York, are excluded. In the case of Florida, its status as a retirement state causes its productivity to be disproportionately low. In the case of New York, its superior economic performance is dominated by the beneficial impact of the New York City "megalopolis" – a single huge city that accounts for half the state's population.

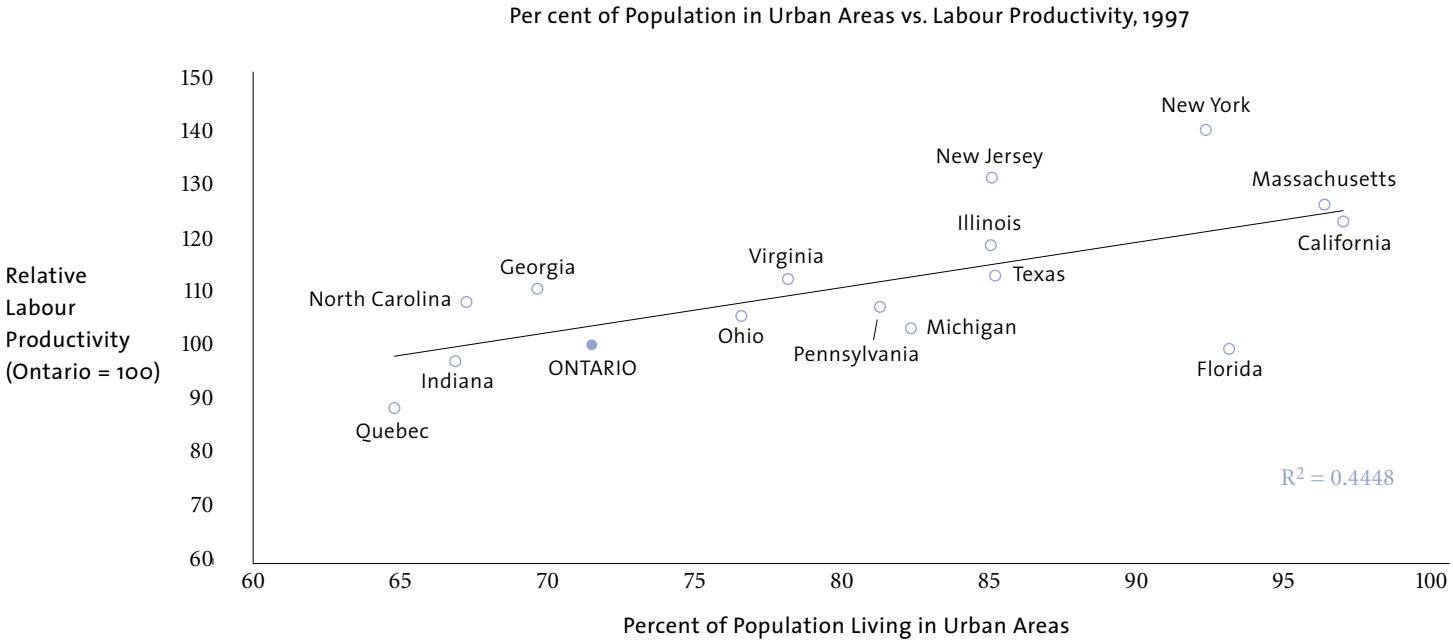
- Ontario is significantly less urban than most other jurisdictions, especially the highly productive states of Massachusetts, California, and New York.

- Georgia and North Carolina have a similar degree of urbanization as Ontario, but their productivity is about 10 percent higher than Ontario's.

If Ontario's degree of urbanization were equal to the median of the 16 jurisdictions, we would expect our productivity to be higher, which in turn would translate into higher GDP per capita. With respect to the prosperity gap, the analysis indicates that low urbanization, through its negative impact on productivity, accounts for $3,210 of the gap.

The remaining prosperity gap of $3,524 relates to lower effectiveness We have been able to account for profile and utilization and estimate that intensity has limited

Exhibit 8: Productivity is highly correlated with urbanization



Source: Letourneau, R. (2000). "A Regional Perspective on the Canada-US Standard of Living Comparison." Occasional Paper No. 22. Ottawa: Industry Canada
Statistics Canada, Census 2001; US Census Bureau; Census 2000; Institute for Competitiveness and Prosperity

impact. We have also accounted for some parts of productivity – cluster mix and urbanization. What remains therefore is related to productivity on the basis of like-to-like urbanization and cluster mix. In sum, Ontario is less effective than our peer group in converting our natural, physical, and human resources into goods and services. On an ongoing basis, we will identify other specific contributors to our productivity weakness.

Productivity matters

The importance of productivity to economic progress is a major item on our country's economic agenda. For our part, we have identified its importance to Ontario and have concluded that it is the element with the most leverage for reducing our prosperity gap.

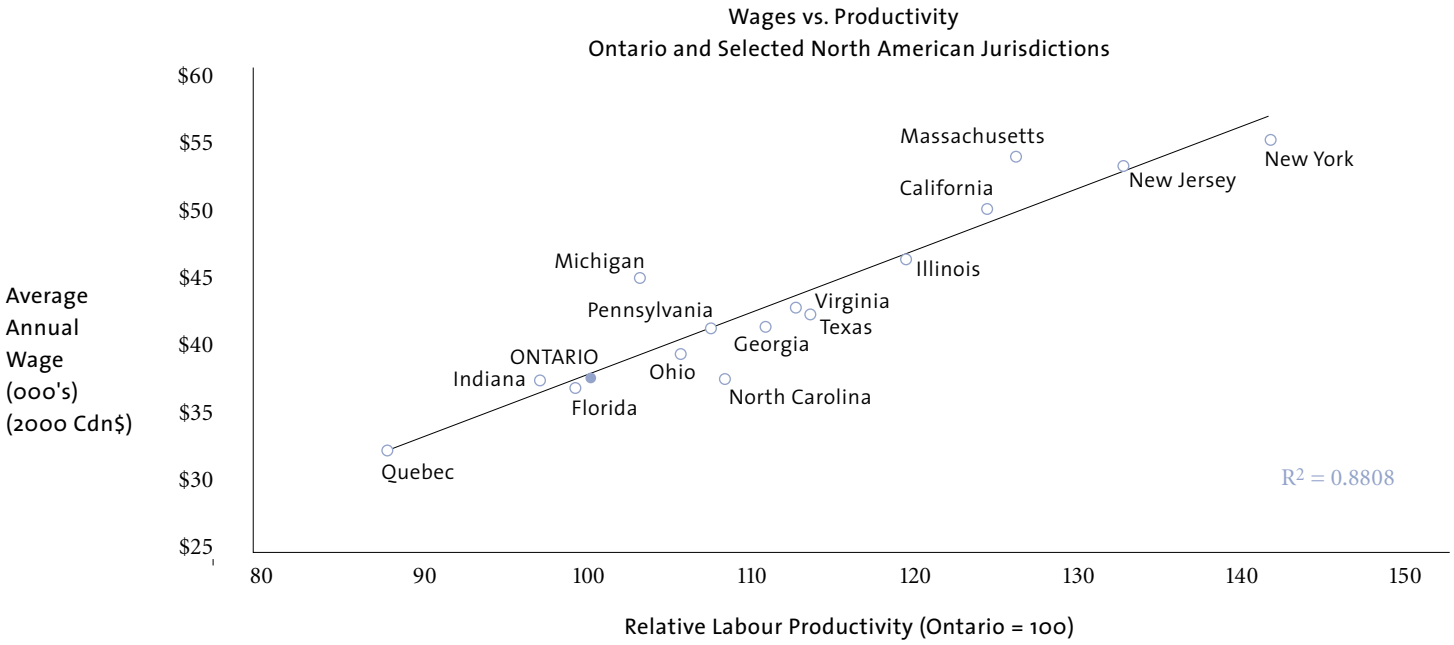
Productivity matters because for Ontario it holds promise of the greatest leverage for higher GDP per capita. Changing our profile would be a long-term process, since we are already above the peer average, and most projections show that the proportion of working aged people will decline. The upside from utilization is limited, as we are ahead of or approaching the results being achieved by our peer group in participation and employment. Increasing intensity to close the prosperity gap means working harder and longer. We would argue that we want the economy to afford us more leisure time as appears to be happening in the United States.

