Task Force on
Competitiveness, Productivity & Economic Progress

Realizing our prosperity potential →

Third Annual Report, November 2004

Task Force on Competitiveness,
Productivity and Economic Progress

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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 & 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 Third Annual Report are welcome and should be directed to the Institute for Competitiveness & Prosperity.

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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 Third Annual Report to the public of Ontario. In our deliberations over the past three years, we have come to realize that we Ontarians have the potential to strengthen Ontario's economy to be among the most prosperous in North America and the world.

In our First Annual Report, we identified a significant prosperity gap with our peer group of leading US states. Even though no jurisdiction outside North America is as prosperous as Ontario, we lag considerably behind our peers of comparable jurisdictions across North America. We determined that this prosperity gap was the result of lagging productivity. And we presented the AIMS framework for assessing our capacity for innovation and upgrading. Positive *attitudes* towards innovation and risk taking are an important starting point. These drive *investments* in human and physical capital. Equally important are the appropriate *motivations* that result from the level and mix of the tax burden. These all play out within market *structures* with a balance of specialized support and competitive pressure.

In our Second Annual Report we determined that Ontarians are not investing adequately to increase our productivity and prosperity. We found that Ontarians have the basics in place – we invest in the right things and almost to the same level as those in our peer group. But our investments stop short, whether for businesses, individuals, or governments. We concluded that our relatively high tax burden, especially on capital investments, contributes to our under investment. At the same time, we determined that Ontarians had solid attitudes towards competitiveness and prosperity and that, in fact, attitudes are not roadblocks to our prosperity.

In this year's report, we complete our analysis by assessing market structures. We find that our businesses are not benefiting from specialized support resources such as industry/university collaboration and specialized research and training. Nor are they benefiting from the competitive pressure to innovate that comes from capable rivals and sophisticated customers.

We conclude from our work that we have the potential to achieve prosperity that rivals our peer states, and we are proposing an ambitious set of recommendations for our province to realize that prosperity potential. All of us are stakeholders in Ontario's prosperity and each one of us can contribute to realizing our prosperity potential.

We gratefully acknowledge the research support from the Institute for Competitiveness & Prosperity and the funding support from the Ontario Ministry of Economic Development and Trade.

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

Ontarians have the potential to achieve prosperity that rivals our peers and we are proposing ambitious recommendations to realize that potential.

ONTARIO IS ONE OF THE MOST PROSPEROUS ECONOMIES IN THE WORLD. But we still lag the competitiveness and prosperity achieved by other leading North American jurisdictions. In our Second Annual Report last year, we noted that in 2001 Ontario stood 13th out of 16 jurisdictions in North America with a population of 6 million or more. In 2002 the gap closed to $2,280 and we ranked 11th out of 16. However, this gain was largely the result of poor economic performance in the US and in 2003 the gap widened to $3,061. With these latest data, we remain 13th out of 16. Our 2002 and 2003 GDP per capita results for the US peer states are estimates based on personal income per capita as US statistical agencies have been unable to release results at their usual time this year.

We have made progress in closing the prosperity gap largely because more Ontarians work longer hours today than in the past. We appear to have made little progress in closing the productivity gap. Ontarians continue to be less effective than our counterparts in the peer states in adding value to our endowment of natural, physical, and human resources.

This prosperity gap matters. To the extent that we are not realizing the full economic potential in our economy, individuals and families are less able to enjoy a high quality of life or invest in their own future; businesses are less able to invest in productivity enhancing capital; and governments are less able to fund social programs and investments for our future prosperity.

The prosperity gap can be closed. Historical information indicates that as recently as 1988, Ontario's GDP per capita was at the median of the peer jurisdictions. To reclaim our prosperity potential, stakeholders in Ontario's prosperity must begin to make adequate investments in human and physical capital. To achieve this we need to address issues of low motivations and inadequate market structures in our economy.

Despite positive attitudes towards business and competitiveness, Ontarians under invest in their future prosperity

TO HELP US IDENTIFY opportunities for innovation and upgrading the Task Force developed the AIMS framework – an integrated set of factors that work together to drive economic progress. The framework captures attitudes towards competitiveness, innovation, and risk taking; investments in human and physical capital; motivations for working and investing; and structures that inform attitudes, motivations and investments.

The Task Force is pleased that Ontarians' attitudes are a positive force for competitiveness and prosperity. Our research has led us to conclude that attitudinal differences between the public and business 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 peer state counterparts in how we view business and business leaders, risk and success, and competition and competitiveness. Where we had originally hypothesized that Ontarians' attitudes were a roadblock to prosperity, we now realize that they are a solid base on which we can build.

Yet despite this attitudinal strength, we are under investing relative to our peer group. We continue to under invest in our own human capital. Ontarians are less well educated than their US counterparts and this means lower productivity. Per capita and per student, Ontario governments, students, and donors under invest in primary and secondary education, in college education, and in university education. The gap widens with each advance in level of education. We estimate this under investment represents a lost potential to Ontarians of $907 per capita.

Our immigrants ought to represent an opportunity for closing our deficit in human capital as the immigrants we attract are more educated than native born Ontarians. Yet we have not invested enough in the processes to ensure they are more readily integrated into our economy and contributing to closing the prosperity gap.

We under invest in machinery, equipment, and software. Every year our businesses fail to keep pace with their US counterparts by about 10 percent in their investment in machinery, equipment, and software as a percentage of GDP. This under investment means our workers are not supported by the most innovative processes, unlike their US counterparts. We estimate this under investment costs Ontarians $808 per capita in lost GDP.

If attitudes are not a roadblock, why are we under investing? Our research indicates that the under investing is the results of de-motivating tax burdens and inadequate market and regulatory structures.

Tax burdens are de-motivating

WE HAVE BEEN MEASURING and monitoring marginal effective tax burdens in Ontario and the peer states. We have found a significant disadvantage in our tax burden relative to the peer states. Overall, our tax burden on costs is 1.9 times higher than the median rate in the peer states we analyzed. The tax burden on capital investment is even higher – at twice the rate borne by businesses in peer states, while tax burdens on labour are 1.8 times the median rates in peer states. Clearly, governments in Ontario need to find ways to reduce the tax burden, especially on capital investment. Addressing the issue of Ontario's tax burdens is a benefit to all Ontarians as even tax burdens on capital investment affect wages by reducing the productivity and earnings potential of workers. We have identified opportunities for further investigation in taxing smarter – both in taxing capital investment and labour.

Market structures are inadequate

IN THE PAST YEAR, our research focused on market structures. We concluded that Ontario has many of the basic elements in place for driving innovation and higher productivity in our clusters of traded industries. But our traded industries – the backbone of our economy – are under performing, delivering poorer results in productivity and innovation than many clusters in the peer states. Therefore, while our attitudes are consistent with aspirations for world-class productivity and prosperity, our clusters of traded industries are not as vibrant as those in the peer states.

We conclude that Ontario's traded clusters are not benefiting from market structures with adequate specialized support and competitive pressure. In the area of specialized support, our firms and industries come up short relative to their US counterparts in the specialized support they receive from university/industry collaboration, quality of management schools and scientific research and training services, and financial markets' sophistication. In the area of competitive pressure, our firms and industries are not benefiting from intense rivalry and sophisticated customer demand to the same extent as their counterparts in the peer states.

If the environment in which companies operate does not provide the specialized support and the intense pressure for innovating and upgrading, companies will have uninspired strategies and mediocre operations. Lower productivity and innovation will be the result.

All stakeholders have a role to play in realizing our prosperity potential

THE TASK FORCE CONCLUDES that Ontario's economy is one of the most vibrant in the world; yet we still have a worrisome prosperity gap relative to the elite of the global leaders. Our prosperity gap has closed somewhat over the past three years, but more as a result of weakness in the peer states than Ontario's strength. And our productivity gap persists.

We caution Ontarians that if we do not act to close the prosperity gap, our economic environment may get caught in a vicious circle that could spiral us downward from our excellent economic situation. We need to avoid a vicious circle in which stakeholders in Ontario's prosperity continue to under invest and productivity suffers further. If this were to persist, we would fall further behind our peer states, be unable to afford the investments and fall further behind, and so on until our businesses, individuals, and governments would be forced to make really tough choices that noticeably restrict our standard of living.

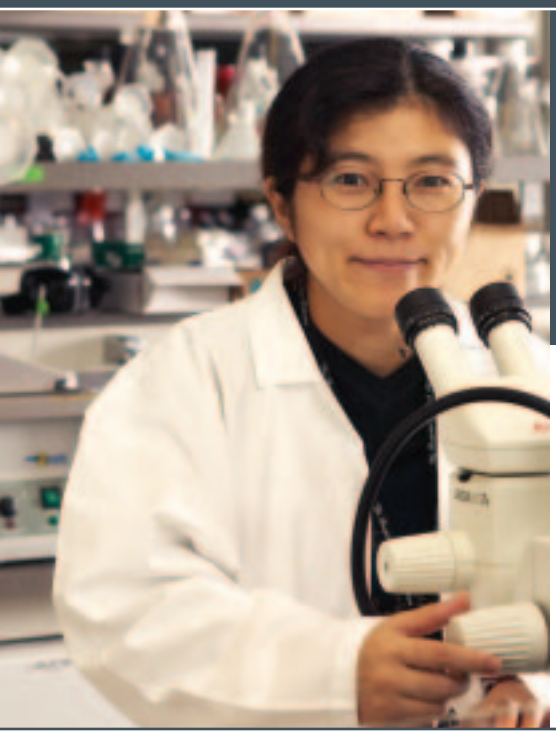
We are proposing actions for governments, businesses, and individuals to help Ontario achieve a virtuous circle of competitiveness and prosperity. For each of our recommendations, we propose success measures for 2012, ten years after our First Annual Report.

We propose ambitious recommendations for action

- Continue to engage in dialogue and debate about Ontario's competitiveness and prosperity.
- Increase investments in machinery, equipment, and software
- Shift the balance of government spending away from consumption of current prosperity to investment in future prosperity
- Seek ways to accelerate integration of immigrants into our economy
- Increase investment in post-secondary education by governments, individuals, and businesses
- Reduce marginal tax burdens that are limiting motivations for investment among businesses and low- to moderate-income Ontario families
- Strengthen structures of specialized support and competitive pressure by identifying and acting on industry and government-specific opportunities

Following these recommendations will put all Ontarians on the path to working together to realize our prosperity potential and ensure the economic well being of future generations.

Productivity and the prosperity gap →



Productivity and the prosperity gap →

Lower productivity continues to account for Ontario's prosperity gap with peer regions in North America

OVER THE PAST THREE YEARS the Task Force has highlighted the importance of competitiveness and prosperity in the global economy. We note with pride the significant achievements of Ontarians in creating one of the most prosperous regions in the world, leading any comparable region outside North America. Our people are highly skilled and have the attitudes to win; we have an excellent mix of industries; our industries are competitive with the world's best and are well positioned for future success; and our governments have created the environment for competitiveness in today's global setting.

But we cannot stand still. In today's world, increasing our competitiveness is not a choice – it is a necessity. If we want an ever higher standard of living for us and our children, our economy must grow. To grow, the economy of our province must be competitive with other regions, particularly our trading partners. And while we have achieved leadership excluding the US, we continue to trail the competitiveness and prosperity of leading North American jurisdictions.

Competitiveness depends on our capability to create, produce and sell superior products and services that customers in Ontario, Canada, and around 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. But this means they have to be internationally competitive in their specialization.

Ontarians should be proud of the economic strength of our province. As we compare prosperity in Ontario to other significantly sized jurisdictions around the world, we see that Ontario is among the world's leaders. In fact, compared to countries that have half of Ontario's population or greater, we have the second highest GDP per capita. We trail only the US. Among the regional power houses of Europe, the four motors of Baden-Württemberg (Germany), Cataluña (Spain), Lombardia (Italy), and Rhône-Alpes (France), Ontario still stands first in GDP

per capita.[1] The challenge we face as Ontarians is to build on our strengths to improve our competitiveness even further and close the prosperity gap we have identified with leading US states.

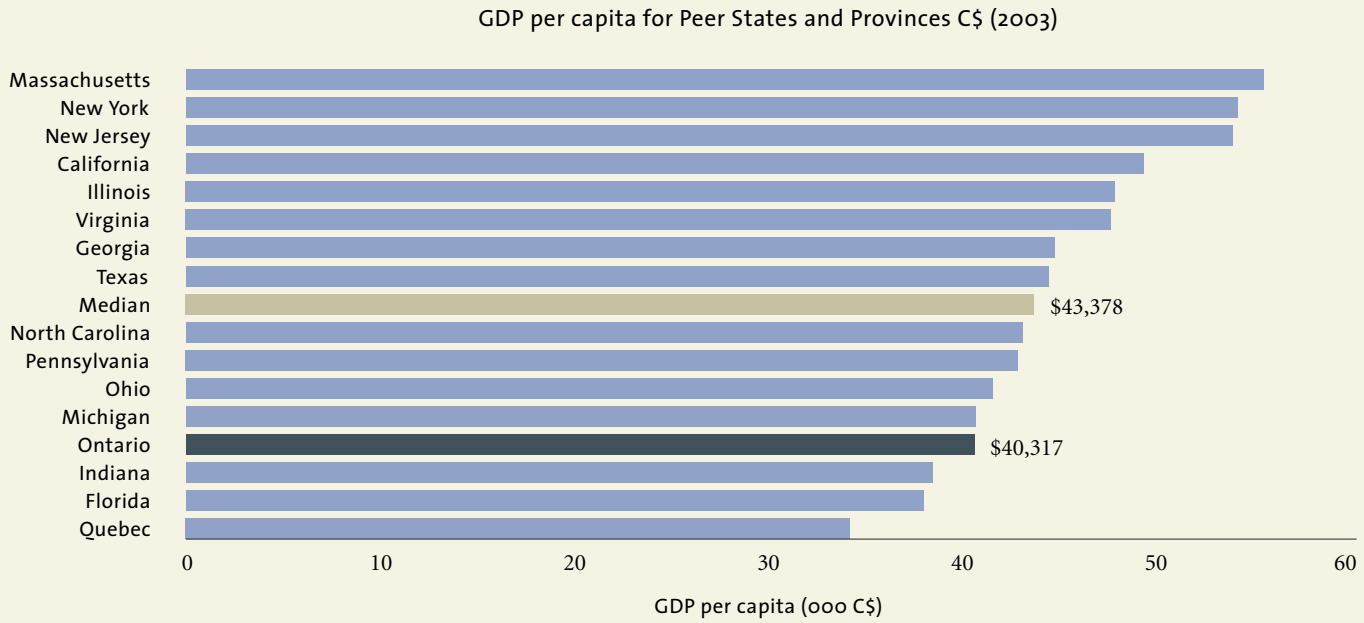
Ontario's prosperity continues to trail North American peers

As the Task Force has highlighted over the past three years, Ontario's competitiveness and prosperity lag the leading jurisdictions within North America. It is heartening to out perform economies outside North America, but the true benchmark of our potential is the results achieved by jurisdictions with similar endowment of natural resources, legal and administrative frameworks, development history, culture, and attitudes. For this comparison, we have focused on the states and provinces within North America that have half of Ontario's population or greater or more than 6 million people. This criterion yields a set of 15 other jurisdictions – 14 states and Quebec as a peer group against which we assess Ontario's competitiveness and prosperity.

Against this North American peer group, Ontario's performance is not as positive as against the international group. In GDP per capita for 2003, we stand 13th out of 16 (Exhibit 1). This is the same standing as in 2001, which we reported in last year's annual report. In 2002 we actually moved up two spaces, ahead of Ohio and Michigan, as the US was coming out of its recession; however, we reverted to 13th in 2003 (See *Estimating GDP per capita* for a discussion of why we chose GDP per capita as our measure of competitiveness and prosperity and how we estimated state-by-state GDP per capita.) This translates to a prosperity gap of 7.1 percent or $3,061 versus the median of the peer jurisdictions. This gap is less than the 13.8 percent we identified for 2000 in our First Annual Report, *Closing the prosperity gap*, and the 9.9 percent we identified for 2001 in our Second Annual Report, *Investing for prosperity*. But it is higher than what we achieved in 2002 (Exhibit 2).

We have recommended that Ontarians aspire to achieve median status by 2012, ten years after our First Annual Report in 2002. We continue to recommend this as a realistic target. This recommendation is even more

Exhibit 1 Ontario ranked 13th of 16 in its peer group in 2003



Note: Estimated 2003 peer state and median GDP per capita; actual 2003 Ontario and Quebec GDP per capita used.
Source: Statistics Canada; US Department of Commerce – Bureau of Economic Analysis; OECD PPP indices; Institute for Competitiveness & Prosperity analysis

[1] In 2001, per capita GDP in Canadian dollars was: Ontario: $38,068; Lombardia: $35,191; Baden-Württemberg: $30,609; Rhône-Alpes: $28,596; Cataluña: $26,978. Source for Four Motors GDP per capita: Eurostat database available online: http://epp.eurostat.cec.eu.int/

Estimating GDP per capita

IN DETERMINING THE PROSPERITY GAP, we compare Gross Domestic Product (GDP) per capita in Ontario versus the median of the 16 peer jurisdictions. GDP measures the output of an economy in terms of value added – that is, how well people have converted natural, capital, and labour resources into products and services. Many economists consider it the best measure of an economy's competitiveness. It is closely related to wages and other measures of personal economic well being.

