



# Trends in Higher Education

Volume 1 – Enrolment



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Trends in Higher Education: Volume 1 – Enrolment

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**Enrolment**

# Introduction

In 2010, there were almost 1.2 million students in degree programs on Canadian campuses: 755,000 undergraduates, 143,400 graduate students studying full-time, and an additional 275,800 students studying part-time. Fifty-six percent of university students were women, and 10 percent were international students. The number of full-time university students has more than doubled since 1980, and part-time enrolment is up 16 percent. In 1980, there were 550,000 full-time and 218,000 part-time university students on Canadian campuses. Clearly, universities have experienced tremendous growth over the last 30 years.

So what has driven growth in university enrolment? Demography has not been a principal driver of this change. Indeed, there were about three percent fewer youth in the key 18-to-24 age range in 2010 than in 1980. The demand for a highly skilled and educated labour force has been a principal driver in the growth of university participation rates.

Since the 1970s, a profound change has been taking place in the labour market. Canada has shifted from a resource-based economy to a service-based one, resulting in a different mix of jobs available for Canadians. The fastest growing occupations are now in Canada's service sector, which grew from 6 million jobs in 1975 to more than 13 million jobs in 2010. In the last 20 years alone, there were 1.5 million new jobs for professional and management occupations in Canada, of which 1.3 million were filled by university graduates. This shift to a service sector economy has created high-paying, quality jobs. By comparison, jobs have grown at a much slower pace in many other occupations, and jobs for people who have a high school diploma or less are disappearing.

The growth in university enrolment is evidence that students are responding to changes in the labour market, and that universities, in turn, are responding to students. Universities have more than

doubled their capacity in the last 30 years, and continue to introduce new programs that meet student demand.

Growing demand for university education has reinforced and increased the value of a university degree both to the individual graduate and to society in general. As the Drivers of Change section of *Trends* illustrates, Census data confirms that university graduates see their income increase more rapidly and consistently throughout their careers. University graduates also experience fewer and shorter periods of unemployment, volunteer more, and are more engaged in their social and political activities. University graduates pay a greater proportion of taxes, and draw less frequently on social services, enabling governments to provide more services to all Canadians.

Can we expect these trends to continue?

Demographic projections suggest Canada will not be able to rely on population growth to fuel our economy in the coming decade. By 2030, the population over the age of 65 will double, while the working age population (25-64 years of age) will grow by just eight percent. There will simply not be enough population growth to drive the kinds of increases in the overall size of our labour force that would be needed to support an increasingly dependent, aging population. Canadians are in for a major demographic shift.

To respond to the anticipated economic, social and labour market demands resulting from this demographic shift, universities will need to both expand access to higher education for untapped segments of the population and international students, and increase the quality of education students receive.

Enhancing the quality of university education by providing more interactive and engaging learning experiences is consistent with improved academic performance, knowledge acquisition and skills development. In short, a high quality learning experience produces more engaged and productive students, who, upon graduation, become Canada's future lawyers, doctors, teachers, thinkers, scientists, managers, leaders and innovators.

# Enrolment Overview

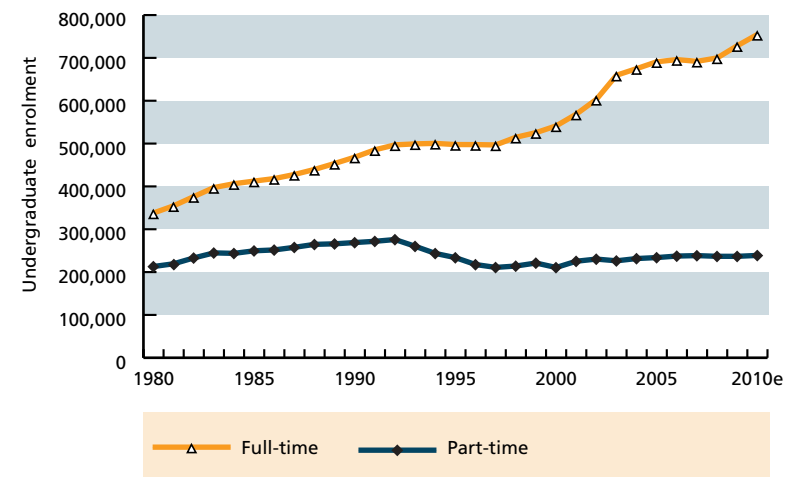
## Undergraduate students

There has been tremendous growth at the undergraduate level in the last 30 years – rising from 550,000 students in 1980 to 994,000 in 2010. A growing majority of undergraduate students were enrolled full-time. There were 338,000 full-time students in 1980; by 2010, the undergraduate student body had more than doubled to 755,000. By comparison, there were very different enrolment trends for part-time students. In 1980, there were 218,000 part-time undergraduates compared to 239,000 in 2010.

In 1980, approximately 76 percent of undergraduate students were enrolled in full-time studies. Within this group, 62 percent were under the age of 22. One-quarter of full-time undergraduate students were between the age of 22 and 24, 11 percent were between the ages of 25 and 34, and approximately two percent were over the age of 35. Although the number of students in all age groups grew significantly from 1980 to 2010, and fluctuations did occur during this 30-year period, the share of each age group within the full-time undergraduate student body in 1980 and 2010 were practically identical.

While the number of students in the 18-to-21 age cohort grew over much of the 30-year period since 1980, the strongest rate of change was from 1999 to 2005, when their numbers jumped by more than 100,000. A good portion of that growth was driven by the abolition of Grade 13 in Ontario. The so-called double cohort of students caused two high school graduating classes to seek university spaces in 2003. The impact of the double cohort was expected to drive higher undergraduate enrolment over a four- or five-year period in Ontario, and in other provinces that attract relatively large numbers

FIGURE 1: Since 1980, full-time students have driven growth in undergraduate enrolment



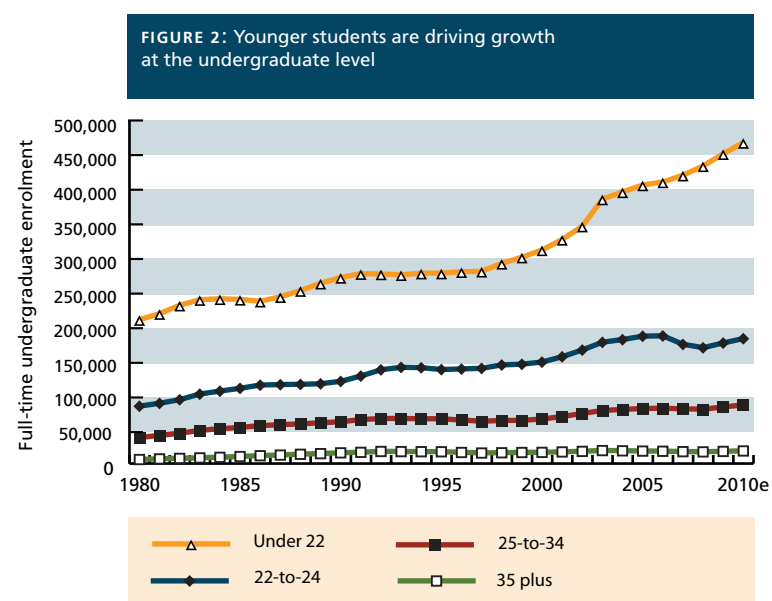
Source: Statistics Canada data and AUCC estimates

of Ontario students. Strong growth in demand for university education has seen the numbers of young students continue to grow, even as the double-cohort graduated.

From 1980 until 1999, the share of full-time undergraduate students between the ages of 22 and 24 increased from 24 to 28 percent, before returning to 24 percent in 2010. The dip in their numbers in 2006 and 2007 was caused by the earlier starting age of students entering undergraduate programs because of the abolition of Grade 13 in Ontario in 2003. Once again, these numbers are rebounding and have grown in the last three years.

While there was a general expectation that the trend towards lifelong learning would drive higher enrolment demand from the over 35 age cohort, current trends do not support this hypothesis. Although the number of students in this age group has tripled in the last 30 years from 6,000 in 1980 to more than 18,000 in 2010, their share of all full-time undergraduate students has remained at two percent.

Though universities are acutely aware of the presence and needs of their older students, enrolment growth is driven by much more rapid increases in traditional youth cohorts on many university campuses. In 2010, six out of seven, or 86 percent of students studying full-time at the undergraduate level were under the age of 25. Secondary school students increasingly recognize that university education is a requirement for many of the career paths they desire. As a result, they are enrolling directly into university upon completion of high school.



Source: Statistics Canada data and AUCC estimates

## Part-time students

During the last 30 years, part-time undergraduate student enrolment has not grown as quickly as full-time undergraduate enrolment. From 1980 to 1992, part-time undergraduate enrolment grew by some 25 percent, peaking at an all-time record of 276,000 students in 1992. In the subsequent eight years, part-time enrolment dropped back to 1980 levels. From 2000 to 2010, part-time enrolment grew, on average, by one percent a year compared to four percent for full-time enrolment.

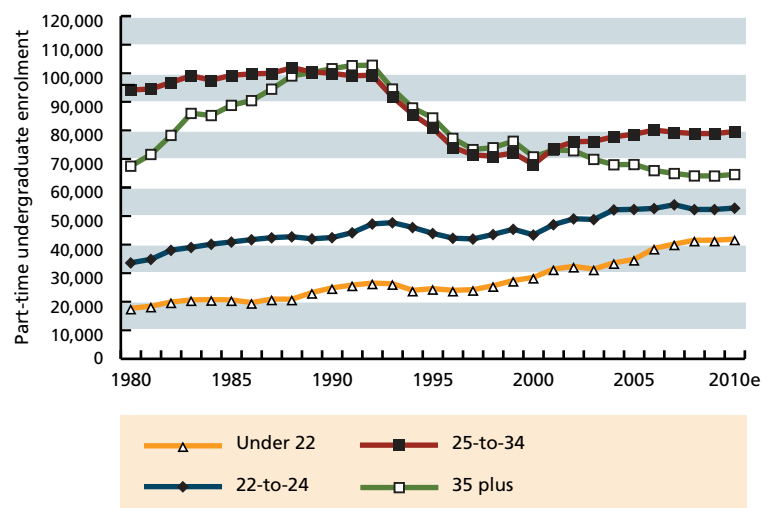
In 2010, approximately 24 percent of undergraduate students were studying part-time, and 60 percent of part-time students were over the age of 25, compared to 13 percent of full-time students. Despite the greater proportion of students over the age of 25, part-time students are considerably younger than they were at the beginning of the 1980s when 76 percent of part-time students were over the age of 25.

Some analysts pointed to the growth in the adult population as a factor that would strongly influence the age profile of students over time.<sup>1</sup> Between 1980 and 1992, the population over the age of 25 grew by 45 percent. Over the same period, the number of students in this age range grew by more than 40 percent, so it appeared that enrolment growth was simply keeping pace with population growth. In reality, the participation rates of part-time students in the older age cohorts were actually declining. In effect, the rapid growth in population was masking the decline in the participation rates in the older age groups, leading to an erroneous conclusion that the age profile of the subsequent generations of part-time students would also be driven by older students.

The changing labour market was a far more important factor driving the shifting patterns of part-time enrolment. A significant part



**FIGURE 3: Part-time undergraduate students are younger now than at the beginning of the 1980s**



Source: Statistics Canada data and AUCC estimates

of the shift in part-time study – especially in the growth of older female students – resulted from changing educational requirements for entry into several occupations. In the early 1970s, entry into fields such as nursing, teaching and management began to require a university degree. At the same time, career and salary progress in these occupations became more constrained for those who had not completed degrees. These changes contributed to the rapid increase in part-time enrolment that took place prior to 1992 in business, biology, health science programs and, to a lesser extent, education.

These shifts in educational requirements in the labour force had significant impacts on part-time enrolment trends. Youth who had not anticipated needing a degree for their desired career path in the 1960s and early 1970s recognized the need to revisit their educational plans. Many individuals revised earlier decisions to forego university and began to pursue part-time studies to meet the shift in labour market demand.

This phenomenon of “revised expectations”<sup>2</sup> had a relatively long-lasting impact on part-time enrolment because students are often unlikely to complete their part-time programs quickly. At the same time, the impact was only temporary. Once new educational requirements for a given occupation are well known, youth leaving high school incorporate that knowledge into their decisions for further education. This has driven demand for full-time, rather than part-time enrolment.

Rationales to explain the now growing proportion of younger students in part-time study are more difficult to identify. Some of the change could be a result of more students starting or completing a degree in part-time study. Statistics Canada’s Labour Force Survey also highlights that since the early 1990s, more students have been combining work and study than was the case in the 1980s. Working longer hours may lead some students to opt for part-time rather than full-time study (at least for part of their program).

### Field of study

Between 1992<sup>3</sup> and 2007,<sup>4</sup> full-time undergraduate enrolment grew strongly in most major fields of study. However, the rapid growth in all major fields of study over this long period masks much of change that took place within each discipline.

The following chart illustrates the fluctuations in demand within disciplines that had more than 10,000 full-time students in 2007. The chart captures three shorter periods since 1992. In the early 1990s, student preferences shifted from arts and science programs to several professional and science-based programs. For example, the number of students enrolled in liberal arts and sciences, the social sciences, English and history all declined significantly between 1992 and 1997 while enrolment in computer science, biology and biomedical sciences as well as communication and journalism grew quite rapidly.



Growth was widespread across most disciplines between 1997 and 2002, as enrolment in all the arts and sciences rebounded. Student numbers in business, engineering, health professions, computer science, communication and journalism programs grew rapidly – between 20 and 40 percent – during this period, while growth in biology and biomedical science slowed markedly. Enrolment in physical sciences remained constant, and enrolment in law and legal studies declined.

Between 2002 and 2007, the fastest enrolment growth was in the physical sciences, health professions, and biology and biomedical sciences. Many of the arts and social science disciplines and business enrolment continued to expand strongly, but computer science enrolment fell by close to 50 percent, in response to the

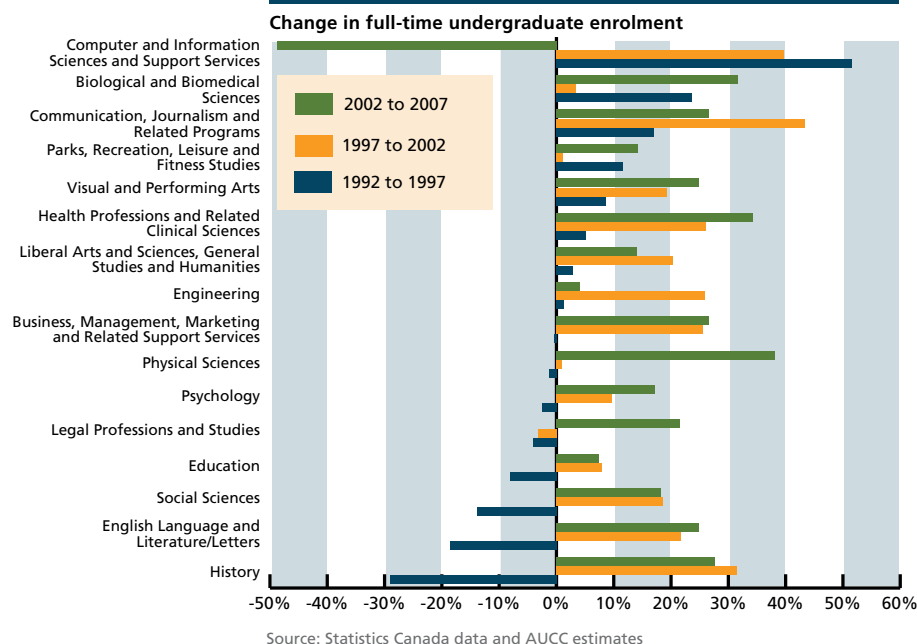
problems encountered in the high technology sector in the early part of this decade. As a result, the three most popular programs for full-time undergraduate students in 2007 were business and management (with 90,700 students), liberal arts and sciences, general studies and humanities (with 65,700 students), and social sciences (with 63,100 students).

The shifts that took place within individual disciplines demonstrate that students respond to signals from their peers and from the labour markets, and that institutions shift their programs to respond to student demand.

All major disciplines were affected by the sharp drop in the number of part-time students between 1992 and 2000. However, most disciplines shared in the resurgence in growth that has taken place since 2000. The biggest increases in part-time undergraduate enrolment were in the social and behavioural sciences and law, followed by business, humanities and the health professions. Enrolment in computer sciences bucked both trends, growing in the 1990s, and falling in the last decade. In 2007, the most popular fields of study for part-time undergraduate students were the combined fields of business, management and public administration, which attracted close to 50,000 or 20 percent of students. The humanities and the social and behavioural sciences, and law each attracted about 37,000 part-time undergraduate students, or 32 percent of students.

The most noticeable change in part-time enrolment over the period from 1992 to 2007 is the decline in the number of part-time undergraduates studying in education – from 32,000 in 1992 to 16,000 in 2007 – or half as many people. By contrast, the only field of study that experienced significant growth during this period is the combined disciplines of health, parks, recreation and fitness, where part-time student enrolment increased by 32 percent.

**FIGURE 4: Universities are responsive to shifting demand from undergraduate students**



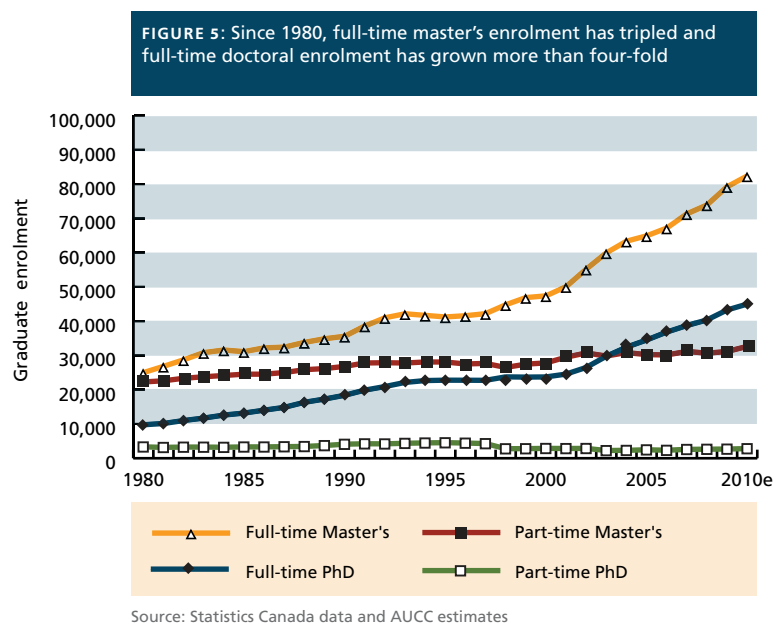
## Graduate students

The number of graduate students has grown significantly faster than the number of undergraduate students over the last 30 years. The total number of graduate students grew from about 77,000 in 1980 to almost 190,000 in 2010. Of those 190,000, 143,000 were full-time students and 47,000 were enrolled in part-time studies.

In 1980, there were 25,000 students enrolled full-time at the master's level, 9,800 at the PhD level, and another 10,000 in other graduate programs.<sup>5</sup> By 2010, master's enrolment had more than tripled to 82,400, and PhDs had grown four and a half-fold to 45,000. The number of students enrolled in other graduate and certificate programs had increased to 16,000. In addition, the graduate student body was older in 2010 than in 1980, there were more women, and a smaller proportion of students were studying part-time.

Throughout the 1980s and early 1990s, graduate student enrolment grew at a steady pace. In the early 1990s many provinces reduced their university investments which contributed to the leveling out of graduate enrolment in the mid-1990s. Between 1992 and 1998, the number of full-time university faculty declined by 10 percent, largely in response to deep cuts in government operating grants to universities. Once investment levels began to rise in 1996, universities were able to respond more fully to student demand. For example, the number of students in full-time master's and doctoral programs grew from 71,000 in 2000 to 127,000 in 2010.

Another factor that contributed to the rise in graduate enrolment growth was the addition of new faculty to university campuses. Between 2000 and 2008, provincial governments' operating support rebounded, allowing universities to add close to 7,600 full-time faculty. Faculty members mentor graduate students, supervise thesis work and provide collaborative research opportunities for students.

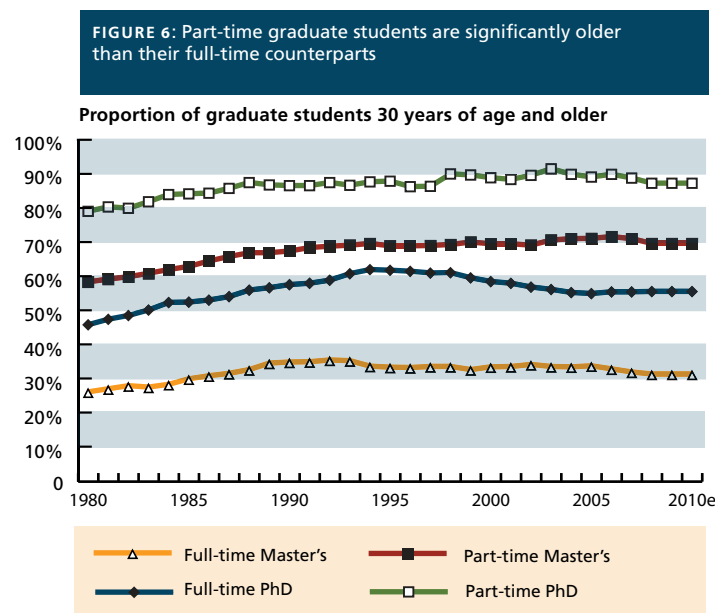


Given the nature of these relationships, the addition of the new faculty was a critically important factor in facilitating graduate enrolment growth.

Research support from the federal and provincial governments has also contributed to strong graduate enrolment growth. For example, through the three federal research granting councils, sponsored research investments more than doubled between 2000 and 2010, providing additional funding for graduate students in the form of new and expanded scholarship programs, and through increases in research grant programs. Similarly, universities have expanded their own fellowship and aid programs for graduate students. Several have introduced new programs to ensure that all graduate students have a minimum level of financial support during their graduate programs.

## Age

The age breakdown of full-time master's and PhD students has also shifted during the last 30 years. Master's and PhD students are generally older in 2010 than they were in 1980, but younger than they were in the early 1990s. In 1980, 26 percent of full-time master's students were 30 years of age or older, increasing to a 30-year high of almost 36 percent in 1994, and then decreasing to 31 percent in 2010. The trend was similar for PhD students. In 1980, 46 percent of full-time PhDs were 30 years or older, increasing to 62 percent in 1992, and then decreasing to 56 percent in 2010.



## Part-time students

As was the case at the undergraduate level, trends in part-time graduate enrolment have followed different directions than their full-time counterparts.

Enrolment of part-time master's students grew slowly, from 22,000 students in 1980 to 33,000 students in 2010. This is an increase of almost 50 percent, or an average of between one and two percent growth per year. Part-time enrolment of PhD students decreased by 15 percent, from 3,300 students in 1980 to 2,800 students in 2010.

As a result, a smaller proportion of graduate students are studying part-time in 2010 than in 1980. Forty-seven percent of master's students were studying part-time in 1980, which decreased to 28 percent in 2010. The decrease in proportion of students studying part-time is even more dramatic at the doctoral level. In 1980, 25 percent of PhD students were studying part-time, down to six percent in 2010. The greatest decrease occurred in Quebec, where part-time enrolment fell dramatically during the late 1990s.

