

Post-secondary Education and Ontario's Prosperity

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About the Institute for Competitiveness & Prosperity

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

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.

The mandate of the Task Force 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.

Roger Martin, Dean of the Joseph L. Rotman School of Management at the University of Toronto, is the Chairman of the Task Force and the Institute.

Comments on this paper are welcome and should be directed to the Institute for Competitiveness & Prosperity (see end of paper for contact information). The Institute is funded by the Government of Ontario through the Ministry of Economic Development and Trade.

Post-secondary Education and Ontario's Prosperity

In carrying out its mandate to measure and monitor Ontario's competitiveness and prosperity relative to other North American jurisdictions, the Institute for Competitiveness & Prosperity has identified the importance of post-secondary education in realizing our prosperity potential. In this paper we review Ontario's competitiveness and prosperity relative to a group of peer jurisdictions in North America, identify the importance of productivity as the key driver of our prosperity gap relative to these peers, and review the importance of our under investment in post-secondary education to productivity.

Ontario's has a prosperity gap versus North America's leading economies

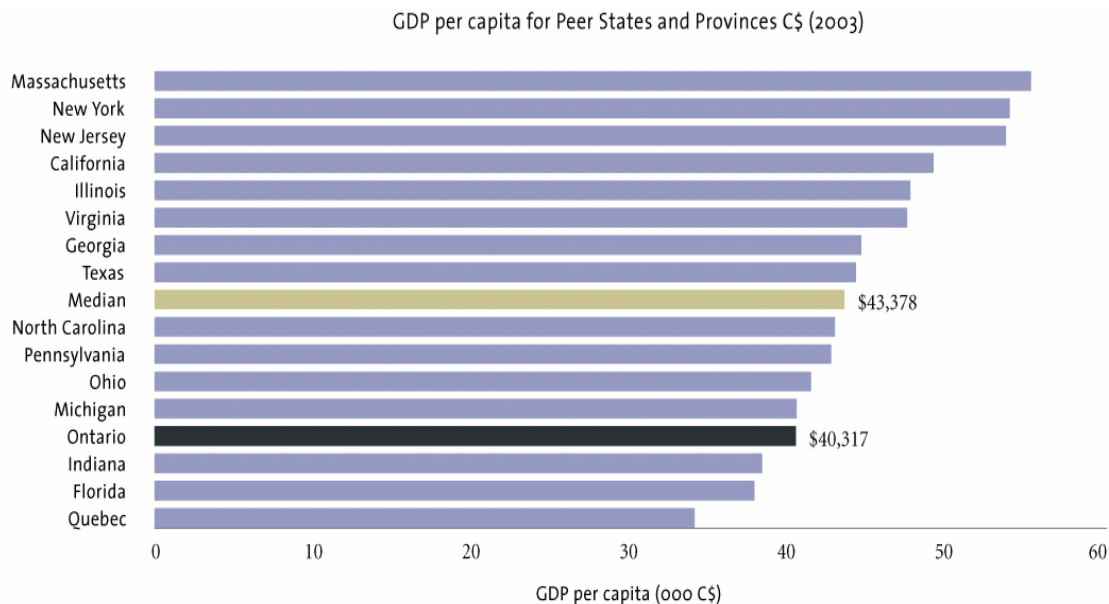
Ontarians should be proud of the economic strength of our province. As we compare prosperity in Ontario to other significantly sized jurisdictions around the world, we see that Ontario is among the world's leaders. In fact, compared to countries that have half of Ontario's population or greater, we have 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 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.

As the Institute 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.

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>

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. 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. This translates to a prosperity gap (the difference between Ontario's and the median GDP per capita) of 7.1 percent or \$3,061² versus the median of the peer jurisdictions. 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.

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

As recently as 1988 we had no prosperity gap relative to our US peers. But through the 1990s, the economic growth of the peer states outstripped Ontario and by 2000 the gap reached \$4,811 per capita. Since then it has declined primarily as the result of US economic sluggishness rather than Ontario's achieving a new economic trajectory³. Our challenge is to return to median status and we have set this as an objective for Ontario in the next decade. To

² Unless otherwise stated all dollar figures are in 2003 constant Canadian dollars using Purchasing Power Parity (PPP) conversion rates.

³ Task Force on Competitiveness, Productivity & Economic Progress, *Realizing our prosperity potential*, Third Annual Report, November 2004, p. 14

achieve median status among the most competitive economies in the world is an ambitious goal.

But it is worth striving for. 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.

Lower productivity is the largest source of our prosperity gap

To help us understand the source of the prosperity gap, we use a framework for disaggregating the gap into four measurable elements of our GDP per capita (Exhibit 2):

- 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 (participation) and succeeding in finding work (employment)
- 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 productivity we examine six 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.

Exhibit 2 Institute assessed measurable elements of GDP per capita

Prosperity		Profile		Utilization		Intensity		Productivity
GDP per capita	=	Potential labour force	X	Jobs	X	Hours Worked	X	GDP
		Population		Potential labour force		Jobs		Hours Worked
				<ul style="list-style-type: none"> • Participation • Employment 				<ul style="list-style-type: none"> • 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" *Isuna* Vol. 1 No. 1 (Spring 2000), Ottawa Policy Research Institute.

The most significant contributor to the prosperity gap is productivity (Exhibit 3). We discuss each in turn.

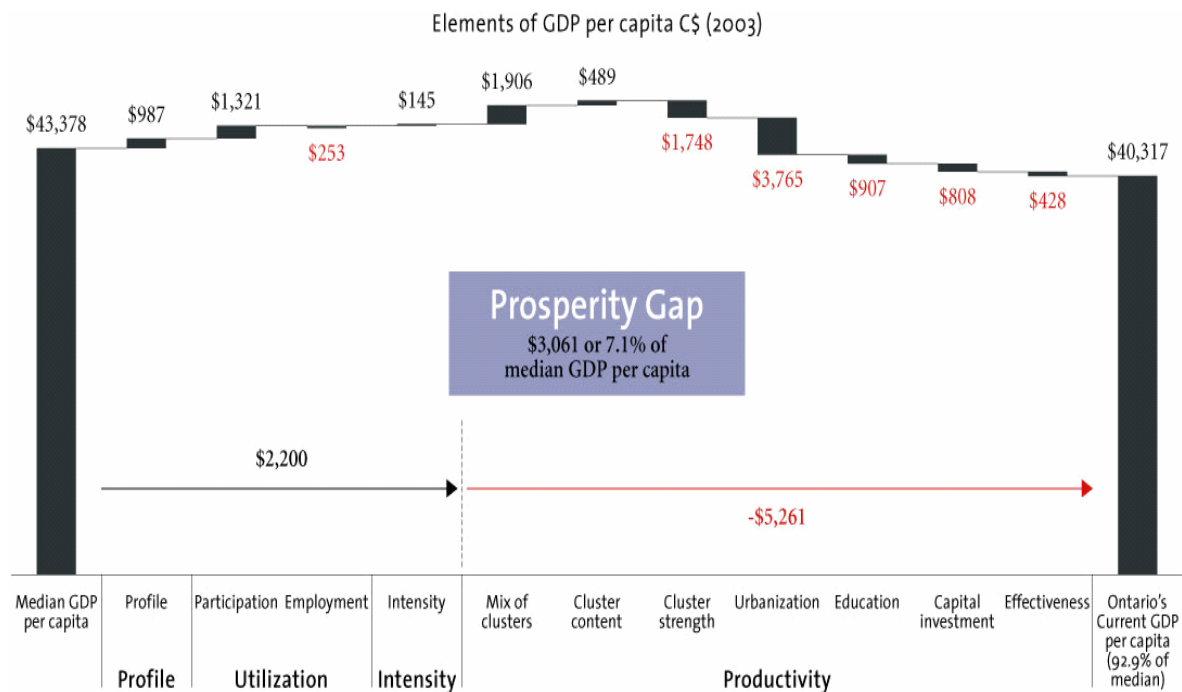
Labour supply factors - Profile, Utilization, and Intensity - have a limited impact on our prosperity gap

Our work demonstrates that Ontarians are investing adequate work effort for matching US prosperity. By this we mean Ontarians seek and secure hours of work at nearly the same level as our peers.

First, we have a demographic **profile** that represents an advantage for Ontario versus the median peer state. We have 67.2 per cent of our population between the ages of 16 and 64 compared to 65.6 percent in the peer jurisdictions. This

higher percentage of our population being of working age translates to a potential advantage of \$987 per capita in GDP (Exhibit 3). 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.

Exhibit 3 Productivity 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

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. However, Ontario’s economy tends to be less capable of generating employment opportunities for people who are available and interested in working. Thus our employment rate⁴ tends to be slightly lower than in the peer states (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. The net effect of these participation and

⁴ By “employment rate” we mean the number of people employed, 16 and over, as a percent of the labour force, 16 and over.

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 more hours than their US counterparts⁵ to this factor.

Profile, utilization, and intensity have a net positive effect on the prosperity gap. By working more and longer than our counterparts in the peer states Ontarians achieved a \$2,200 per capita advantage versus the peer states. However, as we see next, we are less productive than our counterparts during the hours in which we are working.

Lower productivity accounts for the largest share of our prosperity gap

We assess six 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 conclude that high-performing clusters are an important element of closing our prosperity gap with our US peer group. 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 achieve higher levels of 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

⁵ 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.

derived from higher output than would be likely if Ontario's mix were the same as the peers' mix.⁶

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. We estimate this lower productivity in our clusters of traded industries reduces Ontario's GDP per capita by \$1,748 per capita versus the peer states⁸. In other words, while our mix and content of clusters provides a potential benefit to prosperity of \$2,395 per capita, we do not realize this potential as our lack of cluster strength costs Ontarians \$1,748 per capita.

Relatively low urbanization is a significant contributor to the prosperity gap.

The Institute has synthesized current research by Canadian and other urban geographers and economists⁹ 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.

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 the Institute's Working Paper 5 (*Strengthening structures: Upgrading specialized support and competitive pressure*, July 2004), Ontario's clusters are less productive than their counterparts in the peer states (see pp. 25-28).

⁷ Institute for Competitiveness & Prosperity, *A View of Ontario's Clusters of Innovation*, April 2002, pp. 18-20.

⁸ See *Realizing our prosperity potential*, p. 18 for more detail

⁹ Institute for Competitiveness & Prosperity, *Missing opportunities: Ontario's urban prosperity gap*, June 2003, p. 11.

¹⁰ *Ibid*, p. 20

There is a positive relationship between degree of urbanization¹¹ 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.

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.¹² Economic studies also show repeatedly that individuals' earnings increase with their level of education.¹³ 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. As one example of this under attainment, only 31 percent of Ontario managers (as defined by Standard Occupational Classifications)¹⁴ had a university degree in 1996 versus 46 percent in the United States. More recent results are not available for the United States, but by 2001 Ontario's results had barely improved to a university degree attainment rate of 33 percent.

Capital under investment is a drag on productivity growth. Our under investment in machinery and equipment in Ontario compared to levels in US peer states¹⁵ slowly erodes the amount 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.

¹¹ 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.

¹² Task Force on Competitiveness, Productivity and Economic Progress, *Closing the prosperity gap*, November 2002, p. 27.

¹³ 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.

¹⁴ Institute for Competitiveness & Prosperity, *Reinventing innovation and commercialization policy in Ontario*, October 2004, p. 40.

¹⁵ Task Force on Competitiveness and Prosperity, *Closing the prosperity gap*, November 2002, p. 36 and *Investing for prosperity*, November 2003, p. 25.

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.

In the balance of this paper we focus on the importance of education, particularly post-secondary education, on Ontario's productivity and prosperity gap.

Ontario under invests in post-secondary education

The key challenge for the Institute 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 Institute developed the AIMS framework. 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 take the actions to drive competitiveness and prosperity. Our previous research indicates that, in general, Ontarians' attitudes towards competitiveness, risk taking, innovation and other related issues hardly differ from their US counterparts in the public and business community¹⁶.
- **Investments** in education, machinery, research and development and commercialization. As businesses, individuals, and governments invest for future prosperity they will enhance productivity and prosperity. Our work indicates that relative to our peer state counterparts, Ontarians under invest in human and physical capital.
- **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. Our

¹⁶ Institute for Competitiveness & Prosperity, *Striking similarities: Attitudes and Ontario's prosperity gap*, September 2003

research indicates that taxes, especially on capital, are a factor in our under investment.¹⁷

- **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. Our work here indicates that a significant factor behind our under investment is that our market structures are not as competitive and supportive as in the peer states and consequently our businesses and individuals invest less for future prosperity.¹⁸

We turn to the investment factor, particularly investment in education.

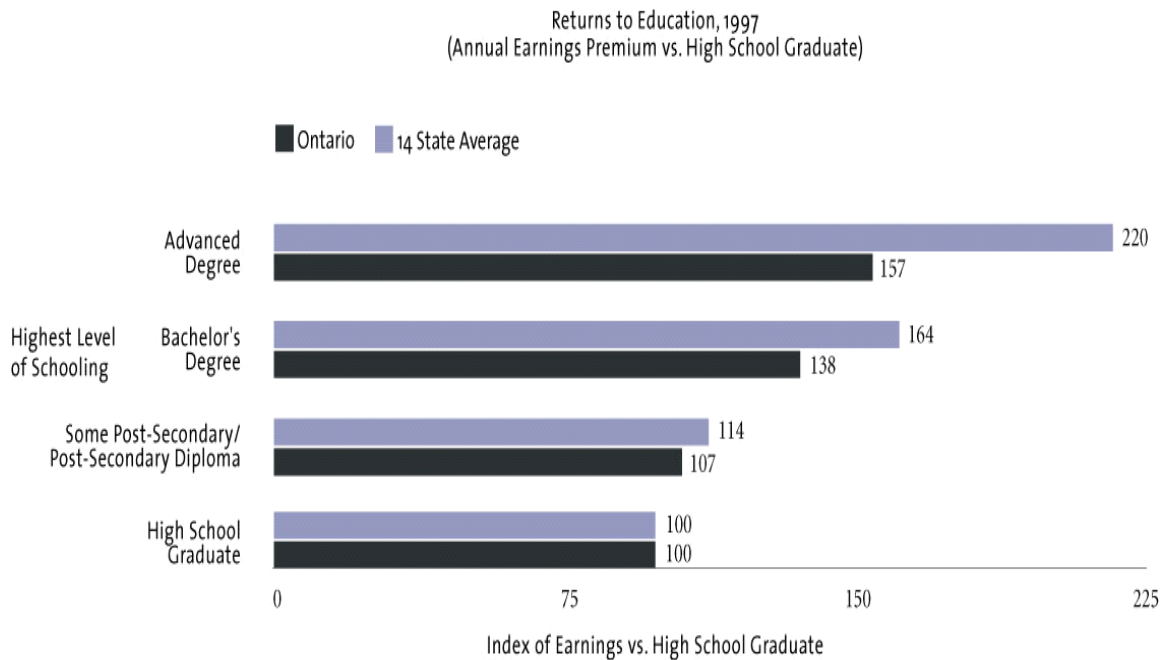
Post-secondary education has significant economic impact

Investment in education affects productivity and prosperity throughout our society. Most researchers who have analyzed Canada's and Ontario's productivity challenge conclude that education is an important part of the solution. A more educated and better trained labour force creates more value. Studies show repeatedly that individuals' earnings increase with the level of education. In fact, the best single predictor of personal income is level of education. The best advice parents can give their children is to stay in school. Every extra year of school and each additional degree raise income prospects for individuals (Exhibit 4). While the economic returns from each level of education are higher in the US than in Ontario, the data indicate a significant increase in earnings from advanced education in the province.

