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Ontario Colleges in a Comparative Perspective

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Executive summary

The aim of this paper is to provide a data-based comparison of the programmatic activity profile of Ontario colleges with that of colleges in other Canadian and international jurisdictions. The pursuit of that aim was impeded somewhat by the lack of data for many other jurisdictions on such basic indicators as total enrolment and numbers of graduates in different types of programs. Internationally the most widely available indicator related to the activity of colleges is the rate of attainment of short-cycle tertiary education (SCTE). Short-cycle tertiary education is the highest level of non-degree postsecondary education in the International Standard Classification of Education (ISCED), and rates of SCTE attainment for all OECD countries are published annually by the OECD and are available from Statistics Canada for Canada's provinces and territories. About 80% of the graduates of Ontario colleges are in this category of activity, and virtually all SCTE programming in Ontario is provided by the colleges. However in many jurisdictions SCTE accounts for a much smaller percentage of college activity, and organizations other than colleges are responsible for substantial percentages of SCTE.

Subject to data limitations that are described in the paper, the author found that relative to other jurisdictions Ontario ranks high with respect to every indicator pertaining to the scale of college provision of high level non-degree vocationally-oriented postsecondary education, but low with respect to the role of colleges in facilitating attainment of bachelor's degrees. The fact that relatively more people complete a program of SCTE in Ontario than in all OECD countries, and that the proportion of those who complete such a program that do so in a college is higher than in many OECD countries implies that the extent of SCTE activity of Ontario colleges greatly exceeds that of all OECD countries. Ontario accounts for about 62% of all SCTE graduates in Canadian colleges, and ratio of the number of SCTE graduates to the number of graduates of the next lower ISCED category is much higher in Ontario than anywhere else in Canada. In addition, the percentage of graduates who are in the highest level sub-categories of short-cycle tertiary education, advanced diploma and graduate certificate programs, is much higher for Ontario than any other province.

In contrast to the substantial scale of their non-degree programs, Ontario colleges have a relatively small footprint in regard to bachelor's degrees. Compared to other jurisdictions where colleges have been allowed to award bachelor's degrees for close to two decades or more, both the percentage of bachelor's degrees that are awarded by colleges and bachelor's degrees as a percentage of all college awards are quite low. In addition, Ontario has a quite low rate of college-to-university transfer.

By itself, a comparative study like this one is an insufficient base for developing policy proposals. However, such a study can be useful for identifying anomalies that may warrant examination. Ontario's relatively low ratio of the number of vocationally-oriented bachelor's degrees awarded by colleges to the number of high level non-degree credentials awarded may constitute such an anomaly. Both the scale of its high level non-degree activity and its track record of program assessment in a rigorous quality assurance system suggest that Ontario's college sector has the capability to contribute more to the attainment of career-focused degrees than it has been allowed to thus far. However, the paper notes that there may be some strengths in the present configuration of programs in the colleges, and a decision to expand college degree activity should be based on a detailed analysis of the pros and cons of doing so, which was not the intent of this paper. Drawing upon examination of other jurisdictions, the paper concludes by noting some practices that might be considered in Ontario if there is a desire to expand degree programming activity of the colleges.

Introduction

Information about the organization of postsecondary institutions in other jurisdictions has not played a significant part in decisions about the role of Ontario's colleges or the shape of the college sector. In the process leading to the establishment of Ontario's colleges of applied arts and technology in 1965, the only substantial research that was done pertaining to other jurisdictions involved the United States, particularly the state of California (e.g., Jackson 1964), but the U.S. community college was explicitly rejected as a possible model for Ontario's colleges. Ontario's approach to providing postsecondary non-university education was "essentially home-grown" (Fleming 1971:492). Similarly there was no mention of examination of models in other jurisdictions in the background information provided by the Government when it introduced the first formal differentiation in the college system with the designation of a subset of colleges as Institutes of Technology and Advanced Learning in 2003 (Ministry of Training, Colleges and Universities 2003).

This paper was motivated by the author's belief that it is useful to see how structures and arrangements for postsecondary education in Ontario compare with those of other jurisdictions and that it is possible to learn things from others that may be useful. The aim of the paper is to provide a data-based comparison of the programmatic activity profile of Ontario colleges with that of colleges in other Canadian and international jurisdictions. The introductory section of the paper discusses the principal types of colleges that are found in other jurisdictions and provides a simple categorization of college instructional programs.

I was surprised to discover how difficult it was to find basic data on colleges in most jurisdictions, e.g., total enrolment and numbers of graduates in different types of programs, let alone moderately more ambitious indicators such as enrolment by year of study or college-to-university transfer rates. One of the conclusions from my research for this paper is that in regard to colleges, relatively speaking Ontario is a pretty data-rich environment — though Ontario data has its limitations too, particularly with respect to equity indicators. The provincial data on colleges that Statistics Canada provides from its Postsecondary Student Information System (PSIS) is nicely complemented by Colleges Ontario's annual environmental scans and data posted by the Ministry of Colleges and Universities. I could not find anything of comparable detail to the latter two sources in other provinces.

Being less familiar with many other jurisdictions than I am with Ontario, I may have missed some valuable resources elsewhere. However, I did check the same basic sources in other jurisdictions as are so fruitful in Ontario: the ministries that oversee colleges, national statistics agencies, and associations of colleges. Besides Canada, the countries with the best publicly available data on colleges are the United States and New Zealand, followed by Ireland. Except for comparisons with a few American states, the international comparisons in the paper involve Ontario and other countries. Comparing a province of one county with other countries is a limitation of the paper, as there are significant regional variations in many countries in such indices as rates of educational attainment (OECD 2019).

This paper builds on a recent article by the author on the role of Canada's colleges in vocational education and training (Skolnik 2020). In comparison with that article, this paper provides data for more indicators for more jurisdictions and focuses primarily on Ontario, though corresponding data for Canada are also provided. In regard to the role of colleges in degree-granting the paper also builds on Jones and Skolnik (2009) and Wheelahan et al. (2017).

Most if not all countries and sub-national jurisdictions that have universities also have other types of postsecondary education institutions. These other postsecondary institutions are so varied in form, function, and name that "a consensus [has] never emerged" on a collective term for them (Teichler 2008:1). In a search of academic literature and policy studies pertaining to "community colleges and global counterparts", Raby and Valeau found over 1,400 publications since 1971 and identified 71

different terms used to refer to such institutions (Raby and Valeau 2017). Elsner, Boggs and Irwin (2015) give a list of the most common names: community colleges, technical colleges, technical universities, polytechnics, further education institutions, technical and further education institutions, institutes of technology, colleges of technology and junior colleges. The differences in the names of some of the books about non-university postsecondary institutions in different countries are indicative of the variation in the way these institutions are conceptualized: *Non-University Higher Education in Europe* (Taylor, Ferreira, Machado and Santiago 2008); *Global Development of Community Colleges, Technical Colleges and Further Education Programs, Revised Edition* (Elsner, Boggs and Irwin 2015); *Handbook of Comparative Studies on Community Colleges and Global Counterparts* (Raby and Valeu 2017); and *New Frontiers for College Education* (Gallacher and Reeve 2019). Grubb (2003) suggested that the variation in the names of these institutions is an indicator of “how much these institutions themselves vary” (Grubb 2003:54).

As with name, there are also differences in the ways that different sources describe what they regard as the common characteristics and functions of the sector. For Elsner, Boggs and Irwin, defining characteristics include “open access, a non-elitist orientation, a focus on the success of students in their learning” and “responsiveness to the education needs of local communities and their industries” (Elsner, Boggs and Irwin 2015:xiii). In elaboration on these characteristics, Raby and Valeau (2017) would add that ease of access should increase the enrollment of non-traditional, lower-income, and second-chance students; and that the institutions should be particularly attentive to meeting regional needs in “high demand occupations in changing economies”, and “providing economic and social capital that is needed to ensure social prosperity” (Raby and Valeau 2017:7).

Another very important characteristic of non-university post-secondary institutions — as that term might imply — is their relationship to universities. Almost all who write about the characteristics and functions of these institutions situate them in relation to universities, noting that these institutions emerged to address certain educational needs that universities were not meeting, and perhaps could not or should not meet. In general, the relationship between colleges and universities has been conceptualized in two different ways, which I have earlier labeled vertical, and horizontal or parallel (Skolnik 2016b).

Gallacher and Reeve (2019) provide a good example of the vertical conceptualization. They refer to the institutions that their book is about as “colleges”, and they state that the focus of the book is “on the institutions which lie *between* [my emphasis] secondary schools and universities” (Gallacher and Reeve 2019:3). As defined by Gallacher and Reeve, the three main functions of colleges are: to provide vocational education and training, particularly for apprenticeships and semi- or para-professions; to provide general education to promote social inclusion and facilitate access to further and higher education for students who lack the academic qualifications required to advance their education; and to provide courses at the sub-baccalaureate level that enable students to transfer to universities for the completion of bachelor’s degrees (Gallacher and Reeve 2019). They note that the relative emphasis on these three functions varies between countries.