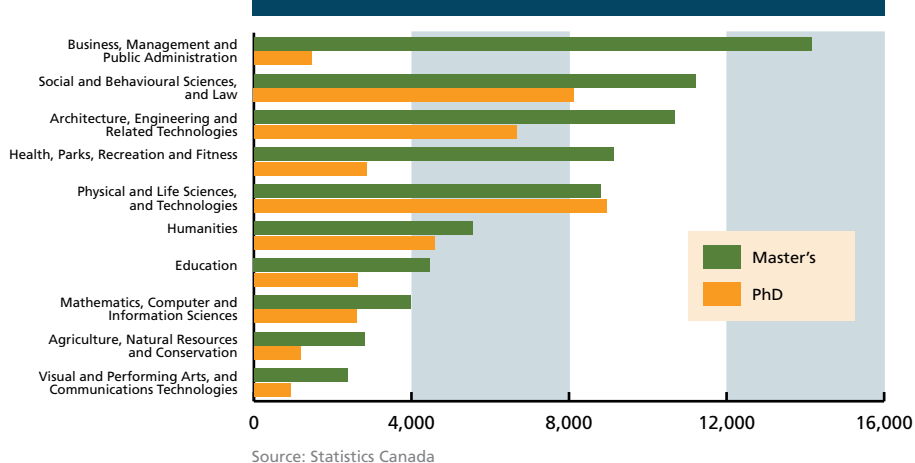
Part-time master's and PhD students were older in 2010 than their full-time counterparts and than part-time graduate students in 1980. In 2010, 70 percent of part-time master's students and 87 percent of part-time PhD students were over the age of 30, compared to 31 percent of full-time master's students and 56 percent of full-time PhD students. In 1980, 58 percent of part-time master's students and almost 80 percent of PhD students were over the age of 30.

## Field of study

Between 1992 and 2008, full-time master's enrolment grew by 80 percent overall, with strong growth in all major fields of study. Enrolment in health-related disciplines grew the fastest, tripling between 1992 and 2008. Health-related disciplines now represent 12 percent of full-time master's students, up from eight percent in 1992.

The three most popular fields of study at the master's level continued to be the combined disciplines of business, management and public administration; the social and behavioural sciences, and law; and, architecture, engineering and related technologies. Each of these fields grew by more than 75 percent during the period from 1992 to 2008, and combined, represent 58 percent of full-time master's students. While enrolment numbers also increased in the fields of education and humanities, the share of students in these fields decreased from nine to six percent, and 11 to seven percent, respectively.

**FIGURE 7: The discipline preferences of masters and doctoral students is quite different**



Full-time enrolment grew faster at the doctoral level than at the master's, almost doubling between 1992 and 2008. In 2008, the three most popular fields of study continued to be the combined areas of physical and life sciences, and technologies, representing 22 percent of PhD students; social and behavioural sciences, and law, representing 20 percent of PhD students; and architecture, engineering and related technologies, representing 16 percent of

the doctoral student body. While the number of humanities students grew by almost 40 percent since 1992, it did not keep pace with the much faster growth in other areas, so its share of students fell from 16 percent in 1992 to 11 percent in 2008.

## Gender

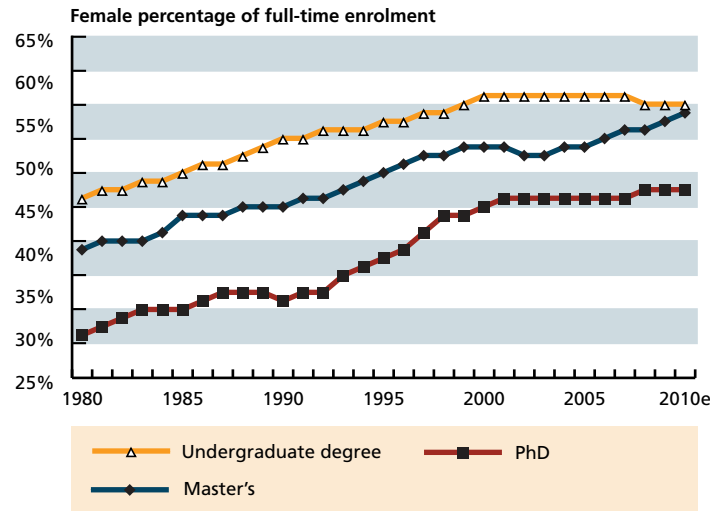
In 1980, women accounted for 45 percent of all full-time undergraduate students. Women's enrolment surpassed men in 1987, approximately the same time as women in other OECD countries, including the U.S. and United Kingdom.<sup>6</sup> In subsequent years, women maintained a majority on campuses, and were responsible for much of the enrolment growth in the 1990s. Germany stands out as an exception within OECD countries, where the majority of students continued to be men. In 2000, 55 percent of registered university students in Germany were men, and in 2007, men still represented 52 percent of university students at all levels.<sup>7</sup>

In the early 2000s, the U.S., U.K., and Canada saw women's share of enrolment plateau at the undergraduate level. Women accounted for 58 percent of enrolment at the undergraduate level in Canada, and 55 percent in the U.S. and U.K., respectively. Then, in 2008, all countries experienced a slight drop in the share of women's enrolment, in the range of one percent. This marked the first decline in the share of female students since the post war period from 1945 to 1955 – more than 50 years. Very similar patterns are seen in Australia, New Zealand, the Nordic countries and several others in the E.U. It remains to be seen whether this slight decrease in the share of female students is an indication of a narrowing gender gap in years to come.



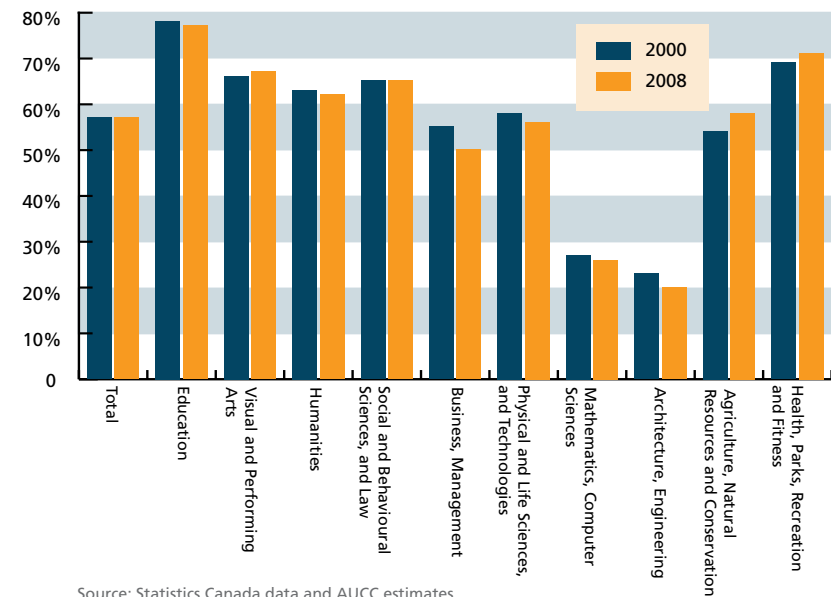


**FIGURE 8:** Proportion of women in full-time undergraduate programs plateaued in 2000



Though women represented the majority of students at the undergraduate level, they did not represent the majority of students in every discipline. In 2008, women constituted the minority in the combined disciplines of mathematics, computer and information sciences where they represented 26 percent of students, and architecture, engineering and related technologies where women represented 20 percent of students. Conversely, women dominate enrolment in education where they represented 77 percent of undergraduate students; and health, parks, recreation and fitness where they represented 71 percent of undergraduate students. In fact, the gender distribution across the major fields of study at the undergraduate level has remained virtually unchanged since 2000. So, while men are still outnumbered two-to-one in social science and life science disciplines, they are no longer losing ground.

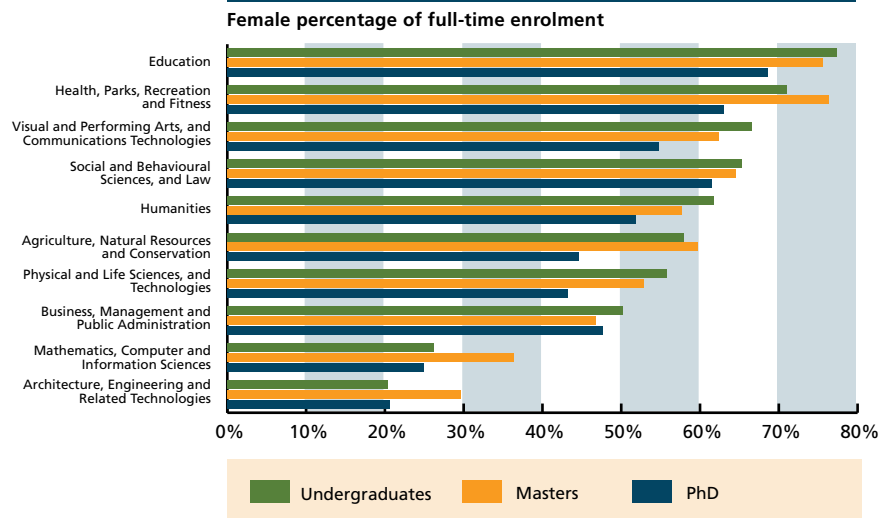
**FIGURE 9:** Distribution of undergraduate female students remained constant from 2000 to 2008



At the master's level, women's enrolment has followed a similar trajectory during the last 30 years. In 1980, women accounted for 40 percent of full-time students enrolled at the master's level. Women have contributed to more of the increase in full-time master's enrolment than men during most of the last three decades, and surpassed male enrolment in 1997. Between 1999 and 2005 women's share of master's students held steady at about 52 percent, but by 2010, their share had risen again, almost reaching 56 percent.

Gender distribution among major fields of study at the master's level is similar to the undergraduate level. Women represent the majority of students in all fields, except in the combined disciplines of mathematics, computer and information sciences (36 percent); architecture, engineering and related technologies (30 percent); and in business, management and public administration (47 percent). At the

**FIGURE 10: Women represent the majority of students in most disciplines**



master's level, women have the highest representation in education (76 percent) and in health, parks, recreation and fitness (76 percent).

At the PhD level, the majority of full-time students continue to be men, though women are gaining ground. In 1980, women accounted for 30 percent of doctoral students. The percentage of female doctoral students grew to 46 percent by 2000, and has increased only marginally since then. In the United States, women's enrolment numbers surpassed men at the doctoral level for the first time in 2008. Canada may not be far behind.<sup>8</sup>

In 1992 women represented 18 percent students in mathematics, computer, and information sciences and 11 percent of the architecture, engineering and related technologies. By 2008 women represented 25 percent and 21 percent of students in these disciplines, respectively. Women represented the majority of students (69 percent) enrolled in education at the doctoral level, as well as in the health disciplines

(63 percent). Women also represented the majority of full-time doctoral students in the social sciences (61 percent), visual and performing arts, and communications technologies (55 percent) and humanities (52 percent).

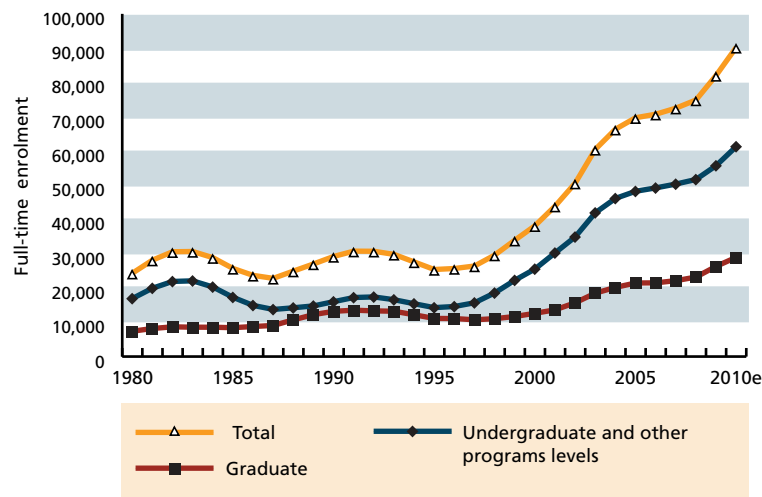
## International students – the global picture

Canadian universities are becoming increasingly internationalized. Over the last 30 years, the proportion of visible minorities, international students and even faculty from other countries has grown significantly. More universities are engaging in international research collaborations; more international students are coming from a larger number of countries; and more Canadian students are taking advantage of international learning and research opportunities abroad.

Between 1980 and 1995, the number of full-time international students fluctuated widely. Strong increases at the beginning and end of the 1980s were followed by periods of similarly strong declines so that enrolment in 1995 was almost the same as in 1980. But since 1995, international enrolment has grown rapidly. In 2010, there are 3.5 times more international students enrolled at Canadian universities than in 1995, or 90,000 in 2010 compared to 25,500 in 1995. An additional 13,000 international students were studying part-time in 2010.

In 2010, international students represented approximately eight percent of full-time undergraduate students in Canada, approximately 18 percent of full-time master's students and 23 percent of full-time PhD students. Greater representation of international students at the graduate level is not unique to Canada. For example, in the U.S., visa students represent about two percent of full-time undergraduate students in four-year public universities and about 23 percent of full-time graduate students. In the U.K., international students represent 55 percent of the graduate student body.

**FIGURE 11:** Recruitment activities have helped triple international student enrolment numbers since 1998



Source: Statistics Canada data and AUCC estimates

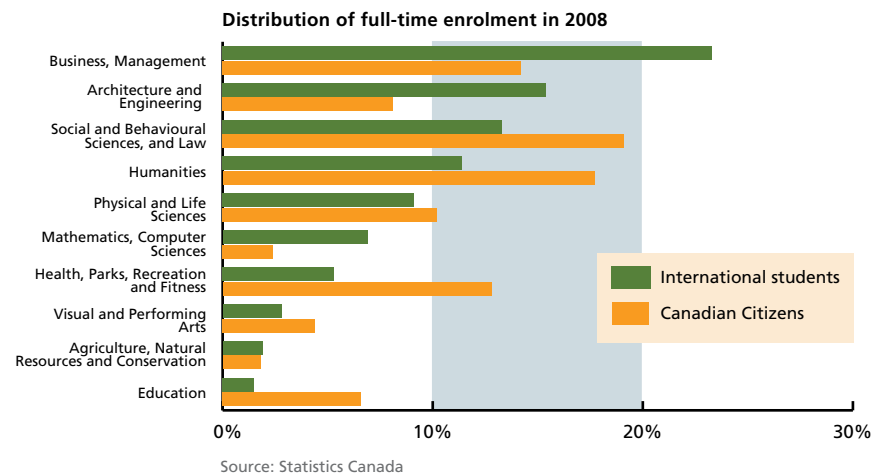
Since 1995, enrolment of international students in every major field of study has grown strongly in Canadian universities. The number of international students has doubled in education, and there were four-fold increases in visual and performing arts, and business, management and public administration. In 2008, the most popular fields of study were: business, management and public administration (23 percent), architecture, engineering and related technologies (16 percent) and social and behavioural sciences, and law (13 percent).

When we compared enrolment trends of international and domestic students by discipline, it became clear that while international students are represented in every major area of study, they are more concentrated in certain areas. For example, 23 percent of international students study business, management and public administration, compared to 14 percent of domestic students, and 15 percent of international students study architecture, engineering and related technologies, compared to eight percent of domestic students. Conversely,

a greater percentage of domestic students were enrolled in social and behavioural sciences and law, and the humanities.

In 1980, international students came to Canada from approximately 175 countries, with the majority (52 percent) of students coming from Hong Kong, the U.S., Malaysia, the U.K. and Iran, respectively. By 2008, the number of source countries had increased to 200. Despite the growth in the number of source countries, almost half of all international students continued to come from one of five countries: China, France, the U.S., India and South Korea. Close to 16,000 students came from China, which has been Canada's top source of international students since 2001. Recruitment activities in France led to steady increases in students generating more than 7,100 students in 2008 and overtaking the U.S. as the second leading sending country. More than 6,600 students came from the U.S.; India is in fourth place sending approximately 2,900 students and approximately 2,780 students came to Canada from South Korea.

**FIGURE 12:** International students are far more likely to study in business, engineering and math than Canadian students



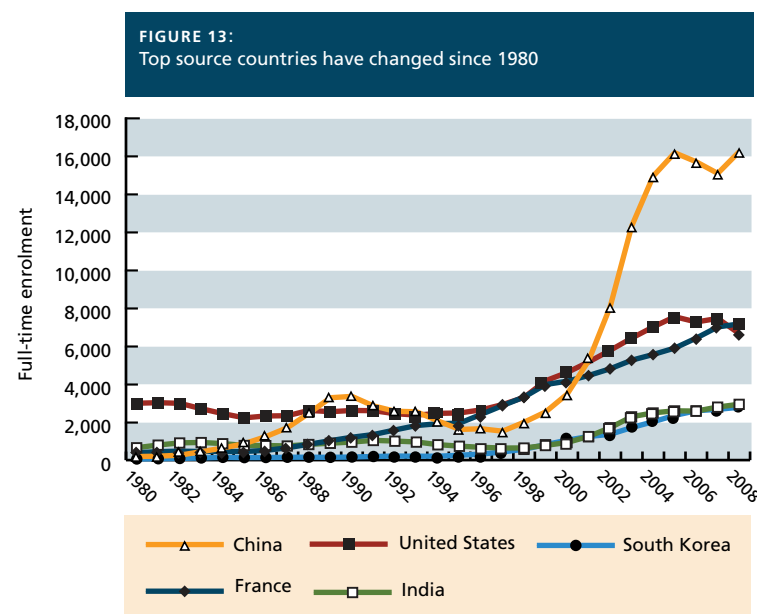


The next nine jurisdictions – Iran, Saudi Arabia, Hong Kong, Japan, Pakistan, Taiwan, Germany Mexico and Nigeria – account for 16 percent of Canada’s full-time international students. These nine countries sent between 1,000 and 2,200 students each to Canada. The remaining countries sent fewer than 1,000 students each and accounted for one-third of international students, providing Canadian-born students with a tremendous breadth of culture in the classroom.

It is interesting to note how quickly the international student market has grown, where that growth is taking place, and also how quickly students respond to recruitment efforts and incentives put in place by their own or other countries. For example, in 1980, there were only 650 Indian students enrolled at Canadian institutions. Indian students enrolment fluctuated between 1980 and 1997 when it began to grow rapidly. By 2008, there were almost 3,000 Indian students registered at Canadian universities – an approximate

five-fold increase since 1997. Enrolment of Indian students is also likely to continue to grow in future years because the population in India is growing very rapidly, and because there has been a concerted effort on the part of the Canadian higher education sector to attract students from India. For example, in November 2010, AUCC led a delegation of 15 university presidents to India where more than \$4 millions in student aid targeted to bring Indian students to Canada was announced.<sup>9</sup> In recent years, the BC-based Network Centre of Excellence MITACS, as well as the governments of Ontario and Quebec have also introduced initiatives to attract students from India.

Saudi Arabia is another example of a country that is increasingly sending students to Canada. In 2008-2009, Saudi Arabia became the seventh leading source country, up from 13<sup>th</sup> position the year before. This growth was driven in part by substantial investments on the part of the Saudi government, and in part by recruitment efforts of various Canadian institutions, working in collaboration with their counterparts abroad.



## Global growth in foreign and international students

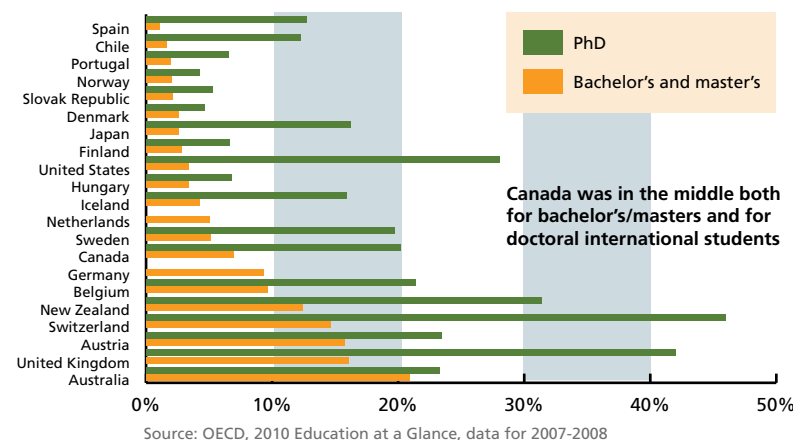
It is not possible to get completely comparable information on changes in international university students in all countries, so it is not possible to report on precise changes in the market shares for each country. Several countries still report students who were born elsewhere but have lived in the country for many years – and therefore did not move to their current country to attend university – as foreign students. In recent years, the OECD has made a major effort to exclude these students by creating a narrower definition of international students to include only those students who have moved from one country to another to attend university. Given this recent reporting adaptation, it is not possible to report on long-term international enrolment trends.

Based on recent trends, it is very likely that Canada's market share of international students has increased, as our growth outpaced the average growth in the OECD between 1999-2000 and 2007-2008. Canada is not alone in attracting more international students. The recent growth rate of international students in Canada's universities is similar to enrolment growth in nations such as Japan, Sweden, Norway, and Finland. Countries such as the Netherlands, New Zealand, Korea and the Czech Republic, which have historically attracted very small numbers of international students, are growing at a faster pace, and generating greater competition for students, particularly from Asia and within the E.U.

In 2007-2008, U.S. universities attracted some 580,000 international students, by far the most in the OECD. The U.K. was second, attracting about 310,000 students, followed by Australia with almost 200,000 and Germany and France with approximately 180,000. However, given the overall size of the U.S. system, only four percent of their university-level students were of international origin, whereas international students represented approximately 21 percent of Australia's student population, followed by 17 percent in the U.K., 11 percent in France and nine percent in Germany. In 2007, with a little above seven percent, Canada was near the middle of OECD countries in terms of the share of international students at all program levels. As noted above, recent growth has driven the international student population up in Canada, to represent about 10 percent in 2010. While the U.S. is quite low on this comparative measure, it has much higher numbers at the doctoral level where 28 percent of PhD students are of international origin.

It is also important to note that international students are once again on the rise in the U.S. They grew by about 20 percent or by more than 100,000 students between 2005 and 2009, reversing the decline the country experienced after September 11, 2001. Improvements to the international student visa process was another contributing factor. In the coming decade, Canada will face

**FIGURE 14: Australia and the U.K. had the largest shares of international university students in 2007-2008**



intensifying competition for international students, even though the number of international students is expected to grow rapidly. This competition will come from nations emerging into the international student recruitment market, such as New Zealand, Korea and the Czech Republic, as well as from leaders in student recruitment, including our closest neighbour.

### Canadians students going abroad

The number of Canadians studying abroad is also growing. In 2007-2008, UNESCO reported 45,000 Canadian students studying abroad, a 50 percent increase since 1999. The top five international destinations for Canadian students in that academic year were the United States, the United Kingdom, Australia, France and Ireland. Together, they attracted 90 percent of Canadian students studying abroad. Of that group, the U.S. is by far the most popular destination, attracting approximately 65 percent of all Canadian students studying abroad.

In addition to those registered in foreign universities, a growing number of students are pursuing study abroad experiences with credits accumulating at their Canadian university. In 1997, roughly one percent of full-time students enrolled in Canadian universities were participating in some kind of study abroad experience. By 2005-2006, AUCC estimates indicated that there had been some growth, and more than two percent of Canadian students were participating in a study abroad experience.

### Aboriginal students

Information about Aboriginal Canadians enrolled on university campuses comes from a variety of sources, as there is no single group which gathers comprehensive information about Aboriginal students. Using data from the Canadian University Survey Consortium (CUSC),<sup>10</sup> AUCC estimates that there are between 20,000 and 25,000 Aboriginal students in Canadian universities, and that the number of Aboriginal students has been growing at the same rate as overall student numbers over much of the last decade. In 2002, Aboriginal students represented approximately three percent of all undergraduate students, a share they have maintained since 2002.

Given the lack of comprehensive information, AUCC is unable to describe all the characteristics of the Aboriginal university student body in detail. However, Census data does provide some useful information about the educational profile of Aboriginal Canadians. In 2006, less than eight percent of Aboriginal Canadians between the ages of 25 and 64 – or 43,000 university graduates – had a university degree. Within this group, 36,000 Aboriginal Canadians have undergraduate or professional degrees, of which 65 percent are women. Approximately 5,800 Aboriginal Canadians have a master’s degree and 1,100 have a doctoral degree. Fifty-five percent of Aboriginal Canadians with a master’s degree are women and 48 percent of Aboriginal PhD graduates are women. A strong

majority of Aboriginal students have studied in education, social and behavioural sciences and business.