¹⁷ *Realizing our prosperity potential*, pp. 32-36

¹⁸ Institute for Competitiveness & Prosperity, *Strengthening structures: Upgrading specialized support and competitive pressure*, July 2004

Exhibit 4 Higher education leads to higher economic returns



Source: Institute for Competitiveness & Prosperity based on Baker and Trefler, "The Impact of Education & Urbanization on Productivity," www.competeprosper.ca

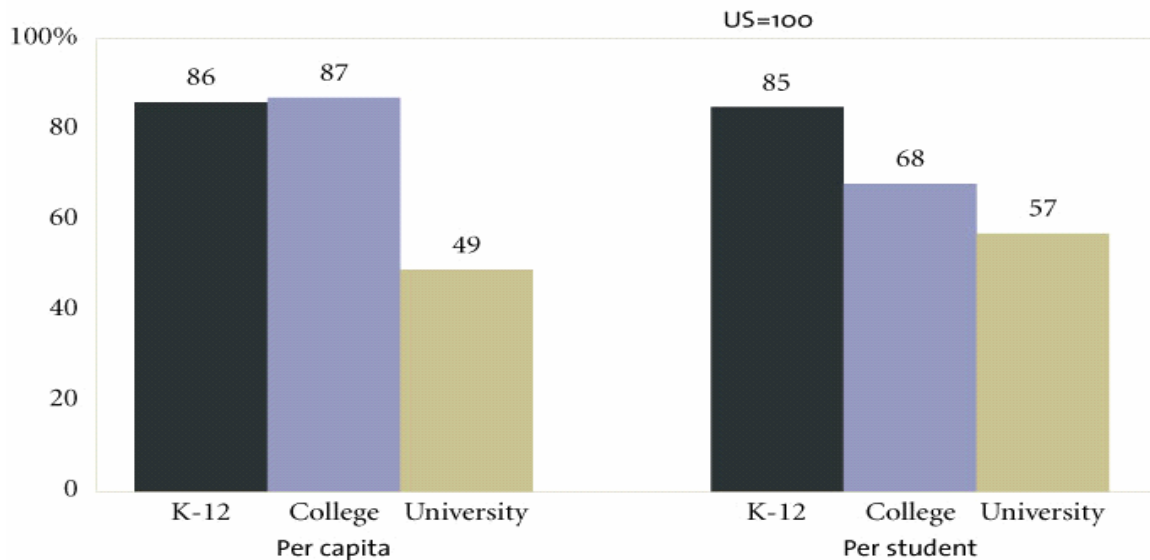
For businesses, the increased availability of skilled workers, researchers, and managers is a critical benefit of post-secondary education. For all of us, the ideas that spill out of universities improve and create products, services, and processes and lead to new companies and whole new industries.

Investment in education by Ontarians trails peer states

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. Our analysis includes funding from all public and private sources. On a per capita basis, Ontarians invest competitively with the peer group in primary and secondary schools (86 percent of US rates) and in colleges (87 percent). But university spending is at a much lower rate - 49 percent of US spending per capita. On a per student basis, the spending disparities widen in primary and secondary schools (85 percent of US rates) and colleges (68 percent), since Ontario has proportionately more of its population enrolled as students in these levels. In effect, higher per capita investments do not go as far at the level of spending per student. At the university level, because of our lower participation rate, the spending on a per student basis narrows, but is still only 57 percent of the US rate (Exhibit 5).

Exhibit 5 Ontario's spending lags peer group at all levels of education

Ontario as % of US total expenditure 1995–99, C\$ (2000)



Notes & Sources: Capital and operating expenditures; auxiliary 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 #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 international 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)

Primary and secondary education investment shows mixed results

In Working Paper 3, the Institute concluded that through the 1990s, while our investments in primary and secondary education remained flat, investments by our peer group grew.¹⁹ As a result, Ontario fell from 6th ranking in per capita spending in 1992-93 to 15th in 1999-00 – behind all peer states.²⁰

It is difficult to be definitive on whether this investment pattern is worrisome or not. The results achieved by Ontario's primary and secondary school systems

¹⁹ *Missing opportunities: Ontario's urban prosperity gap*, p. 30.

²⁰ This pattern does not change much when looked at on a per student basis. Recent data on private school spending in US states are not available, but comparisons of Ontario public and private spending to US national results do not differ dramatically from comparisons of public-to-public spending.

are better than those achieved in our peer group of states. As Ontario's rank in investment fell through the mid-1990s, there is no evidence that relative achievement results declined. It is also possible to conclude that the increased education spending in peer group states addressed an obvious weakness – both the overall level and the disparities in the achievement - in their primary and secondary education.

Through the 1990s, Ontario's rank in the percentage of Grade 9 students who ultimately graduate on time has been in the upper half of its peer group and has been improving. In 1992-93, Ontario's public and private secondary school graduation rate was 73 percent. By 1999-00, the high school graduation rate had risen to 78 percent. Ontario's rank within the peer group of US states rose from eighth in 1992-93 to second in 1999-00, with only New Jersey having a higher success rate (86 percent).

Ontario students also perform well on standardized tests. Their results are generally on a par with students' scores across the country and exceed those of students in the US (Exhibit 6). In addition, the disparity of results across schools is significantly lower in Ontario than in the United States, indicating our success at providing a better quality education for a broader range of students. The results do point out that there is room for improvement in Ontario given the better results in Alberta and Quebec.

Exhibit 6 Ontario outperforms US in student achievement

**OECD Programme for International Achievement (PISA)
Results, 2000**

Country/Province	Reading	Math	Science
International	500	500	500
United States	504	493	499
Ontario	533	524	522
Atlantic	514	510	510
Quebec	536	550	541
Prairies	529	529	525
Alberta	550	547	546
British Columbia	538	534	533
Canada	534	533	529

Note: Blue numbers indicate a statistically significant (95% confidence limit) higher score relative to the corresponding Ontario score. Red indicates a statistically significant lower score

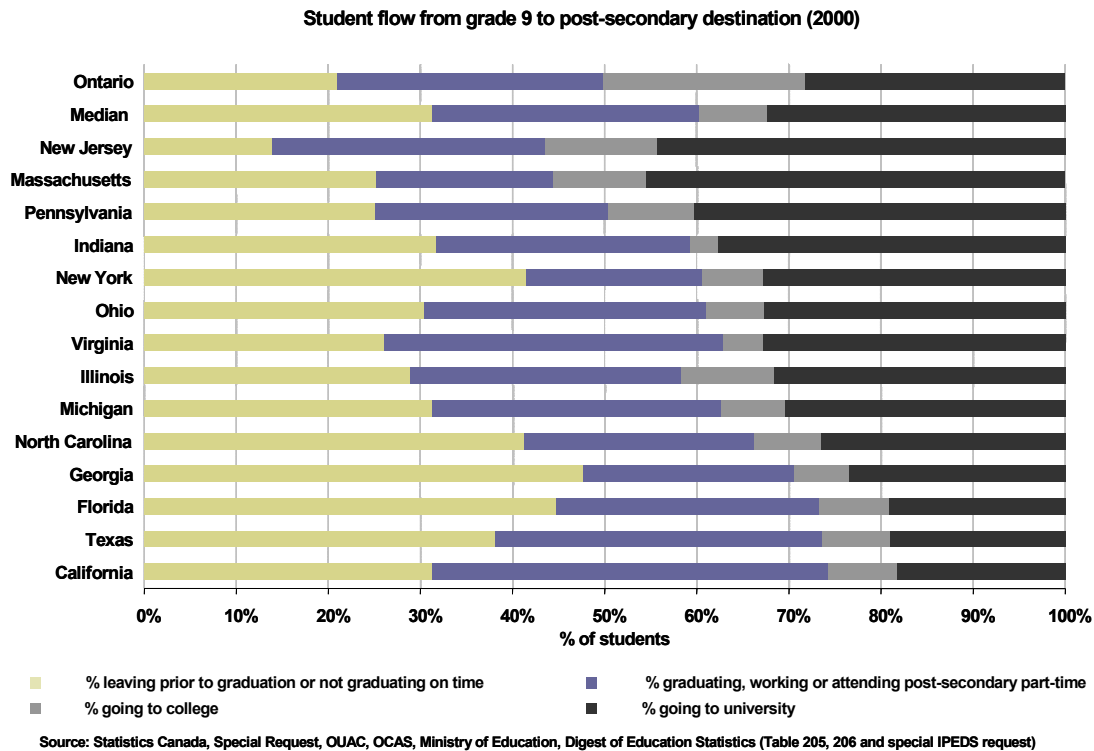
Source: Institute for Competitiveness and Prosperity based on Measuring Up: The Performance of Canada's youth in reading, mathematics and science – OECD PISA Study – First Results for Canadians aged 15

Conversely, while the province performs well at graduating students on time, the Institute is concerned about whether post-secondary students' aspirations are competitive with those of peer states' students, since a smaller percentage of Ontario high school graduates are university bound. Compared to the peer group median, the difference is minimal: 28 percent of Ontario Grade 9 students were enrolled in university five years²¹ later versus 32 percent for the median of the 14 states. When colleges are also considered, Ontario outperforms the median and most states in the peer group: 50 percent of Ontario compared to 40 percent in the peer group (Exhibit 7).

More significantly, however, in several of the leading peer group states, university enrolments far exceed Ontario's – Massachusetts 45 percent, New Jersey 44 percent, Pennsylvania 40 percent, and New York 33 percent. Given the increased productivity from higher levels of education, this difference is a barrier to overcome if we are to close the prosperity gap.

²¹ four years later for US students

Exhibit 7 Fewer Ontario students are university bound



Our concern about students' aspirations is highlighted in findings from a recent report by the Canada Millennium Scholarship Foundation²² reporting that 50 percent of Canadian students, who score in the top 40 percent on standard achievement tests, including PISA, do not attend post-secondary school. These findings reinforce our view that Ontarians need to be more successful in encouraging high school graduates to pursue a post-secondary degree, especially since the study uncovered that it was students' attitudes - and not financial barriers - that dissuaded them from attaining higher levels of education.

In fact, tuition fees are not the major deterrent to students considering pursuing post-secondary education. A recent Statistics Canada study shows that over the past decade, the post-secondary participation rate gap between the students from low- and high-income families has actually narrowed. Further, when high school graduates were asked the main reason for their decision not to go on to college or university in a study by the Canada Millennium Scholarship Foundation, 77 percent of respondents listed a non-financial reason.²³

²² Canada Millennium Scholarship Foundation, "Ready or Not? Literacy Skills and Post-Secondary Education," September 2003.

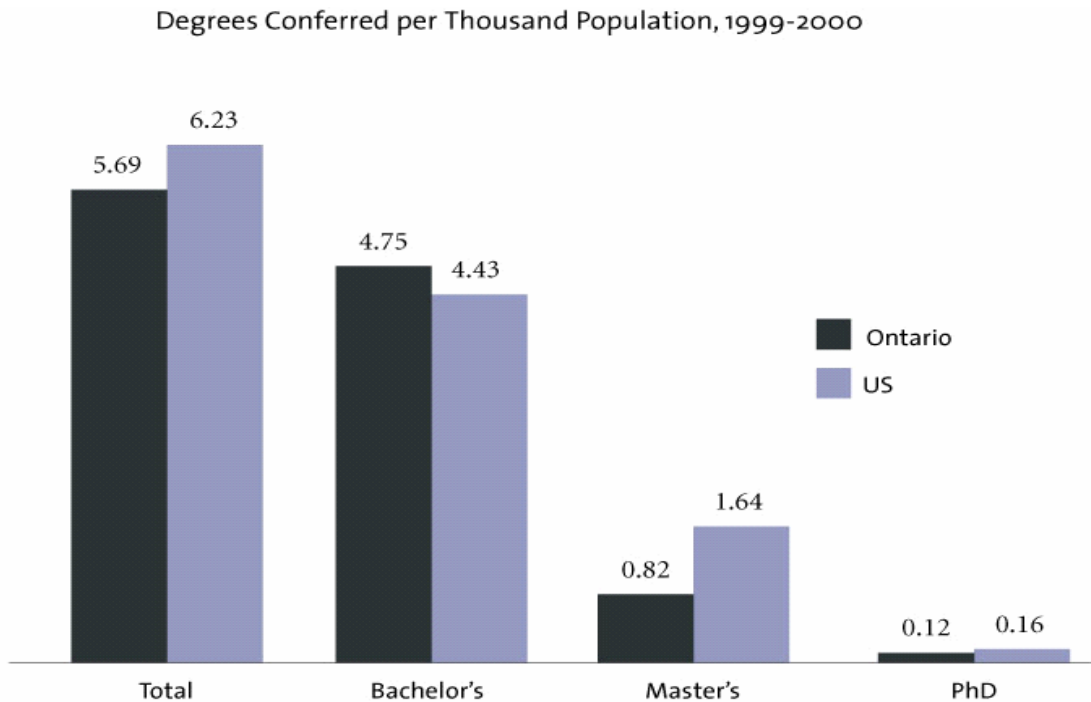
²³ Canada Millennium Scholarship Foundation, "Why Don't They Go On? Factors Affecting the Decisions of Canadian Youth Not to Pursue Post-Secondary Education," 2001.

Ontarians lag in post-secondary education investment and attainment

Ontarians' lower rate of investment in university education can also 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.

This is consistent with the recurring theme in our work – Ontario investment matches peer states' spending to increase prosperity to a point, but then trails off as advanced investments are required.

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

In Working Paper 6, *Reinventing innovation and commercialization policy on 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.²⁴

This theme recurs when we analyze the educational attainment of the managers and CEOs of our businesses. As stated above, 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 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, Ontarians' attitudes towards competitiveness and innovation do not differ significantly from their counterparts in the peer states. However, we found one significant attitudinal difference. In the survey, we asked respondents among the public and the business community what advice they would give to young people on 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.²⁵

This advice to Ontario's youth runs counter to the economic realities of the returns to education we described above. 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,²⁶ as well as higher high school graduation rates. These findings reinforce our view that Ontarians are capable of pursuing a post-secondary degree at the bachelor's level and beyond. Our challenge is to encourage more high school graduates to pursue a college diploma before entering the work force; to encourage more college graduates to consider pursuing a university degree; to encourage more university graduates to consider pursuing a post-graduate degree.

²⁴ *Reinventing innovation and commercialization policy in Ontario*, pp. 30-1.

²⁵ *Striking similarities: Attitudes and Ontario's prosperity gap*, p. 36.

