2021

The State of Postsecondary Education in Canada

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About This Series

Despite having one of the world's more advanced and high-quality systems of higher education, Canada has never been blessed with easily available, up-to-date and easily digestible data on its postsecondary sector. The purpose of this series from Higher Education Strategy Associates is to change that.

Canada's higher education data challenges stem in part from the decentralized nature of our federal system, but in truth, Canadian governments and statistical agencies simply do not care about producing high-quality data on education the way some other countries do. Our data on community colleges in general is weak. Though our data on institutional finances is as good as any in the world, data on employees (in particular non-academic ones) is scant, comprehensive data on student assistance is essentially non-existent, and data on students and graduates take an inordinately long time to appear (data on international students, for instance, routinely take three to four times as long to appear in Canada as they do in the US, the UK, or Australia).

This series is not the first attempt to present this kind of data on a national basis. Until 2016, the Canadian Association of University Teachers (CAUT), for instance, put out an invaluable annual "almanac" which was good if university centric. However after a brief attempt to keep the almanac updated in a set of online tables, it has essentially ceased to exist. Universities Canada has over the years put together some good publications on the state of the system, but these have become rarer as of late and in any case also largely miss the colleges and polytechnics. The Council of Ministers of Education, Canada (CMEC) has an irregularly-published system of "Education Indicators" but these are more focused on education as a whole rather than on postsecondary and are largely tabular in format and provide very little in the way of more intuitive graphics. Statistics Canada produces a great deal of data (though usually not very promptly), but does very little to help people interpret it.

It was for this reason that Higher Education Strategy Associates decided in 2018 to produce an annual publication called "The State of Postsecondary Education in Canada", modelled on a set of publications (now sadly discontinued) produced by Andrew Norton and his colleagues at the Grattan Institute in Melbourne entitled "Mapping Australian Higher Education". This 2021 edition updates data from the previous editions, including detailing trends in student and staff numbers, how the system is financed, and graduate outcomes. A small amount of new data has been included with respect to student mobility inside Canada.

We hope that by putting all this information in a handy and convenient format, and providing some accompanying narrative, that we can help improve the quality of public dialogue on postsecondary education policy issues. As always, comments or suggestions about how to improve the publication for future years will be gratefully received. Email us at info@higheredstrategy.com.

We wish to thank our sponsors: ApplyProof, WES, Mitacs and Pearson for helping to keep this publication free.

Museum of Anthropology at the
University of British Columbia, Vancouver, BC

Table of Contents

List of Figures

List of Tables

University of British Columbia,
Vancouver, BC

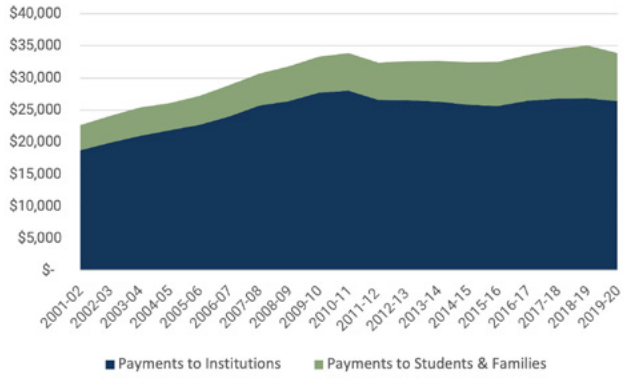
Introduction

One of the challenges of writing almanacs for Canadian Higher Education in times of significant upheaval, such as COVID-19, is the unreasonable length of time it takes for Canadian institutions – in particular Statistics Canada – to produce usable data. Though we have all been living with COVID for over 18 months at the time of writing and at least one institution (Laurentian University) has gone bankrupt partially due to COVID, we have very little hard data about what has happened in Canada, either in terms of enrollments or finances. At the time of writing (late August 2021), most Statistics Canada sets for postsecondary education go not further than the 2018-19 school year; and full data for 2020-21 will not be available until around Christmas 2022. This makes the challenge of writing a specific introduction – the one you are currently reading - about Canadian postsecondary education in the wake of COVID – considerable.

So instead of looking at the recent past, let us take a longer view to get a sense of what the long-term picture for higher education is, both in Canada and abroad.

Figure 1 shows total government expenditure on higher education in Canada over the past 20 years. As this report has document in previous years, Canada hit peak funding of higher education institutions a decade ago, in the counter-cyclical spending boom that accompanied the Great Financial Crisis of 2008-2010. But as spending on institutions plateaued or even declined, spending on students, though student aid programs of various varieties of non-repayable aid (grants, loan remission, tax credits and Canada Education Savings Grants), continued to increase. In fact, as Figure 2 makes clear, while payments to institutions have been rock

Figure 1 — *Total Canadian Government Expenditures, in Millions*



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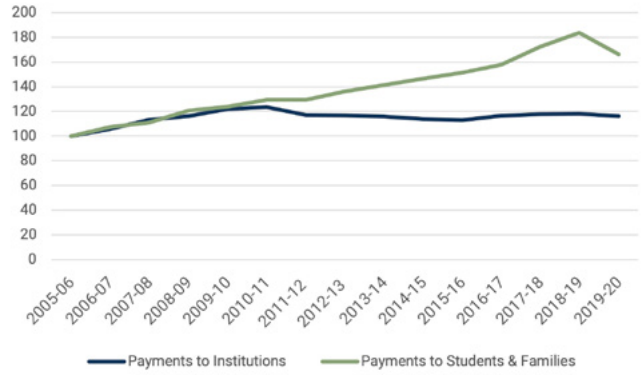
Vancouver, BC

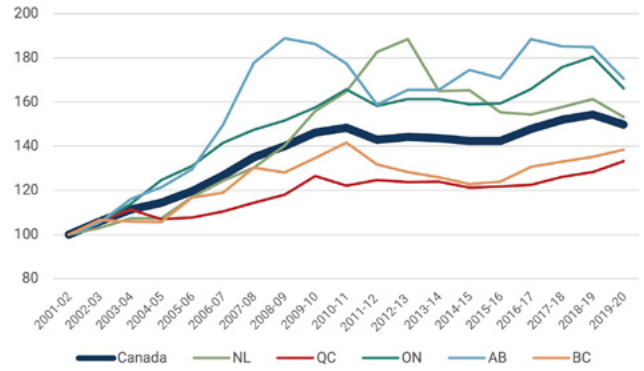
steady since 2010-11, payments to students in constant dollars soared 80% over their 2005-06 levels in 2018-19, before falling back somewhat due to significant cuts to student aid by the Ford government in Ontario.

Figure 2 *— Change in Real Public Expenditures by Type, Canada, 2001-02 to 2019-20 (2001-02 = 100)*



These patterns look somewhat monotonous at the national level, but as one digs deeper to the provincial level, significant fluctuations emerge. Quebec and British Columbia had the slowest growth in total higher education spending among major provinces – just 33% and 38%, respectively since 2001-02; most provinces saw increases of between 42-52%. The two provinces with growth rates significantly higher than the national average since 2001-02 were Alberta, which had super-charged growth between 2004 and 2008 and did not really begin to fall until 2019 when the Kenney government decided to bring expenditures closer to the national average, and – perhaps surprisingly – Ontario, where the anomalously high figure was driven almost entirely through higher student aid spending during the years that Kathleen Wynne was in power.

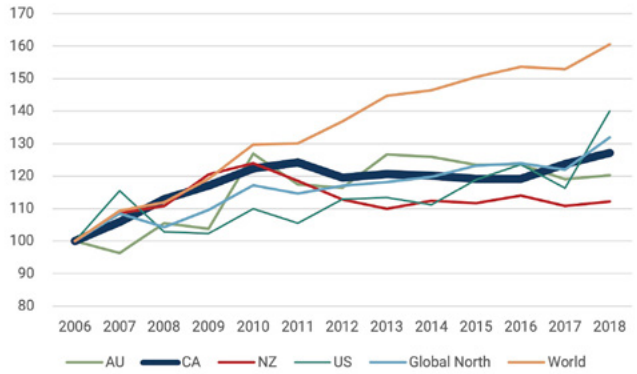
Figure 3 *— Change in Real Total Public Spending 2001-02 to 2019-20, Selected Provinces (2001-02 = 100)*



The good news is that some of the long-term laggards in PSE spending (notably Quebec and British Columbia) are increasing their spending. But counteracting that is the decline of public spending in both Alberta and Ontario, neither of which seems likely to increase in the near future. Those two countervailing trends suggest that nationally, the steady-state of public spending of the past decade was likely to have continued even had COVID not hit.

Is Canada substantially different from other developed countries? Are there other public funding models out there ready to be plucked? Data from Higher Education Strategy Associates' forthcoming *Global Review of Higher Education: Institutions, Students and Finances* suggests not. Figure 4 compares changes in public higher spending on higher education in Canada, the US, Australia and New Zealand, as well as broad averages based on a survey of 56 countries making up over 90% of global enrollments and for the "Global North". This group includes the four countries listed in Figure 4, Europe including all the ex-USSR, plus Israel, Japan, South Korea, Taiwan, Singapore and Hong Kong. Ignoring the significant fluctuation in the US numbers (a product of the somewhat eccentric way that they account for student loan losses), what we see is that Canada's experience is very similar to other countries and indeed almost identical to the overall average of the Global North: some growth through to about 2010 and then achingly slow progress (if that) thereafter. Outside the Global North, different outcomes seem to be possible: the world average is up about 60% because in the Global South total spending on higher education more than doubled in real terms between 2006 and 2018. But this is largely a function of faster rates of growth from a lower base: among more developed countries with common challenges of slow growth and aging populations, there simply does not seem to be much in the way of alternative models for Canada.

Figure 4 *— Public Funding of PSE, Select Countries (2006 = 100)*



Simon Fraser University,
Burnaby, BC

Chapter One / Learners

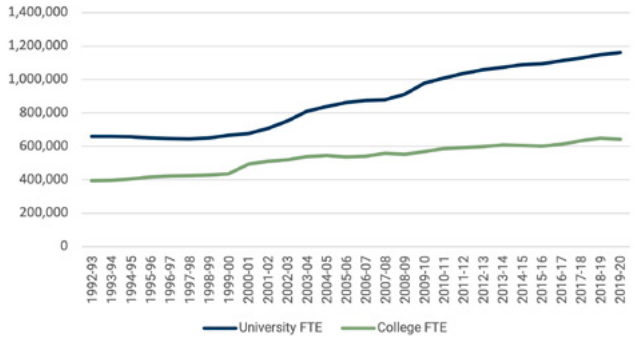
Over 2.5 million individuals are enrolled in universities, colleges and apprenticeships. This represents roughly 6.7% of the entire population, a figure that is almost equivalent to the population of the four Atlantic provinces put together, or the combined workforces of the construction and manufacturing industries. This chapter provides a high-level overview of where these students are and what they study.

1.1 ENROLLMENT TRENDS IN POSTSECONDARY EDUCATION

Enrollments in universities and colleges have been rising steadily in Canada since the turn of the century. Throughout the 1990s, total enrollment (full-time and part-time) was relatively consistent, hovering between 1.3 and 1.4 million students. After 1999, numbers began to increase again until they touched 2 million in 2011-2012, at which point growth slowed until around 2016, when a surge of international student enrollment began pushing numbers up. In 2018-19, the last year for which Statistics Canada can provide complete enrollment data, the reported total headcount enrollment was just under 2.16 million. While individual colleges do not publish enough data to project enrollment past this point, most universities do. Based on institutional data, universities have grown approximately 2.1% between 2018-19 and 2020-21, reaching 1.39 million total enrollments.

Figure 1.1 shows changes in full-time equivalent (FTE) enrollment in Canada's universities and colleges.[1] As of 2019-20, there were just over 1.8 million FTE students in Canadian PSE institutions, with a little over one-third enrolled in colleges and just under two-thirds in universities. Since the turn of the century, enrollments have been growing more quickly in universities than in colleges, though this is in part due to the conversion of several institutions in Alberta and British Columbia from college to university status.

Figure 1.1 *— Full-time Equivalent Enrollments by Sector, 1992-93 to 2019-20*



Canadian provinces differ vastly in size, and so too do their provincial systems of higher education. But comparing provincial enrollments can still bring surprises. For example, New Brunswick is 47% larger than Newfoundland in population, but its postsecondary sector is only 14% larger; similarly, Nova Scotia's population is 22% larger than New Brunswick's, but its postsecondary population is roughly twice as large. Ontario has the country's most outsized university system, making up roughly 43% of total seats (compared to just 38% of the country's population). Quebec, with just 22% of the population, has over 30% of the college students, due mainly to the CEGEP system's status as a pre-requisite to university study (see **Appendix A** for more on this system).

Table 1.1 *— Full-time Equivalent Enrollments by Sector and Province[2], 2019-20*

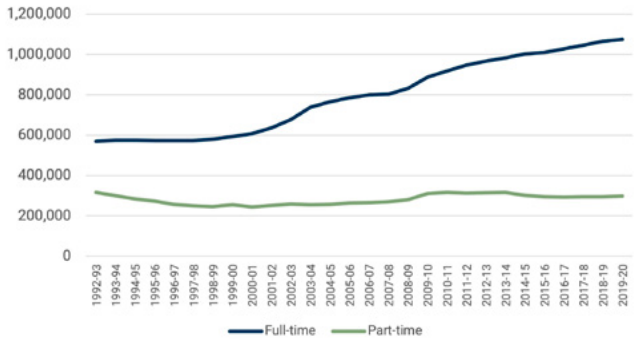
	UNIVERSITIES	COLLEGES	TOTAL
Newfoundland	16,039	5,314	21,353
Prince Edward Island	4,348	2,652	7,000
Nova Scotia	40,867	8,459	49,326
New Brunswick	17,289	7,492	24,781
Quebec	242,122	196,642	438,764
Ontario	496,937	281,436	778,373
Manitoba	41,682	12,165	53,847
Saskatchewan	35,049	13,514	48,563
Alberta	125,674	51,925	177,599
British Columbia	142,044	61,157	203,201
Territories	0	2,221	2,221
Canada	**1,162,052**	**642,977**	**1,805,029**

1.2 ENROLLMENT TRENDS IN UNIVERSITIES

Turning specifically to university students, the first decades of the 21st century look very different than the last decade of the 20th. In the late 1990s, full-time enrollment was essentially flat. Part-time enrollment declined somewhat during the same period, following a period of expansion in the 1980s when professions such as nursing and teaching began retroactively requiring practitioners to hold bachelor's degrees, which they mainly attained through part-time study. Stagnant full-time enrollments during the 1990s were partly a product of demographics, but they were also the result of repeated provincial cuts to university grants, which led to capacity issues and a reluctance on the part of institutions to admit more students.

From about 2000 onwards, growth — a constant for most of the post-war period — resumed, so that by 2020-21, full-time enrollments were 79% higher than they were in 2000-01. In part, this increase was due to demography: by the late 1990s, the children of the baby-boomers (the so-called "baby boom echo") started to flood into postsecondary education and increase the size of the potential cohort. In addition, demand for higher education increased due to technological change. Accommodating those twin pressures — higher demand and a growing youth cohort — required some extraordinary measures. Two events stand out: the first was the Ontario government's decision to end the system of Ontario Academic Credit (which, in practice, was a 13th grade of high school) in 2002, creating a "double-cohort." Funding was granted to enlarge its universities, not only to accommodate the one-time system growth, but to permanently expand capacity as well. The second was the decision of the provinces of Alberta and British Columbia to expand their postsecondary systems by transforming some former community colleges into universities.

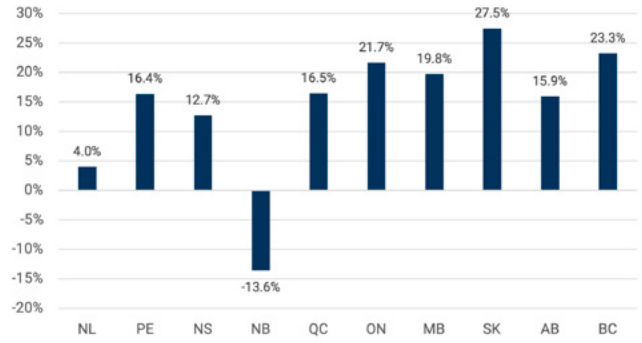
Figure 1.2 *— Full- and Part-Time Students in Canadian Universities, 1992-93 to 2020-21*



However, growth in university enrollments this decade has not been universal. In the Atlantic provinces, where there has been a significant drop in youth population, growth in enrollments has been much lower than in the rest of the country. It would be lower still were it not for significant increases in international student enrollments. New Brunswick, unlike every other province, has seen a significant drop in overall enrollments. Further west, Ontario has seen an increase in student numbers of over 20% and Saskatchewan nearly

30%. Growth has been slower in Alberta (14%) and Quebec (7%), and in the latter, enrollments have started to shrink over the last three years.

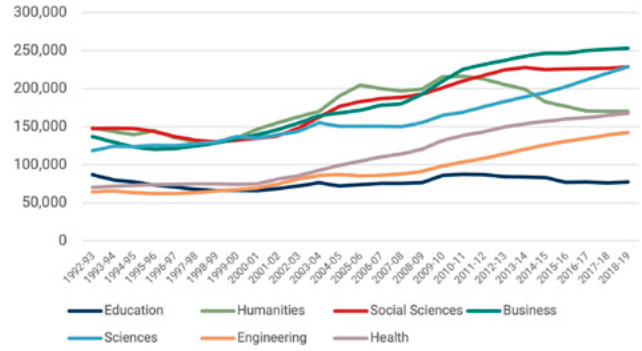
Figure 1.3 *— Change in FTE University Enrollments by Province, 2009-10 to 2019-20*



1.2.1 FIELDS OF STUDY

Figure 1.4 looks at changes in university enrollments by field of study. In the 1990s, when total enrollment was declining due to reductions in the number of part-time students, enrollments fell in Business, Science, Humanities, and Social Sciences. Starting at the end of the 1990s, nearly all fields of study began to grow at roughly similar rates. The exception was Education; due to falling birth rates in the late 80s and early 90s, the education systems began to require fewer teachers and universities adapted by limiting enrollments to teacher training programs. This trend of growing enrollment in most fields of study continued until 2010 or so, when Humanities enrollments began falling while other fields continued to increase. Between 2009-10 and 2018-19, enrollment in Humanities was down by 21%, while Business increased by 21%, Health by 27%, Science by 38% and Engineering by 44%.

Figure 1.4 *— University Enrollments by Major Field of Study, 1992-93 to 2018-19*

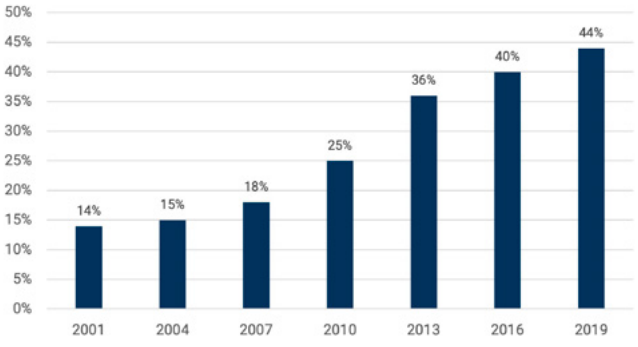


1.2.2 STUDENT DEMOGRAPHICS

With the exception of a brief interlude in the 2000s when it twice ran a survey called the "Postsecondary Education Participation Survey", Statistics Canada has never really tried to measure anything about the Canadian student population. This absence leaves us with neither administrative data nor fully comprehensive survey data on anything providing demographic information on the student body with respect to ethnicities, disabilities, or family socio-economic background. But this does not mean that we know nothing about the composition of the student body. Every year, the Canadian Undergraduate Survey Consortium carries out a survey across a large number of Canadian campuses, alternating on a three-year schedule between first-year, middle-year and final-year students. While the sample from this survey is biased (it gets higher participation from smaller institutions and does not have high participation in Quebec), it is the best national source of data on student characteristics.

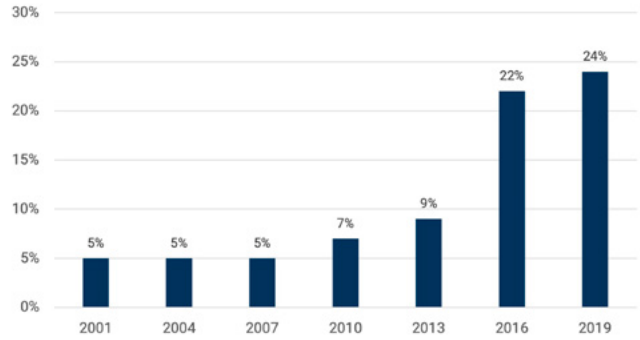
Perhaps the most interesting finding from the Winter 2019 survey of first-year students is that 44% described themselves as being a "visible minority", which is more than triple the number of those who did in 2001. Even if we exclude all those who say they are international students (not all of whom are visible minorities), the figure is still 35%. Partly, this change reflects the country's changing ethnic composition, but it also reflects the fact that visible minorities are more likely to go to school than other Canadians. Consider that among Canadians aged 15-24 at the time of the 2016 census, only 27% indicated they identified as a visible minority; with somewhere between 35-44% of domestic students claiming the same, that suggests an over representation of between 30-60%. Very few other countries can say anything similar; normally, minority populations are much less likely to attend university than the visible majority.

Figure 1.5 *— First-Year Students by Visible-Minority Status, 2001-2019*



Another significant shift over time is in the proportion of students who self-report having a disability/impairment. Between 2001 and 2013 this figure crept up from 5 to 9% — whether because more students with disabilities were accessing education or because of a reduced stigma in disclosing disabilities (or both) is impossible to determine. In 2016, the wording of this question changed to explicitly include mental health issues and the proportion of self-reporting students shot up to 22% and rose again to 24% in 2019. More than half of these students indicated that they had a mental health issue.

Figure 1.6 *— First-Year Students Reporting Disability, 2001-2019*



1.2.3 INTER-PROVINCIAL STUDENT MOBILITY

The proportion of Canadian university students who move provinces to study is relatively low – roughly 8.5%, a rise of about two percentage points since the early 1990s. Generally speaking, movement into and out of provinces is inversely correlated with size. In the three Maritime provinces, over one in four Canadian students is from another province (in Nova Scotia, much of this inflow is from Ontario; in New Brunswick and Prince Edward Island it tends to come from the other Maritime provinces). Conversely, in Ontario and Quebec, the proportion of out-of-province students is closer to one in twenty.