In contrast to the way that Gallacher and Reeve conceptualize and locate colleges, Taylor et al. (2008) depict postsecondary institutions such as *Fachhochschulen* in Germany, *Hogeschole*n in the Netherlands, and *Ammattikorkakoulu* in Finland as *alternatives* to universities. The predominant role of these institutions is to offer bachelor’s and master’s degree programs of an applied or professional nature. Many of these institutions evolved from or were created from technical colleges that at one time were similar to Ontario colleges. The depiction of these institutions as alternatives to universities suggests a horizontal relationship between them and universities, in contrast to the vertical relationship of an institution that is viewed as lying between the secondary school and the university.

The Finnish system of *Ammattikorkakoulu* was established in the mid-90s, and originally the official English translation for their name was polytechnics. However, today the preferred English

translation for the alternatives to universities in Finland, as well as Germany and the Netherlands, is universities of applied sciences (UAS). Although these institutions award bachelor's and master's degrees they are not be confused with universities. For example, in Germany the word *Universität* is reserved for universities. Internationally, the term university of applied sciences appears to be used only as the English translation for a non-university institution in other than Anglophone countries. Similarly, while the degrees awarded by universities of applied sciences in Finland are referred to in English as bachelor's and master's degrees, a report of the European Centre for the Development of Vocational Training notes that the actual Finnish terms for bachelor's and master's degrees are reserved for use by the universities (Kokkonen 2019).

To accommodate both the horizontal and vertical conceptualizations of the relationship between universities and other types of postsecondary institutions it is helpful to enlarge upon and slightly modify the Gallacher and Reeve categorization of the functions of non-university postsecondary institutions. The categorization used in this paper is shown in Table 1:

Table 1
Types of Instructional Functions Performed by Non-university Postsecondary Institutions

1. Vocational Education and Training — Non-degree
2. Vocational Education and Training — Bachelor's and Master's Degree
3. University-parallel Studies in Arts & Sciences
4. General Education and Adult Upgrading

In this list — and in this paper — the word “degree” is used to refer to bachelor's and higher degrees, and not to include (two-year) associate's degrees, which are not awarded in Ontario or the rest of Canada except for university-parallel programs in arts & sciences in British Columbia. This usage of the word degree is consistent with conventional practice in Ontario and most of Canada.

The term “non-degree” was deliberately chosen for one of the categories of vocational education and training (VET) programs instead of “sub-baccalaureate”. Many college educators in Canada are of the opinion that VET programs in the colleges are so different from university bachelor's degree programs that the two types of programs cannot be meaningfully compared on a common scale. This point was impressed upon me many years ago when a former official of the Association of Canadian Community Colleges chastised me for referring to a college diploma program as a sub-baccalaureate program. This caution is particularly important in Ontario because of the prevalence of graduate certificate programs, which in many cases require prior completion of a bachelor's degree for admission. The distinction between non-degree and bachelor's degree VET is important for two reasons. One is that awarding bachelor's degrees may have significant implications for many aspects of college operation such as academic qualifications sought in faculty, curriculum, faculty workload, resource allocation, and research. Awarding bachelor's degrees may also introduce questions about institutional identity, aspirations and priorities.

The third category, university-parallel programs in arts & sciences, is intended to enable college students to transfer to a university with advanced standing. Traditionally this type of program was commonly referred to as a “transfer” program, since vocational programs were viewed as “terminal”, i.e., not intended or expected to be followed by further formal education (Campbell 1971:6).

Gradually during the 1970s in the United States, and perhaps a bit later in Canada, increasing numbers of graduates of college vocational programs began to seek to advance their formal education by transferring to a university. This shift in the aspirations of college vocational students was aptly captured by the title of a presentation that the noted American community college scholar Barbara Townsend gave at a conference of the American Association of Community Colleges in 2002: “*Terminal*

Students Do Transfer” (Townsend 2002). Still, as will be noted later, across the United States and Canada, transfer rates are much higher for students in university parallel arts & sciences programs than for students in vocational programs. Improving opportunities for students in college vocational programs to successfully transfer to a university has been a major focus of attention in recent years in many jurisdictions.

In regard to the fourth function listed in Table 1, Gallacher and Reeve note that “colleges have increasingly become providers of general education, and this has contributed to an important role in promoting social inclusion and widening access to further and higher education” (Gallacher and Reeve 2019:4). These contributions of general education, which typically are made through stand-alone general education programs, should be distinguished from the inclusion of general education courses in the curriculum of occupational programs in technical colleges. The purpose of including general education courses was to produce well-rounded graduates who in addition to their technical knowledge and skills also possessed communications and critical thinking skills and broad knowledge that could enrich their lives and enhance their participation in their profession and as citizens in a democratic society (Dennison and Gallagher 1986).

Today, in addition to general education courses that are embedded in the curriculum of occupational programs, many colleges — including almost all Ontario colleges — have stand-alone general education programs. These programs have a variety of different names and may serve a variety of purposes, including developing or improving a student’s facility in a second language. In most cases, the programs provide students of diverse academic and social backgrounds an opportunity to experience study at the postsecondary level, discover and explore new areas of knowledge, develop skills in communications, use of computers, and critical thinking, and — with the aid of vocational and academic counselling — explore pathways to develop their potential and realize their dreams. For many college students, the chief benefit of a general education program is to help them prepare for a college program in a specific occupational field, satisfy prerequisites for admission to the occupational program, and even complete some of the courses required in the occupational program. Some college students use general education programs to gain qualifications for admission to a university, and — depending upon how the college courses are designed and arrangements between the college and a university — earn some transfer credit.

In addition to their general education courses, most colleges also offer academic upgrading courses which enable a student to attain high school diploma equivalency or attain a proficiency level in specific subjects which might qualify them for an apprenticeship or other college vocational program, or improve their employment prospects. Like general education, adult upgrading may also contribute to social inclusion and widening access to postsecondary study. While conceptually distinct, in practice it may be difficult to distinguish between academic upgrading courses and general education courses that are not intended to be university-equivalent courses.

Terminology

The term “Non-university postsecondary education” is probably the most inclusive term for referring to the various types of educational institutions in other jurisdictions that have at least some features in common with Ontario colleges. It is a more inclusive term than “Non-university higher education”, because the meaning of “higher education” varies from country to country (Cantwell, Marginson and Smolentseva 2018). There are differences in regard to whether higher education is defined by type of institution or type of program, and whether non-degree vocational education is included under the rubric of higher education.

There are, however, two drawbacks to using “non-university postsecondary institution” as the generic term in a comparative examination of postsecondary institutions in different jurisdictions. For

one thing it is a rather clumsy term, especially when used repeatedly. The other concern is that it focuses attention on one aspect of the institutions under consideration, their relationship to universities. This may be an important aspect of these institutions, but there is much more to them than their relationships with universities. As an alternative to “non-university”, Grubb suggested using the modifier “tertiary” (Grubb 2003). While the terms tertiary and postsecondary are often used interchangeably in popular discourse, the *International Standard Classification of Education, ISCED 2011* distinguishes between them, and includes a category titled “Postsecondary Non-tertiary Education” (Unesco Institute for Statistics 2012). A possible advantage of using the term tertiary over postsecondary is that it would exclude institutions that offer postsecondary but not tertiary education programs, as defined by *ISCED 2011*. However the term tertiary is not widely used in Canada, and I am not sure that it would add much when tacked onto the noun college.

In this paper the term “college” is used as a generic noun for the institutions in other jurisdictions with which Ontario colleges are compared. The chief drawback of this term is that the words college and university are used somewhat interchangeably in the United States, although in recent years a number of community colleges have dropped the word community from their names. There was a similar problem in Canada at the time when provincial college systems were being established in the 1960s and 1970s. The name of the national organization that represented Canadian universities then was the Association of Universities and Colleges of Canada (AUCC). The word college in the AUCC’s name referred to small independent degree-granting institutions and colleges that were part of, or affiliated with, universities. When a national organization of Canadian colleges was established in the early 1970s, to avoid confusion with AUCC it chose the name Association of Canadian *Community* Colleges (ACCC). Even though Ontario had deliberately rejected the name community college for its new system of colleges, and the name community college was used in only three provinces, the word community was helpful in distinguishing the national organization of colleges from the analogous university organization. However, eventually this problem went away, as AUCC became Universities Canada, and ACCC dropped the word “community” and became Colleges and Institutes Canada (CICAN). Use of the term “colleges” here instead of “colleges and institutes” is for convenience and is in keeping with common practices in discourse about this sector in Canada. Clearly, institutes constitute an important component of this sector. Following Grubb (2003), my use of the generic term college is intended to include polytechnics or universities of applied sciences.

Comparing Patterns of College Activity in Different Countries

Ideally, looking at Ontario colleges in a comparative context would involve comparing the scale of college activity and its distribution among major functions in Ontario with that of other jurisdictions. If there were internationally comparable enrolment data for colleges in different countries corresponding to the college functions shown in Table 1, it would be possible to make comparisons of patterns of college activity. Unfortunately, the data required for such comparisons are largely not available. Data for Canada, United States, and New Zealand come closest to what would be needed, but the data for even these jurisdictions have some limitations. As noted earlier, for countries outside North America, government data availability is uneven, for example, pretty good for Ireland, not so good for the United Kingdom and Australia. Besides the kinds of data sources noted earlier, over the past ten to fifteen years, there have been several books with chapters about colleges in different countries that provided some information that was helpful for this paper (particularly Raby and Valeu 2017, and Elsner, Boggs and Irwin 2015).