²⁶ *Ibid.* p. 22

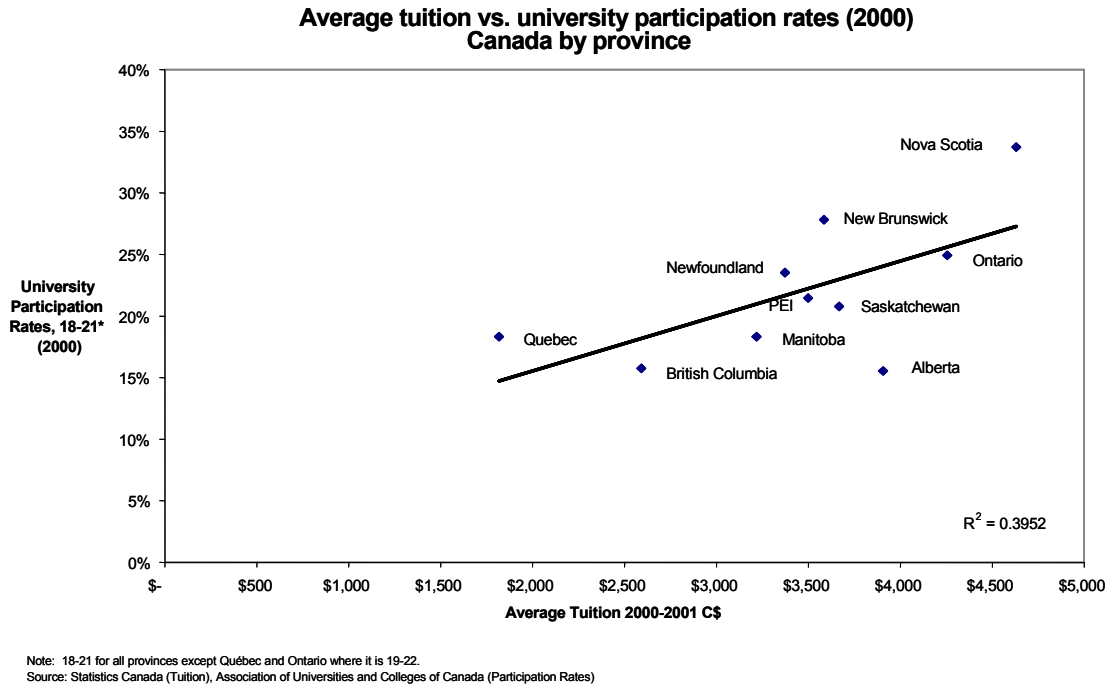
Our under investment in post-secondary education is worrisome, since those with higher levels of education earn more over their lifetimes and our economy benefits more from their knowledge and capabilities. We all lose out when individual Ontarians fall short of their educational potential. Raising educational 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 be encouraged as a high priority to increase their investment in education.

Tuition freezes result in under investment in post-secondary education

One way to increase investment and accessibility in post-secondary education would be to lift the current freeze on post-secondary tuition. Current policy is driven by the observation that reducing prices on most goods and services increases demand. The logic is that if tuitions are lower more students will want to attend college or university. But this logic ignores supply factors. If universities and colleges are constrained in the amount of funding they have available to create spaces for students, they will create fewer places. In most instances, where prices are controlled output is reduced. Rent controls and their impact on apartment supply is a well known example.

We see evidence of this effect across Canada. Those provinces that have controlled tuition the most have lower university accessibility (Exhibit 9). British Columbia is the best example. Its long-time NDP government suppressed tuition to a level about 75% of the Canadian average. In the spring of 2002, the BC Liberals finally set BC free. The result of the legacy of tuition suppression: its university system puts onto the market 56% of the university spaces per student-aged resident of Ontario with its maligned tuition 23% above the Canadian average. Only 16% of high school seniors in British Columbia had university spaces in 2000. Thanks to the BC government policy of "enhancing" accessibility through low tuition. As Anne Dowsett-Johnson pointed out in this year's Macleans university rating, only BC students with an average greater than 80% have a shot at a spot in any BC university.

Exhibit 9 Tuition suppression reduces accessibility



Meanwhile in 2000 there were spaces for 34 percent of graduating high school seniors in Nova Scotia where tuition rates were highest in Canada.

As Roger Martin, Dean of the Rotman School of Management at the University of Toronto and Chairman of the Institute for Competitiveness & Prosperity observed,

“Suppressing tuition puts the supply of spaces at the whim of politicians because universities don’t have a revenue source with which to build spaces without the largesse of politicians. And for politicians, regardless of what they say, trading-off the long term benefit of having a greater proportion of university-educated citizens for short term burning needs like health care, infrastructure, and social programs is a daily habit for them.”²⁷

This relationship is observed internationally. Countries like Denmark and Germany where university education is tuition free have the lowest in the industrialized world. In the European countries with free tuition, accessibility is 66% of Canada’s and 55% of America’s.

By restricting tuitions, governments reduce the amount of money invested in post-secondary education and reduce accessibility.

²⁷ Roger Martin, “A bright light on a bad strategy,” Globe and Mail, May 18, 2004.

Conclusion

The Institute is encouraging Ontarians to aspire to close our prosperity gap with the world's most prosperous economies. A critical element to closing this gap is for Ontario governments, businesses, and individuals to invest more in our future prosperity and this includes investment in post-secondary education. We are recommending that by 2012:

- The Ontario Government work with other stakeholders in post-secondary education to match peer state investment per student in post-secondary education and to halve the shortfall in graduate degrees and business degrees per thousand population
- Businesses match the level of managerial educational attainment achieved in the peer states
- Individuals increase their educational aspirations and halve the gap with their counterparts in the peer states in donations per capita to educational institutions at all levels.

About the Institute for Competitiveness & Prosperity

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Previous Publications

Institute for Competitiveness & Prosperity:

Working Paper No. 1 – *A View of Ontario:
Ontario's Clusters of Innovation* – April 2002

Working Paper No. 2 – *Measuring Ontario's
Prosperity: Developing an Economic Indicator
System* – August 2002

Working Paper No. 3 – *Missing opportunities:
Ontario's urban prosperity gap* – June 2003

Working Paper No. 4 – *Striking similarities:
Attitudes and Ontario's prosperity gap* –
September 2003

Canadian Report – *Partnering for investment
in Canada's prosperity* – January 2004

Working Paper No. 5 – *Strengthening structures:
Upgrading specialized support and competitive
pressure* – July 2004

Working Paper No. 6 – *Reinventing innovation
and commercialization policy in Ontario* – October 2004

Task Force on Competitiveness, Productivity and Economic Progress:

First Annual Report – *Closing the
prosperity gap* – November 2002

Second Annual Report – *Investing for
prosperity* – November 2003

Third Annual Report – *Realizing our
prosperity potential* – November 2004

Postsecondary Education and Ontario's Prosperity

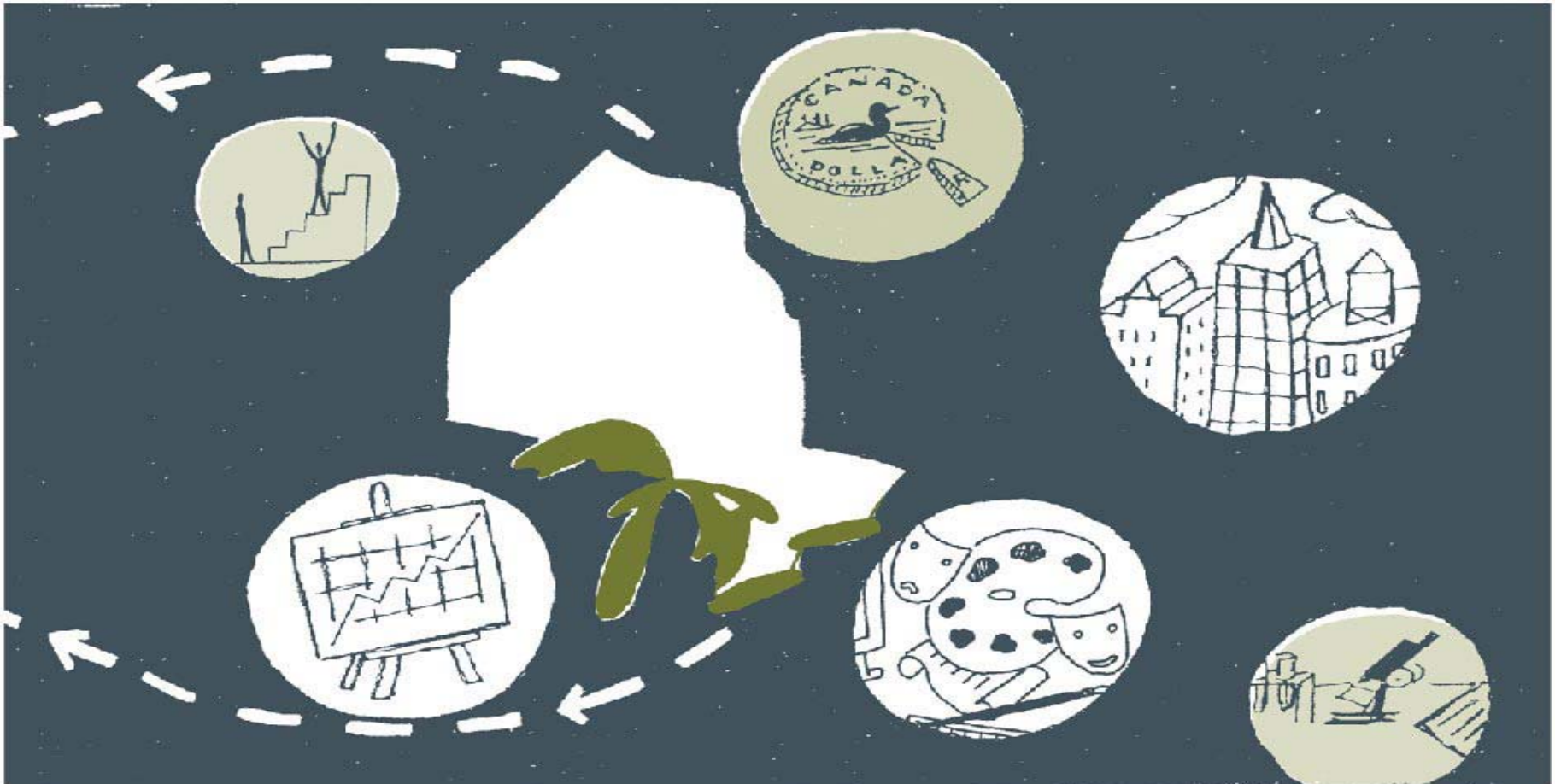
December 4, 2004

Presentation by James Milway, Executive Director
to

"Taking Public Universities Seriously" Conference at
University of Toronto

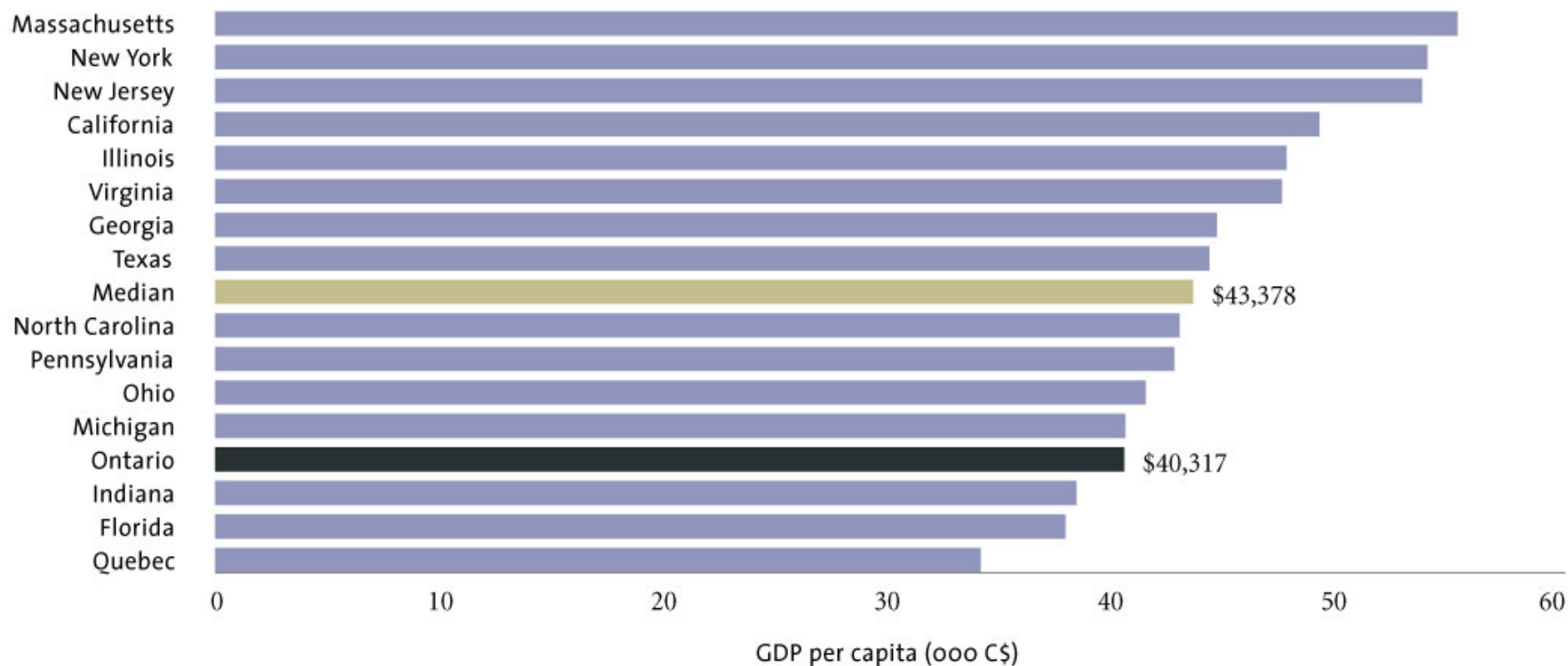
Institute for

COMPETITIVENESS & PROSPERITY



Ontario Ranks 13th Among 16 in Its Peer Group

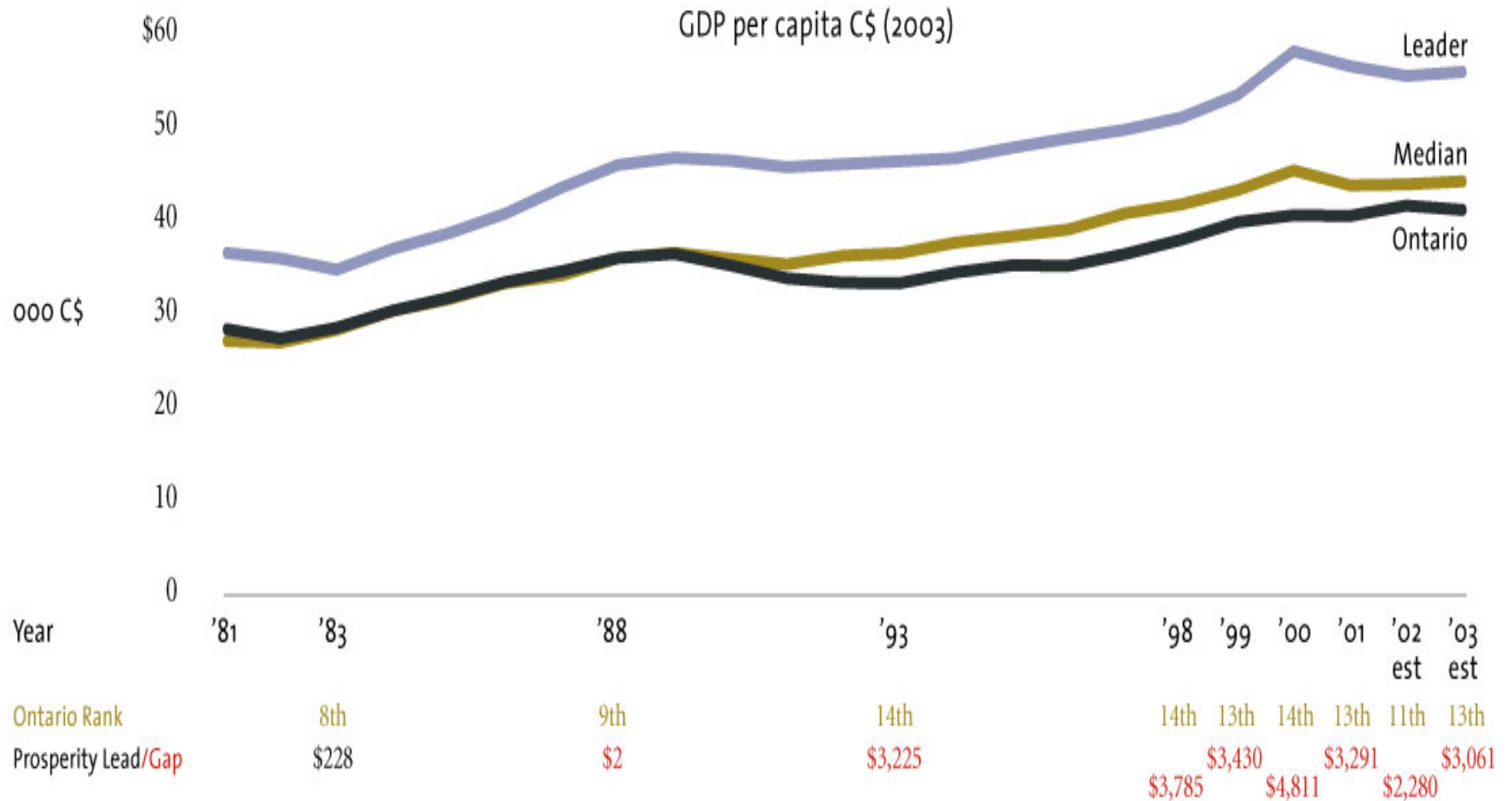
GDP per capita for Peer States and Provinces C\$ (2003)



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

The Prosperity Gap Has Narrowed



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

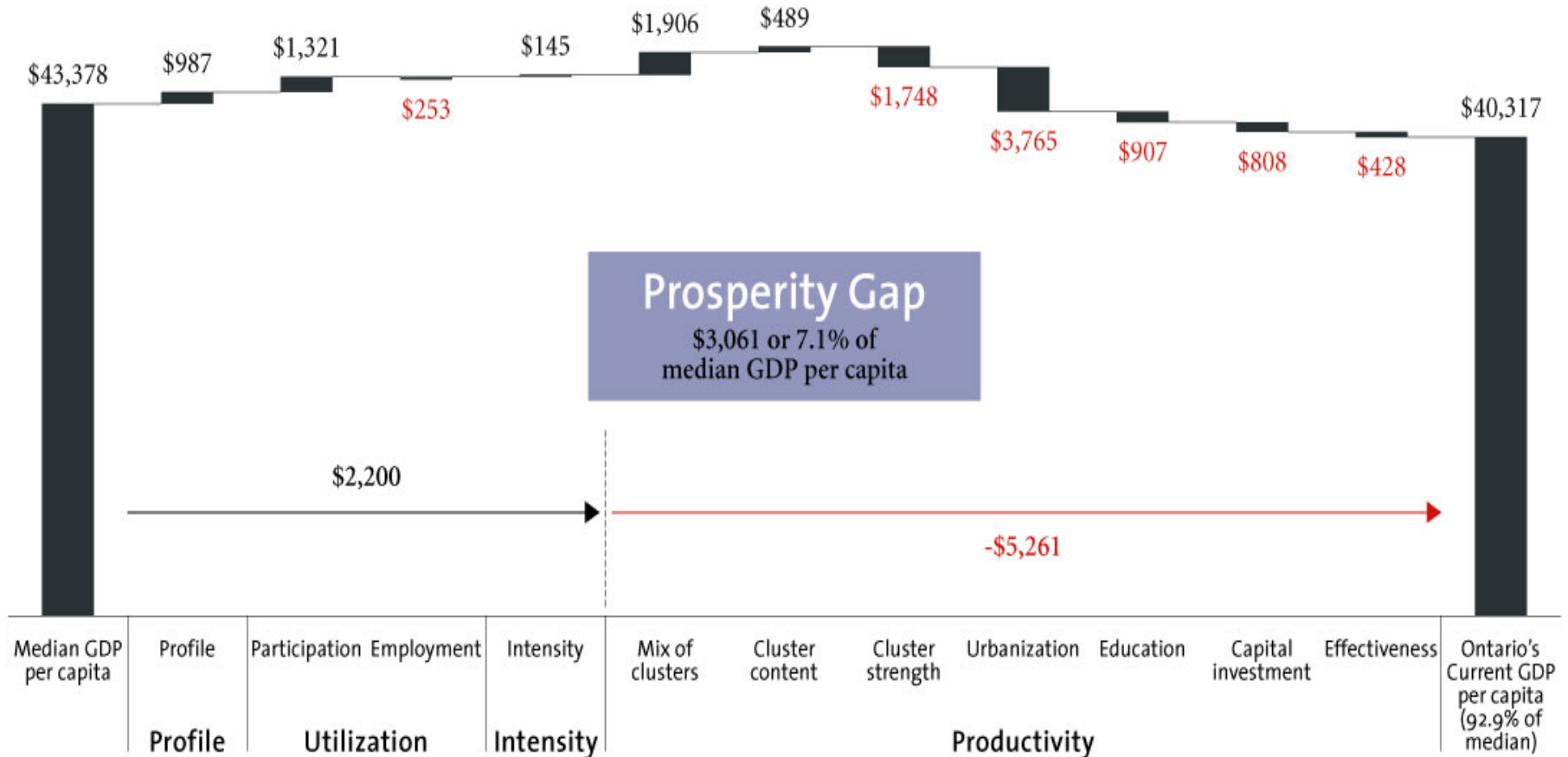
Elements of GDP per capita

Prosperity		Profile		Utilization		Intensity		Productivity
GDP per capita	=	Potential labour force	X	Jobs	X	Hours Worked	X	GDP
		Population		Potential labour force		Jobs		Hours Worked
				<ul style="list-style-type: none"> • Participation • Employment 				<ul style="list-style-type: none"> • 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.

Productivity Still Drives Ontario's Prosperity Gap

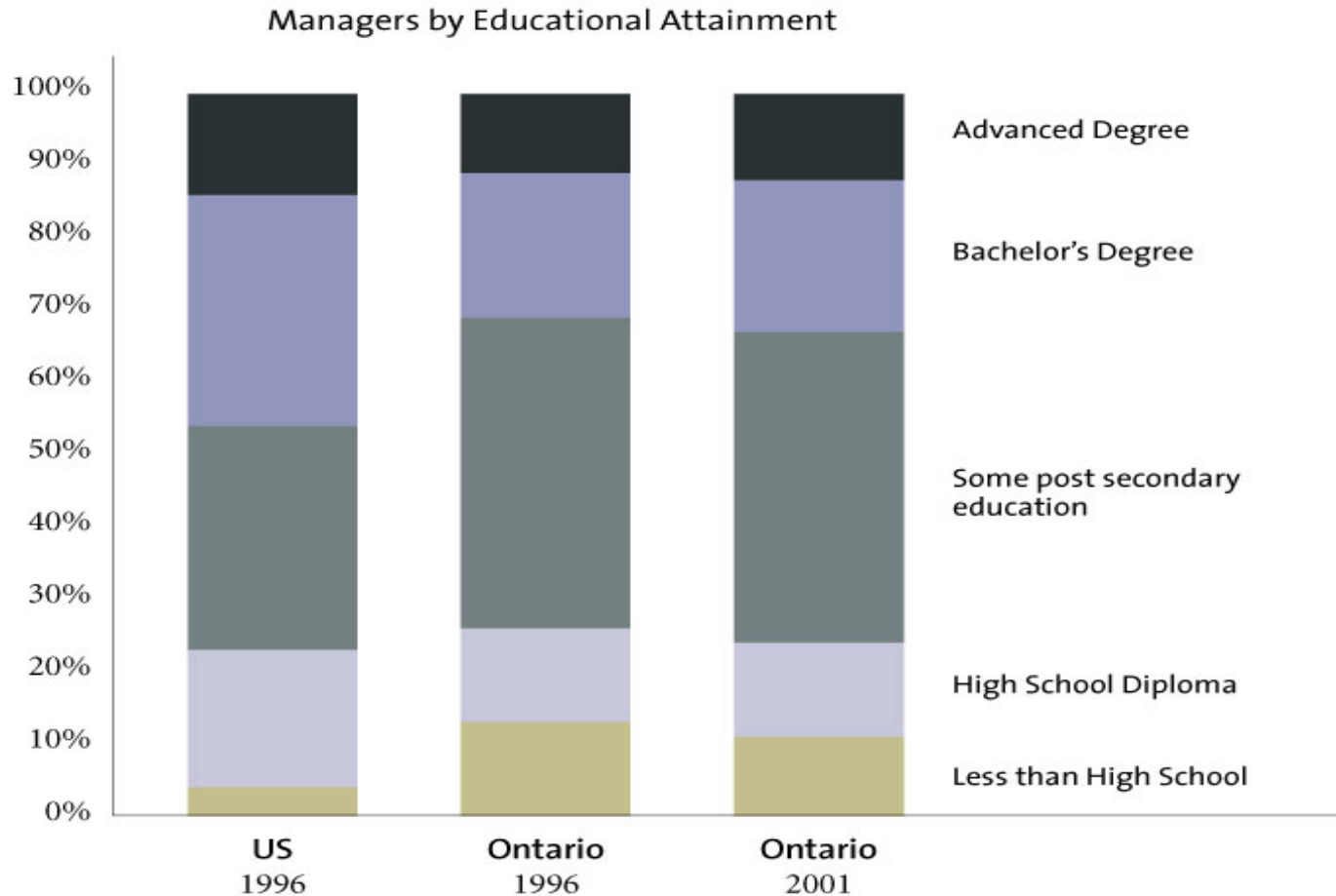
Elements of GDP per capita C\$ (2003)



Note: median of 16 peer jurisdictions

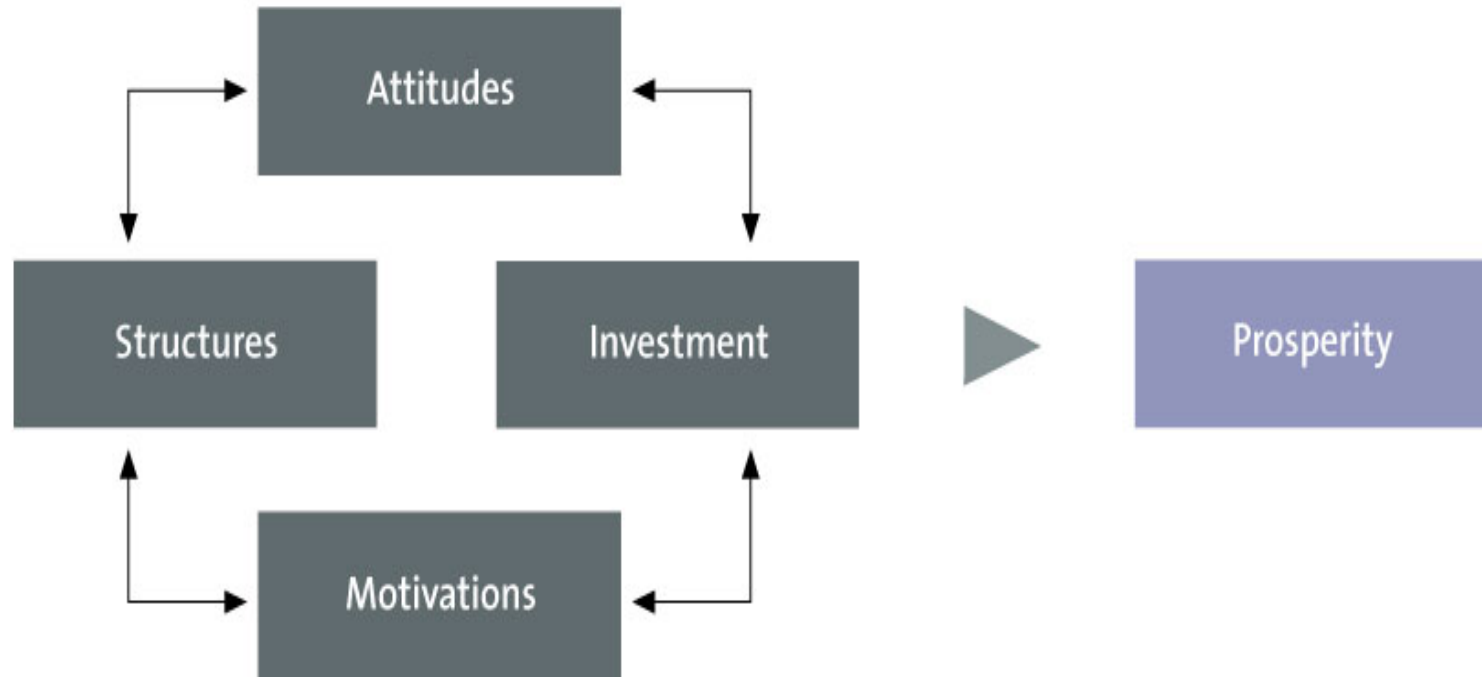
Source: Statistics Canada; Bureau of Economic Analysis; Institute for Competitiveness & Prosperity analysis