Figure 1.7 *— Net Inflows of Undergraduate Students from other Canadian provinces, by Province, 2018-19*

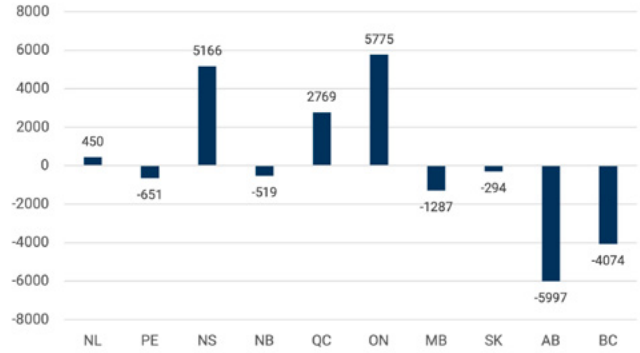


Figure 1.7 shows the net inflow across all ten provinces. In absolute terms, the largest net recipient of students is Ontario, with 5,775 more students arriving than departing to other provinces. In relative terms it is Nova Scotia which is by far the largest importer. Conversely, Alberta is the largest net loser in terms of student numbers, sending nearly 11,000 students to other provinces (mainly British Columbia and Ontario) while only attracting 5,000, but in relative terms Prince Edward Island is the largest net exporter, losing a net 650 students to other provinces (mainly Nova Scotia).

1.3 ENROLLMENT TRENDS IN COLLEGES

College enrollment has increased substantially over the past two decades, at rates roughly similar to those seen at universities. However, data collection on the college side is less reliable and Statistics Canada has changed the way it counts vocational education students, so some of the increases may represent statistical artifacts rather than real change. Nevertheless, the increase on the college side is significant when one considers that many tens of thousands of college students were removed from the college count in Alberta and British Columbia when several institutions changed status from college to university.

Figure 1.8 *— Full- and Part-Time Student in Canadian Colleges, 1992-93 to 2019-20*

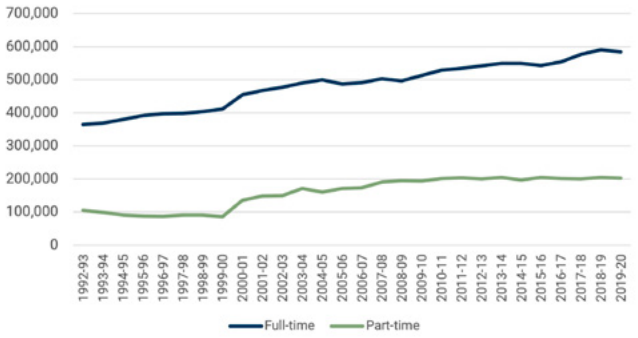


Figure 1.9 shows changes in college enrollments by province over the past ten years. The three biggest gainers — Prince Edward Island, Manitoba and the Territories — are all statistical anomalies, and the figures appear to be reflections of changes in the way Statistics Canada counts college students rather than actual evidence of expansion (though there has undoubtedly been some growth in each jurisdiction). Elsewhere, rates of growth and decline have been more modest. In Alberta, enrollments fell, but this has to do with the aforementioned fact that many institutions switched categories and went from being colleges to universities.

Langara College,
Vancouver, BC

The 29% fall in enrollments in Newfoundland is largely (but not solely) due to demographic factors, particularly outside the Avalon peninsula. Ontario's strong rise is partially due to a major expansion of post-bachelor level programming, but also, due to increasing international student enrollment over the last six years.

Figure 1.9 — *Change in College Enrollments by Province and Territories, 2009-10 to 2019-20*

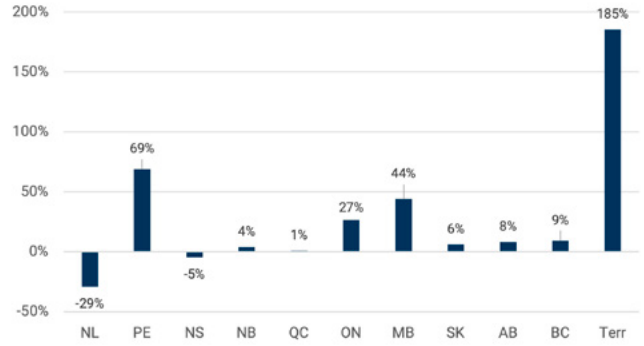
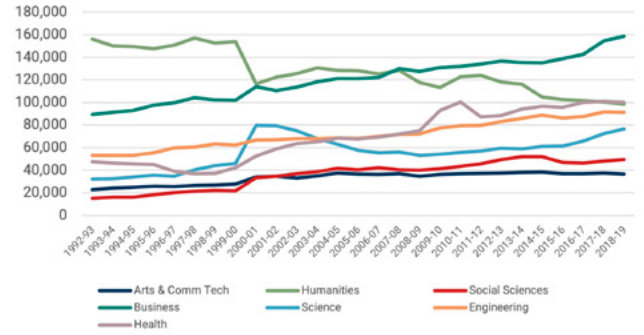


Figure 1.10 shows enrollments in colleges by field of study. As in universities, "Business" studies is the largest single category, and some of the most important long-term growth has come in Engineering and Health. One element of this figure, which may surprise people who are used to thinking of colleges as technically-oriented, is the large (albeit declining) proportion of enrollments in the Humanities. That is due in no small part to the unique nature of Quebec colleges: a very large proportion of those students headed to university in that province (via the CEGEP system) are enrolled in programs labelled as "Humanities".

Figure 1.10 — *College Enrollments by Major Field of Study, 1992-93 to 2018-19*

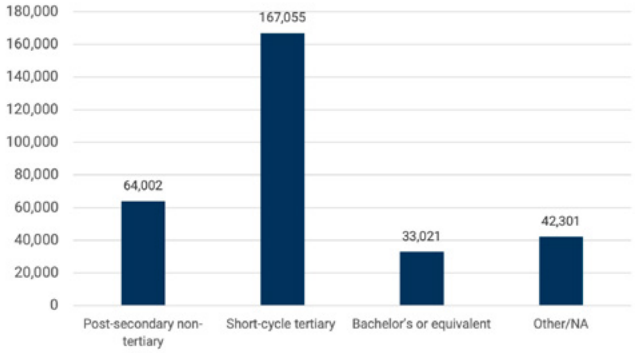


Because Polytechnics (see *What is a Polytechnic* in **Appendix A**) are not an official category of institution, we have no official count for students at these institutions as a class.

However, based on their submissions to Statistics Canada, these 13 institutions reported a headcount enrollment of 264,078 postsecondary students (full-time equivalent enrollment of 217,758) plus another roughly 42,000 students who are not studying at a postsecondary level (classified as "upper-secondary" or "not applicable" by Statistics Canada). 96% of these enrollments would be considered college enrollments by Statistics Canada, while only 4% (those from Kwantlen Polytechnic University in British Columbia) would be counted as university students. The thirteen self-described Polytechnics thus enrol 41% of all college students in Canada, and 60% of all college students outside Quebec.

Polytechnics educate students at a variety of levels. In addition to "postsecondary non-tertiary" — what the United Nations Education, Scientific and Cultural Organization (UNESCO) and calls the International Standard Classification of Education (ISCED) Level 4 and "short-cycle tertiary" (ISCED Level 5) — they also teach about 33,000 students, or 12.5% of the postsecondary total, at the bachelor's level or above.

Figure 1.11 — *Polytechnic Enrollments by Level of Education, 2018-19*

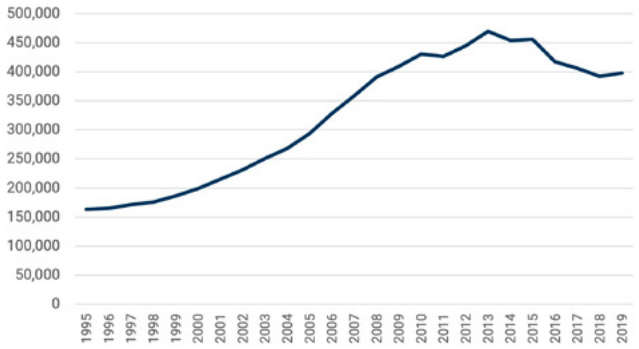


1.4 APPRENTICESHIP ENROLLMENTS

Apprentices are considered postsecondary learners, but they are not enrolled in postsecondary institutions, per se. Their enrollment as apprentices merely means that they have a contract with an employer in which both sides agree the apprentice will follow a particular course of learning and will periodically attend in-class training (see *Apprenticeships* in **Appendix A**). Apprentice numbers were very low in the mid-1990s, reflecting a roughly 15-year trough in commodity prices and a generally weak Canadian economy. However, from the late-90s onward, the national economy grew more rapidly, inducing an expansion of employment in construction and necessitating the creation of many new apprentice positions. The decade-long run-up in commodity prices also created new demand for apprentices, particularly in Western Canada, in trades related to construction and resource

extraction. The result was a rise in the number of apprentices, from 175,000 in 1997 to a peak of approximately 450,000 in 2013. Since then, apprenticeships have dropped to around 400,000 annually.

Figure 1.12 *— Apprenticeship Enrollments: 1995-2019*



Despite the recent slow-down of several sectors of the resource extraction economy, the decline in apprentice numbers has been relatively muted, falling by 12% to 392,000 in 2018, before stabilizing and recovering slightly. It is possible that this has something to do with companies being more far-sighted and keeping apprentices on during a downturn rather than letting them go to cut costs. However, it is more likely that it has to do with the way apprentices are counted: New apprentices are registered right away because they submit forms, while individuals leaving apprenticeship positions are documented neither completely nor quickly.

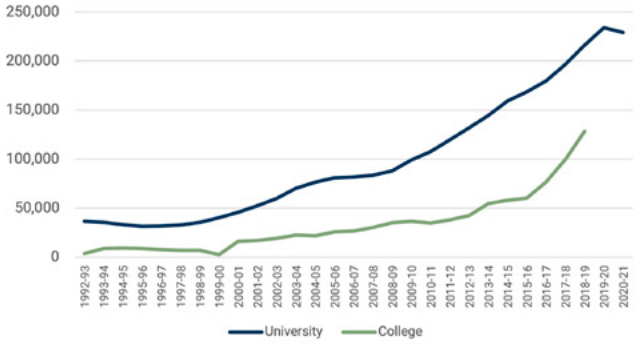
Table 1.2 *— Top Ten Major Trade Groups in Canada, 2009 vs 2019*

2009		2019	
Electricians	61,428	Electricians	68,175
Carpenters	50,499	Carpenters	45,021
Automotive Service	45,051	Plumbers, Pipefitters and Steamfitters	43,656
Plumbers, Pipefitters and Steamfitters	42,864	Automotive Service	39,255
Hairstylists and Estheticians	19,065	Food Service	20,091
Interior Finishing	17,862	Interior Finishing	17,247
Welders	17,046	Heavy Equipment & Crane Operators	13,311
Food Service	16,869	Heavy Duty Mechanics	13,023
User Support Technicians	15,051	Hairstylists and Estheticians	12,960
Exterior Finishing	14,046	Heavy Duty Equipment and Mechanics	12,555

1.5 INTERNATIONAL STUDENTS

Since about 2000, the number of international students at the postsecondary level in Canada has risen dramatically, from just under 40,000 in the late 1990s to almost 345,000 in 2018-19. This rise was gradual at first, then very rapid from 2009 onwards. There are several reasons for this growth: international students are appreciated because they bring diversity to classrooms across the country and (marginally) because their presence burnishes institutions' standings in world rankings, which regard the presence of international students as an indicator of quality. However, the main reason behind the growth is that international students pay much higher tuition fees than domestic students and are thus seen as a way to offset stagnant government funding. In 2018-19, international students made up 15.9% of all university enrollments and 16.1% of all college enrollments. Growth has been most rapid in Ontario, where international student numbers roughly doubled between 2016-17 and 2018-19.

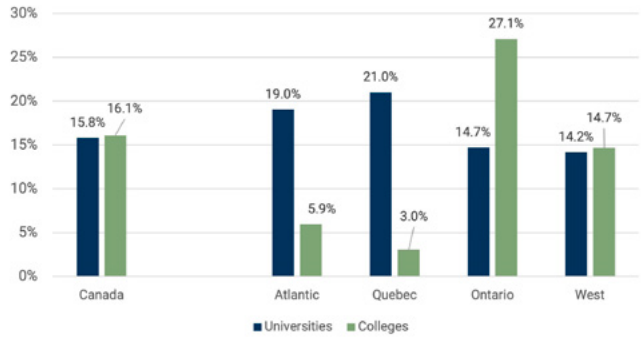
Figure 1.13 *— International Enrollments by Sector, Canada, 1992-93 to 2020-21*



Official data do not yet exist to examine the effect of COVID for 2020-21; however, Universities Canada has stated that the decline among international students for 2020-21 was a mere 2% over the previous year. No similar summation of data exists on the college side, but the impact is thought to have been significantly larger.

As with the general student population, international students are not distributed equally across all provinces. At the university level, international students are a much bigger part of the student body east of the Ottawa River than west of it. At the college level, it is the reverse, with international enrollments barely noticeable in the five eastern provinces but are hugely important west of there, especially in Ontario, which accounts for about 70% of all international students at the college level in Canada.

Figure 1.14 *— International Students as a Percentage of Total Student Body, 2018-19*



1.6 CANADA IN INTERNATIONAL PERSPECTIVE

One perennial question about the postsecondary education system in Canada is how it fares in comparison to systems in other countries. This question is far harder to answer than one might think since systems in different countries contain different types of institutions and offer degrees of various length. Most comparative questions can only be answered imperfectly; nevertheless, some basic comparisons are possible.

The first question has to do with the size of the overall system and the number of students it contains. Ideally, one would do this by looking at "net enrollment ratios", which is a way of dividing the number of students in "typical" attendance in a tertiary education program[3] (e.g. domestic students enrolled in such programs between the ages of 18-21) and divide it by the total number of the country's inhabitants in the same age range. This is difficult to do internationally because most countries do not make available sufficiently detailed data on the age distribution of their student body to allow for a net enrollment count. So, most international comparisons rely on the "Gross Enrollment Ratio", which is total tertiary enrollment (which in Canada includes all university programs and roughly half of programs offered by colleges), divided by the number of inhabitants in a relevant age bracket. For the purpose of Figure 1.15, this bracket is the five-year age bracket between ages 20-24 and results are shown for Canada and seven other comparator countries: Australia, France, Germany, Japan, South Korea, the United Kingdom and the United States. Canada's figure is 78%, which is close to the median among these countries. Note that of the four countries below Canada in the rankings, three offer undergraduate degrees of only three years in length (this is also true of Australia, but its figures are boosted by the very large number of international students enrolled there).

One of the remarkable features of the Canadian system is the high proportion of students enrolled in non-university institutions. This is partly a function of Quebec's unique CEGEP system, but also because of the strong tradition of professional and vocational education carried out in institutions right across the country (see **Appendix A**, *What is a College*). As Figure 1.16 shows, over 27% of Canadian tertiary-level students are enrolled in "non-universities", the second-highest among the selected countries. The US, Korea, and Japan, all of which have somewhat similar "junior" or "community" college systems, also have relatively high enrollment rates (over 20%) in these types of institutions. The number is much lower in Europe where these types of institutions are relatively unknown: Germany has very few students in institutions of these types, which may seem strange given their vaunted technical education system. This is partly because its apprenticeship arrangements are considered a part of the secondary education system rather than postsecondary, and partly because their large number of *Fachhochschule* – institutions that are sometimes compared to community colleges on the grounds that they are not universities (and which educate roughly a third of all German tertiary students) – are actually closer to universi-

Figure 1.15 *— Gross Enrollment Ratios in Tertiary Education, select OECD Countries, 2018*

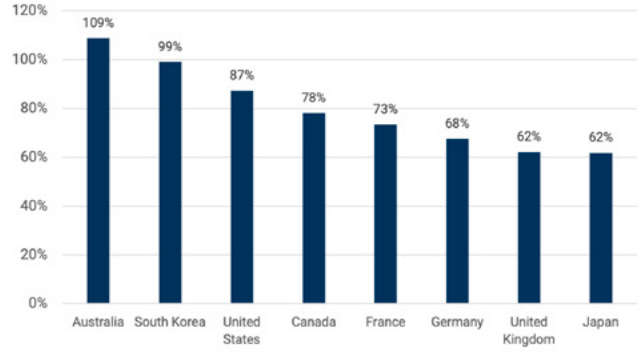
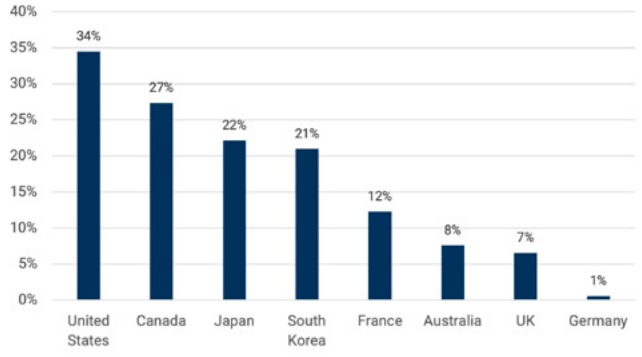


Figure 1.16 *— Proportion of Postsecondary Students Studying in Institutions Predominantly Offering Programs Below Bachelor-level, Selected OECD Countries, 2018*

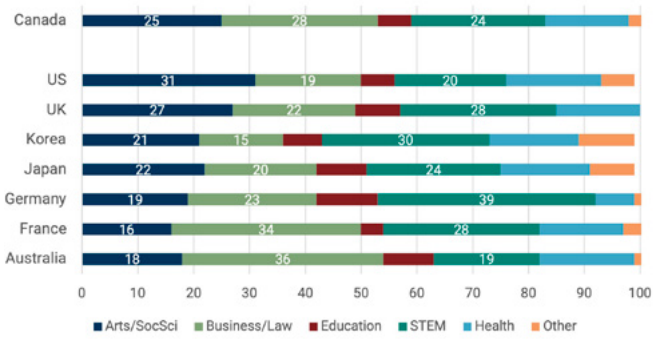


ties since 100% of the credentials they distribute are bachelor's degrees.

Another useful international comparison has to do with the distribution of students by subject area, which we can broadly track via data collected by the OECD on degrees awarded in each country. As Figure 1.17 shows, science enrollments – that is, enrollments in STEM and Health disciplines combined – range from 37% of total enrollments in the US to 46% in Korea and Germany (Canada is at 38%). Meanwhile the disciplines which might be grouped together as "non-laboratory" – Arts, Social Science, Business, Law and Education – make up a majority of total enrollments in every country except Korea, and Canada is second-highest behind Australia in this respect, with 59% of enrollments in these disciplines.

A final international comparison to make is with respect to apprenticeships. These are extraordinarily difficult to compare multilaterally because of the vast differences in how these programs are defined and delivered. Nevertheless, a comparison between Canada and Germany is instructive, mainly because of the way that Germany's "dual system" of education is so often credited with German success in manufacturing.

Figure 1.17 *— Distribution of University Graduates by Field of Study, Selected OECD Countries, 2018*



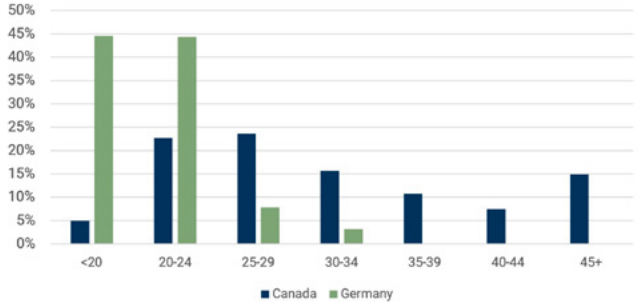
Yet, a closer look at the patterns of apprenticeship registrations in the two countries suggests this credit may be misplaced. One of the distinguishing features of Canadian apprenticeships is the way they are focussed on very traditional trades, particularly the construction trades. As Table 1.3 shows, eight out of the top ten trades in Canada — accounting for roughly 60% of all apprentices — are related to the construction or automotive industries (or what in Canada tend to be called the "skilled trades"). In Germany, over half of the top trades are in white-collar occupations, such as retail sales, industrial sales, office clerks, and medical assistant.

Table 1.3 *— Top Ten Apprenticeship Registrations by Occupation, Canada vs. Germany, 2019*

CANADA		GERMANY	
Electricians	68,175	Automotive Mechanics	67,692
Carpenters	45,021	Office Clerk	67,908
Plumbers, Pipefitters and Steamfitters	43,656	Retail Clerk	53,280
Automotive Service	39,255	Industrial Sales	48,165
Food Service	20,091	Industrial Mechanics	43,806
Interior Finishing	17,247	Electricians	41,808
Heavy Equiplmen & Crane Operators	13,311	Medical Assistant	41,736
Heavy Duty Mechanics	13,023	IT Specialist	39,957
Hairstylists and Estheticians	12,960	Retail Sales	38,070
Heavy Duty Equipment and Mechanics	12,555	HVAC Mechanic	35,679

In fact, Canada has approximately 70% more apprentice electricians than Germany, despite the latter country having over double the population. That said, apprenticeships in Germany last only half as long, so the number of people qualifying from their apprenticeships may be more or less the same. And, as Figure 1.18 shows, apprenticeships in Germany are fundamentally targeted at young people starting their careers, which is hardly the case in Canada. All of which is simply to note that the German system of apprenticeships is much different to our own and that it's success may be due as much to i) its ability to transcend the skilled trades as much as it is to excel in them ii) the fact that for the most it considers apprenticeships to be part of secondary education rather than postsecondary.

Figure 1.18 *— Age Distribution of Apprentices in Canada and Germany, 2019*



University of Lethbridge,
Lethbridge, AB

Chapter Two / Staff

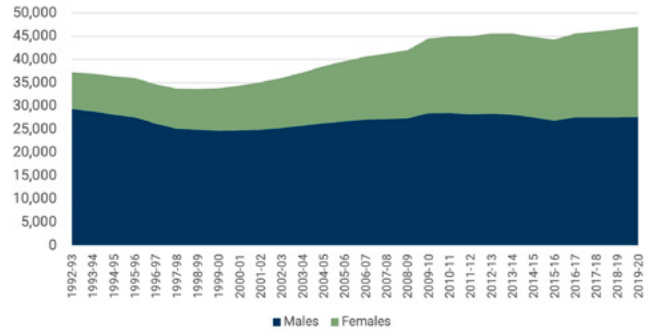
Available Canadian postsecondary education staff data skews heavily towards universities. Statistics Canada does not survey colleges with respect to academic staff numbers, and it asks no questions at all in either sector about non-academic staff. Peak bodies, such as Universities Canada or Colleges and Institutes Canada, also do not collect this data (though the former has recently conducted interesting work on staff numbers with respect to equity, diversity, and inclusion). For the most part, individual institutions do not provide this information on their own. The main reason for this is that Canadian governments do not seem to care very much about these issues and have therefore not made institutional reporting on these topics a part of their accountability frameworks. This issue has not notably improved over the years we have produced *The State of Postsecondary of Education in Canada*. Because of this lack of data, our examination of issues related to staff numbers will necessarily be less complete than those with respect to students.