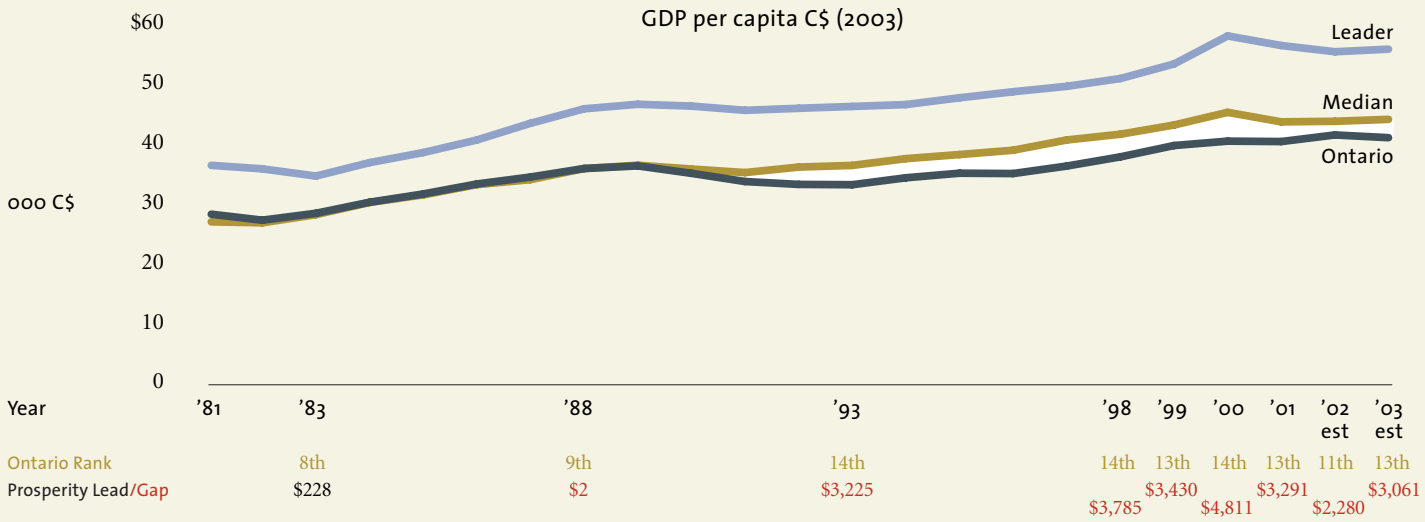
Statistics Canada provides annual provincial measures of GDP by May of the next year while in the US, the Bureau of Economic Analysis (BEA) produces annual state-level GDP results about eighteen months after year end.

Normally, the Institute would be producing state-level GDP per capita for 2002 in the Task Force's Third Annual Report. However, this year the BEA is not scheduled to provide state-level GDPs for 2002 until mid-December 2004. This delay is the result of the conversion from Standard Industrial Classification (SIC)-based data to North American Standard Industrial Classification (NAICS)-based data. In addition, the BEA conducts a thorough revision of its state-level GDPs every five years and 2004 is the year for this process, which they refer to as benchmarking. Benchmarking can result in significant revisions to historical data.

The Institute could have waited until the results were available, but there was no guarantee that the BEA would meet their mid-December target. Instead, we used state-level Personal Income results to estimate state-level GDP results. In fact, the Institute used Personal Income to estimate GDP per capita at the city region level in Working Paper 3, *Missing opportunities: Ontario's urban prosperity gap*. Personal income removes factors such as capital depreciation, retained corporate profits, and net interest payments to businesses to result in the payments to individuals. Within each of the peer states, we found a very tight relationship between per capita GDP and Personal Income over the past twenty years. We used the observed relationship to translate Personal Income results for 2002 to arrive at a 2002 estimate of GDP per capita in each of the peer states. One benefit to this approach is that state-level Personal Income results are more timely than GDP results and 2003 results are available. In this report we take advantage of this in assessing our prosperity gap for 2003.

The Institute will monitor results from the BEA and update the prosperity gap calculations accordingly.

Exhibit 2 Ontario's prosperity gap narrowed from its recent peak



Source: Institute for Competitiveness & Prosperity based on Statistics Canada; Bureau of Economic Analysis, Regional Accounts; OECD PPP indices

plausible when we consider that we actually achieved median status in the 1980s.[2] In reality, we are urging all stakeholders in Ontario's prosperity to re-gain a position we once held.

The prosperity gap matters

As we have stated before, the prosperity gap represents lost potential for Ontarians. We are less successful than our US counterparts in adding value to natural, physical, and human resources. If Ontarians were able to overcome this prosperity gap, the average Ontario household annual after-tax disposable income would rise by $6,755. Families would be able to choose among several meaningful spending options. For example, among mortgage holders, more than half their annual payments ($11,043) would be covered. Among renters, more than 80 percent of their average annual bill of $8,193 would be covered. The increased disposable income could cover renovation costs of $5,474 among those who renovate. Ontarians could increase their recreational spending (currently $3,914 per household) significantly. Many more could choose to invest more in their RRSP contribution (currently $3,950 per contributing household in Ontario).

In addition, closing the prosperity gap would generate $13.7 billion in tax revenues for the federal and provincial governments in Ontario. This additional tax revenue would enable the two levels of government to address funding issues in health care, education, and social services more adequately than they can today.

This analysis works in reverse. If our gap widens and returns to the trends we witnessed in the 1990s, the lost potential would have real negative consequences for Ontarians. Our standard of living would fall further and further behind what it could be, and our governments' fiscal situations would worsen.

Lower productivity continues to be the largest source of our prosperity gap

We continue to use a framework for disaggregating our prosperity gap into four measurable elements of our GDP per capita (Exhibit 3):

- The demographic **profile** in a jurisdiction – the percentage of the population that is of working age and can therefore contribute to economic prosperity
- The **utilization** of the working age population – the percentage of the working age population who are seeking and succeeding in finding work

Exhibit 3 Task Force assessed measurable elements of GDP per capita

Prosperity		Profile		Utilization		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 • Cluster strength • Urbanization • Education • Capital investment • Effectiveness

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.

[2] Recent revisions by the OECD to the purchasing power parity (PPP) between Canadian and US dollars have narrowed the prosperity gap we have reported in previous reports. PPP is the rate at which we have converted states' GDPs per capita from US dollars in to Canadian dollars for comparison purposes. On average between 1981 and 1989, the OECD had calculated a PPP of 1.30. Recent revisions have brought this down to 1.22. This adjustment has reduced US states' GDPs per capita when denominated in Canadian dollars. Consequently the prosperity gap that we had found earlier all but disappears.

- The **intensity** of work – the number of hours workers on average spend on the job

- The **productivity** of the workforce – the success in translating working hours into products and services of value to customers in Ontario and around the world.

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

We examine two sub-elements of *utilization* – the rate at which working-age Canadians 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 seven sub-elements of *productivity*:

- mix of our industries into traded clusters, local industries, and natural resources

- sub-industries that make up our clusters of traded industries

- productivity strength of our clusters of traded industries

- degree to which our population lives in urban centres

- educational attainment of our population and its impact on productivity

- degree to which physical capital supports the productivity of workers

- effectiveness with which we generate value based on the platform created by all of the other sub-elements – the residual value.

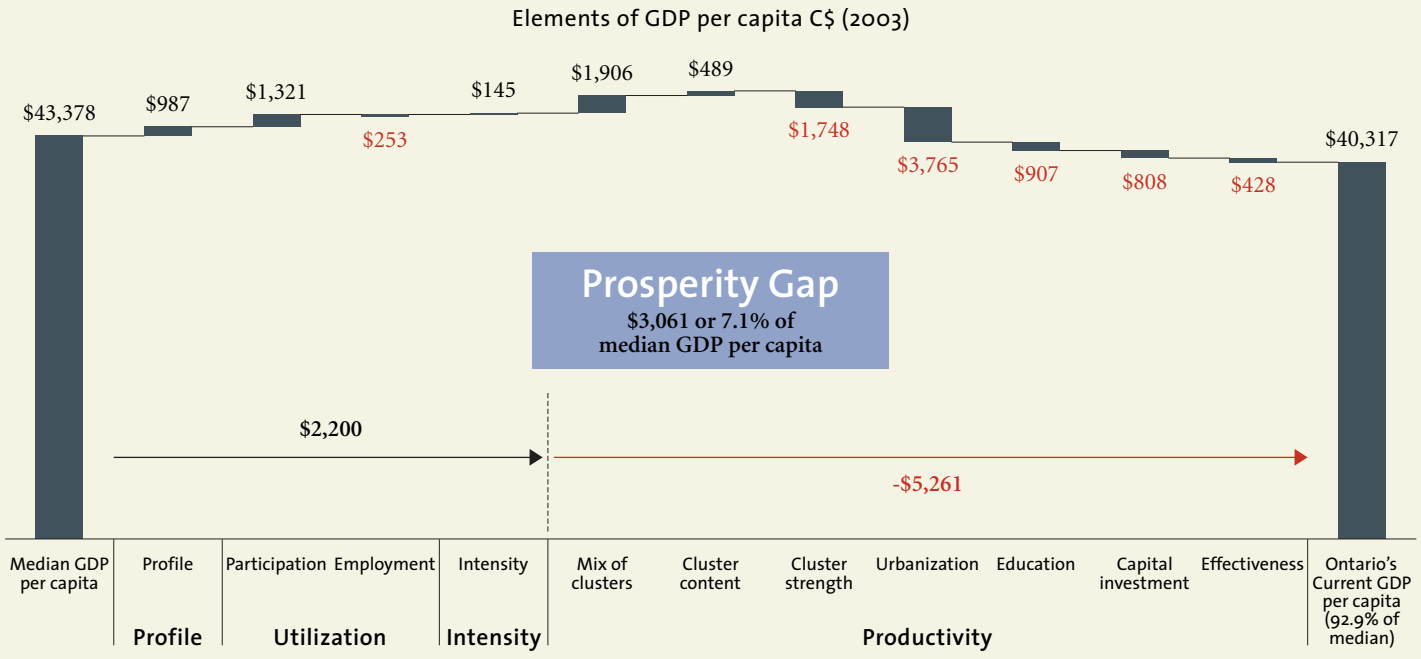
The most significant contributor to the prosperity gap is productivity (Exhibit 4). We discuss each in turn.

Profile, Utilization, and Intensity have a limited impact on our prosperity gap

Our work continues to demonstrate that Ontarians are investing adequate work effort for matching US prosperity. By this we mean Ontarians seek and secure hours of work at a greater level than our peers.

First, we have a demographic **profile** that represents an advantage for Ontario versus the peer median. We have 67.2 percent of our population between the ages of 16 and

Exhibit 4 Productivity still accounts for most of Ontario's prosperity gap.



Note: median of 16 peer jurisdictions
Source: Statistics Canada; Bureau of Economic Analysis; Institute for Competitiveness & Prosperity analysis

64 compared to 65.6 percent in the peer jurisdictions. This higher percentage of our population being of working age translates into a potential advantage of $987 per capita in GDP. In other words, if Ontario equaled the peer states on every factor but profile, our GDP per capita would be $987 higher than the peer jurisdictions. This estimate is higher than we calculated in our Second Annual Report, because of a slight improvement in Ontario's ratio and a slight reduction in the peer group's ratio.

Utilization of the potential labour force represents another advantage for Ontario. Ontario has a higher percentage of its working age population actually seeking work (69.0 percent compared to 66.8 percent in the peers). Similar to the way we calculate the impact of demographic profile (i.e., holding all other factors constant between Ontario and the median of the peer jurisdictions), this equates to a $1,321 per capita advantage for Ontario. In last year's annual report, this participation factor was neutral; it has become an advantage for Ontario largely, as a result of a higher percentage of Ontarians' seeking work in 2003 versus 2001. In the peer states, the participation rate fell slightly over the same period. However, as we have shown in our previous work, Ontario's economy continues to be less capable of generating employment opportunities for people who are available and interested in working. Thus our employment rate[3] tends to be slightly lower than that in the peer group (a 93.2 percent employment rate versus 93.8 percent in the peers in 2003). This under performance in employment accounts for $253 of the prosperity gap, largely unchanged from the 2001 and 2002 results we have observed. The net effect of these participation and employment results is that Ontario's out performance in utilization was worth $1,068 in GDP per capita.

Based on 2003 results of Ontario-US **intensity** difference (33.4 hours worked per week in Ontario versus 33.3 hours in the US), we can attribute a positive impact on the prosperity gap of $145 per capita from Ontarians working slightly more hours than their US counterparts[4] to this factor. In our previous reports, we have shown intensity to be a negative factor for prosperity; however, recent data revisions and new sources have allowed us to compare Ontario to the US more accurately. Ontario has out performed the US in hours worked per worker in each of the last seven years for which we have data. The 2003 advantage was only slightly below the advantage achieved in the last seven years.

Profile, utilization, and intensity have a net positive effect on the prosperity gap and strengthened in 2003. By working more and longer than our counterparts in the peer group, Ontarians achieved a $2,200 per capita advantage versus the peer group. However, as we see next, we are less productive than our counterparts during the hours in which we are working. This productivity gap amounts to $5,261 in per capita GDP. The net effect is the $3,061 per capita prosperity gap.

Lower productivity accounts for the largest share of our prosperity gap

We assess seven sub-elements of productivity to determine the impact of this key driver of the prosperity gap.

Cluster mix and cluster content in Ontario contribute positively to our productivity. We continue to conclude that high-performing clusters are an important element of closing our prosperity gap with our peer group. In Working Paper 5, *Strengthening Structures: Upgrading specialized support and competitive pressure*, the Institute for Competitiveness & Prosperity described the theory and evidence behind the importance of clusters of traded industries.[5] Traded industries are those that are typically concentrated in specific geographic areas and sell to markets beyond their local region. Research by Michael Porter of the Harvard-based Institute for Strategy and Competitiveness has shown that clusters of traded industries increase productivity (as represented by wages) and innovation. In addition, the presence of traded clusters in a region has a spillover effect in that they typically generate opportunities for increased success of the local economy. The "tide" of traded clusters raises the prosperity level for both local and traded industries and everyone benefits.

Drawing on Porter's methodology, the Institute has determined that fully 39.9 percent of employment in Ontario is in clusters of traded industries versus 32.3 percent in the peers. Ontario's strength in business services, financial services, education and knowledge creation, and automotive, for instance, has created an attractive mix of clusters of traded industries. Our analysis of Ontario's **cluster mix** estimates a $1,906 per capita advantage over the peers. This benefit is derived from higher output than would be likely if Ontario's mix were the same as the peers' mix.[6]

[3] By "employment rate" we mean the number of people employed, 16 and over, as a percent of the labour force, 16 and over.
[4] State level data are not available. Canadian intensity data are from the Productivity Program Database of Statistics Canada. US data are from unpublished US Bureau of Labor Statistics total hours and employment series. This series adjusts the BLS Current Employment Survey for agriculture, public administration, and self employment. We have used these data as published by the Centre for the Study of Living Standards. www.csls.ca.
[5] See also Institute for Competitiveness & Prosperity, *A View of Ontario: Ontario's Clusters of Innovation*, April 2002, pp. 18-20, 26-27.
[6] It is important to note that our measure focuses on the mix of clusters only. It estimates the productivity performance we could expect in Ontario if each cluster were as productive as its US counterpart. As we showed in Working Paper 5, this assumption is not true (see pp. 25-28).

Sub-clusters make up each cluster of traded industries.[7] As with clusters, there are wage and productivity differences across sub-clusters. One of the issues being discussed by business analysts and economists is "hollowing out." Some observers believe that Canada is losing the high value-added component of its industries, as head offices and decision-makers relocate outside the country. As we analyze the sub-clusters that make up our clusters of traded industries and compare these with the mix in the US, we conclude that the impact of **cluster content** on GDP per capita is a $489 advantage for Ontario.

Our weaker clusters are a significant part of the Ontario's productivity gap. While Ontario has an excellent mix of clusters, their productivity is much lower than in the peer states. As we discuss later in this report, our structures of specialized support and competitive pressure are inadequate relative to the experience in clusters of trade industries in the peer states. In the peer states, traded clusters are more productive than local industries, as represented by median wages. As Porter has observed, the greater competitive intensity from sophisticated customers and well developed rivals along with specialized support from excellent factor conditions and capable suppliers and related industries pushes productivity higher in traded clusters. The productivity premium in Ontario from its traded clusters versus its local industries is 48 percent.[8] In the median of the peer states, this premium is 64 percent. Taking the prevailing wage in local industries as a given, our clusters are under performing their counterparts in the US peers by 10 percent (the difference in a US performance index of 1.64 versus Ontario's 1.48).

If our clusters were as effective in the Ontario environment as those in US peer states, wages in our clusters would be would be $5,053 per worker higher. As traded clusters account for 39.9 percent of Ontario employment and given the relationship between wages and productivity, our overall productivity would rise by 5.4 percent. However, this includes some double counting. Clusters are more effective in urban settings and as we see below Ontario is less urban than the peer states. Similarly part of our productivity gap is due to under investment in capital and education – which we discuss below. We have netted these effects out of the cluster strength factor to arrive at an estimated loss from our weaker clusters of $1,748 per capita. Adding together the effects of cluster mix (+$1,906), content (+$489) and strength (-$1,748) Ontario's clusters provide a net benefit of $647 in GDP per capita versus the peer states.

Relatively low urbanization is a significant contributor to the prosperity gap. The Institute has synthesized current research by Canadian and other urban geographers and economists[9] that linked urbanization, innovation, learning, and urban policy. We found that the increased social and economic interaction of people and firms, the cost advantages of larger-scale markets, and a diversified pool of skilled labour all improve productivity in urban areas.[10] The interplay of these factors promotes innovation and growth in an economy. Canada's lower degree of urbanization hurts our productivity compared to the US.

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 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 base, firms can supply other cities and regions.

- **"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.[11]

There is a positive relationship between degree of urbanization[12] and the labour productivity of the 50 states and 10 provinces. For Ontario, it includes our 11 largest cities ranging in size from Toronto to Kingston. Our analysis indicates that we have a $3,765 per capita disadvantage against the US. This makes low urbanization the largest negative contributor to Ontario's productivity gap.