Education: Managers Less Well Educated in Ontario



Source: Statistics Canada; US Census Bureau

AIMS Drives Innovation and Upgrading For Prosperity



Source: Institute for Competitiveness & Prosperity

Ontario's High School Performance Ahead of US

OECD Programme for International Achievement(PISA) Results, 2000

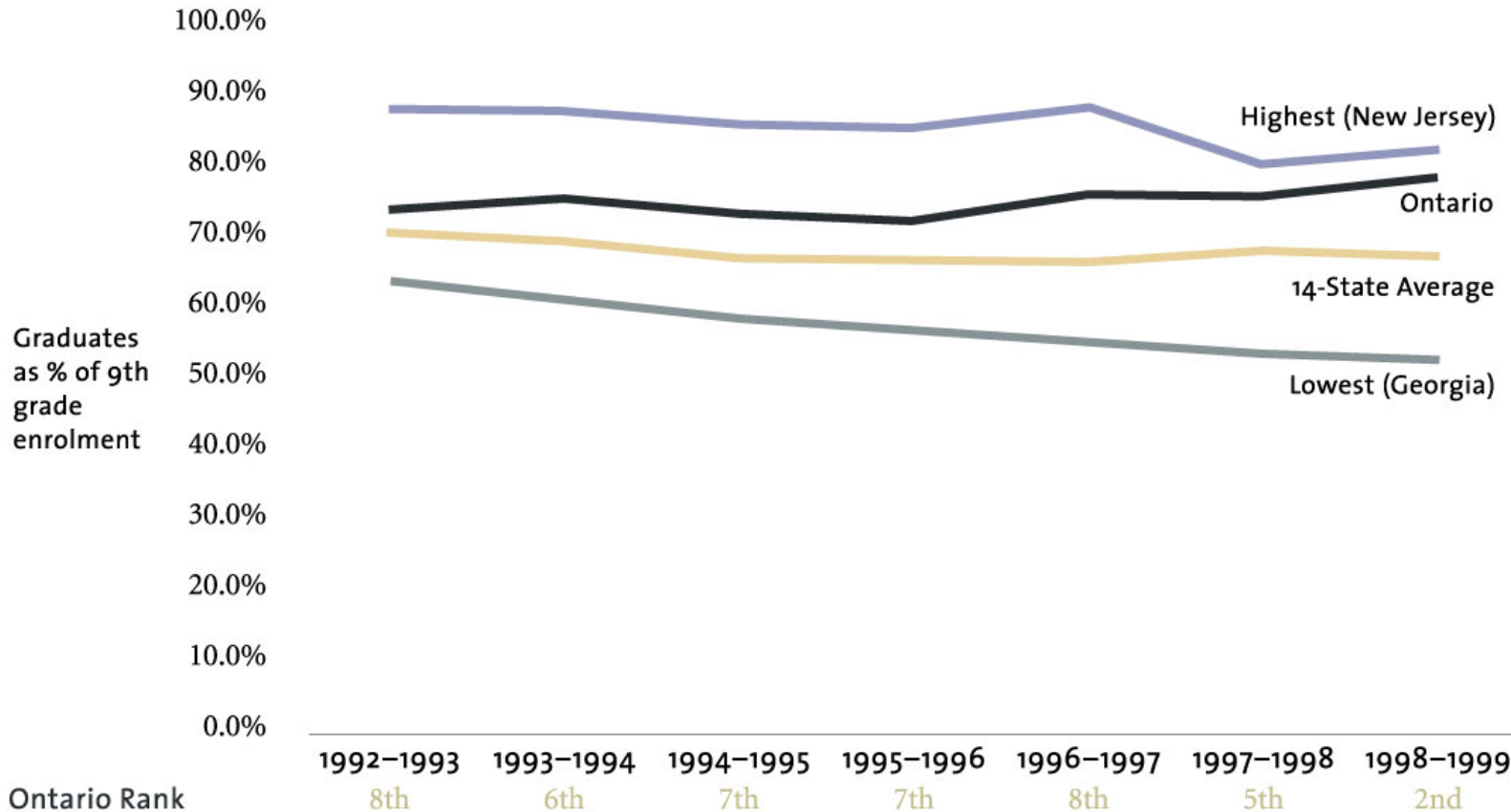
Country/Province	Reading	Math	Science
International	500	500	500
United States	504	493	499
Ontario	533	524	522
Atlantic	514	510	510
Quebec	536	550	541
Prairies	529	529	525
Alberta	550	547	546
British Columbia	538	534	533
Canada	534	533	529

Note: Blue numbers indicate a statistically significant (95% confidence limit) higher score relative to the corresponding Ontario score. Red indicates a statistically significant lower score

Source: Institute for Competitiveness and Prosperity based on Measuring Up: The Performance of Canada's youth in reading, mathematics and science – OECD PISA Study – First Results for Canadians aged 15

Ontario Achieves Superior High School Graduation Rates

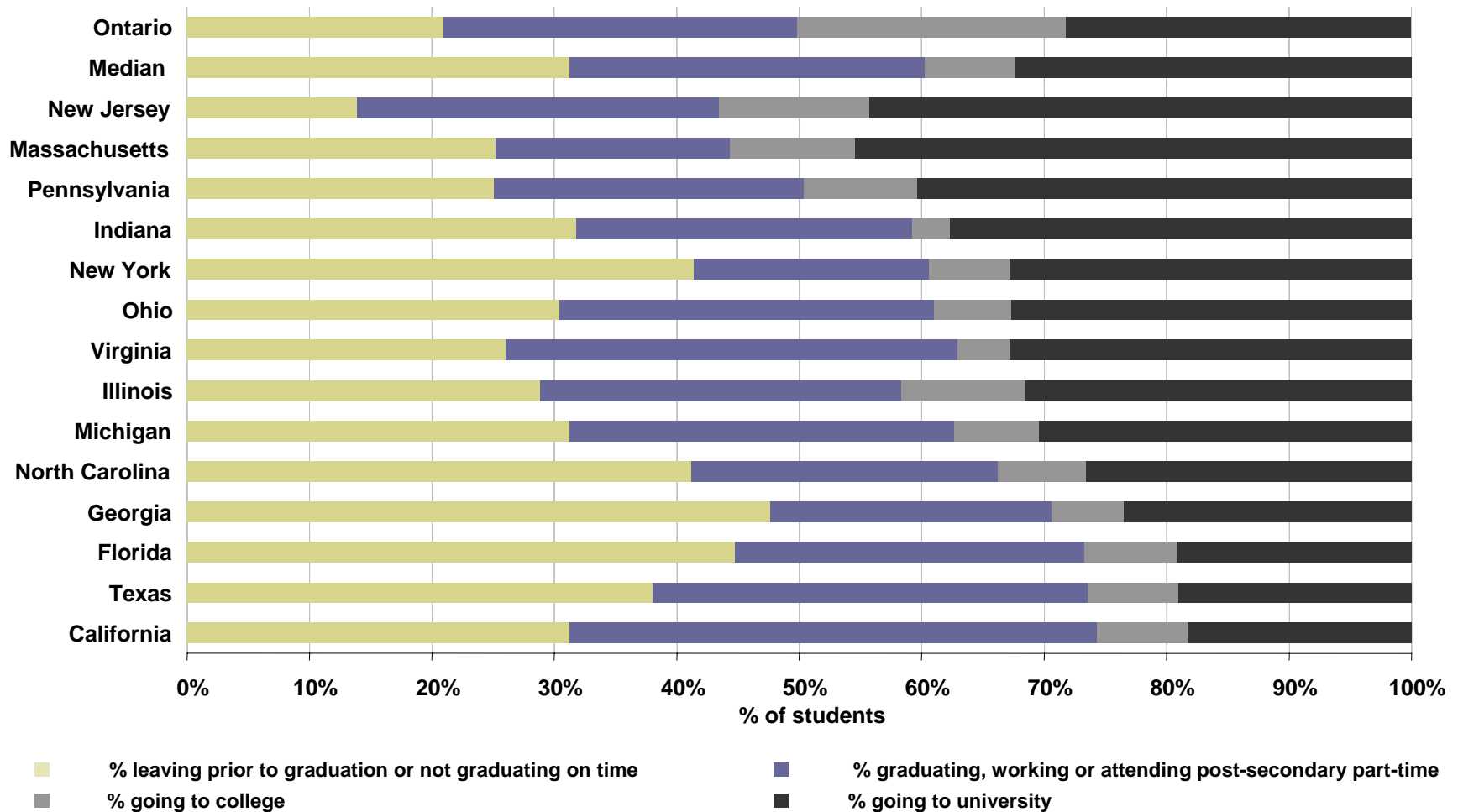
High school graduation rate – public & private secondary schools
(as a % of 9th grade enrolment*)



Source: OECD; Education in Canada 1996&2000, NCES – Projections of Education Statistics to 2011, NCES – Private School Universe Study, US Department of Education, NCES – Common Core of Data
* (Grade 9 enrolment 4 years prior)

Fewer Ontario Students Are University Bound

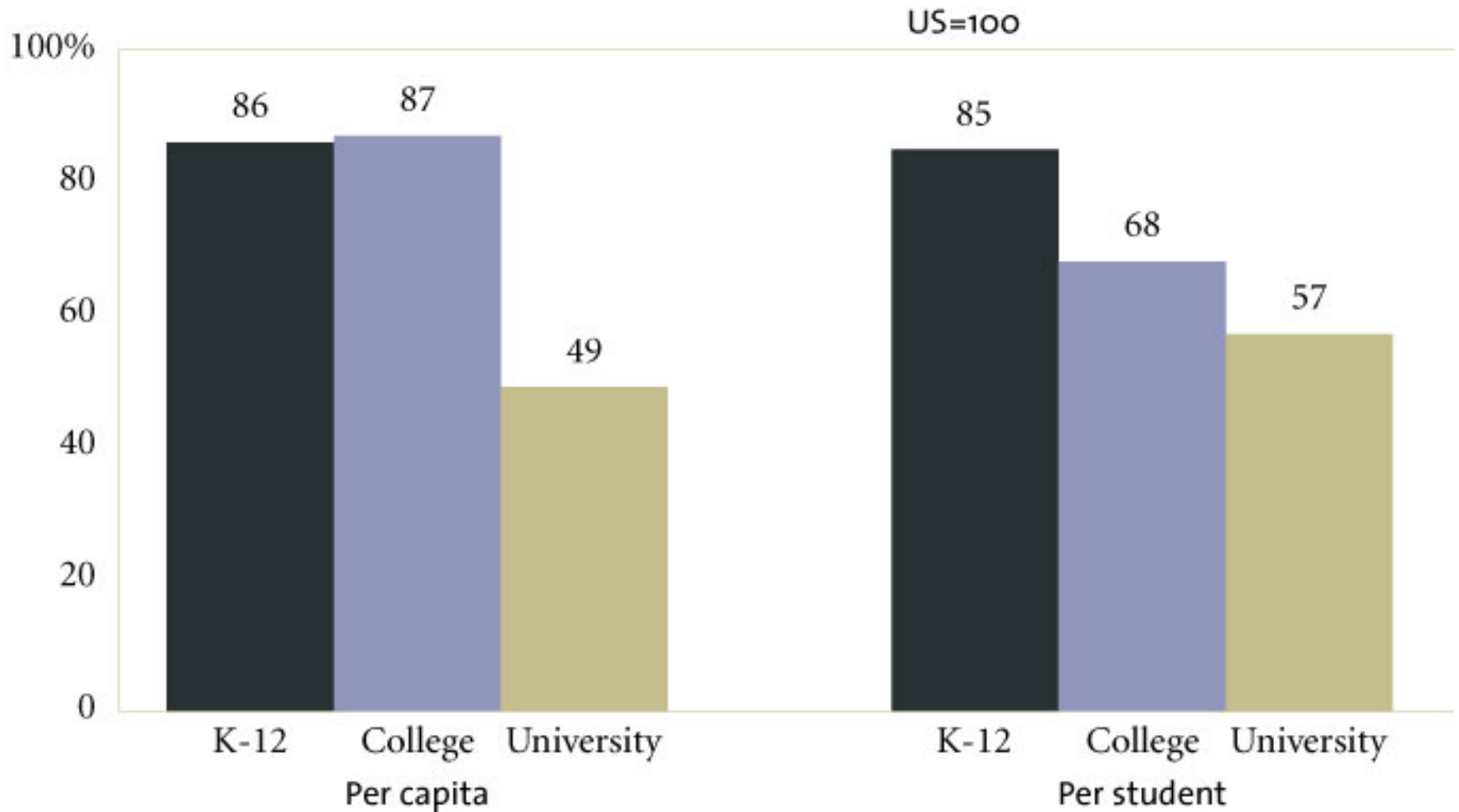
Student flow from grade 9 to post-secondary destination (2000)



Source: Statistics Canada, Special Request, OUAC, OCAS, Ministry of Education, Digest of Education Statistics (Table 205, 206 and special IPEDS request)

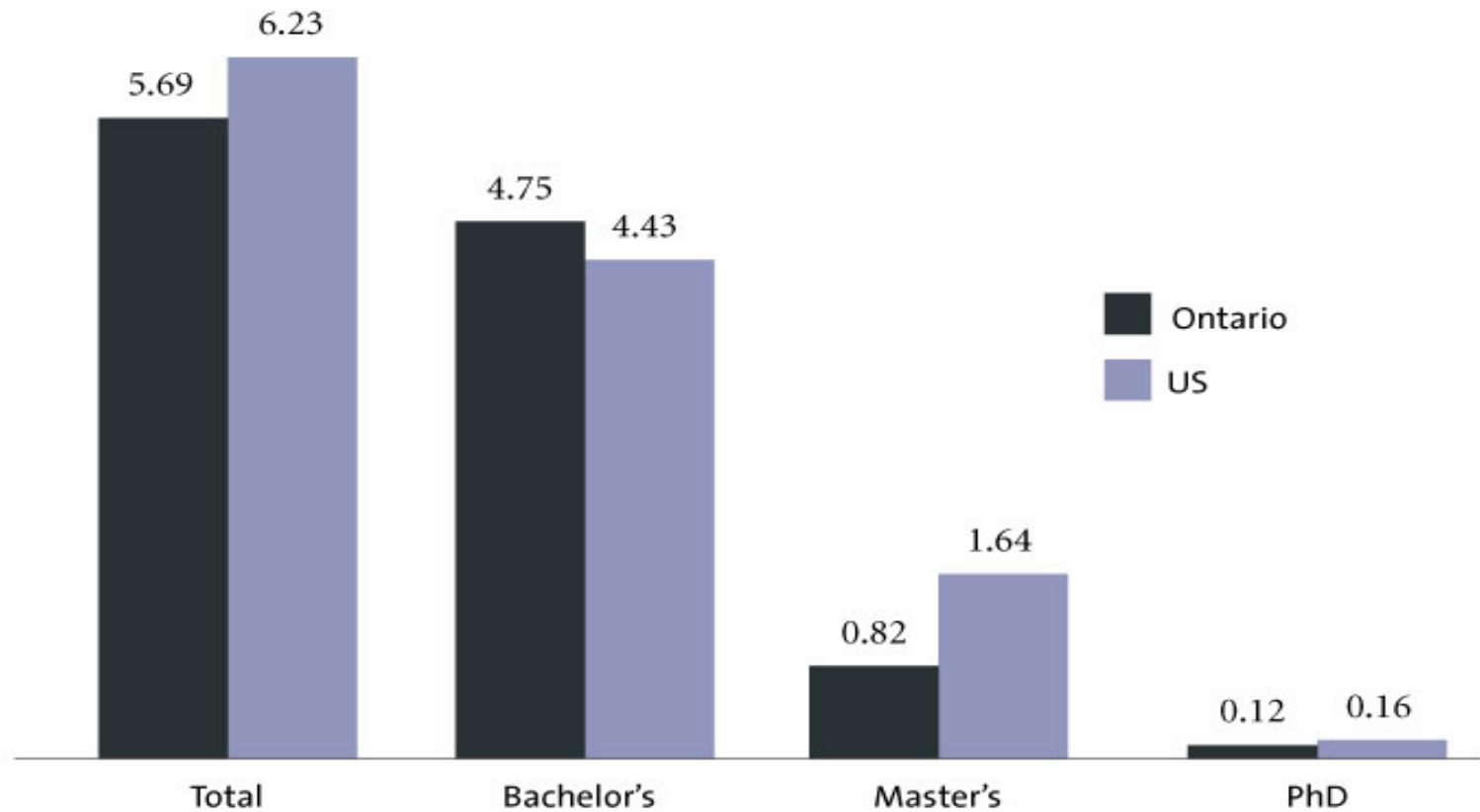
Ontario's Education Spending Lags US Levels