Table 1 demonstrates the growth in attainment rates for Aboriginal Canadians compared to non-Aboriginal Canadians over the 25-year period from 1981 to 2006. In 1981, only two percent of Aboriginal Canadians aged 25-to-64 had a university degree, compared to 8.1 percent of non-Aboriginal Canadians of the same age. During the next 25 years, the attainment rate of Aboriginal Canadians increased to 7.7 percent, while the attainment rate for non-Aboriginals increased to 23.4 percent, generating a larger gap in attainment rates between Aboriginal Canadians and non-Aboriginal Canadians.

TABLE 1: The gap between Aboriginal and non-Aboriginal university attainment rates is widening		
Proportion of the population with a university degree		
Year	Aboriginal	Non-Aboriginal
1981	2%	8.1%
1991	2.6%	11.6%
1996	4.2%	15.5%
2001	5.9%	20.1%
2006	7.7%	23.4%

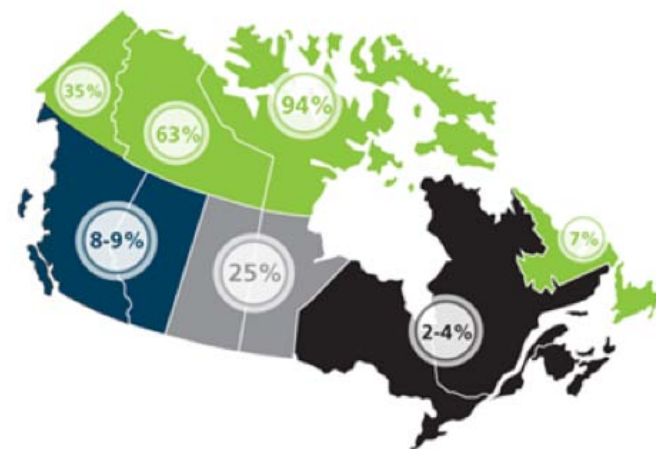
Source: Statistics Canada, 2006 Census

Social, cultural, economic and geographic factors contribute to create serious obstacles to postsecondary education for Aboriginal Canadians, lowering their participation and attainment rates. First and foremost, research shows that university participation for youth is strongly correlated with the educational attainment of their parents, which also helps to explain why Aboriginal students are at greater risk of dropping out of high school.<sup>11</sup> Thirty-four percent of Aboriginal Canadians aged 25-to-64 have less than a high school education, compared to 15 percent of the non-Aboriginal population of same age. For 25-to-34 year-olds, the gap for Aboriginals who haven't finished high school widens to three times the rate of other Canadians in that age group (32 percent compared to 10 percent).

For those students who complete high school, constrained access to financial aid is another barrier. Through Indian and Northern Affairs Canada (INAC), the Post-Secondary Student Support Program (PSSSP) allocates more than \$300 million to eligible college and university students. INAC distributes PSSSP funds to First Nations Bands or their administering organizations. However, core funding for this program has not increased since 1994 when \$20 million was added. Since 1996, growth has been capped at around annual inflation. A 2004 report<sup>12</sup> by the Auditor General of Canada concluded lack of federal funding was preventing approximately 9,500 First Nations people from pursuing a post-secondary education. In the years that followed, as more Aboriginal youth qualified for PSE funding, bands faced a difficult choice: reduce the amount of funding available for each student, or reduce the total number of students receiving financial aid. Most bands have opted to decrease the number of students supported; in 1995-1996 PSSSP supported more than 27,000 postsecondary students and in 2008-2009 it supported roughly 22,000.<sup>13</sup> In addition, PSSSP funding is available only to Status Indians and Inuit. For those individuals who are not Status Indians or Inuit, or who do not receive adequate funding through PSSSP, other funding sources must be obtained.

Aboriginal Canadians comprise a greater proportion of the population in western and northern – and often more rural – parts of Canada. For example, Aboriginal Canadians under the age of 20 make up 94 percent of the entire youth population in Nunavut, 63 percent in the Northwest Territories, 35 percent in the Yukon and 25 percent in Manitoba and Saskatchewan. In total, 46 percent of Aboriginal youth live in rural areas, compared to 17 percent of non-Aboriginal Canadians. This is important because research demonstrates that distance from university is a factor that influences university participation rates. In order to obtain a university education, students in rural areas must leave their family and social networks behind, and will also incur substantial moving and living costs to attend university.

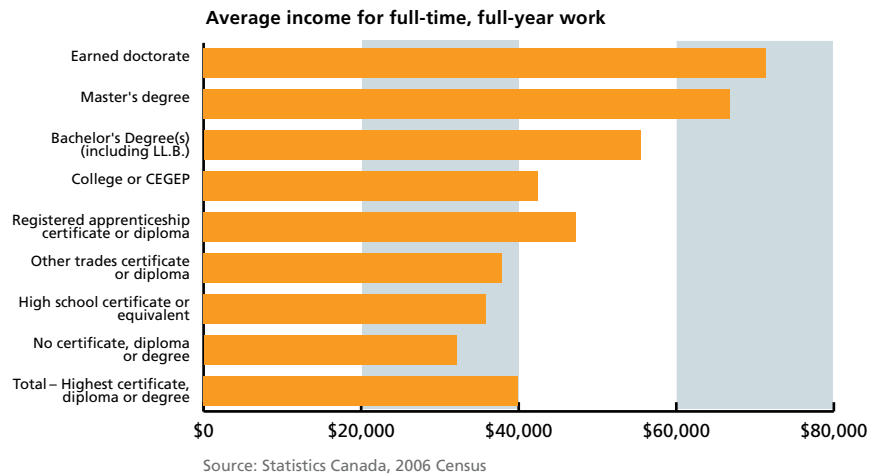
FIGURE 15: The share of Aboriginal youth in the population varies by province



Source: Statistics Canada, 2006 Census



**FIGURE 16: Earnings of Aboriginal Canadians increase with educational attainment**



For those Aboriginal Canadians who do get a university education, the benefits are clear. Aboriginal Canadians with university degrees earn higher wages, and have higher employment rates.

Aboriginal Canadians with only a high school certificate earn on average \$36,000 per year, compared to Aboriginal Canadians with a university degree, who earn on average \$55,000 per year. As educational attainment rises, so does the average income of Aboriginal Canadians. Aboriginal Canadians with a master's degree earn on average \$67,000, and \$71,000 with a PhD.

Employment rates also increase significantly with higher levels of education. For example, the 2006 Census revealed that only about 45 percent of Aboriginal Canadians between age 25 and 64 who have not completed secondary school are employed. Employment levels rise to 67 percent for high school graduates, 75 percent for college graduates and 84 percent for bachelor's graduates. The latter is virtually identical to the 83 percent employment rates for non-Aboriginal bachelor's graduates.

These private benefits – higher income and employment rates – are the same factors that have driven demand for university education across Canada and around the world. These are also the factors that will likely cause demand for university education to increase among the rapidly growing Aboriginal Canadian population. The 2006 Census reported more than 470,000 Aboriginal Canadians under the age of 20. The majority of these individuals will be entering the labour force during the next two decades. Increasing their participation rates will help to narrow the gap in attainment rates between Aboriginal Canadians and non-Aboriginal Canadians.



**Drivers of change**

# Drivers of change

Projecting future enrolment levels, even over a relatively short period, is difficult to do with great precision. The factors that push and pull enrolment sometimes work in concert and at other times work to offset the influence of one another. They include changes in local, regional, national and international demography, as well as changes in the factors that influence the demand for a university education, including individual and societal perceptions of the value of a degree.

Changes in the size and composition of youth and other cohorts attracted to university will also play a role in driving future enrolment levels. In addition to the factors listed above, enrolment is also affected by labour market demand for highly qualified graduates, parental education and socio-economic status, urbanization, immigration and international students.

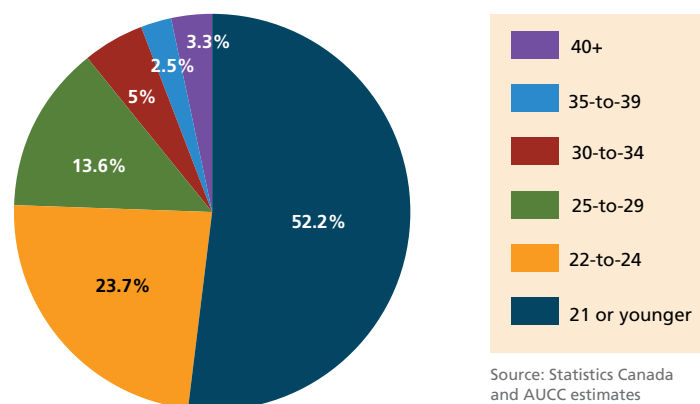
Enrolment is only a measure of the degree to which demand for university education is met. Consequently, it is also necessary to consider factors that affect universities' capacity to meet this demand and absorb new students. Examples of these factors include government policies that influence the availability of human and physical resources (technology and space) needed to provide high-quality learning experiences for students, as well as opportunities for internships, co-op experiences and interaction with students from a broad array of cultures in an ever-expanding global environment.

**Enrolment is not a true measure of demand for university education. It is simply a measure of the amount of demand that is met.**

## Demographic trends

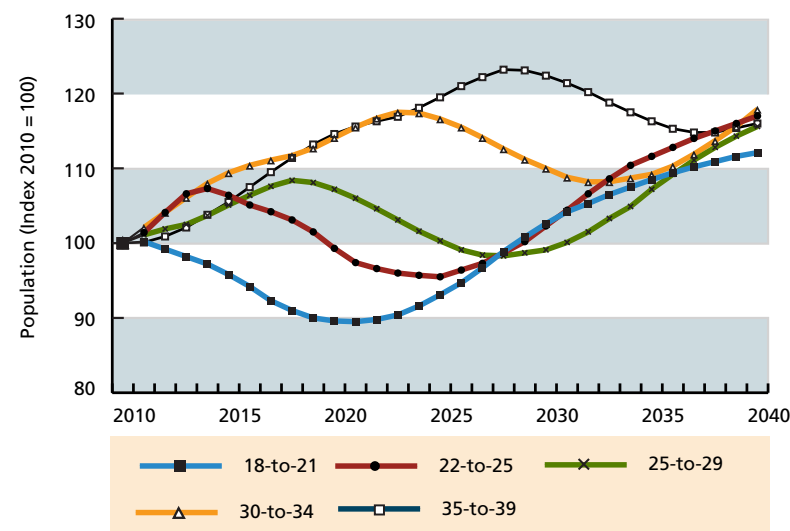
The echo of the baby boom generation is currently working its way through Canadian universities;<sup>14</sup> 2011 marks the year in which the numbers in the 18-to-21 age cohort peak. Students within this age group now comprise 52 percent of full-time enrolment. Over the next decade, the population in this age group will decline by about 10 percent, diminishing the pool from which universities have traditionally drawn new students. Population in the 18-to-21 age cohort is then projected to rebound in the decade from 2020 to 2030 to the point where it will slightly exceed 2010 levels. Thus, population trends in this cohort could have a significant impact on overall enrolment levels across Canada.

FIGURE 17: In 2010, students under 22 years of age made up half the full-time student body



Population growth in the older age groups will counterbalance the impact of the 18-to-21 cohort. Over the coming decade, the population of the four older age cohorts is expected to grow by four percent in the 22-to-24 age group; seven percent for those

FIGURE 18: Shifting demographic patterns will be a constant challenge over the next 30 years



Source: Statistics Canada, Population Projections 2009

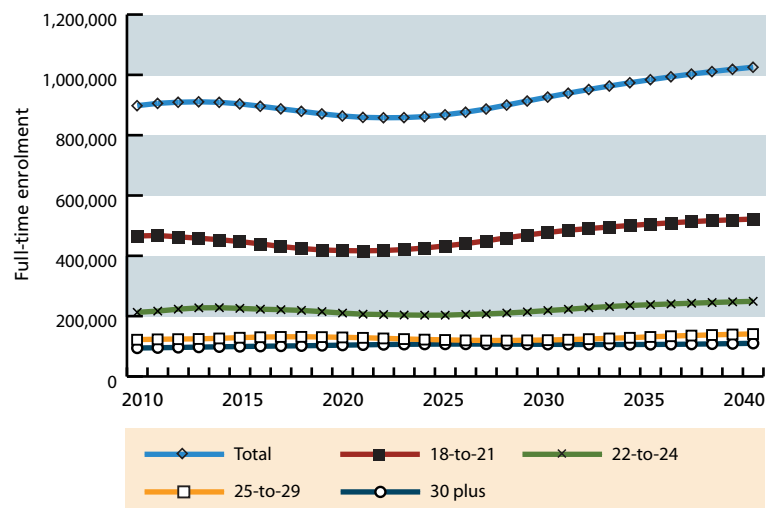
25-to-29; 11 percent for the 30-to-34 age group and nine percent for those aged 35-to-39. The combined impact of these various demographic factors will drive enrolment demand over at least the next five to seven years, assuming constant participation rates. As illustrated in Figure 18, the relative size of the population in each of these older age groups will vary widely during the 20 years after 2020.

From 2030 to 2040, population in the three younger cohorts (which, when combined, accounts for almost 90 percent of full-time students today) is projected to grow strongly and will, other things being equal, drive growth in demand in that period.

To isolate the cumulative impact of these varying demographic trends, enrolment projections were developed assuming constant participation rates within each age group. Under that assumption, full-time enrolment would fall by about 3.8 percent from current



FIGURE 19: Population changes will have a small impact on full-time enrolment over the next two decades, but will lead to growth in the long term



Source: AUCC estimates

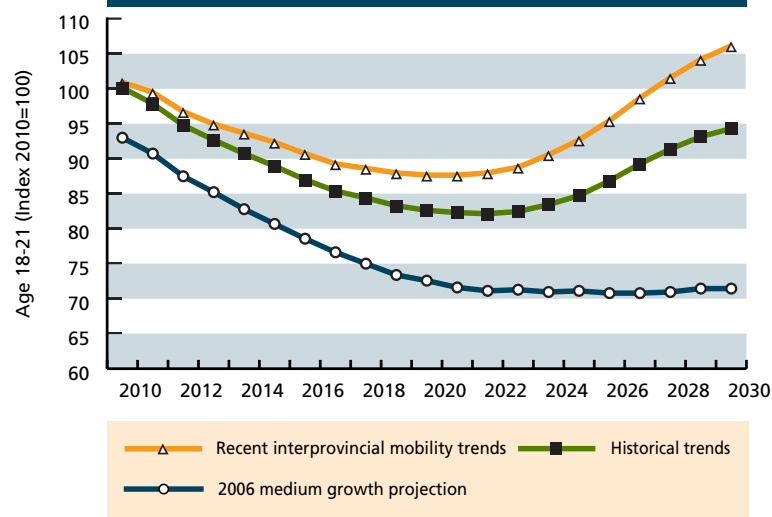
levels by 2020, then rise steadily to 3.2 percent beyond current levels by 2030. Population changes alone would drive even greater enrolment growth in the subsequent decade.

Shifts in population will not be uniform in all regions of the country. When compared with national population projections, provincial and territorial projections are subject to increased variability because of uneven patterns in interprovincial migration from year to year. Variations in interprovincial migration can be sizable, leading to different provincial population projections. Differences in interprovincial migration patterns are often driven by structural or economic changes in a province. As a result, different assumptions regarding interprovincial migration add considerable uncertainty to projections at the provincial/territorial level.<sup>15</sup>

A good example is Saskatchewan, which over the last few years has reversed a long-standing trend in out-migration of youth to other provinces and is now attracting interprovincial migrants. Statistics Canada has produced three projection scenarios which paint very divergent pictures of the future trends within the 18-to-21 age group. The first scenario was made in 2005 and is based on the long-term historical trends in interprovincial migration at that time. Under those assumptions, Statistics Canada was projecting a steep decline in that age cohort over the course of the decade from 2010 to 2020, remaining 30 percent below today's level until at least 2030.

The second scenario was also based on long-term trends, but was updated by Statistics Canada in 2010, and includes the impact of new population growth due to recent migration trends. It projected a smaller rate of decline, about 17 percent by 2022, at which point the population will begin to rebound. By 2030, the population would almost return to 2010 levels.

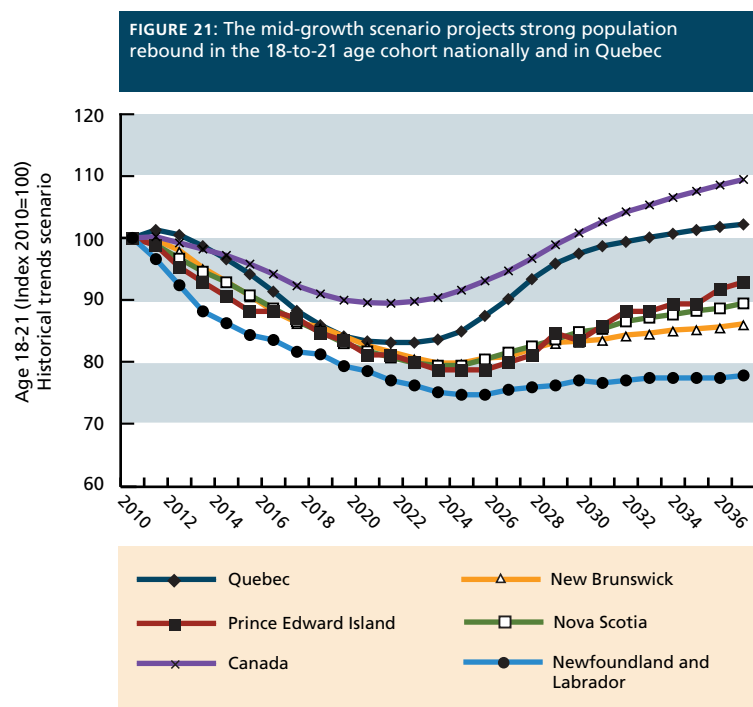
FIGURE 20: Underlying assumptions will have a major impact on projections for the 18-to-21 age cohort in Saskatchewan



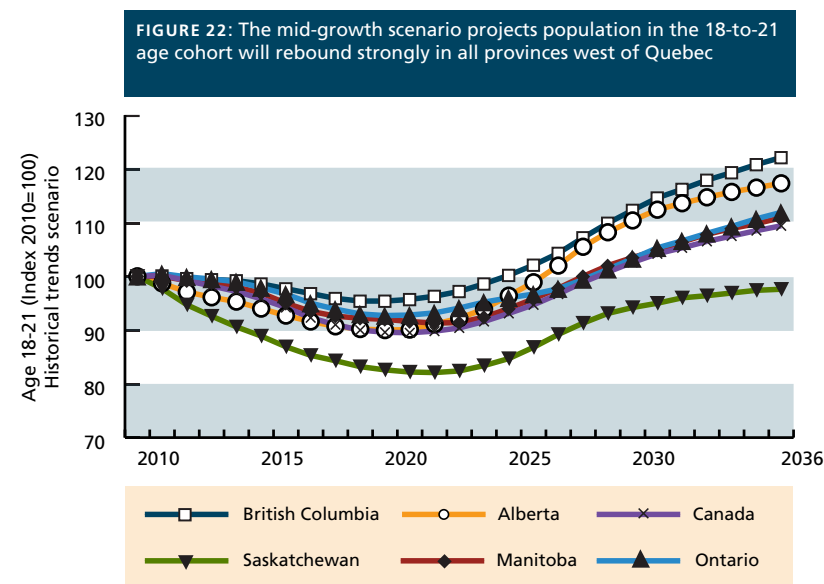
Source: Statistics Canada, Population Projections 2009

Its third scenario assumes that recent interprovincial migration trends will persist throughout the projection period. This would result in a less severe drop of just 12 percent by 2020, followed by an even more rapid rebound. The rebound would generate population levels significantly higher in 2030 than in 2010.

Saskatchewan's evolving demographic situation serves to demonstrate how population trends at the provincial level are less intractable than they sometimes appear. Understanding the potential implications of these different scenarios clearly impacts university enrolment planning. While Saskatchewan is perhaps the starkest example, appreciating the nature and effect of shifting provincial demography is important in every province.



Universities in all provinces will clearly confront different challenges as a result of demographic trends in the local and regional areas from which they normally attract their students. The two charts on this page illustrate how provincial populations in the 18-to-21 age cohort would change under Statistics Canada's medium growth scenario. All provinces will experience a decline between 2012 and 2024, and all will start to see their population in that age group rebound in the following years. Some provinces – British Columbia, Alberta, Manitoba and Ontario – will see larger cohorts of 18-to-21 year-olds after 2030 than in 2010. As noted earlier, universities will also need to adjust planning on an ongoing basis to account for shifts in the migration patterns.



## Factors affecting participation rates

As the following section shows, changes in university participation rates have played a much more significant role in driving enrolment growth than demography over the last 50 years. University enrolment has grown both in periods of demographic booms and busts.

Throughout the 1960s, full-time undergraduate enrolment growth outpaced population growth. Undergraduate enrolment more than doubled (135 percent growth) while the population of the 18-to-21 age group grew by some 50 percent as the baby boomers first started to reach university age.

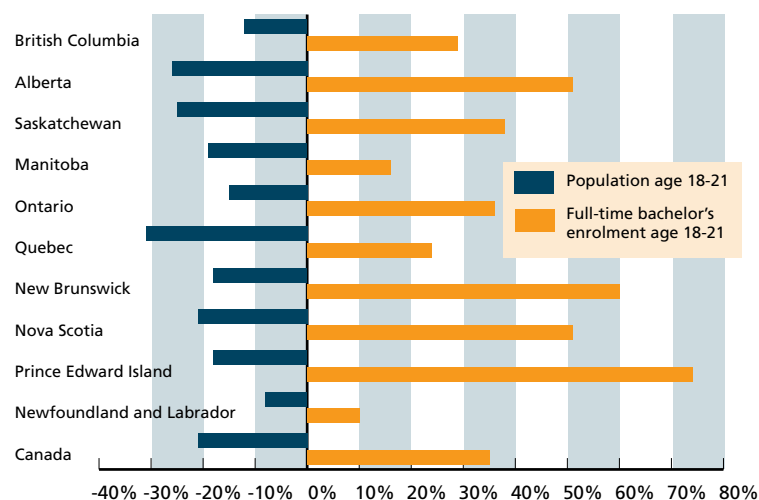
During the 1970s, undergraduate enrolment growth kept pace with the rapid population growth caused by the baby boomer generation.

At the beginning of the 1980s, baby boomers of university age caused enrolment in universities to peak. In the subsequent 13 years, all provinces experienced sharp population declines in the 18-to-21 cohort – the so-called baby bust. This youth cohort declined by 21 percent nationally, ranging from about a five percent decline in Newfoundland and Labrador to 30 percent in Quebec. At the time, forecasters were projecting big enrolment declines for the decade of the 1980s, and big savings if the sector was to downsize.

Those projections were never realized. Despite the deep population declines, the number of students in this age range actually grew very strongly in every province. Nationally, enrolment in the 18-to-21 year-old cohort increased by about 35 percent, with growth rates of 50 percent or more in Prince Edward Island, Nova Scotia, New Brunswick and Alberta.

Growth in participation rates has continued to be a more important factor driving enrolment increases than changes in the population

**FIGURE 23:** Between 1980 and 1993, the number of full-time bachelor's students aged 18-to-21 grew strongly despite population declines in that cohort

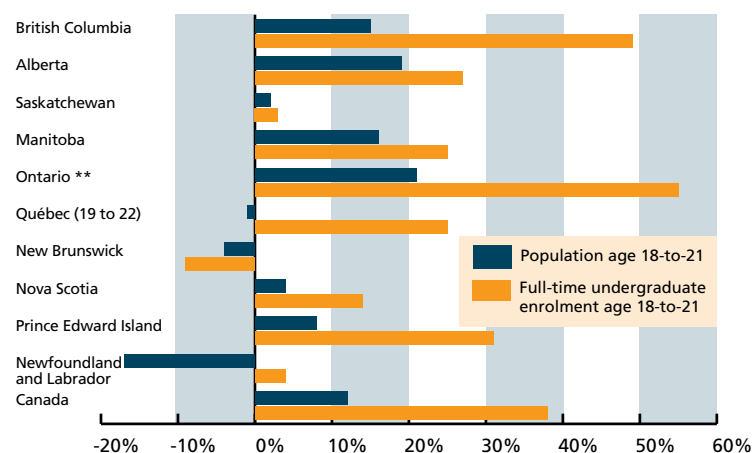


Source: Statistics Canada data and AUCC estimates

of key cohorts. From 2000 to 2010, full-time undergraduate enrolment for the 18-to-21 cohort grew much more rapidly than the underlying change in population in that age group in every province. Indeed, while the population base for the cohort declined in three provinces – Newfoundland, New Brunswick and Quebec – enrolment from within that cohort grew strongly in Newfoundland and Labrador as well as Quebec, where the growth in participation rates more than compensated for the decline in the population. In the other seven provinces, rising population and rising participation rates combined to drive strong increases in enrolment.