[7] Institute for Competitiveness & Prosperity, *A View of Ontario's Clusters of Innovation*, April 2002, pp. 18-20.
[8] Institute for Competitiveness & Prosperity, *Strengthening structures: Upgrading specialized support and competitive pressure*, p. 26, July 2004.
[9] *Ibid.* and Institute for Competitiveness and Prosperity, *Missing opportunities: Ontario's urban prosperity gap*, June 2003.
[10] *Ibid.*
[11] E. Glaeser (2000), "Demand for Density? The Functions of the City in the 21st Century," The Brookings Review, Vol. 18, No. 3.
[12] Urbanization is defined as the percentage of their population living in Census Metropolitan Areas (CMAs) in Canada and Metropolitan Statistical Areas (MSAs) in the US. Differences in the definitions of the two concepts have been adjusted for.

During the past year, the Institute conducted research into differences in cost of living between CMAs and non-CMAs. The purpose of the research was to determine if the prosperity impact of Ontario's lower urbanization was over-stated, since rural costs of living may be lower and these lower costs may not be captured by the OECD in calculating US/Canada purchasing power parity (PPP) exchange rates. The research indicated that the only significant cost-of-living difference is between Toronto's housing costs and all other municipalities surveyed. There is very little difference in costs for different categories from the largest to the smallest municipalities. Governmental statistical agencies in Canada and the US capture housing costs across city sizes in their official cost of living work and this is used to derive PPP calculations by the OECD. Consequently, we have not adjusted our estimates of the urbanization impact for differences in the cost of living between metro and non-metro areas.

Lower educational achievement weakens our productivity. Most economists agree that the level of education attained across the workforce is an important determinant of the "quality" of an economy's human capital. Our analyses reinforce the positive correlation between productivity and wages.[13] Economic studies also show repeatedly that individuals' earnings increase with their level of education.[14] In fact, the best single predictor of personal income is level of educational attainment. Canada's under performance in educational attainment, mainly at post-secondary levels translates into a negative impact on GDP per capita of $907 per capita. Later in this report we explore further Ontarians' under investment in post-secondary education.

Capital under investment is a drag on productivity growth. We have identified under investment in machinery and equipment in Ontario compared to levels in US peer states as an issue for productivity.[15] This under investment slowly erodes the relative strength – levels and renewals of our capital stock compared to that in the US. This erosion in turn reduces the productivity of our labour and hence our prosperity. For Ontario, we estimate this under investment to be worth at least $808 per capita in lost productivity and prosperity. Later, we discuss further this under investment and its possible causes, including the higher tax burden on capital.

The remaining gap of $428 relates to lower effectiveness. 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 gap that remains is related to productivity on the basis of like-to-like cluster mix and strength, urbanization, education and capital intensity. In sum, Ontario is less effective than the peer states in converting our natural, physical and human resources into goods and services.

Productivity gains count

Productivity gains count not only because they would reduce the largest portion of the prosperity gap; looking at the road ahead, productivity increases would also provide the greatest leverage for a higher, sustainable GDP per capita. Productivity is the only element that can improve in the short run and grow indefinitely. This can be achieved if our attitudes towards competitiveness, our investments, our motivations to work and hire, and our market and institutional structures combine to lead to the innovation and upgrading that will raise our productivity to US levels and eliminate the prosperity gap.

The Institute has sought explanations for the prosperity gap and for ways to close it. We have looked at differences in attitudes to competitiveness and entrepreneurship. We have deepened our understanding of consumption-investment trade offs, examined the impact of tax policies on motivations, and considered how market and governance structures affect our productivity.

The Task Force concludes that, while the prosperity gap has declined, much of this reduction is due to the recent slowdown in peer states' economic strength rather than a new trajectory for Ontario's competitiveness. The source of the gap continues to be lower productivity and much of this is the result of inadequate investments in human and physical capital. To close the prosperity gap with the US, we need to address issues of motivations and structures in our economy.

[13] Task Force on Competitiveness, Productivity and Economic Progress, *Closing the prosperity gap*, November 2002, p. 27.
[14] For a literature review of the rates of returns to education and results of their own calculations, see F. Vaillancourt and S. Bourdeau-Primeau (2002). "The Returns to University Education in Canada, 1990 and 1995," in D. Laidler (ed.) Renovating the Ivory Tower: Canadian Universities and the Knowledge Economy. C.D. Howe Institute Policy Study No.27.
[15] *Closing the prosperity gap*, p. 36 and *Investing for prosperity*, p. 25.

Under investment and the prosperity gap →

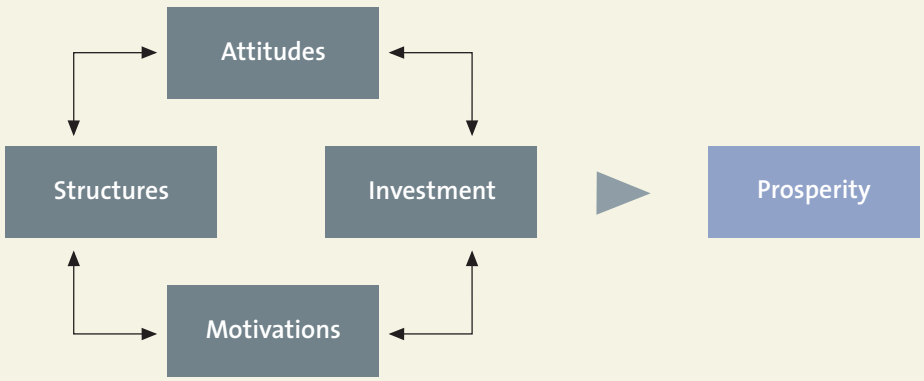
Under investment and the prosperity gap →

Despite positive attitudes towards business and competitiveness, Ontarians under invest in their future prosperity

THE KEY CHALLENGE for the Task Force has been to determine the important factors that drive the productivity and prosperity gap with our peer jurisdictions. We have been seeking answers to the question: What are the important drivers in strengthening our capacity for innovation and upgrading? To help guide our analysis and recommendations for Ontarians, the Task Force developed the AIMS framework (Exhibit 5). AIMS is built on an integrated set of four factors:

- **Attitudes** towards 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 set higher goals and take the actions to drive competitiveness and prosperity.
- **Investments** in education, machinery, research and development and commercialization. As businesses, individuals,

Exhibit 5 AIMS builds capacity for innovation and upgrading



Source: Institute for Competitiveness & Prosperity

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.

Within the AIMS framework, we have found that Ontarians invest less in future prosperity than their US peers and that this under investment results from inadequate structures and inappropriate fiscal motivations, even though Ontarians' attitudes encourage innovation and upgrading.

Our research into Ontarians' attitudes towards competitiveness and prosperity indicates that our public leaders and business people have a positive outlook on what it takes for the province to move forward – differing little from the views of their counterparts in the US peer states. But despite these generally positive attitudes, Ontario businesses, individuals, and governments are under investing for future prosperity.

Ontarians have positive attitudes toward competitiveness

Attitudes that lead to high aspirations, self-confidence, the desire to succeed, the entrepreneurial spirit and creativity are important drivers of economic success. 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 out, the Institute conducted attitudinal research among public and business communities. In Working Paper 4, *Striking similarities: Attitudes and the prosperity gap*, we concluded that attitudinal differences between the public and business 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 towards risk and success; and on several questions, Ontarians' responses indicated more positive attitudes towards competitiveness and innovation than their peers' answers (Exhibit 6). More generally, we found no differences in the attitudes towards risk-taking and innovation and the importance and the 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 US 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

Exhibit 6 Ontarians have positive attitudes towards competition and prosperity

ONTARIANS AGREE SLIGHTLY MORE THAN PEER STATE CITIZENS, MANAGERS AND BUSINESS LEADERS WITH THE FOLLOWING STATEMENTS:

"People who start their own businesses deserve all the money they make"

"When businesses do well, we all win"

"Business is the most important contributor to prosperity"

"Competition between businesses is a good thing"

"Being globally competitive makes a firm stronger"

Source: Institute for Competitiveness & Prosperity, *Striking similarities: Attitudes and Ontario's prosperity gap,* September 2003.

- Ontarians have similar attitudes toward risk and success as their peers
- Ontarians' attitudes towards competition and factors of competitiveness are similar to those in the peer group
- Ontarians' willingness to take action to achieve a higher standard of living does not vary from peer group responses.

Notably, the survey did identify significant differences in attitudes towards post-secondary education that affect our financial and human capital investments, as we shall see.

Overall the attitude results are heartening. We would be quite pessimistic about our prospects for closing the prosperity gap if Ontarians did not have the will to win. Yet our research indicates that in nearly all areas we have the disposition to take the right actions for our future prosperity. But our research also indicates that our actions in the *investment* element of AIMS are not consistent with our positive attitudes.

Despite positive attitudes, Ontarians under invest for future prosperity

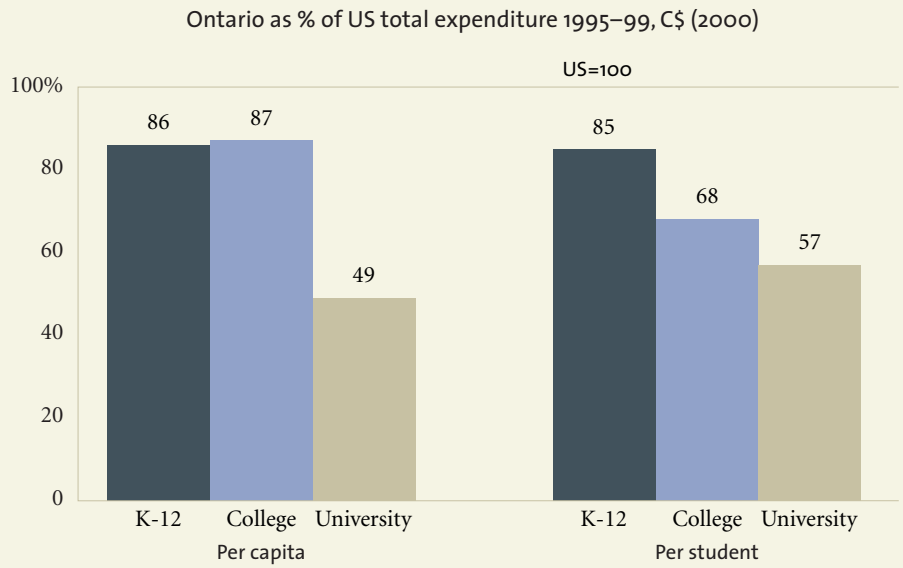
Competitive rates of investment in human and physical capital are necessary if we want to strengthen our capability for innovation and productivity enhancement. But we are not investing competitively. As a result of our under investment, we have a $3,061 per capita or 7.1 percent prosperity shortfall between us and our peers.

Initially, we invest in much the same way as our peer group. We invest in the basic requirements for keeping our businesses and individuals competitive in the global setting. However, whereas our US peers continue to invest in enhancements to outpace the competition, we Ontarians stop. This pattern of attenuation is true for Ontario citizens, Ontario businesses and the Ontario government.

Relative to our peer group:

- We under invest in education as students move through the system and forgo the higher benefits to the economy of more capable human resources
- We under invest in integrating immigrants and do not benefit fully from their economic potential
- We under invest in machinery, equipment and software and in structures that drive productivity gains
- We under invest in future prosperity as our governments' spending has been shifting from areas that are investments for future prosperity to those that are consumption of current prosperity.

Exhibit 7 Ontario's spending lags US particularly at post-secondary levels



Notes & Sources: Capital and operating expenditures; auxilliary enterprises excluded for college and university for consistency; US data for all US; expenditure includes public and private institutions at all levels

K-12: Statistics Canada, CANSIM II Table #4780014 (expenditure); Education in Canada 2000 (enrolment); National Center for Education Statistics 1996-2002, Tables 30, 162-164 (expenditure), Tables 2 & 37 (enrolment)

College: CAAT data only, Ontario Ministry of Training Colleges & Universities, College Financial Information System (expenditure and enrolment) adjusted to exclude non-diploma training and apprenticeship and ineternational students; US public and private 2-year institutions, National Center of Education Statistics, Digest of Education Statistics 2002, Tables 330-357 (expenditure), Tables 200-1 (enrolment)

University: Statistics Canada, CANSIM II Table #4780008 (expenditure), Education in Canada 2000 (enrolment); US data for public and private 4-year institutions, National Center for Education Statistics, Digest of Education Statistics Tables 330-357 (expenditure), Table 200-1 (enrolment)

Education investment trails at higher levels

As we have stressed in our previous annual reports, investments in education have high leverage for future prosperity. Well-educated and highly flexible workers are critical resources for the knowledge economy. Institutes of higher education are the primary source of new knowledge and the

application of existing knowledge to business and social challenges. For individuals and for society, there is no better investment than ensuring higher levels of education for our citizens. Our review of Ontario's investment in education shows that we under invest relative to our peer group and that this under investment is more pronounced as we move through the educational system (Exhibit 7).

On a per capita and per student basis, the US out invests Ontario by significant margins, particularly at the university level. While greater government support and higher tuition fees account for some of the difference in the spending capacity of the universities in the US, they are not the only source of additional revenue. Private gifts and endowments increase income in both public and private universities, and US schools have a wider range of revenue-generating activities than do Ontario's universities.[16]

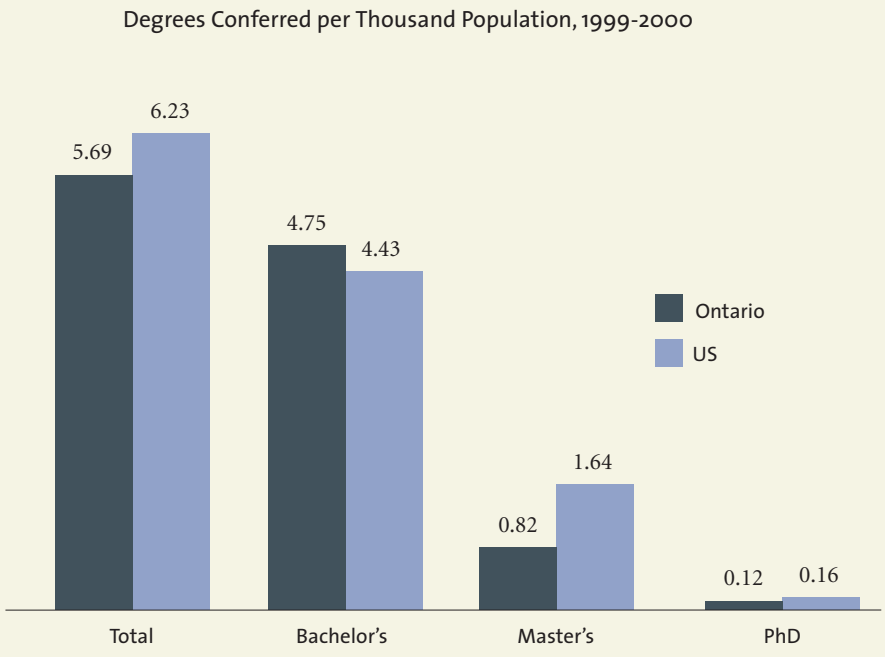
This lower rate of investment in university education can be seen in the difference in graduation rates between Ontario and the US (Exhibit 8). Ontario trails the US in degrees conferred per thousand population by 8.7 per cent (5.69 per thousand vs 6.23 per thousand). Although at the bachelor's level we actually out perform the US, at the master's and PhD levels we produce graduates at half the rate they do.

As we found in our latest work, this attenuation in investment in education is systemic. In Working Paper 6, *Reinventing innovation and commercialization policy in Ontario*, the Institute for Competitiveness & Prosperity found that Ontario has more science and engineering graduates per capita than the US. However, Ontario's advantage in degrees conferred is entirely at the bachelor's level; for graduate degrees conferred, the US has outperformed Ontario by 40 percent.[17] This is consistent with the recurring theme in our work – Ontario investment matches peer states' spending to increase prosperity, but only to a point, then trails off as advanced investments are required.

This theme recurs when we analyze the educational attainment of the managers and CEOs of our businesses. Our managers have lower educational attainment overall and in business specifically than those in the US; only 31 percent of our managers possess a university degree of any sort versus 46 percent of US managers. As well, CEOs of our largest corporations tend less to have formal business education at the graduate level. We believe it is reasonable to conclude that the more highly educated our managers, the more likely they are to think innovatively and strategically and to operate more effectively. Given that the US confers twice as many business degrees as Ontario, it is hard to avoid the logical connection between the lower educational attainment of our managers and CEOs and the level of prosperity the US has achieved. Our lower level of human capital resources means that we are less able to create the specialized support for competitiveness necessary for innovation and upgrading.

As we noted earlier, we found one significant attitudinal difference between Ontarians and their counterparts in the peer states. In the survey, we asked respondents among the public and the business community what advice they would give to young people on

Exhibit 8 Ontario graduates fewer MAs and PhDs than the US



Source: Statistics Canada Educational Databases; CANISM II; US Department of Education, National Center for Education Statistics

[16] Task Force on Competitiveness, Productivity, and Economic Progress, *Investing for prosperity*, November 2003, p. 24.
[17] Institute for Competitiveness & Prosperity, *Reinventing innovation and commercialization policy in Ontario*, October 2004, pp. 30-1.

the level of education they should attain. Relative to their US counterparts, the Ontario public and the business community are more likely to recommend a college diploma as the highest level of education to receive; their counterparts in the peer group are more likely to recommend a bachelor's or graduate degree.

This advice to Ontario's youth runs counter to economic realities. In Ontario, more schooling means higher earnings.[18] It also runs counter to results in Ontario's secondary schools. Our high school students are better prepared for post-secondary education based upon their higher achievement scores on the international standardized tests,[19] as well as higher high school graduation rates. These findings reinforce our view that Ontarians are more capable of pursuing a post-secondary degree at the bachelor's level and beyond than high school students in the peer states. Our challenge is to encourage and assist more high school graduates to pursue a post-secondary education before entering the work force; to encourage more college graduates to pursue a university degree; to encourage more university graduates to pursue a post-graduate degree.