Only productivity can grow indefinitely. Through continuous innovation and upgrading we can generate more output from our resources. This requires ongoing improvement in our attitudes towards innovation and competitiveness, our investment in skills and physical assets, our motivations to work and hire, and our structures of markets and institutions.

At a more practical level, productivity matters because it drives wages. The US peer group achieves higher productivity and this results in higher wages (Exhibit 9). For Ontario, a 10 percent increase in productivity would be expected to increase wages by 12 percent.

The clear message from our work is that closing the productivity gap is the best pathway to higher prosperity in Ontario. The next sections identify the most promising opportunities to start on the journey. ■

Exhibit 9: Productivity correlates closely with wages



Source: Letourneau, R. (2000). "A Regional Perspective on the Canada-US Standard of Living Comparison." Occasional Paper No. 22. Ottawa: Industry Canada
Statistics Canada, Census 2001; U.S. Census Bureau; Census 2000; Institute for Competitiveness and Prosperity

AIMS for
opportunities →

AIMS for opportunities

An invigorating environment of attitudes, investments, motivations, and structures will create opportunities to strengthen productivity

Ontario's capability for strengthening productivity is driven by its capacity for innovation and upgrading. This capacity is built on an integrated set of four factors:

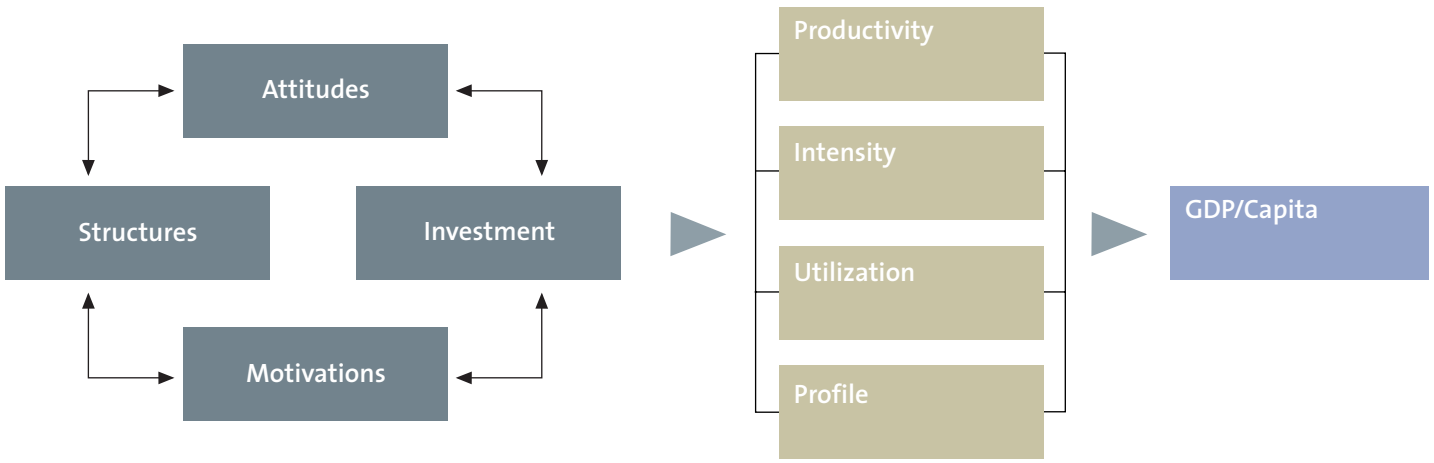
- **Attitudes** towards competitiveness, growth, and global excellence
- **Investments** in education, machinery and equipment, research and development, and commercialization
- **Motivations** for hiring, working, and upgrading as a result of tax policies and government policies and programs
- **Structures** of markets and institutions that encourage and assist upgrading and innovation

We believe that these factors interact to drive an economy's capacity for innovation and upgrading, which is the platform for productivity and GDP per capita growth. Our research identifies significant opportunities across the factors.

Attitudes that encourage competitiveness and global excellence are a critical platform for action

Success in any field of endeavour is influenced by attitudes[4] – the loftiness of

Exhibit 10: AIMS builds capacity for innovation and upgrading



Source: Institute for Competitiveness and Prosperity

aspirations, the self confidence and desire to succeed, the entrepreneurial spirit, and the willingness to embrace creativity.

Ontario individuals and businesses should aspire to be globally competitive

Aspirations have practical implications for business plans and strategies. Lofty aspirations involve competing successfully on a global scale – even if it means serving a global niche rather than a broad local or regional market. Companies like Research in Motion have set out to win in the global arena, not just succeeding in Waterloo or Ontario or Canada. Four Seasons, not content to be a generalist just in Ontario or in Canada, has established a leading position globally within a luxury hotel niche

We think such cases are not common enough. Too many Ontario business leaders are satisfied with a comfortable position in our domestic market. We believe they stop one step short of the aspiration level required to succeed in the modern global economy, which is international competitiveness. Further research is required to confirm and quantify the aspiration shortfall.

Our business leaders must accept – even relish – competition to energize innovation and upgrading

An important part of Michael Porter's work is the degree of rivalry between firms in the same industry, and we think attitudes towards competition are a critical part of Ontario's capacity for upgrading and innovation. As with aspirations, we are seeking measures of attitudes in this area to determine the nature of the challenge we have here in Ontario relative to our peer group.

Entrepreneurial activity must be vibrant to push the frontiers of innovation

Recent studies by the US-based Kauffman Center for Entrepreneurial Leadership establish a clear relationship between entrepreneurship and economic growth. They also point to the importance of variations in entrepreneurship activity level by attitudes and values toward this type of economic activity.

The determinants of these variations are multiple and complex. However, some of the dynamics that account for these variations include values and attitudes. Individual motivation to pursue entrepreneurial ventures reflects an underlying belief about the social acceptability of entrepreneurship and business generally. This acceptability is measured, in part, by the portion of adults in each country:

- who know entrepreneurs;
- who believe that there is respect in the community for those starting new firms;
- for whom fear of failure does not act as a deterrent to starting a new firm;
- who believe that society celebrates winners rather than resents entrepreneurs who become wealthy.

The Task Force is exploring how the linkages between attitudes towards entrepreneurship and GDP differ in Ontario and in our peer group and the overall impact of the variation.