In addition, the elimination of grade 13 in Ontario in 2003 created a “double cohort” as two high school classes entered the university system in one year artificially inflating enrolment growth. It has taken several years for that group of students to work through undergraduate programs and many are now enrolled in graduate

**FIGURE 24:** Between 2000 and 2010, growing participation and population have combined to drive rapid enrolment increases in most provinces



Source: Statistics Canada data and AUCC estimates

\*\* Ontario was age 19-to-22 in 2000 and age 18-to-21 in 2010

programs. But with the growth in participation rates in Ontario since 2003, there are now more undergraduate students enrolled in that province than there were at the peak of the double cohort.

Given these participation trends, it is clear that all universities must carefully monitor how the upcoming echo of the baby bust will impact their enrolment levels. It is also certain that population declines will have a more significant impact on some universities than others, given the trends in their region. A number are already experiencing demographically driven challenges. Indeed, university participation rates will need to grow – in some cases significantly – if university enrolment is to continue to increase over the coming decade. Historical trends suggest some growth in participation is likely. While it is extremely difficult to quantify exactly how participation rates will change, it is important to review how several of the following factors will influence university participation rates and enrolment across Canada.

## Urban youth

Canada's population is becoming more and more urban, with 25 million people, or 80 percent of the population, living in urban areas. Between 2001 and 2005, the population of the Census Metropolitan Areas (CMA) grew by 1.4 million, representing 90 percent of the growth in total population of Canada from 2001 to 2006. The 20 largest CMAs grew by 6.1 percent compared to just 3.5 percent for the population outside these areas.

Urban populations are important because they tend to generate more demand for universities than their more rural counterparts. For example, 32 percent of 25-to-34 year-olds who live in urban areas have earned a university degree, compared to only 13 percent of adults of the same age who live in rural areas. Combined with the fact that almost two-thirds of 15-to-24 year olds live in the 20 largest CMAs, this will continue to create demand for urban institutions, particularly those universities that provide access to students in their immediate local urban area.

It is clear that continued urbanization will drive further increases in demand for a university education over the coming decade. It will become increasingly important for universities to work with governments to find efficient ways to meet that demand. Many solutions exist to manage demand for education in urban hubs that are facing capacity challenges, including growing capacity in high-demand locations, helping students travel to where capacity exists and using digital technologies to provide greater access to distance education and mediated learning.

## Immigration and international students

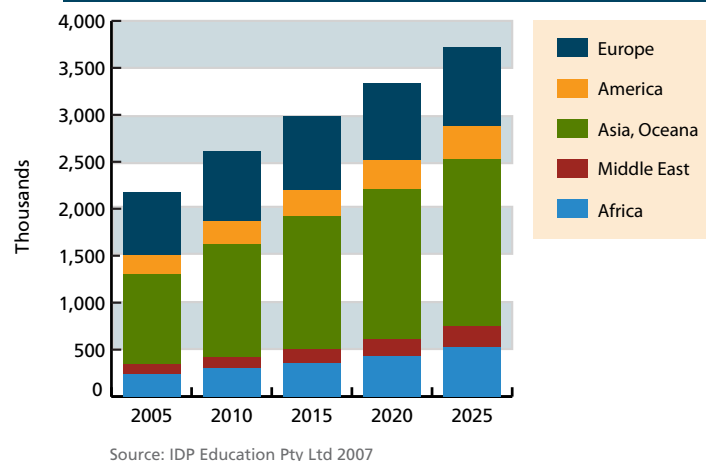
Over the past decade, the number of visa students and new immigrants coming to Canada with a university degree has grown strongly. There are several reasons to expect that this trend will continue to place upward pressure on enrolment demand.

Several recent studies project very strong increases in international student demand for Canadian higher education over the coming decade, with particularly strong growth from East Asia. In 2007, there were 2.8 million international tertiary students worldwide, representing a 53 percent increase since 1999.<sup>16</sup> A report produced by IDP Education Australia estimates that by 2025 there will be 3.7 million international tertiary students worldwide, 47 percent of whom will be Asian.<sup>17</sup>

While strong growth in international student numbers is expected to continue over the next 20 years, the competition for those students, especially the best and brightest among them, is also expected to intensify. Many countries have developed coordinated national strategies and mechanisms to attract international students. For example, in 2008, the United Kingdom attracted 306,000 full-time international students, representing 20 percent of the U.K. student body, which is twice as high as the percentage of international students in Canada. These international numbers are driven in large part by strong marketing efforts.

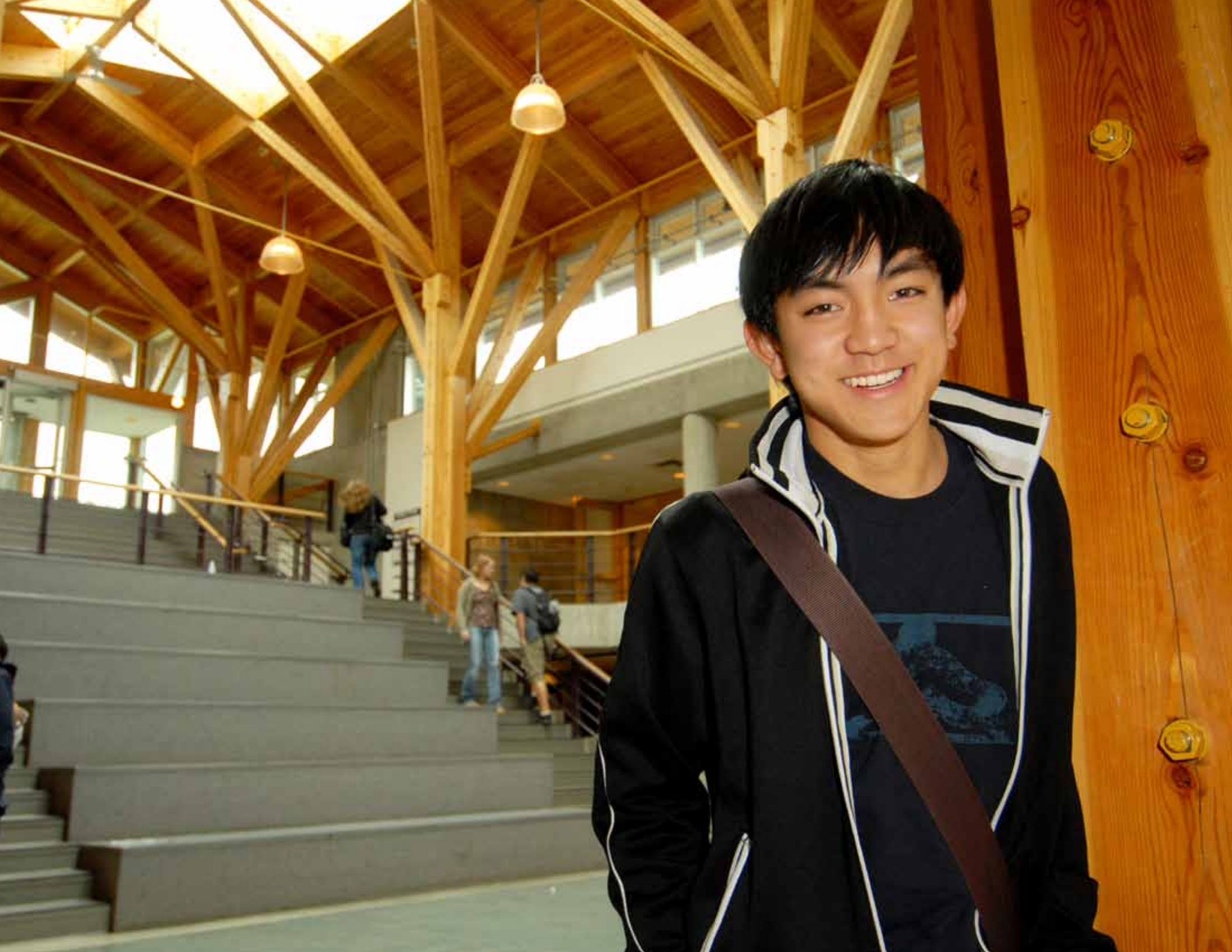
In 1999, the U.K. launched its Prime Minister's Initiative for International Education<sup>18</sup> to promote itself as the premiere destination for international students. In 2006, the U.K. launched the second phase of this initiative, which included a £35 million investment (approximately \$70 million CAD) and a target to attract an additional 100,000 international students to higher education programs by 2011. This funding is in addition to regular funding the British Council receives to promote the U.K. education system through its offices in 100 countries worldwide.

FIGURE 25: Projecting strong growth for international tertiary students worldwide



In November of 2010, a five-year extension of the U.K.-India Education and Research Initiative was negotiated and signed in India. UKIERI aims to substantially improve educational links between India and the U.K. It is seen as a way to create a 'step of change' in educational relations, so that in the longer term the two countries become each other's partner of choice in education. Over the first five years of the program (2006-2010), UKIERI committed nearly £25 million to the initiative and over the last two years, the program has fostered 475 links across the U.K. and India.





In addition to growing competition, Canadian universities also have to compete with changes in several developing nations which are radically expanding educational opportunities within their own borders and are beginning to recruit or repatriate students from abroad. For example, China's higher education system expanded close to four-fold to almost 27 million students between 1999 and 2007.<sup>19</sup> The very rapid expansion of China's economy is fostering educational aspirations and access. Even as China's youth cohort (age 20-24) is expected to decline by approximately 25 percent by 2020, plans exist to continue expanding access to education over the coming decade.

India is also expanding rapidly, growing from 9.4 million students in 1999 to more than 15 million in 2007.<sup>20</sup> In spite of being one of the largest and fastest-growing economies in the world, India does not have enough university capacity to meet student demand. As a result, many Indian students seek university education abroad. For example, in 2008 more than half (86,000) of the approximately 160,000 Indian students who studied abroad went to the U.S. Approximately 30,000 registered to study in the U.K. and more than 27,000 went to Australia. Only about 3,000 came to Canada.<sup>21</sup>

Moreover, the Indian Minister of Human Resource Development recently announced that the Indian central government is looking to add approximately 30 million more university student places by 2020. It hopes to progress towards this goal by working with its private sector and foreign education providers, expanding distance learning and enlarging the online format of learning.

New recruitment programs in developed nations and the growing supply of spaces in emerging economies will further intensify competition for international students. Canada's leaders<sup>22</sup> across all education sectors are working together and with government officials to develop a national strategy to attract more international students to Canada and to create and enhance our global economic,

diplomatic and cultural ties. This is seen as critical to enabling Canadian universities to compete more effectively for the best and brightest international students.

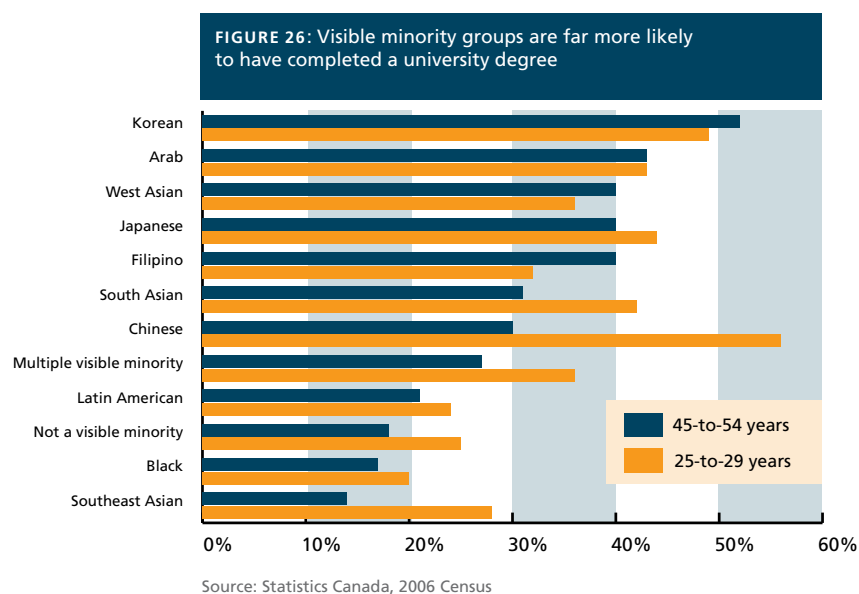
While global demand for education is rising, the costs of meeting that demand and competing for the best students are also certain to rise. Moreover, as population growth in Africa and other developing nations spurs additional growth in international student demand, the costs of evaluating and assessing student preparedness and of helping students from these emerging nations adjust to life in Canada are also likely to increase. These rising costs may temper the ability of some Canadian universities to maintain their market share of a rapidly growing international student market.

In addition to attracting international students, Canada has also been a very attractive destination for immigrants. Recent growth in immigration is also likely to drive increases in enrolment demand in the coming decade. Past trends indicate that the immigrant population is more likely to have a university degree. More than 50 percent of adults immigrating to Canada in the last decade were university graduates. Given the high value that these newcomers to Canada place on education, it is quite certain that they and their children will generate new and growing demands on Canada's universities.

For example, in 2008 there were more than 85,000 immigrants coming to Canada with a university degree from abroad, a three-fold increase from 1990 levels. However, the Census reveals that recent immigrants to Canada are having a more difficult time deploying their skills and knowledge in the labour force than previous immigrants. This may in part be due to the rapid increase in both the number and share of recent immigrants who have earned their degrees in developing nations. As a result, their language skills are inferior to the skills of previous generations of immigrants who were more frequently from Europe or the United States. These

newer immigrants may have a greater need to supplement their previous education to enable them to more fully utilize their skills, knowledge and talents in the workplace. Consequently, the demand for upgrading courses and programs could grow quite strongly in the coming years.

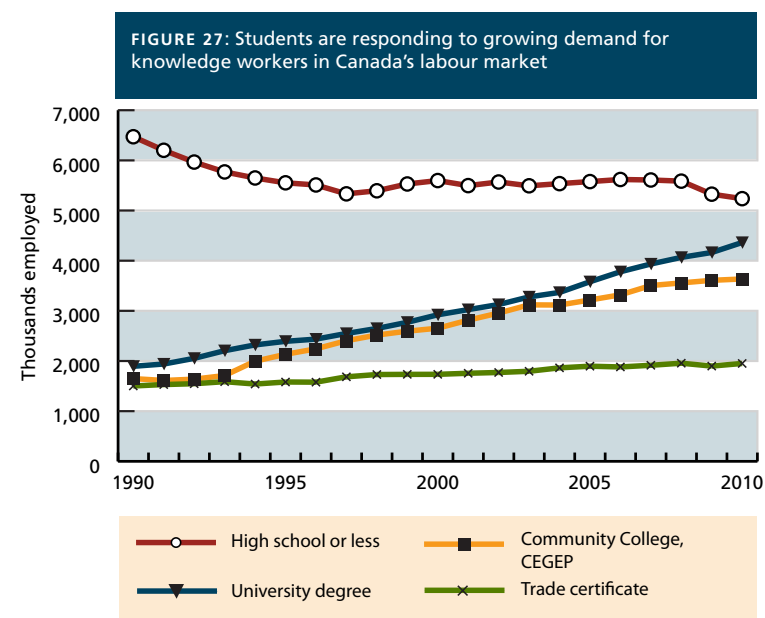
Finally, it is clear that many of the immigrant groups coming to Canada place a high value on education. Research also suggests they are likely to provide the kind of support and encouragement that will drive higher levels of university participation by their children. The 2006 Census illustrates the higher levels of degree completion, both for young visible minority groups and for their parents' generation. This will be an important driver of future growth in university participation rates in Canada.



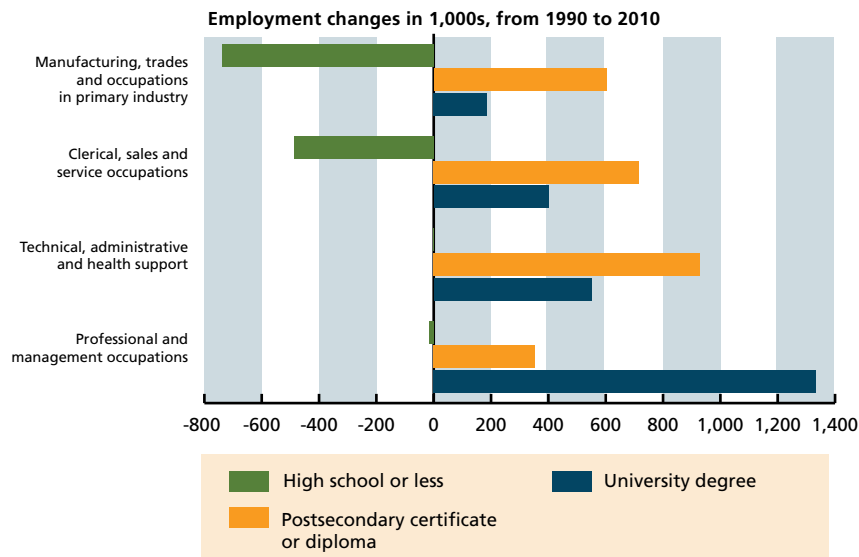
## Labour market demand

Over the last 20 years, profound changes have taken place in Canada's economy, including the occupational mix and education levels within that mix. The number of jobs filled by university graduates more than doubled from 1.9 million in 1990 to 4.4 million in 2010. Meanwhile, there were 1.2 million fewer jobs for those who had a high school diploma or less.

Looking more closely at the occupation mix of Canada's labour force reveals that professional occupations typically require the most education. Indeed, university graduates comprise 60 to 80 percent of the employees and professionals in the following occupations: business and finance; art, culture and recreation; health; engineering and applied sciences; social and legal professions; and teaching. In addition, close to 40 percent of people in management occupations (outside of food and retail management) have university degrees.



**FIGURE 28:** Canada's shifting employment market is creating more demand for education within and across different occupations



Source: Statistics Canada, Labour Force Survey

Over the last 20 years management occupations have been among the fastest-growing occupations in Canada. There were more than twice as many jobs in the social, legal professions and in engineering in 2010 compared to 1990, and business and finance professions grew by more than 95 percent. The number of positions in teaching, health professions and management occupations grew between 35 and 50 percent. Combined, there were 1.67 million more professional and management jobs in 2010 than in 1990 and 1.33 million were filled by university graduates. During the same period, there were an additional 550,000 jobs for university graduates in technical, administrative and health-support occupations. It is clear that the majority of job growth for university graduates is in high-skill occupations and there is no evidence of a growing over-qualification of university graduates in the workplace.<sup>23</sup>

By comparison, there was a very different occupational mix in jobs filled by college graduates. Technical, administrative and health-support positions were by far the largest area of growth for college graduates, followed by jobs in sales and services and trades occupations during the last 20 years. These areas were also the only occupations that saw any real growth in jobs for high school graduates. Jobs for those who have not completed high school are declining rapidly.

Employment in the remaining occupations typically requires less education. These occupations have experienced the least growth in the last 20 years. As demonstrated in Figure 30, there were significantly fewer people working in manufacturing and primary occupations such as forestry, agriculture and mining in 2010 than in 1990.

**FIGURE 29:** Since 2004, employment of university graduates has grown rapidly across Canada

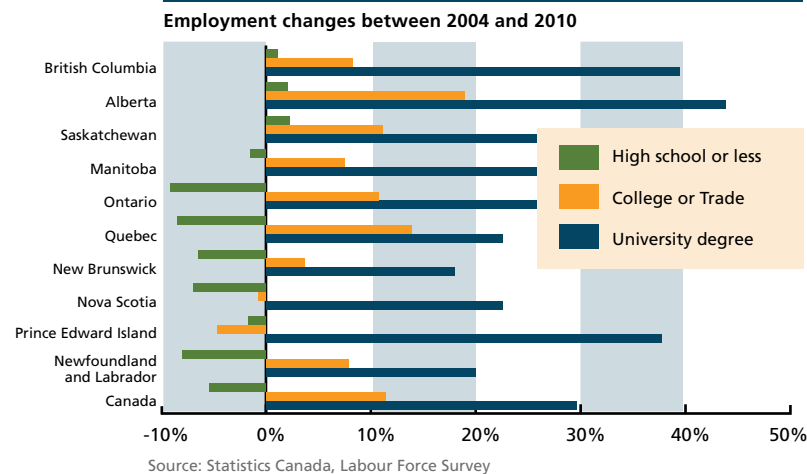




TABLE 2: From 2004 to 2010, employment growth for university graduates outpaced other levels of education:

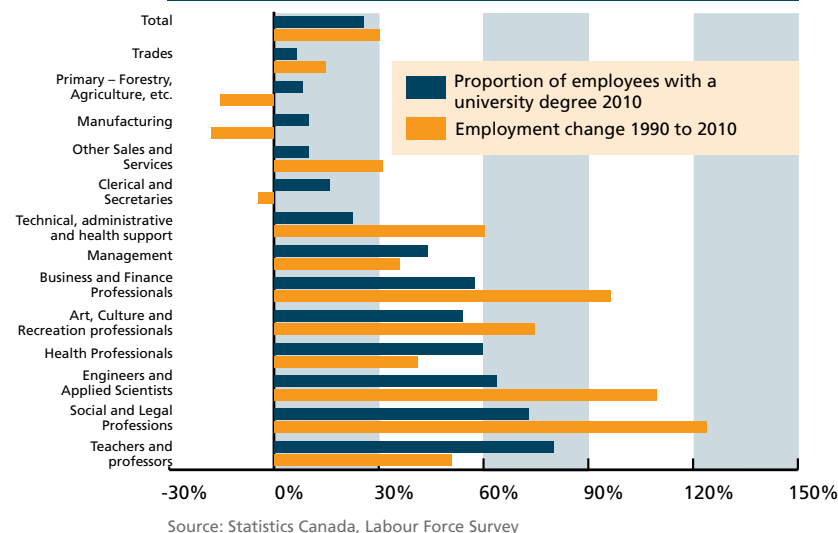
4%	for high school graduates;
5%	for trade school graduates;
17%	for college and CEGEP graduates;
28%	for bachelor's graduates; and
33%	for those with graduate degrees

Source: Statistics Canada, Labour Force Survey

Even in western Canada, where the common perception is that the resource-based sector was driving job growth, in particular from 2004 to 2010, employment for university graduates grew at a much faster pace than for those who had not completed university studies. For example, 76 percent of new jobs in British Columbia were filled by university graduates, compared to 24 percent by college graduates. In Alberta, 58 percent of new jobs were filled by university graduates and 31 percent were filled by college graduates. In Saskatchewan, university graduates occupy 50 percent of new jobs, college graduates 31 percent, and those who have not completed any postsecondary hold approximately 8 percent.

In its latest 10-year outlook, Human Resources and Skills Development Canada projects that some 1.4 million new jobs will be created over the 2008 to 2017 period as a result of economic growth. Three-quarters of these jobs would require postsecondary education. HRSDC also projects that a further 4.1 million jobs will open up to replace those who will retire in that period; almost 70 percent will require postsecondary education. The report projects that the number of jobs in occupations usually requiring a university degree will grow much more quickly than other occupations – an average of 1.6 percent per year for those with degrees versus about one percent or less per year for other jobs.<sup>24</sup>

FIGURE 30: The demand for knowledge workers is being driven by employment growth in occupations that typically require university education



“People are the heart of the innovation process... Innovation relies on a skilled labour force, not only for high technology and research sectors, but throughout the economy and society... They generate the ideas and knowledge that power innovation, and then apply this knowledge and the resulting technologies, products and services in the workplace and throughout society...”