Our under investment in post-secondary education is worrisome, since those with higher levels of education earn more over their lifetimes and our economy benefits more from their knowledge and capabilities. We all lose out when individual Ontarians fall short of their educational potential. Raising educational aspirations and increasing investment in education at all levels by individuals, businesses and governments are important ways to increase productivity. We think that stakeholders in Ontario's prosperity should be encouraged as a high priority to increase their investment in education.

Under investment in immigrant integration misses "brain gain" opportunities

Attitudes towards the economic benefit of immigration are more positive in Ontario than in the US. Our previous work has identified the potential economic benefit to Ontario of immigrants through their higher levels of educational attainment. In contrast, immigrants to the US lower the average educational attainment. Ontarians are much more likely to perceive an economic benefit from immigrants.

Ontario has an advantage over its peers – the arrival of more highly educated immigrants. But our under investment in immigrant integration undermines our competitive advantage. Ontarians are missing out on the "brain gain" opportunity as many immigrants have difficulty entering the professions and careers that they once held, settling for jobs that under utilize their skills. This productivity gap is even more striking among university-educated immigrants.

Employers and accrediting bodies need to find more effective ways to assess prior education and experience in a timely and cost effective manner. The Ontario government has initiated select bridging programs to help newcomers reach their full potential in the provincial economy without duplicating education and foreign experience. The International Pharmacy Graduate program at the University of Toronto and Creating Access to Regulated Employment for Nurses (CARE) are two successful examples of effective programs to close skill gaps. But Ontarians must continue to invest in immigrant integration initiatives to realize its competitive advantage.

Under investment in physical assets slows productivity gains

Another critical area of investment is the acquisition of new physical assets or refurbishment of existing ones. This investment – in machinery, equipment and software and in non-residential infrastructure – enables workers to be more productive, giving them newer and better tools to do their work. Innovation and upgrading of products, services, and production processes are typically embedded in the machinery and equipment component of investment. Increasingly, this investment consists of computer hardware and software and telecommunications made by knowledge-intensive companies – a key driver of productivity growth.

According to research conducted by economists De Long and Summers,[20] there is a positive and statistically significant relationship between investment in machinery and equipment and growth in GDP per worker. Their view is supported by economist Sala-i Martin[21] who found that the impact of machinery and equipment investment on output growth was about four times higher than the impact of non-machinery and equipment capital investment. Fortin[22] also points out that under investment in machinery and equipment in Canada relative to the US is the principal reason for a growing productivity gap between the two countries.

Ontario's under investment slowly erodes the relative strength of our capital stock compared to that in our peer group. This erosion in turn reduces the productivity of our labour and hence Ontario's competitiveness and prosperity.

[18] *Investing for prosperity*, pp. 20-21
[19] *Ibid*. p. 22
[20] J. Bradford De Long and Lawrence H. Summers (1995), "Equipment Investment and Economic Growth," [online] available at : http://www.j-bradford-delong.net/pdf_files/QJE_Equipment.pdf
[21] Sala-i Martin, Xavier (1997), "I Just Ran Four Million Regressions," *American Economic Review*, May 1997, v. 87, iss. 2, pp. 178-83.
[22] Pierre Fortin (1999), "The Canadian Standard of Living: Is There a Way Up?" C.D. Howe Institute Benefactor's Lecture.

In this section we review the pervasive under investment in physical assets by Ontarians relative to the US.[23] We first review the overall results, then examine under investment by the private sector in both types of investment – in machinery, equipment, and software and in non-residential structures. Then we review the public sector investments in these two types of investment. We conclude by calculating the impact of this under investment on our prosperity gap with the US peer states.

We under invest in all forms of capital. Compared to the US national figures, Ontario under performed in most areas of capital investment as a percentage of GDP between 1981 and 2003. During that time, Ontario lagged the US in overall capital investment, except for the short period from 1987 until 1992 when Ontario held a slight lead. (See *Exchange rates have little effect on capital investment in Canada.*)

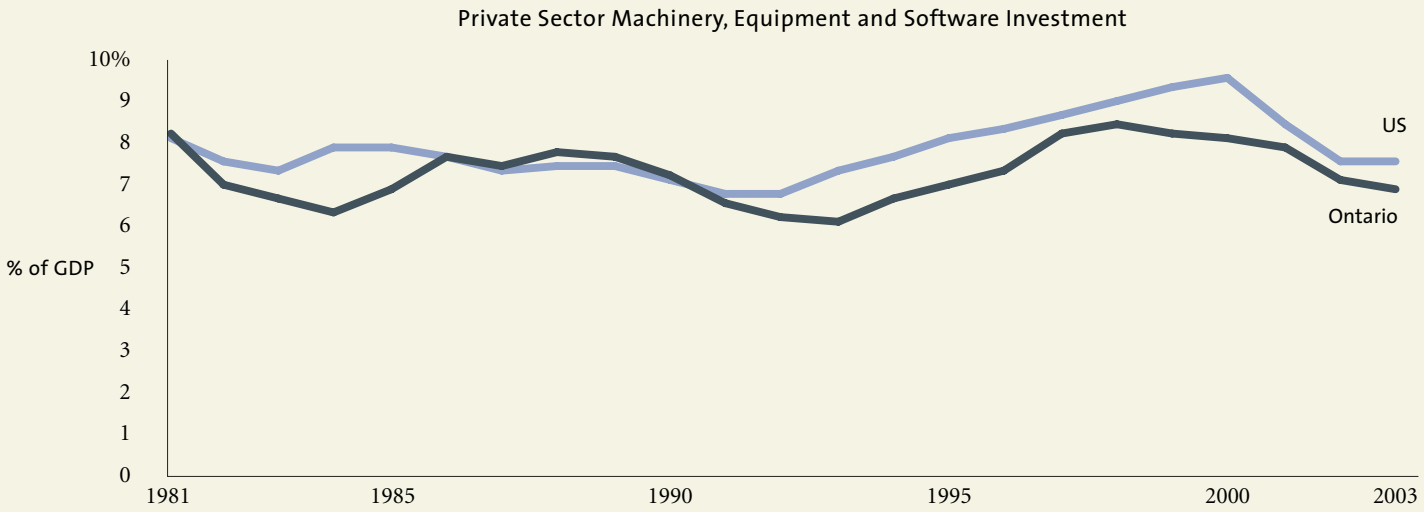
Overall capital investment in the US dropped significantly in 2001. It continued to decline in 2002 and remained flat in 2003, when the recovery in the US strengthened the economy. Ontario's capital investment also dropped during this period, but the magnitude of decline was much less severe than in the US, thus narrowing the gap in capital investment. By 2003, the overall capital investment rate in the US was 12.6 percent of GDP, its lowest level since 1993; in Ontario, the overall capital investment rate was 11.9 percent of GDP. The overall capital investment gap between the US and Ontario narrowed from 11.0 percent[24] in 2001 to 7.4 percent in 2002 and to 5.4 percent in 2003.

Private sector investment trails US. The private sector in Ontario and the US accounts for about 80 percent of all capital investment, and thus is crucial in the overall picture. Ontario's private sector trails the US in both types of capital investment – in machinery, equipment, and software and in structures.

In machinery, equipment, and software, the component that research has identified as the most crucial for productivity growth, Ontario's business community under invested by an average of 8.9 percent annually below the US from 1991 to 2003 (Exhibit 9). This under investment gap narrowed in 2002 as US investment fell faster than Ontario's. But the gap widened again in 2003 as the US came out of recession and business investment picked up.

Private investment in structures in both the US and Ontario have been declining since 1989. In 2003, Ontario's private sector invested 2.2 percent of its GDP on structural capital, the lowest rate since 1981. From 1987 to 1992, Ontario led the US by an average of 21.0 percent annually, but since then US

Exhibit 9 Ontario under invests in private sector machinery, equipment and software



Source: Statistics Canada; US Department of Commerce, Bureau of Economic Analysis

[23] State-specific investment data are unavailable for the US.
[24] Ontario's investment as a percentage of GDP divided by US investment as a percentage of GDP.

business has consistently out invested Ontario in structures by an average of 15.8 percent annually.

Public sector capital investment trails US. While public sector capital investment accounts for a smaller part of overall capital investment than private sector investment, it is still an effective driver of growth in an economy. According to a study by Erenburg,[25] public investment in infrastructure stimulates private sector investment in plant and equipment. Therefore, public and private investments are complements in raising productivity. Ontario's public sector investment was relatively stable from 1981 to 1995, occasionally being higher than US public sector investment,[26] but it fell behind between 1995 and 2000 while the investment rate in the US rose steadily. However, in 2003, Ontario's investment rate caught up with that in the US at 2.6 percent of GDP.

In public sector machinery and equipment investments, governments in Ontario invested slightly more than those in the US between 1981 and 2003 by an average of 0.1 percentage point of GDP or 14.6 percent annually. Public sector structural investment in Ontario has consistently lagged slightly behind that in the US, although the gap has been narrowing in recent years. In 2003 governments in Ontario spent 1.9 percent of GDP in structural investment compared to that of 2.0 percent in the US.

Under investment is costly. Following the research by DeLong and Summers,[27] we focus on the impact of private sector under investment in machinery, equipment, and software. We estimate that, at a minimum, under investment in physical capital costs Ontarians $808 in lost GDP per capita. Our conclusion is based on a simulation of GDP growth over the past two decades had we matched US private sector machinery, equipment, and software investment rates. If Ontario's private sector had kept pace with its US counterpart since 1981, our total investment would now be 4.3 percent higher. This, in turn, would increase GDP per capita by $808.

Our estimate is conservative, as it only focuses on our under investment in private sector machinery, equipment, and software. Because there is little research into the productivity impact of investment in other areas, we have not included it in our assessment in Exhibit 4.

However, recent research[28] indicates that productivity in Canada also benefits from public and private investment in structures. And as stated earlier, public sector infrastructure investment complements private sector machinery, equipment, and software. If we use the same analysis for all public and private capital investment, we estimate GDP would have been $1,136 per capita higher in 2003.

Another method to calculate the labour productivity gap as a result of under investment in capital was developed by Andrew Sharpe[29] at the Centre for the Study of Living Standards. Using his methodology, we estimated that if Ontario invested in capital per labour hour at the same level as the US, the labour productivity gap would decrease by 49 percent, translating into an increase of $1,450 GDP per capita.

Capital investment is a major contributor to prosperity growth. But both public and private sector investment in machinery and equipment and infrastructure in Ontario now lag capital spending in our US counterparts. We estimate that this under investment costs Ontarians $808 at a minimum in lost annual GDP per capita. The clear answer is for business and governments to raise their investment especially in machinery and equipment to add to the productive capacity of Ontario's economy.

Government spending is shifting toward current consumption

Governments have to play a balancing act in their spending decisions. At the base level, governments must fund their own administration, protect citizens and the environment, and pay interest on the public debt. In both Ontario and the peer states this accounts for about 30 percent of spending by federal, state/provincial, and local governments. In allocating the remaining 70 percent, governments trade off consumption and investment. Consumption expenditures include health care and social services; investment expenditures include transportation, communication, education, and housing.

Relative to our peer group, governments in Ontario continue to shift away from investment expenditures towards consumption. Between 1992 and 2002, our governments in Ontario decreased spending on investment from 53 cents to 46 cents for every dollar of consumption, while our US counterparts raised investment spending from 52 cents to 55 cents for every dollar of consumption (Exhibit 10).

From 1992 to 2002, total government expenditure as a percentage of GDP has declined in Ontario, as governments worked to rein in breakaway deficits. Governments in Ontario were more aggressive in reducing investment expenditure than consumption expenditure, and in recent years, health care

[25] Sharon J. Erenburg (1994), "Linking Public Capital to Economic Performance, Public Capital: The Missing Link Between investment and Economic Growth" The Levy Institute. Public Policy Brief No 14.
[26] US investment in the military is excluded from this analysis.
[27] DeLong and Summers, op cit. In a recent paper the OECD (OECD, The Sources of Economic Growth in OECD Countries, 2003.) noted that that labour productivity grew faster in those industries with investment heavily in information and communication technology equipment. (ICT is increasingly a major part of machinery and equipment)
[28] Tahir A. Abdi (2004), " Machinery & Equipment Investment and Growth: Evidence from the Canadian Manufacturing Sector." Department of Finance: Working Paper. Canada, January.
[29] Andrew Sharpe (2003), "Why are American More Productive than Canadians?" Centre for the Study of Living Standards (CSCL).

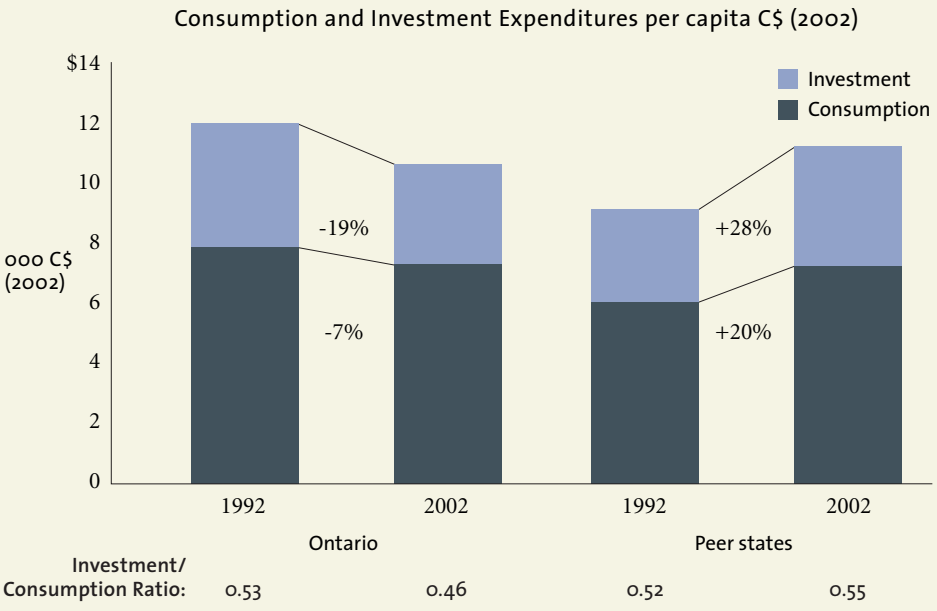
expenditure increases have fueled rising consumption spending, increasing per capita from $2,098 in 1999 to $2,436 in 2002. Meanwhile, governments in the peer states chose to increase per capita investment spending by 28 percent. In Massachusetts, the most prosperous state in the peer group, investment per capita spending increased from $2,849 in 1992 to $4,181 in 2002 or fully 46.8 percent.

In the last five years, governments in Ontario have spent about $7,000 per capita in consumption annually – on average the same as in the peer states. However, on a per capita basis governments in Ontario invested about 15.9 percent less per capita than in the peer states by 2002, compared to 1.6 percent in 1998.

Ontario governments' inability to match the peers' investment spending limits our progress in raising productivity. Our US counterparts spent $5.1 billion (using spending in Ontario as a base) or $420 per capita in 2002 on improving productivity after our last public investment dollar was spent. This is in stark contrast to 1992, where our research indicates that Ontario was out investing the peer governments by $6.0 billion.

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, equipment, and software, Ontario has under invested 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 group ranking or in our quest for raising prosperity.

Exhibit 10 Governments in Ontario have shifted spending from investment to consumption



Source: Institute for Competitiveness & Prosperity based on data from Statistics Canada, Public Sector Statistics

Exchange rates have little effect on capital investment in Canada

SINCE THE MAJORITY of capital equipment is imported from the US, exchange rate fluctuation could potentially affect capital investment decisions by increasing uncertainty. Many empirical researchers have attempted to verify the linkage between exchange rate volatility and level of investment. Although most agree that uncertainty is harmful to investment, the conclusions on the effect of exchange rate fluctuation on capital investment are mixed: the impact is country specific and industry specific.

However, Lafrance and Tessier[a] found that exchange rate variability has had no significant effect on investment in Canada: *"Our results do not support the position that excessive volatility or pronounced misalignments of the Canadian dollar over the more recent flexible exchange rate period have reduced in a detectable way the rate of investment in Canada or the degree of inward foreign direct investment."*

Their results are consistent with those of Campa and Goldberg:[b] *"Investments in Japanese and U.S. manufacturing industries were significantly responsive to exchange rate changes...while for the United Kingdom and Canada there was no statistical significance of the response of investment to exchange rates."*

[a] R. Lafrance and D. Tessier (2000). "Exchange Rate Variability and Investment in Canada." Proceedings of a conference held by the Bank of Canada, November 2000. Ottawa: Bank of Canada.

[b] J. Campa and L.S. Goldberg (1999). "Investment, Pass-Through, and Exchange Rates: A Cross-Country Comparison." International Economic Review 40 (2): 287–314.

Inappropriate motivations and investment →

Inappropriate motivations and investment →

Ontario's tax burden significantly reduces motivations to invest

WHY ARE ONTARIANS under investing, despite their positive attitudes? We find part of the reason is the lower motivation to invest because of the less attractive levels and makeup of our taxes.

The Institute's Working Paper 2, *Measuring Ontario's prosperity: Developing an economic indicator system*, observed that "[m]arginal tax rates, the features of employment insurance, and subsidies for education and training are among the many extrinsic or economic motivators that can stimulate individual economic behaviour that promotes or diminishes economic progress."[30] The Task Force's previous annual reports identified the increasing gap between Ontario's marginal effective tax rates on labour and capital versus those rates in a group of its peer states.[31] In last year's annual report, we examined why the effective tax burden on labour and capital is higher in Ontario than in our peer states – for example, they have lower sales taxes on capital goods (machinery), more generous capital cost allowances (depreciation), and lower capital taxes.[32]

In this year's report, we update these results for 2004. We then identify opportunities for smarter tax policies to improve Ontario's tax structure and its impact on motivations to invest. We also review some problems with our approach to marginal effective tax burdens on individuals. While our work indicates that our prosperity gap is not driven by a lack of work effort by Ontarians, we observe that our personal tax system has flaws that reduce the incentive to work, especially at lower income levels.