2.1 STAFF AT UNIVERSITIES

Full-time academic staff in Canadian universities are counted through a national survey known as the University and College Academic Staff Survey (U-CASS)[4]. This survey was suspended by Statistics Canada for budgetary reasons in 2011 but was re-instated in 2018 and data from the missing years re-incorporated. Figure 2.1 shows the number of "ranked" academic staff in Canada, meaning those who are tenured or on the tenure-track[5], by sex for the period 1992-93 to 2018-19. The number of such individuals reached an all-time high of 46,986 in 2019-20, an increase of 39% of the nadir-point of 1997-98, when universities were feeling the effects of multi-year hiring-freezes due to budget cuts in the early to mid 90s. Of interest here is the breakdown by sex: though Canada is nowhere near parity in its professoriate

(the ratio is roughly 58-42 male-to-female), nearly 95% of the growth in faculty positions over the past decade has been in the number of female professors.

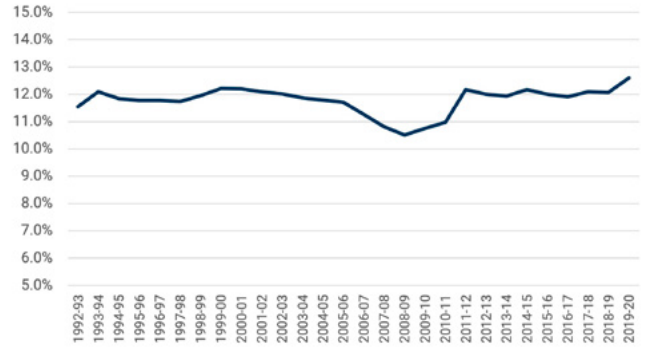
Figure 2.1 *— Total Tenured and Tenure-Track Academic Staff Numbers by Sex, Canada, 1992-93 to 2018-19*



Time series data on faculty is available by sex but not by other major equity categories. However, a recent Universities Canada report drew on census data to reveal that 20.9% of full-time academic staff had a racialized background (compared to 22.3% of the general population) and 1.3% identify as Indigenous (compared to 4.9% of the population).

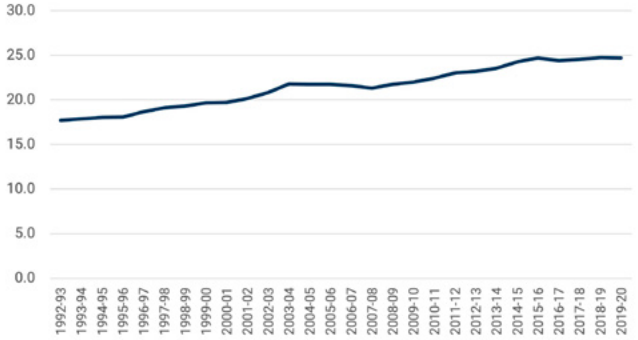
The data in Figure 2.1 counts both teaching faculty and tenured faculty who do not teach because they are in "Senior Administrative Roles". A common concern is that the senior administration numbers are constantly growing and so the increase in faculty numbers might be masking a growth in administration. Figure 2.2 indicates that this does not appear to be the case: the percentage of total staff in such positions has remained more or less constant over the past three decades at 12% (the exception being a few years around 2008, which roughly coincides with the period when six different former colleges in Alberta and British Columbia changed institutional status and became included in university statistics).

Figure 2.2 *— Proportion of Faculty in Senior Administrative Roles, 1992-93 to 2019-20*



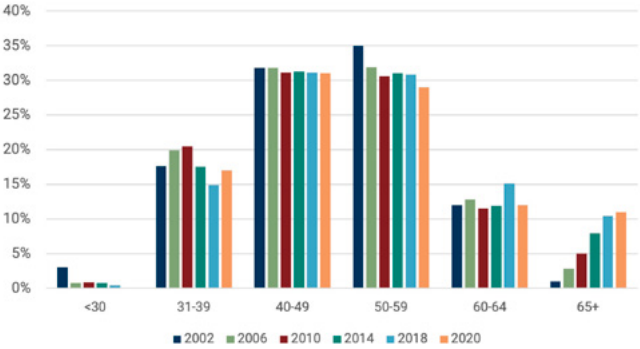
While the last two decades has seen a significant increase in faculty numbers, they have not kept pace with the large increase in student numbers shown in the previous chapter. In fact, the ratio of FTE university students to faculty has risen by nearly 50% over the past 25 years from 17.7:1 to 25:1. This does not necessarily mean that class sizes have increased by 50%, as there are a number of confounding factors involved. For one thing, the use of sessional staff appears to have become more frequent (which tends to reduce class size averages); for another, at many institutions, faculty teaching loads, as measured in classes taught per semester, are lower than they were 5 years ago because research and publication expectations have increased.

Figure 2.3 *— Ratio of FTE Students to Full-Time Tenured and Tenure-Track Academic Staff, 1992-92 to 2019-20*



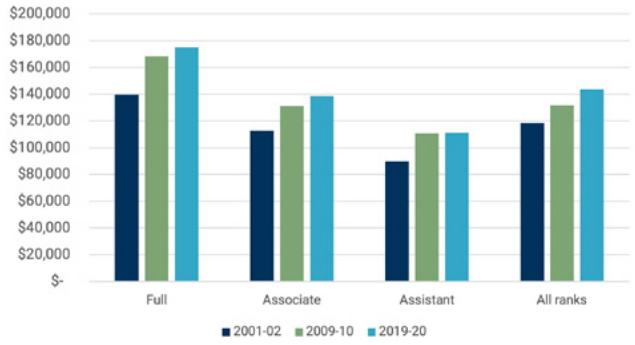
The abolition of mandatory retirement led to a significant increase in the average age of the professoriate over the past decade and a half. Whereas just 30 professors (less than 1%) of all academic staff were over 65 in 2000, by 2020 that figure had risen to over 5,000 (11%). All told, over a quarter of Canadian academic staff are over the age of 60, while only 17% are under the age of 40. Figure 2.4 shows how the age composition of full-time academic staff has changed since 2002.

Figure 2.4 *— Age Composition of Tenured and Tenure-Track Staff, Canada, 2001-02 to 2019-20*



The effects of the aging professoriate can be seen in the changes in pay levels. Because pay in academia is seniority-driven, a disproportionate amount of salary pays aging staff, significantly reducing the amount of funds available for faculty renewal. Figure 2.5 compares salaries from 2019-20 with those of 2009-10 and 2001-02. Over that eighteen-year period, average professorial salaries have increased 21% overall, from $118,398 to $143,651 (in constant 2019 dollars). However, most of that growth seems to have occurred in the 00s rather than the 10s.

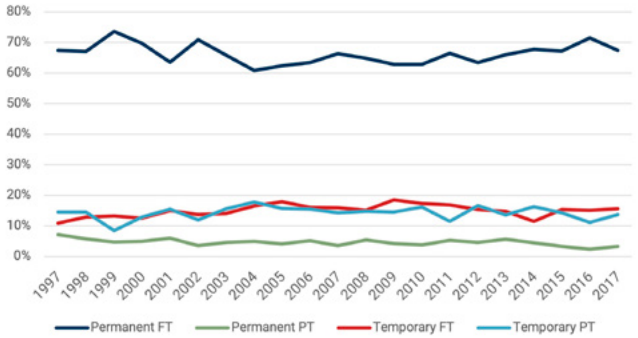
Figure 2.5 *— Average Salary by Rank 2001-02 to 2019-20, in $2019*



One persistent view in Canadian higher education is that full-time professors are increasingly being replaced by part-time, "casualized" staff. Statistics Canada does not track the number of casualized staff and universities themselves do not report staff figures in a fashion to facilitate easy comparison. However, late in 2018, the Canadian Centre for Policy Alternatives released a study called *Contract U: Contract Faculty Appointments at Canadian Universities*. The report assessed the results of a survey on university hiring, which suggested that between 2006-07, contract faculty numbers nationally increased by about 1,800 (including major increases in Health Sciences and Business but significant decreases in Education and Humanities), while full-time numbers increased by about 1,300. There is reason to be skeptical about the exact numbers, but the pattern of hiring – increasing numbers of part-timers in professional programs where they are likely to be practitioners with existing full-time jobs and decreasing numbers in Arts, where part-timers tend to be graduate students or recent PhDs wanting to get a foothold in academia – seems broadly correct.

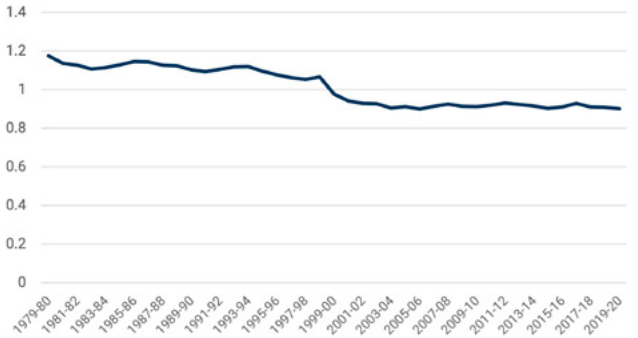
Data from the Labour Force Survey, shown below in Figure 2.6, reinforces this view. The data shows job intensity and security among those who report their primary job is teaching at a university: it excludes all those whose teaching jobs are "on the side". The data is somewhat choppy because the number of university teachers in the Labour Force Survey at any given time is relatively small, but the broad pattern seems to show that the ratio of full-time permanent teaching staff to temporary teaching staff has, if anything, increased over the past decade. This is consistent with the observation that most sessional instructors in universities are in fact professionals who consider teaching as a side-job. It is, however, inconsistent with the oft-touted view that heartless neo-liberal universities are becoming increasingly dependent on casual, precarious labour.

Figure 2.6 *— Distribution of Jobs among Labour Force Survey Respondents Indicating their Primary Occupation is Teaching in a University, by Intensity and Security, Canada, 1997 to 2020*



There are no national or provincial counts available for non-academic support staff at Canadian universities, though a fair number of institutions do produce their own annual (non-standardized) reports. Through financial data provided through Statistics Canada's Financial Information of Universities and Colleges (FIUC) survey, we tracked changes in the ratio of aggregate salary expenditure on full-time academics to aggregate expenditures on non-academics. These data, shown below in Figure 2.7, demonstrates that in the 1980s and 1990s, spending gradually shifted towards non-academic staff. Since the early 2000s, however, there has been very little change in the balance of spending on academic and non-academic salaries.

Figure 2.7 *— Ratio of Full-time Academic Salaries to Non-Academic Salaries, All Canadian Universities, 1979-80 to 2019-20*



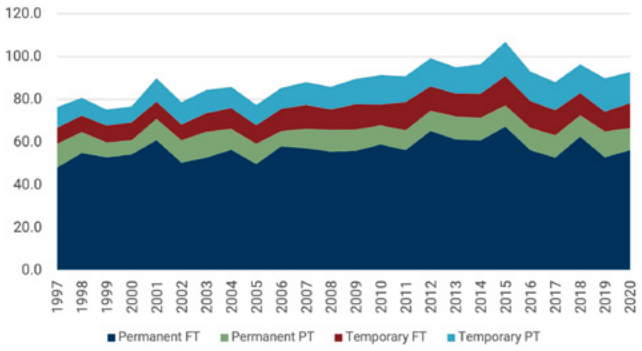
University of Calgary, Calgary, AB
Photo by Jeff Whyte, stock.adobe.com

2.2 STAFF AT COLLEGES

There is very little administrative data about staff at community colleges in Canada. Statistics Canada does not collect it (though it has hopes of including teaching staff data in a new, expanded U-CASS), and nor do any provincial governments. The best one can do nationally is to look at survey data from the Labour Force Survey, which is bound to be choppy and contain significant error margins because of small sample sizes.

Figure 2.8, like Figure 2.6 above, shows the results of survey data asking individuals to indicate their occupation (college teacher) and their job intensity and security. Unlike 2.6, this data is presented in thousands rather than in percentages, to provide a sense of the sector size. The data suggest that there are about 90,000 individuals who consider college teaching to be their main occupational identity, and that of these, somewhere between 50 and 65 thousand individuals are full time permanent instructors, with the remainder having contracts which are part-time, temporary, or both. Note that given the wording of the question in the Labour Force Survey, this data likely includes individuals teaching at private vocational colleges as well as public community colleges.

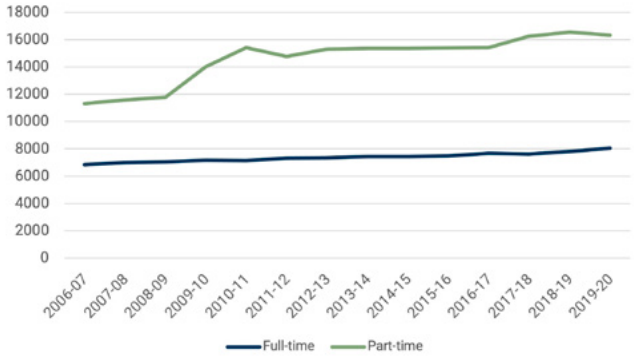
Figure 2.8 *— Number of Labour Force Survey Respondents Indicating their Primary Occupation is Teaching in a College, by Intensity and Security, Canada, in Thousands, 1997 to 2020*



The only real exception to the lack of administrative data is Ontario, where Colleges Ontario produces an excellent annual Environment Scan with a wealth of data on colleges, including staff numbers. It is by no means certain if the trends in Ontario are replicated in other provinces; however, since the province represents close to 40% of national college enrollments, it is unlikely that national averages will diverge substantially from these. So, we reproduce Ontario figures here as being broadly indicative of national trends.[6]

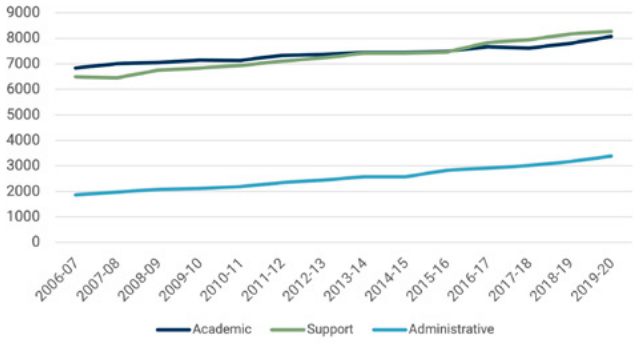
In terms of academic staff numbers, Figure 2.9 shows that there have been increases in the numbers of both full- and part-time instructors at Ontario colleges over the past decade; however, growth has been more pronounced among part-timers than full-timers. This part-time growth was one of the major triggers of the strike that shut down Ontario colleges in late 2017. The union tends to view this as a deliberate casualization and "precaritization" of the workforce; employers will tend to defend it partly on budgetary grounds but also partly based on quality, since college programs are meant to provide students with exposure to real world practitioners (who, being practitioners, cannot teach full-time). At first glance, the data in 2.9 appears to contradict the data in 2.8, with part-timers outnumbering full-times; however, it is likely that most part-time instructors have other jobs and do not consider college teaching to be their main occupation when reporting to the Labour Force Survey.

Figure 2.9 *— Full- and Part-time Academic Staff, Ontario Colleges, 2006-07 to 2019-20*



The Colleges Ontario Environment Scan also provides data on administrative staff and support staff (which is a useful distinction between white-collar administrators and managers and other employees). Figure 2.10 shows that the numbers of both full-time support staff and administrative staff have grown a bit more quickly than the number of full-time academic staff over the past ten years.

Figure 2.10 *— Full-time Academic, Support and Administrative Staff, Ontario Colleges, 2006-07 to 2019-20*



Southern Alberta Institute of Technology, Calgary, AB
Photo by ronniechua, stock.adobe.com

Chapter Three / Institutional Income and Expenditures

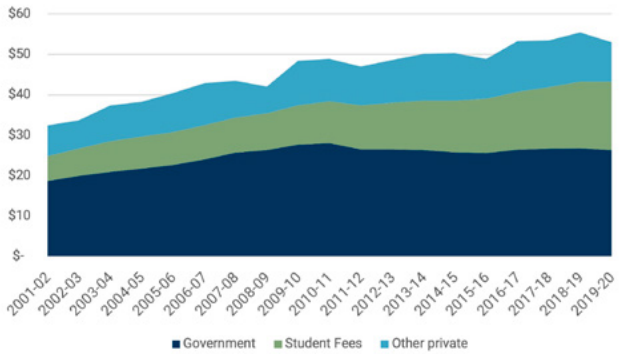
Public postsecondary education in Canada is a nearly $55 billion per year industry. In terms of Gross Domestic Product, higher education makes up approximately 2.4% of the national economy, which is a larger fraction than agriculture, forestry, fishing, and hunting, *combined*. It is therefore of interest how this significant sector of the national economy generates and spends its money, and it is to this task which this chapter is devoted.

3.1 INCOME TRENDS FOR PSE INSTITUTIONS

From 2001-02 to 2018-19, overall institutional income rose by 73% in real terms, from $31.4 billion to $54.7 billion in 2018-19. Until the financial crisis of 2008-09, revenues from the three main sources – governments, students, and other self-generated income – increased at similar rates of about 5% per year after inflation. Since the 2008 financial crisis this has changed: government income has stagnated, while income from students has steadily increased, mainly due to increases in international student numbers. The self-generated income is more volatile than the other two sources because endowment returns are part of this category; there was a jump in 2016-17 because it was a particularly good year for equities, which form a small but significant part of these "other" revenues; the fall in total income in 2019-20 was due entirely to the pandemic-related collapse in the equity market just before the end of the fiscal year in March 2020.

The year 2016 was notable in that it was the first year since modern statistics began in which income from non-govern-

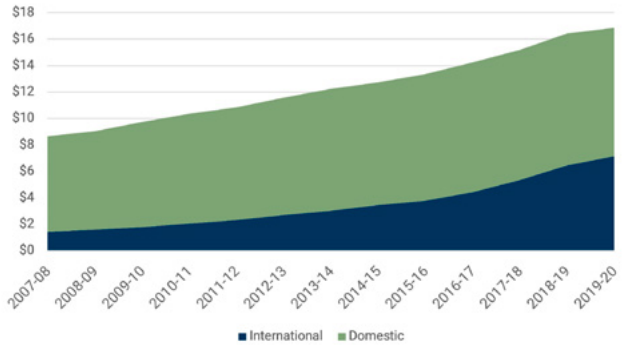
Figure 3.1 *— Total Income by Source, Public PSE Institutions, Canada, in Billions ($2019), 2001-02 to 2019-20*



ment sources was larger than income from government ones. In 2019-20, 49.8% of total institutional income came from the federal and provincial governments.

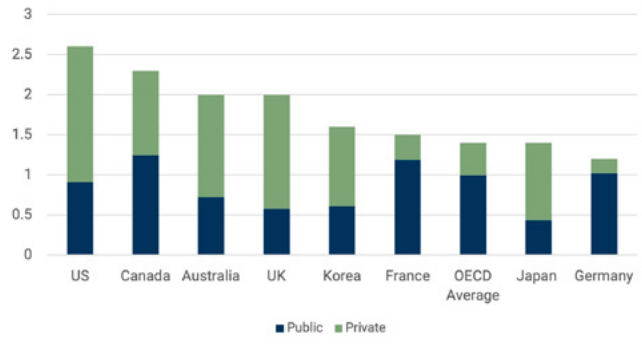
The main change in institutional income since 2008 has been the increasing reliance on tuition fees; since 2007-08 tuition fee income has roughly doubled at Canadian universities and colleges from $8.6 billion to $16.6 billion. However, this is not primarily due to increases in domestic fees; rather it has to do with the vast inflow of international students. In fact, since 2007-2008, institutional revenue from domestic tuition fees has increased by 35%, but international fees have increased by nearly 400%. On a shorter time horizon, the $4.11 billion increase in international student tuition fees since 2012-13 is slightly higher than the $4.09 billion increase in operating expenditures over the same period. Thus, 100% of all increased spending over the past seven years has come from international student fees.

Figure 3.2 — *Total Fee Income by Source, Public PSE Institutions, Canada, in Billions ($2019), 2007-08 to 2019-20*



Internationally, Canada's higher education system is among the world's best funded. In 2016, public and private expenditures on tertiary institutions amounted to 2.3% of Gross Domestic Product, which was not quite as high as the United States' 2.6% but nearly twice as high as much-vaunted

Figure 3.3 — *Tertiary Institutions' Income by Source, as a Percentage of Gross Domestic Product, Canada and Selected OECD Countries, 2017*



Germany and over 50% higher than the OECD average. But as Figure 3.3 shows, Canada is moving further from a Western European model of a largely publicly funded system towards the model of other anglophone countries where postsecondary education may be mostly publicly owned, but it is "publicly-aided" rather than "publicly-financed."

Within Canada, data on university expenditures are available for a much longer period than for colleges, with data available to the late 1970s. This sector's data is shown in Figure 3.4. The pattern is somewhat cyclical – an expansion of income from all sources during the 1980s, followed by nearly a decade of stagnation in the 1990s during which total income fell, mainly because of real cuts to government expenditures. Then, from about 1998 to 2009, there were robust increases in revenue from all different sources, followed by another bout of stagnation in government expenditures following the 2008 recession. The difference between the 1990s and the 2010s, however, is that universities have been able to keep their overall income rising, even as revenues from government declined slightly. This is partly due to better income generation and stock-market returns, but it is also due to significant new tuition revenues, mainly from international students.