Creativity is an important component of attitudes

Professor Richard Florida of Carnegie Mellon University has discovered that a discernable group of highly creative people – the "creative class" – is now the main determinant of a region's economic growth and prosperity. This group gravitates to cities that are diverse, open to people of different backgrounds and orientations, and embrace vibrant artistic communities. He has developed measures to rank US cities according to their appeal to the creative class. San Francisco, Austin, and Boston fare well on this index – all cities with thriving knowledge-based economies and cultural scenes.

The Institute's work with Professor Florida, the University of Toronto's Meric Gertler, and Ontario's Ministry of Enterprise, Opportunity and Innovation indicates that Ontario nurtures and benefits generally from a strong creative class. Florida compared two key components of the creative class: diversity as represented by the proportion of a city's population born outside the country, and the bohemian index as represented by the percentage of workers in artistic jobs such as artists and writers.[5]

Ontario's cities generally rank well on these creativity indices when compared to similar-sized cities in the US. However the results vary by city size. Our biggest city, Toronto, has one of North America's strongest creative classes ranking behind only Los Angeles, New York, and Vancouver on the bohemian index. Our next biggest city, Ottawa-Hull, is in the top quartile in diversity and just below top quartile in the bohemian index. For other cities, most rank high on the diversity measure, but results vary for the bohemian index. Kitchener and London rank in the top quartile in North American cities of comparable size. Hamilton, St. Catharines-Niagara, and Oshawa are closer to the middle of the pack. Windsor, Thunder Bay, and Sudbury are below average in comparison to cities of similar size.

Overall, Ontario – especially Toronto – has the creative class to compete with our peer group in the US. The challenge we face is to ensure that we are building on this strength where it exists and that we are identifying practical improvement opportunities for our smaller cities to enable them to compete in attracting and retaining knowledgeable, creative workers.

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4 Bandura, A. *Self-efficacy: the Exercise of Control*, W.H. Freeman & Company, New York, 1997

5 Complete results of this work will be available on the Institute's Web site.

In summary, the Task Force is confident that Ontario has the creative class necessary to compete against our North American peer group and our diversity should be a strength. However, the initial evidence points to a problem with aspirations that fall a level short of those required for Ontario to perform on a par with its peers. The Task Force will be looking in its next phase of research to determine whether or not our attitudes hold back our prosperity through lower than optimal aspirations, attitudes toward competition, and value placed on entrepreneurial activity.

More advanced **investment** in higher education and machinery and equipment are needed to support innovation and upgrading

Investments in our people and in our productive capital are critical to our prosperity. Our research indicates that we are behind our peer group – and quite dramatically in some areas – in the investments we are making for the future.

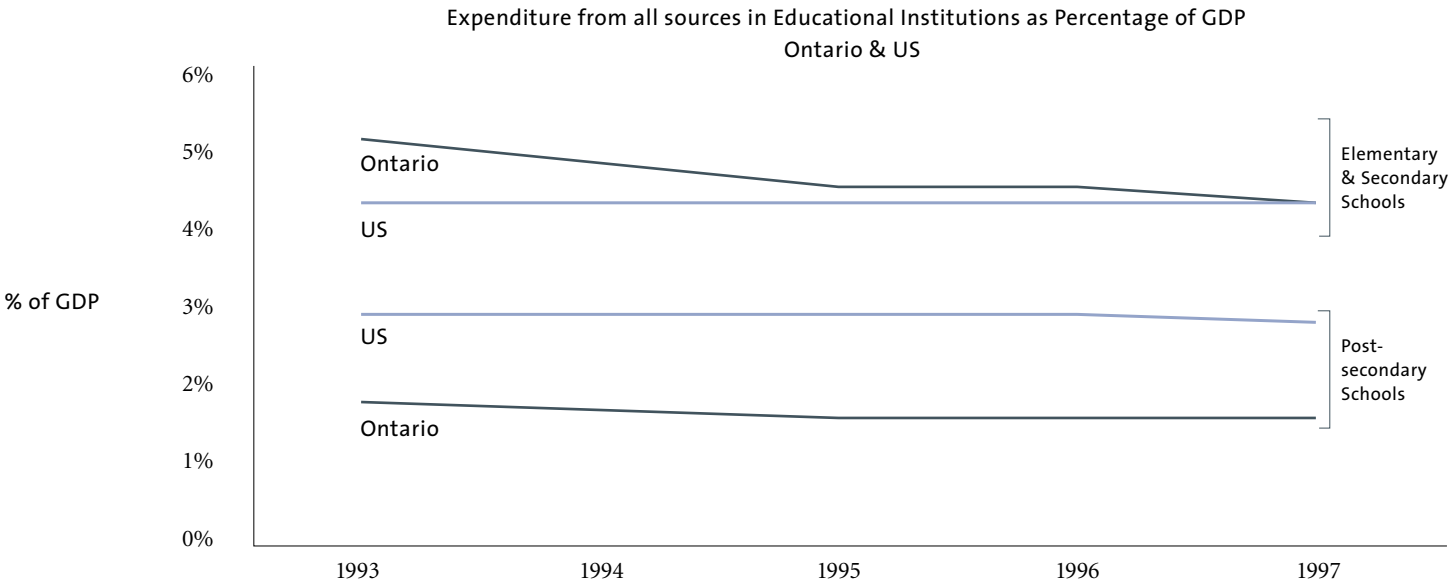
Post-secondary investment lags peers

Investment in education at all levels is important to productivity and economic progress. It is also important to consider investment broadly – the investment of individuals in tuition and donations, the investment of firms in donations and partnerships, and the investments of governments in operating, research, and capital funding.

For the individual, the returns from education are well documented – the best single predictor of personal income is level of education. And since personal income and productivity are closely correlated, education drives productivity. For businesses, the availability of skilled workers, researchers, and managers is a critical benefit of post-secondary education. For society as a whole, the ideas that spill out of universities improve and create products, services, and processes and lead to new companies and whole new industries. Taken together these benefits from education translate into higher productivity and prosperity. We recognize too, however, that investment dollars do not necessarily translate directly into high-quality outcomes; future work will attempt to explore outcomes further.

Education is a multi-step process, involving primary, secondary, college, university undergraduate (bachelor's) and graduate (master's or Ph D) levels. The question for Ontario is how far through this process its residents progress, both individually and in aggregate.

Exhibit 11: Ontario lags US in post-secondary education investments



Note: U.S. data for 1997-8 are preliminary data for public elementary and secondary schools and estimates for post secondary schools.

Sources: Statistics Canada, Education in Canada 2000, CANSIM II (GDP); U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics, 2001, U.S. Bureau of Economic Analysis (GDP); Institute for Competitiveness and Prosperity.

In primary and secondary education, Ontario has a proud tradition of investing heavily in a broad and deep system. In fact, including spending from all sources, Ontario has historically out-invested the United States in primary and secondary education as a percentage of GDP (Exhibit 11).[6] However, Ontario's historic lead in investment in primary and secondary education was fully eroded by 1997-98. Today, that investment may even be below US levels.