- OECD Innovation Strategy, 2010



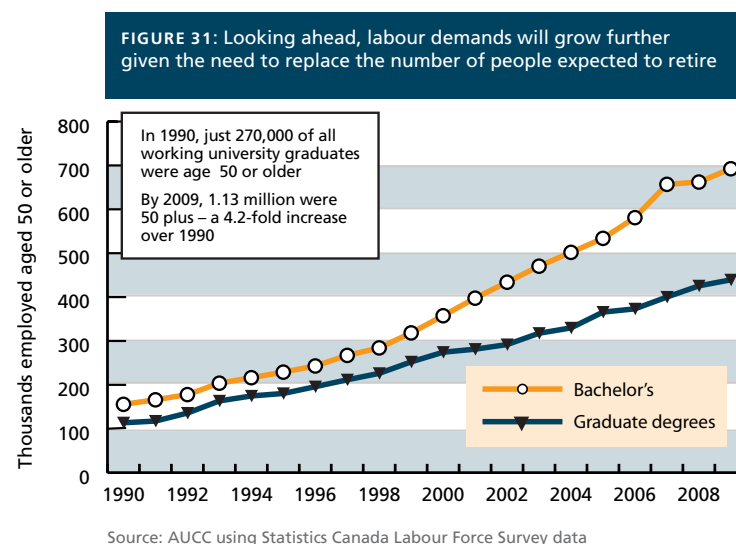
The report also found that most of the occupations that faced shortages in 2005 were those that required a university degree. These included occupations in the natural and applied sciences, as well as several health, education and management occupations.

There is increased recognition by governments that the key to sustained competitiveness, growth and prosperity is the ability of firms to innovate and adapt in a rapidly changing and highly globalized business environment. To thrive in such an environment, all sectors depend on high quality human capital as an essential source of skills, knowledge and ideas. Because universities are uniquely positioned to drive the formation of this type of human capital, the continued evolution towards a more innovative, knowledge-based economy will increase labour market demand for university-educated graduates.

The growing recognition of the role of small- and medium-size enterprises in national economies also has the potential to drive growth in labour-market demand. Small, young, innovation-focused enterprises have the potential to grow rapidly, and university graduates are key contributors to the success of these enterprises. The OECD has recently highlighted how governments can facilitate growth among SMEs by linking them with university knowledge and research flows, and ensuring they have access to highly skilled human capital.<sup>25</sup> A recent U.K. study shows that SMEs that attracted university graduates have been growing much more quickly than those which did not hire graduates. As governments in Canada continue to encourage innovation and growth among SMEs, labour-market demand for the linkages, skills, and knowledge that graduates can offer will continue to grow. This situation is not unique to SMEs. In public and private enterprises of all sizes, taking innovative approaches to organizing the workplace and developing products and services is increasingly recognized as vital to improving productivity and staying competitive.

Competitiveness will increasingly become a preoccupation of both the private and public sector in the years to come, as Canada prepares for a demographic shift that will see baby boomers retire from the workplace. From 2010 to 2030, the population over the age of 65 will double, resulting in greater demand for services—financial, social and health—to support this aging population. During that time, population growth alone will not generate significant labour force increases, especially in the latter half of the period, to meet the demand created by this demographic shift.<sup>26</sup> Under Statistics Canada's medium population growth scenario, there would be only eight percent more adults aged 25-to-64 over the next 20 years compared to a 30 percent increase in this working age population in the past 20 years. For the Canadian economy to grow, the labour force will need to grow in both size and productivity.

While the number of retirements overall will increase, the outlook for Canada's economy is further exacerbated by the rapid increase in the number of highly experienced and productive graduates who



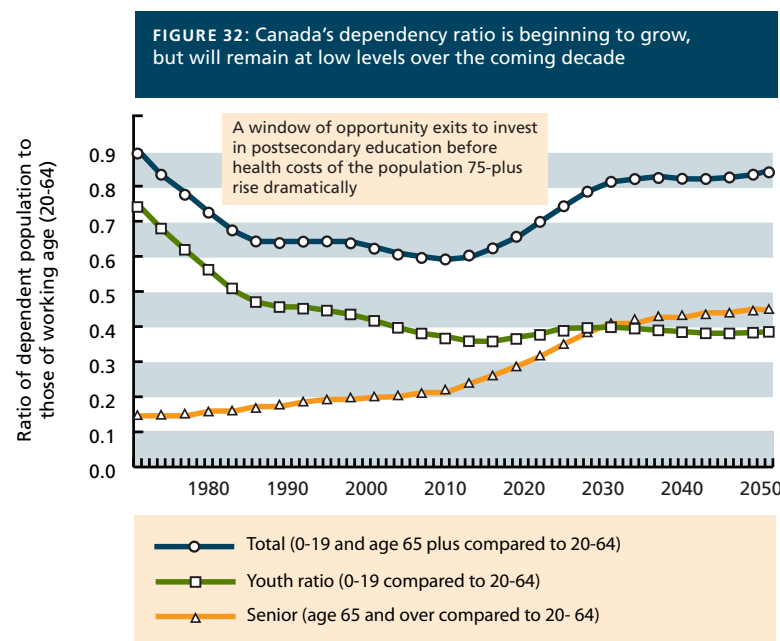
If Canada is to maintain, if not raise the standard of living of its population in both absolute and relative terms, it will need to raise the educational requirements in its labour market.

~Special Report: *Postsecondary education is a smart route for a brighter future for Canadians*, TD Bank

will retire from the labour force. In 1990, there were just 270,000 jobs filled by university graduates 50 years of age or older. By 2009, there were 1.1 million university graduates working who were 50 years of age or older. If growth in the economy cannot be driven by increasing the size of the labour force, it is clear that the labour force must become more productive. Losing these highly skilled baby boomers at a time when demography will constrain overall growth in the labour force reinforces the productivity imperative to enhance the quality of learning experiences for today's students so that they can become more productive employees of the future.

Canada's dependency ratios – the number of people in the normal working age compared to those in the younger and older age groups – are set to grow substantially over the next 30 years. However, there remains a window of opportunity to invest in the capacity and quality of education in Canada before the costs of caring for our aging society rise dramatically.

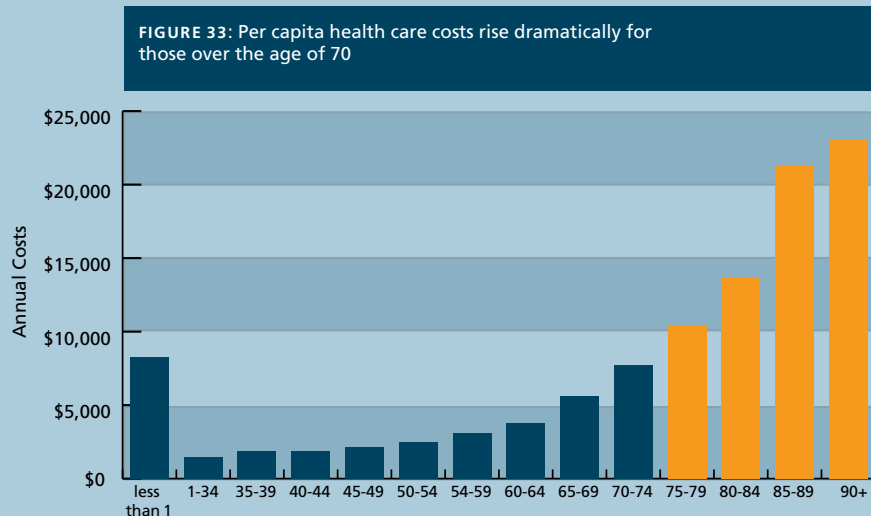
Canadians are not alone in preparing for these demographic pressures and striving to become more productive; this is a reality for many countries around the world. Increasing productivity to drive economic growth is a goal for many nations, so competition to enhance the quantity and quality of education systems is expected to intensify.



Source: Statistics Canada

The OECD notes that similar labour market shifts are occurring around the globe. Recent research in the 2010 Innovation Strategy by the OECD shows the growth in demand for highly skilled and educated workers. Based on global trends and forecasts, it is reasonable to assume that the growth of the knowledge-based economy and the labour market demands it generates for highly skilled and talented graduates will continue to influence university participation rates into the future.<sup>27</sup>

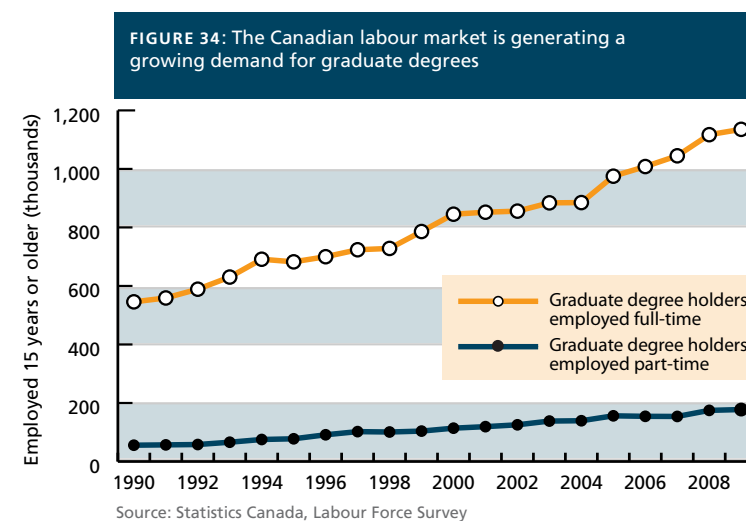
Nowhere are the costs of caring for our aging society more evident than in health care. The Canadian Institute for Health Information estimates that health-care costs escalate quickly from age 70 onwards. Per capita health care expenditures for Canadians between the ages of one and 34 are, on average, \$1,500, rising to \$3,600 for 35-to-74 year olds. Over the age of 75, health-care expenditures rise to between \$10,000 and \$23,000 per capita annually.<sup>28</sup> As the first baby boomers begin to retire in 2011, there remains a window of opportunity to invest in postsecondary education over the next decade and drive the kind of long-term productivity and innovative products and services needed to meet and control future health care costs.



All levels of government across Canada are cognizant of the shifting demography. As Figure 33 illustrates, health-care costs for a growing number of Canadians over the age of 70 threatens to overwhelm provincial budgets unless there is sufficient future economic growth. That kind of economic growth cannot be achieved solely through growth in the labour force; it also requires an increase in the productivity of the labour force.

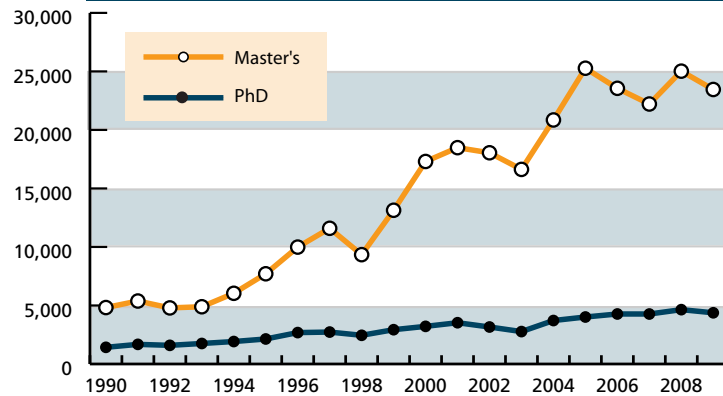
## Demand for graduate education

Currently, Canadian universities award proportionally fewer master's and PhD degrees than is common in several OECD countries. When compared to the U.S., Canada awards one-third fewer PhDs and only half the number of master's degrees per capita. At the PhD level, Canada trails well behind most G8 countries in the number of PhDs awarded annually on a per-capita basis. Yet labour market demand for employees with graduate education continues to increase. The number of jobs for those with graduate degrees grew from 600,000 in 1990 to more than 1.3 million in 2009.



Canada has become increasingly reliant on immigration to meet its needs for graduates of master's and doctoral programs. Since 1990, the number of immigrants coming to Canada who had completed university studies has expanded rapidly. The number of master's graduates has increased five-fold – from about 5,000 in 1990 to 25,000 in 2008. Doctoral graduates have increased from 1,500 in 1990 to 4,600 in 2008. To put these numbers in perspective, Canadian universities awarded 37,000 master's degrees and 5,500 doctorates in 2008.

**FIGURE 35:** Since 1990, the number of immigrants to Canada with graduate degrees has grown rapidly



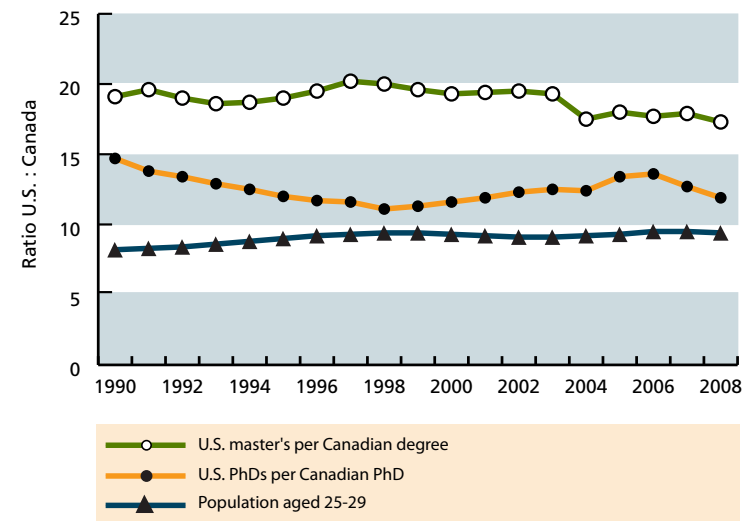
Source: Statistics Canada, Citizenship and Immigration Canada

Immigration has been and will continue to be an important source supplying labour force growth. But immigration alone will not be sufficient to meet the demand in Canada's labour market. Many of the international graduates Canada has been able to attract do not have all of the skills needed to utilize their previous education in Canada. That has and will continue to create a growing need for additional education and training once these new immigrants arrive in Canada.

Over the coming decade, demography will have a different impact on graduate enrolment than on undergraduate enrolment. By 2020, the 22-to-39 year-old cohort (the primary drivers of graduate enrolment)<sup>29</sup> will have grown significantly, and a greater number will possess bachelor's degrees. Combined with the expected growth in labour market demand for master's and doctoral graduates, this is likely to drive the demand for graduate education in the coming decade.

In an increasingly competitive global environment it will be more difficult to continue to attract as many highly skilled immigrants to Canada. A greater share of Canada's labour-market needs will have to be met through increasing enrolment in Canada.

**FIGURE 36:** The U.S. awards proportionately twice as many master's degrees and one-third more PhDs annually than does Canada



Source: AUCC using Statistics Canada data and the National Center for Education Statistics data

In some fields, including health specialties, business and international relations, the expansion of graduate programs would help universities meet already high student demand. In other new and emerging fields, such as nanotechnology and environmental studies, the creation and expansion of graduate programs would help Canadian universities bridge the degree completion gap with the U.S. and other G8 peers. Again, growth in demand from both students and employers is likely to put upward pressure on universities to expand their graduate programs.



## The value of a university degree

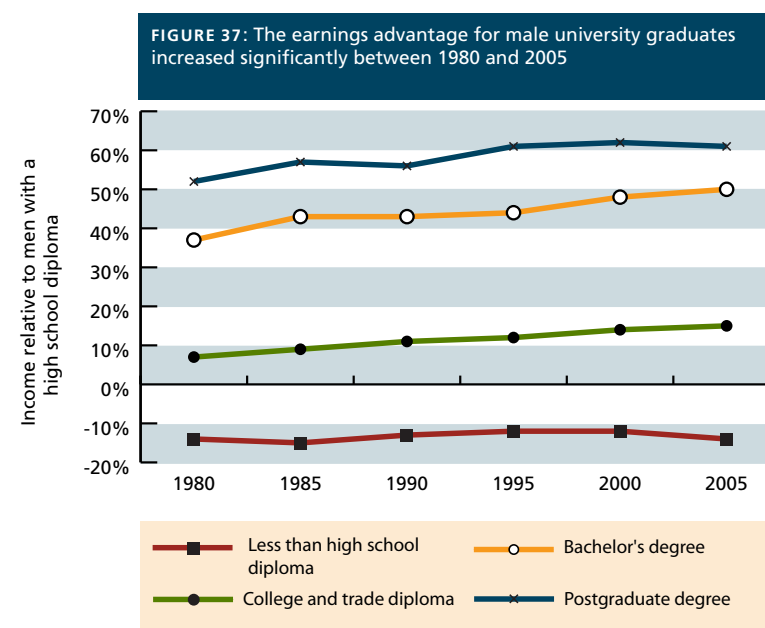
The value of a university degree can be measured by the private and public benefits it brings to the holder, his or her family, community, workplace and Canada. Labour market trends also send important signals to students and their parents about the value of a university degree to the Canadian economy. They condition perceptions of the value of a degree and influence critical investment decisions among many partners in our society: students, their parents, educators, governments and employers.

While a degree is of great value beyond the role graduates play in our labour force, it is nevertheless clear that students respond to labour-market signals. Students generally give adequate consideration to the extent to which education investments will benefit them personally (private benefits), such as the prospect of earning a higher income, confronting fewer and shorter periods of unemployment, and the ability to pursue a desired career path. However, students are not always aware of, nor do they typically consider the extent of the impact of their education on others (public benefits). These include: living a healthier and longer life, contributing to the productivity of co-workers, and being more socially and politically engaged in all aspects of society. Economists refer to this type of “market failure” as the prime reason for government investments in higher education. Without proper incentives from government, students will not make optimal enrolment decisions.

### Private returns of a university education

Education is a critical factor in one's earning potential. There are three principal private returns for individuals with a university education: they have a higher income advantage, are less likely to experience long periods of low income, and are less likely to experience labour disruptions. When they do experience labour disruptions, it is typically for much shorter periods of time.

Several Canadian researchers<sup>30</sup> have used Census data to quantify income advantage between university graduates and high school graduates. One of the more recent studies compares data from the last six Censuses, and shows that the income advantage for male and female bachelor's graduates grew significantly between 1980 and 2006. The Boudarbat, Lemieux and Riddell study (2010) shows that in 1980, the income advantage for male bachelor's graduates was 37 percent greater than high school graduates. By 2005, the income advantage had grown to 50 percent (much of this increase took place from 1995 to 2005). Researchers also noted an income advantage for college and trade school graduates over the same period, but it was much smaller, approximately seven percent in 1980, up to 15 percent in 2005.<sup>31</sup>



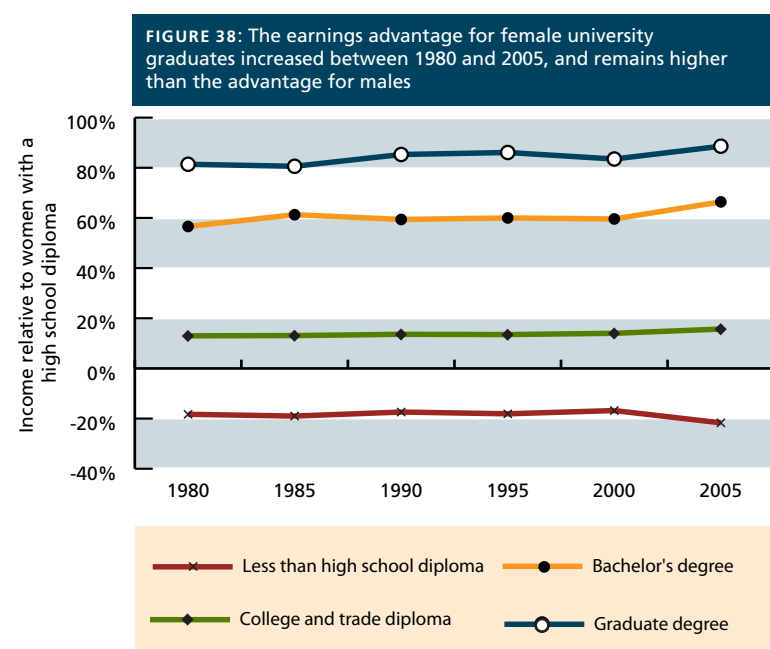
Source: Boudarbat, Lemieux, Riddell 2010



**A high quality learning experience produces more engaged and productive students, who, upon graduation, become Canada's future lawyers, doctors, teachers, thinkers, scientists, managers, leaders and innovators.**

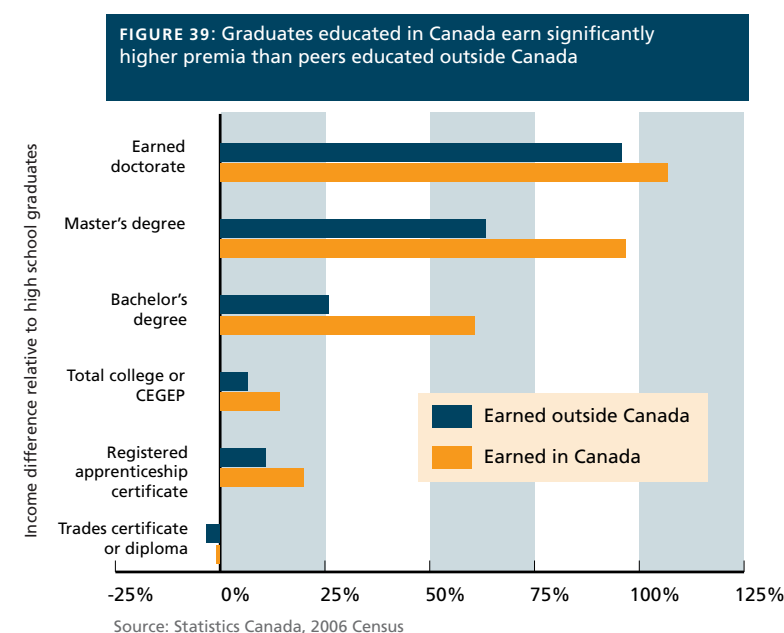
This presents an important implication for male enrolments. As noted earlier in this document, men comprise only about 42 percent of bachelor's students. If males respond now to the income and other labour market signals the way that women did in the 1970s and 1980s, the recent growth in their income advantage and the relative decline in low-skill manual jobs could drive more rapid increases in enrolment demand by men over the coming decade.

The study also found that while the income advantage was systematically higher for women than men, it did not grow as substantially over the same period. In 1980, the income advantage for women with a bachelor's degree was 57 percent, and increased to 66 percent in 2005. The income advantage for women with a college degree grew from 13 percent in 1980 to 16 percent in 2005.



Source: Boudarbat, Lemieux, Riddell 2010

The 2006 Census also identified the country in which the highest level of education was attained. It is now possible to distinguish between the incomes of graduates who earned their degrees from a Canadian university compared to those who earned their degrees abroad. This is important, given that a relatively large and growing number of university graduates immigrated to Canada after earning their degrees abroad, and because the incomes of these recent immigrants are lower than those of their Canadian counterparts. Including the income of all graduates in income comparisons understates the value of degrees earned in Canada. Therefore, the returns identified in the Boudarbat, Lemieux and Riddell study would have been higher and the advantage would have grown even more over time if the researchers had been able to differentiate the incomes of graduates of Canadian universities.



For example, bachelor’s graduates working full-time on average earned \$71,000 in 2005 compared to about \$41,000 for high school and trade school graduates, \$51,000 for registered apprentices, and \$48,000 per year for other college and CEGEP graduates. Earnings for those with graduate degrees were higher still: approximately \$89,000 for those with a master’s degree, \$94,000 for doctoral graduates, and an average of \$152,000 for medical doctors, dentists and veterinarians. As Figure 39 illustrates, these differences are all significantly higher than those of graduates educated abroad.

This higher advantage further enhances the lifetime earnings advantage for Canadian-educated graduates. Typically, income increases rapidly in the early stages of one’s career (between the age of 25 and 34), and then flattens. University graduates generally see their income increase more rapidly at the outset of their career and for a longer period during their career than those with less education. In fact, the Census illustrates the income advantage for university graduates widens quite significantly with

age and experience, compared to all other education levels. For example, the average income for those with university degrees – bachelor’s, master’s or PhD’s – was more than twice the Canadian average income for high school graduates working full-time between the ages of 55 and 64. Over the course of a 40-year working life, the accumulated average income advantage for a bachelor’s graduate is about \$1.3 million above the earnings of the typical high school graduate.<sup>32</sup> This income advantage between a university graduate and a high school graduate reflects the higher value that employers place on employees with additional education.