Figure 3.4 — *Total Income by Source for Universities, Canada, in Billions ($2019), 1979-90 to 2018-19*

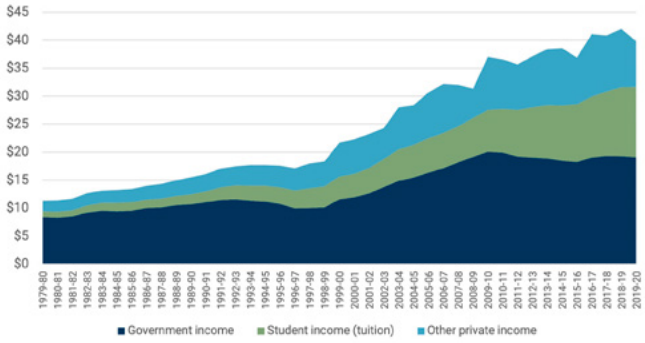
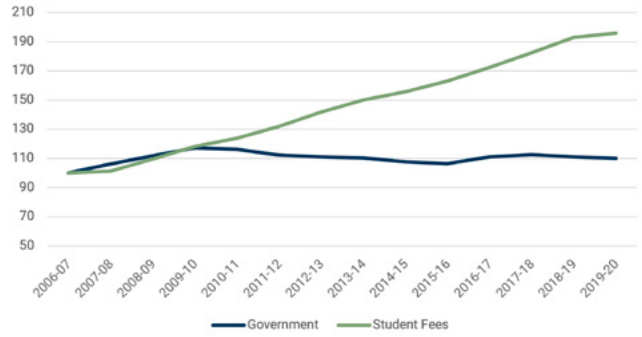


Figure 3.5 puts the major trends of the last decade into starker relief. In real terms, income from public sources was rising sharply prior to the recession – roughly 6% per year after inflation, in line with the growth of income from student fees. After 2009-10, however, government revenue went into a long, gentle decline in real terms before recovering slightly after 2015-16. Meanwhile, revenue from student fees has grown at about 6% per year continuously, straight through to 2019-2020, resulting in a cumulative 96% increase in fee revenue over the decade.

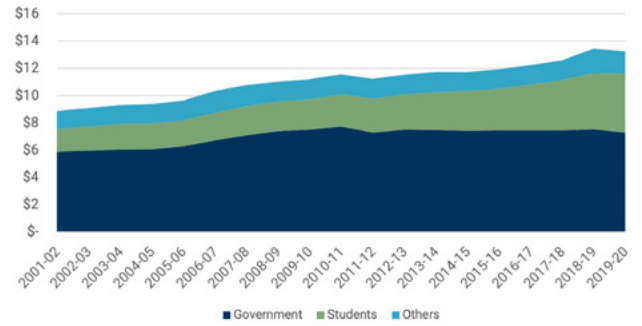
On the college side, the trends look somewhat similar to those of universities, in that total institutional income has

Figure 3.5 *— Real Change in Government and Student Fee Income, Universities, Canada, 2006-07 to 2019-20 (2006-07 = 100)*



continued rising over the past decade even as income from governments has stagnated. However, the composition of the income is somewhat different. Revenues from government make up 55% of total revenue (compared to 46% for universities), and revenues from self-generated income make up just 14% of the total (compared to 24% in universities). In both sectors, income from student fees makes up about 30% of total revenues.

Figure 3.6 *— Total Income by Source for Colleges, Canada, in Billions ($2019), 2001-02 to 2019-20*



3.2 EXPENDITURE PATTERNS FOR PSE INSTITUTIONS

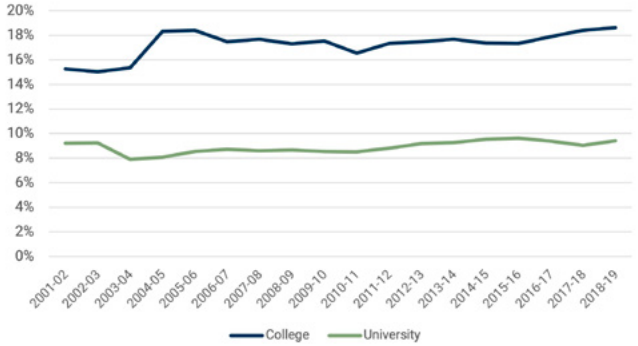
Because institutions tend to want to spend all the money that they can raise, overall total expenditure trends closely follow total income trends. It is not especially interesting to track expenditure trends over time since they show more or less identical patterns as revenues. However, examining changes in specific *areas* of expenditures reveals useful patterns. Table 3.1 looks at total expenditures of universities and colleges by "fund." By certain methods of aggregation, the two systems look extremely similar. Using the categories developed by Statistics Canada, we find the following trends: Research and teaching collectively make up 59% of the budget in universities and 52% in colleges. Physical plant is 6% and 9% of total expenditures, respectively, as are student services. Capital is 8% and 10%, respectively[7]. What this kind of aggregation hides is the single major difference between the two sectors – research. Within the research/teaching aggregation, the research side only accounts for under 2% of total expenditures for colleges, but over 30% for universities.

Table 3.1 *— Distribution of Total Expenditures by Fund, Colleges and Universities, 2018-19*

	COLLEGES	UNIVERSITIES
Instruction & Research	52%	59%
Admin + ICT	19%	9%
Physical Plant	9%	6%
Student Services	9%	6%
Capital	10%	8%
Other	1%	11%

One perennial topic of conversation in higher education is the alleged tendency toward ever-increasing expenditures on administration. Statistics Canada data on college and university finances allows us to chart this trend over time in both the college and university sectors. Figure 3.7 shows that spending on administration, (which includes spending on information and communications technologies[8]) is higher for colleges than universities, which is mostly a function of institutional size: colleges are on average smaller than universities, and therefore tend to have admin-related diseconomies resulting from their smaller scale. Perhaps more importantly, the figure shows that over the past decade administration spending has remained reasonably steady as a percentage of total expenditures. This does not mean that absolute administration costs are not increasing; in both sectors they have more than doubled, in nominal terms,

Figure 3.7 *— Expenditures on Administration & ICT as a Percentage of Total Spending, Universities vs Colleges, 2001-02 to 2019-20*



since the turn of the century. However, their rate of growth is not substantially disproportionate relative to the growth of overall institutional spending.

If we look at institutional expenditures by type, rather than by fund (below, Table 3.2), we again see that the two sectors look similar on metrics like wages, benefits, and utilities. Even the limited differences often come down to categorization decisions as much as anything: "supplies" are higher in colleges, "furniture and equipment" in universities, but if we combine them as "non-wage expenditures on physical goods not classified as capital" – which is arguably as good a definition as that used by Statistics Canada – then the two come out looking more or less the same. Perhaps the most significant differences are in library acquisitions and in expenditures on financial aid, both of which are a much larger expense at universities than at colleges. However, given that approximately 75% of university expenditures on scholarships are focused on graduate students, one might argue there is not very much difference between aid spending at colleges and spending on undergraduates at universities.

Table 3.2 *— Distribution of Spending by Type, Universities and Colleges, 2018-19*

	COLLEGES	UNIVERSITIES
Academic Wages	30.2%	26.7%
Other Wages	21.6%	22.4%
Benefits	9.8%	9.9%
Library Acquisitions	0.2%	1.1%
Supplies	7.9%	8.9%
Utilities	1.6%	1.6%
Financial Aid	1.0%	5.9%
Fees and Services	7.8%	4.9%
Equipment	3.2%	5.0%
Buildings & Land	7.1%	8.3%
Debt Service	1.1%	1.4%
Other	8.5%	3.8%

Wages are always an area of concern in the postsecondary sector. They have increased substantially (nearly doubling in nominal terms) at both universities and colleges over the

past fifteen years. However, as a proportion of total expenditures they are remarkably stable, as Figure 3.8 and Figure 3.9 show. And it is not just that wages are stable overall, but the components of the wages budget (i.e. spending on academics vs. spending on non-academics) are stable as well. To the very limited extent there is any upward pressure on compensation as a percentage of total expenditure, it seems to be coming from benefits (and specifically, the cost of pensions) rather than wages.

Figure 3.8 — *Wages as a Percentage of Total Budget, Colleges, 2001-02 to 2018-19*

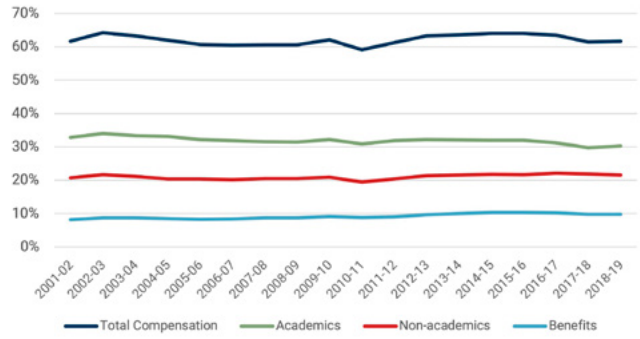
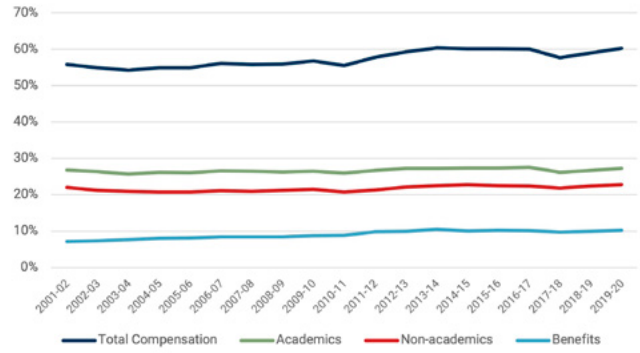


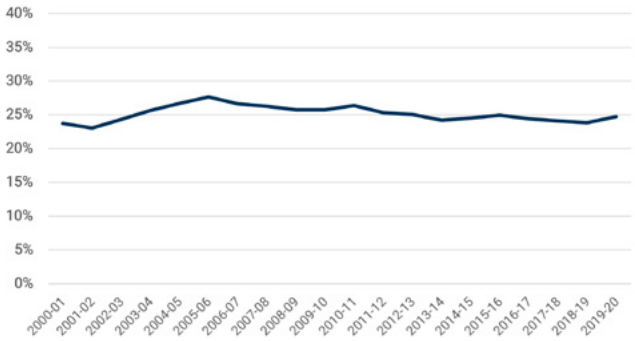
Figure 3.9 — *Wages as a Percentage of Total Budget, Universities, 2001-02 to 2019-20*



While Figures 3.8 and 3.9 distinguish between spending on academic and non-academic staff, they do not shed light on the persistent debate within higher education, referred to in the previous chapter, of "academic casualization"; that is, the alleged tendency of universities and colleges to hire fewer full-time staff and more part-time staff. This debate was considered in Chapter 2, however, we can shed more light on this phenomenon (in the university sector, at least) by disaggregating the proportion of academic wages going to staff who are tenure-track (technically, "possessing academic rank") and those who are not. A similar analysis cannot be done with respect to colleges because of the structure of the college finance survey.

Figure 3.10 shows the proportion of total academic wages going to faculty who are without academic rank (which is roughly equivalent to wages going to "sessional" or "adjunct" professors) from 2000-01 to 2019-20. As the data shows, this percentage has in fact been falling very slightly for the last decade or so from around 27% to approximately 25%. This does not mean that total expenditure on non-tenure track staffing is shrinking: it simply means it is growing less quickly than expenditures on tenure-track staff.

Figure 3.10 — *Percentage of Aggregate Academic Wages Going to Non-tenure Track Staff, 2000-01 to 2019-20*



Page 32: University of Saskatchewan, Saskatoon, SK
Below: University of Alberta, Edmonton, AB

First Nations University of Canada, Regina, SK

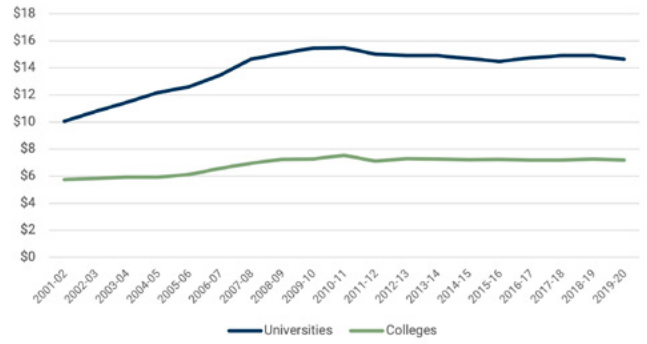
Chapter Four / Government Expenditures

As previous chapters demonstrate, institutional reliance on governments as a source of income is decreasing. Still, grants from government – particularly operating grants from the provinces – remain the largest single source of funding in the postsecondary sector. This chapter examines these expenditures in detail, both at the provincial and federal levels. In the main, the story is simple: during the first decade of the century, government expenditures increased at a substantial rate, both at the federal and provincial levels. In the aftermath of the global financial crisis of 2008- 09, expenditures began to fall in real terms and have continued to fall up to the present day. 2016-17 saw the first uptick in real government expenditures in nearly a decade. This uptick was primarily the effect of a one-time increase engineered by the federal Strategic Infrastructure Fund (SIF), created by the Liberal government to counteract the brief 2015-16 economic slowdown. However, by 2019-20 these numbers were in decline again, mainly but not exclusively due to budget cuts in Alberta.

4.1 PROVINCIAL EXPENDITURES ON POSTSECONDARY EDUCATION

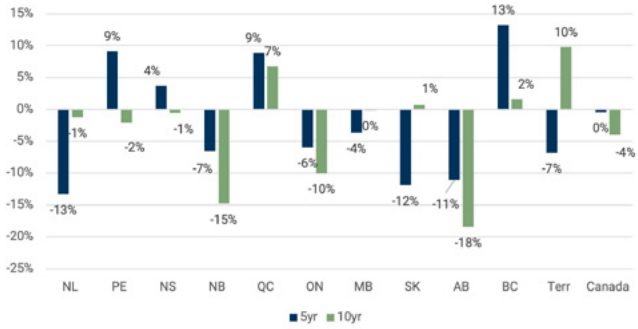
Two Statistics Canada surveys – the Financial Information of Universities and Colleges (FIUC) and the Financial Information of Community Colleges and Vocational Schools (FINCOL) – provide information on PSE institutions' sources of funding up to 2019-20 and 2018-19, respectively. Individual colleges' financial statements for 2019-20 were used to bring the two sectors' financial up to the same level of recency for this chapter (see **Appendix A** for details). Figure 4.1 shows a massive increase – over 50% – in funding for universities between 2001-02 and 2009-10, fuelled partly by the rise in enrollments in the sector. Between 2009-10 and 2015-16, as provincial governments mostly tried to rein in spending, real expenditures decreased slightly but steadily before ticking up again in 2016-17. It should be noted that this is not entirely an apples-to-apples comparison over time: in 2007 and 2008, several institutions in Alberta and British Columbia converted from college status to university status and so moved from one category to another; without this shift, the two sectors would have more similar patterns.

Figure 4.1 *— Provincial Government Transfers to Institutions by Type of Institution, in Billions ($2019), 2001-02 to 2019-20*



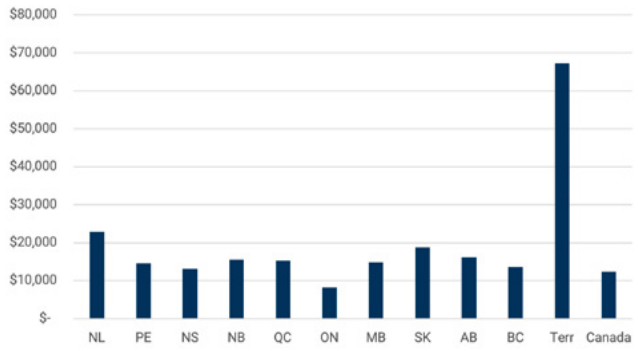
As is usually the case in Canada, the expenditure picture varies significantly not only by the time period chosen, but also across provinces. Nationally, provincial transfers to institutions in 2019-20 were about equal to where they were five years previously (in constant 2019 dollars), but about 4% lower than ten years previously (see Figure 4.2). However, this consistency at the national level belies major swings at the provincial level. In 2019-20, most provinces had spending very close to where it was in 2009-10 while two others were spending below their 2013-14 levels (only one province – Saskatchewan - was down across both time periods). British Columbia and Quebec were the only provinces to show persistent growth across both a five-and-ten year period, and yet both of them passed through at least one three-year period in the period where provincial expenditures declined annually. To some extent, this reflects changes in capital spending, which is more volatile than operating grant spending, and tends to bunch around recession years. But it vividly illustrates the fact that understanding Canadian higher education requires looking beyond national figures and that national trends rarely play out in a synchronous way across the country.

Figure 4.2 *— Changes in Provincial Transfers to Institutions by Province over Five and Ten Years, to 2019-20, in $2019*



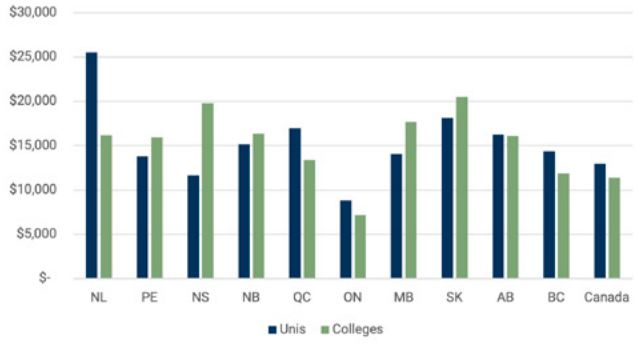
Perhaps the most important thing to understand about Canadian higher education finance is the variation across provinces and the extent to which spending patterns in Ontario, the largest province, are out of line with those in the rest of the country. In fact, as Figure 4.3 shows, Ontario's per-FTE student expenditure is so low, dragging down the national average so far, that every other jurisdiction in the country is technically "above average" when it comes to per-student expenditures. Costs in the territories are exceptionally high because of the expense of offering a relatively comprehensive suite of programs across thinly-populated territories; costs in Newfoundland and Labrador are elevated in part because the province chooses to run some health sector expenditures through Memorial University of Newfoundland's medical faculty.

Figure 4.3 *— Provincial Expenditures per FTE Student, 2019-2020*



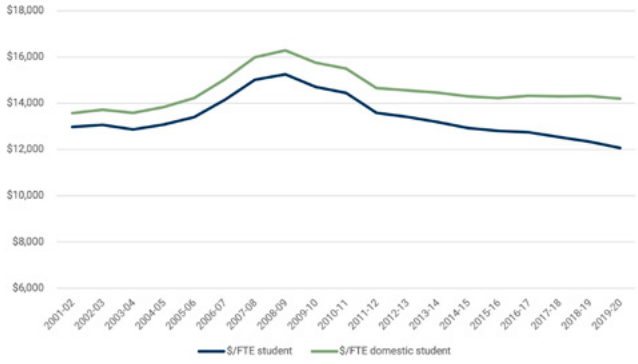
As might be expected, spending varies across the college and university sectors. As Figure 4.4 shows, provincial government expenditures on universities are somewhat higher nationally than they are in colleges ($13,234 per student for universities and $11,259 for colleges). This is by no means a universal phenomenon: in half of the provinces (Prince Edward Island, Nova Scotia, New Brunswick, Manitoba, and Saskatchewan) colleges receive more money than universities. More generally, there are relatively high per-student expenditures across both sectors in Alberta and Saskatchewan, and relatively low per-student expenditures in Ontario. The very high figure for per-student expenditures in Newfoundland and Labrador can be explained partly by the medical expenses noted above, and because it houses an expensive technical institute (the Marine Institute): absent these two factors, per-student costs at MUN (the province's only university) are similar to institutions elsewhere in the country.

Figure 4.4 — *Provincial Expenditures per FTE Student by Sector, 2019-2020*



Another way to look at these data is to track provincial expenditures per student over time. Figure 4.5 shows this calculation both per-FTE student and per-domestic FTE student, to account for the effects of the growth in international student numbers, since in many parts of the country international students are excluded from provincial funding formulas. Per-student funding hit a high of $15,037 ($16,065 per domestic student) in 2008-09 (both figures are in constant 2018 dollars). In the decade since then, spending per FTE student fell by 19% (13% per domestic student). Figure 4.1 above reminds us that this decline in per-student funding is not primarily a result of a significant decline in total funding; rather, it is a result of expenditures remaining largely constant while enrollment numbers grew.

Figure 4.5 — *Total Provincial Funding per Full-Time Student, in $2019, 2001-02 to 2019-20*



Manitoba Institute of Culinary Arts (MICA), Assiniboine Community College, Brandon, MB

How Funding is Distributed to Institutions

In all provinces, the government of the day decides the overall amount of funding that will go to the sector. How that money is divided among institutions is a more complicated matter.

In three provinces – Quebec, Ontario and Saskatchewan – core funding is for the most part distributed by an enrollment-weighted funding formula. That is to say, the amount of funding an institution receives is mostly based on the number of students it has in different types of programs. The three provinces use different weights for different subjects and levels, but generally the algorithms privilege clinical programs over laboratory programs and laboratory programs over lecture-based programs.

In the other seven provinces, funding is largely historically-driven: that is to say that what a school receives in any given year for core funding is largely a function of what it received the previous year, with potentially some adjustments for new programs or new government initiatives. These changes are in all cases spread equally across institutions in the province, so that unlike in an enrollment-weighted system there is less room for institutional shares of government funding to change over time.

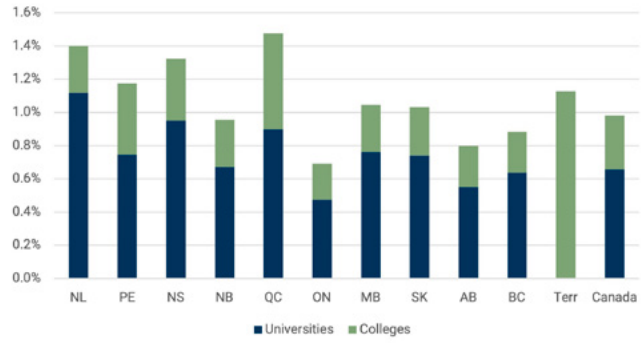
Not all governments with historically-weighted formulas describe themselves this way. On occasion, New Brunswick and Nova Scotia will refer to their "funding formulas," even though neither has based funding on enrollment for over a decade (at one point in the past, some or all of their funding was enrollment-weighted, and those calculations constitute the historic base for determining annual increases or decreases). British Columbia has a system in which institutions are notionally paid for a pre-determined allocation of seats, but there is no mathematical link between the number and type of seats and an institution's financial allocation.

One partial exception is Alberta, which for most of the two decades has used a historically-driven model. In 2019 and 2020, two large sets of cuts were imposed on the postsecondary education system. The first, a mid-year cut, was based on financial reserves (i.e. which institutions were best able to survive a sudden decline in revenues). The second, a multi-year reduction, was based on the degree to which costs at that institution were considered to be above those at peer institutions elsewhere in the country.

Only one province – Ontario – currently uses performance funding (that is, funding based on outputs rather than inputs), and that accounts for a miniscule 1.4% of total funding, based mainly on graduate employment rates. In 2019 both Ontario and Alberta announced plans for vastly expanded performance-based funding schemes that would eventually put up to 60% and 40% (respectively) of core funding "at risk", and which could be reclaimed by achieving a set of targets around graduate employment, research output and other such measures. New Brunswick and Manitoba have made tentative statements indicating that they are interested in performance-based funding, but they do not yet appear to be particularly advanced in their planning for this.