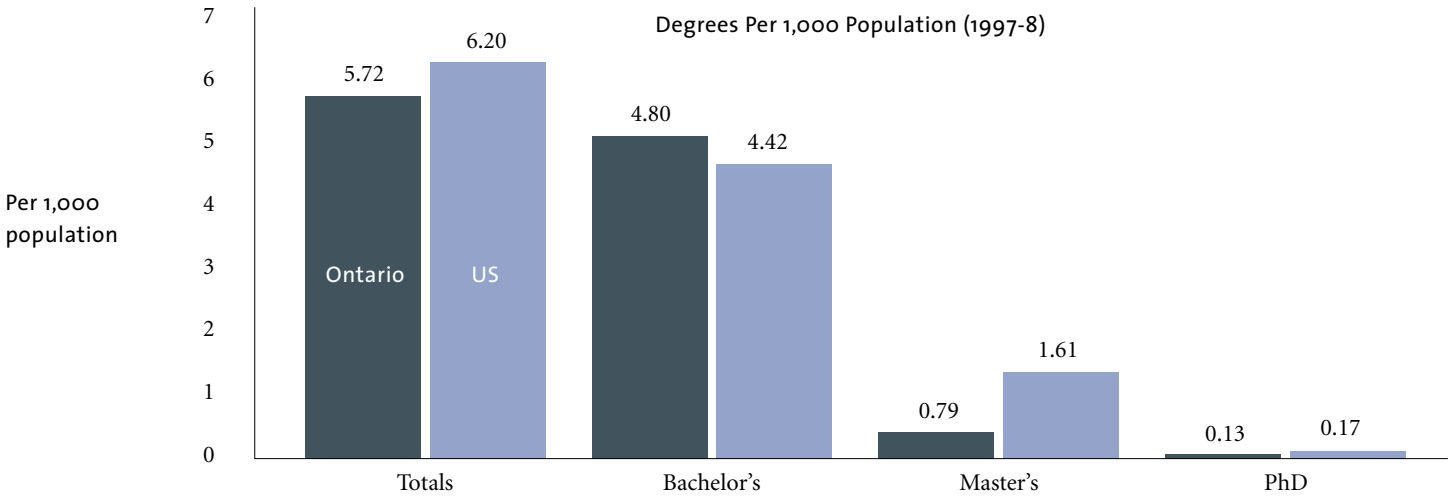
At the college level of post-secondary education, the data are less comparable and clear, but they suggest that Ontario invests competitively in the college system. For example, in 1997-98, Ontario invested $8,846 in operating expenditures per student in community colleges[7] and the US $8,575 – giving Ontario a 3 percent lead in investment at the college level. On a per capita basis, total operating expenditures in Ontario's colleges were $119 annually through the 1990-96 period, while in the US they were $115.

At the university level, the pattern begins to change, and investment per student dips dramatically below US levels. While Ontario leads slightly in number of bachelor's degrees conferred per 1,000 population (Exhibit 12), the US leads dramatically at the master's level. Our US peer group continues the investment farther along the higher education spectrum than does Ontario, especially at the level of "terminal master's" – the final degree for the vast majority of its holders before they enter the economy to enhance productivity. The US also out-produces Ontario in conferring PhDs, though by a substantially lower margin than at the master's level.

In addition, the US investment per student in universities dramatically outpaces Ontario. The US out-invests Ontario by almost 2 to 1 in spending on higher education as percentage of GDP (Exhibit 11). Since GDP is considerably higher in the US, spending on colleges per student is higher in Ontario than in the US, and since the US produces only 9 percent more university graduates than Canada, it is easy to see that spending per university student is much higher in the US than in Canada. The difference is approximately $12,500 per student – $27, 819 in the US versus $15,315 in Ontario (1995-96 data).

Another major difference in the post-secondary educational strategy of Ontario and its peer group is in the composition of the subject areas studied by the students. The single most striking difference is in the

Exhibit 12: Ontario trails the US in master's degrees conferred



Sources: Statistics Canada (2002) Educational databases, data commissioned by the Institute for Competitiveness & Prosperity; CANSIM II Table 051-001, (population); U.S. Department of Education, National Center for Educational Statistics, Digest of Education Statistics, 2001, Tables 255-7; U.S. Census Bureau, Census 2000; Institute for Competitiveness and Prosperity.

[6] State-by-state data on educational spending is often not up-to-date and in some cases we can only make comparisons between Ontario and the US as a whole. However, where we have been able to compare the peer group of states to the US as a whole in education spending, we find the differences are not significant.

[7] Here we use the Statistics Canada definition, "community colleges...technical institutes, and similar establishments providing technological training in specialized fields." For the US, the definition by the Department of Education, (NCES) is, "an institution legally authorized to offer ... at least a two year program of college-level studies which terminates in an associate degree or is principally creditable towards a baccalaureate degree."

level of investment in business degrees (Exhibit 13). Ontario matches the US in degrees per thousand population in science and technology and out-performs the US across the board in all other disciplines combined – with one exception – business education. In this area, the US produces almost two times the graduates. That investment alone accounts for the difference in degrees conferred.

In total, the pattern of investing across the spectrum of post-secondary education has resulted in substantially lower investment in post-secondary education by Ontario than by the US and our peer group (Exhibit 14). The gap is dramatic, and it is not closing – in fact, if anything, it is widening.

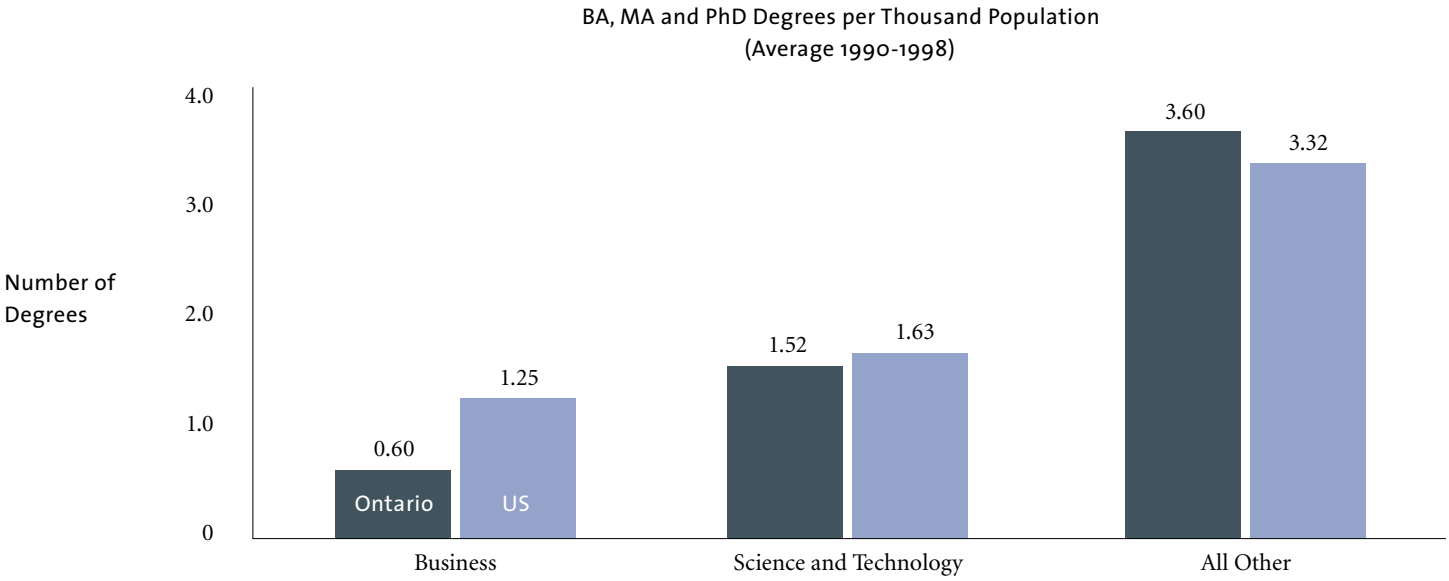
This is a problem for Ontario because of the important relationship between post-secondary education and productivity and with urbanization. Work done for the Institute by Professor Daniel Trefler[8] at the University of Toronto, who is also a Task Force member, shows that in Ontario and our peer group:

- **Cities attract more educated workers** – the higher levels of education and experience of people living in cites of more than 100,000 population account for some of the relationship between the degree of urbanization and productivity[9] discussed earlier in this report

- **True synergies exist when education and urbanization increase** – productivity increases from post-secondary education are more pronounced in cities over 100,000 population than in other regions, especially with respect to individuals with post-graduate degrees.