Statistics Canada’s annual Labour Force Survey confirms that, even during the recession in 2008 and 2009, the relative income advantage for university graduates had been maintained since the release of the 2006 Census.

Of course not every graduate can expect to accumulate these kinds of advantages. Average income varies widely across different areas

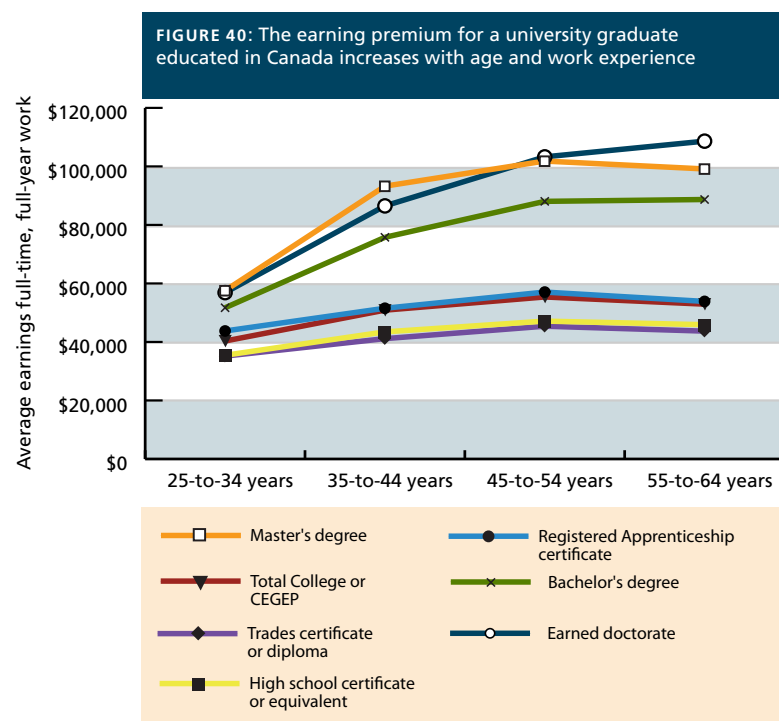
TABLE 3: Canadian university graduates have a greater lifetime earning advantage		
Level of education	Average annual earnings (2005)	Accumulated income advantage over high school graduate
High school certificate or equivalent	\$ 41,200	Baseline Comparator
Trades certificate or diploma	\$ 40,600	\$ (70,000)
Registered Apprenticeship certificate	\$ 51,000	\$ 340,000
Total College or CEGEP	\$ 48,200	\$ 280,000
Bachelor’s degree (s) (including LL.B.)	\$ 71,300	\$ 1,320,000
Master’s degree (s)	\$ 89,000	\$ 1,800,000
Earned doctorate	\$ 94,200	\$ 1,830,000
Medical, dental, veterinary medicine or optometry	\$ 151,600	\$ 4,260,000

Source: Statistics Canada, 2006 Census of Population

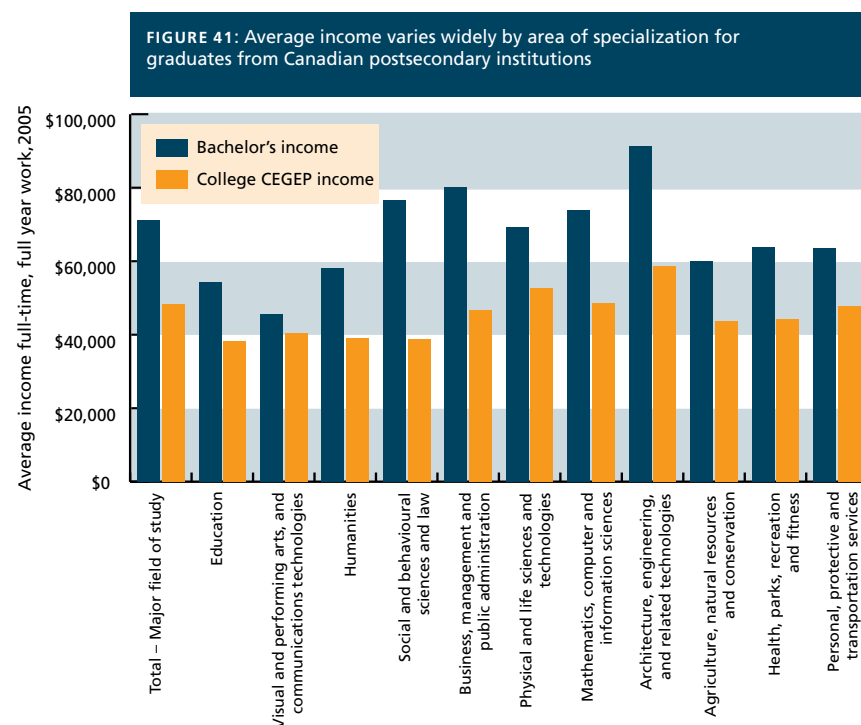
of specialization. In 2005, the average income for a bachelor's graduate in the visual and performing arts was approximately \$45,000, while average income for bachelor's graduates in engineering and applied sciences was a little more than \$90,000. Similar differences exist across disciplines for college and CEGEP graduates. The lowest earnings for college or CEGEP graduates in visual and performing arts, education and social sciences were around \$40,000. The highest average earnings were close to \$60,000, and were in engineering and related technologies. At the same time, while lower paying disciplines are still higher than the incomes of high school graduates, it is important to note that income is not the ultimate motivation for all students. Many are motivated by intrinsic values, such as the love for music or the arts.

University graduates are far less likely than individuals with less education to experience any period of low income. From 2002 to 2007, 89 percent of university graduates had not had any years with low income. This compares to fewer than 80 percent of individuals who had not completed any postsecondary studies and 83 percent of those who had completed college or trade certificates. Five percent of people who had gone beyond high school had persistent low income levels, while two percent of college or trade graduates and just 1.1 percent of university graduates had persistently low income levels lasting over a period of five or six years.

University graduates are also less likely to confront labour disruptions. They have lower unemployment rates both in strong



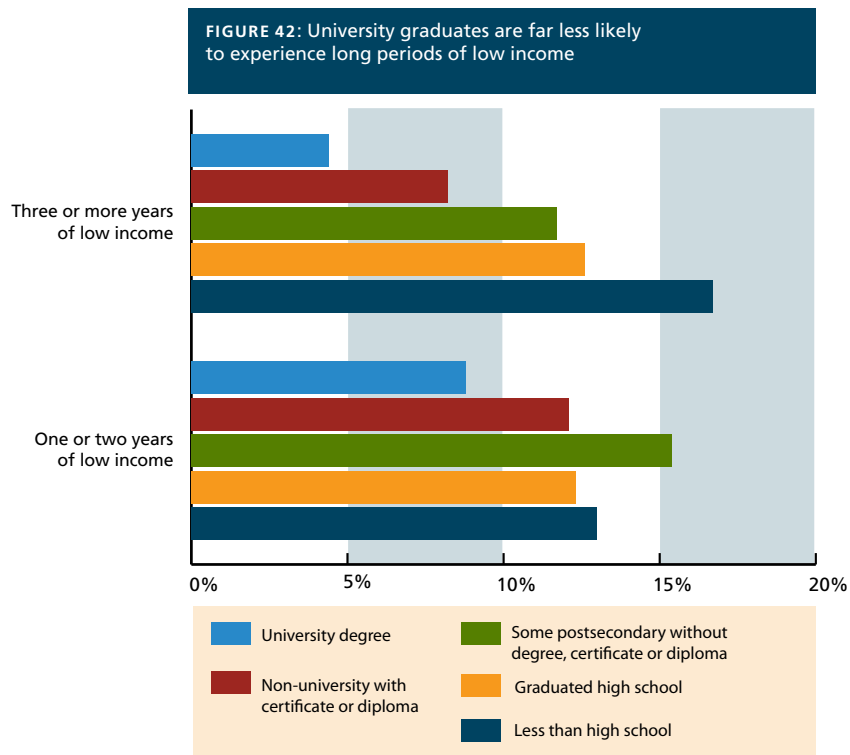
Source: Statistics Canada, 2006 Census



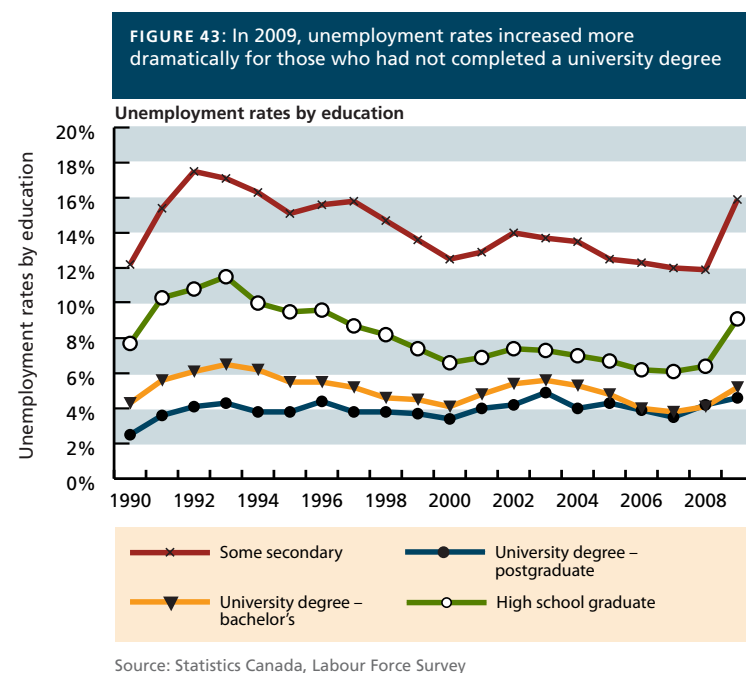
Source: Statistics Canada, 2006 Census



and poor economic times. When they do become unemployed, the duration is usually shorter than for others in the labour force. The recent economic slowdown was particularly difficult on the employment prospects of those who have not completed university studies. Between 2008 and 2010, there were 433,000 fewer jobs for those who had not completed a postsecondary degree compared to almost 300,000 more jobs for university graduates and approximately 78,000 more jobs for college graduates. As a result, while unemployment rates increased across all levels of education, they rose much more dramatically for those with less education.



The substantial and growing income advantage of earning a degree from a Canadian university, combined with the reduced likelihood of experiencing periods of low income and confronting labour disruptions, is likely to drive greater demand for a university education, both from domestic and international students. These benefits are likely to positively influence university participation rates into the future.



## Public returns of a university education

If the private returns are so significant, why is government investment needed to ensure a more optimal level of participation in higher education? Economic literature identifies several different types of market failures that impact the provision and participation level in higher education.

First, investments in education are risky. The benefits accrue to the student several years into the future. Students get mixed messages in the information about the costs and benefits, creating uncertainty about the returns they can expect. There are up-front tuition costs and even more significantly, the opportunity cost by choosing not to work. There are also credit constraints for students who want to go, but who do not have the personal or family income required, and who cannot get the necessary loans required.

Secondly, graduates do not personally capture all of the financial returns that their education helps to generate for others and the economy. The skills, knowledge and expertise of graduates “spill over” to enhance the outputs of other, less-educated workers. Those same skills and the graduates’ ability to adapt and learn on the job help make them more innovative and productive, which directly contributes to the competitiveness of their companies, and drives economic growth.

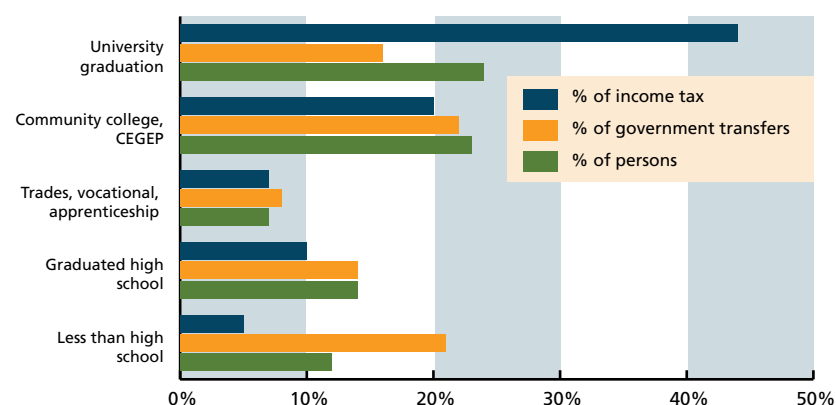
Third, there are several other types of returns that the individual investor will not normally consider when deciding on an educational versus a career pathway. They are often unaware that pursuing and completing a degree will help them to:

- lead healthier and longer lives;
- smoke and abuse drugs and alcohol to a lesser degree;
- be more socially active through volunteering, and more actively engaged in social and political activities; and,
- transfer or promote educational, health and social values to their children and their children’s children.

Government investments also promote equity by enhancing opportunities for all citizens to pursue education that will bring personal benefits and help them achieve personal goals. This in turn promotes social mobility and cohesion, while reducing crime rates and health care costs.

Finally, because of their higher incomes and a generally progressive tax system, university graduates pay a disproportionately large share of income taxes. Because they are healthier and more highly employed, they draw a relatively small level of transfers from the public purse. For example, college and university graduates comprise virtually the same proportion of 25-to-64 year olds in the Canadian population: 23 percent and 24 percent respectively. College graduates generate approximately 22 percent of all earnings in the economy, contribute 20 percent of tax revenues and draw approximately 22 percent of transfers from the public purse. In essence, they pay their own way. By comparison, university graduates generate the highest public economic benefits. Their collective income represents 37 percent of all earnings in the

**FIGURE 44: University graduates contribute a disproportionately large share of income taxes and receive a smaller share of government transfers**



Source: Survey of Labour and Income Dynamics, 2008

TABLE 4: Education generates broader benefits to society and the economy<sup>33</sup>

Broader benefits to society and the economy	Rates of return
Dynamic impacts through innovation, knowledge creation and economic growth	1 to 2 percentage points
Knowledge spillovers to help increase skills and productivity of less-educated workers	1 to 2 percentage points
Reduced crime, increased civic participation, improved health, intergenerational benefits passed on to children	3 to 4 percentage points
Social benefits associated with paying proportionally higher taxes	2 percentage points
Total	7 to 10 percentage points

Source: Riddell, 2004

economy; they generate 44 percent of revenues collected through income tax and only receive 16 percent of all transfers. It is this surplus that enables the provision of public services for those with less education.

Recent research, primarily U.S.-based and utilizing natural experiments, also supports the case for a causal link between education and broader social benefits. Riddell summaries are presented in Table 4.

The combined impact of this new research leads Riddell to conclude that the social benefits are of a similar order of magnitude to the private benefits, seven to 10 percent, thereby justifying government investment in education. Riddell does caution that many of the newer studies are primarily U.S.-based and that the impacts in Canada might be slightly lower. Furthermore, many of the natural experiments were at the secondary level and these results may not apply as strongly for postsecondary studies. But he goes on to

highlight that the “clearest evidence of positive social benefits from postsecondary education is that associated with growth enhancing effects from technological change, and innovation and knowledge spillovers from more educated workers.”<sup>34</sup>

Governments across Canada have increased their investments in universities over the last 10 to 15 years. The public benefits and the ongoing labour market needs provide the impetus for further public investments.

### Family-based influences and income

Much research has been conducted on family-based influences and the impact they have on a student’s decision to attend university. Research demonstrates that variables with the greatest impact on university participation rates are: household income, parental education and the student’s high school grades.

Studies conducted on the relationship between family income and access to university education conclude that there is a strong link between these two factors.<sup>35</sup> The Youth in Transition Survey (YITS) and the Survey of Labour and Income Dynamics<sup>36</sup> have both shown that youth from families with incomes above \$100,000 are twice as likely to attend university compared to those with parental incomes below \$25,000. In fact, Statistics Canada's YITS shows 60 percent of youth from high-income backgrounds have attended university (or at least have taken a course) by age 21, compared to 30 percent of their peers from low-income backgrounds.

However, several studies suggest that parental education has a greater influence on participation rates than income.<sup>37</sup> According to YITS data, each additional year of schooling for either parent will increase university participation rates by 6.3 percentage points.<sup>38</sup>

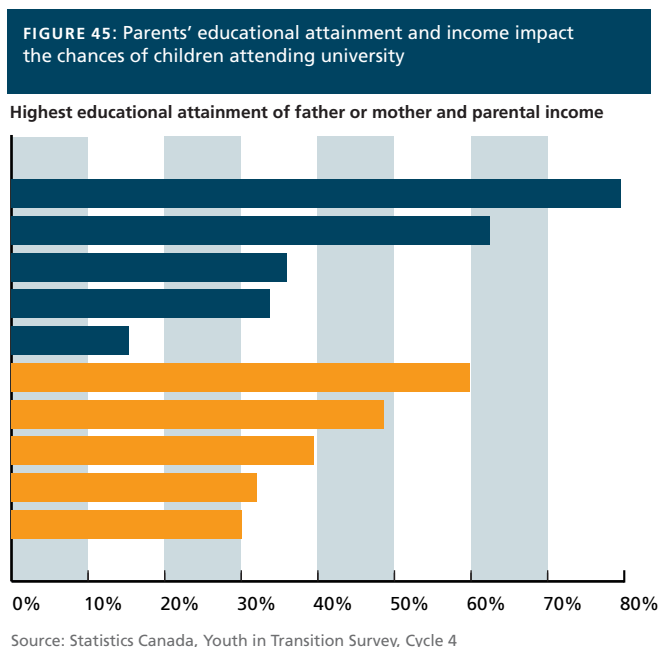
Academic preparation and grades in secondary school also have a stronger link to university participation rates than financial barriers. The study shows that differences in “factors such as standardized test scores in reading obtained at age 15, school marks reported at age 15, parental influences, and high school quality account for 84 percent of the gap. In contrast, only 12 percent of the gap is related to financial constraints.”<sup>39</sup> It is therefore not the incomes of parents that make the biggest difference, but the parental involvement.

None of these studies suggest that income does not play a role. Indeed, differences in family income may also be linked to what are often labeled “cultural” barriers. For example, academic preparation, parental values and support of their children's education may well be linked themselves to family income.

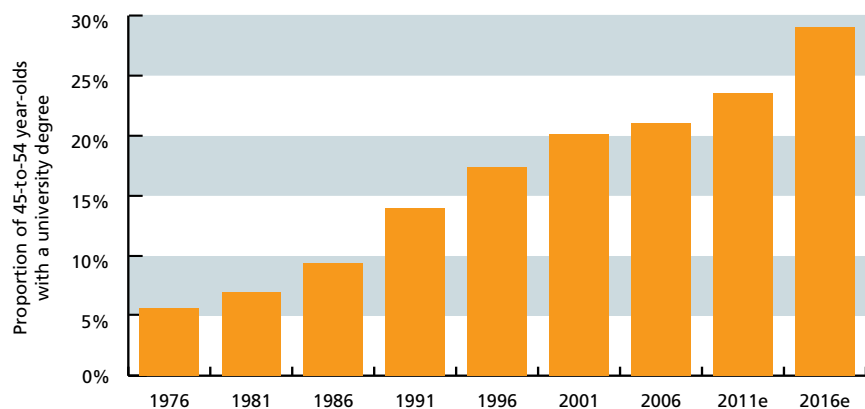
The 2006 Census and Statistics Canada's 2009 Labour Force Survey both confirm that the proportion of adults who have completed a university degree is much higher in this generation than for adults in the preceding generation. In 2009, 21 percent of adults between

45 and 54 years of age held a university degree, compared to less than 10 percent in the mid 1980s.

The proportion of adults aged 35-to-44 with a university degree increased from 18 percent in 1999 to more than 28 percent in 2009. Consequently, the share of adults who have a university degree in the older 45-to-54 cohort – the group most likely to have children of university age – will continue to rise significantly over the coming decade. The growing proportion of adults with university degrees will drive further increases in enrolment demand as they influence the academic decisions of their children.<sup>40</sup>



**FIGURE 46:** The growing educational attainment of adults aged 45-to-54 should drive further growth in university participation



Source: Statistics Canada, Labour Force Survey and Census

These studies also raise considerable concerns about the potential of needs-based student aid programs to drive more equal participation rates. To have a real impact on the proportion of low-income students in university programs, aid programs need to focus on more than financial assistance delivered at the time of acceptance and entry to university. They need to address the full range of factors that begin to affect potential higher education students much earlier on in their education. In 2008, the Manitoba Centre for Health Policy released an update to the *2004 Manitoba Child Health Atlas* which demonstrated that high school completion rates were much higher for the highest income level neighbourhoods. In rural areas, there was a 14 percentage point gap between high school graduation rates of lowest and highest income quintile neighbourhoods. In urban areas the disparity was even greater at 36 percentage points.

As a result, targeted access programs such as *The Pathways to Education Program* are being developed to assist young people from at-risk or economically disadvantaged communities in staying in high school, graduating and moving on to postsecondary education.

First implemented in Regent Park in Toronto, the program includes tutoring in five core subjects four nights a week, group mentoring for grade 9 and 10 students, career mentoring for grade 11 and 12 students, financial support tied to attendance in the program, bursaries upon entering postsecondary education, and support-workers which help connect teens, parents, teachers, school administrators and community agencies. The results from this program have been remarkable:

- High school drop-out rates have declined from 56 percent to 12 percent;
- About 93 percent of eligible youth in the community are participating in this program;
- About 80 percent of graduates from the program go on to college or university, up from 20 percent; and
- Fewer than five percent of Pathways graduates do not complete their degree.<sup>41</sup>

After its initial success in Toronto, the program expanded to other communities across Ontario, Quebec and Nova Scotia. To support the expansion, the federal government allocated \$20 million in Budget 2010. Many other private-sector companies, provincial and municipal governments, and non-governmental organizations have also partnered with this program in order to increase the access of disadvantaged youth to postsecondary education.

Similar programs also exist which target specific cohorts which are under-represented on Canadian campuses. For example, *LE,NONET* was a four-year pilot program from 2004 to 2008 that offered financial, academic and cultural support to Aboriginal students at the University of Victoria in British Columbia. The program's goal was to ensure that Aboriginal students got to university and had the best chance of succeeding. *LE,NONET* included:

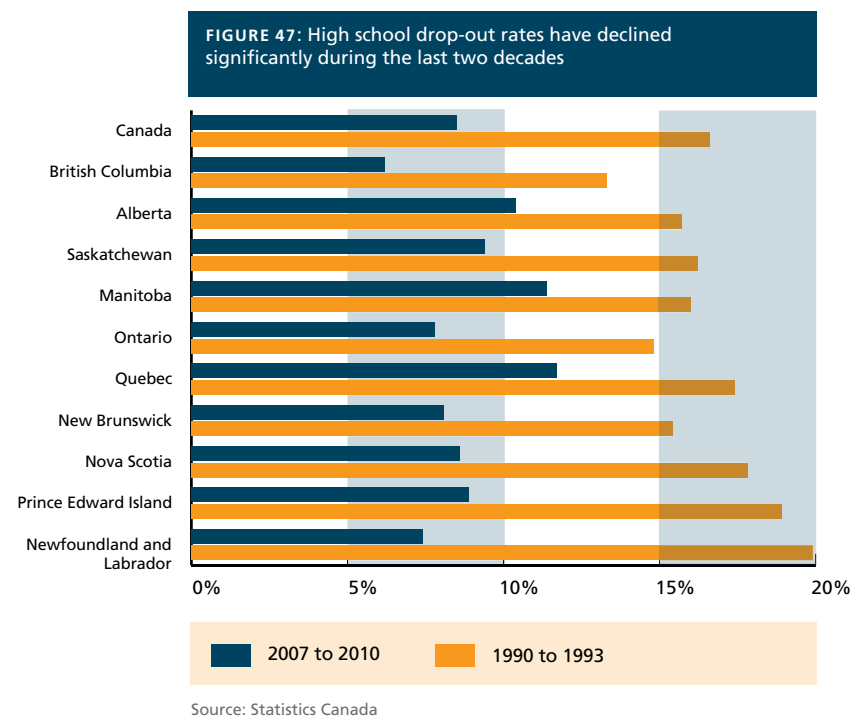


- Bursaries of up to \$2,000 for First Nations, Métis or Inuit students (these are still available);
- Peer mentoring to ease the transition to university;
- Research apprenticeships which provided the opportunity to participate in hands-on academic research; and,
- Staff and faculty cultural training to support Aboriginal students.