Per-student expenditures have limits when comparing provincial commitment to a sector, since they are based on attendance patterns, not a province's ability to pay. A complementary way to compare provincial expenditures is to calculate higher education spending as a function of the provincial economy's size. Figure 4.6 shows provincial PSE expenditures as a percentage of provincial Gross Domestic Product. Nationally, this figure comes to about 1%, but, once again, it varies substantially by province: in Newfoundland and Labrador it is 1.5% of GDP, while in Ontario it is just 0.76%. The proportion going to colleges and universities is relatively close: in most provinces, the college share is between 25 and 33% of expenditures. The four exceptions are Newfoundland (20%), Quebec with its very large CEGEP system (40%), Prince Edward Island (also 40%) and the three territories, where the college figure is 100% because they currently have only one university, Yukon, which became a university prior to these numbers being released.

Figure 4.6 *— Government PSE Expenditures as a Percentage of GDP by Province and by Sector, in $2019, 2019-20*



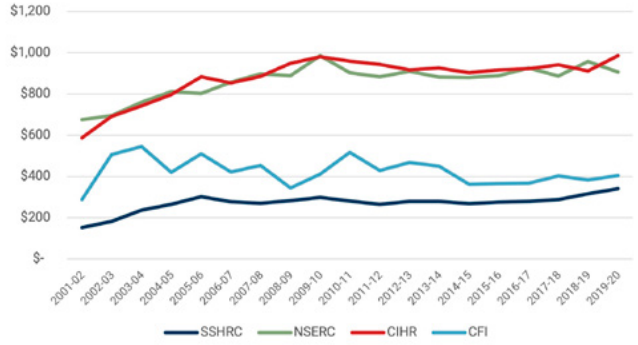
4.2 FEDERAL EXPENDITURES ON POSTSECONDARY EDUCATION

The Government of Canada essentially has four mechanisms for transferring money to postsecondary institutions. The first transfer mechanism is through the research granting councils: the Canadian Institutes for Health Research (CIHR), the Natural Science and Engineering Research Council (NSERC) and the Social Sciences and Humanities Research Council (SSHRC), which together are the largest source of federal dollars to most institutions. These three disciplinary-based councils are known collectively as "the Tri-Council" agencies; however, as of 2018, the Government of Canada now also considers the Canada Foundation for Innovation (CFI), which disburses money for scientific infrastructure, to be a fourth granting council.

The second transfer mechanism is through a variety of other scientific agencies and government departments (e.g. Health Canada), which transfer at least some of their money to postsecondary institutions. The third mechanism is through occasional large investments in capital spent on postsecondary institutions, such as the Knowledge Infrastructure Program (KIP) of 2009-10 and the Strategic Infrastructure Fund (SIF) of 2016-17. The fourth is an indirect method of transfers via funds included in the Canada Social Transfer that are (at least notionally) earmarked for funding postsecondary education. Each of these are discussed in turn.

The four granting councils provide roughly $2.5 billion in funding to Canadian institutions every year. Close to 99% of this funding goes to universities. This total expenditure figure rose very quickly in the first half of the 2000s, but the figure today, in real dollars, is roughly the same as it was in 2005-06, though there has been a recent increase due to the New Frontiers in Research Fund, which launched in 2018. Funding from both CIHR and NSERC tends to hover in the $850-900M range, though NSERC is now closing in on one billion in funding. After a long and flat period, SSHRC funding has increased to just over $340M in 2019-20. Funding from CFI is more erratic, reflecting the fact that it in the period covered in this graph, CFI did not yet receive annual funding allocations but instead received occasional endowment funding.

Figure 4.7 *— Research Granting Council Expenditures by Council, in Millions of $2019, 2001-02 to 2019-20*



Because research funding is granted on a competitive basis to individuals or groups of researchers, and these researchers tend to cluster at larger and wealthier institutions, it is more concentrated than operations funding, with the country's top three institutions (Toronto, UBC and McGill) receiving roughly 25% of all council funding. Table 4.1 presents the top fifteen institutions receiving grants from each of the three traditional granting councils. The percentage of total indicates how many of the total grants and awards indicated each institution received—the value of the grants is not considered in these calculations.

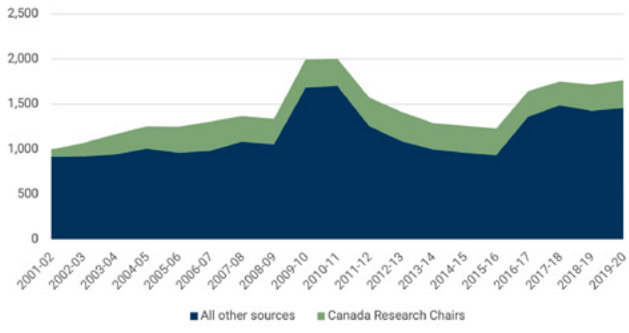
Table 4.1 *— Top Fifteen Institutional Recipients of Federal Research Funding, by Council 2019-20*

SSHRC *		NSERC**		CIHR ***	
INSTITUTION	% OF TOTAL	INSTITUTION	% OF TOTAL	INSTITUTION	% OF TOTAL
Toronto	11.56	Toronto	8.61	Toronto	9.59
UBC	7.24	UBC	7.80	UBC	9.22
McGill	5.83	McGill	5.69	McGill	6.7
York	5.03	Alberta	4.74	Calgary	5.48
Ottawa	4.59	Waterloo	4.52	Alberta	4.71
UdeM	3.97	SFU	3.06	McMaster	4.41
Alberta	3.62	UdeM	3.06	UdeM	3.12
Concordia	3.35	Dalhousie	3.21	Laval	2.78
UQàM	3.35	Ottawa	3.36	Western	2.64
Laval	3.18	Laval	3.21	Manitoba	2.5
Western	3.09	Western	3.14	Ottawa	2.49
Calgary	3.09	Calgary	3.36	Sherbrooke	1.77
SFU	2.82	Queen's	2.99	Dalhousie	1.49
Carleton	2.82	McMaster	2.7	Queen's	1.4
McMaster	2.56	Manitoba	2.7	SFU	1

**Includes Insight Grants and Insight Development Grants.*
***Includes Discover Grants Program-Individual, Research Tools and Instruments Grants, and the Subatomic Physics Grants.*
****Includes both CIHR awards and grants.*

There are a variety of other sources of federal funding for universities and colleges. The largest single on-going source is the Canada Research Chairs program, which provides roughly $275 million annually to Canadian universities to support talented researchers. Other federal funds arrive through departmental budgets and allocations. For instance, Health Canada provides universities with roughly $25 million per year for various services; Employment and Social Development provides similar levels of funding to colleges for various training programs. Research funds flow through various specialized science agencies such as Brain Canada and Genome Canada. Some money comes to PSE institutions through regional development agencies, mainly for infrastructure. Finally, the Government of Canada periodically spends large amounts of money on university and college infrastructure through one-time programs such as KIP (2009) and SIF (2016), which tend to appear during periods of economic downturn. From a government perspective, these infrastructure programs are as much about Keynesian counter-cyclical support to the construction industry during economic downturns as they are about higher education. Nevertheless, programs like KIP and SIF have permitted significant renewal and expansion of facilities on Canadian campuses over the past decade. Though detailed breakdowns are not readily available, total amounts are captured through the FIUC and FINCOL databases and amount to about $900 million per year for most years, though this increases to about $1.5 or $1.6 billion per year when major infrastructure drives are being undertaken, as seen below.

Figure 4.8 *— Direct Federal Funding to Postsecondary Institutions, Excluding Tri-Council Funding, in $2019, 2001-02 to 2019-20*



Finally, there is the matter of federal transfer payments to provinces for postsecondary education. Between 1957 and 1967, the Government of Canada attempted a modest form

University of Toronto,
Toronto, ON

of direct support to institutions. This was achieved through transferring a lump sum to a shell organization owned and managed by what is now Universities Canada, which then transferred the sums to individual institutions under its own formula. In 1967, this direct support was replaced by the Federal-Provincial Fiscal Arrangements Act, under which the Government of Canada agreed to split the costs of PSE 50/50 with the provinces, though in 1972 this support was amended by setting an overall growth cap of 15% per year on federal spending in this program. This program was not entirely run through cash transfers; a substantial portion of the federal contribution came through what are known as "tax points" (that is, a cession of tax room so that when federal tax rates decrease, provincial ones could equivalently increase).

In 1977, this arrangement was replaced with something called Established Programs Financing (EPF), which combined federal contributions for health and postsecondary education into a single transfer made up of a combination of cash and tax points. The cash transfer under EPF was initially tied to the rate of nominal GDP growth; later, total EPF was linked to GDP growth and the cash was calculated as a residual after tax points, meaning the cash portion as a proportion of the overall transfer began to shrink. Subsequently, the growth rate was reduced to GDP minus 2%, then to GDP minus 3% before being frozen altogether in 1990, all in the name of deficit-reduction. Since tax points continued to increase in value, and the cash transfer was a residual, the cash portion of EPF began to dwindle rapidly. It was expected that it would fall to zero early in the early 2000s.

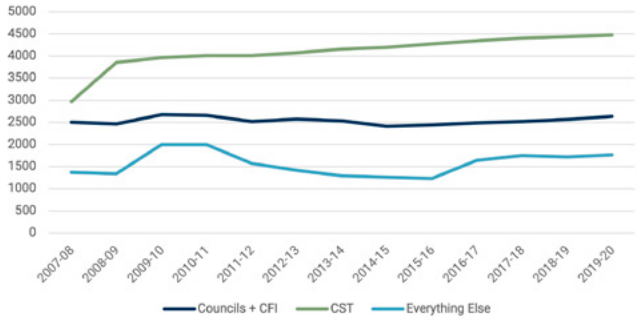
In 1995, the Government of Canada merged the EPF with another provincial transfer payment known as the Canada Assistance Plan (CAP) into a new program called the Canada Health and Social Transfer (CHST). This new, larger transfer was essentially one enormous block-grant of cash and tax points to the provinces, the only conditional element of which was that the provinces respect the Canada Health Act. The cash portion of the new CHST was set at just $12.5 billion, which was $6.5 billion less than what had been available under the combined CAP/EPF. But the 1995 budget also placed a floor under cash transfers, which put to rest the fears that cash payments would eventually dwindle to zero. As the economy recovered after 1996, the CHST cash payments grew. Over the next few years as the economy improved, billions of new dollars were poured into the transfer, mostly for the purposes of shoring up the health system; though accountability arrangements were not formally changed, provinces agreed to publicly announce what they would do with any new monies received through the transfer. By 2004, the value of the cash transfer had risen to $22.3 billion.

Page 42: Guelph-Humber, Toronto, ON
Above: Queen's University, Kingston, ON

In 2004, the CHST was split into a dedicated Canada Health Transfer (CHT) and a Canada Social Transfer (CST), with the latter designed to include spending for PSE, social assistance and childcare. The initial value was set at $8.3 billion. In 2007, the Government of Canada announced an $800 million increase to CST specifically for postsecondary education, though there was no way to directly tie this investment to specific actions by the provinces. Still, for the first time since the demise of EPF, it was possible to see the actual amount of cash transfer "designated" for PSE. Since then, 30.7% of the CST – which is now valued at over $14 billion – is deemed related to postsecondary education, meaning that federal transfers "in respect of" postsecondary education are currently just over $4 billion per year. This is equal to about 20% of provincial expenditures on postsecondary institutions, up from just 14% in 2007.

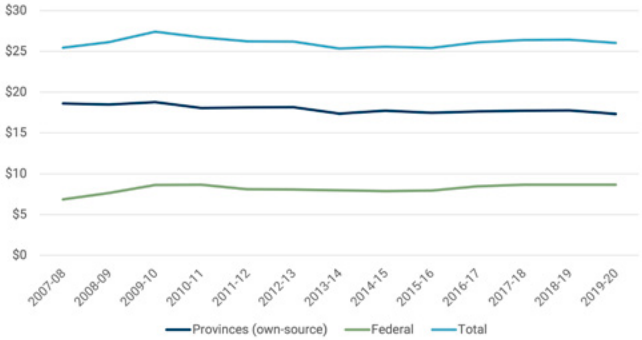
Figure 4.9 shows the relative importance of the CST compared to other forms of federal expenditures. Because CST rises automatically every year while other forms of funding have over time dropped off somewhat, the transfer is now a much more important part of the overall federal effort than it was even a decade ago. Over 50% of federal funds for PSE now go through the CST.

Figure 4.9 *— Federal Assistance to Postsecondary Institutions by Type, in Millions of $2019, 2007-08 to 2019-20*



Thanks to the clarification about the division of CST funds from 2007-08 onwards, it is possible to look at the distribution of postsecondary funding in Canada between federal and provincial governments without fear of double-counting the federal transfer. This is done below in Figure 4.10. If we look at federal expenditures on research, infrastructure and unconditional transfers versus provincial own-source expenditures (i.e. their expenditures net of CST), a nearly perfect 2:1 ratio of provincial to federal expenditure emerges. This is significantly changed from what was effectively a 3:1 ratio in 2007-08 prior to the introduction of the CST.

Figure 4.10 *— Federal and Provincial Own-Source Expenditures in Respect of PSE Institutions, Canada, in $2019, 2007-08 to 2019-20*



OCAD University,
Toronto, ON

Chapter Five / Tuition and Student Aid

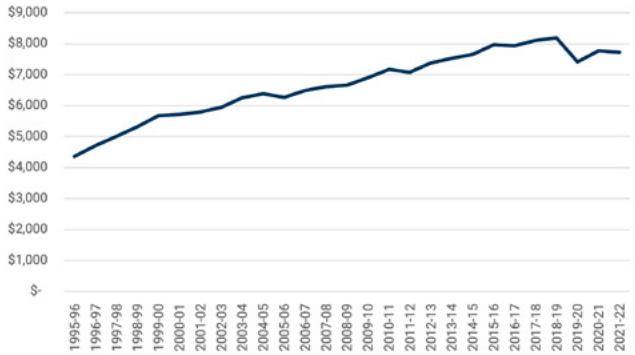
One of the most-watched elements of higher education policy relates to affordability. For the most part, the affordability debate focuses on the sticker price of tuition. However, this is only one part of the equation, because for all the billions of dollars institutions collect from tuition, Canadian governments and institutions also provide billions of dollars in subsidies and scholarships to offset these costs. Examining these issues in a pan-Canadian context is challenging, because tuition and student aid policies vary across provinces. This chapter will encapsulate the issues around affordability as concisely as possible.

5.1 TUITION

Tuition fees in universities and colleges are subject to a great deal of tug-of-war between institutions and provincial governments. Generally, the institutions seek greater freedom to set fees in order to raise revenues; provinces seek greater control over institutional policy to limit negative headlines about the cost of education (though provinces often lack the concomitant desire to provide institutions with greater funding to compensate for lower tuition). This tug-of-war plays out differently across provinces and across time. Sometimes provinces impose tuition fee freezes, and in some narrowly defined cases they permit fees to be de-regulated. Genuinely pan-Canadian trends in fee policies are few and far between. What unites Canadian provinces is the willingness to allow institutions to make up for falling government funding through international student tuition dollars.

Figure 5.1 shows domestic student tuition plus mandatory fees at Canadian universities, in real dollars, from 1995 to 2021 (the current year's data is an estimate based on various institutional fee announcements). In the 1990s, annual average rises in tuition were to the order of 5-7% per year, after inflation. After 2000 or so, once the era of significant austerity was over, rises in tuition began to moderate, and since that time annual averages increases in university fees have been very close to 2% per year after inflation. 2019-20 is an exception due to the Ontario government's decision to cut all tuition by 10%, which led to a substantial decline in the national average. For September 2021, fees are expected to decline slightly in real terms because of the higher-than-usual inflation experiences in the spring and summer of 2021. After inflation, undergraduate fees today are roughly where they were in 2014-15.

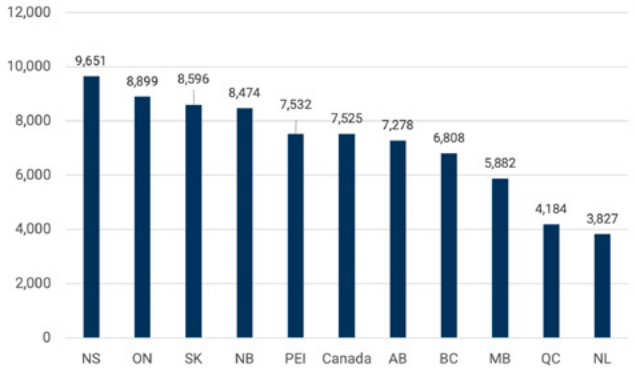
Figure 5.1 *— Average Domestic Undergraduate Tuition and Fees, Canada, 1995-96 to 2020-21 (est.), in $2021*



Equivalent data for college tuition is unavailable, as Statistics Canada chooses not to survey institutions on this and institutions themselves prefer not to be overly transparent on this matter. The closest we can come to obtaining national college tuition figures is to look at revenue per full-time equivalent (FTE), which is available by combining data from FINCOL and PSIS. This is not ideal because it is impossible to accurately disaggregate revenue from different sources (international vs. domestic, credential- vs. non-credential courses), but nonetheless this measure does suggest that the two types of institutions are similarly reliant on fee income: at universities, with much larger numbers of international students, the figure was $10,807 per FTE student per year in 2019-20. At colleges, excluding CEGEPs, the figure is around $9,124 per FTE student per year. What one should take from that is not that average college tuition is $9,124 per year (because this figure is driven substantially by international student enrollment and fees) but infer that the gap between university and college tuition in Canada outside Quebec averages somewhere between $1,000 and $2,000.

University tuition and fees vary significantly by province. Quebec and Newfoundland have very low tuition fees, both resulting from lengthy periods of tuition fee freezes over the last 40 years (Newfoundland recently announced that it will be departing from this model starting in 2022). Nova Scotia has the country's highest fees, though Ontario, New Brunswick and Saskatchewan are not far behind. Notably, participation rates in Canada universities do not appear to be driven by fee levels. Ontario has the highest participation rate in the country, and Nova Scotia is still able to attract proportionately the largest number of out-of-province students of any province in the country. Meanwhile, the lowest participation and attainment rates are found in the Western provinces.

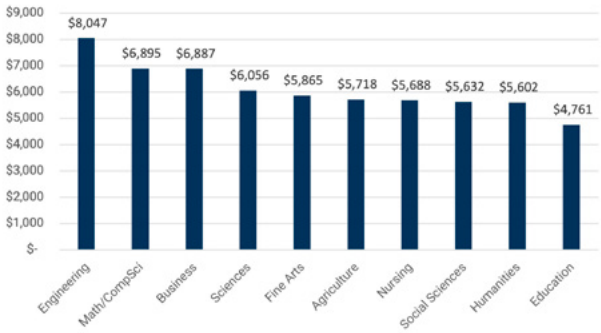
Figure 5.2 *— Average Undergraduate Tuition and Mandatory Fees, by Province, 2020-21*



5.1.1 TUITION BY FIELD OF STUDY

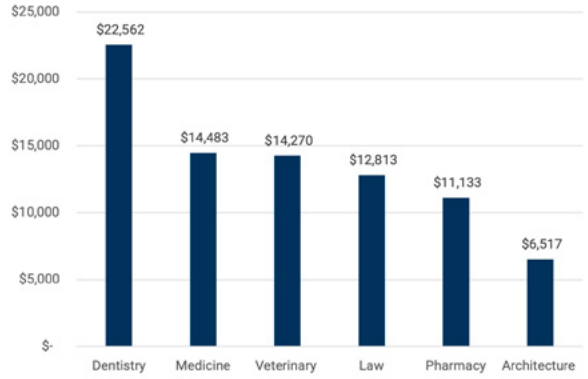
Fees also vary considerably by field of study. Figure 5.3 shows the variation for first-entry university undergraduate programs, while Figure 5.4 shows tuition for programs that are primarily (but not exclusively) second-entry university professional programs. Note that these figures include only tuition and not mandatory fees; this is because Statistics Canada produces data on average mandatory fees (which run to about $800 per year on average) but does not break them down by field of study. Figure 5.3 demonstrates that the median program price across the main fields of study in Canada (Business, Science, Social Science and Humanities) is probably around $6,000. Even adding on the $800 or so from ancillary fees not shown here would only bring the median tuition fee to somewhere around $6,800, or about 10% lower than the national averages noted in Figures 5.1 and 5.2.

Figure 5.3 *— Average Tuition Fees, by Field of Study, First-Entry Undergraduate Programs, 2020-21*



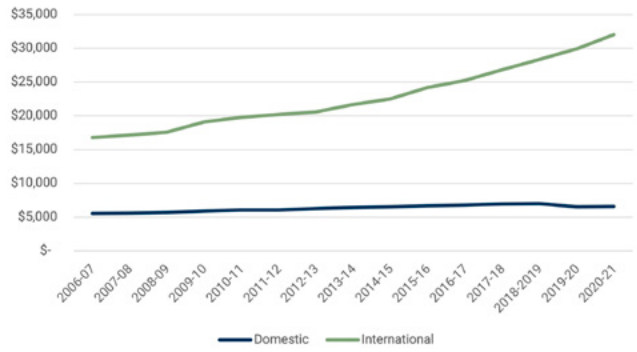
The reason for this average/median gap is simple: there are a small number of professional programs which charge fees dramatically over the median: over $22,500 per year in Dentistry, over $14,000 in Medicine and over $12,000 in Law. Even with relatively small numbers of students, these fee levels push the average up significantly.

Figure 5.4 *— Average Tuition Fees, by Field of Study, Second-Entry Professional Undergraduate Programs, 2020-21*



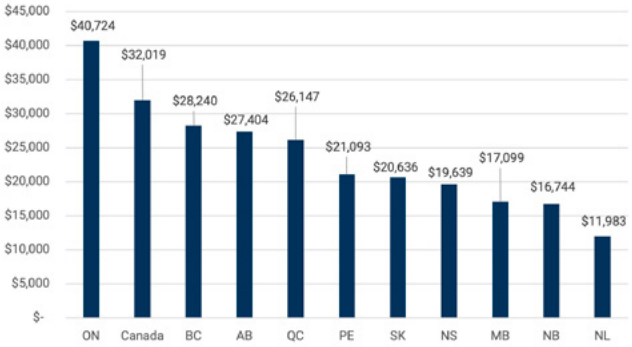
Domestic tuition fees are only part of the story. As we saw in Chapter 2, international student numbers have been increasing in recent years, and as shown in chapter 4, international student tuition dollars have become an increasingly important source of funding for universities and colleges. As Figure 5.5 shows, the increasing funds are coming not just from increased numbers, but increased fees as well. Whereas domestic undergraduate student tuition has increased at roughly inflation plus 2% over the past decade, international undergraduate student tuition fees have been rising at inflation plus 5%. Over time, the effect of compounding means those two numbers separate at an accelerated pace. In 2020-21, international student tuition averaged $32,019 per year, up from just $16,799 (in inflation-adjusted dollars) in 2006-07. Notably, this rise in fees has gone in tandem with regular double-digit increases in international student numbers: there is no sign yet that Canadian institutions are pricing themselves out of the market.