In our view, these results point to a relationship between Ontario's lower investment in post-secondary education and our prosperity gap versus our US peers. An assessment of investment in post-secondary education by each jurisdiction in our peer group during the first half of the 1990s and its 2000 GDP per capita indicates a positive correlation between the two. The question of cause-and-effect is complex. Do governments, businesses, and individuals in jurisdictions with greater prosperity spend more on post-secondary education because they can afford to or does greater investment

Exhibit 13: Ontario lags US in business degrees



Notes: US data based on the IPEDS "Completions" survey; Business includes "Business management and administrative services", "Marketing Operations/ Marketing and Distribution" and "Consumer and Personal Services". The Canadian data include "Business", "Commerce" and "Management".

Sources: Statistics Canada (2002) Educational databases, data commissioned by the Institute for Competitiveness & Prosperity; CANSIM II Table 051-001, (population); U.S. Census Bureau, Statistical Abstract of the United States 2001, Tables 287-8; U.S. Census Bureau, Census 2000; Institute for Competitiveness and Prosperity.

[8] Unpublished research conducted for the Institute by Daniel Trefler, Runjuan Liu, and Michael Baker, University of Toronto. Results will be available on the Institute's Web site
[9] Trefler uses per capita income as a proxy for productivity

yield higher prosperity? We think a virtuous circle exists – that is, higher investments in post-secondary education institutions generate greater prosperity, which in turn affords ongoing investment opportunities, which in turn maintain or increase prosperity, and so on.

The gap in investment by Ontarians versus the peer group appears, in part, to be a function of the historic educational strategy of the Ontario government, a key feature of which was to run a purely public system in post-secondary education. When Ontario spending (again from all sources) in public post-secondary education is compared to peer group spending on public education, there is only a 10 percent gap. However, the US has long had an educational strategy of allowing, if not encouraging, private post-secondary educational institutions. With the investments in these institutions included, the spending in the peer group rises to almost double that of Ontario.

Quite apart from public expenditures on post-secondary education and research, the startling difference between Canada and the United States is the much larger investments of individuals – students, their families, alumni, and friends – and foundations and corporations in the US and the diversity and quality of institutions the investment has spawned.

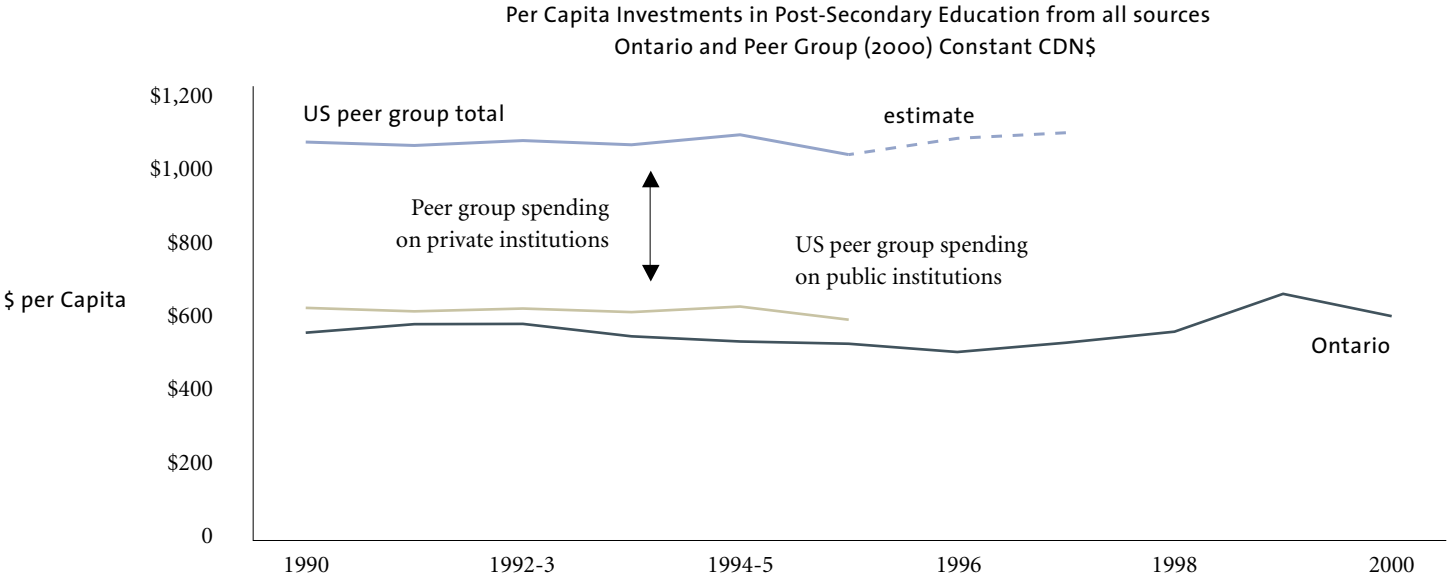
Clearly, the US strategy is not the only one to follow. However, to the extent that Ontario relies on the public post-secondary education system to assist in generating prosperity for the province, Ontarians cannot hope to keep up with the peer group by spending half the amount dedicated to post-secondary education by our peer regions.

Ontario also trails in productivity-enhancing capital investments

A second critical area of investment is in machinery and equipment. Research conducted by De Long and Summers[10] points to a positive and statistically significant relationship between investment in machinery and equipment (which includes software) and growth in GDP per worker – a measure of productivity.

Ontario's performance since 1981 has largely trailed US results, and the gap since the early 1990s has been substantial (Exhibit 15). As with education, Ontario firms have clearly been investing in machinery and equipment, but the data show that after Ontario firms spend their last dollar, their US counterparts keep spending another 10 to 15 percent on making their operations more competitive

Exhibit 14: Ontario lags peer-group investments in post-secondary education



Note: Ontario data is for all Universities and Colleges and is for total expenditure. The U.S data is calculated on the nearest equivalent, which is total current fund expenditure plus expenditure on additions to physical plant value.

Sources: Statistics Canada, Education in Canada 2000; CANSIM II Table 051-001, (population); U.S. Department of Education, National Center for Education Statistics, Digest of Education Statistics, 2001; U.S. Census Bureau, Census 2000; Institute for Competitiveness and Prosperity.