Ontario as % of US total expenditure 1995-99, C\$ (2000)



Ontario Graduates Fewer Master's and PhDs

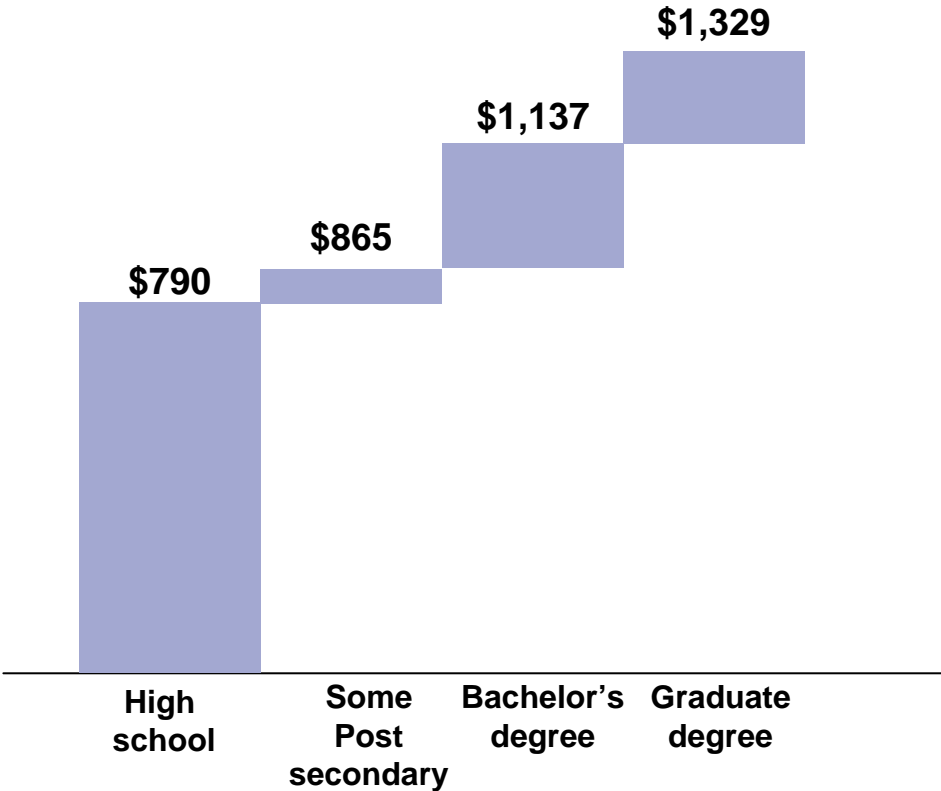
Degrees Conferred per Thousand Population, 1999-2000



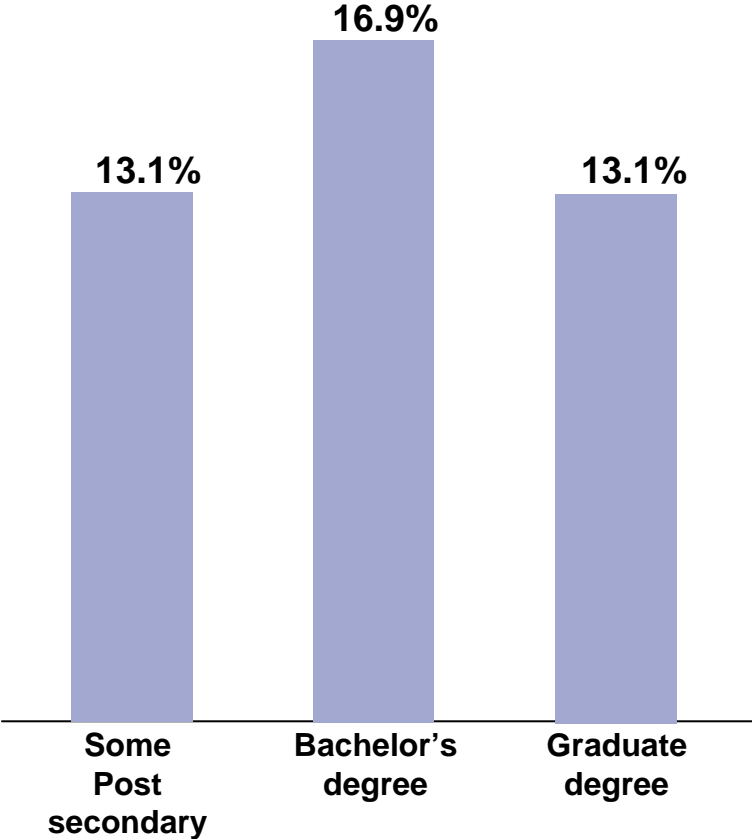
Source: Statistics Canada Educational Databases; CANISM II; US Department of Education, National Center for Education Statistics

Despite Huge Personal Pay-Off to Increasing Education

Lifetime earnings* (000)



Real Internal Rate of Return

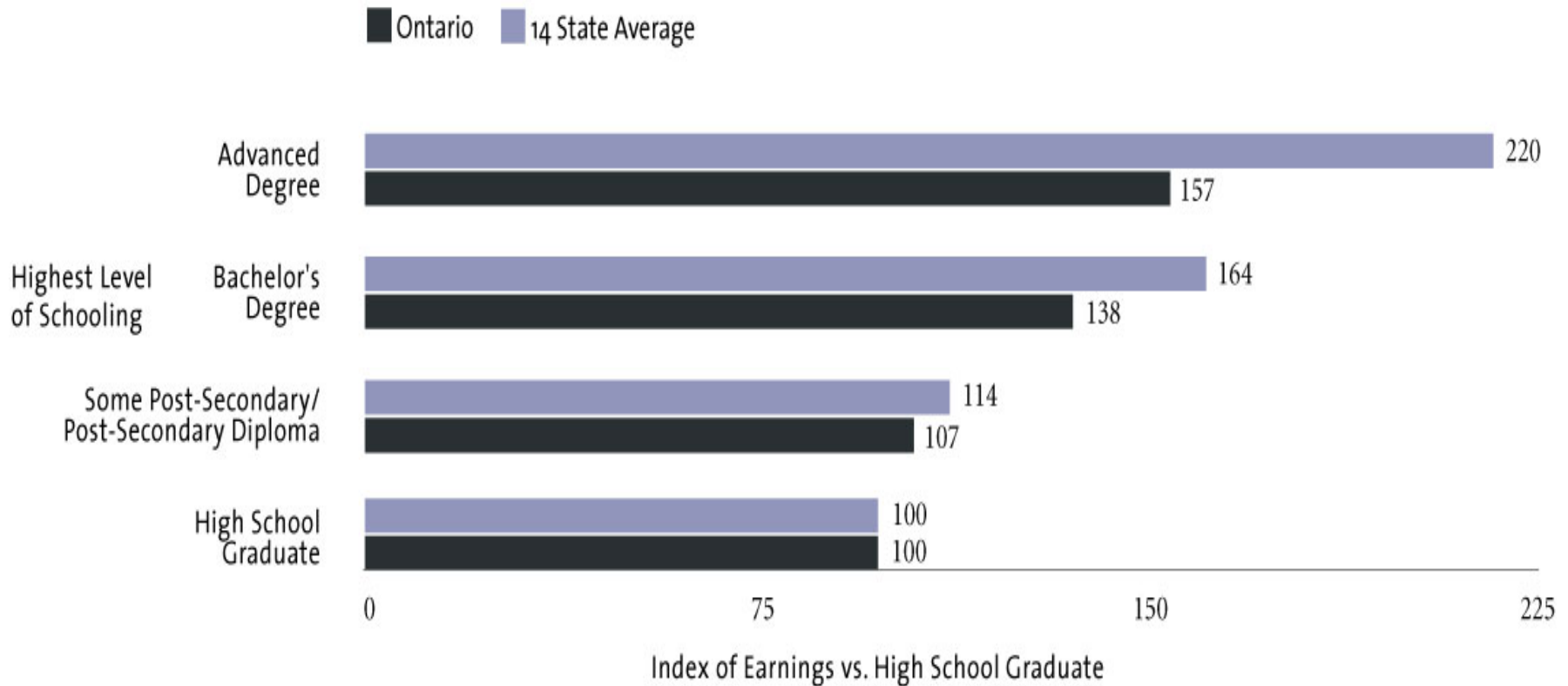


* Net of tuition costs; pre-tax; present value discounted at 3%

Source: Institute for Competitiveness & Prosperity based on Baker & Trefler, "The Impact of Education & Urbanization on Productivity", www.competeprosper.ca

Economic Returns to Education Higher in Peer States

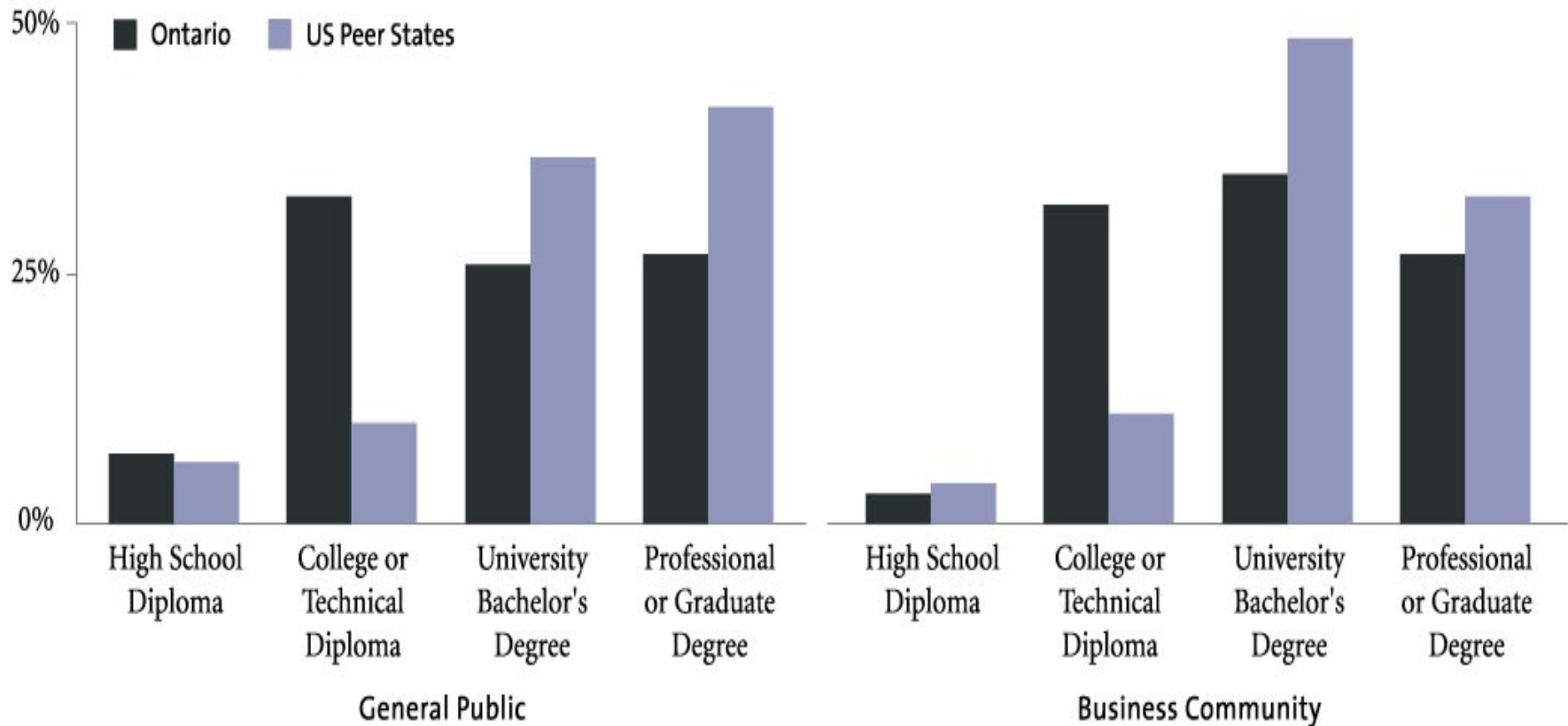
Returns to Education, 1997
(Annual Earnings Premium vs. High School Graduate)



Source: Institute for Competitiveness & Prosperity based on Baker and Trefler, "The Impact of Education & Urbanization on Productivity," www.competeprosper.ca

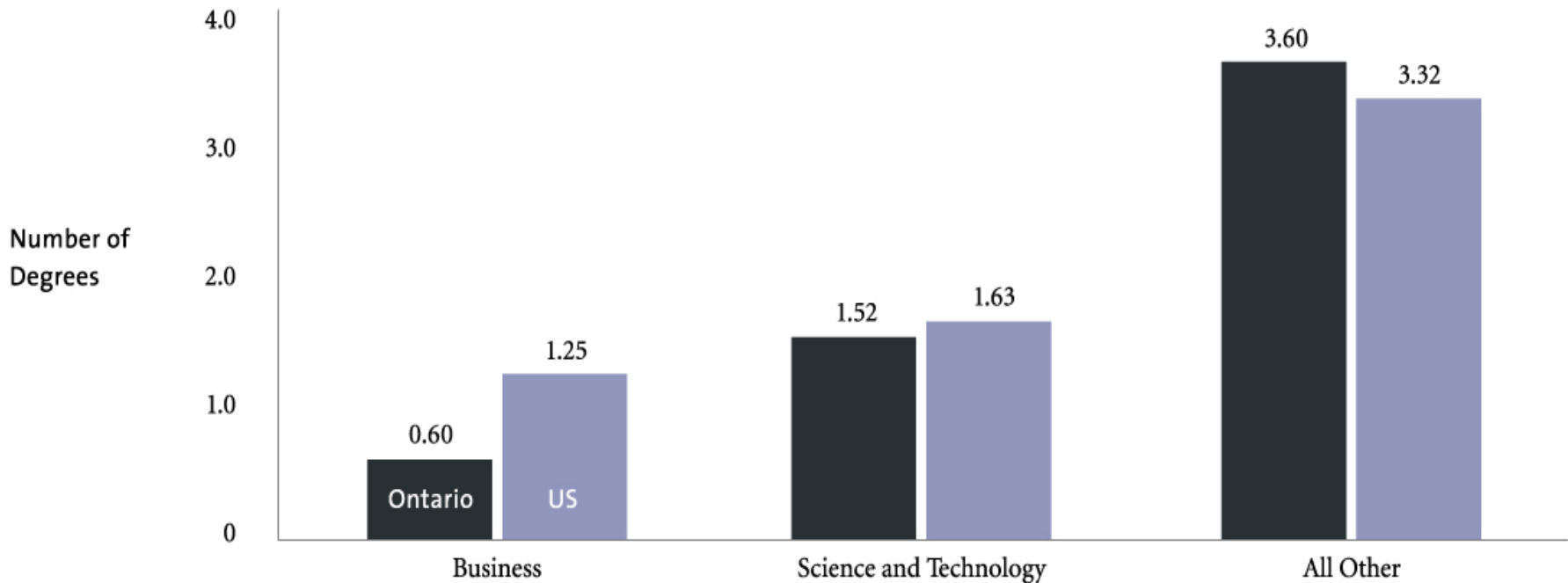
Ontarians Place Lower Value on University Education

Respondent's choice of advice of level of education to achieve



Q. If you had to give advice to a young person about the level of education they should have, which one of the following would you advise them to achieve?