Figure 5.5 *— Domestic vs. International Student Tuition, Canadian Universities, 2006-07 to 2020-21, in $2020*



However, as is usually the case in Canada, the picture for international undergraduate student fees varies provincially. In the two provinces attracting the greatest number of such students, tuition fees are quite high: over $40,000 in Ontario and just over $28,000 in British Columbia. In the rest of the country, international student fees are more modest. In four provinces, fees are under $20,000 and in Newfoundland and Labrador they are a comparatively trifling $11,983. The reason for these gaps is unclear, but presumably provinces without a major metropolis feel they may have more difficulty attracting international students and price themselves accordingly. Intriguingly, universities mostly seem to set their prices below the average operating cost per student. This is presumably why so many of them claim not to be making money from international students despite the higher fees. Of course, the actual relevant metric here is not average costs but marginal costs, which can be quite low, meaning that even when charging low fees an institution is better off accepting more international students.

Figure 5.6 *— International Student Tuition by Province, Canadian Universities, 2020-21*



5.2 STUDENT ASSISTANCE

Student aid in Canada comes in many different forms. The most prominent of these forms is need-based student assistance, or student loans and grants. However, there are several other very significant sources, including tax credits, education savings grants, institutional scholarships, and sundry other funds like federal graduate scholarships and support for Indigenous students. In this section, we look at each of these areas in turn.

5.2.1 NEED-BASED STUDENT ASSISTANCE

Student aid in Canada is difficult to summarize. Student assistance, however, is an area of joint responsibility with the federal government. Not only is there a national program – the Canada Student Loans Program – but every province has its own student aid program. In nine provinces and one territory, these programs run alongside the federal program. Quebec, Nunavut, and the Northwest Territories have opted out of the Canada Student Loans Program and receive compensation for this, which they use to fund their own

standalone programs. In provinces where federal and provincial loan programs run side-by-side, the provincial government is the one which manages both programs, permitting them to integrate the two programs in a relatively seamless fashion. As such, students only make a single application to the two programs (though the needs assessment processes for each program may be quite different). To a large extent, provinces treat the federal program as a base, and use their own resources to build a program around it. Therefore, student programs can look very different from one province to another, given different provincial priorities and desires to invest in student aid.

Student loans are based on "assessed need". An applicant's costs of education (tuition, materials, books) and living (housing, food) are assessed, the latter according to a standardized allowance, to arrive at a total annual cost figure. Then the applicant's income and (in some cases) assets are assessed; if a student is considered a dependent then their parents' income is also assessed, and if a student is married then the spouse is assessed. This assessment leads to a determination of "resources" the student has available. Costs minus resources equals need, subject to some total assistance maximum. This maximum varies somewhat by province and student status, but it is at least equal to $350/week of study ($11,560 per academic year). This need figure equals the size of the student loan.

In contrast to loans, grants are usually based on income (both personal and family for applicants who are considered dependents) rather than need. This is the case for nearly all the federal grants, as well as those in Ontario, which is the source of over half of all provincial grants. Most other provincial grants are based either directly or indirectly on need, though a non-negligible portion of both provincial and assistance is also based on the presence of a disability.

One peculiarity of the Canadian student aid system has been the tendency of provinces to deliver at least a portion of their non-repayable assistance (i.e. grants) in the form of forgivable loans. For example, prior to 2017 in Ontario, single students enrolled for two standard-length terms per academic year could borrow up to $11,400, of which $4,300 (that is, the entire provincial portion of the loan) could be forgiven if the student successfully completed the year. For the most part, these programs have been on the wane, though they remain significant in British Columbia and Nova Scotia.

Actual figures on loans and grants in Canada are difficult to come by for a variety of reasons. Federal data is, at best, three years out of date by the time an annual report is released. Apart from Alberta, Quebec, and Saskatchewan, most provinces do not publicly release data on the amounts of loans and grants they deliver. Through to about 2010, provincial governments did publicly release some loan/grant statistics via an annual survey run by the Canada Millennium Scholarship Foundation, so reasonably good data is available until the start of this decade. Since then, it has been more difficult to obtain data. For the past two years Higher Education Strategy Associates used freedom of information requests to update pre-2010 data to the year 2018-19.

Trent University, Peterborough, ON

McGill University, Montréal, QC

Figure 5.7 shows the total need-based assistance issued by type in Canada over the past 25 years, in constant 2020 dollars. Net loans – that is total loans minus loan remission – are shown to avoid double-counting. Student aid reached a peak during the recession in the mid-1990s when tuition fees were rising quickly, before fading away due to a combination of lower need (as students began to earn more income in the post-96 recovery) and a tightening of student loan criteria to exclude more students at private vocational colleges. From about 2000 onwards, the total amount of student aid provided by Canadian governments, both federal and provincial, increased by about 4% per year on average after inflation. It then increased very substantially in 2017-18 due to changes both in the federal program and in the province of Ontario, which in both cases involved eliminating tax credits and converting them to grants. In the final year for which data is available, total government need-based aid was roughly $9.5 billion, of which 61% came in the form of loans. Of the remainder, roughly 98% was delivered in grants and the rest through various form of provincial loan forgiveness.

There have also been shifts over time in the sources of student aid, shown below in Figure 5.8. In the mid-1990s, most of the aid provided came from provincial governments. After 2000, and the creation of the Canada Millennium Scholarship Foundation, the balance shifted towards the centre and an increasing proportion of funds were provided either directly or indirectly by the federal government. Over the last few years, provincial funding has grown substantially, and it is provinces who once again provide over 50% of support to students. Note that this increase in provincial spending since 2010 was mostly confined to Ontario and Quebec.

Figure 5.7 *— Total Annual Loans and Grants Issued, Canada, 1993-94 to 2019-20 in Millions of $2019*

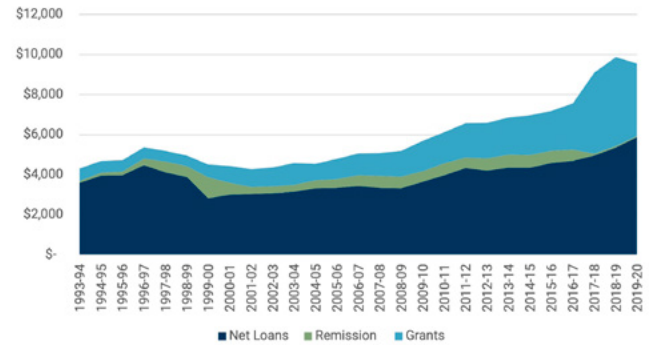
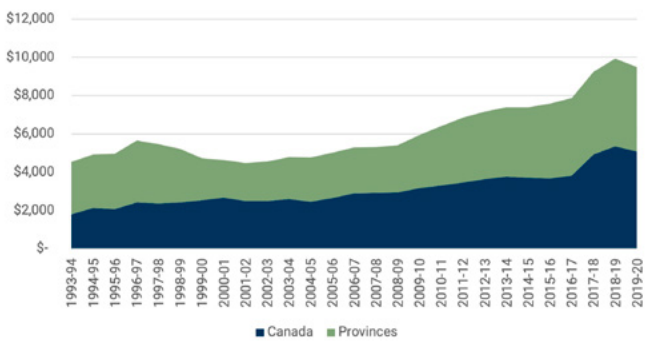


Figure 5.8 *— Total Annual Need-based Student Aid by Source, Canada, 1993-94 to 2019-20 in Millions of $2019*



Education Tax Credits in Canada: A Short Explainer

Tax-based assistance for postsecondary education in Canada pre-dates the student loan system. The Diefenbaker government introduced the first tax deductions for education in the late 1950s as an alternative to student aid. The tax deductions were for tuition and a set monthly allowance and could be used either by a student or passed to another family member. From then until 1996 there were only minimal changes: the value of the allowance went up somewhat, and the deductions were turned into credits (thus mostly eliminating the regressive aspect of the associated tax expenditure) as part of a major reform of taxation carried out by the Mulroney Government in 1987.

In 1996, the Government of Canada increased the value of the education credit from $60 per month to $80 per month. In 1997, it increased it again to $120 and then to $200 per month for 1998; it also allowed part-time students to enjoy partial access to the credit and incorporated mandatory ancillary fees within the ambit of the tuition tax credit. Another change allowed students to carry-forward any unused amounts of tax credits to future years, which was very beneficial for students who did not have enough income to be liable for tax. In 2000, the monthly amount doubled to $400 per month, with a concomitant increase for part-time students. In 2006, the Government of Canada created a new Textbook Tax Credit worth $65 per month, which worked precisely the same way the education credit did.

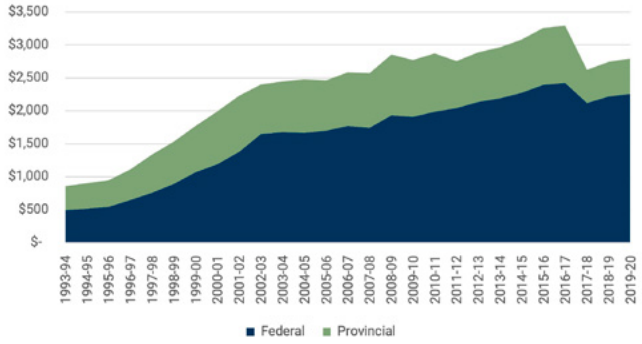
Until 2000, provincial taxes were calculated as a function of federal taxes. Therefore, whenever a federal tax credit was implemented, implicitly the credit reduced one's provincial tax payable as well. In 2000, the country moved from a TONT (tax-on-tax) system to a TONI (tax-on-income) one, under which provinces were given a great deal more freedom over the way taxes were calculated (e.g. they could have different rates at different income bands) and how tax concessions could be created (e.g. they could design their own tax credits), provided they all agreed to let Ottawa both collect the taxes and define "income". A majority of provinces froze tuition tax credits at the level they were at prior to the 2000 budget (i.e. $200 per month), and some chose to mirror the federal government's $400 rate. Alberta and Ontario decided to do the federal government one better by matching the $400 credit rate and then indexing the rate to inflation.

In 2015, the federal Liberals came in with a plan to move away from tax credits as a funding mechanism. In the 2016 budget, the government eliminated the education amount and textbook tax credits, leaving only the tuition tax deduction. They money was used to pay for an increase in student grants. Ontario and New Brunswick followed suit by getting rid of their education credits later in starting in 2017 and similarly re-investing the proceeds in student grants and create what were effectively "targeted free tuition" programs. In 2019, after changes of government in both provinces, these new programs were eliminated; in New Brunswick, this resulted in a re-instatement of the tax credit, whereas in Ontario it did not.

5.2.2 NON-NEED-BASED STUDENT ASSISTANCE

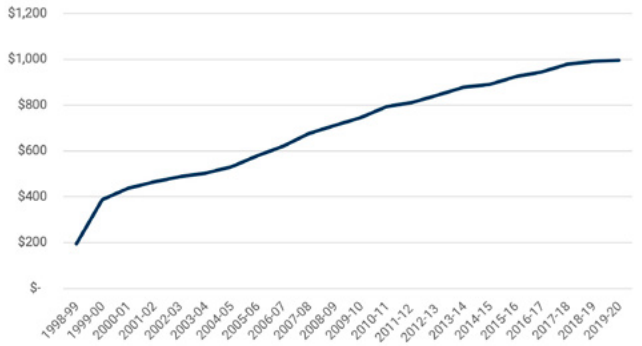
While need-based assistance provides targeted aid to students with low-income and/or high-need, there are billions of dollars in other forms of aid sent to students and their families without needs testing. The most important of these forms of aid are tax credits. As Figure 5.9 shows, the value of these credits rose from under $1 billion in 1996-97, to roughly $3.3 billion in 2016-17 in real 2020 dollars. Major policy changes in the federal and Ontario programs reduced total tax credits by almost $700 million in 2017-18, with most of this being turned into grants: currently, the total annual value of tax credits is estimated to be $2.8 billion.

Figure 5.9 *— Total Value of Education and Tuition Tax Credits by Source, Canada, 1993-94 to 2019-20, in Millions of $2019*



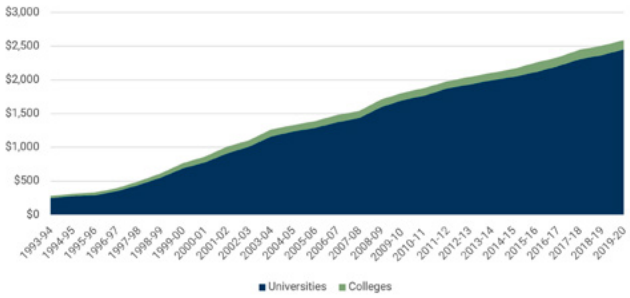
The other important government transfer program for postsecondary education is Education Savings Grants. Since 1971, Canada has had the Registered Education Savings Plan – that is, a savings account in which growth was permitted to escape tax. In 1998, the Government of Canada introduced a savings matching scheme, where it would contribute 20 cents for every dollar contributed to a RESP, up to an annual maximum of $400 (later increased to $500). This program, called the Canada Education Saving Grant, was very popular and take-up rose rapidly (see Figure 5.10, below). The one major change to the program came in 2004, when the government decided to address the complaint that CESGs were mostly a regressive give-away to wealthier families. First, the matching rate was increased for lower-income parents, up to 40% (this was known as the A-CESG). Second, a new program called the Canada Learning Bond was introduced. This program adds money to children's RESPs automatically if their parents' income is less than $46,000 per year (the threshold amount adjusts upward if the family has more than three children). The first year this occurs, the child's account receives $500; in every subsequent year this occurs until the child turns 18 another $100 is added. The barrier is that the parents need to open an account for the transfer to occur, and many do not, leaving the program with an only mediocre take-up rate.

Figure 5.10 *— Total Canada Education Savings Grants Payments, 1998-99 to 2019-20, in Millions of $2019*



The CESG has, in many ways, been successful beyond the wildest dreams of its creators. In its first few years of operation, it was expected to cost $300 million per year or so; today, the amount is close to $1 billion. In 2019, over 3 million RESP accounts received CESG and/or A-CESG payments and in total 53.5% of all Canadians under 18 have an RESP in their name. In the same year, 462,700 current students used money from their RESPs to pay for their education, in an amount totalling $4.4 billion.

Figure 5.11 *— Total Institutional Scholarships by Institutional Type, Canada, 1993-94 to 2019-20, in Millions of $2019*



The final major source of funding for students is institutions themselves, which provide almost $265 billion per year in scholarship and bursary funding to students. The overwhelming majority of this money (95%) comes from universities rather than colleges, in part because they have greater fundraising resources and in part because financial aid is a more important part of the enrollment management process at universities. Scholarships are perhaps the fastest-growing element of university expenditures in Canada, having increased ten-fold since 1992-93. Total university expenditures on scholarships is closing in on $2,500 per FTE student. Institutions provide very little in the way of breakdown with

respect to how this money is spent, specifically whether the money is awarded based on need or merit, and whether funds are supporting undergraduates or graduate students. Surveys conducted in the 2000s suggested that only about 25% of funds were going to undergraduates, and those funds were split on roughly a 50/50 basis between merit and need-based aid. This implies that the bulk of the funding – 75% of it – is supporting graduate students, and that therefore institutional aid spending is probably something like $600 per student annually at the undergraduate level and $7,500 per student annually at the graduate level.

5.3 TOTAL STUDENT AID

The preceding sections have looked at the four major sources of assistance: need-based student aid, tax credits, education savings grants, and institutional scholarships. These are not the only sources of student aid expenditures in Canada. Among the other sources of aid are the Government of Canada payments to First Nations and Inuit students through the Postsecondary Student Support Program (PSSSP), roughly amounting to $350 million per year, and scholarships for graduate students through the three traditional granting councils, which are roughly $200-$250 million per year. There are also sundry provincial merit programs, which once accounted for nearly $137 million per year but have declined significantly over the past few years. Provincial graduate tax credits – which provided tax rebates to PSE graduates who stayed in a particular province – were quite popular about a decade ago and accounted for nearly $100 million per year at their height, but as of 2017-18 only Saskatchewan maintains such a program. Quebec and Saskatchewan also have small programs which top-up contributions to Canada Education Savings Grants. Certain federal tax credits have also been excluded from the calculations above. In total, these various sources of aid add up to over $1 billion.

Figure 5.12 *— Total Student Financial Assistance by Type, Selected years, 1993-94 to 2019-2020, in Millions of $2019*

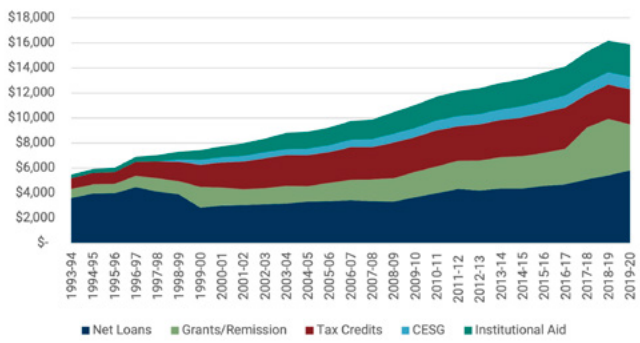


Figure 5.12 aggregates the four major sources of aid (excluding the programs noted in the preceding paragraph above) to provide a near-complete picture of how student assistance has increased over the past two decades.

There are three key points to be made here based on these data:

- Overall, the amount of money given to individual Canadians has nearly tripled over the past twenty-five years, even after accounting for inflation.
- The Canadian student aid system is less loan-based than it used to be. In the mid-1990s, loans made up two-thirds of all student aid; by 2017-18 that figure had fallen to just 32.5%. Since the mid-90s, government grants have increased by 385% after inflation, tax credits by 195% after inflation, institutional grants 684% after inflation, and education savings grants have gone from zero to almost $1 billion per year. This represents a sea change in the way postsecondary education is financed.
- The total amount of non-repayable assistance (that is, total assistance minus loans) was over $10 billion in 2019-20: if money from the additional sources not covered by Figure 5.12 are included, it increases to about $11.5 billion. We know from Chapter 3 that the total amount of tuition paid to Canadian universities and colleges was just under $17 billion in that same year; however, we also know that over $6 billion of this was paid by international students. Since very little student assistance is available to international students, it is possible to say that the total amount of non-repayable assistance given to Canadians each year is slightly higher that the total amount of tuition fees paid by Canadian students. Or, put another way, Canada has at most net-zero tuition for domestic students and may indeed be net-negative.

All of this said, it is notable that student borrowing is up sharply in recent years. Between 2017-18 and 2019-20, total borrowing rose in real terms by 24%, the same pace that it did during the major run-up in student debt in the 1990s. The difference is that this time, increased lending is not replacing grants and other non-repayable assistance, rather it is supplementing it. Mainly, what has happened is that governments have made it easier to borrow by reducing clawbacks for labour income. This has contributed to a national increase in the number of borrowers nationally of something on the order of 15%.

5.4 STUDENT DEBT AT GRADUATION

The effect of all this extra financial aid is most easily seen in student debt statistics. In the late 1990s, prior to all these major increases, there was considerable concern that Canadian students would soon be carrying debt loads resembling students from US 4-year private institutions (which, at the time, were in the neighbourhood of $37,000 CAD in today's dollars). Average student debt loads in Canada did increase sharply in the 1990s, but since that time have remained very constant and by some measures have decreased.

We have two data sources for looking at student debt over time. The first is the National Graduates Survey (NGS), which surveys every fifth (formerly fourth) graduating class three (formerly two) years after graduation. Despite the capricious survey timetable, it still is the country's most thorough examination of graduate debt because of the large sample, drawn from the entire graduate cohort of both universities and colleges. The drawback is that data can be outdated by the time it is published. This is particularly an issue for this edition: at the time of writing in the summer of 2021, the most recent observation is from 2015.

The second is the Canadian University Survey Consortium's (CUSC) triennial survey of graduating students. These have the benefit of being published almost immediately but the drawbacks of a somewhat inconsistent sample (consortium members are not entirely standardized from iteration to iteration), excluding colleges, and low participation from Quebec. The lack of Quebec figures tends to raise national estimates of debt because of lower average debt levels in that province. Both the NGS and CUSC sources are included in Figure 5.13 (CUSC data is indicated with an asterisk).

Figure 5.13 shows average student debt among those students who incurred debt. Evidence from various surveys suggests that the majority of Canadian college and undergraduate students do not incur any debt at all during their studies. The percentage students with government debt seems to range between 30-35% for college students and 40-45% for university students; the percentage of students reporting any debt is about ten percentage points higher.

In terms of debt trends, we see is a significant run-up in student debt levels in the 1990s, but a flattening out in real terms since 2000. Of the seven national surveys that have been undertaken since 2006, the value for undergraduate debt has moved around in a relatively narrow band between $25,000 and $30,000, with a mean value of just over $27,000. Thus, despite all the frequent platitudes about "ever-increasing student debt", the massive increase in student aid shown in Figure 5.13 has in fact brought the student debt problem relatively under control and since 2010, we have really not seen any substantial increase in average student debt.

The last instance for which we have complete data on debt at graduation for both universities and colleges is the most recent National Graduates Survey, which covered the graduating class of 2015. Figure 5.14 takes the data from this survey to look at the variation of average debt levels (among students who borrow) across the ten provinces. At the college level, debt is actually fairly consistent across the country, with students in most provinces having debt levels close to the national average of $15,000 (the exceptions are Manitoba and Quebec on the low side, and Alberta on the high side. Among undergraduates, the picture is quite different. Graduates who borrow from the three maritime provinces all have average debts in the $40,000 range, in Ontario and the west they are all around $30,000. Quebec brings down the national average somewhat by having average debt levels in the $16,000-range.