The best set of comprehensive, reasonably comparable international data related to college activity does not pertain directly to college enrolment. However, these data do enable one to draw inferences about the scale of one of the major types of non-degree activity of colleges in different

countries. The data to which I refer here are on educational attainment of the adult population reported in the OECD annual publication entitled *Education at a Glance* (EAG). The annual EAG reports show the highest levels of educational attainment of the population for each OECD member country, of which there were 37 in 2018, and for partner countries of which there were 9 (OECD 2019). The categories of educational attainment correspond to levels of education in the *International Standard Classification of Education, ISCED 2011* (Unesco Institute for Statistics 2012).

In the ISCED classification system, Level 6 refers to Bachelor's degrees. The level immediately below, ISCED 5, is defined as "Short-cycle tertiary education" (SCTE). According to *ISCED 2011*, programs at this classification level must be of at least two years' duration and normally but not always are shorter than three years. The classification document further states that the typical SCTE program is practical, occupation-specific and intended to prepare the graduate for the labour market, but that the classification also includes academically-oriented programs.

In Canada, programs with the characteristics just noted are provided primarily by colleges. In 2017/2018, 96.8% of the 386,097 students who were enrolled in SCTE programs in Canada were in colleges¹ (Statistics Canada Table 37-10-0018-01). In Ontario virtually all SCTE enrolment was in colleges. Almost all of the 3.2% of SCTE enrolment in Canada that is accounted for by universities is found in British Columbia and Alberta, where former colleges that have become universities continue to offer SCTE programs. Universities account for 21.5% of SCTE enrolment in British Columbia, and 13.4% in Alberta. The role of universities with respect to SCTE in Alberta and British Columbia is similar to that in the United States. The principal form of SCTE in the U.S. is the associate's degree, and in 2016-17, 22.3% of the associate's degrees awarded by public colleges and universities were awarded by universities (National Center for Education Statistics Table P198).

In some countries, institutions other than colleges are the major providers of SCTE. In France, the main SCTE credentials are the BTS (*Brevet de Technicien Supérieur*) and the DUT (*Diplôme Universitaire de technologie*). The BTS is provided mainly through the advanced years of the technological track of the secondary schools, and the DUT is provided by technology institutes (IUTs) within the universities (Michel and Cervel 2019). The IUTs are formally departments of universities, although they have more "autonomy than ordinary university departments regarding recruitment of staff and budget management" (Kyvik 2004:396). In Austria short-cycle tertiary education is provided by "school-based" *Berufsbildende höhere Schulen* (BHS) which offer five year programs that overlap upper secondary and postsecondary levels, while the *Fachhochschulen* concentrate on bachelor's and master's degree programs (Fleischer 2019:3; see also Musset, Bloem, Fazekas and Field 2013).

According to the 2019 edition of *Education at a Glance*, in 2018 the country with the highest proportion of its working age population whose highest level of formal education was short-cycle tertiary education was Canada (OECD 2019). Canada's SCTE attainment rate was 26%, compared to an OECD average of 7%. The average for the European Union was 5%. The countries with rates closest to Canada were Japan at 21% and Austria at 15%, and only five countries had rates that were more than half of Canada's. Among the 9 OECD partners, only the Russian Federation (25%) and Argentina (14%) had double-digit SCTE attainment rates. What is especially pertinent for this paper is that not only does Canada have the highest SCTE attainment rate of any OECD country, but that SCTE in Canada is provided primarily by colleges — and in Ontario almost exclusively by colleges.

¹ These figures are based on data in Statistics Canada's Postsecondary Student Information System which covers public and private-not-for-profit universities and colleges that are funded by a ministry of education (Statistics Canada 2017/2018).

Variation in SCTE attainment rates within Canada

If the SCTE attainment rate for Ontario is close to the average for Canada as a whole, then Canada would be a good proxy for Ontario in international comparisons of SCTE attainment rates such as those found in *Education at a Glance*. Table 2 shows SCTE attainment rates for Canada, the provinces and the territories for 2018. The SCTE attainment rate for Ontario, 29%, was actually higher than the national rate of 26%. Two provinces (New Brunswick and Newfoundland & Labrador) had rates that were a point or two higher than Ontario's, and Prince Edward Island had the same rate as Ontario, but Ontario's rate was higher than that of the other six provinces and the three territories. Table 2 shows also that the provinces with an SCTE attainment rate higher than or the same as Ontario's had substantially lower degree attainment rates (bachelor's and higher degrees), and that Ontario had the highest degree attainment rate (35%) in Canada. Canada's degree attainment rate is almost the same as the OECD average (32% vs. 31%).

Table 2: Short-cycle Tertiary Education Attainment Rates and Degree Attainment Rates for Persons aged 25-64, Canada, Provinces, Territories and OECD Average, 2018

	SCTE Attainment Rate (%)	Degree Attainment Rate (%)
OECD Average	7	31
Canada	26	32
Newfoundland & Labrador	30	20
Prince Edward Island	29	26
Nova Scotia	26	30
New Brunswick	31	22
Québec	25	29
Ontario	29	35
Manitoba	25	29
Saskatchewan	19	25
Alberta	24	31
British Columbia	24	32
Yukon	21	32
Northwest Territories	23	23
Nunavit	18	15

Source: Statistics Canada 2019; Degree attainment rate refers to the sum of bachelor's, master's, and doctorate degrees.

SCTE attainment rates for different age groups

The 2016 edition of *Education at a Glance* provided a breakdown of SCTE attainment rates in 2015 by ten-year age group (OECD 2016). While the figures for 25-34 year-olds should reflect more recent trends, they show a pattern of variation among OECD members that is very similar to that for 25-64 year-olds in 2018. Among 25-34 year-olds in 2015 Canada had the highest SCTE attainment rate, 25%, compared to an OECD average of 8%. The countries with rates closest to Canada's were: Korea (22%), France (17%), and Austria (16%). At the other end of the spectrum SCTE rates for 25-34 year-olds in some countries were zero (Belgium, Czech Republic, Finland, Germany, Italy, Poland and Slovak Republic) or 1% (Estonia, Greece, Mexico and Netherlands). In the middle of the continuum were the United Kingdom (8%) and the United States (10%). Figures for SCTE attainment rates by age group were not provided for Japan, the Russian Federation or Argentina.

Table 3 shows SCTE attainment rates in 2015 for 25-34 year-olds and 55-64 year-olds for selected countries along with the percentage of upper secondary students who were in vocational programmes in 2016 which was taken from a table in an earlier publication of the author's (Skolnik 2020:6). The countries

selected illustrate a mix of different levels of SCTE attainment, different approaches to SCTE, and different types of colleges.

Table 3: Short-cycle Tertiary Education Attainment Rates for 25-34 and 55-64 Year-olds, 2015, and Percentages of Upper Secondary Students Enrolled in Vocational Programmes, 2016, Selected OECD Member Countries and Ontario

	SCTE Attainment Rate (%) 25-34 Year-olds	SCTE Attainment Rate (%) 55-64 year-olds	Upper Secondary Vocational Share 2016
Canada	25	23	9
Australia	10	11	56
Austria	16	13	69
Finland	0	18	71
Germany	0	1	46
Ireland	12	10	32 (2012)
Korea	22	4	18
Netherlands	1	2	68
New Zealand	3	5	31
United Kingdom	8	11	53
United States	10	11	n.a.
OECD Average	8	7	n.a.
Ontario	29	27	n.a.

Source: SCTE attainment rates (OECD 2016; Statistics Canada 2016); Share of upper secondary students in vocational programmes, (Unesco Institute for Statistics 2020a).

Comparison of the rates for 25-34 year-olds with those for 55-64 year-olds provides some indication of longer term trends, though this is not a perfect indicator, as it could be influenced by differential patterns of lifelong learning and immigration/emigration. Canada's SCTE attainment rate for the youngest group, 25-34 year-olds (25%) was close to the rate for the oldest group, 55-64 year-olds (23%), suggesting stability in its SCTE provision. Ontario's SCTE attainment rates for both age groups are higher than Canada's (and every country in the table), and close to the same for both age groups. Reflecting a rapid expansion of postsecondary education (Grubb, Sweet, Gallagher and Tuomi 2009), Korea's SCTE attainment rate for 55-64 year-olds was 4%, compared to its rate of 22% for 25-34 year-olds.

Finland displayed the opposite pattern to Korea's, having an SCTE attainment rate of 18% for 55-64 year-olds compared to a zero rate for 25-34 year-olds. As I discussed in an earlier publication (Skolnik 2020), the difference in attainment rates for the younger and older age groups reflected the effect of the reorganization of former technical colleges into a new system of polytechnics in the 1990s. Whereas the previous institutions had offered SCTE programs, the polytechnics concentrated on degree programs. While this institutional change resulted in a substantial increase in the output of bachelor's degrees, it also led to virtual disappearance of ISCED Level 5 provision. Non-degree vocational education in Finland is now provided mainly by the upper secondary schools, and Finland has the highest percentage of upper secondary school students enrolled in vocational programmes of any of the countries shown in Table 3 (see last column of Table 3). However, the secondary schools concentrate on ISCED Levels 3 and 4 (Kokkonen 2019).