[10] J. Bradford De Long, Lawrence Summers, "Equipment Investment and Economic Growth" 1990, http://www.j-bradford-delong.net/pdf_files/QJE_Equipment.pdf

and efficient through more intense use of machinery and equipment.

In summary, an economy must invest to ensure future growth and prosperity. That investment comes at the expense of current consumption. Thus the balance between current consumption and future investment is critical. In the important areas of post-secondary education and investment in machinery and equipment, Ontario has underinvested dramatically compared with its peer jurisdictions. Without addressing this under-investment, it is unlikely that Ontario will be able to make progress in raising our peer ranking or in our quest for rising prosperity.

Motivations to work, hire, and invest for the future are hindered by high marginal tax rates

The biggest factor that directly influences the motivations of individuals and businesses in the Ontario economy is tax policy, and we focused our analysis in this report on the potential for breakthrough reform. Other policies and programs, such as regulatory burdens and the impact of the social safety net, will be the subject of future Task Force and Institute work.

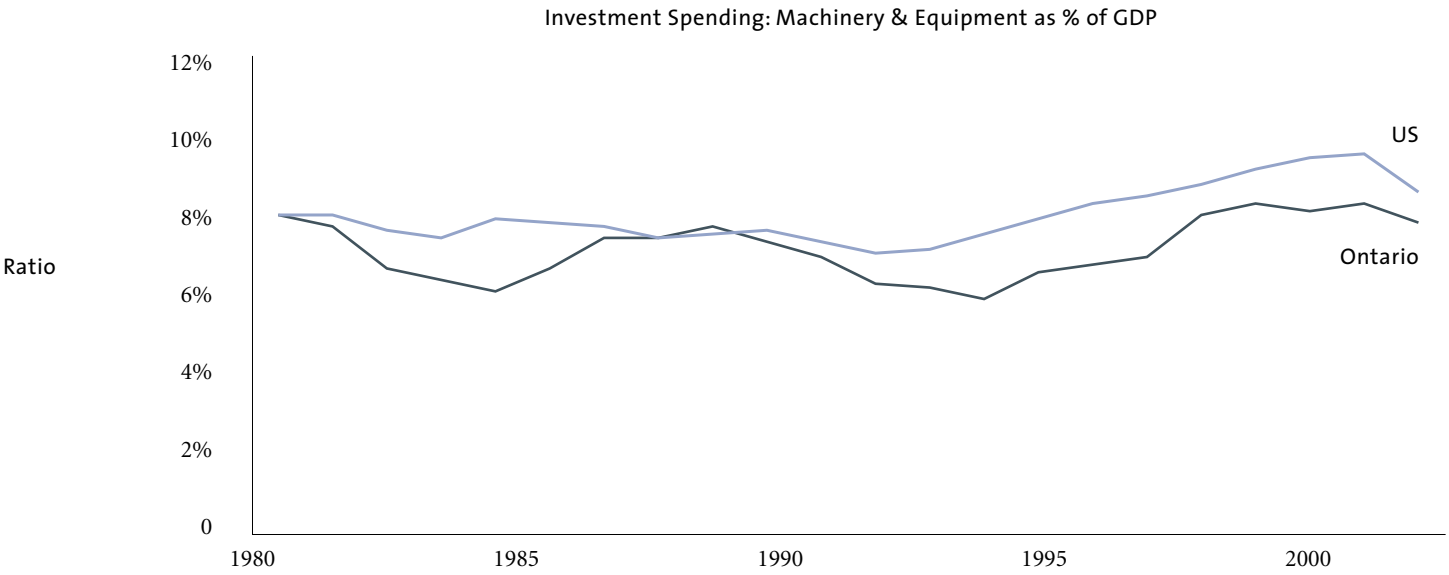
Economists and tax analysts generally agree on the importance of **marginal effective tax rates** on labour and capital:

- **Marginal taxes on labour** influence the willingness of people to decide to work versus not work, to work the extra hour, or to invest the incremental hour or dollar in upgrading their knowledge and skills to increase their own productivity and earn more in the future. Other things being equal, the higher the marginal taxes on labour, the lower the incentive to go one step further in working and investing for the future. In the extreme, the higher the taxes, the greater the incentive to opt out entirely, either into the underground economy or to a lower tax jurisdiction.

- **Marginal taxes on capital** influence the willingness of firms to go the extra step and invest the incremental dollar in capital such as machinery and equipment. In addition, they influence the decision by all types of investors – from venture capitalists and financial institutions to small business owners – to invest in Ontario or elsewhere.

Canadian tax expert Jack Mintz, who has developed a methodology for calculating marginal effective tax rates on labour and capital across industries, focuses on the marginal rate, because the rate on the last dollar most strongly influences the motivation for employees to work the extra hour and for firms to invest the next dollar of capital. The methodology captures the full range of taxes affecting the cost of doing

Exhibit 15: Ontario trails in its business capital investments



Source: Statistics Canada, CANSIM II Table 384-00002, National Accounts; U.S. Bureau of Economic Analysis, National Accounts data; Institute for Competitiveness and Prosperity.

business. On the labour side, it includes taxes – such as income taxes,payroll and sales taxes – paid by employees or employers. On the capital side, it captures income taxes, capital taxes, sales taxes on materials inputs, and other taxes. In addition, subsidies to individuals such as those for health care and education are netted out against taxes on labour and capital subsidies such as grants and tax credits for investment including R&D, and infrastructure subsidies are netted out against taxes on capital.[11]

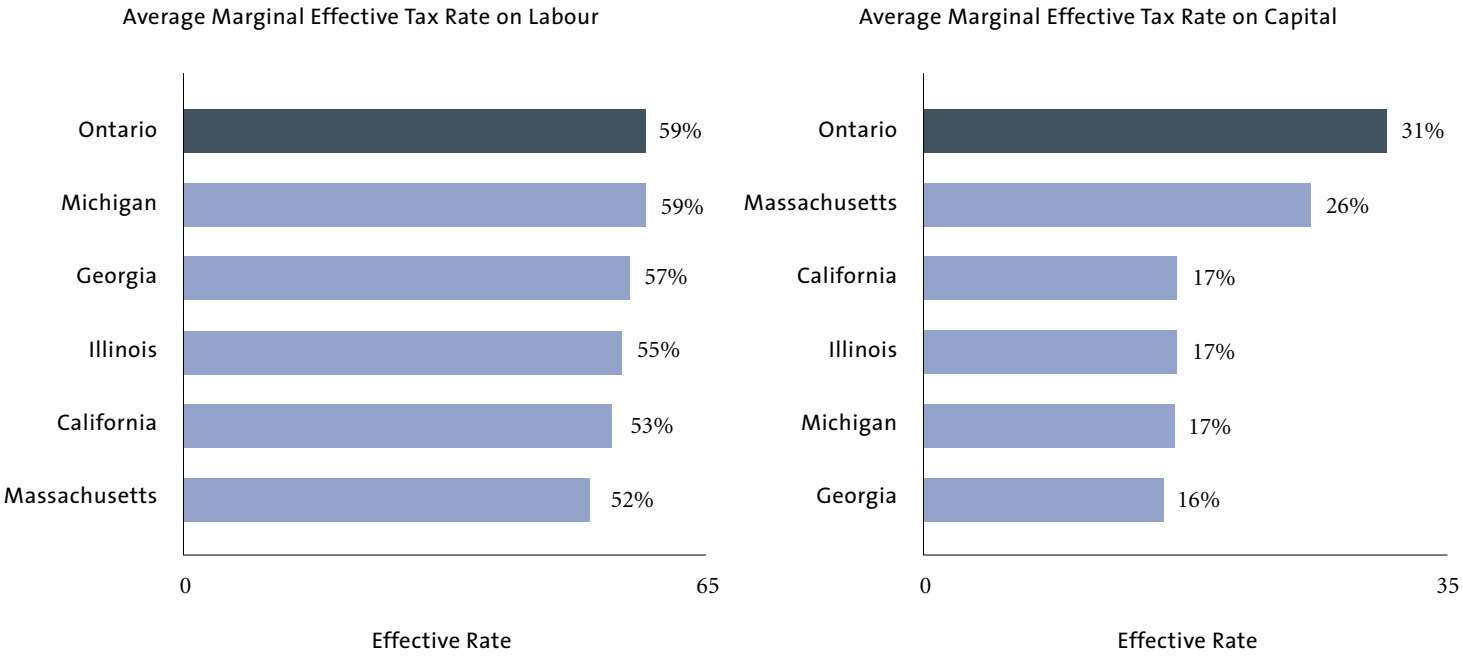
The Institute commissioned Mintz and Sergio Traviza, Associate in the International Tax Program at the University of Toronto, to conduct this analysis for Ontario and five states within the peer group – California, Georgia, Illinois, Massachusetts, and Michigan. Their results show that Ontario's marginal effective tax rates are significantly higher than the rates in these representative peer states.