This program has been instrumental in breaking down social and cultural barriers for Aboriginal students at the University of Victoria, and increasing their learning skills in order to better succeed during their university studies.<sup>42</sup> *LE, NONET* identified a number of key principles in supporting success and was one of the first programs to be able to empirically measure changes in success.

The lessons learned from this pilot project and other successful university programs<sup>43</sup> are being shared with institutions across the country. Both the federal and provincial governments (the latter through the Council of Ministers of Education, Canada and the Council of the Federation) have identified the goal of broadening university access to students from under-represented groups – including low-income students, Aboriginal students and children of recent immigrants. Some measures are already in place, and to the extent that they and similar programs are successful, they will create greater demand for university education and upward pressure on university participation rates.<sup>44</sup>

These types of programs have also contributed to a significant decline of high school drop-out rates across Canada. Over the last two decades, the drop-out rate fell from 16.6 percent at the beginning of the 1990s to just 8.5 percent of 20-to-24 year-olds not completing high school between 2007 and 2010. This has created a bigger pool

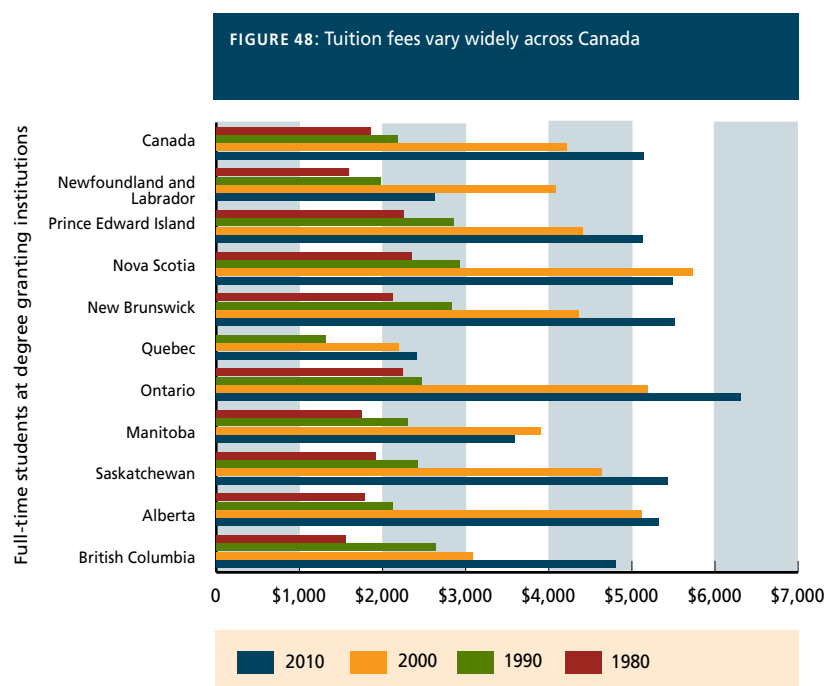


from which universities draw their students. While some further growth can be achieved, future improvements will not provide the scale of growth that has been achieved over the last two decades.

As projects and programs such as Pathways to Education demonstrate, more can be done to change the aspiration levels of students from traditionally under-represented groups. Creating capacity and support for these students will help them achieve their new-found aspirations for additional education as more of them complete high school.

## Tuition and student aid

Tuition costs vary widely across Canada. In 2010, the average cost for undergraduate programs ranged from \$2,400 in Quebec to \$6,300 in Ontario. Over the past 30 years tuition fees have grown significantly faster than inflation, rising from about \$1,900 in 1980 to an average of about \$5,100 in 2010 (after inflation). Average tuition fees grew most quickly during the 1990s, a period when several provinces were cutting back their support to universities. In most instances the increases in fees were not sufficient to cover the cuts in government revenues and increases in inflationary costs. During the last decade, fees have grown much more slowly, about \$90 per year (after inflation). In three provinces – Newfoundland and Labrador, Nova Scotia and Manitoba – fees have even declined in real terms, over the course of the decade.



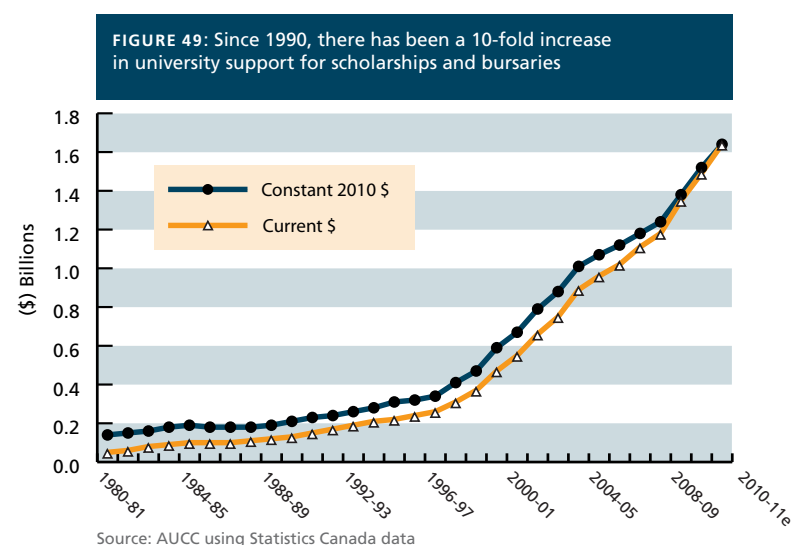
To gain a more comprehensive and accurate view of the cost of attending university, it is important to consider factors that will reduce students' costs. First, there are universal tax credits that all students can access. Tax expenditures have played an increasingly important role in education policy and financing. As a result of major changes in the 2000 federal budget and subsequent changes to federal and provincial taxes, the typical full-time student now has access to far higher levels of support through the tax systems. In 2009, the value of tax credits varied between \$1,400 and about \$2,400, depending on the student's province of residence.

For some students, affordability is primarily a cash-flow issue. While these students are willing to invest in their education, they may lack enough disposable income or access to sufficient loans to cover their immediate costs. In such cases, the eventual future availability of tax credits will not help them with their immediate financial needs. It is not known how many students are affected by this type of "liquidity constraint" or, more generally, by an aversion to accumulating any debt at all. For these students, up-front grants, scholarships and personal or family savings play a bigger role in their decision to enrol.

Government grants, private sector and university scholarships help offset tuition and other costs of attending university. In the last decade, there were major changes in the levels of federally funded grant support. The Canada Millennium Scholarship Foundation, which provided student grants up to \$3,000 per student at the outset of the decade, is now winding down. The last full cohort of recipients was awarded grants in 2008-2009. In 2009-2010 CMSF grants were replaced by the Canada Student Grants Program, which has two components. The first is a \$2,000 grant per academic year for full-time students from low-income families. Low-income families are defined as having a combined total income of less than \$41,000. The second component is an \$800 grant per academic year for students from middle-income families. For this program, a middle-income family is defined as having a combined total income

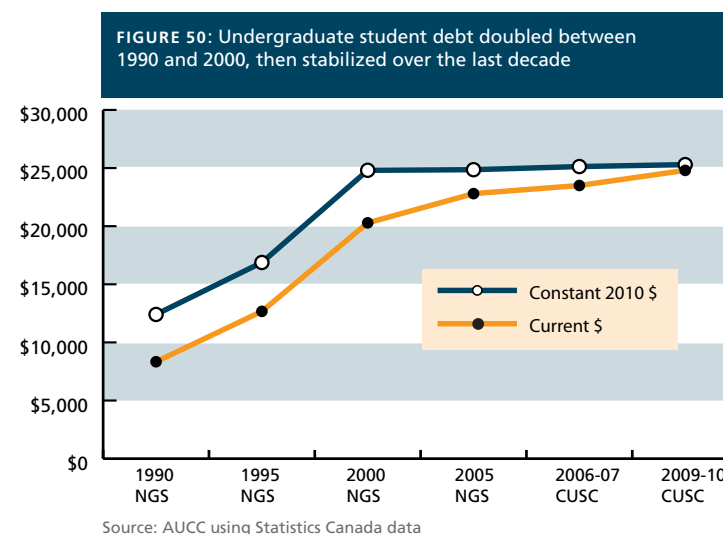
between \$41,000 and \$79,300. While the new Canada Study Grants are lower in value, the new income thresholds mean that more students qualified for financial aid. For example, in 2008, 70,000 university students qualified for CMSF bursaries while in 2009, about twice as many university students qualified for new Canada Study Grants.

In addition, there has been a 10-fold increase in the amount of scholarships and bursaries – rising from \$150 million in 1990 to about \$1.6 billion in 2010-2011<sup>45</sup> – provided by universities to their undergraduate and graduate students. The availability of institutional support is now more widely recognized by potential students and their families. Data from the Canadian Undergraduate Survey Consortium illustrate that in 2007-2008, about 30 percent of all undergraduate students received scholarships or financial awards from their university with an average value of \$3,000.



Increases in government grants, loan remissions, loans and tax credits as well as increases in institutional scholarships and bursaries help to offset much of the increased costs associated with higher education. As a result, while debt for undergraduate students doubled between 1990 and 2000, both the proportion of students with debt (about 58 percent) and the average debt (\$25,000) of those students have largely stabilized over the last decade.

Student aid plays an important role in maintaining affordability even in the face of some increases in tuition fees. However, the foregoing analysis illustrates the growing complexity in understanding the initial and ongoing net costs, highlighting the need for more and clearer information about the relative costs and benefits of attending university. Ongoing improvements to the information available to students and parents, as well as enhancing the design and effective targeting of student-aid packages, can help improve access for students with high financial needs.

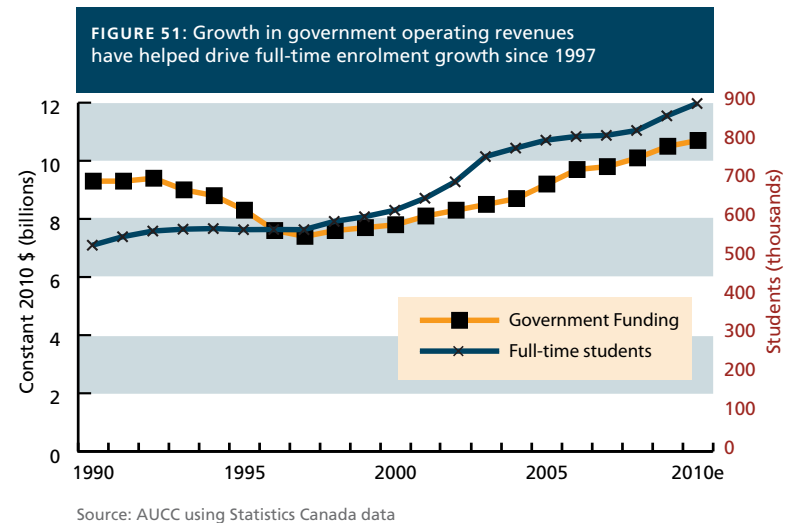


## The capacity challenge

University access and participation rates are affected by the physical and human resources needed to provide a high-quality learning environment for students. Enrolment levels and participation rates are often used as a proxy for access. In fact, they indicate the amount of enrolment demand that has been met. Excess capacity allows institutions to reach out to new student groups and proactively expand access to help meet the needs of the economy. Constrained capacity forces universities to find ways to ration the limited number of seats available from an array of well-qualified applicants.

As illustrated in the demography section, the future capacity of individual universities to respond to shifting enrolment demand will vary widely across Canada. Several strategies exist for universities to contribute to rising national labour market demand for more graduates and more skilled graduates. Some universities are in regions with demographic declines. With their existing human and physical resources they could take on more students from within their province or region and drive up local participation rates. They could also attract more students from domestic and international markets where demand is outpacing the ability of local universities to meet that demand. This would drive growth in national participation levels. Alternatively, these universities could slowly “retire-off” aging and inefficient facilities, using their remaining facilities and personnel to drive improvements in the quality of the learning environment. In doing so, they could help drive qualitative improvements in the skills and talents of their graduates.

Other universities are in growing urban areas and regions that attract large numbers of immigrants and international students. Many are already stretched beyond their ideal capacity. Universities in these instances ration the limited number of government-funded spaces based on grades.<sup>46</sup> In many cases, high school graduates who want to go to university and have very good grades cannot get into



their chosen university or program because of space constraints. The need to ration space will vary from program to program and from university to university. In some instances, students have the financial and other support needed to move to a “second-choice” university where there is enough capacity for them to gain entry. Other students may not want to travel away from their local area to attend university. Overcoming these types of constraints requires a complex mix of financial and non-financial support mechanisms. Studies seem to indicate that a very significant number of well qualified students are not achieving their university aspirations and more students would attend if additional capacity were created.<sup>47</sup>

There are significant costs associated with expanding university capacity, which in most instances cannot reasonably be covered by student fees. Tuition – net of the scholarships given back to students – only covers about one-quarter of the average costs of university operating costs. While very small marginal increases in enrolment can be accommodated, any significant changes require the addition of more space, faculty and support staff.

A clear link exists between government funding trends and enrolment. This link has been especially evident since the mid-1990s, when governments cut their funding. Universities had to respond by reducing faculty, support services and constraining enrolment. It became clear to both governments and universities that subsequent enrolment growth could only be accomplished with funding increases that were at or near universities' "average costs."

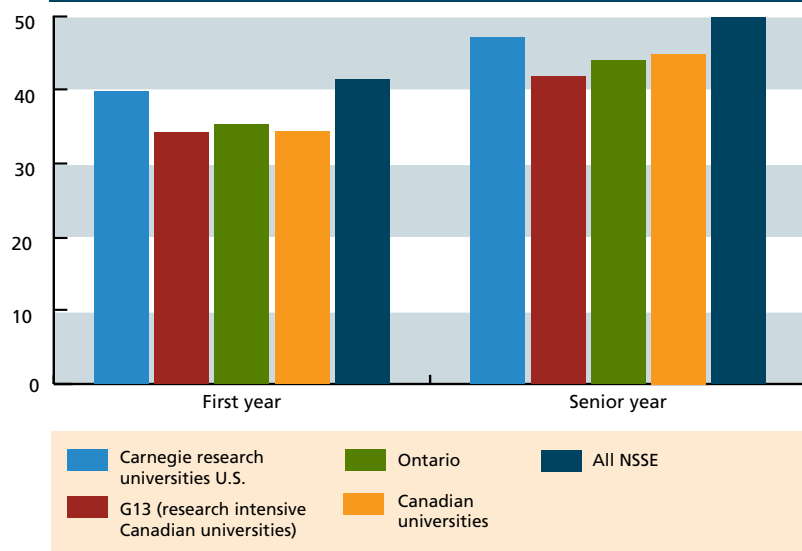
There are significant trade-offs to be considered when expanding enrolment within a given set of physical and human resources. These trade-offs can significantly influence a number of factors that affect quality, including: degree of student engagement, level of student-faculty interaction, opportunities to participate actively in learning and research experiences, and opportunities for valuable interactions with students from other nations and cultures.

The majority of Canadian universities participate in the U.S.-based National Survey of Student Engagement. The NSSE instrument allows students to describe their own educational experiences and their reactions to institutional practices as these relate to undergraduate learning. The instrument is designed so universities can assess the extent to which student activities and institutional practices create an environment that supports student learning as well as personal and skills development.

U.S. universities score better than their Canadian peers on two very critical NSSE benchmarks:<sup>48</sup> active and collaborative learning and student-faculty interaction.

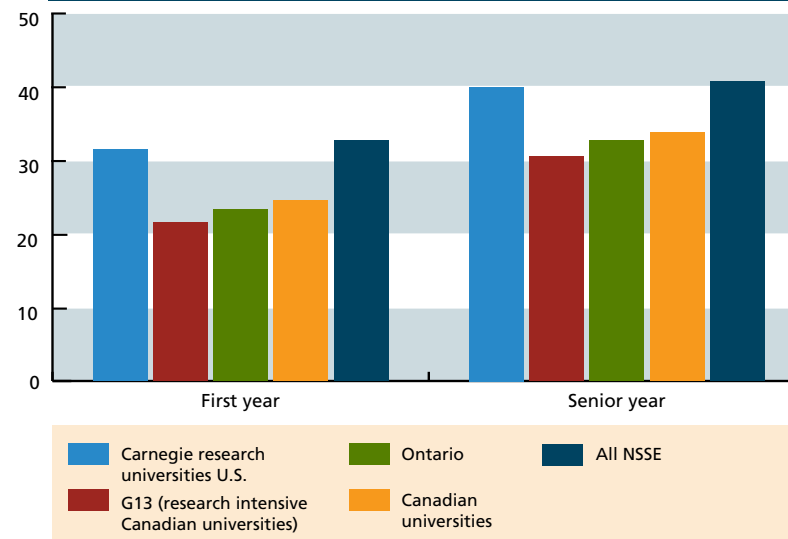
Active and collaborative learning measures participation in class, presentations, working with other students on projects, tutoring

**FIGURE 52: Canadian universities score significantly lower than U.S. peers in active and collaborative learning**



Source: Council of Ontario Universities using the National Survey of Student Engagement, 2008

**FIGURE 53: Canada's most research intensive universities trail all other groups in student-faculty interaction**



Source: Council of Ontario Universities using the National Survey of Student Engagement, 2008



other students, and participating in community-based projects. In this category, the American institutions score an average of 39 for first-year students and 50 for senior-year students, compared to the Canadian averages of 34 and 45, respectively.

In the category of student-faculty interaction, the relative advantage in the U.S. was even higher for both first-year and senior-year students. This benchmark is significantly influenced by investing in university faculty. It includes measures like discussing grades with instructors; receiving prompt feedback; talking about career plans with faculty members; discussing ideas with faculty outside class; and working with faculty on activities other than coursework, from volunteer and social committees to research projects.

Despite higher scores in the U.S., universities in both countries have room to improve. In doing so, they will further encourage and promote the kinds of learning experiences that enable students to develop the skills that employers demand. Before that can be done, necessary investments must be made that provide faculty with adequate time to develop enriched courses and programs which include academic support tools, and to interact more frequently with students.

Expanding access to universities must therefore be understood to mean more than merely adding more student “seats.” In a period of rapid enrolment expansion, many of the requisite physical and human resources must be newly acquired, and therefore come at a high average cost. The kind of growth that Canadian universities have experienced over the last decade has taxed their capacity to provide students with high-quality experiences. Many universities are increasingly concerned with the quality of their undergraduate programs, and are focussing on rebuilding that quality experience. This focus on rebuilding quality may limit the resources available to expand enrolment.

## Theoretical basis of NSSE

The National Survey of Student Engagement measures student involvement and institutional practice in more than 40 areas known to be associated with desirable learning and personal development outcomes. The theoretical and empirical basis for the survey originates with many previous studies that have demonstrated that particular services, programs, interventions and activities are consistent with improved graduation, retention, academic performance, knowledge acquisition and skills development.

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# Enrolment growth scenarios

The preceding *Drivers of change* section identified factors that will have an impact on participation rates. The interplay between these factors is complex, so it is difficult to disentangle the impacts of each separately. For example, some of the growth in urbanization is linked to immigration, as immigrants are more likely to live in large cities and to have a university degree. That, in turn, is also linked to the growth in enrolment demand generated through the influence of highly-educated parents. As well, parents, students and governments are all strongly influenced by the economic returns of a university education. All of these factors are linked to the needs of our labour force. The projections in this section are therefore heavily influenced by expected labour market demand for university graduates in the coming decade.

Although demography is a factor in every enrolment projection model, it is not the predominant factor. There is no doubt that declines in the number of young people in our population will dampen the impact of any potential growth in participation levels over the period from 2012 to 2024. Over the longer term, the rebound in the population after 2024, the long-established link between enrolment demand and the labour market and the needs of the knowledge-based economy should combine to drive growth in the demand for university education.

As highlighted in the *Drivers of change* section, there will be very significant differences in population trends between and within provinces. Universities in all provinces will clearly confront varying challenges as a result of demographic trends in the local and regional areas from which they have normally attracted their students. In some large urban areas, immigration and urbanization trends will drive population growth, stimulating more enrolment

demand. However, the youth population will be lower in every province in 2020 than it was in 2010. Universities in Atlantic Canada and Saskatchewan will likely face the steepest decline in youth population over the next 10 years. But as past experience has shown, the decline in population is very unlikely to cause steep enrolment declines. Other factors – from increasing participation rates to meet labour market demand, to recruitment of international and out-of-province students – have combined to offset the impacts of population change. So while demography will create enrolment challenges and uncertainties for many universities, demography is far from being the sole determinant of future demand.

There are growing concerns that the current economic downturn will constrain government investments in university education in the short term. The extent to which the enrolment growth scenarios presented will be realized depend in significant measure on the country's ability to finance the human and physical resources required to accommodate these changes. For example, the lack of investment in the mid-1990s was one of the principal factors that contributed to the flat participation rates over that period.

There are signals that both the federal and provincial governments recognize the important relationship between expanding educational opportunities and the impact that relationship can have on both labour market and economic growth. Since 1997, the combined growth in investments from both levels of government and from students themselves has enabled universities to respond to dramatic increases in student demand. From 1997 to 2010, full-time enrolment increased 57 percent, or by 326,000 students.

These investments were crucial over the last decade and will certainly be vital in the years ahead. An extended slow economic recovery may undermine public investment and drive up tuition fees (at the margins, increases in tuition costs would dampen enrolment demand), as well as undermine short-term prospects for job growth, especially for youth who have not completed postsecondary programs. This

lack of job prospects, in turn, drives opportunity costs down and increases university demand. These factors have driven strong enrolment growth since 2008. Over the longer term as the economy recovers, and labour-market demand grows, a greater share of new jobs will be for university graduates, once again reinforcing the demand for higher education.

Relatively slow growth in the size of Canada's labour force and much more rapid growth in the number who will retire from it during the next decade will create new challenges for Canada and many other nations. There will simply not be enough population growth to drive the kinds of increases in the overall size of our labour force that would be needed to support an increasingly dependent, aging population. There is increased recognition by governments that the key to sustained competitiveness, growth and prosperity is the ability of firms to innovate and adapt in a rapidly changing and highly globalized business environment. To thrive in such an environment, all sectors depend on high quality human capital as an essential source of skills, knowledge and ideas. Because universities are uniquely positioned to drive the formation of this type of human capital, the continued evolution towards a more innovative, knowledge-based economy will increase labour market demand for university graduates.

All of the aforementioned factors have been considered in the creation of the following enrolment projections for the decade from 2010 to 2020.

## Scenarios

Based on past labour-market trends and projected population changes, AUCC expects that there will be close to 1.3 million more jobs for university graduates in 2020 than there were in 2010. In addition, there will be approximately 700,000 to 900,000 more jobs for university graduates to replace those graduates who will retire

over the coming decade. To meet this demand, the number of new graduates would need to grow by about 1.3 percent per year over the course of the decade. If this growth in new graduates is not reached, there will likely be labour shortages in knowledge intensive occupations.

Annual increases of 1.3 percent in the number of graduates will likely require very similar increases in enrolment levels. By 2020, that kind of growth would generate an increase of 125,000 full-time students in addition to the 900,000 students enrolled in 2010. The projected increases in participation rates required to drive this enrolment growth are in line with the growth in participation which Canada has experienced since the 1990s.