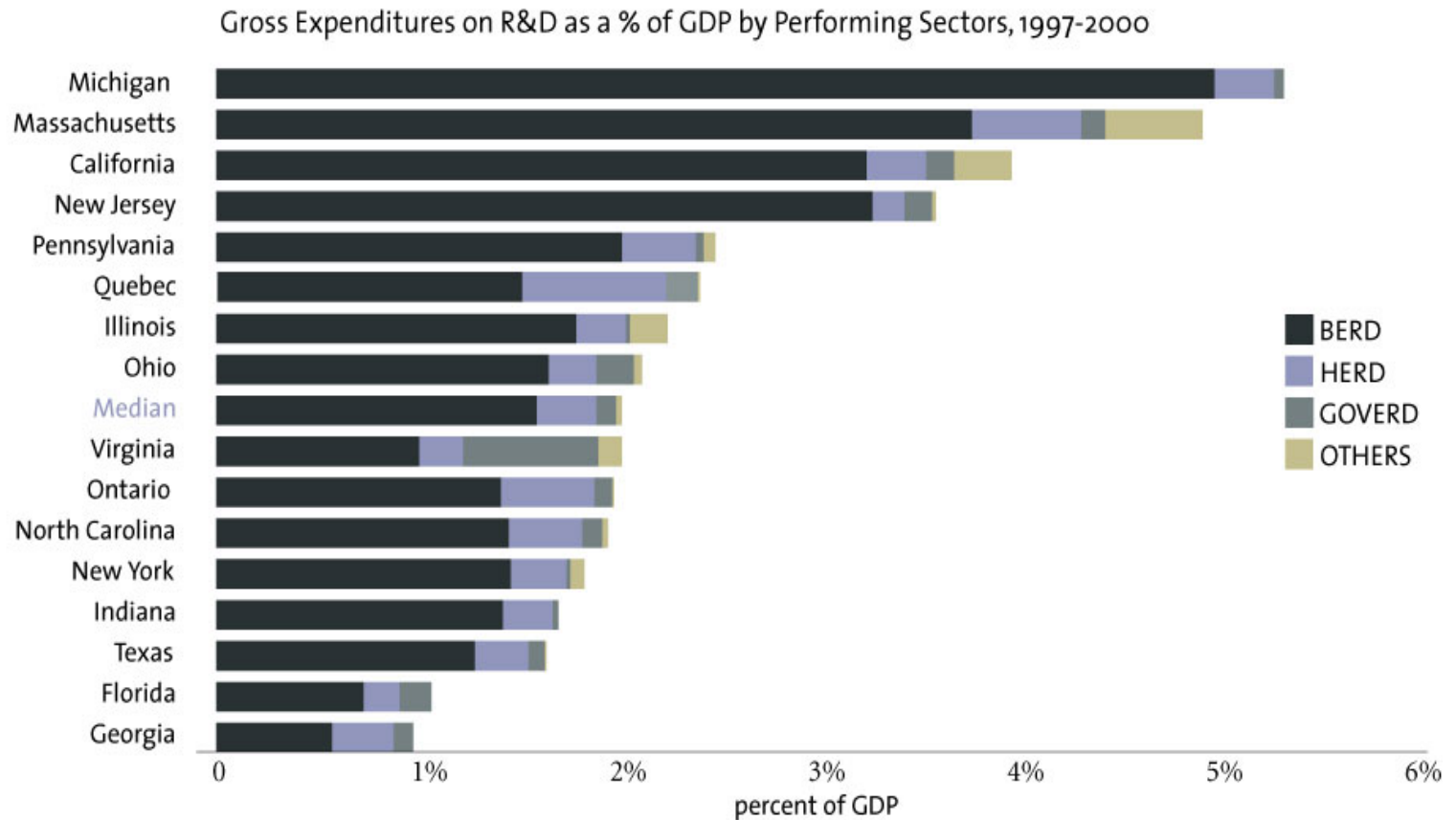
BA, MA and PhD Degrees per Thousand Population
(Average 1990-1998)



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

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

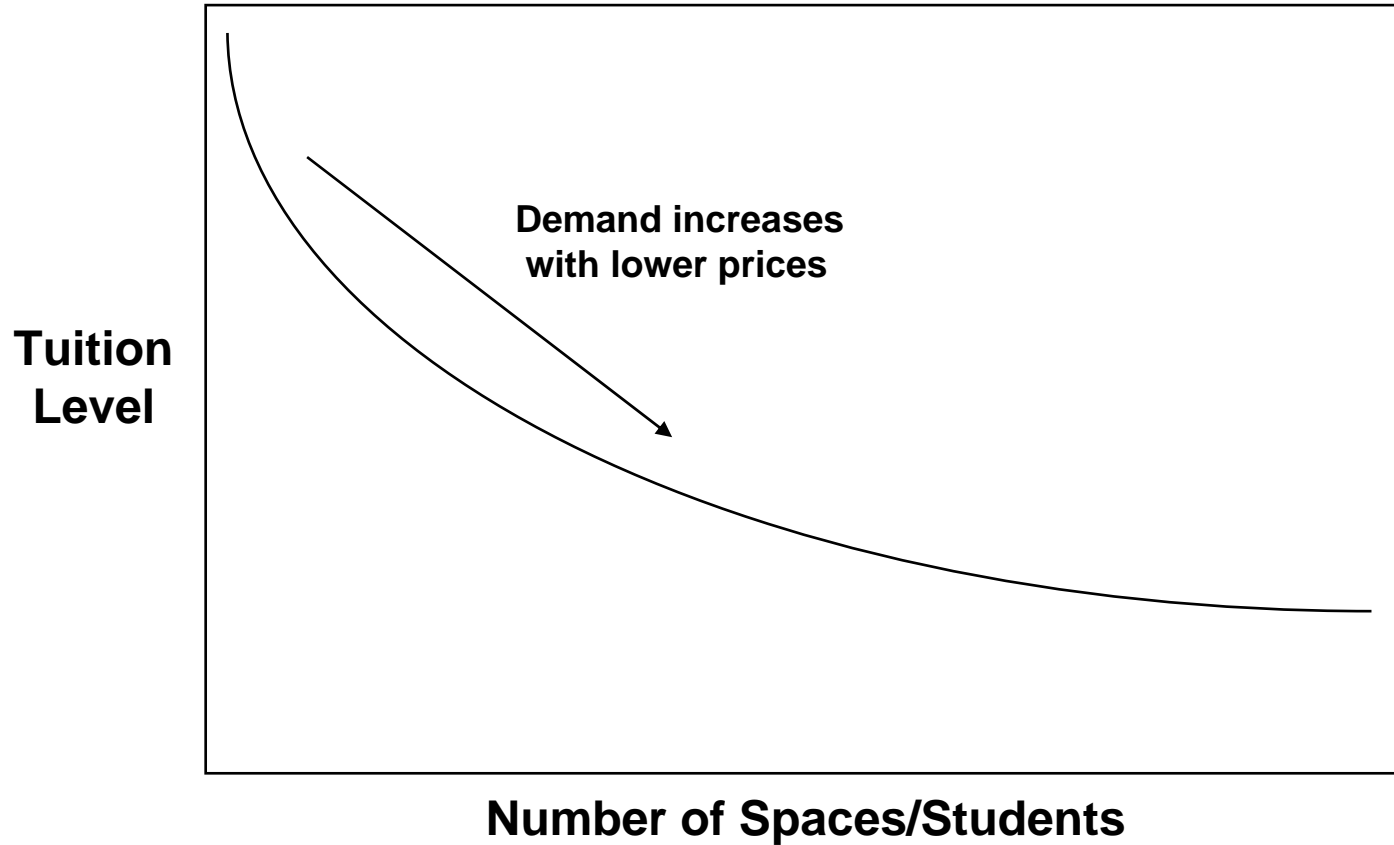
Ontario Performs Close to Median R&D, but has Lagged on Business Expenditure



Source: Statistics Canada - Science, Innovation and Electronic Information Division; National Science Foundation