This implies that employers and employees in Ontario pay a total of about $59 in labour taxes for every $100 that the employee receives – from $0 to $7 higher than in the states examined. Similarly, the marginal effective tax rate on capital is higher in Ontario. The analysis points to an average 13-point spread in the marginal effective tax rate on capital – adding to the return on capital required when comparing the performance of investments in Ontario and the peer groups.

When the taxes on labour and capital are combined into an effective tax rate on all costs, Ontario's overall disadvantage is 9 percent on all costs.

In summary, despite the significant efforts to lower tax rates by the Ontario and federal governments, Ontario taxes continue to be substantially higher than taxes in our peer jurisdictions. These higher marginal taxes reduce the motivations for individuals to work more hours and invest in upgrading their skills and productivity through training and education. These higher marginal taxes reduce the motivations for firms to invest to upgrade their competitiveness. Together, the high combined marginal tax rates on labour and capital reinforce the investment gap we have identified.

Exhibit 16: Marginal effective tax rates are higher in Ontario than in sample of peer group states



Note: Tax as a percentage of After Tax Labour Costs and Pre-Tax Capital Costs; all rates are net of subsidies such as healthcare, education, infrastructure, and R&D.

Source: Unpublished research by Jack Mintz and Sergio Traviza for the Institute for Competitiveness and Prosperity.

[11] For more details see the Institute's Working Paper 2 (pp 32-3) or Mintz J., Most Favored Nation, C.D. Howe Institute Policy Study No. 36 (Toronto, 2001)..

Attitudes, investments, and motivations require market and institutional **structures** that reinforce Ontario's competitiveness

Well-functioning market and institutional structures provide a critical context for our capacity to innovate and upgrade. We discuss each in turn.

Upgrading and innovation require healthy market structures, particularly vibrant clusters of traded industries

Successful clusters[12] are the results of four factors – two that create pressure for local firms to innovate and upgrade, and two that provide the necessary support:

- Pressure for innovating and upgrading comes from sophisticated and demanding customers whose **demand conditions** spur local firms to improve and anticipate the nature of demand elsewhere in the world

- Pressure is also provided by a **context for firm rivalry and strategy** that features vigorous local rivalry, causing local competitors to seek unique and better ways to meet customer demands

- Support for innovation and upgrading comes from an abundant local supply of **factor conditions**, including natural, human, and capital resources. Increasingly advanced factors, such as highly skilled labour and sophisticated research infrastructure, are important advantages.

- Support is also enhanced by the presence of abundant and high-quality **related and supporting industries**, such as suppliers with whom firms in the cluster can work to upgrade their product or service.

Our work has shown that Ontario has a healthy proportion of traded clusters and these clusters have attractive productivity potential. But, given our overall productivity lag, it appears that Ontario has not been able to capitalize fully on the potential from these clusters of traded industries.

To help explain this difficulty, the Task Force intends to assess the quality of our leading clusters. We will draw on the methodology currently being developed by the Institute for Competitiveness and Strategy at Harvard Business School for assessing the strength of clusters and for comparing performance across locales and industries.

Upgrading and innovation also require structures that meet the needs of both private and public interests

Specifically, Ontario needs to consider the balance of supporting structures:

- **Appropriate public/private shares of the economy** An initial assessment of the size of the public sector in our peer group jurisdictions indicates that some jurisdictions, such as Georgia, have achieved prosperity growth with a smaller share of the economy controlled by the public sector while others, such as Massachusetts, achieve have achieved prosperity with a larger public sector. The key is developing and nurturing public institutions that support innovation and upgrading throughout the economy. Our concern at this point is that Ontario suffers from the combination of below-average prosperity among our peers and a relatively high level of public expenditures. The need is to focus public expenditures on measures and structures that enhance productivity and prosperity, not necessarily to reduce them overall.

- **Urban governance structures that support economic growth** Analyses in both of the Institute's working papers and in this First Annual Report indicate the importance of healthy cities to our economy. We know that cities attract educated and skilled workers and that these individuals are more productive in urban settings. Thus the higher proportion of the population living in urban settings increases productivity. Work done by TD Bank Financial Group and others points to inadequacies in city governance and fiscal structures. We think this is an important issue, as all Ontarians will benefit if we are able to ensure healthy and vibrant cities. The Task Force can contribute to this debate by determining what lessons we can learn from the best approaches to urban governance structures within our peer group.

- **Institutional processes that reward upgrading and innovation** Finally, the Task Force will assess how well current institutional structures and processes support optimal intellectual property protection, technology transfer from research institutes and universities, and opportunities for greater diversity in areas traditionally reserved for public sector control, such as transportation and infrastructure. The key feature of our approach will be to determine what lessons can be learned from our peer group to strengthen our productivity and prosperity.

In summary, there is considerably more work and analysis to be done to understand fully the role of market and institutional structures in Ontario's prosperity. However, it is clear that we need vibrant and competitive clusters and exciting and well-functioning cities to improve our prosperity. Further work on these two subjects will be central to our work going forward.

Our conclusions to date in AIMS point to some recommendations for Ontarians; they also chart a course for our future work. ■

[12] The importance of clusters on local economies was identified by Harvard's Michael Porter, *The Competitive Advantage of Nations*, The Free Press 1990 and described in the Institute's Working Paper 1.

Actions for productivity and prosperity →

Actions for productivity and prosperity

Ontario should focus on a select number of upgrading and innovation initiatives to capture productivity improvement opportunities

In this final section, we present recommendations for strengthening our productivity and closing the prosperity gap and indicate our research agenda over the coming months. Note that this is the first Annual Report from the Task Force and that a significant portion of our work has been in developing our measurement framework and in identifying the size and source of our prosperity gap.