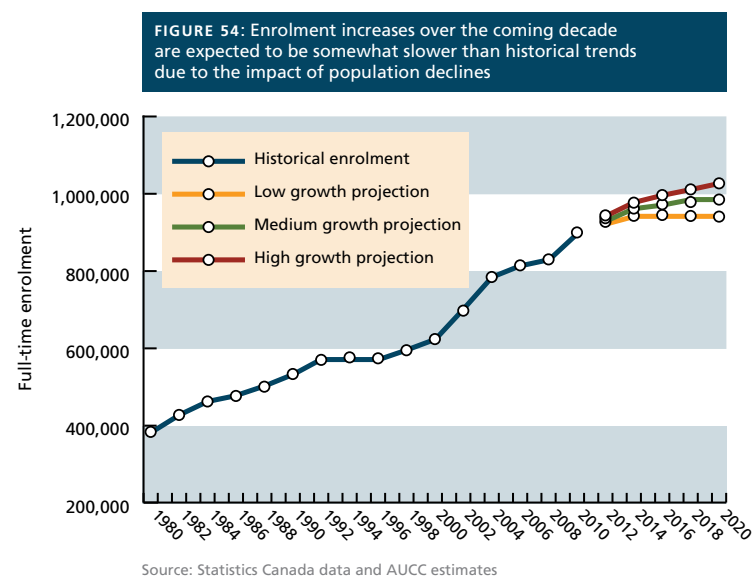
Part of the growth in enrolment and participation would come from increases in international students. For example, if Canadian universities were to maintain their current global market share of the projected increase in international students, that would generate an increase of 30,000 international students by 2020 – an annual increase of about three percent. Growing by five percent per year would mean that universities would attract 45,000 more students in 10 years' time, driving a small increase in our market share of international students. This growth in international student numbers would also help Canada address some of the expected increase in labour-market demand for graduates by the end of the decade.

As noted earlier, the OECD has drawn a significant link between investments in human capital, innovation and productivity. The federal government is currently developing a digital economy strategy and conducting a review of federal support to R&D to determine how it can encourage greater private-sector innovation to help drive higher productivity in Canada. Policies emerging from these two initiatives are likely to drive even higher increases in labour-market demand for highly skilled graduates.

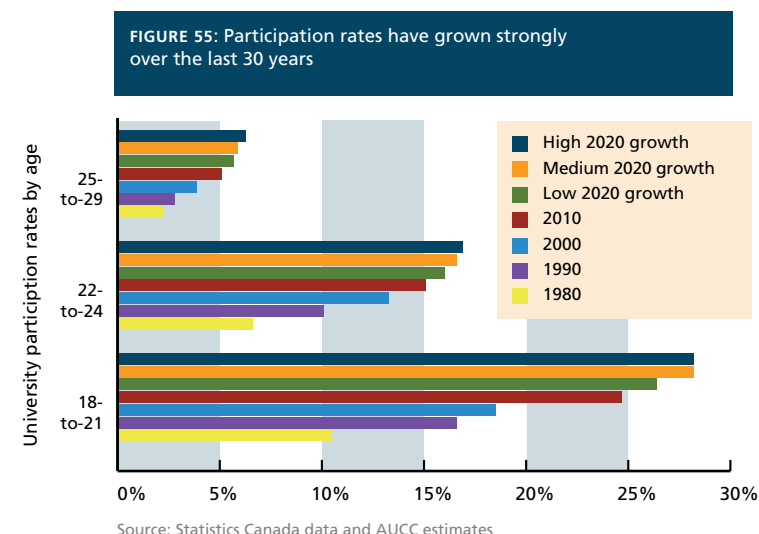
However, with the slower growth in the size of our labour force, employment demand is likely to grow throughout all sectors of the economy. This is expected to drive salary increases for less-skilled jobs, and increase the opportunity costs of attending university. The expected growth in the competition for labour creates some uncertainty regarding whether past trends in job growth for graduates can be realized over the coming decade.

Given this uncertainty, alternative scenarios for lower growth in enrolment demand have been developed. Average annual enrolment growth of 0.45 percent per year and 0.9 percent per year would translate into increases in full-time students of 40,000 and 80,000, respectively, by 2020. Again, growth in international student numbers would be expected to drive a good portion of this enrolment increase. Growth in domestic participation rates required to fuel the remaining portion of the growth would be significantly lower than we have witnessed over the last 10 to 15 years.

The following charts illustrate how the projected enrolment and participation changes compare to actual changes over the last 30 years.



In the high growth scenario, aggregate full-time enrolment will increase by 125,000 students or about 14 percent between 2010 and 2020, compared to nine percent in the medium growth scenario and just five percent in the low-growth scenario. To put these changes into context, student enrolment increased by 4.6 percent from 2009 to 2010 and 44 percent over the last decade.



The enrolment scenarios are based on different assumptions about changes in both the labour market and participation rates. In the high growth scenario, participation rates for the 18-to-21 age cohort would have to increase to 28 percent, from just under 25 percent in 2010. In the 22-to-24 age cohort, participation rates would be expected to increase to 17 percent, up from 15 percent in 2010. And in the 25-to-29 year-old cohort – mostly graduate students – rates would be expected to rise from five to 6.5 percent. In general, these projections are conservative, given past trends and anticipated demand in the Canadian labour market and the global landscape.



## Global growth in university participation

University enrolment trends in Canada should not be seen in isolation. There is a global competition for talent. Canada competes and collaborates with other nations so global enrolment trends will clearly affect enrolment demand in Canada.

Many other countries are projecting increases in university enrolment and participation rates over the coming decade, some more strongly than others. Emerging economies like China, India and Brazil anticipate very strong increases in enrolment. Already these countries, along with the U.S., have the largest total number of higher education students. However, their participation rates trail far behind developed nations. As their economies expand, there is a strong potential for rapid enrolment growth, which will likely exceed domestic capacity for students, and in turn, will create international student demand.

The population in China in the 18-to-24 age range is expected to fall by 22 percent or some 36 million fewer youth in that age range between 2010 and 2020. Therefore future enrolment increases will be driven exclusively by increases in participation rates. While this is consistent with the Canadian experience in the 1990s, the scale is much more dramatic. In June 2010, the government of the People Republic of China released a plan to reform education. It states that one aim is to increase access to universities for some five million students by 2020. One of the main objectives of the plan is to substantially transform higher education in China by promoting greater levels of independent thinking, intellectual curiosity, creativity, and innovation. The ongoing growth in China's economy, combined with the expansion and reform of its higher education system should also promote even higher levels of demand for study-abroad experiences, and generate greater potential for richer and deeper partnerships and exchanges between Chinese and Canadian universities.<sup>49</sup>

In India, population projections reveal that the number of youth in the 18-to-24 age range will grow by some 10 million between 2010 and 2020.<sup>50</sup> Ernst and Young,<sup>51</sup> working with India's University Grants Commission, projects that higher education enrolment in India will grow from 13.6 million students in 2008 to 22.1 million by 2020. Population growth will drive some of the anticipated enrolment growth in student numbers during that period, with the vast majority of the growth arising from expanded access and increased participation rates. The National Knowledge Commission, an advisory body to the Prime Minister of India, was given the mandate in 2005 to guide policy and direct reforms, focusing on key areas such as education, science and technology, agriculture, industry and e-governance. In 2006, the commission estimated that India would need to create an additional 1,500 universities by 2015 to create adequate capacity in order to achieve enrolment levels comparable with most developed countries.<sup>52</sup> Despite strong enrolment growth and the creation of many new universities, India has not been able to achieve the targets set out in its action plan. Even with growth in the supply of spaces domestically, the University Grants Commission and others<sup>53</sup> are projecting that the number of students studying abroad will continue to grow over the coming decade.

While China and India currently comprise about 26 percent of our full-time international students, Canada's universities attract international students from some 200 countries. Prospects for attracting international students are not solely dependent on changes in participation within China and India. It will also be increasingly important to develop deeper relationships with other emerging economies, like Brazil.

University enrolment in Brazil more than doubled from 2.4 million students in 1999 to 5.4 million students in 2008, and the potential for increasingly rapid growth in demand for education exists in the medium and longer term. Currently, lack of capacity prevents

the majority of youth from completing secondary school. However, as Brazil continues to expand and enhance its elementary and secondary school systems, the demand for university education is expected to grow, particularly given that there is no projected decline in Brazil's youth population, as in China.

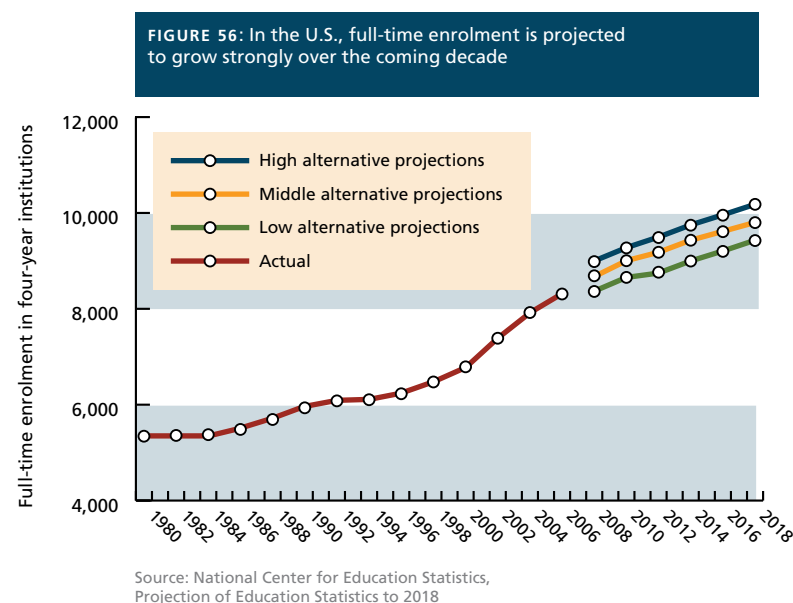
As the economy in Brazil expands, it is expected that more and more Brazilian students will also recognize the value of study-abroad experiences. Relatively few Brazilian students are currently studying outside Brazil; approximately 20,000 out of more than five million domestic students. This is a far smaller share than is typical in several other developed nations and emerging economies.

The scale of potential enrolment growth in emerging economies such as China, India and Brazil are very different than those in developed nations like Canada, the U.S., Australia and most of the E.U. To meet the rapid changes taking place in their economies and resulting demand for university graduates, emerging economies are projecting far higher increases in university participation rates in the decade ahead. Moreover, most developed nations are also projecting enrolment and participation rate increases in the coming decade.

The U.S. was the first country to provide broad access to degree programs. As a result, it has for many years had a competitive advantage in the proportion of the population that has completed a degree. This is confirmed by the OECD which shows there are far more university graduates in the U.S. population between the ages of 45 and 64 than in other developed nations. However, this “degree advantage” is eroding among younger age groups. During the 1980s and 1990s, enrolment grew at a much slower pace in the U.S. than in many other countries: full-time enrolment in four-year institutions increased by just 11 percent in the 1980s and 14 percent in the 1990s. Despite a 31 percent enrolment increase over the last decade, the U.S. now sits tied in seventh place in terms of the proportion of

youth aged 25-to-34 with a university degree, and many other nations are biting at its heels.

Based on past patterns, the National Center for Education Statistics<sup>54</sup> projects that between 2007 and 2018, full-time enrolment in four-year U.S. universities and colleges (public and private) will increase by between 10 and 19 percent. These projections are driven mostly by increases in participation rates in the youth cohorts, and by some limited increases in enrolment driven by population growth, especially between the ages of 25 and 34.



These projections do not include the impact of the recession (which drove a nine percent enrolment increase in the U.S. from 2007 to 2009 alone). Nor do they include the kind of growth proposed by many national organizations<sup>55</sup> in the U.S., including, most prominently, the recent goal set by President Barack Obama to have the U.S. lead the world in higher education in educational attainment by the year 2020. Observers in the U.S., from the Lumina Foundation





to the American Council on Education to the most recent State of the Nation Address by the President, are calling for dramatic increases in enrolment and completion of higher education to enable the country to compete more favourably with developed nations and emerging economies in the global knowledge economy.<sup>56</sup>

President Obama has proposed several ways to make this happen, including increasing the grant aid available through needs-based postsecondary federal grant program, and increasing income-tax credits for tuition costs. Part of the fiscal stimulus package already provided by the federal government to the state governments in response to the recession has helped to offset cuts in operating support for universities and colleges. However, even when combined with the stimulus support, there are still a dozen states in the U.S. where state support to public postsecondary institutions is expected to be 10 to 23 percent lower in 2010-2011 than in 2007-2008. The capacity of institutions to meet expected growth in demand may be threatened without alternative funding streams.

Meanwhile in Australia, in 2008 the government initiated a review of higher education to examine the future direction of the sector, its fitness for the purpose of meeting the needs of the Australian community and economy, and the options for ongoing reform. The review was conducted by an independent expert panel, led by emeritus professor Denise Bradley.<sup>57</sup>

The Bradley Review concluded that, to meet future labour market demand, university degree completion within the population of youth 25-to-34 years-old would need to grow from 32 percent in 2007 to 40 percent in 2025. To reach this goal, Australia's universities would need to expand capacity by some 40 percent to accommodate an additional 284,000 students, beyond the 716,000 full-time students who were enrolled in 2006, (the base year for that study). To achieve this degree completion target, Australia would need to increase domestic enrolment, continue to attract relatively large numbers of foreign students, and increase the

number of immigrants who have completed university degrees. On the enrolment front, while growth in the Australian youth population is projected to drive a 14 percent increase in enrolment demand, most of the projected growth would need to come from increases in university participation rates. At current participation levels, population growth would generate demand for about 105,000 spaces, meaning that participation growth would need to generate an additional 180,000 students.

As part of their 2009 budget, the Australian government announced it will provide an additional \$5.4 billion (AUD) to support higher education and research over the next four years. This increase in funding is designed to support high quality teaching and learning, improve access and outcomes for students from low socio-economic backgrounds, build new links between universities and disadvantaged schools, reward institutions for meeting agreed-upon quality and equity outcomes, improve resourcing for research and invest in world-class tertiary education infrastructure.<sup>58</sup>

In Europe, demographic projections are raising concerns about the impact of declining youth populations on university enrolment. Most of the countries in the EU-27 will see population in the key 18-to-24 age range decline over the coming decade, some by more than 20 percent by 2020. However, plans proposed by the European Commission in its Europe 2020 Strategy counter the impact of the decline in population. The plan identifies five ambitious objectives (employment, innovation, education, social inclusion and climate/energy) to be achieved by 2020. In the area of tertiary education, the Europe 2020 Strategy calls for 40 percent of 30-to-34 year-olds in the E.U. to have completed a postsecondary degree or diploma (up from 31 percent in 2008) by 2020.<sup>59</sup>

For example, Germany is planning for enrolment increases despite significant population declines. In Germany, the number of people in the 18-to-24 age cohort is expected to decline by 15 percent by 2020.<sup>60</sup> Yet, the German Federal Ministry of Education and

Research is projecting an increase of 275,000 new students by 2017. To facilitate this growth, the German federal government and the Länder (state governments) recently renewed the Higher Education Pact, an agreement created to cope with the increasing number of students. In the second phase of this agreement, the federal government will provide five billion EUR (\$6.95B CAD) to universities to expand capacity and make way for an additional 275,000 new entrants expected between 2011 and 2017. In addition, the federal government is investing 2.7 billion EUR (\$3.75B CAD) over five years from 2012 to 2017 through the German Excellence Initiative to promote outstanding science and research, and another, five percent annually to the base in university research. The federal government and the state governments have agreed to ensure further funding for the quality of teaching over the next 10 years.<sup>61</sup>

According to the German Federal Ministry of Education and Research, the primary rationale for these investments is “[a] first-rate research landscape and highly qualified professionals are key factors for a country’s social and economic development. Universities play a particularly important role in securing Germany’s future. As the central institutions of our research system, they are the drivers of knowledge acquisition. At the same time, they provide qualifications for young scientists. Demand for university graduates in the labour market is growing and will continue to grow in future.”<sup>62</sup>

In France, enrolment in higher education increased<sup>63</sup> by 23 percent in the 1990s. During the last decade the pace of growth has been more moderate at about nine percent over the period. Although the 18-to-24 population is expected to decline by five percent by 2017 and rebound quickly to 2010 levels by 2023,<sup>64</sup> the ministère de l’Enseignement supérieur et de la Recherche anticipates that enrolment will increase by about five percent between 2009 and 2019. Part of this growth will be encouraged through the government’s announcement of the “grand emprunt”, a 35-billion EUR stimulus package intended to boost the country’s long-term competitiveness. This initiative will provide funding for high

priority areas including higher education and research. An estimated \$11 billion EUR (\$15.29B CAD) will be invested to improve the quality of higher education and eight billion EUR (\$11.12B CAD) for research.<sup>65</sup>

The U.K. anticipates a 13 percent decline in the 18-to-21 year-old population between 2010 and 2020. However, this youth cohort will rebound in the subsequent decade, resulting in a small net growth by 2036 over current levels, a slightly longer time frame than Canada.<sup>66</sup> Like most developed nations, the U.K. is expecting growth in university participation rates to meet labour market demands.<sup>67</sup> A study by the Higher Education Policy Institute noted that there is unmet enrolment demand in England. The proportion of applicants failing to receive an offer from institutions has grown from six percent in 2003 to 14 percent in 2010 and is expected to continue to grow in the foreseeable future. HEPI projects that demand could grow by as much as 10 percent from 2008 to 2020.<sup>68</sup>

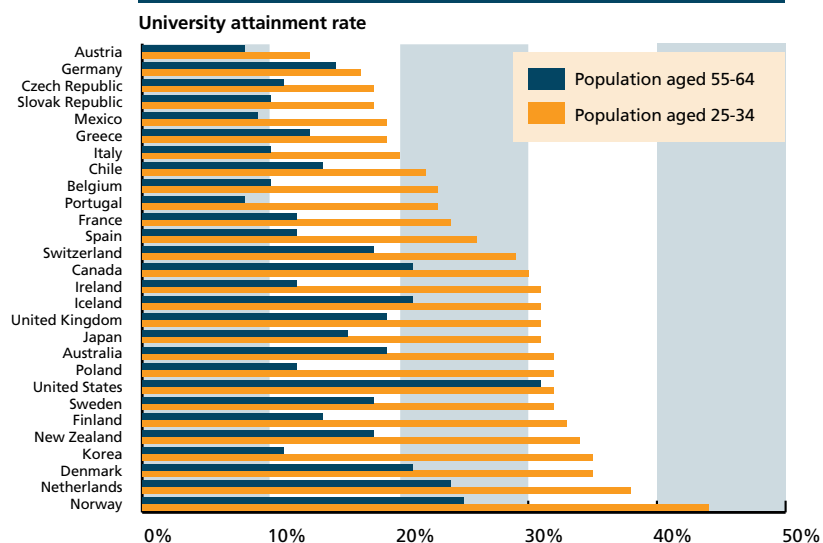
However, major funding policy changes in England make it very difficult to project enrolment levels over the coming decade. The Browne Review of Higher Education Funding and Student Finance released its findings in October 2010.<sup>69</sup> The Review recommended a radically different fee regime, which the government is now implementing. Most students commencing study in England in 2012 will face a two- to three-fold increase in the cost of their tuition, from about \$6,000 CAD to between \$12,000 and \$18,000 CAD. Students will continue to be able to borrow to cover these tuition costs and will only begin to repay once their post-graduation income exceeds (\$33,600 CAD). Given the sudden and significant changes in tuition fees, it is not yet possible to determine their impact on enrolment demand. In their most recent report, HEPI notes that they are not yet able to quantify the impact of the tuition change on enrolment demand.



## What about Canada?

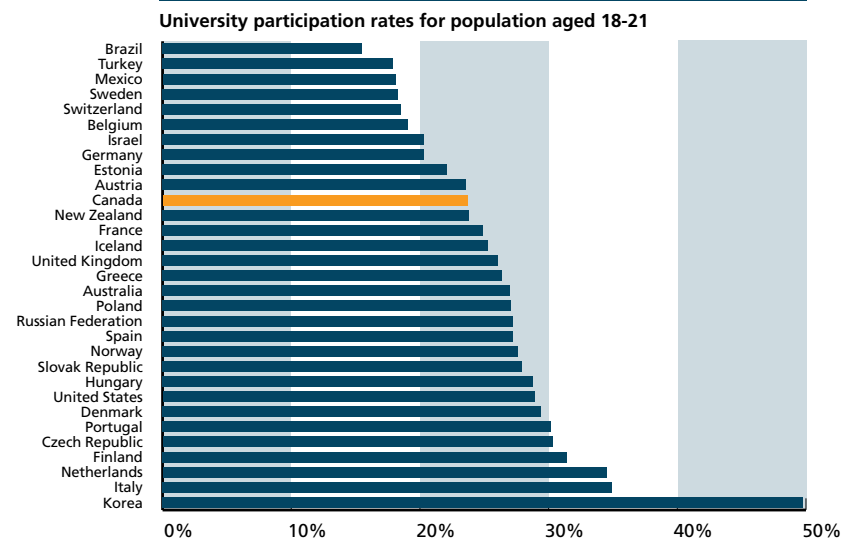
Many reports, including those of the OECD, show Canada as having the highest postsecondary attainment rate in the world. This enviable position is achieved because Canada's labour-force survey data indicates that Canada has a significantly larger proportion of college graduates than the vast majority of OECD countries. According to the OECD, Canada has about three times more postsecondary non-university graduates than is typical for other OECD countries, and proportionally far more trade and vocational graduates.<sup>70</sup> It is clear that Canada has chosen to invest more at the college level than most other developed nations.

**FIGURE 57: Canada's rank has fallen from 4<sup>th</sup> to 15<sup>th</sup> – our competitive advantage is eroding**



Source: AUCC estimates using OECD data, 2008

**FIGURE 58: In 2008, university participation rates in Canada significantly trailed those of many other countries**



\* Four-year age cohort with highest enrolment  
Source: AUCC estimates using OECD data, 2008

By contrast, other countries have chosen to grow their university systems to a greater extent than in Canada. Thirty years ago, Canada was a leader among OECD countries in university attainment. For example, if we examine adults aged 55-to-64, Canada ranks fourth among the OECD. In 2008, university attainment rates for the cohort aged 25-to-34 placed Canada 15<sup>th</sup> among OECD countries. Canada falls further when we measure university participation rates for the proportion of youth who enroll in full-time university study soon after leaving their respective secondary school systems, placing 21<sup>st</sup> among 31 countries.

Canada's attainment advantage is eroding: in the coming decade, Canada risks falling still further behind competitor countries. The preceding examples from the U.S., Britain, Australia and the E.U. illustrate that many of our peers are taking action to encourage even more growth in university participation over the coming decade.

Meanwhile, emerging economies such as Brazil, India and China are experiencing tremendous enrolment and participation growth. These countries are making investments to meet their rapidly increasing demand for university enrolment. They are closing the gap in participation rates with Canada.

So what does this mean for Canada? The expansion of higher education systems around the world is a response to major changes taking place in the global knowledge economy. The global competition for skilled and talented workers will continue to drive enrolment demand in the coming decade.

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"The labour force of the 21<sup>st</sup> Century must have highly educated and trained workers – no one can be left behind. Canada's economy needs more new apprentices and more committed employers to produce a professional and skilled workforce in the trades and to help ensure employers have access to the skill supply they need. Access must be improved for the many Canadians who have been traditionally disadvantaged and underrepresented in both postsecondary education and employment."

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"In the modern global economy, the most successful nations are those that best combine people, skills, new ideas and advanced technologies to create a competitive edge. Canada must be well positioned to succeed in this new environment."

"In support of its commitment to postsecondary excellence, Budget 2007 proposes to increase the Canada Social Transfer by \$800 million per year. This increase will take effect in 2008-2009, allowing discussions with provinces and territories on how best to make use of this new investment and ensure appropriate reporting and accountability to Canadians. It will grow at three per cent per year thereafter. This represents a significant increase in support for postsecondary education and will give provinces and territories the increased resources they need to maintain and strengthen Canada's universities and colleges. It will help ensure that Canada's postsecondary education system meets the needs of Canadians and contributes to Canada's future economic and social success.

"This funding will strengthen Canada's universities and colleges by supporting the objectives of improving the quality of teaching and learning, providing better access for under-represented groups, renewing institutional capacity at the undergraduate and graduate level – supported by first-rate infrastructure and investments in research and development – and improving the flexibility

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