The Theory of Tuition Suppression

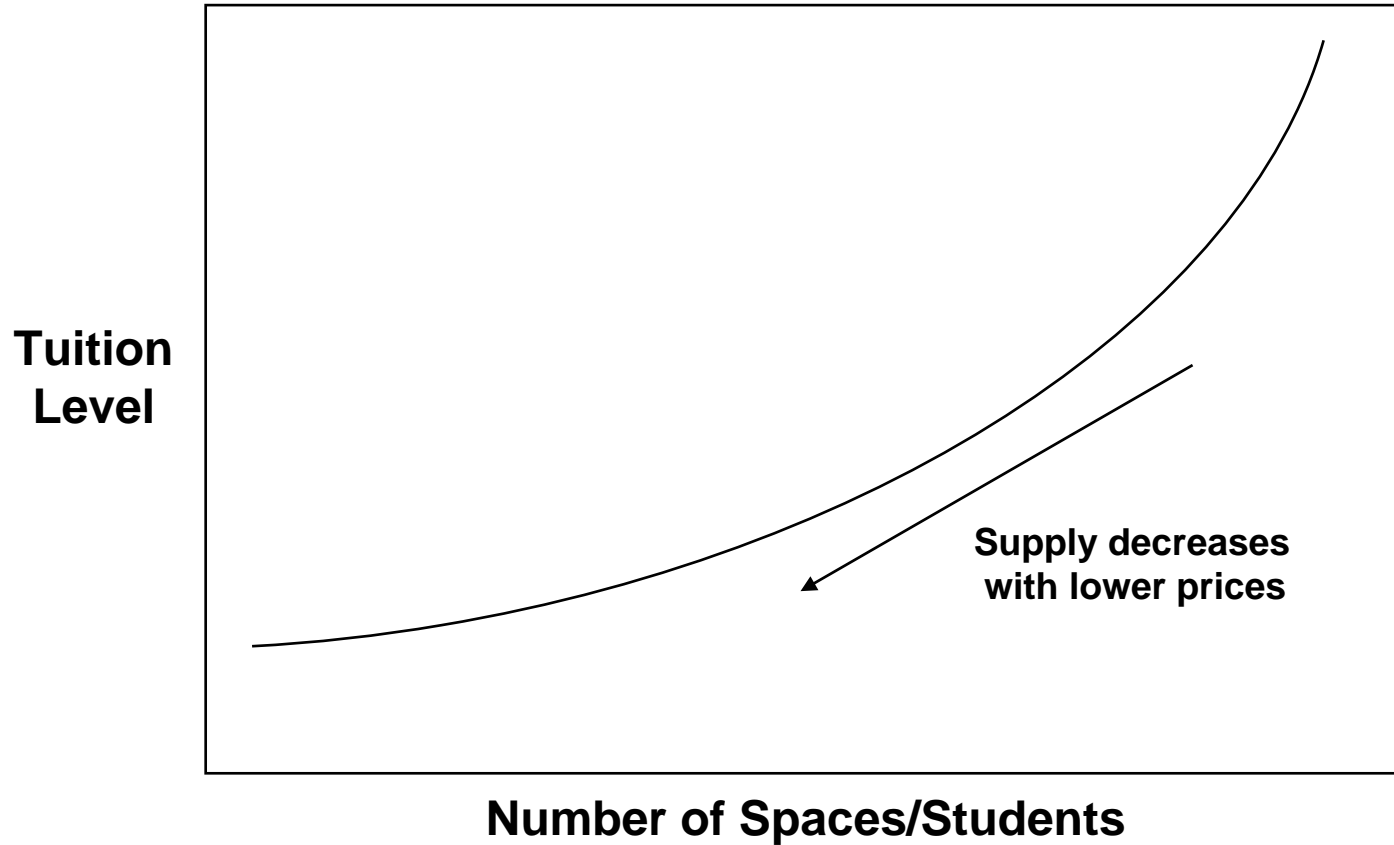
The Demand for Spaces by Students



∴ Tuition suppression is an unalloyed good

The Problem With the Theory

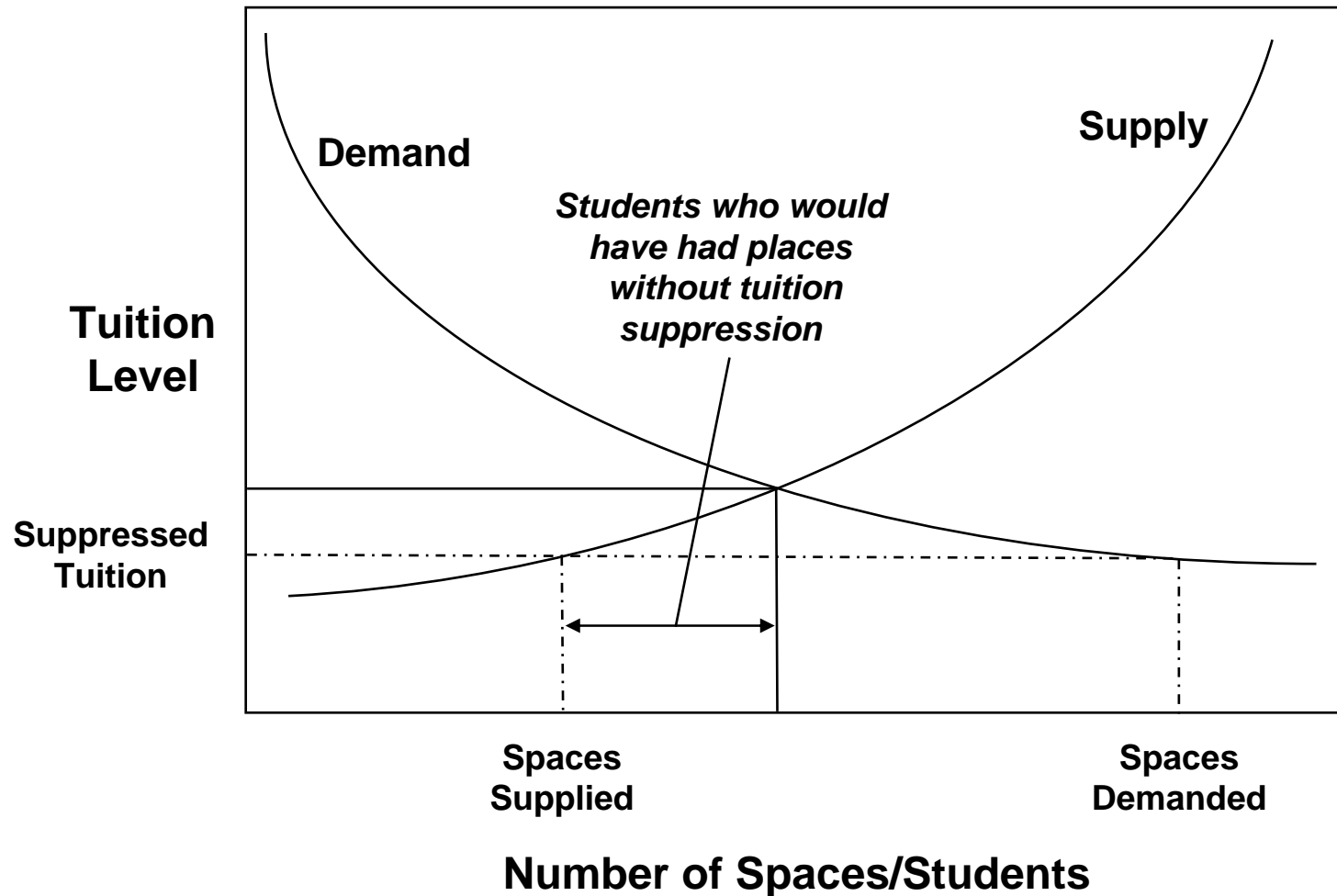
The Supply of Spaces by the University System



∴ Tuition suppression has unintended consequences

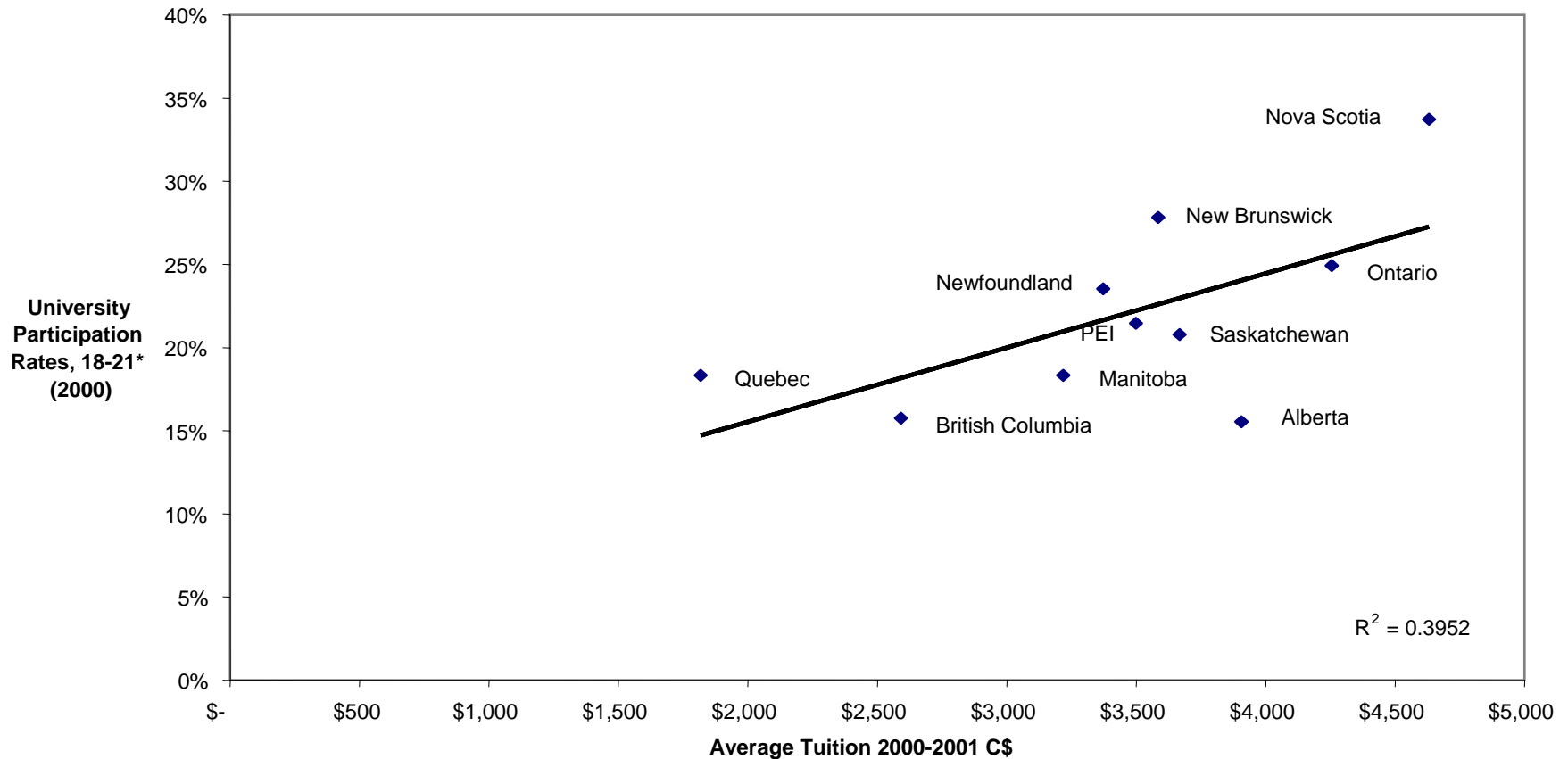
The Problem With the Theory: Under Supply

Demand and Supply in the University System



Canadian Provinces: Suppression and Under Supply

Average tuition vs. university participation rates (2000)
Canada by province

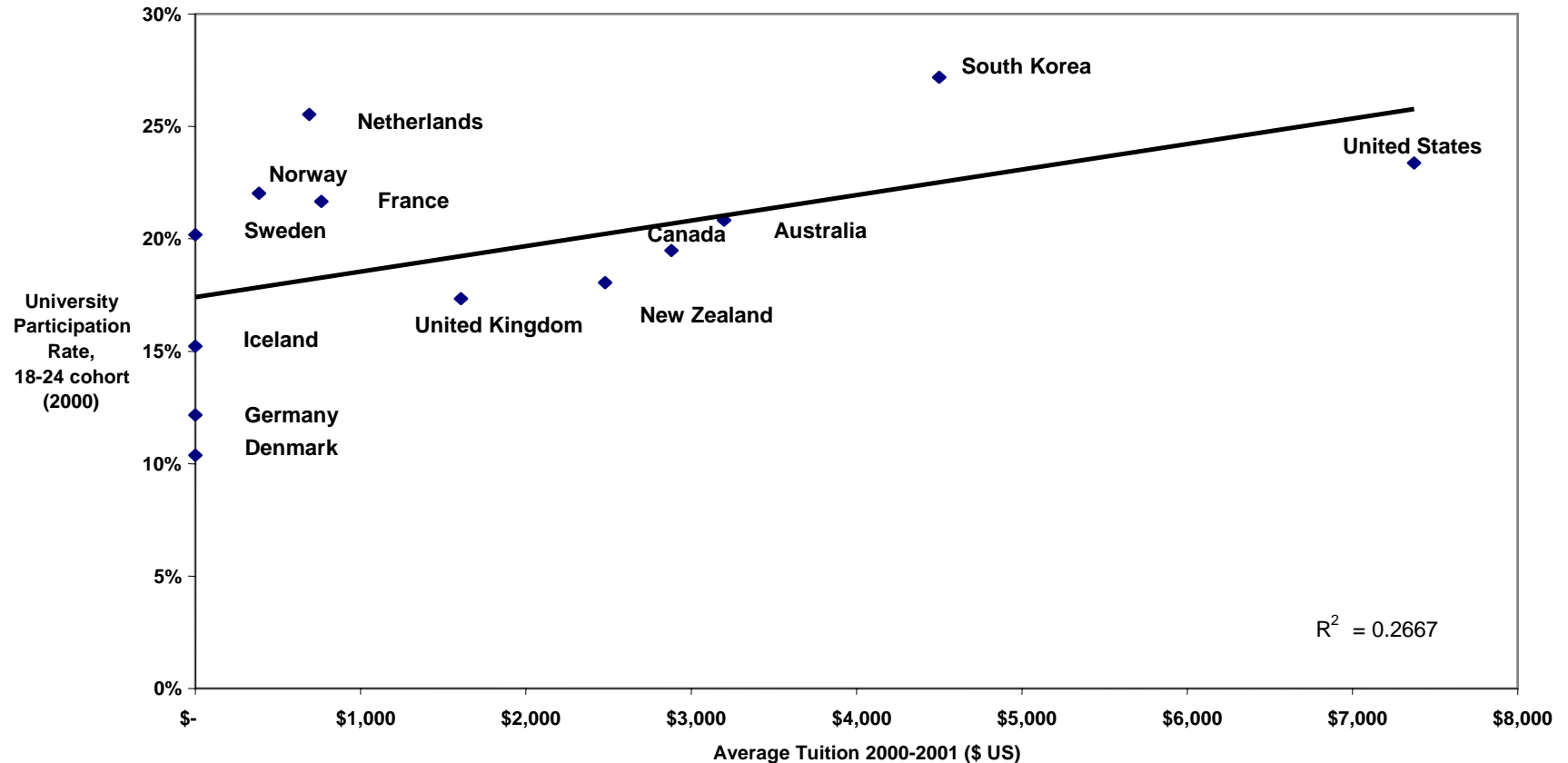


Note: 18-21 for all provinces except Québec and Ontario where it is 19-22.

Source: Statistics Canada (Tuition), Association of Universities and Colleges of Canada (Participation Rates)

The World: Suppression and Under Supply

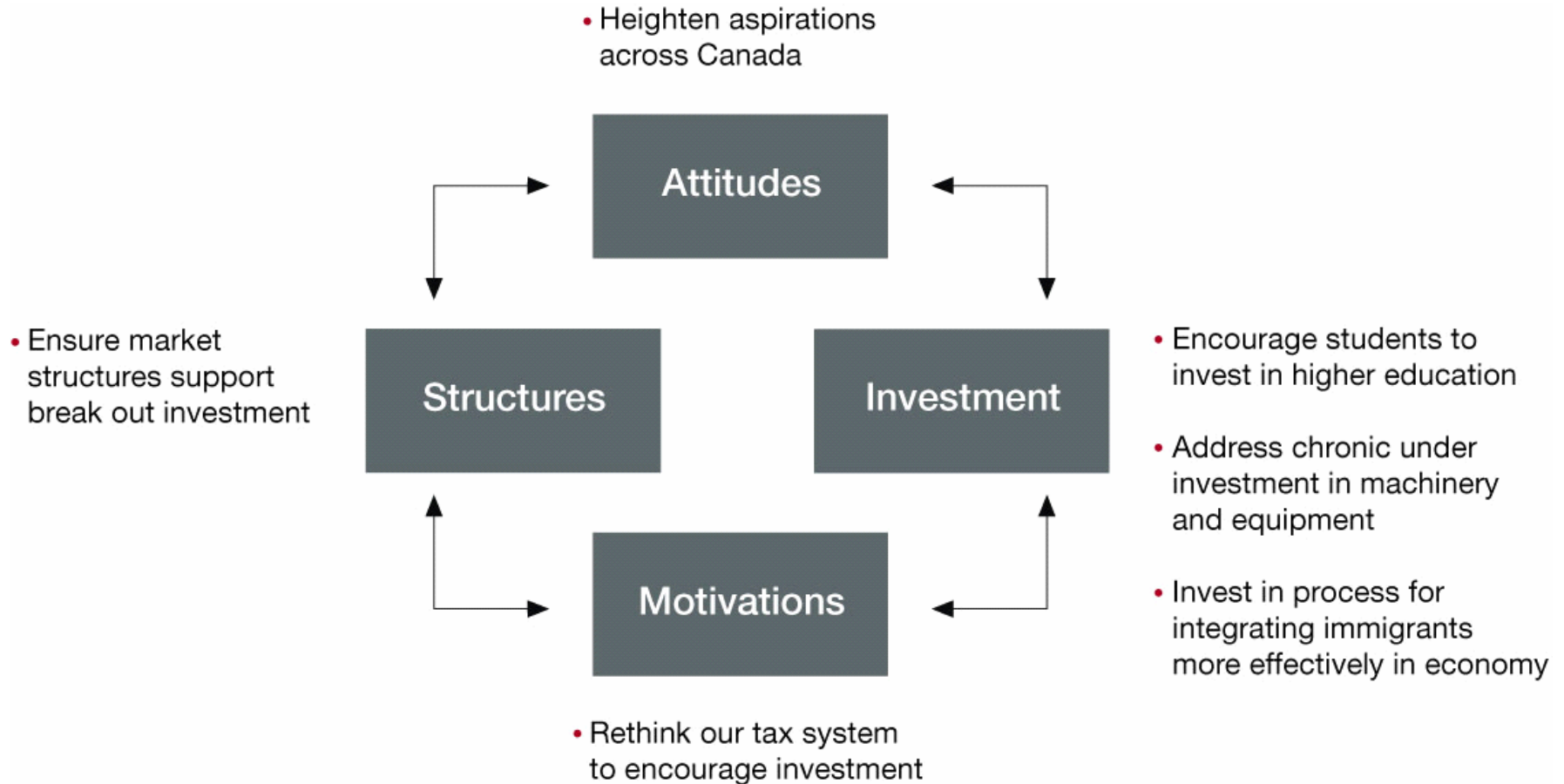
Average Tuition vs. University Participation Rates 2000



Notes: Tuition data for Germany and Netherlands is for 1998-1999, France and Norway is for 1999-2000. Tuition for UK is based on max of 1,050 pounds. All figures converted to US dollars using OECD PPP 2003, except for EU countries <http://www.oecd.org/std/ppp1.pdf>.

Source: CAUT Education Review, Vol. 5, No. 1 - "University tuition fees in Canada, 2003", University of Buffalo - The International Comparative Higher Education Finance and Accessibility Project, Statistics Canada and National Center of Education Statistics - Digest of Education Statistics, US Census Bureau - International Data Base, OECD.

Priorities for Enhancing Ontario's Prosperity



Source: Institute for Competitiveness & Prosperity