Ontario's marginal effective tax burdens are de-motivating

Governments face a balancing act in creating the fiscal environment for competitiveness and prosperity. As we have discussed, government investment expenditures in areas such as infrastructure and education can help establish the foundation for businesses and individuals to increase productivity. The appropriate level of consumption expenditures is an important determinant of our quality of life. These expenditures

[30] Institute for Competitiveness & Prosperity, Working Paper 2, *Measuring Ontario's Prosperity: Developing an Economic Indicator System*, August 2002, p. 34.
[31] Task Force on Competitiveness, Productivity, and Economic Progress, First Annual Report, *Closing the prosperity gap*, November 2002; and, Second Annual Report, *Investing for prosperity*, November 2003
[32] *Investing for prosperity*, pp. 36-8.

also reduce the cost of doing business as governments take on some of these expenditures from individuals and businesses.

At the same time, taxes that are necessary to fund these expenditures can act as de-motivators to work, investment, and entrepreneurship. Governments need to balance expenditures and taxes on an ongoing basis to ensure that Ontario is competitive and that citizens are receiving an adequate level of services. Given our shortfall in investment relative to our peers, the challenge is also to trade off spending on current consumption against long-term investment.

One means of assessing this trade off, especially as it relates to competitiveness, is to calculate marginal effective tax burdens on labour and capital. This approach calculates the effective impact of taxation on the cost of doing business by taking into account all the taxes paid, net of public subsidies for health care, education, and others, on all factors used in producing goods and services. The approach calculates the tax associated with the decision to invest an additional dollar in capital and labour. The analysis is important as it assumes that businesses will consider these costs in investment decisions and that employers and employees will consider taxes on labour in their decision to hire and to work.

Given the importance of taxes to motivations and of changes in tax policies on both sides of the border, the Institute engaged Jack Mintz, one of the world's leading international tax experts, and Duanjie Chen,[33] a research associate with the Institute of International Business at the University of Toronto's Rotman School of Management, to update the research they conducted for last year's annual report. Their analysis assesses marginal effective tax burdens on capital invested and on labour as they define these terms:

- **Marginal effective tax burdens on capital** influence the willingness of firms to go the extra step and invest the incremental dollar in capital, such as machinery, equipment, and software. In addition, they influence the decision by investors – from entrepreneurs to angel investors to venture capitalists to financial institutions – to invest in Ontario or elsewhere. Mintz and Chen's analysis focuses on corporate income taxes, capital taxes, and sales taxes paid on business purchases. Government infrastructure expenditures, research and development, and other business subsidies are subtracted from taxes on capital to arrive at the effective tax burden.[34]

- **Marginal effective tax burdens on labour** influence the willingness of people to decide to work versus not to work, to work the extra hour, or to invest in upgrading their own productivity and earn more in the future. In the extreme, the higher the marginal effective tax rate on labour, the greater the incentive for workers to opt out entirely, either into the underground economy or to a lower tax jurisdiction. Mintz and Chen's analysis of taxes on labour focuses on personal income taxes, payroll taxes and sales taxes. Their analysis captures labour taxes borne by employers and employees. Government expenditures in areas such as education and health care are deducted from these taxes.

Mintz and Chen conclude that Ontario's marginal effective tax rates on labour and capital remain significantly higher in 2004 than those in the five representative peer states we have chosen for comparison:[35] California, Georgia, Illinois, Massachusetts, and Michigan. Combining the effect of the two types of taxes, they conclude that the overall marginal effective tax burden on all costs is 29.0 percent in Ontario, 13.8 percentage points above – or nearly double the median of 15.2 percent in the five states. This difference is virtually the same as in 2003, when Ontario's rate was 29.2 percent and the median of the five states was 15.4 percent.

In Ontario, the burden on *capital* was almost unchanged because provincial polices and federal polices neutralized each other. Mintz and Chen note that "Federal policies – lower corporate income and capital taxes – have been responsible for fiscal relief to Ontario businesses. However, the federal policies have been somewhat blunted by provincial policies that have eroded fiscal competitiveness, including higher corporate income tax rates." The marginal burden on capital in the US was unchanged in 2004. The net result is that Ontario's tax disadvantage on capital decreased slightly from 16 to 15 percentage points. Still, governments in Ontario tax capital investments at 2.0 times the tax burden in peer states, down from a 2.1 times disadvantage in 2003 (Exhibit 11).

The marginal effective tax burden on *labour* in Ontario increased as the result of the new Ontario Health Premium. In the five states it decreased as minor personal income tax reductions were phased in and subsidies for education and health care were increased by the federal and some state governments. As a result, the disadvantage on labour widened from 11.8 percentage points to 12.4 percentage points in 2004. The disparity increased from a 1.73 times ratio to 1.78 times.

[33] Duanjie Chen and Jack M. Mintz (2004) "Ontario's Fiscal Competitiveness in 2004" Report prepared for the Institute for Competitiveness & Prosperity. Available online at: **www.competeprosper.ca**
[34] Property taxes are not included in this analysis largely because of the lack of comprehensive data. As discussed in the Institute's Working Paper 3, *Missing opportunities: Ontario's urban prosperity gap*, business property taxes tend to be greater than services received by business, while the opposite is true for individual residents.
[35] As this work is so labour intensive we have selected five representative states out of the 14 peer states. The differences between the five are so small relative to the differences between Ontario and the median of the five, we conclude this is an adequate sample.

In summary, our disadvantage in marginal effective tax burdens is essentially unchanged, largely because Ontario's and federal actions counteracted one another.

Smart tax policy can improve motivations to make capital investment

Ontario's current tax system prevents us from reaching our economic potential. In recent years, our tax system has de-motivated investment in capital relative to investment in labour, so it is no surprise we under invest in capital. If we want to strengthen capital investment and drive higher productivity and wages, we need to adjust the balance of motivations in our tax system. We need to tax smarter.

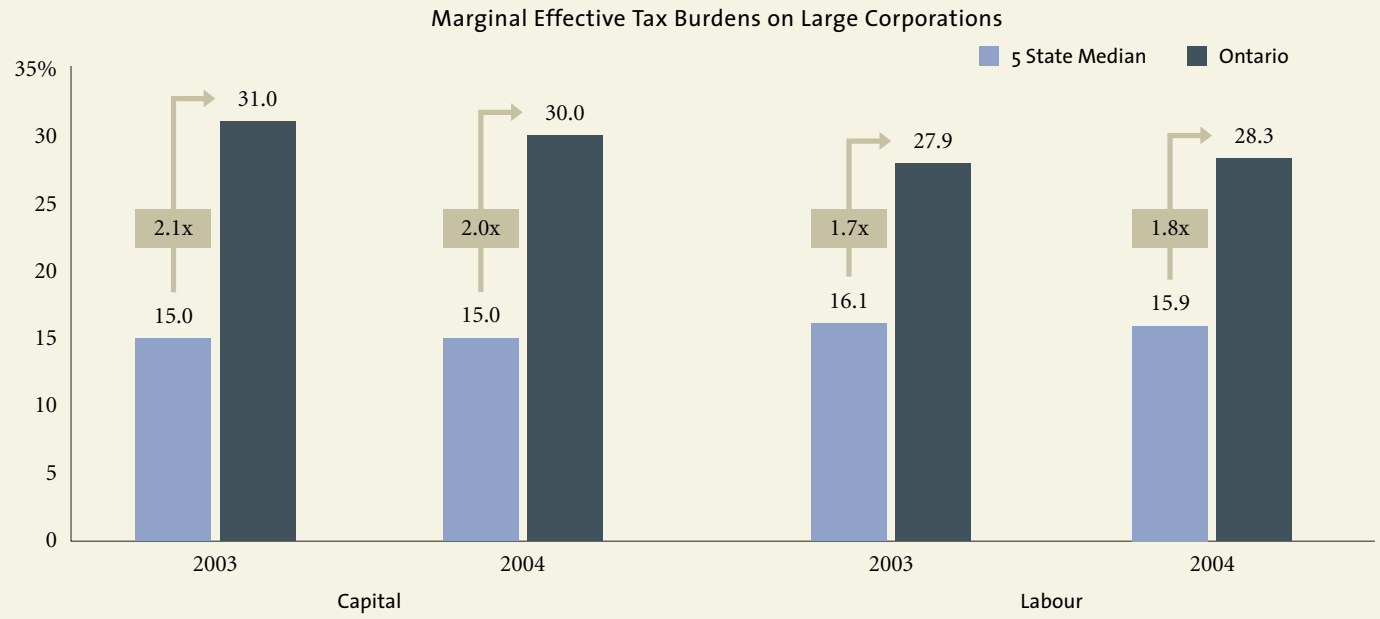
A smart tax system raises the revenues required by government to provide public services and physical infrastructure in an efficient and fair manner. For example, recent work on Ontario's tax system conducted through the Panel on the Role of Government in Ontario argued for a number of improvements to our tax system, including: setting tax rates that are internationally competitive; setting tax bases as broad as possible in all fields; and relying more on taxes on consumption relative to taxes on investment.[36] Mintz and Chen make similar observations in their analysis done for the Institute. The Institute has also reviewed economic literature and has engaged economic modelers to assess specific opportunities for smarter taxation in Ontario.[37]

Recurring elements for taxing capital investment smarter include:

- Removing Ontario's Provincial Sales Tax (PST) from capital investment would promote capital formation and growth. This would be part of broader sales tax reform converting the PST to a value-added tax like the GST. This would eliminate sales taxes on business inputs,[38] promote capital formation and growth, and could result in a positive impact on provincial finances because the tax would apply to the consumption of both goods and services like the GST

- Eliminating the provincial capital tax

Exhibit 11 Ontario's tax disadvantage persisted in 2004



Note: US ranges are as follows: Tax on Capital, 2003: 13.3%-17.5%, 2004: 13.3%-17.5%; Taxes on Labour, 2003: 15.1%-19.6%, 2004: 14.6%-19.5%
Source: Duanjie Chen and Jack M. Mintz, (2004) "Ontario's Fiscal Competitiveness in 2004" Available at www.competeprosper.ca

[36] Richard Bird and Thomas A. Wilson (2003) "A Tax Strategy for Ontario" Research Paper No. 32, Panel on the Role of Government in Ontario; Jack Mintz and William Robson (2003) "Ontario's Future Prosperity: Issues, Challenges and Recommendations" Research Paper No. 7, Panel on the Role of Government in Ontario; Jack Mintz and Thomas A. Wilson (2004) "Assessing Expenditure and Tax Reform Measures: A Review" Research Paper No. 50, Panel on the Role of Government in Ontario. Available online at: www.law-lib.utoronto.ca/investing/

[37] Results from this work will be published by the Institute in the first half of 2005.

[38] The rationale behind this option is that the PST is levied on purchases of capital equipment by business, specifically discouraging new investment by firms. Statistics Canada estimates indicate that, in 2000, of the $13.2 billion collected by Ontario retail sales taxes, 46.1 percent – or $6.1 billion were levied on business purchases: $3.2 billion for operating items such as office supplies and $2.9 billion for capital goods such as machinery and equipment.

- Increasing the rates at which businesses can depreciate capital expenditures for provincial tax deductions[39]

- Lowering provincial corporate income tax rates.

The Institute for Competitiveness & Prosperity is currently assessing these and other options. These modifications to provincial tax policy would strengthen Ontario's competitiveness and prosperity by stimulating investment. We turn next to opportunities for taxing individuals smarter.

Smart tax policy can improve individuals' motivations to work and invest

Another aspect of taxing smarter is ensuring that tax burdens on individuals are not acting as a disincentive to work more or to upgrade skills. While our work indicates that Ontarians' work effort more than matches that in the peer states, we need to ensure that the gap in marginal effective taxes on labour is minimized. As Nobel laureate Edward Prescott recently noted,[40] the significant differences in work effort between Americans and Europeans can be explained by taxes, not culture. As recently as the early 1970s France's labour supply exceeded that of the US. Since then France has fallen further and further behind the US as its taxes on labour increased relative to the US.

Research done by Finn Poschmann shows that our personal tax and benefit system has resulted in high marginal effective tax burdens for low and moderate families.[41] This system acts as a de-motivator for lower income Ontarians, particularly families and seniors. For the most part, these high marginal burdens are not driven by increases in income tax rates. Instead, they are largely the

Exhibit 12 Ontario families face high marginal tax burdens over a wide income range

Marginal Effective Tax Rates for a Single Earner Couple* in Ontario, 2003

*Two Children Under Seven (Allowing for GST and Other Refundable Credits; Ontario Tax Reduction and Sales Tax Credit)

Source: Trebilcock et al. (2004) "Creating a Human Capital Society for Ontario," Staff Report, Panel on the Role of Government in Ontario, p. 151.
Calculations by Finn Poschmann, C.D. Howe Institute. Available online: www.law-lib.utoronto.ca/investing

[39] This is not to suggest that depreciation allowances should be increased for all assets. Depreciation allowances should reflect the useful economic life of an asset.
[40] Edward C. Prescott (2004), "Why do Americans Work More Than Europeans?" Wall Street Journal, October 21, p. A18.
[41] Finn Poschmann (2004), "Ontario's Health-Tax Experiment May Have Lessons for all Canadian Governments" C.D. Howe Institute e-brief; also see Mintz and Robson (2003); OECD (2004), Economic Surveys: Canada, Paris: OECD, p. 98.

product of clawbacks of tax credits, benefits, and transfer programs (e.g., the GST tax credit, child benefits, and income supplements for seniors). Clawbacks refer to the reduction of these assistance programs that occurs as an individual's income increases.

The consequence of benefit clawbacks is that individuals and families progressing towards higher income levels can face dramatically higher marginal tax burdens on the additional income they earn. For example, in 2003, a single earner couple with two children faced a marginal burden of 83 percent at about $38,000 in employment income; that is, they kept only 17 cents of each new dollar they earned on their higher income (Exhibit 12). The high rates faced by low- and moderate-income families are mainly caused by clawbacks of the GST tax credit and federal and provincial child benefits. To be sure, average tax rates (net of benefits) are progressive. Nevertheless, in 2003, the persistently high marginal burdens on taxable income from about $26,000 to $45,000 were a strong de-motivator for families to increase their work effort and invest in education.

It is important to recognize that any progressive tax and benefit system will have the feature of high marginal tax burdens at certain points of the income scale. The problem in Ontario is that our system is characterized by high marginal burdens over a long stretch of low- to moderate-taxable income. Therefore, the challenge is to design our tax and benefit systems to balance the need to support lower income individuals and families and the need to ensure that incentives to work and upgrade skills are preserved.

Unfortunately, we have a tax and benefit system that can be very punishing for lower income individuals and families. By reducing incentives to work and upgrade skills, the system is not helping close the prosperity gap. We need to change it.

Recommendations made by others to address the problem of high marginal burdens on low-income earners include:

- Modifying the brackets of the personal income schedule by, for example, increasing the basic personal exemption (the amount an individual can earn before paying income tax), and increasing the income levels at which higher marginal rates apply[42]
- Imposing a single rate tax on personal income to smooth out marginal tax burdens[43]
- Implementing a "lifetime earnings" tax system, in which progressive tax brackets are based not on annual earnings, but on lifetime earnings. This system would reduce the need for programs with clawbacks that produce the high marginal rates[44]
- Introducing tax-prepaid savings plans, which would allow people to draw income from savings without triggering federal and provincial social benefit reductions[45]
- Redesigning tax credits to reduce clawback rates.[46]

In summary, we have identified opportunities for Ontario to tax smarter – in both business and personal taxation. Some of the cost of these potential tax reforms would be offset by increased economic activity and, in some instances the tax reform will raise provincial government revenues. However, in this time of fiscal restraint the provincial government needs to curb expenditures elsewhere to implement broader reforms. The Institute intends to explore opportunities to finance tax reform and tax reductions and make specific recommendations based on this work.

We believe that tax reductions and reforms to our tax system are required to strengthen Ontario's competitiveness and living standards. Our research to date reveals that there are fiscally responsible options for improving Ontario's tax structure. These reforms are designed to increase investment in physical capital and to raise incentives to work, save, and invest in human capital, thereby enhancing the prosperity of all Ontarians.

[42] John Williamson (2004), "Free low-income earners from tax," National Post, October 21, p. FP15; Nancy Hughes Anthony (2004), "Give us a break," National Post, October 21, p. FP15.
[43] Jason Clemens and Joel Emes with Rodger Scott (2003) "The flat tax model for reform of personal and business taxes" in Herbert G. Grubel (ed.) *Tax Reform in Canada: Our Path to Greater Prosperity*, The Fraser Institute.
[44] Roger Martin (2004) "The tax of a lifetime," National Post, February 18, FP. 19; Roger Martin (2000) "Taxation: The new wave," Globe and Mail, February 10, p. A13.
[45] Jonathan Kesselman and Finn Poschmann (2001) "A New Option for Retirement Savings: Tax-Prepaid Savings Plans," C.D. Howe Institute Commentary No. 149.
[46] Bird and Wilson (2003), p. 15.

Strengthened market structures and investment


CANTON

Strengthened market structures and investment

Ontario needs strengthened market structures to encourage investments for innovation and upgrading

WE TURN NOW TO THE FINAL ELEMENT of AIMS – *structures* – to understand their effects on competitiveness and productivity in Ontario and to explore the opportunities they may offer for innovation and upgrading. Structures provide a critical context for how attitudes affect competitiveness and prosperity. Structures of competitiveness affect the demand for and supply of investments in physical and human capital, which in turn affect the overall capacity for productivity and innovation. Structures are affected by motivations as represented by marginal effective tax burdens.