The Netherlands and Germany show similar SCTE attainment rates for 25-34 year olds as Finland, though the percentage of upper secondary students in vocational programmes is not as high for Germany as for the other two countries. The Netherlands and Germany show almost no difference in SCTE

attainment rates between 25-34 year-olds and 55-64 year-olds in 2015, because the reorganization of tertiary technical colleges into a system of degree-granting polytechnic institutions occurred much earlier in those countries than in Finland. Colleges in Austria have a similar role as in Finland, Germany and the Netherlands, but Austria still has a comparatively high rate of SCTE attainment. Austria has the second highest percentage of upper secondary students enrolled in vocational programmes, and as noted earlier, the vocational programming of these institutions includes the provision of short-cycle tertiary education. Three of the four countries in Table 3 with colleges that are most like those in Canada — the United States, Australia, and the United Kingdom— have SCTE attainment rates that are similar to each other’s but less than half Canada’s rate. The other, Korea, which has junior colleges that offer similar types of programs as Canada’s colleges, had an SCTE attainment rate for 25-34 year-olds in 2015 that was not much below Canada’s rate. Of the two countries whose colleges have characteristics of both the Finland-Germany-Netherlands and the Canada-U.S.-Korea type, Ireland has a relatively high SCTE attainment rate and New Zealand has rather low rate.

Limitations of SCTE attainment rates as an indicator of college activity

Thus far we have shown that Canada has the highest SCTE attainment rate of any OECD country, exceeding those of most other OECD countries by a wide margin, and that Ontario’s rate is even higher than the average for Canada as a whole. We have noted also that international comparisons of SCTE attainment rates likely understate the contribution of Canadian colleges in SCTE relative to that of other countries, because in some countries a substantial portion of short-cycle tertiary education is provided by universities or by schools (or as will be noted later, by private training providers). However there are other factors that may influence comparisons of SCTE attainment rates between Canada and other countries and thus warrant some discussion. These factors, which are discussed in the next several sections, pertain to entry and completion rates in colleges; the scale of non-degree VET at other ISCED levels than that of SCTE; the extent of emphasis on programs of a vocational nature in non-degree activity of colleges; and subsequent degree attainment by SCTE graduates. Unfortunately, the availability of international data for all these factors is considerably limited.

Entry and completion rates in colleges

As I noted in an earlier publication (Skolnik 2020), other things equal, a jurisdiction’s SCTE attainment rate will be higher the higher the proportion first-year postsecondary students who start postsecondary education in a college rather than in a university, and the higher the proportion of college students who complete their program. I was able to find the percentage of students who start postsecondary education in a college, or data from which that percentage could be derived, for five jurisdictions besides Ontario, as shown in Table 4.

Table 4: Number of Entering College Students as a Percentage of Number Of Entering Postsecondary Students¹

	College Entrants as % of PSE Entrants	Institution, Year, and Source
Finland	59.9	Universities of Applied Sciences, 2018 Statistics Finland (2020a; 2020b)
Ontario	58.0	CAATs, 2018 Colleges Ontario (2019)
New Zealand	47.3 ²	ITPs, 2019 New Zealand Education Counts (2020b)
Ireland	44.7	Institutes of Technology, 2018 Higher Education Authority (2020b)
United States	35.7	Two-year institutions, 2011 Cohort Shapiro et al. (2017)
British Columbia	36.0	Colleges and Institutes, 2009-2010 ³ Cowin (2013)

¹Where the primary data sources listed other types of postsecondary institutions besides universities and colleges, the percentages in the table refer to the number of first-year students in colleges as a percentage of the sum of the numbers of first-year students in colleges and in universities.

²Figure was available only for domestic students. They comprised 84.3% of all students.

³This estimate covers the years 2001-2002 to 2009-2010 and is the weighted average for secondary school graduates who enter a postsecondary institution within one year of graduation and delayed entrants. Since the source did not list institutes separately it is assumed that the figures pertain to both colleges and institutes. It should be noted that there have been substantial changes in the structure of postsecondary education in British Columbia since the period covered by the estimate in the table above.

In Ontario, like Finland, close to 60% of students who enter postsecondary education start in a college. The difference is that in Finland all of the students who enter the colleges (universities of applied sciences) are pursuing a degree, whereas in Ontario only a small proportion of students entering college enrol in a bachelor's degree program. The figures for the other four jurisdictions range from more than two-fifths in New Zealand and Ireland to over a third in the United States and British Columbia.

It is generally thought that program completion rates are lower in colleges than in universities because many college students have weaker academic backgrounds than their university counterparts, and because more college students face financial hardships and many have to work long hours to be able to pay for their studies. For Ontario colleges, graduation rate is one of the key performance indicators for which data are collected annually. Longitudinal surveys of college students by the National Student Clearinghouse Research Center in the United States provide data on program completion for students in community colleges. Some data were found also in a Ministry of Education document for Québec, and in a Canada-U.S. comparative study of colleges, for British Columbia, the Atlantic Provinces, and the state of Ohio (Frenette et al. 2017). The results from these sources are shown in Table 5 below.

Table 5: Graduation and Dropout Rates for Colleges in Selected Jurisdictions

	Graduation/Completion Rates	Year and Source
Québec (5 year rates)		
2-year pre-university	70.8	2010-2011 Government of Québec (2014)
3-year career education	52.9	
Weighted average	64.5	
Ontario		
2-year programs (4 year rate)	64.6	2016-2017 Colleges Ontario (2017)
Total	66.6	
United States (6 year rate)		
	26.5 ¹	2017 Shapiro et al. (2017)
4 year Dropout Rates		
Atlantic Canada		
Traditional	35.9	2010-2013 Frenette et al. (2017)
Non-traditional	28.0	
British Columbia		
Traditional	38.2	2010-2013 Frenette et al. (2017)
Non-traditional	48.7	
Ohio		
Traditional	64.0	2004-2011 Frenette et al. (2017)
Non-Traditional	77.8	

¹This is the rate of completion of an associate's degrees or certificates at the starting institution. Another 3.3% completed an associate's degree or a certificate at a different two-year institution.

The graduation rates shown in Table 5 for Québec pertain to the collèges d'enseignement général et professionnel (CÉGEP). In Québec, the secondary school ends with Grade 11, after which a student who intends to attend a university must go to a CÉGEP to take a two-year, pre-university diploma program (Bégin-Caouette 2017). The CÉGEPs also offer career education programs of three years' duration. For the university-bound student, the two-year program provides a combination of the equivalent of Grade 12 and the first-year of university. In 2010-2011, the graduation rate in Québec's two-year pre-university programs was just over 70%, and the rate in the three-year career programs was nearly 53%.

Graduation rate is one of the key performance indicators (KPIs) in Ontario's college sector, and so the rates are reported annually. However, in the KPIs on the web site of the Ministry of Colleges and Universities, only the aggregate rate is shown, which for 2018-19 was 67.2% (Ministry of Colleges and Universities 2020a). I was able to obtain an unpublished breakdown of graduation rates for different categories of programs for 2016-17 (Colleges Ontario 2017). The aggregate graduation rate has been going up slightly (except for one year) since 2012-2013, and the rate for 2016-2017 was 66.6%. The rate for two-year (diploma) programs in that year was 64.6%. These programs would probably be the most comparable to the three-year career education programs in Québec, since the Ontario programs are predominantly career-oriented and both types of programs involve two years of study beyond the equivalent of Grade 12. The Ontario graduation rates are calculated for a period of twice the length of the program. Thus, the graduation rate for two-year programs in Ontario colleges is based on a period of four years from entry into a program, while the rate for a three-year career education program in a Québec college is for five years from the point of entry, i.e., both are calculated for two years beyond the length of the program. The range of graduation rates in Ontario colleges in 2016-17 was from 60.8% for three-year, advanced diploma programs to 86.1% for one-year graduate certificate programs (Colleges Ontario 2017).

The percentage of students that started a two-year program in a U.S. community college and graduated from their program within six years is 26.5%. Adding an additional 3.3% for those that completed a two-year degree at a different community college gives an upper estimate of 30%, less than half the Ontario rate and the Québec rate for pre-university programs; and well below the rate for career programs in Québec colleges.

Another source of information related to graduation rates is a Canada-U.S. comparative study of colleges by a group of Canadian and American researchers (Frenette et al. 2017). This study used data from Statistics Canada's Postsecondary Student Information System for British Columbia and for the Atlantic Provinces as a group, and from the Ohio Longitudinal Data Archive. The dropout rates shown in Table 5 indicate the percentage of students who four years after starting a two-year college program had neither graduated, nor were still enrolled. Subtracting these percentages from 100 would overestimate the graduation rate since the resulting figure would include both graduates and those still enrolled. The Frenette et al. study separates students into traditional (aged 18-20 at the start of their studies) and non-traditional (aged 21-35). The percentages of Ohio students who had either graduated or were still enrolled after four years were between 22% (non-traditional) and 36% (traditional). The mid-point between these two figures is about the same as the graduation rate for the United States in the Shapiro et al. (2016) study noted above. The dropout rates for Atlantic Canada and British Columbia in Table 5 are substantially below those for Ohio. Depending upon the percentage of students who were still enrolled in their two-year program after four years, the rates for the other Canadian provinces would seem to be in the same ball park as those of Ontario and Québec, and the graduation rate for Atlantic Canada could be even higher than Ontario's.