Figure 5.13 *— Average Student Debt at Graduation for Those With Debt, University Undergraduates and Colleges, Selected Years, 1982-2021, in $2021*

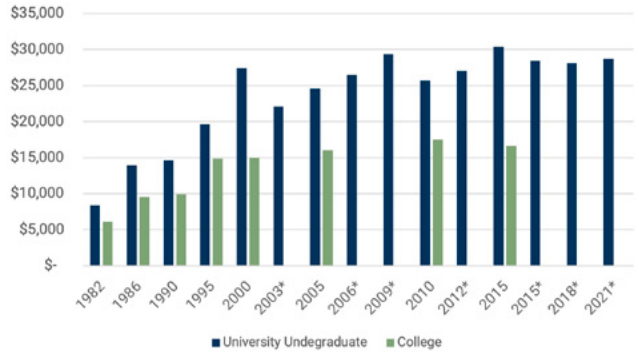
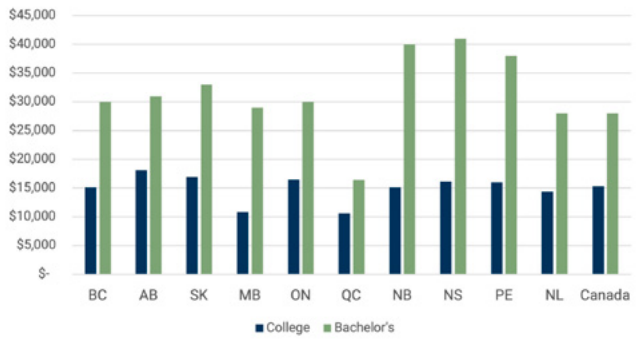


Figure 5.14 *— Average Student Debt at Graduation, by Province, Universities and Colleges, 2015*



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Chapter Six / Graduation, Attainment, and Graduate Outcomes

For most individuals, higher education is primarily a means for getting a degree and a better job. From the perspective of the state, it is a means for increasing people's participation in the economy. These are not the only rationales for higher education – there are certainly less utilitarian ones – but they are the primary ones for state and student alike. In this section, we will look at the outcomes of postsecondary education in terms of graduation rates, attainment rates, and labour market outcomes with respect to employability and incomes.

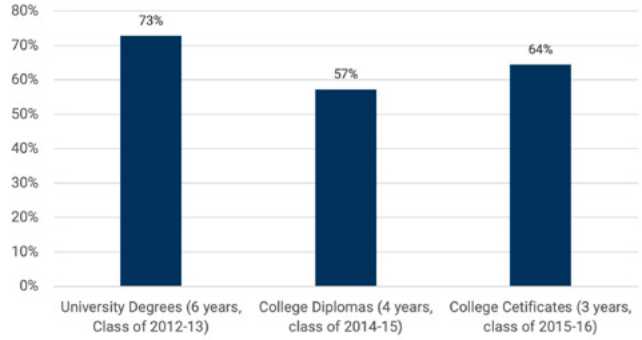
6.1 GRADUATION RATES

Graduation rates are among the hardest things to calculate in any country at a system-level. In theory, the calculation is relatively simple: what percentage of students who start a program receive a credential? But in practice, this is a difficult question to answer. If a student switches from one program to another, does the completion still count? If they switch from one institution to another, does it count? Can the system track students across institutions, so a student is not erroneously counted as a drop-out for moving from one institution to another? And then there is the function of time: how many years does one wait before ceasing to follow a student through the system? Five years? Seven? A host of both definitional problems and technical challenges are involved in tracking graduation rates.

Of late, Canadian data on graduation has improved significantly due to various enhancements in the Postsecondary Student Information System (PSIS). The best and most current data available on graduation rates, below in Figure 6.1, comes from a series of analyses done by Statistics Canada that look at cohorts which entered postsecondary education in the early- to mid- 2010s. For the most recent cohorts for which we have data, 6-year graduation rates from four-year programs (i.e. undergraduate programs) was 73%, the four-year rate for college diplomas was 57%, and the three-year graduation rate for shorter postsecondary certificates was 64%. These might be seen an undercount, as it only includes those who graduated with a qualification at the same level as the program in which they started (e.g.

someone who started in a undergraduate program but switched to a diploma would be counted as a non-completer; similarly, it excludes anyone who switched provinces to study after starting a program).

Figure 6.1 *— Completion rates by Credential Type, Canada, Most Recent Cohorts*

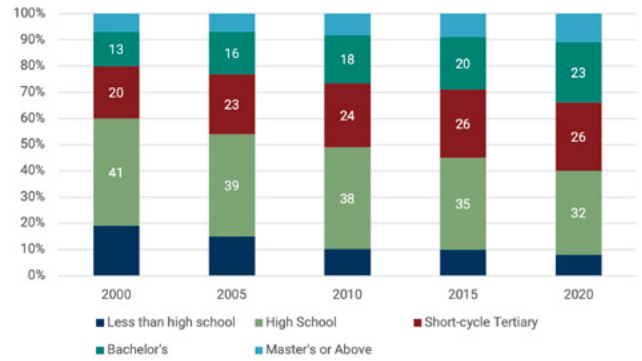


6.1.1 ATTAINMENT RATES

While graduation rates measure the percentage of students who complete their programs, attainment rates measure the percentage of citizens who have achieved a given level of education. A high level in one does not mean a high level in the other. Even jurisdictions that have low levels of access and completion might have quite high levels of attainment, due to immigration either from abroad or from other parts of the country.

Figure 6.2 shows the highest level of educational attainment of Canadians aged 25-64.[9] It shows a clear upward trend over time. In 2000, only 40% of Canadians had a postsecondary credential of some kind. By 2020, that figure had risen to 60%. Attainment at all postsecondary levels increased: working-aged Canadians with college credentials increased from 20 to 26%, those with bachelor's degrees from 13 to 23%, and those with graduate degrees from 7 to11%. This is what one would expect, as older workers with less education age out of the sample to be replaced by younger, more educated ones.

Figure 6.2 *— Educational Attainment Rates of Canadians Aged 25-64, Selected Years, 2000-2019*



However, if we look specifically at the attainment levels of younger Canadians, as we do below in Figure 6.3, the picture becomes somewhat more complicated. For this group, attainment rates are rising less quickly that they are for the population as a whole. Levels of bachelor's and graduate degree attainment have risen (from 18 to 29% and 6 to 12%, respectively), while college attainment has barely changed. Two things account for the discrepancy. The first is that the picture in Figure 6.2 is driven not just by high levels of attainment among young Canadians, but also low levels of education among older Canadians who leave the sample in each time period. For example, the 60-64 age-bracket in 2000 who left the sample in 2005 would have started high school between 1954 and 1958, which is a time when postsecondary opportunities were scarce. The second is that immigration affects the numbers as well, particularly given Canada's immigration system that favours higher levels of education. Persons with degrees who arrive after the age of 35 will affect the numbers in Figure 6.2 but not in 6.3.

Figure 6.3 *— Educational Attainment Rates of Canadians Aged 25-34, Selected Years, 2000-2020*

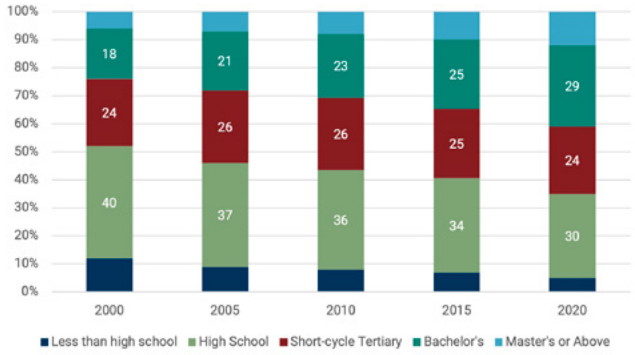
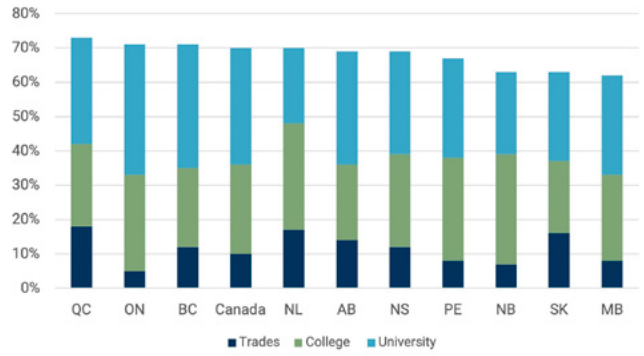


Figure 6.4 shows similar data on educational attainment of 25-34 year-olds, only by province. With the exceptions of New Brunswick, Saskatchewan and Manitoba, most provinces cluster around having aggregate attainment rates of about 70%, though the specific combination of trades, college and university credentials vary from one province to another. Trades are particularly predominant in the mix of graduates in Quebec, Newfoundland and Saskatchewan, colleges in Ontario, Newfoundland and Prince Edward Island, and university degrees in British Columbia, Ontario and Alberta. Note that this does not necessarily say very much about the relative importance of each sector in each province; Alberta and British Columbia have relatively small

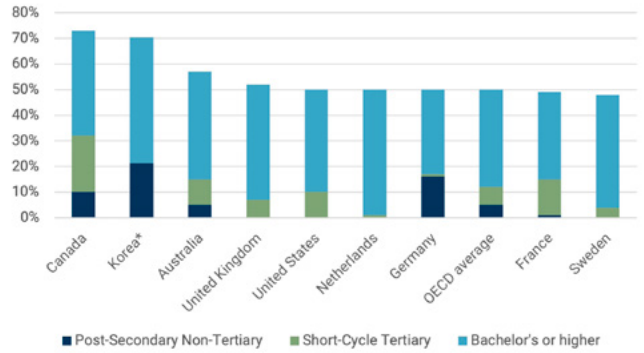
university systems but high university attainment rates due mainly to an influx of immigrants, either from other provinces or other countries.

Figure 6.4 *— Educational Attainment Rates of 25-34 year-olds, by Province, 2019*



According to the OECD (see Figure 6.5), Canada is the world leader in postsecondary education attainment, with over 70% of 25-34 year-olds holding some kind of postsecondary credential, compared to an OECD average of 50% (note that this is slightly higher than the proportion reported by Statistics Canada itself, which is somewhat puzzling). Canada achieves this mainly by having the largest proportion of its population with some kind of sub-baccalaureate education. These are split between what are known as "post-secondary non-tertiary" and "short-cycle tertiary", which very roughly can be thought of as the split within community college programs between those training for blue-collar and white-collar occupations. At the level of bachelor's programs and above, Canada is much closer to the OECD average, with 41% of 25-34 year-olds with some kind of bachelor's degree or higher. Across the Organization for Economic Co-operation and Development (OECD) as a whole, the figure is 38%, and in most of Canada's major comparators, the figure is somewhere in mid-40s.

Figure 6.5 *— Educational Attainment Rates of People Aged 25-34, Selected OECD Countries, 2018*

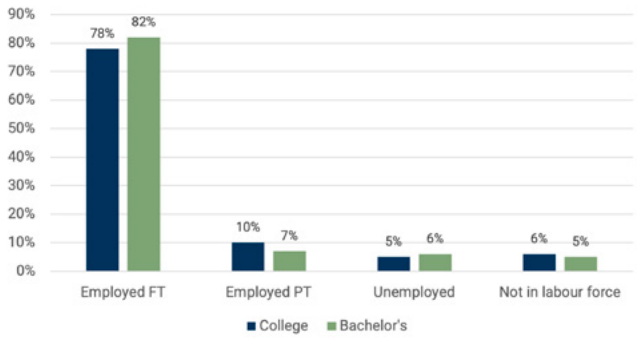


6.2 LABOUR MARKET OUTCOMES

One of the key outcomes of higher education is graduate performance in the labour market. Of course, this is not the only purpose of higher education, but it is the primary one both for governments and students. Canada was one of the first countries to produce a high-quality national survey of graduates back in 1978, and continued with a similar survey format every four or five years until 2005. Unfortunately, the reporting format changed for the class of 2010 (students were interviewed three years after graduation instead of two), meaning that we cannot accurately compare data from the last two surveys to the previous seven, which makes constructing useful time-series difficult. Regular provincial surveys exist in British Columbia, Alberta, Ontario, and Quebec, and there is a similar joint effort in the Maritime provinces, but they all ask slightly different questions at different times and issue slightly different public reports. Thus, while we know a great deal about graduate employment in Canada, it is not always easy to summarize nationally because of difficulties in compilation and comparison.

Figure 6.6 shows employment rates among all Canadian graduates from the class of 2015, three years after graduation. The rates do not vary a great deal across sectors: at that distance from graduation, the employment rates for universities and colleges are almost identical at about 90%, with the overwhelming majority in full-time employment. They also do not change very much over time: these results are virtually the same as the ones from 2010.

Figure 6.6 *— Employment Status by Level of Education Completed, Canada, Class of 2015*



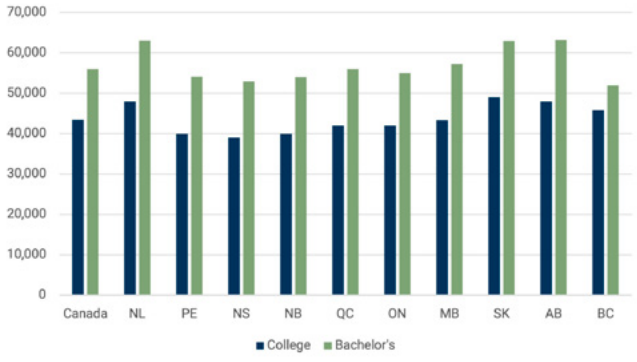
Provincial surveys usually report employment rates at shorter intervals than 3 years. They usually measure results at 6, 18, and/or 24 months. These data cannot be aggregated to show a single natural picture, though they indicate similar general trends. In Figure 6.7, we take data from Ontario, which contains about 40% of all university graduates, and look at reported employment rates 6 and 24 months after

graduation. What this shows is that transitions to the labour market do seem to be taking longer now than they did twenty years ago. The rate of employment after six months dropped quite significantly for those classes that graduated into the recession of 2008-9 and has never really recovered. For employment rates after two years, however, the drop was not quite as steep and actually bounced back somewhat after that recession, though it never quite regained its earlier heights. Similar patterns can be seen in most of the rest of the country, with the exception of Alberta where the oil boom that lasted for most of the period from 2006-14 produced quite a different set of patterns, particularly for students graduating with college/polytechnic credentials that allowed them to work in the oil/gas and construction industries.

Figure 6.7 *— Employment Rates at Six Months and Two Years, Ontario Undergraduates, Graduating Classes of 1996 to 2016*

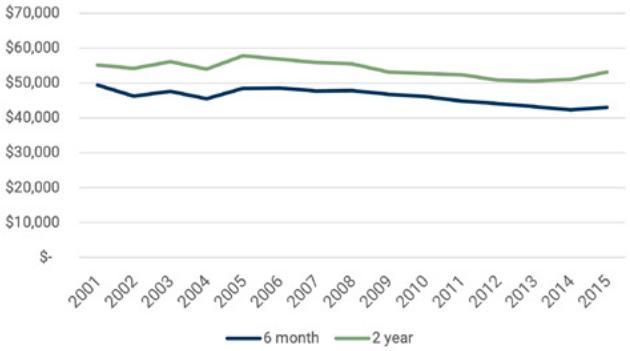
When it comes to graduate incomes, the National Graduates Survey shows that three years after graduation, the average college graduate has an annual income of $43,000, while bachelor's graduates have average incomes of approximately $56,000 (see Figure 6.8). Nationally, these figures vary. For the class of 2015, graduates from both college and undergraduate programs in the three "oil" provinces of Saskatchewan, Alberta and Newfoundland made significantly more than graduates from other provinces. This is obviously not a reflection on the quality of institutions in various provinces: rather, it is a reflection of the opportunities that were available to young graduates in different parts of the country in the mid 2010s. Given the long-term decline in oil prices since that time, graduate salaries might be in the process of equalizing somewhat across the country.

Figure 6.8 *— Graduate Incomes Three Years After Graduation, by Level and Province, Class of 2015, in $2018*



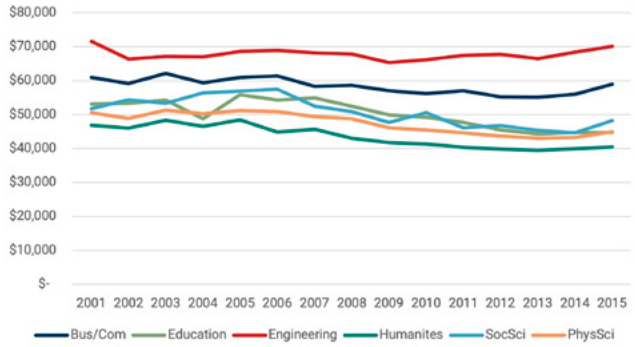
Turning to Ontario, which has a more comprehensive annual data set than any other province, Figure 6.9 shows a long slow decline in real graduate salaries both after 6 months and after 2 years. Notably, this decline began prior to the 2008 recession, around 2006. That was the year most of Ontario's "double-cohort" graduated (the result of a change in secondary curriculum which effectively meant that two cohorts of students graduated at the same time in 2002), which resulted in a somewhat flooded job market that year. In inflation-adjusted terms, graduate salaries in Ontario fell by about 15% from peak to trough; over the last couple of years, however, the tend seems to have reversed and salaries are heading upwards again. There are some intra-provincial differences to this story – more than there are with respect to employment rates – but overall, this trend seems to hold in most provinces.

Figure 6.9 *— Graduate Salaries at Six Months and Two Years, Ontario Undergraduates, Graduating Classes of 2001 to 2016, in $2017*



Ontario's data also allows a more detailed look at graduates' incomes by field of study. Figure 6.10 shows that most fields of study saw some decline in real salaries for graduates between the classes of 2005 and 2015, with Engineering and perhaps Business being the only exception. All the other major fields – Education, Humanities, Physical Sciences and Social Sciences – saw declines in graduate incomes of between 15 and 20% over that decade. Physical sciences is particularly interesting: although some commentators claim that jobs in "STEM" (Science, Technology, Engineering and Mathematics) are the ones that most obviously lead to high-paying jobs, this does not seem to be entirely true in Canada, at least with respect to science.

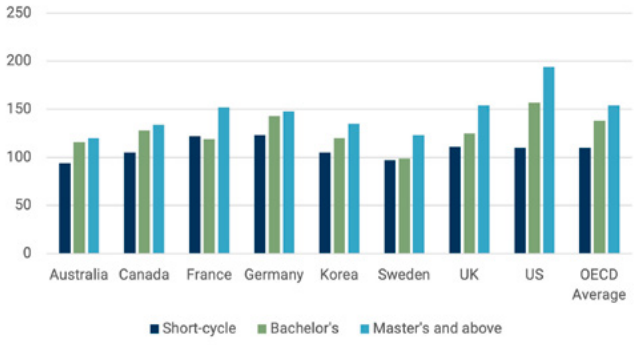
Figure 6.10 *— Graduate Salaries Two Years After Graduation, Ontario Undergraduates, Selected Fields of Study, Graduating Classes of 2001 to 2015, in $2017*



We conclude with international comparisons. Good apples-to-apples comparisons with respect to graduate outcomes across countries are challenging, partly because the labour market structure differs and partly because – as we saw in Figure 6.7 – the actual opportunities available to graduates in one country might be quite different than in another. As a result, the OECD has a different way of showing comparative graduate outcomes, which is to look at the "premiums" that university or college graduates have over upper secondary school graduates of the same age in terms of earned income.

Figure 6.11 shows the wage premiums for "short-cycle tertiary" (that is, longer, more white-collar programs at colleges), "bachelor's" and "master's and above" for selected OECD countries. Apart from France and Germany, short-cycle tertiary graduates have very low wage premiums across the OECD, to the point of actually having earnings below those of upper secondary graduates in Sweden and Australia (Sweden would also appear to have negative returns to bachelor's degrees). Returns to bachelor's degrees are highest in Germany and the United States, while the returns to advanced degrees are highest in the Us and the UK. This adds some rationale to the US practice of high tuition fees (to return some of these private returns to the public) and to the Swedish practice of low tuition fees (how can tuition be charged when there is no financial benefit?): German fee policy looks less convincing on these grounds. Canada, as usual, is in the middle of the OECD pack: our young graduates earn more than their non-graduate counterparts, but the wage premium to degree – particularly advanced degrees - is significantly smaller than it is in the United States. This may help account for persistent "brain drain" from Canada to US over the years.

Figure 6.11 *— Salaries of Graduates aged 25-34, by Type of Credential, Selected OECD countries (Salaries of Upper Secondary Graduates aged 25-34 = 100), 2018*



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Endnotes

[1] The term "full-time equivalent" (FTE) in Canada is a mathematical approximation equal to full-time students plus [part-time students/3.5]; it does not mean actual full-load equivalents based on credits taken.

[2] While Yukon College recently re-named itself "Yukon University", the vast majority of its programs are sub-baccalaureate and so for the moment is still considered a college by Statistics Canada, which is why the number of "university" students in the territories is zero despite a some students actually studying at that level.

[3] Tertiary education means ISCED level 5 and above, according to the United Nations Educational, Scientific and Cultural Organization's classification system. Roughly half of all postsecondary students at Canadian colleges are considered to be in tertiary programs, while the remainder are considered "postsecondary non-tertiary".

[4] The term college in this context does not include community colleges, which Statistics Canada does not bother to measure.

[5] These academic staff will, with only a few exceptions, hold the rank of assistant, associate, or full professor.

[6] Given the particularities of the CEGEP system in Quebec, these national trends may not wholly reflect the reality in that province.

[7] University totals in this comparison are lower overall because about 10% of their total expenditures are not categorizable using the definitions employed by colleges.

[8] For colleges, the term "administration" includes all Information technology costs as well as the costs of central administration, and seems to include a number of other miscellaneous items. In order to keep the figures for the two sectors as consistent as possible, Figure 3.7 includes on the university side spending both for "administration and academic support" and "computing and communications". Spending on "administration" alone is approximately 25% than what is shown here.

[9] Statistics Canada assigns a hierarchy to credentials which places college certificates and diplomas "below" those of university credentials. Thus, even if an individual received a Bachelor's degree and subsequently studied for and received a college diploma or certificate, their "highest" degree would still be a bachelor's. Many in the college sector understandably disagree with this stance; nevertheless, due to the data source, it is the only definition available to us and it is therefore the one we use in this document.

Appendix A / Describing the Canadian Postsecondary Education System

DEFINING THE POSTSECONDARY SECTORS

Postsecondary education is very broadly defined in Canada. Traditionally, we think of the system as consisting of organizations called "universities" and "community colleges", but these definitions are no longer so tidy. New hybrid organizations, usually referred to as polytechnics, have evolved out of the college system to become a distinct part of the institutional landscape. The term "postsecondary" also includes a system of apprenticeships, which is quite unlike its European counterparts in both its structure and its target population. Additionally, a reasonably large private vocational schools sector provides certifications, mostly for short training programs of less than 12 months' duration. This chapter provides a detailed overview of the sector's main components.

WHAT IS A UNIVERSITY?