Governance structures range from attributes of government related to the rule of law at the most basic level, to sophisticated structures and processes that reward innovation and commercialization. Market structures describe the competitive environment that supports and requires firms and industries to innovate and upgrade.

In the past year our research focused on market structures, indicating that Ontario has many of the basic elements in place for driving innovation and higher productivity in our clusters of traded industries. But our traded industries are under performing, delivering poorer results than many clusters in the peer states. Therefore, while our attitudes are consistent with aspirations for world-class productivity and prosperity, our clusters of traded industries are not as vibrant as those in the peer group.

In this section we first examine the evidence that our traded industries are under performing. Then we assess the structures of specialized support and competitive pressure for traded industries – concluding that they are currently inadequate for closing the prosperity gap.

Clusters of traded industries in Ontario are under performing

In his ground breaking work, *The Competitive Advantage of Nations*,[47] Michael Porter identified the importance of clusters of traded industries to an economy's productivity and innovative capacity. In this and his subsequent work, Porter observed that economies have three different types of industries – local, resource dependent, and traded. Most employment is found in *local* industries,

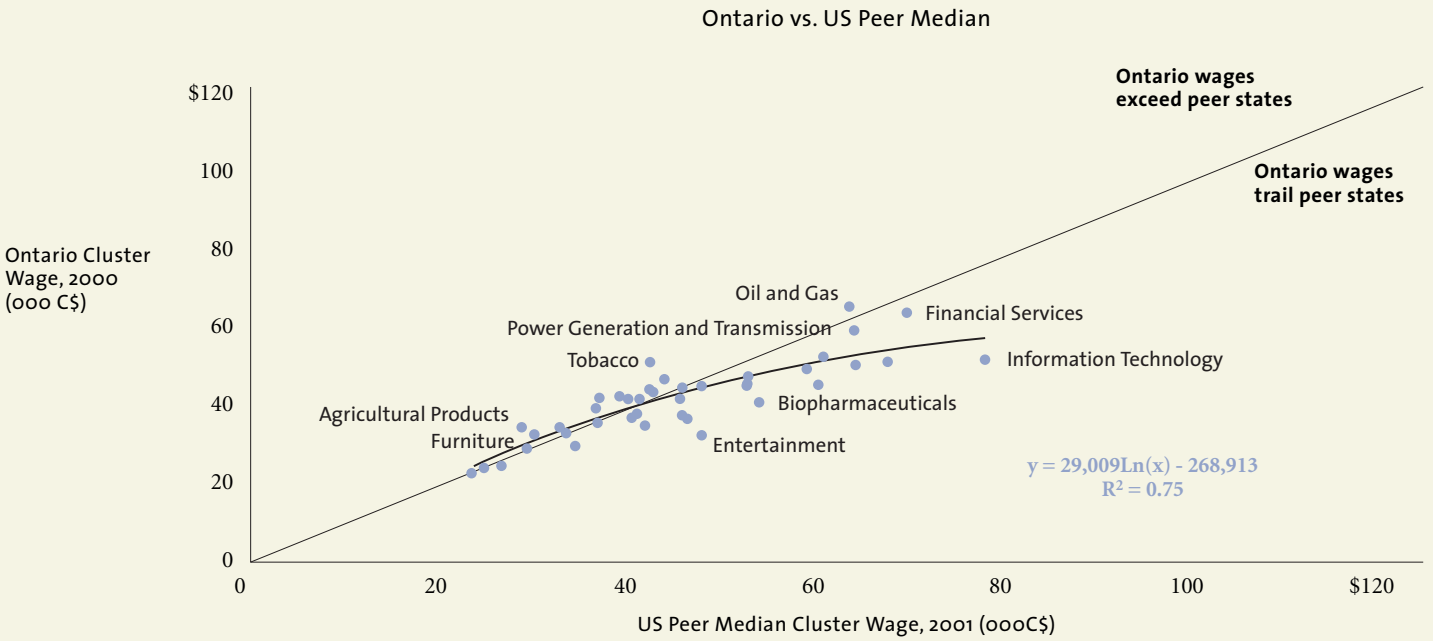
[47] Michael Porter (1998). The Competitive Advantage of Nations, The Free Press, New York.

which provide goods and services to the local region in which they operate. These meet local needs and tend not to compete with other regions. Most local industries are services, such as retailing, health care, and residential construction. Local goods' manufacturers include bottling facilities, newspapers, and concrete products. A small percentage of employment[48] is found in *resource dependent* industries, such as mining and logging. As expected, these are located near the natural resource. But unlike local industries, they compete with other firms around the world. *Traded* industries sell products and services across regions and internationally. Examples include automobile parts and assembly, steel making, and biopharmaceuticals companies. Their location is determined by access to specific factors, such as a trained workforce, suppliers, or customers. Unlike local industries, employment varies from region to region.

Porter's work has also shown that clusters of traded industries are the primary source of innovation and productivity in an economy. His research shows that in terms of patents per employee, traded industries produce 16 times the number of patents in local industries and 3 times more than natural resource industries.[49] In terms of wages, which relate directly to productivity, traded industries generate 66 percent higher wages in the US economy than local industries and 40 percent more than resource dependent industries. Because traded industries are exposed to greater competitive pressure from a wider array of rivals and customers, they are forced to be more innovative and productive or cease to exist. Traded industries also benefit from specialized resources – for example, skilled labour, university collaboration, capable suppliers that emerge in support of these industries. The better the local specialized support the more effective the traded industry.

The Institute has adapted his approach to Ontario's and Canada's economies.[50] In Working Paper 1, *A View of Ontario: Ontario's Clusters of Innovation*, the Institute analyzed Ontario's clusters of traded industries[51] and concluded that a higher share of Ontario's employment was in clusters of traded industries than in the US peer group jurisdictions. In subsequent working papers and the Task Force's annual

Exhibit 13 Ontario's under performance worsens in higher wage clusters



Source: Institute for Competitiveness & Prosperity, Institute for Strategy and Competitiveness; Statistics Canada

[48] 1 percent of Ontario employment overall, but 8 percent in Sudbury CMA and 5 percent in Thunder Bay CMA.
[49] Michael Porter, "The Economic Performance of Regions," Regional Studies, vol. 37 no. 6–7/Aug.-Oct. 2003, p. 560.
[50] Institute for Competitiveness & Prosperity, *Strengthening structures: Upgrading specialized support and competitive pressure*, July 2004, p. 24.
[51] Michael Porter (1990). The Competitive Advantage of Nations, The Free Press 1990.

Exhibit 14 Ontario patent performance trails peer states in nearly all clusters

Traded Clusters (Ontario employment rank) ☐ TOP TEN ONTARIO EMPLOYMENT	US PATENTS PER 10,000 EMPLOYEES		Ontario / Peer States
	Ontario[a]	Peer State Median[b]	
Jewelry and Precious Metals (35)	5.12	2.24	**2.29**
Business Services (1)	0.59	0.28	**2.08**
Agricultural Products (23)	9.60	7.97	**1.20**
Sporting, Recreational and Children's Goods (37)	46.57	39.28	**1.19**
Transportation and Logistics (7)	0.95	0.83	**1.15**
Prefabricated Enclosures (31)	16.16	15.18	**1.06**
Hospitality and Tourism (5)	1.05	1.09	0.97
Distribution Services (9)	0.23	0.27	0.88
Heavy Construction Services (8)	4.50	5.36	0.84
Entertainment (12)	10.51	13.23	0.79
Communications Equipment (20)	93.31	118.29	0.79
Building Fixtures, Equipment and Services (13)	11.97	15.52	0.77
Aerospace Engines (38)	9.42	12.54	0.75
Tobacco (39)	12.88	19.10	0.67
Fishing and Fishing Products (40)	21.97	32.70	0.67
Power Generation and Transmission (22)	10.50	15.75	0.67
Plastics (17)	28.10	44.71	0.63
Processed Food (11)	4.64	7.52	0.62
Financial Services (2)	0.03	0.05	0.61
Leather and Related Products (36)	19.56	35.16	0.56
Education and Knowledge Creation (3)	0.77	1.44	0.54
Construction Materials (34)	18.24	35.21	0.52
Furniture (25)	4.77	9.57	0.50
Apparel (19)	2.61	5.36	0.49
Motor Driven Products (27)	30.98	64.45	0.48
Medical Devices (28)	48.61	101.59	0.48
Lighting and Electrical Equipment (32)	16.29	34.06	0.48
Production Technology (14)	27.35	58.63	0.47
Information Technology (15)	43.47	93.99	0.46
Weighted Average	7.92	17.73	0.45
Footwear (41)	19.05	45.13	0.42
Biopharmaceuticals (30)	35.48	97.46	0.36
Aerospace Vehicles and Defense (33)	11.51	32.73	0.35
Metal Manufacturing (6)	7.43	21.28	0.35
Publishing and Printing (10)	5.03	14.55	0.35
Chemical Products (21)	25.50	73.99	0.34
Oil and Gas Products and Services (20)	15.25	44.37	0.34
Analytical Instruments (24)	46.24	137.25	0.34
Heavy Machinery (18)	11.59	40.05	0.29
Textiles (29)	9.19	37.36	0.25
Automotive (4)	9.93	48.77	0.20
Forest Products (16)	4.51	25.85	0.17

[a] Ontario results: 1999–2003 average; [b] US results: 1997–2001 average
Source: Institute for Competitiveness & Prosperity; Institute for Strategy and Competitiveness; Statistics Canada, US Patent and Trademark Office; CHI Research

reports, we showed how the mix of clusters represents an advantage for the province and its city regions.

In Working Paper 5, *Strengthening structures: Upgrading specialized support and competitive pressure*, the Institute calculated wages for each of Ontario's clusters of traded industries and its local and natural resource industries. In traded industries, which are the driving force of overall wage levels in an economy,[52] Ontario trails peer performance. In fact, in all but 12 of the 41 clusters of traded industries, wages are lower in Ontario than in the median of the peer states (Exhibit 13). Further analysis of this wage – and productivity – gap indicates that Ontario is close to or exceeds peer results in lower wage industries, but falls further behind as the clusters' wage levels get higher. We also find this attenuation phenomenon as we assess wage performance inside clusters. In sub-clusters, in both high-paying and low-paying clusters, the gap between Ontario and peer states' wages widens as the wage level increases.

As in the peer states, Ontario's traded industries are important to our overall patent output – the common measure of innovation success; however, patent output in our clusters of traded industries trails results in our peer states dramatically (Exhibit 14)

Ontario benefits from an excellent mix of clusters of traded industries. In fact, as we stated earlier, our mix of industries adds $1,906 per person in GDP per capita to our prosperity relative to our peer states. Yet our clusters under perform significantly in productivity and innovation. We conclude that this under performance is largely the result of inadequate market structures so necessary to provide the pressure and support for success. We turn next to this assessment.

[52] For US results see Michael Porter, "The Economic Performance of Regions," pp.549-578; for Canadian results see *Strengthening structures: Upgrading specialized support and competitive pressure*, p.21.

Structures of competitive pressure and specialized support are inadequate

To deepen our understanding of the under performance of our traded clusters, we examined the level of both general and specialized support and competitive pressure in our market structures. Each cluster and industry operates within its own structure of specialized support and competitive pressure. Underpinning these cluster environments is a platform of general support (Exhibit 15). This general support includes factors such as physical infrastructure, legal administrative mechanisms and processes, basic education, and stable macroeconomic conditions. An economy clearly requires excellent general support, but breakthrough performance is the result of innovative firm actions driven by specialized support and competitive pressure.

Specialized support includes factors, such as focused research capability, industry specific skills, and capable specialized suppliers. Pressure for upgrading is supplied by sophisticated and demanding customers, spurring local firms to innovate in order to upgrade their product and service offerings. Particularly valuable are demand conditions that anticipate the nature of demand elsewhere in the world. Beneficial pressure is also supplied by capable rivals that cause local competitors to seek unique and better ways to meet the needs of customers. Human nature being what it is, individuals and firms generally perform just to the level necessitated by the pressure they are under and the supports that enable them to act.

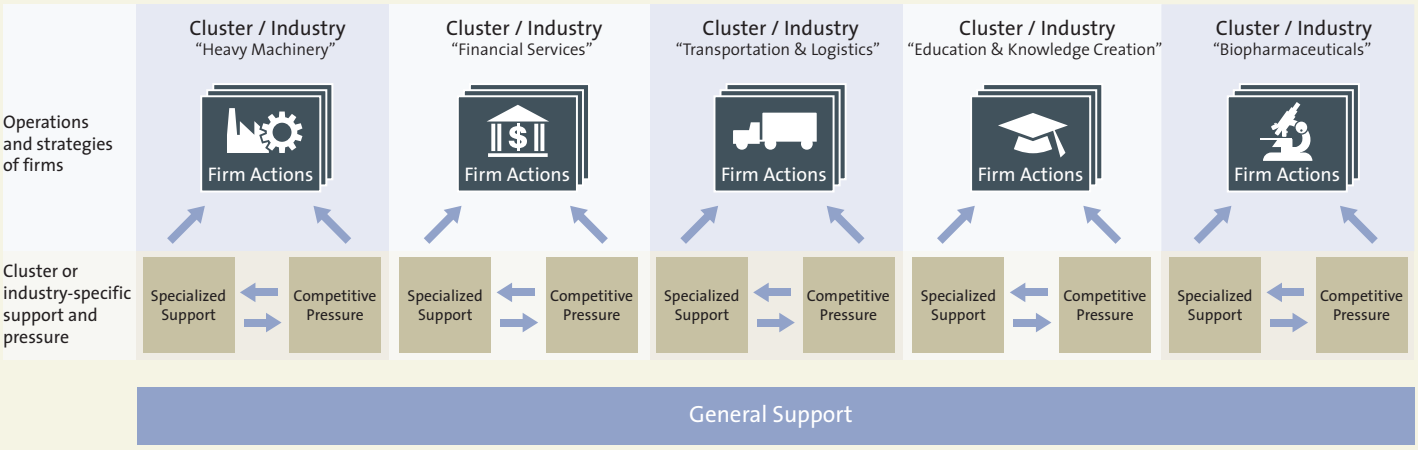
To help us assess the impact of our market structures, we drew on the research conducted by the World Economic Forum to produce the Business Competitiveness Index. This index, developed by Michael Porter, is a useful measure of the levels of pressure and support in Canada, the United States, and nearly 100 other countries. Much of the information contained in the index is from the Executive Opinion Survey, a mail survey administered in each country to executives in sectors in proportion to the sectors' share of the overall economy.[53] The survey is made up primarily of a series of statements for which the respondents indicate how well they think their country's economy performs on various factors. The statements are aimed at eliciting views on the respondent's own country and do not ask for comparisons with other countries.

Ontario has adequate general support conditions

The World Economic Forum results indicate that Ontario[54] has adequate general support relative to its peer states (Exhibit 16). Of the 16 factors in general support, Canada and the US each have advantages on eight. Some of these factors exhibit a closer fit with GDP per capita performance; when the factors are weighted accordingly, Canada has a 32 percent advantage on the average score in the survey for the WEF's 2004/2005 report.

These are important building blocks for a competitive and prosperous economy and Canada and Ontario have strengths there. However this strength does not carry over into factors of specialized support.

Exhibit 15 Structure of pressure and support drives quality of firm actions



[53] For a more detailed description of the Business Competitive Index and the Executive Opinion Survey see World Economic Forum, The Global Competitiveness Report, 2004-2005, pp. 167-178
[54] World Economic Forum results are available at the country level, not at the state or provincial level. Given the importance of Ontario and the peer states in their respective countries we believe Canada-US results are applicable.

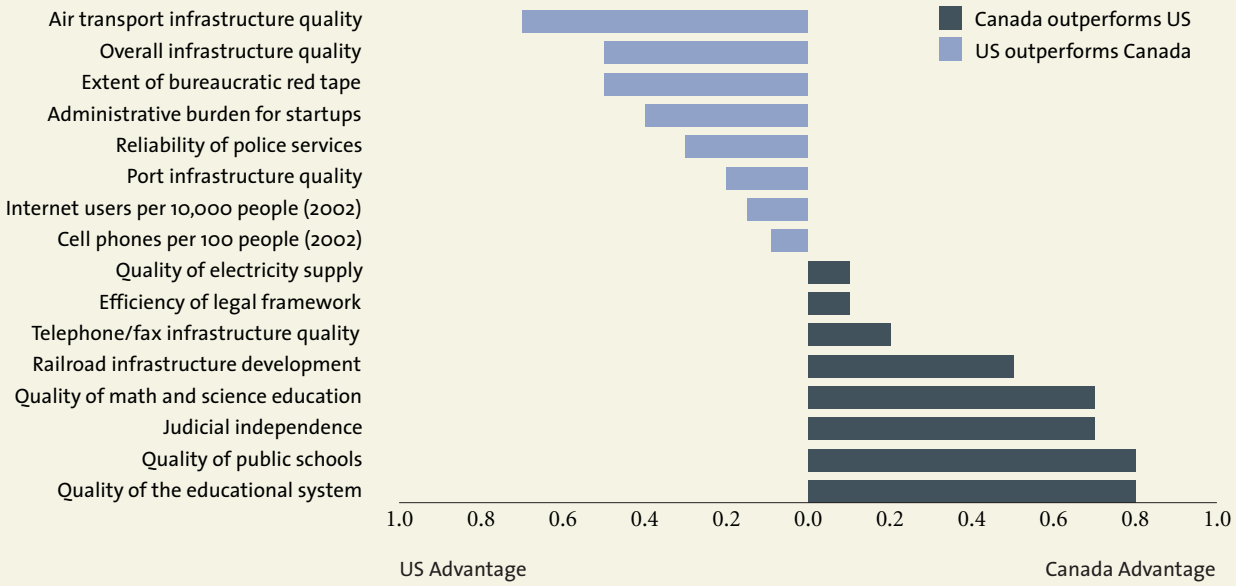
Ontario provides inadequate specialized support to its clusters and industries

Specialized factors of support are to be found in areas such as human resources, technology, and capital markets. In these areas we find that our performance attenuates across a series of measures that gauge the degree to which local industries and clusters are supported with specialized factors of support (Exhibit 17). The WEF survey results point to disadvantages in:

- University/industry research collaboration where US survey respondents are more likely to indicate that collaboration with local universities is "intensive and ongoing"
- Quality of management schools where US respondents are more likely to agree that their schools "are the best in the world"
- Quality of scientific research institutions where US respondents are more likely to indicate that university and government laboratories are "the best in their fields"
- Local availability of specialized research and training services where US respondents are more likely to agree that in their industry such resources are "available from world-class institutions"
- Local supplier quantity where US respondents are more likely to agree that their local suppliers are "numerous and include the most important materials, components, equipment, and services"
- Financial markets' sophistication where US respondents are more likely to agree that the level of sophistication in their country is "higher than international norms."