One of the factors that may be a major contributor to the large difference between graduation rates in Canada and the United States is the difference in academic preparedness of incoming students (Frenette et al. 2017; Skolnik 2020). In the Program for International Student Assessment (PISA) assessments of the performance of 15 year old students in math, science and reading in 70 countries, Canada ranked in the top ten in all three fields. In contrast, the results for the United States were below the OECD average in math, and around average in science and reading (OECD 2015). Frenette et al. (2017) note also that the proportion of college students who are required to take remediation courses is greater in the U.S. than in Canada, which they attribute partly to differences in academic preparedness and partly to differences in testing and other administrative practices. As an example of the latter they note that remediation courses are generally taken prior to program-specific courses in the United States, but concurrently with program-specific courses in Canada.

Although the number of jurisdictions with which comparisons could be made is small, such comparisons as are possible suggest that a comparatively high proportion of students who enter postsecondary education in Ontario start in a college, and that Ontario has a comparatively high rate of graduation from college programs. Other things equal, both factors would contribute to a higher SCTE attainment rate.

Other Types of Non-degree Vocational Programs

What *ISCED 2011* defines as short-cycle tertiary education is not the only kind of non-degree postsecondary education that Canadian colleges provide. They also provide programs at ISCED Level 4, "Postsecondary non-tertiary" (Unesco Institute for Statistics 2012:43). According to *ISCED 2011*, Level 4 programs build on upper secondary education, but are not at the same level of complexity as Level 5 (SCTE) programs, and often serve to broaden rather than deepen knowledge. A major limitation of *ISCED 2011* is that it does not provide explicit guidance on distinguishing between programs at successive levels of the classification system on the basis of complexity of knowledge, e.g., between higher level non-degree programs and baccalaureate programs. In regard to deciding whether a non-degree program

should be classified as Postsecondary non-tertiary (Level 4) or Short-cycle tertiary (Level 5), the key factor seems to be program duration. In *ISCED 2011* it is stated that Level 5 “has a minimum duration of two years” (Unesco Institute of Statistics 2012:48). However, there may be a conflict between applying the program duration criterion and a reasonable interpretation of the complexity criterion.

For example, the graduate certificate programs which Ontario colleges offer often require a bachelor’s degree for admission, and in fact more than three-quarters of the students in such programs possess a bachelor’s degree (Wheelahan et al. 2017b). However, since these programs are typically of one year duration, they don’t clear the bar for ISCED Level 5. Yet while Level 4 programs typically serve to broaden rather than deepen knowledge, in graduate certificate programs the emphasis is on teaching a narrow range of skills in depth (Thorsell 2015). The learning outcome standards for graduate certificate programs in the Ontario Qualifications Framework include the ability to perform a “specialized range of complex and non-routine activities” (Ministry of Colleges and Universities 2020b). Graduate certificate programs are classified at a level between an advanced diploma and a bachelor’s degree in the Ontario Qualifications Framework, which, like *ISCED 2011*, employs a hierarchical classification approach. Toor (2020) has noted the irony of placing the graduate certificate program below the bachelor’s degree given that the normal progression is from the bachelor’s degree to the graduate certificate rather than vice-versa. It would seem bizarre to treat graduate certificate programs as postsecondary, non-tertiary, especially when the Ontario Qualifications Framework places them at a level that is above the short-cycle, tertiary programs that Ontario colleges offer. In fact, even though Ontario College Graduate Certificate programs are normally of less than two years’ duration, they are treated by Statistics Canada as ISCED Level 5 programs (Statistics Canada 2017/2018).

The difficulty of determining where to place Ontario graduate certificate programs in the ISCED classification is an illustration of what Unesco has termed “the complexities of applying ISCED to TVET (technical and vocational education and training)” (Unesco 2006:9). Unesco noted that vocational programs are more difficult to classify than general programs because of “their greater heterogeneity, shorter average duration and higher specificity” (Unesco 2006:9). In discussing these problems of classification, Unesco mentions specifically the difficulties of distinguishing between Level 4 and Level 5, but stresses the importance of dealing with these difficulties because “acknowledging TVET’s undeniable presence at the tertiary level is a necessary step towards achieving parity of esteem with general education” (Unesco 2006:10).

Statistics Canada has also acknowledged the problem of distinguishing between “postsecondary non-tertiary education” and “short-cycle tertiary education” (Statistics Canada 2019:31). It suggests that as a consequence of this problem the number of persons who have attained ISCED Level 5 will be “somewhat overestimated” (p. 31). The example that it gives of possible overestimation is of “some CÉGEP or college university transfer program graduates who, under the international classification standards, would have been placed in ISCED Level 4” (p. 31). However, this type of overestimate should result only in cases where a survey respondent was not sufficiently precise about the nature of their diploma. According to the Postsecondary Student Information System (PSIS) Data User Guide (Statistics Canada 2017/2018), graduates of the two-year pre-university Diploma of College Studies in Québec should be counted as having completed a postsecondary non-tertiary program. Because there are so few graduates of this type of program in Ontario, the issue should have a negligible effect on the estimation of the SCTE attainment rate for Ontario.

A type of non-degree vocational education and training that is provided by colleges in some jurisdictions is the classroom or technical component of apprenticeship training. The extent of this type of college activity depends upon several factors such as: the overall extent of apprenticeship training in a jurisdiction; the typical age of apprentices; and the extent of private sector provision of education for apprentices. In some countries, it is common for individuals to start an apprenticeship while in school and much of the classroom component is provided by the secondary school. Canada has a relatively low rate

of apprenticeship; apprenticeship is predominantly oriented toward adults; and there is not a strong tradition of employer involvement in the training of young people (Lehman 2012). While the first factor may limit the overall extent of classroom education for apprentices, the other two factors make colleges the most likely place for such apprentice education as does occur.

In 2017-18, there were 30,105 apprenticeship starts in Ontario's colleges (Colleges Ontario 2019). To put that figure in perspective, in the same year, first-year enrolment in postsecondary programs in the colleges was 141,239 (Government of Ontario 2020a). I was not able to find data on how the numbers of classroom hours or weeks compare between apprentices and students in postsecondary programs. Nor was it possible to find much data on college involvement in apprenticeship education in other jurisdictions beyond a few observations pertaining to colleges in the United Kingdom. Gallagher and Reeve reported that 12% of students in General Further Education Colleges in England are enrolled in an apprenticeship, while in Scotland only about 8% of the apprenticeship program involves direct contact with a college (Gallagher and Reeve 2019).

Graduate Certificate Programs

We have already commented on the nature of graduate certificate programs and that they are intended for students who have previously completed a postsecondary diploma or bachelor's degree program. Toor (2020) notes that many of the students in these programs are graduates of university arts programs who are attracted by the prospect of gaining job-specific skills that will improve their employment opportunities. According to Ontario provincial data, graduate certificates constituted 15.9% of postsecondary awards by Ontario colleges in 2017, up from 11.9% just four years earlier (Ministry of Colleges and Universities 2020c). Ontario's graduate certificate programs are classified by Statistics Canada in the category "Post-career, technical or professional training program" (Statistics Canada 2017/2018:40). Graduates of Ontario colleges comprised 86.6% of graduates of this category of programs in Canada in 2017 (Statistics Canada Table 37-10-0070-01). The province with the next largest number of graduates of this type of program, British Columbia, accounted for 7.6% of graduates.

What I refer to here as graduate certificates sometimes go by other names. In other provinces these programs are known as advanced diploma programs (Statistics Canada 2017/2018). In the Ontario Qualifications Framework (OQF), the name of the generic classification which includes these programs is "post-diploma certificate" (Ministry of Colleges and Universities 2020b). However, the OQF notes that the actual qualification awarded upon completion of this type of program is the Ontario College Graduate Certificate. The only other province that has a provincial qualifications framework that includes qualifications typically awarded by colleges is Alberta. The Alberta Credentials Framework contains two different credentials for graduate certificate programs: a post-diploma certificate, and a post-bachelor's certificate (Alberta Government 2020). Similarly to the practice in Ontario, these programs are placed between the diploma and the bachelor's degree in the Alberta Credentials Framework. In 2017, graduates of these programs in Alberta comprised 2.9% of graduates of this type of program in Canadian colleges (Statistics Canada Table 37-10-0070-01).

While the scale of graduate certificate programs in Ontario stands out in Canada, it is impossible to say whether there are any other jurisdictions where this type of program is as prominent as it is in Ontario. Searches of data bases and documents in several other countries did not reveal the existence of such programs elsewhere. For example, according to the National Center for Educational Statistics (NCES) in the United States, certificates comprised about 43% of sub-baccalaureate awards by community colleges in 2015, but the NCES data do not include a category comparable to Ontario's graduate certificate programs (National Center for Educational Statistics Table P160). It is possible that some certificate programs in U.S. colleges may play a similar role as graduate certificate programs in Ontario. A 2012 study found that 19% of certificate holders also had an associate's degree and 12% had

bachelor's degree (Carnevale, Rose and Hanson 2012). However, of those who possessed both a certificate and an associate's degree, 62% earned the certificate before the associate's degree, about the twice the percentage who did the associate's degree before the certificate.