Most of the earliest universities in Canada were denominational institutions, designed to provide either religious education for future clerics or religiously-inspired education for future primary/secondary school teachers. State funding for universities began in the nineteenth century, but that funding did not become a regularly recurring annual public expenditure in most provinces until the Second World War. Formula funding in most provinces — that is, stable and predictable amounts given to universities based on objective characteristics like student numbers — dates only from the late 1960s or early 1970s.

Universities in Canada follow the global standard Bachelor's – Master's – Doctorate procession. The typical length of a bachelor's degree program is four years except in Quebec, where it is three. Most professional programs (medicine, dentistry, law) are technically undergraduate programs but are usually considered "second-entry" bachelor's programs, to be started only after one's first bachelor program has finished. Quebec is a partial exception in that some spots in these programs are reserved for students entering directly from CEGEP (see below, *What is a College?*).

There is no standard definition of what constitutes a university in Canada. Each province has legislation defining the use of the term, but these vary considerably in their stringency. Membership in Universities Canada, the country's peak representative body for universities, is often seen as an "unofficial" form of national accreditation, though the organization itself distances itself from such claims.

Because of this definitional vagueness, it is difficult to come to a standard count of universities in Canada. Universities Canada has 97 members, but it excludes a number of institutions which call themselves universities (e.g. Tyndale University, Quest University — see below, *nonstandard universities*) but includes a number of bodies which are federated with other institutions and which may not themselves actually offer degrees (e.g. Huron College/Western University, Trinity College/University of Toronto). Complicating matters is the Université du Quebec system, which consists of ten separate postsecondary institutions, as well as a number of institutions, such as the University of New Brunswick and the University of British Columbia, which have multiple campuses but are not usually described as "systems". The most restrictive definition — provincially-funded institutions reporting to a single President and not in a federated arrangement with a larger institution — would produce a count of 64 institutions, but other definitions could produce counts of up to 120 or so.

Until the late 1980s, universities had a monopoly on the delivery of bachelor's degrees in Canada, and they still do in Quebec and the four Atlantic provinces. Over the past 30 years, the Governments of British Columbia, Alberta, Ontario and Manitoba have begun to allow some colleges to deliver degrees as well, sometimes to widen access to the four-year degree, and sometimes simply to promote more competition in the postsecondary sector. Some of these institutions have since become universities in their own right (e.g. Vancouver Island University, Mount Royal University); of the remainder, a good number have begun to style themselves as "polytechnics" (see below). Universities do, however, maintain a monopoly over graduate education and basic research, though many colleges and polytechnics have over the past two decades carved out their own niches in applied research.

Canada has no official university typology. However, while Canadian universities come in a variety of shapes and sizes, they do tend to converge on a number of "types". Firstly, there are the large research universities with medical schools. There are fourteen of these, and they make up nearly all of what is known as the "U-15" group of universities (the fifteenth member, Waterloo, has neither a business school nor a medical school, but is included in the group because of its excellence in specific areas of technology). There are also a large number of small, non-research-intensive institutions, including a number of denominational universities (e.g. Redeemer), art schools (e.g. Nova Scotia College of Art and Design), the "Maple League" of Liberal Arts Colleges (e.g. Bishop's, Mount Allison, St. Francis Xavier and Acadia), or institutions that serve small cities and associated rural areas (e.g. University of Northern British Columbia, University of Prince Edward Island, Brandon University). In between, there are many institutions ranging in enrollment from about 5,000 to 50,000 which are usually given the label of "comprehensive" universities. The smaller ones (e.g. Trent University) resemble liberal arts colleges in their focus on undergraduate instruction while the larger ones (e.g. Guelph, Simon Fraser) are, on some measures, more research-intensive than some members of the U-15.

By international standards, Canadian universities are relatively autonomous from governments. Though some of the country's older institutions (eg. McGill, Queen's) have governing boards which are entirely independent of provincial governments, most Canadian universities do have some government appointees on their boards, though they do not always comprise a majority of the membership. As a general rule, these governors tend not to "take direction" from government and it is rare that a government tries to get its appointees to follow a particular line on a specific issue, though for a variety of historical reasons, governments' inclination to try to control institution through Board selection tends to grow as one goes further west across the country. For the most part, though, provincial governments are more inclined to steer institutions through the power of the purse than through Boards themselves.

Boards are mainly responsible for universities' financial affairs, as well as selecting Presidents and monitoring/evaluating their performance. Laval and Sherbrooke are the main exceptions here in that their Presidents are elected through an electoral college of internal stakeholders rather than selected by a Board of Governors. In academic matters, universities are governed by bodies which are usually known as Senates (though they sometimes go by other names, such as Faculty Councils). Elected academics usually make up a majority on these bodies, though elected students and various administrators sitting ex-officio can take up a large proportion of seats. A very few universities have a "tricameral" system which also includes a third body made up of elected alumni; the University of Toronto is unique in having a unicameral system consisting of a singular Governing Council which acts as both Board and Senate.

Non-Standard Universities

When the term “university” is used in Canada, it generally refers to stand-alone public institutions. But many institutions in Canada do not fit that definition and yet either use the term “university” themselves or are classified as such by others. Broadly, these fit into one of five categories:

Affiliated colleges: There are a large number of small, usually denominational, colleges which have federation agreements with larger, public institutions. The majority of these are in Ontario; in many cases, the colleges are older than the public institution with which they are affiliated. When Ontario finally agreed to publicly finance higher education on a large scale in the 1950s, it did so on the understanding it would not finance religious institutions, which at the time far outnumbered the non-denominational schools. For example, Laurentian University until very recently had federation agreements with Thornloe (Anglican), Huntingdon (United) and Sudbury (Catholic) Universities, and Assumption University is a federated body of the University of Windsor. Outside Ontario, we see similar arrangements at places like the University of Manitoba, which has St. Paul’s (Catholic) and St. John’s (Anglican) Colleges, and the University of Regina, which has two religious federated colleges (Campion and Luther) as well as an affiliation with the First Nations University of Canada. Occasionally, universities have minority-language associated colleges, such as St. Boniface at the University of Manitoba or Glendon at York University.

Stand-alone religious institutions: While many religious institutions sought arrangements with public universities, others did not. Some of these have membership in Universities Canada, such as Trinity Western University in British Columbia, King’s University in Alberta, and Canadian Mennonite University in Winnipeg. A few have degree-granting powers but stay outside Universities Canada, such as the St. Stephen’s University in New Brunswick, Tyndale University in Toronto and Burman University in Alberta.

Private non-denominational universities: There are very few of these. Quest University in British Columbia is perhaps the best known of this type, due to its rather unique “block” programming orientated around a single degree. This group also includes the business-orientated Canada University West in Vancouver, as well as the multi-campus Yorkville University and the online University of Fredericton in New Brunswick.

Indigenous institutions: Across Canada there are roughly 50 institutions, mostly in Western Canada, which provide postsecondary education specifically for Indigenous peoples. The funding arrangements for these institutions vary by province. With only one or two exceptions, they are not degree-granting institutions; to a large extent they serve as delivery platforms for programs established by a mainstream institution.

Offshore institutions: Canada has had a few foreign universities set up shop in Canada, but they often do not last very long. Charles Sturt University of Australia, for instance, offered teacher education programs at a campus in Brampton for about a decade before closing in 2016. Currently, the New York Institute of Technology and Farleigh Dickinson University both have campuses in Vancouver, while Northeastern University recently opened a campus in Toronto.

WHAT IS A COLLEGE?

Vocational education in Canada has a long history, but most publicly-funded postsecondary vocational education dates from the 1960s. Colleges are the most heterogenous part of the Canadian educational system: The institutions which go by this name vary significantly in nature from one end of the country to the other.

The "classic" form of community college delivers mostly vocational/trades programs to primarily mature students (i.e. not direct-from high school) in 2-year programs. At one point, this was the dominant form of community college in Saskatchewan, Manitoba, Ontario and the four Atlantic provinces. Over time, as the economy has become more service-driven, the offerings of colleges have become white-collar orientated. They remain focused on professional education leading directly to careers, but increasingly, these careers are in health care, technology and business. With a more professional orientation has come an increase in program length (Ontario college programs are now mostly three years) and, outside the Atlantic provinces, an increase in the provision of actual degrees as well. Over time, Ontario has drifted the most from the "classic" model of colleges, the Atlantic colleges the least.

Alberta and British Columbia always had a slightly different model for community colleges, one which was much closer to the American model of "junior colleges". In these two provinces, community colleges had professional orientations like those in the other seven majority-anglophone provinces. However, in addition, they also had a university-transfer function. Both provinces initially were very cautious about expanding universities and so kept it concentrated to just two (Alberta) or three (B.C.) institutions, with students from outside the urban centres doing the first two years at regional colleges before transferring to the universities. Since the turn of the century, both provinces have been expanding their university systems (British Columbia more so than Alberta), and so the university-transfer aspect of colleges has eroded somewhat. Yet because of the transfer mission, both Alberta and British Columbia have extensive inter-institutional credit-transfer arrangements not replicated anywhere else in the country.

Quebec's college system is quite different from those in the rest of the country. Quebec has only five years of secondary school compared to six in the rest of the country (regular leaving age is 16 or 17 rather than 17 or 18). Students may then attend a College d'enseignement général et professionel (CEGEP) for two years. As in Alberta and British Columbia, there are two streams — a vocational/professional one which leads to the labour market, and a general one which ends with the awarding of a diplôme d'études collégiales (DEC), which is a necessary prerequisite to attend university. All university-bound students in Quebec must therefore attend college. This model made a great deal of sense 50 years ago when the province's small postsecondary system was mostly composed of Catholic "Collèges classique" offering education that was more rigorous than secondary education but less so than a full degree. During Quebec's Quiet Revolution of the 1960s, these religious colleges chose the college route, except for Bishop's, which converted to university status. This is probably not a model anyone would adopt deliberately today, mostly because it is no longer clear that there is any demand for an intermediate non-vocational credential between secondary school and university. Nevertheless, Quebec's current system is so entrenched that it will almost certainly survive through inertia alone.

WHO CONTROLS DEGREE-GRANTING AUTHORITY?

Universities, by definition, have authority to grant degrees. But in many parts of the country, so too do other organizations, including private institutions and community colleges. How did these bodies become degree-granting?

The power to authorize the granting of degrees rests with the various provincial ministers of advanced education. In nearly all provinces, there is enshrined in legislation a process by which institutions — be they community colleges or private institutions — can apply to offer degrees. Interested institutions must apply separately for each degree they wish to offer. Processes exist for dedicated arms-length organizations (such as Ontario's Postsecondary Education Quality Assessment Board, Campus Alberta, and the Degree Quality Assessment Board of BC) to evaluate whether the institution has the financial and human resources to offer the degree. If this is the first time an institution has made a request, there is usually a separate inquiry made into the suitability of the institution itself and its promoters.

While the dedicated organizations evaluate proposals, their role is only advisory: Ministers retain the final power to decide the merits of any given proposal. In practice, though, the recommendations of the arms-length organizations are accepted in the majority of cases.

There are over 200 community colleges across Canada, all told. Colleges tend to be open-access, and they are more likely to be located in rural and remote parts of the country than are universities. Indigenous peoples are more likely to be found at colleges than at universities. Colleges also tend to be smaller; there are only a dozen or so community colleges with more than 10,000 students.

From a governance perspective, colleges are often under tighter government control than universities; indeed, in several provinces, colleges were departments of government until the 1990s. Their Boards contain more members directly appointed from government and they tend to have less freedom to independently innovate in their programming. In Nova Scotia, New Brunswick, and Saskatchewan there are single "systems" of college education. On the labour side, college employees tend to be unionized at the provincial rather than the institutional level, meaning there is sector-wide bargaining in colleges (unlike universities where bargaining occurs exclusively at the institutional level).

WHAT IS A POLYTECHNIC?

The term "polytechnic" has a number of uses around the world. In France, it refers to one specific elite Engineering school. In the United Kingdom (up until 1992), it referred to a kind of junior college, offering university-style programming, but not permitted to issue degrees. It meant something similar in New Zealand for a long time, though recently those polytechnics have come to have much more professional and technical foci as well. In Finland, polytechnics (technically "ammattikorkeakoulu") are also known as "Universities of Applied Sciences", and while they focus on practical and professionally-oriented education, they also engage in applied research and issue both bachelor's and master's degrees.

Except in Alberta, the term polytechnic does not have a specific legal meaning in Canada. Rather, as some Canadian community colleges — mainly the large ones from Ontario westward — have become more professionally-oriented and technologically sophisticated, increased their involvement in applied research and begun teaching bachelor's level programs, there has been a move on the part of some of these institutions to rebrand themselves with the term "polytechnic" and band together to lobby at the federal level under the banner "Polytechnics Canada". However, most Polytechnics Canada members also remain members of Colleges and Institutes Canada, the peak representative body for community colleges.

Prior to the adoption of the term "Polytechnic" about a decade ago, the last major institution to carry this label was Ryerson Polytechnic, which transformed into a university in the early 1990s. For this reason, the move by some institutions to adopt the polytechnics moniker is seen in some quarters as evidence that these institutions are simply colleges which want to become universities. In one or two cases that is clearly true: Sheridan College, a Toronto-area member of Polytechnics Canada, has been quite open in seeking

University of Manitoba, Winnipeg, MB

university status and Kwantlen Polytechnic University has already achieved it. Others, however, have turned down university status when it was offered to them (for example, the British Columbia Institute of Technology) and many major colleges, like Humber and Seneca, seem focused on forging an independent identity as Polytechnics.

APPRENTICESHIPS

Apprenticeships in Canada are a form of postsecondary education where learners combine periods in the workforce under the supervision of experienced tradespeople with periods of in-class study which occurs mainly, but not exclusively, in community colleges.

Technically, apprentices are not "students" and do not show up as such in enrollment statistics. Rather, they are employees who have signed specific apprenticeship contracts with employers and who periodically attend courses. Apprenticeships are organized by trade, and most trades are of the traditional vocational variety, particularly those related to housing, construction, automobile, and food industries. In the last decade, there have been various attempts to bring apprenticeships to other, more service-oriented occupations (mainly: aestheticians, early childhood educators and IT service professionals), with mixed results. Though efforts have been made to increase apprenticeship options in secondary schools, in the main apprentices in Canada tend to be in their mid-20s to mid-30s.

Apprentices pass through various "levels" before certification as journeypersons. The number of levels, as well as the number of work hours and weeks of in-class training, may vary by level, trade, and province. Broadly speaking, most of the major trades have four levels that require one year each to complete. Finishing the final level and passing the relevant exams entitles the individual to a provincial trades certificate; to work outside the province, individuals must complete a second set of tests known as "Red Seal Exams".

In international context, Canadian apprenticeships are outliers for a variety of reasons. The first is that they are considered postsecondary rather than a part of the secondary education system (hence the relatively advanced age of its apprentices). The second is the length of the programs (typically four years compared to two in most of Europe). The third is the release system for theoretical in-class training. Most countries use a day-release system which sees apprentices spend 3-4 days a week at work and 1-2 in class. This is not unknown in Canada, but more common is the "block release" system which sees apprentices work for 35-40 weeks at a time and then go to class for blocks of 8-12 weeks. The final difference is the relatively limited number of occupations for which apprenticeships are available: Canadian apprenticeships are mostly for blue-collar occupations and have seen relatively little expansion into areas such as banking, IT and office-work as has been the case in Europe.

PRIVATE VOCATIONAL COLLEGES

The final element of Canada's postsecondary education system is the private, mainly for profit, vocational colleges. These resemble the private for-profit sector in the United States except they focus almost exclusively on programs of one year or less rather than degree-level programming. They are quite common in certain fields which are not covered at community colleges, such as music production, aesthetician training, and dental assisting, but they also offer some relatively advanced IT training as well. Language schools are another large sector, though they mainly focus on students from outside Canada. Because they operate without subsidy, their programs tend to be significantly more expensive than those of community colleges; on the other hand, because they operate on a continuous-intake basis, they offer students more convenience than institutions whose only intakes are in September and January. There are several hundred of these institutions registered across Canada. Most are small, independent businesses, but a substantial portion of students are enrolled at large, chain institutions such as triOS College or CDI College, which tend to have a business or IT focus.

FEDERALISM AND POSTSECONDARY EDUCATION: WHO FUNDS WHAT?

A basic tension in the Canadian Confederation debates of the 1860s was how to create a system of representation by population, which also guaranteed to Catholic, francophone Quebec the ability to maintain control over cultural institutions — in particular educational ones. The eventual solution was a federal system with a national government elected through a rough representation by population, but with responsibility for education (among other things) vested firmly at the provincial level. This compromise is enshrined very specifically in s. 93 of the Canadian Constitution, which allocates responsibility for postsecondary institutions and their funding to the provinces. This in why Canada effectively has ten provincial systems of postsecondary education rather than a single national one.

Though operating funds - which includes both provincial government funding and tuition fees - are in effect exclusively the responsibility of provincial governments, the federal

University of Toronto, Toronto, ON

government contributes to the higher education sector in three ways: through transfer payments to provinces, support for scientific research, and various forms of student assistance.

The federal government transfers funds to provincial governments in two ways: first, through equalization payments designed to allow poorer provinces to provide services at levels similar to richer ones and second, through per-capita payments via the Canada Health Transfer and the Canada Social Transfer. These transfer programs originated in the 1940s, when the federal government "borrowed" tax room from provinces to pay for the war effort, and they continued in the 1950s/60s when the government began to use these tax revenues to pay provinces for the development of what we now know as our social safety net. Roughly 30% of the Canada Social Transfer is theoretically allocated to postsecondary education; however, since there is no way to track federal funds once they are in provincial coffers, this allocation is purely notional. In total the $3.5 billion or so from this source would account for only about 6% of total institutional revenue in Canadian PSE. Further details about these arrangements may be found in chapter 4.

Funding for scientific research at universities began in World War I, it but only became a major source of institutional funding during the 1970s. For many years, this funding was directed not to institutions, but to individual researchers (or groups thereof) through the granting councils. From the early 1990s onwards, however, there has been a gradual move towards funding research at an institutional level, first through the Network Centres of Excellence, then through the Canada Foundation for Innovation (which funds research infrastructure) and most recently through the Canada First Research Excellence Fund. Some provinces also fund research separately (notably Quebec), but the main sources of funding lie in Ottawa.

Student assistance in Canada takes various forms (see chapter 5), but both provinces and the federal government contribute to students' education through loans, grants and tax credits. In addition, the federal government spends over $1 billion per year in educational savings incentives.

In addition to the above, there is funding for capital, which tends to be erratic and come in bursts, often in the form of "stimulus" programs in times of economic downturn. Increasingly, outside Quebec at least, provincial governments are relying on occasional federal government spending sprees to take care of capital funding, though institutional fund-raising is also rising in importance as a source of capital funds.

Appendix B / Note on Sources

Most of the data used here is drawn from various Statistics Canada surveys, though some are developed from the author's calculations, using figures from the databases noted below. In many cases, descriptions of how the data was acquired and calculated is provided in the chapter text.

CHAPTER 1

Student numbers up to 2018-19 are drawn from Statistics Canada's Postsecondary Student Information System (PSIS), though supplemental data is drawn from sources such as Colleges Ontario, Polytechnics Canada, and other organizations as noted in the text. For universities, this has been supplemented for the 2019-20 and 2019-21 years with data provided by institutions themselves, either on their own websites, or websites of regional agencies (such as the Atlantic Association of Universities), or through the annual Universities Canada survey of enrollment. Where multiple sources of data exist, the preference is institutional > regional > Universities Canada. To avoid large swings in data, the final tow years are calculated using the reported percentage change in institutional enrollments, applied to the institution's 2017-18 Statistics Canada base. Enrollment data for colleges beyond 2018-19 are projections based on provincial-level data available from Quebec, Ontario, Alberta and British Columbia, along with institutional data from the New Brunswick Community College and the College Communautaire de Nouveau-Brunswick, which together cover over 90% of national college enrollments Other sources of student data include the Canadian Undergraduate Survey Consortium (CUSC)'s 2019 Survey of First-Year Students. Data on Canadian apprentices are from Statistics Canada's Registered Apprentice Information System; comparative data for Germany is from the Statistische Bundesamt document "Bildung und Kultur: Berufliche Bildung, Fachserie 11, Reihe 3, 2020". Data from other OECD countries are from the *OECD's Education at a Glance 2020*.

CHAPTER 2

Data on academic staff is mostly drawn from the University and College Academic Staff System (UCASS) survey for universities or from the Labour Force Survey. No national data exists with respect to non-academic staff at the college level but some sample data from Colleges Ontario's annual Environmental scan is used.

CHAPTER 3

Data on postsecondary finances are drawn mainly from Statistics Canada's Financial Information of Universities and Colleges (FIUC) survey and the Financial Information of Community Colleges and Vocational Schools (FINCOL) survey. Data is currently available up to 2019-20 for FIUC and 2018-19 for FINCOL. International Comparative Data is from the *OECD's Education at a Glance 2020*.

CHAPTER 4

Much of the data in Chapter 4 also comes from the most recent editions of FIUC and FINCOL, with per-student data calculated by using the sources listed for Chapter 1. Information on the granting councils are drawn from the reports on applications and grants issued by each the granting agencies (CIHR, NSERC, and SSRHC) and calculations drawing on the number of grants issued to researchers at universities.

CHAPTER 5

Data on fees comes from Statistics Canada's Tuition and Living Accommodation Cost (TLAC) Survey, apart from the data for 2020-21, which are author's estimates based on announcements from provincial and institutions sources. Data on loans and grants comes from a series of surveys and data requests conducted by Higher Education Strategy Associates and its predecessor organization Educational Policy Institute (Canada), as well as freedom of information requests conducted in the summers of 2020 and 2021. Data for 2018-19 are based mostly on data received from provinces as part of the freedom of information requests, but to some extent is based on estimates based on known public expenditure changes. Federal data on tax expenditures comes from the annual federal review of tax expenditures and partly based on a series of estimates based on provincial tax rates and Canada Revenue Agency data on tax filers and their use of credits. Data on the Canada Education Savings Grant (CESG) is from the CESG Annual Report. Data on institutional scholarship expenditures are drawn from FIUC and FINCOL. Data on student loan debt is taken either from Statistics Canada's National Graduate Survey or from CUSC's triennial survey of graduating students.

CHAPTER 6

Data on completion rates comes from Statistics Canada's Postsecondary Student Information System. Data on educational attainment over time and across provinces comes comes from Statistics Canada's Labour Force Survey. National data on graduate employment rates and graduate income for Canada comes from Statistics Canada's National Graduate Survey for the class of 2015. Data from Ontario comes from the Ontario University Graduate Survey and specifically from the annual publication produced by the Council on Ontario Universities. International Comparative data is from the *OECD's Education at a Glance 2020*.

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