Summary of Current Position

Our analysis suggests that Ontario's attitudes, investments, motivations, and structures combine to produce a high standard of living, but one that falls short of the median of its North American peers. The positive news is that Ontario has a strong foundation for future economic prosperity. By world standards, it has a great endowment of human capital, including the creative class; a history of significant investment in primary, secondary, and undergraduate education; tax rates that are attractive by global standards; and reasonably sound market structures. However, the negative news is that Ontario appears not to have built dynamically on this foundation to compete with our most competitive and prosperous North American peers. It is as if Ontario has chosen to stop one step short, while our leading peers keep striding purposefully toward higher prosperity.

While Ontarians may have felt comfortable and secure in this approach, it has resulted in more of a decline in our relative prosperity than we may have ever guessed. Ontario has fallen from a rank of 11th in our peer group with GDP less than $1000 per capita below the median to 14th and almost $6000 per capita below the median – a major prosperity gap.

Ontarians must take bold initiatives, if we aspire to strengthen our prosperity and productivity and climb to a top-tier ranking within our peer group. We are proposing measures that we are confident will be the first steps as we embark on this journey.

Recommendations

Our research to date points to some high leverage **improvement opportunities** in four areas:

Heighten aspirations across Ontario

We recommend that Ontarians heighten aspirations. Ontario's aspirations are consistent with its 14th place and, if anything, its negative momentum. The first and probably most important change required is to set a higher standard for our economic progress – we want to be a leader not laggard within the peer group of most successful economies in the world.

For this to become a reality, all Ontarians have to raise their sights. Individuals must raise their aspirations for personal upgrading of their skills and capabilities through increased formal education and life-long training. Ontario firms must raise their aspirations from competing locally, provincially, or nationally to competing globally against the best in the world. Finally, Ontario governments at all levels must raise their aspirations to achieve an invigorating environment that encourages citizens and firms to upgrade and innovate and that compares favourably with the environments of leading peer jurisdictions. And we need to celebrate the winners who have set and met high aspirations. Without raised expectations, it is doubtful that Ontario can enhance its relative prosperity.

Increase productivity-enhancing investments for future prosperity

We recommend that all Ontario stakeholders increase the productivity-enhancing investments we are making for future prosperity and, in particular, strengthen the investment in post-secondary education. Our analysis has shown that compared to our peer jurisdictions, our investment in education attenuates dramatically with successive levels of education. In fact, Ontario invests dramatically less in university undergraduate and graduate education than the peer jurisdictions by any measure one can use. The problem of underinvestment is more broadly based than underfunding by governments. In aggregate, individuals, governments and firms in Ontario are investing in higher education at a level that will guarantee weak economic performance relative to the peer group for the foreseeable future.

For individuals, we recommend that they develop a commitment to life-long learning to enhance their own skills and update their capabilities. Nothing improves lifetime earnings as much as education. We also encourage graduates at every level to contribute more generously to their alma maters to help finance their ongoing development. Finally, we encourage current students to recognize that supporting the freezing of regulated tuitions, while attractive for them in the short-run, helps guarantee the long-run under-funding of higher education.

We encourage firms to continue partnerships with their employees to participate in ongoing formal training and education programs and to include educational institutions – especially the most dramatically under-funded undergraduate and graduate programs – in their charitable donations.

At the provincial government level, we recommend that a long-term strategy be developed to raise Ontarians' investments in post-secondary education. We encourage the Ontario government to recognize that, by historically maintaining a purely public system of university education and strictly regulating most tuition levels, it has been primarily responsible for producing an investment level in higher education that is half that of our peer competitors. A long-term strategy for higher education in the province should explore a sustainable approach to provincial funding, consider the role of tuition deregulation, and continue to foster the development of a diversity of post-secondary institutions. The strategy should ensure that the solutions take into account the role of individuals, firms, and other private organizations in improving our investments in higher education.

Finally, we recommend further study of the role of business education in the relative prosperity of the US peer group. The dramatically higher investment in business education by the world's most successful business jurisdictions appears to be more than coincidental. However, it is not clear what role the broader (more students) and deeper (higher investment per student) investment in business education plays in the dramatically greater economic success of Ontario's peers.

Strengthen motivations through tax reforms

We recommend that the provincial government, in collaboration with the federal government, explore ways to achieve breakthrough tax reform. The 9-point unfavourable differential in marginal tax rate on combined capital and labour compared with a representative sample of our peer jurisdictions is simply too great and negatively affects motivations of firms and individuals. Our analysis of our high-performing peers does not suggest that governments need to substantially shrink their revenues in total – several of the highest performing states have significantly higher revenues per person. However, our analysis points to the importance of ensuring that government spending promotes economic prosperity so that spending per person may be high, without excessive spending as a percentage of GDP. Historically, our government spending has not generated high prosperity, while the high marginal tax rates have reduced the motivations for work, investment, and high aspirations.

Strengthen market structures

We recommend that the Ontario government continue its work to explore ways to strengthen Ontario's cities. Our research has shown the importance of urban areas as attractors of talent and creativity and as engines of productivity and economic strength. Cities are receiving a lot of attention from many public and private groups. Ontario has to be in a leadership position as it is the most urbanized province. Much of the discussion centres on cities' access to fiscal resources. In this area the Task Force can only urge that, whatever solutions are considered, the overall level of taxation does not increase.

We recommend that the province ensure that its policies and programs are not inadvertently unduly slowing the natural growth and development of our cities in the pursuit of perceived equity or balance. Most of our citizens live in cities greater than 100,000 in population, and all Ontarians benefit from vibrant urban areas. At the city level, we encourage local governments and stakeholders to develop local plans and strategies that encourage the revitalization of their urban cores and draw on creative solutions for attracting and retaining knowledge workers.

We believe that these four initial recommendations will provide the greatest initial potential to enhance our economic prosperity. We believe that our future work will point to still other important areas for which the existing research and analysis do not yet provide clarity. In addition, we believe that our continued work will provide more specificity and clarity on these recommendations.

Future research agenda

In the coming year the Task Force is directing the Institute for Competitiveness and Prosperity to focus its research agenda on the following areas:

In the area of **attitudes**, research priorities will be aimed at measuring:

- Ontarians' aspirations with respect to global competitiveness
- the strength of entrepreneurship in Ontario versus its peer group
- the strength and growth of Ontario's creative class, building on the work already completed with Professors Florida and Gertler.

In the area of **investments** the Institute will:

- deepen our understanding of Ontario's trade-offs of current consumption for future investment versus its peer group and the impact of these trade-offs
- continue its work in measuring society-wide investment in post-secondary education and expanding its investigations into primary and secondary education
- develop a set of measures that capture outputs from our education and research investments including patents and spin-offs.

Research into **motivations** will focus on:

- the impact of Canada's and Ontario's regulatory processes on our competitiveness and productivity.

Within the **structure** component of AIMS we intend to:

- study the quality of Ontario's key clusters including rigorous testing of the "hollowing out" concern
- review best practices from peer group jurisdictions for urban governance structures
- review existing research into the optimal size of government and the strategy choices of leading peer jurisdictions, and assess implications for Ontario.

Our research will include continuing measurement of the prosperity gap as new data become available and as our consultation process leads to new insights. ■

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