Data on Numbers of Graduates

Table 6 shows the numbers of graduates of Ontario colleges in 2017 by credential and ISCED category. The top two sections of the table enable one to compare the numbers of certificate and diploma graduates with the numbers of postsecondary non-tertiary (PSNT) and short-cycle tertiary (SCTE) graduates based on Statistics Canada's PSIS data. The second section provides some vindication for the amount of attention that I have given to comparisons of SCTE rates in this paper, as it shows that 4.7 times as many graduates of Ontario colleges are in the SCTE category as in the other ISCED category of non-degree postsecondary vocational education and training, postsecondary non-tertiary. While one might have thought that the SCTE-PTNT distinction would mirror the diploma-certificate distinction, a comparison between the first two sections of Table 6 shows this not to be the case. The ratio of the number of diploma graduates to certificate graduates is less than 2:1.

Table 6: Numbers of Graduates from Ontario Colleges by Credential and International Standard Classification of Education 2017

Source: Statistics Canada¹	
1) Certificate	34,989
2) Diploma	65,277
3) Total	100,266
Source: Statistics Canada²	
4) Postsecondary Non-tertiary	17,715
5) Short-cycle Tertiary	82,524
6) Total	100,239
Source: Ministry of Colleges and Universities³	
7) Ontario College Certificate	17,316
8) Ontario College Graduate Certificate	<u>15,941</u>
9) Total Certificate	33,257
10) Ontario College Diploma	49,267
11) Ontario College Advanced Diploma	<u>14,850</u>
12) Total Diploma	<u>64,117</u>
13) Total Certificate + Diploma	97,374
Estimate of Number of Graduates by ISCED Category Based on MCU Data⁴	
14) Postsecondary Non-tertiary	17,316
15) Short-cycle Tertiary	<u>80,058</u>
16) Total	97,374

¹Statistics Canada [Table 37-10-0087-01, Postsecondary graduates, by credential type, age group, program type and gender.](#)

²Statistics Canada [Table 37-10-0020-01, Postsecondary graduates, by institution type, status of student in Canada and gender.](#)

³Ministry of Colleges and Universities (2020c). Total Graduates by Occupational Division and Credential Type.

⁴Assumes that the postsecondary non-tertiary category consists of Ontario College Certificate graduates; and that the short-cycle tertiary category consists of Ontario College Diploma, Ontario College Advanced Diploma, and Ontario College Graduate Certificate graduates.

The reason for the difference between these two ratios (4.7:1 versus 2:1) lies in the treatment of the Ontario College Graduate Certificate (OCGC). As I have noted, according to the PSIS data user guide, the OCGC is treated as short-cycle tertiary education credential (Statistics Canada 2017/2018). To illustrate the difference between the two ratios, the third section of Table provides a finer breakdown of program categories using data from the Ministry of Colleges and Universities (2020c). The total number of graduates differs between the two data sources by a little less than three per cent, perhaps due to different definitions, aggregation procedures and reporting dates (lines 3 or 6 compared to line 13). Adding the MCU figures for graduates of diploma and advanced diploma figures (line 12) gives a figure that is close to the Statistics Canada figure for the number of diploma graduates (line 2); and similarly, adding the MCU figures for certificate graduates and graduate certificate graduates (line 9) gives a figure that is somewhat below but within range of the Statistics Canada figure for the number of certificate graduates (line 1).

The Statistics Canada figure for the number of PSNT graduates (17,715, line 4) is close to the MCU figure for the number of Ontario College Certificate graduates (17,316, line 7). This suggests that graduates of Ontario College Certificate programs — as distinct from graduates of Ontario College Graduate Certificate Programs — make up the vast bulk of postsecondary non-tertiary graduates. If one were to add the number of graduates of Ontario College Graduate Certificate Programs to the numbers of graduates of diploma and advanced diploma programs, one would get a figure of 80,058 (line 15) for an estimate of the number of SCTE graduates. This figure is about three per cent below the Statistics Canada figure for SCTE graduates (line 5).

Ontario accounts for about 62% of SCTE graduates in Canadian colleges. For six of the provinces and for the territories in total, the number of graduates of postsecondary non-tertiary programs exceeds the number of graduates of short-cycle tertiary education programs. In the other three provinces where the reverse is true the ratios of the number of SCTE to PSNT graduates are Nova Scotia 1.2, Prince Edward Island 1.5, and Alberta 1.6, compared to Ontario's ratio of 4.7. Excluding Ontario, the ratio of SCTE graduates to PSNT graduates for Canada is about 0.75, compared to 4.7 for Ontario. These comparisons show that non-degree programming in the colleges is in general at a higher level in Ontario than elsewhere in Canada.

It was not possible to find the corresponding ratios for colleges in other countries. The Unesco Institute for Statistics (2020b) provides data on enrolment by level of education for ISCED 4 and ISCED 5, but these figures are national totals which do not contain breakdowns by type of provider. Canada is the only country that I could find that publishes a breakdown of college enrolment and graduations by ISCED category, and Statistics Canada provides this breakdown as well for universities and for the provinces and territories.

It is possible to make an educated guess about SCTE provision by colleges in other countries by looking at the types of programs that are offered. Earlier it was noted that in some countries substantial proportions of SCTE are provided by other institutions than colleges, such as secondary schools and universities. It is also common for secondary schools to provide ISCED 4 programs. In Australia, in 2018 private training providers accounted for 71.3% of enrolment in nationally recognized training, while TAFE institutes accounted for 19.1% (National Centre for Vocational Education Research 2018a). Even at the highest levels of non-degree programs, private providers served more than twice as many students as did TAFEs (National Centre for Vocational Education Research 2018b). In New Zealand, ITPs accounted for only about 31% of enrolment in the highest level non-degree program category (Diplomas and Certificates Levels 5-7) in 2019 (New Zealand Education Counts 2020c). Given the variation in the proportions of non-degree vocational education and training that is provided by colleges, aggregate enrolment at different levels of VET would not be a useful indicator of differences in activity profiles of colleges in different countries.

Ontario College Advanced Diploma Programs

Ontario colleges have been offering both two-year and three-year programs since their founding in the 1960s. However, there was not a distinct credential for three-year programs until the middle of the first decade of the present century when the Ontario College Advanced Diploma was instituted in conjunction with the creation of the Ontario Qualifications Framework. An example of the advanced nature of this credential relative to the Ontario College Diploma can be seen by comparing the detailed program standards for the Electronics Engineering Technician and the Electronics Engineering Technologist (Ministry of Training, Colleges and Universities 2010a; 2010b). Both are expected to be able to “analyse and solve technical problems related to electronics engineering”. However, the technician is expected to be capable of applying “fundamental concepts of mathematics and science” (Ministry of Training, Colleges and Universities 2010a:9); while the Technologist is to be capable of applying “principles of advanced mathematics and science” (Ministry of Training, Colleges and Universities 2010b:9). Another major difference between the two credentials, found in the Ontario Qualifications Framework, is that the Advanced Diploma requires “. . . breadth beyond the vocational field, with exposure to at least one discipline outside the main field of study . . . to increase awareness of the society and culture in which they[graduates] live and work” (Ministry of Colleges and Universities 2020b). Examples of themes for study outside the vocational field are: arts in society; civic life; social and cultural understanding; personal understanding; and science and technology.

In 2017, advanced diploma programs accounted for 14.8% of graduates of Ontario colleges (Ministry of Colleges and Universities 2020c), and their percentage of enrolment would have been higher than that because of the length of the programs. Typing “Advanced Diploma” in the search box at ontariocolleges.ca on July 7, 2020 returned a figure of 888 for the number of advanced diploma programs in Ontario colleges.

In October, 2012, the Ontario colleges made a recommendation to the Government that the colleges be authorized to award three-year baccalaureate degrees “in areas of study in demand by students, industry, communities and the economy” (Colleges Ontario, 2012, p. 10). To support that recommendation the Coordinating Committee of Vice-Presidents Academic (CCVPA) established a working group of senior college leaders with expertise in curriculum to examine how selected advanced diploma programs could be converted to bachelor’s degrees. The working group examined 12 advanced diploma programs in detail and concluded that the advanced diploma programs met or with minor adjustments could meet the degree standards of the bachelor’s degree in the Ontario Qualifications Framework (Colleges Ontario 2013). Forty years earlier, the Commission on Postsecondary Education in Ontario had also recommended that the colleges be allowed to award bachelor’s degrees for their three-year programs (Commission on Postsecondary Education 1972); and in 2020 a report on the future of Ontario’s workers commissioned by Colleges Ontario made a similar recommendation (Strategy Corp Institute of Public Policy and the Economy 2020).

Ontario is the only province which has a distinct credential title and provincial learning outcome standard for programs of three years’ duration. As noted earlier, the credential title, advanced diploma, is used in other provinces primarily for what in Ontario are called graduate certificate programs. For example, a search of credential titles in British Columbia colleges on EducationPlannerBC identified 15 programs in 7 institutions that awarded this credential. In most cases these were programs of about one year duration for which a bachelor’s degree or a college diploma were required for admission. The exceptions were a three-year pre-med program that prepared graduates for direct admission to a university medical school, and a few one-year bridging programs that prepared graduates of two-year technology programs for admission to university engineering programs. Advanced diploma programs found in colleges in Nova Scotia, Newfoundland & Labrador, and Manitoba were similar in form to Ontario College Graduate Certificate Programs.