Current government policies to stimulate innovation and commercialization are important examples of our lack of the appropriate types of specialized support. In Working Paper 6, *Strengthening structures: Upgrading specialized support and competitive pressure*, the Institute identified public policy shortcomings in innovation and commercialization. It concluded that public policy makers in Canada and Ontario focus on a narrow range of support factors. The logic starts with a narrow definition of innovation based on scientific or technological breakthroughs versus practical business innovation. From this premise flows the conclusion that our innovation problem is the result of an inadequate supply of scientific and technical labour, funds for R&D, and funds for commercialization.

Exhibit 16 Canada out performs US on "General Support" factors



Source: Institute for Competitiveness & Prosperity analysis based on World Economic Forum

As the Institute assessed the data relative to R&D investment, the availability of scientific and engineering personnel, and the supply of venture capital, we concluded that public policy was not as grounded in the data as it needs to be:

- The quantity of Ontario's R&D is less of a problem than its composition. While we have been closing the gap with the peer states in overall R&D as a percentage of GDP, our main challenge is in the area of business R&D and less so in R&D performed by universities and government.

- While received wisdom is that we lack in the critical support from the quantity of scientists and engineers, Ontario actually has a higher stock of graduates in these disciplines. And in the flow of new graduates we continue to outpace the US. But Ontario's advantage is only among those with bachelor's degrees. In both the stock and flow of science and engineering graduates, we trail the US in graduate degrees. In other words, we lead in the overall quantity but lag in the quality and specificity of this support for innovation and commercialization.

- Specialized support factors such as the quality of management schools are overlooked. The evidence indicates that Ontario managers are less well educated than their counterparts in the peer states and, in particular, are less likely to have any form of business education. At the most senior level, CEOs of our largest public corporations are significantly less likely to have an MBA than their US counterparts.

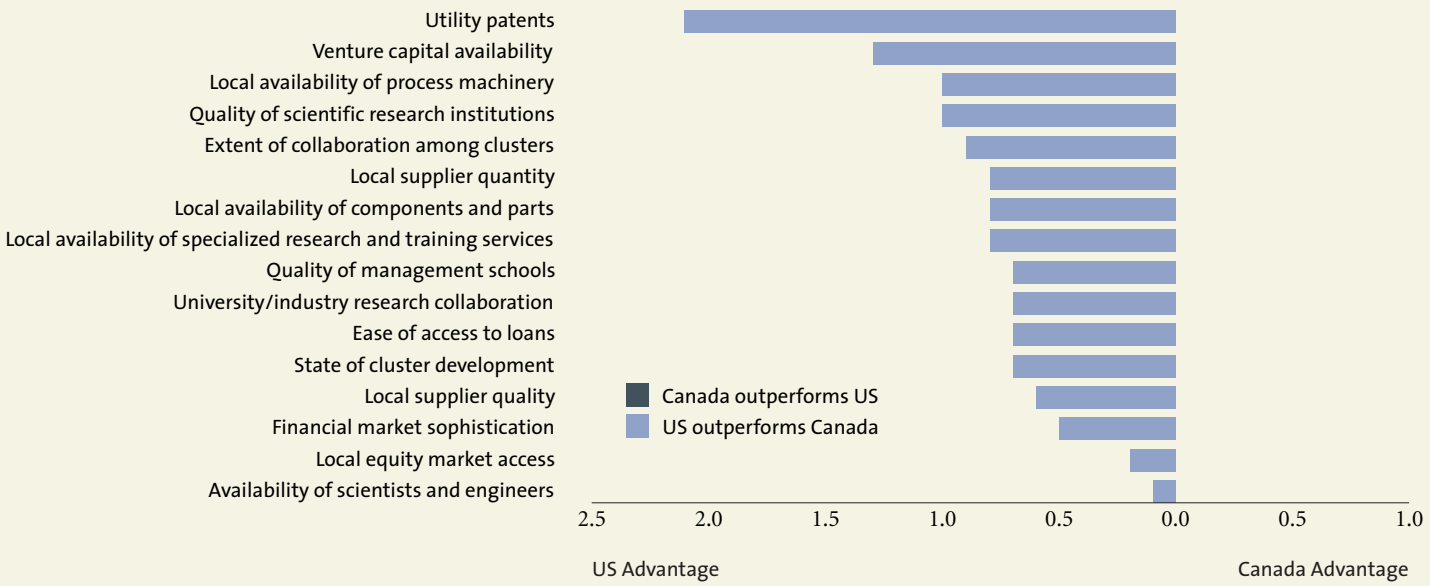
- In venture capital, the evidence indicates that the availability of funds in Ontario is similar to that in the peer states. Current public policy indicates a belief that we have inadequate venture funds. However, we interpret the evidence from funds raised and returns on venture investments to point to issues of venture investing quality, not quantity of funds available.

The World Economic Forum data and our own assessment of public policy in innovation and commercialization point to inadequacies in the specialized support for enhancing productivity and prosperity. The other important lacking structure is in competitive pressure.

Our market structures lack adequate competitive pressure

The Business Competitiveness Index rates Canada very low on factors of competitive pressure (Exhibit 18). Of the 23 factors related to pressure, we have a disadvantage

Exhibit 17 Canada trails in "Specialized Support" factors



Source: Institute for Competitiveness & Prosperity analysis based on World Economic Forum

Ontario's wine industry is driven by increasingly sophisticated consumers and specialized support

THE CANADIAN WINE INDUSTRY vividly illustrates the importance of competitive pressure and specialized support on innovation and upgrading. The industry has come a long way since the Canada-United States Free Trade Agreement came into effect in 1989. As Donald L. Triggs, President and CEO of Vincor International Inc., has stated: "[The FTA] served notice to the entire industry that we had to be competitive. And that meant that we had to significantly improve our products."[a]

However, international success is a relatively new phenomenon in the Canadian wine industry. Ontario's and Canada's wine industry has only recently been exposed to pressures to expand their operations, produce at low cost and develop high quality products. For decades, government policies protected the domestic wine industry.

Prior to the FTA, domestically produced wines had an artificial price advantage over foreign wines in Canada, reducing the pressures to operate efficiently, produce for foreign markets and improve quality they would have faced if they had had to compete with foreign firms. The federal government placed tariffs on imported wines and, in Ontario, the Liquor Control Board of Ontario (LCBO) levied a significant mark-up on imported wines. These policies restricted the choices available to consumers, limiting their ability to expand their level of wine sophistication. The FTA required that the tariffs be removed and the mark-ups on domestic and imported wines be equalized.

In addition, for decades wine content regulations required that Ontario wineries use mostly locally grown grapes. Yet the native grape of Ontario is the labrusca grape. While "ideal for juice, preserves, and dessert and low alcohol wines, their lower sugar levels and higher acids are not suited for the lighter, and dry, table wines."[b] Instead, vinifera grapes (e.g., Cabernet Franc, Chardonnay, Riesling, and Merlot), which are native to Europe, are required to make high-quality table wines. Prior to the FTA, content regulations shielded Ontario grape growers from the pressure to cultivate them. At the same time, price protection reduced the pressure on wine producers to produce higher quality wines, again at the expense of Canadian wine consumers. With the FTA, if Canadian wine producers were to survive without government protection, they had to produce wines demanded by consumers not just in Canada, but all over the world. Now the industry had to produce higher quality wines using vinifera grapes.

To catch up after the years of a lack of pressure for growers to cultivate vinifera grapes, governments subsidized Ontario grape growers to make the transition through a $100 million federal/provincial Grape Adjustment Program. Protectionism not only reduced the international competitiveness of Ontario businesses while artificially increasing prices and reducing the availability of higher quality products to Ontario consumers, but also imposed a further cost on all taxpayers through the subsidy granted to the grape growers who adjusted their crop.

Today, Vincor is a global player in the wine industry, and Ontario wines win international prizes. Also, the exposure to competitive pressures has created a dynamic wine industry in Ontario that is motivated to develop quality products and create new economic opportunities. The number of grape-based wineries in Ontario increased from 18 to 72 between 1989 and 2001.

Ontarians have responded positively to these product improvements and have become more sophisticated wine consumers. In 1992, wines with the Vintners Quality Alliance (VQA) designation accounted for less than 5 percent of Ontario wine volume and 11 percent of sales dollars. By 2004, VQA wines have increased to 22.5 percent of volume and 33.6 percent of dollars. Today, wine-based tourism catering to sophisticated wine consumers is a growing phenomenon in the Niagara Peninsula.

Further, the pressures of rivalry and demanding customers spurred the industry to develop specialized supporting structures. For example, the Niagara College Winery and Viticulture Technician program, established in 2000, was developed in direct consultation with the wine industry. Also, the Cool Climate Oenology and Viticulture Institute (CCOVI) at Brock University, established in 1996, is a partnership with the Wine Council of Ontario and the Ontario Grape Growers Marketing Board.

Despite the successes, wine industries still maintain various forms of government protection and support in Ontario and Europe. Yet, overall, the history of the Ontario and Canadian wine industry shows that protectionist policies that shield firms from market forces do not foster an environment conducive to robust industries, do not serve consumers and do not promote prosperity. Prosperity increases when firms compete on quality and cost and when consumers become more demanding and sophisticated as they are offered more product choices.

[a] Don Triggs (2003), "Entrepreneur of the Year," *National Post Business Magazine*, December 1, p. 76.
[b] Grape Growers of Ontario website: www.grapegrowersofontario.com

on 17, are tied on three and have an advantage on three. We trail our US peers on factors related to rivalry:

- Decentralization of corporate activity where US respondents are more likely to agree that corporate activity in their country is "spread among many firms" and not "dominated by a few business groups"
- Intensity of local competition where US survey respondents are more likely to agree that competition in their market is "intense in most industries as market leadership changes over time"
- Intellectual property protection where US respondents are more likely to agree that this "is equal to the world's most stringent."

We also trail the US on factors related to the impact of demanding and sophisticated customers:

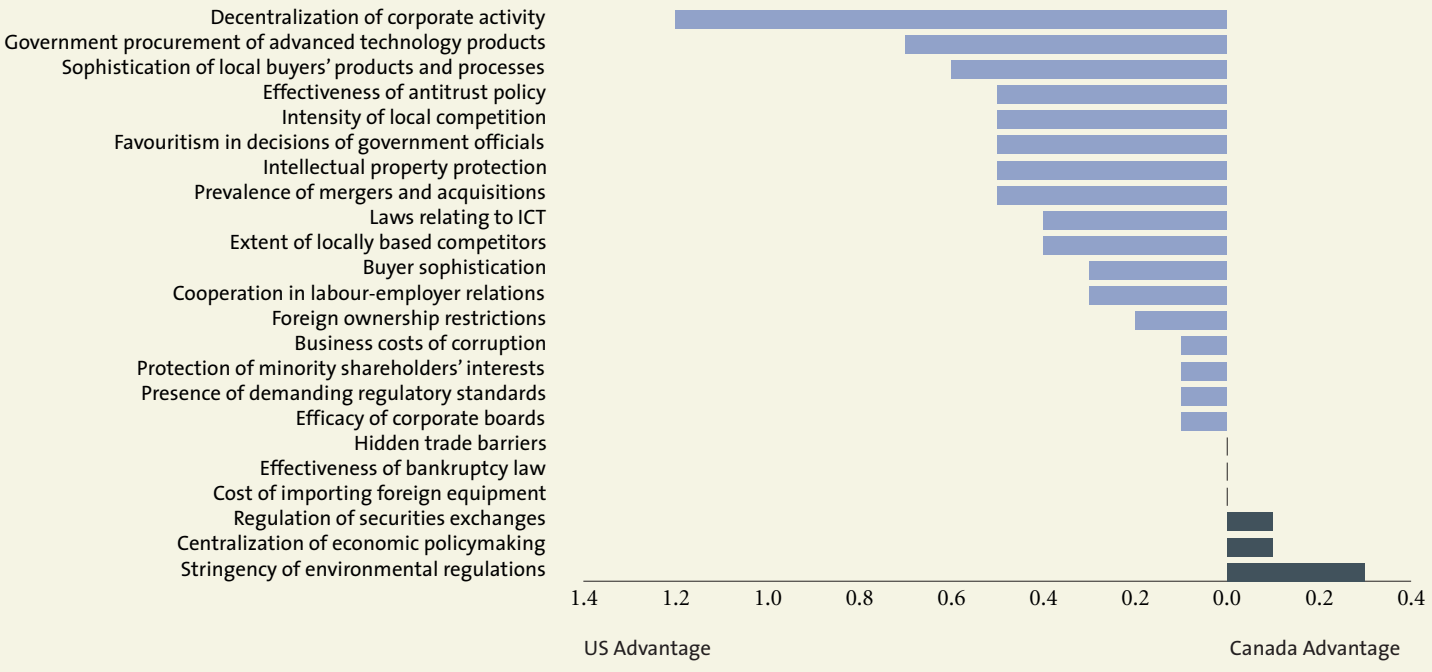
- Sophistication of buyers and buying processes where US respondents are more likely to agree that buyers in the US are "actively seeking the latest products, technologies and processes"
- Government procurement of advanced technology products where US respondents are more likely to agree that these purchase decisions are "based on technology and encourage innovation" rather than "solely on price."

The lack of adequate structures of specialized support and competitive pressure results in mediocre strategies and operations by our businesses.

Company actions are weakened by lack of specialized support and competitive pressure

We have argued that company strategies and operations are only as good as they need to be. If the environment in which companies operate is not providing the specialized support and the intense pressure for innovating and upgrading, then companies will have uninspired strategies and mediocre operations. Results from the Business Competitiveness Index indicate that this hypothesis is borne out (Exhibit 19).

Exhibit 18 Canada trails US on "Competitive Pressure" factors



Source: Institute for Competitiveness & Prosperity analysis based on World Economic Forum

Executive opinion survey results indicate that we trail our US peers in important areas such as,

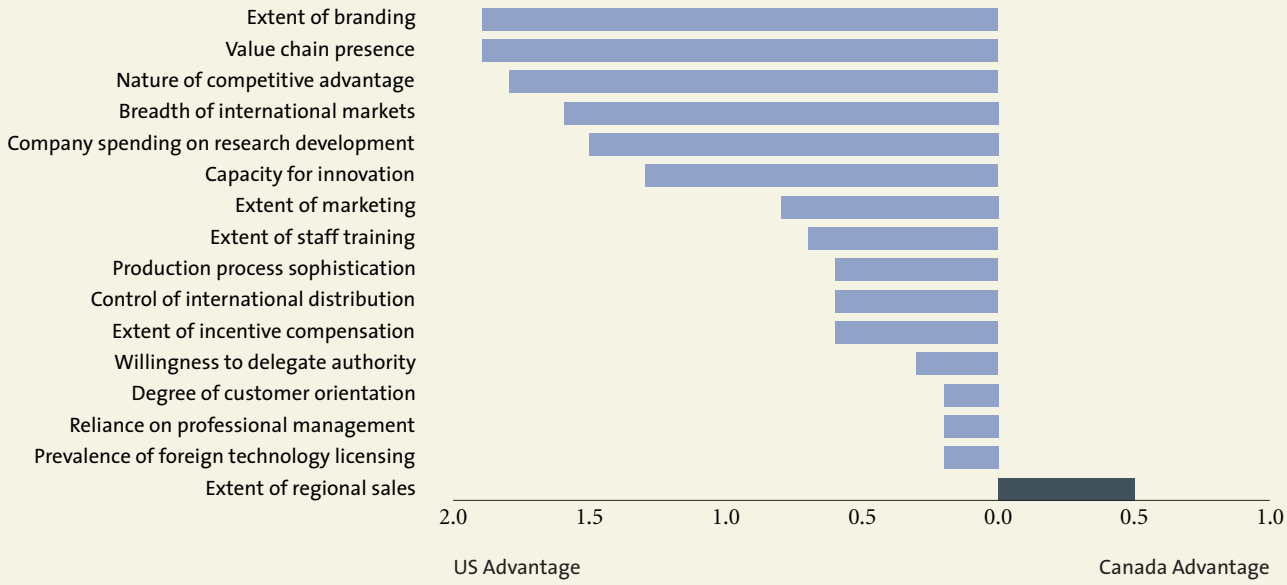
- Quality of the nature of our companies' competitive advantage where US respondents are more likely to agree that competitiveness of their companies in international markets is primarily due to "unique products and processes" rather than "low cost or local natural resources"
- Capacity for innovation where US respondents are more likely to agree that companies obtain technology "by conducting formal research and pioneering their own new products and processes"
- Sophistication of our firms' value chains where US respondents agree that their exporters "not only produce but also perform product design, marketing, sales, logistics, and after-sales services" instead of being "primarily involved in resource extraction or production"
- Extent of branding where US respondents are more likely to agree that their companies "have well-developed international brands and sales organizations."

On average, the quality of our firms' strategies and actions falls short of US peers by 38 percent. This is the result of disadvantages in the presence of specialized support (38 percent disadvantage versus the US) and competitive pressure (22 percent disadvantage).