Earlier it was noted that the career education diploma programs in Québec colleges are of three years' duration, but students enter them after Grade 11. There are some three-year diploma programs in other provinces but it is difficult to determine just how many. I was unable to find a national or, except for Ontario, provincial data base that distinguishes between diploma programs of different lengths. One would have to go through the web sites or academic calendars of each college in Canada to find all such programs. Adopting a little less ambitious approach, I went through the web sites of two of the larger colleges in each province (one in Prince Edward Island), and I checked all of the technologist training programs in Canada that have current accreditation by the Canadian Council of Technicians and Technologists (cctt.ca). In Ontario such programs are all of three years' duration, so it was of interest to see if this was the case in other provinces.

This inquiry showed that three-year diploma programs are prominent in Newfoundland & Labrador. All of the diploma programs for technologists in the College of the North Atlantic with current CCTT accreditation were of three years' duration, as were all non-degree programs of the Marine Institute. Moreover, the ratio of the number of three-year to two-year diploma programs in the College of the North Atlantic was higher than it was for the Ontario college system. In total there were about two dozen three-year diploma programs in the two Newfoundland institutions.

However, my inquiry showed three-year diploma programs to be rare in other provinces. All of the CCTT accredited programs for technologists in British Columbia, Nova Scotia and Prince Edward Island were of two years' duration. I found one three-year technologist program in Manitoba and one in New Brunswick. The search of college web sites revealed just a few three-year diploma programs in British Columbia and a few programs of between two and three years' duration in Manitoba and Saskatchewan (e.g., 32 months, or 5 semesters). In short, one could say that non-degree programs that require three years beyond the equivalent of Grade 12 in Canadian colleges are an almost a uniquely Ontario-Newfoundland & Labrador phenomenon. However, the vast majority of such programs were in Ontario.

The predominant credential awarded by community colleges in the United States is an Associate's Degree. Associate's degree programs are of two years' duration (60 credits), and that is why the generic term for institutions for which traditionally this has been the highest degree awarded is "two-year institution". There is no three-year credential in colleges in the United States comparable to the Ontario College Advanced Diploma. As noted earlier, over 40% of the credentials awarded by American colleges are certificates. However, of the 458,052 certificates awarded by colleges in the United States in 2013, over 98% were of two years' or less duration, (National Center for Education Statistics Table P152).

The traditional model for college-to-university transfer in the United States is the "2 + 2" model, which involves completion of a two-year associate's degree in a college followed by two years' attendance at a university. However, for many students things don't work out the way that this model suggests, as they need longer than two years to complete an associate's degree, some of their college courses don't transfer to the university, or they move on to a university before they have completed an associate's degree. In recent years a few institutions have experimented with a "3 + 1" model. In this model, after completing an associate's degree the student takes additional courses at the college before transferring to the university. Following this route can save money for students, especially if they would have to leave home when moving from the college to the university. Doing three years at a U.S. college in this model is not the same as doing an advanced diploma in an Ontario college, since the U.S. college does not award a three-year credential and it's not clear that the course options available to third year students in a two-year institution would be comparable to those in an institution that offers three-year programs.

Even allowing that a small percentage of certificate programs in U.S. community colleges may be of three years' duration and that a small percentage of college students utilize a 3 + 1 transfer model,

it does not seem that the kind of three-year diploma programs that are available in Ontario are offered in the United States. Nor are such programs offered in European colleges. Since the movement toward three-year bachelor's degrees spawned by the Bologna Accord, the only three-year postsecondary programs are bachelor's degree programs.

However, colleges in Ontario (and Newfoundland & Labrador) are not alone in the world in offering three-year non-degree programs. It was reported in 2009 that about 10% of the enrolment in junior colleges in Korea was in three-year programs, "especially in the sciences, engineering and other technical fields" (Grubb, Sweet, Gallagher and Tuomi 2009:25). In Japan, the programs of professional training colleges are of either two or three years' duration depending upon the field (Tsunoda and Iida 2015). Higher professional and technical colleges in China offer programs of both two and three years' duration (Fleishman and Luo 2013). In South Africa, the TVET (Technical and Vocational Education and Training) colleges offer three-year programs leading to the National Certificate (Vocational) (Gaffoor and van der Bijl 2019). Both the polytechnics and the multi-campus Institute of Technical Education in Singapore offer three-year diploma programs (Pong 2019). However, I could not find data on the ratio of three-year to two-year programs in any of these countries.

College Bachelor's Degrees

Ontario colleges were given the opportunity to offer bachelor's degree programs in applied areas of study at the beginning of this century by the *Postsecondary Education Choice and Excellence Act, 2000*. Although the legislation did not specify the type of bachelor's degrees that colleges may offer, to date they have been allowed to offer only degrees that meet the standards for an honours bachelor's degree, i.e., four-year degrees. Among the many jurisdictions where colleges may award bachelor's degrees, Ontario was a relative latecomer. The idea that college-type institutions should be allowed to offer bachelor's degrees can be dated back to 1965 when UK Secretary of State for Education and Science, Anthony Crosland announced that polytechnics in England and Wales would be allowed to offer degree programs. Within the next three decades several other European countries such as Germany, the Netherlands, and later Finland, followed suit. In the late 1980s and 1990s, colleges in some American states, including West Virginia, Utah, Nevada, and Florida, gained the authority to award bachelor's degrees, as did colleges in British Columbia and Alberta.

It is difficult to provide precise figures on the numbers of colleges that presently are offering bachelor's degree programs in Canada, because the figures that can be obtained from different sources differ. In Table 7, I have provided my own estimates for Canada, Ontario, Alberta, and British Columbia, using the program lists on the web sites of Colleges and Institutes Canada (CICAN) and EducationPlannerBC as a starting point and checking those lists against institutional web sites. I excluded universities and university-level institutions that are members of CICAN and collaborative programs in which a university partner awards the degree. The 15 colleges in Ontario that were offering at least one bachelor's degree program as of July 2020 include 14 of the 24 colleges of applied arts and technology plus Six Nations Polytechnic. The estimate of 141 bachelor's degree programs is in excess of the estimate of 108 reported for 2016 by Wheelahan et al. (2017a). In large part this discrepancy can be explained by new program approvals, of which I identified 30 from 2016 to 2020 on the web site of the Postsecondary Education Quality Assessment Board. According to my estimates, about 55% of the college bachelor's degree programs in Canada are in Ontario (141 of 254).

Table 7: Numbers of Colleges Offering Bachelor’s Degree Programs and Numbers of Programs Selected Canadian and United States Jurisdictions

Jurisdiction	Number of Colleges	Number of Colleges Offering Bachelor’s Programs	Percentage of Colleges Offering Bachelor’s Programs	Number of Bachelor’s Degree Programs
Canada ¹	125	36	28.8	254
Ontario ¹	28	15	53.6	141
Alberta ¹	14	6	42.9	31
British Columbia ¹	17	11	64.7	75
United States ²	1021	136	13.3	957
Florida ²	28 ³	27	96.4	188
Washington ²	34 ³	25	73.5	85

¹Numbers of colleges derived from Colleges and Institute Canada (CICAN) membership list excluding universities and university-level institutions. Numbers of colleges offering bachelor’s degree programs and numbers of programs estimated in July 2020, taking CICAN and EducationPlannerBC listings as a starting point, checking against institutional web sites, and excluding collaborative programs in which a university partner awards the degree.

²The source for numbers of colleges offering bachelor’s degree programs, numbers of programs, and total number of colleges in the United States is Floyd and Skolnik (2019). Figures in the first column for Florida and Washington are the numbers of institutions in their respective state college systems taken from the web sites of those systems.

Table 7 also provides corresponding data for the United States. The context of the community college baccalaureate and the debates about it are similar in both countries. Moreover, educators in Canadian colleges have been quite active in the U.S.-based Community College Baccalaureate Association which provides information about the college baccalaureate in both countries. The data on the community college baccalaureate in the United States in Table 7 are taken from a chapter that Deborah Floyd and I did in a book entitled, *13 Ideas that are Transforming the Community College World* (O’Banion 2019).

Table 7 shows that the percentage of colleges offering bachelor’s degree programs in Canada is more than double that in the United States. The difference is even greater if one focuses only on independent colleges, since about a quarter of baccalaureate-granting colleges in the United States are campuses of universities (Floyd and Skolnik 2019). However, the percentages of (independent) colleges that offer bachelor’s degree programs in the two states where this is most prevalent — Florida and Washington — is higher than in any of the Canadian provinces. The figure for Washington could be even higher than shown in Table 7, as Soler (2019) gives a figure of 29 for the number of that state’s colleges that offer bachelor’s degree programs.

Table 8 looks at college provision of bachelor’s degrees in a somewhat broader international context and includes a broader range of college-type institutions². This table includes three other countries for which data on numbers of bachelor’s degrees awarded by college-type institutions could be found — New Zealand’s Institutes of Technology and Polytechnics (ITPs); Ireland’s Institutes of Technology; and Finland’s Universities of Applied Sciences. The three Canadian provinces shown in this table account for about 98% of the bachelor’s degrees awarded by Canada’s colleges. The majority of the other two per cent are in Manitoba.