These results are based on survey data and are subject to the usual caveats with these research instruments. Nevertheless, the work done by the Institute in assessing specific clusters in Ontario and Canadian firms who are global leaders in their industry supports the conclusions we have drawn from the World Economic Forum results.[55]

In summary our structures of pressure and support are not stimulating superior performance in our industries in Ontario. We have built a solid foundation of physical, administrative, and educational support. However we have not developed adequate structures of specialized support and competitive pressure to drive business strategies and operations that build Ontario's capacity for productivity and innovation.

Exhibit 19 Canada trails US on nearly all "Company Operations and Strategy" factors



Source: Institute for Competitiveness & Prosperity analysis based on World Economic Forum

[55] *Strengthening structures*, pp. 31-41

Intrawest resorts are leaders in North American recreation villages

Intrawest Corporation managed competitive pressures and strong supporting structures to develop the leading recreation resorts in North America

OVER THE LAST 20 YEARS, Intrawest developed a network of 10 premier mountain resorts, including Whistler Blackcomb in British Columbia and Mont Tremblant in Quebec. It also owns or operates 36 golf courses across North America.

Intrawest operates in an environment of strong competitive pressure. There are about 730 ski resorts (490 are located in the United States and 240 are located in Canada) in North America and ownership is highly fragmented.[a] Similarly, there are about 18,000 golf courses in North American (16,000 in the United States and 2,000 in Canada), again with highly fragmented ownership.[b] Further, ski resorts and golf courses compete with other leisure-based industries (e.g., beach resorts and cruise lines). This pressure provided Intrawest with the motivation to maximize the value of its resort operations. Initially just offering skiing during the winter season, Intrawest added golf courses and other activities, such as horseback riding and hiking, to operate its resorts 365 days a year. It also developed residential and commercial real estate developments to build demand for its ski and golf facilities.

The high degree of choice in the ski and golf resort industry has fostered the development of sophisticated and demanding customers, providing the incentive for firms to improve the customer experience by enhancing service and convenience. For example, Intrawest's Squaw Valley resort in Olympic Valley, California, "caters to a tech-savvy crowd from nearby Silicon Valley, as well as global vacationers who often mix business with pleasure."[c] To satisfy these customers the resort was modernized into a "smart village," featuring an internet protocol-based communications system that provides condominium owners and guests with access to a tremendous amount of information, including ski conditions, news, menus from local restaurants, as well as the ability to pre-book activities.[d]

These strong competitive pressures have also motivated Intrawest to invest in additional supporting structures. For example, Intrawest holds a 45 percent equity interest in Alpine Helicopters Ltd., the parent company of Canadian Mountain Holidays Inc., "a provider of helicopter destination skiing and helicopter-assisted mountaineering and hiking in the Columbia Mountains of British Columbia."[e] Intrawest has also made significant capital investments in its Whistler Blackcomb and Tremblant resorts "including high-speed lifts, expanded trails, upgraded snowmaking capabilities, [and] new restaurants."[f]

The Intrawest story demonstrates clearly how one company led the way in the recreation industry by continuously raising and meeting customer expectations and providing the specialized supports that deliver the "total" recreation experience.

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[a] Intrawest Corporation (2004), *Annual Information Form For The Year Ended June 30, 2004*.
[b] *Ibid*.
[c] Tom Stein (2003), "Intrawest: High Touch At High Altitude," Optimize, 22, April.
[d] *Ibid*.
[e] Intrawest Corporation (2004).
[f] *Ibid*.

Recommendations for action in building our capacity for innovation and upgrading →

Recommendations for action in building our capacity for innovation and upgrading

All stakeholders have a role to play in realizing Ontario's prosperity potential

WE HAVE SEEN THAT ONTARIO is one of the most prosperous economies in the world. Successive generations have built a society that is conducive to competitiveness and innovation. But we observed a growing and worrisome prosperity gap with our peer jurisdictions through the 1990s. This gap appears to have reached its peak in 2000 and has declined since then. We maintain our aspiration to match at least the median performance of our peer group in less than a decade.

To achieve this improved performance and close the prosperity gap, we need to ensure that we are investing adequately for future prosperity. This will come about by building on the positive attitudes towards competitiveness that already exist among Ontarians to address weaknesses in our market structures and fiscal motivations and by doing so, eliminate our practice of under investing in prosperity. All stakeholders in Ontario's prosperity have a role to play in making this happen.

We caution Ontarians that if we do not act to close the prosperity gap, our economic environment may get caught in a vicious circle that could spiral us downward from our healthy economic situation. This is what Ontario must avoid. In an environment where businesses and individuals do not have the support and pressure to innovate and upgrade, they would not find it beneficial or necessary to invest. If investment in human and physical capital stalled, productivity would fall off even more. Less capable individuals and businesses would not demand enough from their suppliers; nor would they act as agents of upgrading for their customers by providing better quality and more innovative products and services. Consequently, productivity would slip further behind competitive jurisdictions and there would be fewer resources available to invest in future prosperity.

What Ontario needs is a more vibrant, productive and competitive economy that will drive greater prosperity. That, in turn, will enable us to invest to develop even greater capability so that we can enjoy the fruits of this prosperity through continued strengthening of our social programs.

In this final section, we propose actions for governments, businesses, and individuals to help Ontario achieve a virtuous circle of

competitiveness and prosperity. For each of our recommendations, we propose success measures for 2012, ten years after our First Annual Report, *Closing the prosperity gap*, where we identified Ontario's lagging productivity and began our exploration of the attitudes, investment, motivations, and structures driving our economy.

Governments have an important leadership role

Governments in Ontario have roles in all elements of AIMS in closing the prosperity gap. Their most important role, however, is in the area of structures. We encourage governments to enhance specialized support for firms and individuals so they are encouraged to upgrade their businesses, to innovate and to strengthen structures of competitive pressure.

Engage Ontarians in an ongoing dialogue about competitiveness that builds on their positive attitudes

Governments can help shape public attitudes on important issues, including competitiveness and prosperity. Our research has shown that among the general public, business managers, and business leaders, Ontarians have positive attitudes towards these issues – generally on par with their counterparts in the peer states. This is heartening as attitudes are probably the most difficult element of AIMS to change. We encourage political leaders to speak more about Ontario's competitiveness and engage Ontarians in a forthright discussion about our province's strengths and weaknesses in this area. Realizing our prosperity potential ought to be a non-partisan issue with debate around "how" not "whether."

We propose that:

- **Starting this year, the Premier deliver an annual message to the people of Ontario on how we are progressing in closing the prosperity gap with the leading North American jurisdictions.**

Increase commitment to investments

Our work has identified the importance of investing for future prosperity by all stakeholders, including governments. Public spending has been shifting towards consumption of current prosperity and away from investing for future prosperity. We appreciate the political pressures for increasing resources available for health care and social services. Nevertheless, unless governments find ways to increase investments for future prosperity, we will not generate the wealth necessary for these services. The peer states have demonstrated that increased prosperity allows their governments to invest more and to consume more per capita than governments in Ontario.

We propose that by 2012 we achieve the following success measures:

- **Achieve a balance between consumption and investment spending by federal, provincial, and municipal governments in Ontario that matches the balance achieved by the average of the peer states – shifting from the current mix of 46 cents of investment spending per dollar of consumption spending to 55 cents.**

Invest in upgrading of Ontarians' capabilities

As we have shown, part of Ontario's prosperity gap is the result of less well developed human capital. We are proposing recommendations in two areas: accelerate integration of immigrants and augment investment in post-secondary education.

Given the importance of immigration to our economic potential, governments need to integrate immigrants more effectively.

We propose that:

- **The Ontario government continues its collaboration with the federal government to identify, select and approve on a timely basis highly qualified immigrants to the province.**

Time and again, our work over the past three years has pointed to the importance of post-secondary education to Ontario's competitiveness and prosperity. A well-functioning post-secondary education system produces the skills we require for innovation and flexibility. In addition, post-secondary institutions are the source of many breakthroughs in research and development. We have observed that Ontarians under invest in education relative to their counterparts in the peer group, particularly in more advanced levels of education. Investing in university education at a rate of 57 per cent per student versus peer states is not the way to build competitiveness and prosperity in Ontario. We also observe that Ontarians are less well educated than those in the peer states – especially at post-graduate levels of attainment.

Strengthening this element of specialized support will require greater investments by all stakeholders in university education. The Ontario government needs to take the

leadership role here in expanding its own support for post-secondary education. It needs to move quickly to eliminate the current tuition freeze, providing more financial resources for schools to expand the number of spaces available to students and to focus financial aid on the truly needy. In addition, the provincial government, in partnership with post-secondary institutions, needs to explore opportunities for adjusting funding formulas so that there are more spaces available for graduate education and sufficient spaces for business education, which is now the most tightly-rationed form of university education in the province.

We propose by 2012 we:

- **Match peer state funding per student from all sources at the college and university levels of post-secondary education, up from the current 68 percent and 57 percent respectively.**
- **Halve Ontario's shortfall in graduate degrees granted per thousand population, which will necessitate a 50 percent increase in graduate school capacity.**
- **Halve Ontario's shortfall in business degrees granted per thousand population, which will necessitate a 50 percent increase in business education capacity.**

Reduce taxes that hinder motivations to invest in machinery, equipment, and software and in R&D

Our governments have put in place tax regimes that result in tax burdens that are higher overall than those in the peer states. We conclude that the most significant challenge is to reduce taxes on business capital investment. Research conducted for the Task Force indicates that tax burdens on business investment represent a disadvantage for Ontario at all stages of investments – when investments are being made, when returns on these investments are being generated, and when assets are in place, whether or not they are generating returns to the investor.

We recommend that governments in Ontario reduce the marginal effective tax burden on capital investment to match the median of the five states we have analyzed. In addition, we have shown how smarter taxation within the existing fiscal framework can be achieved and we urge the provincial government to assess options such as reducing taxes on business investment and the harmonization of provincial sales taxes with the federal GST. These would strengthen investment, improve GDP per capita, and can be made affordable within the existing fiscal framework.

We propose that by 2012 we:

- **Eliminate the gap in the marginal effective tax burden on capital with the median of the peer states, so that the difference has fallen from 15 points to zero.**

Strengthen structures of competitive pressure

Our capacity for upgrading and innovation is the result of a balancing act. Firms require specialized support to build the capabilities for enhancing their competitiveness. However, they also need to be challenged to innovate and upgrade by demanding and sophisticated customers and capable rivals.

We see opportunities for strengthening this competitiveness through continued deregulation of some of Ontario's leading industries. Free trade agreements reduced much of the protective support for firms in our economy. Nevertheless, much remains to be done, particularly in leading industries such as financial services, communications, and transportation. While many of the regulations in these industries are not explicitly in place to blunt foreign competition, some have the effect of keeping this out. Much of the responsibility for strengthened competition is the responsibility of the federal government. However, the Ontario government can take a leadership role in insisting that competition policy be a top agenda item in Canada's economic policy debate.

The provincial government can contribute to strengthened competitiveness of our firms in the areas in which it is an important customer. The Institute for Competitiveness & Prosperity has argued that more sophisticated procurement practices in biopharmaceuticals, for example, could strengthen Ontario's innovative capability in that industry. We urge the provincial government to examine other opportunities where its buyers can stimulate greater innovation among its suppliers by becoming more sophisticated customers. In some areas, there may be opportunities for greater contracting out or for development of public-private partnerships. We are not arguing for a diminished importance of value for money; disciplined contracting procedures need to be maintained. But we do encourage the provincial governments to identify opportunities to leverage their procurement requirements to strengthen the competitiveness of Ontario's firms.

Municipal governments can also stimulate greater competitive intensity through similar improvements in their procurement practices. They can also help by ensuring rivalry issues are important parts of local cluster initiatives in which they are involved. Collaboration among local firms is an important component of the development of clusters, especially in areas of skills development and definition of infrastructure needs. But healthy rivalry is also important and economic development initiatives should include attracting firms to their regions to compete with local incumbents.

We propose that by 2012 we:

- **Match peer state competitive intensity in at least fifteen of Ontario's twenty largest (by employment) traded clusters with top quartile wage and patent performance; the assessment methodology would be developed by the Institute for Competitiveness & Prosperity, in consultation with the Government of Ontario.**

- **Strengthen procurement practices by the Government of Ontario, its key partner agencies, and the ten largest municipalities in Ontario to enhance the competitiveness of their suppliers.**

Ensure policies are driven by the facts

Finally, as governments develop policies to enhance prosperity, they need to ensure that these are underpinned by supporting data. For example, we embarked on the Access to Opportunities program to double the output of engineering and computer science undergraduates at a time when we already graduated more than the peer states. Similarly, we found that the amount of venture capital dollars per capita in Ontario is in line with the experience of our peer states but that governments are putting more public money into venture capital. Our challenge is to improve the quality of investment funding, not simply increase the quantity of funding. We urge policy makers – both politicians and public servants – to insist that policy initiatives be supported by data.

We propose that:

- **As soon as practicable, central agencies in the Government of Ontario strengthen procedures to ensure that proposals for new initiatives are based on solid empirical data.**

Businesses need to invest more and strengthen structures

Business leaders' role in closing the prosperity gap is primarily in the area of investments and structures. It is difficult to mobilize the myriad businesses to implement these recommendations; we are therefore encouraging business groups to play a key role in implementation.

Increase investment for productivity and innovative capacity

We encourage business leaders to increase investments in machinery, equipment, and software. These investments will enhance individual firms' and the province's competitiveness. Businesses in Ontario have traditionally invested about 10 per cent less of GDP than their US peers. This under investment is a significant part of our prosperity gap. Greater investments in these areas will strengthen productivity and innovative capacity.

We propose that:

- **Major business groups, such as the Ontario Chamber of Commerce and its local partners, set increased business capital investment as a priority for their members and in their public policy proposals.**

Raise investment in human capital

As discussed above, Ontarians are under investing in the development of their own skills. The result of this under investment manifests itself in less competitive businesses. More highly educated managers and staff will enhance the capabilities of businesses and their innovative capacity. We encourage business leaders to facilitate upgrading of educational attainment by their employees. This would take the form of providing direct encouragement, removing barriers to more education by employees, and reviewing hiring criteria to determine if more positions ought to have a higher level of education. Business leaders should also enhance structures that encourage upgrading and innovation.

We propose that:

- **Major business groups, such as the Ontario Chamber of Commerce and its local partners, establish the issue of managerial educational achievement by its members as a significant priority and encourage their members to upgrade in this area – with a goal of matching educational levels achieved by managers in US organizations by 2012.**

- **Professional standards and accreditation organizations identify opportunities to improve accreditation processes for immigrants to Ontario.**

Collaborate to strengthen structures of specialized support locally

Our research has shown the positive impact of clusters of traded industries to regional economies. It has also shown that Ontario has a rich endowment of these traded industries. However, it also shows that our clusters of traded industries are under performing their potential. Business leaders can help overcome this challenge by pursuing opportunities for closer collaboration with local competitors, customers, and suppliers to strengthen areas of specialized support. Examples include targeted education programs to enhance cluster-specific skills, closer involvement between industry and universities in beneficial research, and working with governments to enhance infrastructure to support all firms in the cluster.

We propose that:

- **Local business and academic leaders implement initiatives for strengthening specialized support in skills and R&D.**

Seek out the most sophisticated customers to enhance structures that increase competitive pressure

Business leaders need to challenge themselves by meeting the needs of the most demanding and sophisticated customers. This is not to say just to target the most upscale and technologically sophisticated customers. In fact, the toughest market challenges are in areas where "state-of-the-art" technology needs to be challenged. Sophisticated customers often require radical departures from existing price-performance trade offs. By finding and attempting to serve the most sophisticated customers in an industry, firms can strengthen their innovative capability. Ideally, these customers should be close at hand to take advantage of cluster dynamics. However, if such customers are not found locally, we encourage business leaders to look elsewhere in Ontario, Canada, and the world for them. Similarly, firms can become demanding and sophisticated customers themselves, thereby encouraging their own suppliers to become more capable.

We propose that:

- **Business groups, such as the Ontario Chamber of Commerce and its local partners, and organizations that support local industry cluster initiatives encourage businesses to seek out the most demanding customers.**

Individual's role is to invest in education and demand more

People in Ontario can strengthen the province's innovativeness and competitiveness through their investments and their role as customers.

Invest more in education

Consistent with the recommendations to governments and businesses, we encourage individuals to invest in themselves and their children. As we have stated before, there is no better predictor of an individual's economic success than the level of education achieved. In last year's annual report, we showed the remarkable returns on investment from higher levels of educational attainment. For adults this means considering opportunities to increase educational attainment. It also means encouraging their children to pursue higher education. For young adults and children, it means raising aspirations for higher educational attainment. For all Ontarians, especially alumni, this means contributing at an increased level to educational institutions.

We propose that by 2012 we:

- **Match peer states' attitudes that encourage young people to pursue higher educational achievement; the Institute will monitor this with ongoing surveys.**

- **Halve the gap versus peer states in donations per capita to educational institutions at all levels.**

Enhance competitive pressure by being more sophisticated customers

Ontario firms will benefit by having to satisfy tougher customers here in the province. We encourage Ontarians to raise the bar on expectations as they shop for goods and services. We need to encourage a culture of higher expectations in the province. Individuals can contribute to this by being more prepared to complain when expectations are not being met.

We propose that:

- **The Institute of Competitiveness & Prosperity in collaboration with consumer groups and industry standards associations develop a means of measuring and monitoring the degree to which Ontario consumers are as demanding and sophisticated as their US counterparts.**

OVER THE PAST THREE YEARS the Task Force has measured and monitored Ontario's prosperity against the leading economies in the world. We are confident that we can close the prosperity gap. We have recommended specific measures of success. Following these recommendations will put all Ontarians on the path to working together to realize the prosperity potential and ensure the economic well being of future generations.

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