Table 8: Number of Bachelor’s Degrees Awarded by Colleges as a Percentage of Number of Credentials Awarded by Colleges and as a Percentage of Total Number of Bachelor’s Degrees Awarded in Selected Jurisdictions

Jurisdiction	Bachelor’s Degrees as % Of College Credentials	College Bachelor’s Degrees as % Of All Bachelor’s Degrees
Canada ¹ 2017	3.5	3.8
Ontario ¹ 2017	3.5	4.0
Alberta ¹ 2017	6.2	6.2
British Columbia ¹ 2017	11.3	10.6
United States ² 2017	n.a.	1.2
Florida ³ 2016	n.a.	10.6
Washington ⁴ 2019	n.a.	4.0
New Zealand ⁵ 2018	11.9	20.6
Ireland ⁶ 2016	71.7	50.0
Finland ⁷ 2018	88.8	64.6

¹Statistics Canada (2020) [Table 37-10-0020-01, Postsecondary graduates, by institution type, status of student in Canada and gender.](#)

²American Association of Community Colleges (2020); National Center for Education Statistics, 2020, Table P198

³Fulton (2020); State University System of Florida (2020)

⁴Meza and Bragg (2020)

⁵New Zealand Education Counts (2020a); the first column figure for bachelor’s degrees plus master’s degrees would be 12.6%

⁶Higher Education Authority (2020a)

⁷Statistics Finland (2020b; 2020c)

² The percentages for Canada and British Columbia in Table 8 are higher than in an earlier version of this paper. In the earlier version of the paper the figures for numbers of college bachelor’s degrees were taken from Statistics Canada Table 37-10-0087-01 Postsecondary graduates by credential type, age group, program type and gender. The latter table provides figures for “Degrees (including applied degrees)”, while Table 37-10-0020-01 gives figures for “Bachelor’s and equivalent”. For Ontario and Alberta the figures from both sources were the same, but for British Columbia and Canada, the figure for “Degrees (including applied degrees)” were lower than the figure for “Bachelor’s and equivalent”. However, since the only figure available for total (i.e., college plus university) bachelor’s degrees was for “Bachelor’s and equivalent”, it was decided that for consistency the comparable figure for college bachelor’s degrees should be used.

Consistent with the low proportion of colleges in the United States that offer bachelor's degrees previously noted, Table 8 shows that community colleges in the U.S. accounted for only 1.2% of all bachelor's degrees awarded in 2017. The corresponding figure for Canada was 3.8%, and for Ontario 4.0%. At the subnational level, Ontario's percentage of bachelor's degrees awarded by colleges is well below that of Alberta, British Columbia, and Florida, but the same as Washington. However, the college bachelor's degree movement started later in Washington than in Ontario and has been advancing rapidly (Meza and Bragg 2020). These North American figures pale in comparison to the corresponding figures for New Zealand, Ireland, and especially, Finland.

In addition to the jurisdictions shown in Table 8, I wanted to include Australia but was unable to find comparable data on program completions in TAFEs. As of 2017, 11 TAFEs were registered to offer bachelor's degrees (Tertiary Education Quality and Standards Agency 2019), an increase of one institution from 2009 (Wheelahan, Moodie, Billet and Kelly 2009). It does appear that enrolment in TAFE bachelor's degree programs as a percentage of total bachelor's degree enrolment in Australia is much less than college bachelor's degree enrolment as a percentage of total bachelor's degree enrolment in Ontario (Tertiary Education Quality and Standards Agency 2019, Table 7; Statistics Canada Table 37-10-0018-01).

The first column of Table 8 shows the percentage of the total number of credentials awarded by colleges that is constituted by bachelor's degrees. For Canadian provinces, the patterns are very similar between the first and second columns. In Ontario, college degrees account for the lowest proportion of college credentials as well as the lowest proportion of total degrees awarded. Ontario is further from British Columbia on this index than British Columbia is from New Zealand.

New Zealand's ITPs evolved from technical high schools that emerged in the latter half of the 19th century (Doyle 2015). In the 1960s, the technical high schools were converted to tertiary technical institutes, and community colleges were added in the 1970s (Tertiary Education Commission 2018). In the 1980s as the community colleges shifted their focus more strongly toward vocational education and training, the government encouraged both types of institutions to adopt the term polytechnic and all but two did so (Doyle 2015). The Education Act 1989 recognized the terms polytechnic and institute of technology as equivalent and allowed the ITPs to award degrees.

As the ITPs expanded their bachelor's degree activity and added master's degrees, they continued to offer a wide range of non-degree programs which still constitutes a large majority of their activity. However, in 2019 enrolment in bachelor's degrees was about 4.5 times as great as enrolment in the highest level non-degree diplomas and certificates (New Zealand Education Counts 2020c). Honours degrees constitute only a tiny fraction of bachelor's degrees and almost all bachelor's degrees in the ITPs are of three years' duration. In April 2020, the Government placed all 16 ITPs under a single governance body, the New Zealand Institute of Skills and Technology (NZIST). The move is intended to facilitate a more unified structure for the provision of vocational education (Tertiary Education Commission 2020).

The figures for Ireland and Finland show how far their non-university institutions have evolved in the direction of becoming applied-focused, degree-granting alternatives to the universities. Ireland's institutes of technology, which evolved from regional technology colleges that were established in the 1960s (Kyvik 2004; Hazelkorn and Moynihan 2010) still award certificates, higher certificates, and diplomas, but those credentials account for only about 20% of awards, while master's degrees account for about 8% (Higher Education Authority 2020a). The highest non-degree credential that does not require a bachelor's degree for admission, the Higher Certificate, accounted for about 9% of awards. In Ireland, ordinary bachelor's degrees are normally of three years' duration, and honours bachelor's degrees are of three or four years' duration. In the institutes of technology, ordinary degrees constituted 36% of bachelor's degrees in 2016.

Finland's universities of applied sciences resulted from mergers of specialized institutions that provided short-cycle programs (Kyvik 2004). They are predominantly baccaalaureate-granting

institutions, with master's degrees accounting for 11.2% of their awards in 2018 (Statistics Finland 2020c). The universities of applied sciences accounted for 17.1% of master's degrees in 2018, along with 64.6% of bachelor's degrees. The duration of a bachelor's degree in a Finnish UAS ranges from 3.5 to 4.5 years depending upon the field. However 3 years is the predominant or a common duration for a bachelor's degree in a university of applied sciences in several European countries, such as the Czech Republic, Belgium, Norway, and Switzerland (Kyvik and Lepori 2020).

Bachelor's degree programs are structured differently in Ontario than in some other jurisdictions. For example, in Florida bachelor's degree programs are ladderized with two-year associate's degree programs. Most bachelor's degree programs were created by building onto an existing associate's degree program. This involved developing the curriculum for the third and fourth years. After completing the first two years the student earns an associate's degree, and at that point the student can enter the labour market with a two-year credential or continue for two more years to earn a bachelor's degree. By being able to start out in an associate's degree program, "students can begin their journey to a four-year degree, *regardless of their academic preparation*" (Bilsky, Neuhard and Locke, 2012:42). British Columbia Institute of Technology, which offers more bachelor's degree programs than any Ontario college, emphasizes a different model of the relationship between shorter term postsecondary programs and bachelor's degrees. The majority of BCIT's bachelor's degree programs are of two-year's duration and require a diploma for admission. Ontario has followed a quite different approach. The creation of college bachelor's degree programs in Ontario involved the development from scratch of new four-year programs, and at least until quite recently, articulation with diploma programs has been problematic.

The balance between vocational education and general education

When college systems were being established in Canada in the 1960s, the major design decision was whether they would concentrate on vocational education or also offer the first two years of university-parallel courses in arts & sciences that would enable graduates to transfer to a university to complete a bachelor's degree (Campbell 1971). At that time the term transfer was applied only to the latter types of courses, as it was not expected that graduates of college vocational programs would normally seek to advance their education at a university, or be eligible for any transfer credit for their college courses at a university (Skolnik 2010). Ontario chose the vocational model for its new colleges, while British Columbia, Alberta, and Québec opted for the combined model — although Alberta established two and British Columbia one institute(s) of technology which concentrated on vocational programming.

Ontario has almost completely stayed with its original vocational model. Over the years colleges established General Arts and Science (G.A.S.) programs, but these programs have multiple functions and account for only a small percentage of college enrolment. Although G.A.S. programs may improve employment skills and qualifications for entering the job market, for most students they are taken to help decide on and prepare for an occupational program in the same college or to prepare for university.

In 2018-19, 22 of 24 Ontario colleges had General Arts and Sciences Programs with at least minimal enrolment, though in 7 of those 22 colleges the programs were of only one year duration (Government of Ontario 2020b). Enrolment in G.A.S. programs constituted 2.35% of enrolment in postsecondary programs. Enrolment in English for Academic Purposes accounted for another 0.51%, so enrolment in occupational programs accounted for over 97% of total enrolment.

It is difficult to find this kind of figure for many jurisdictions. One place for which such a figure is available is Québec. According to a 2014 provincial government report, enrolment in the two-year pre-university stream was slightly more than double enrolment in the three-year career education stream (Government of Québec 2014). That high figure for the ratio of general to vocational education is

reflective of the unique arrangements in Québec whereby a university-bound student must attend a CÉGEP between high school and university. Although most colleges in British Columbia and Alberta were designed to provide both a university-parallel stream in arts and sciences and a vocational education stream, it was impossible to find current provincial data on the balance of enrolment between these two streams. In Alberta, some data was available for Mount Royal College before it became a university in 2009. In 1995-96 only 38.4% of its enrolment was in career diploma and certificate programs, and with the expansion of degree programming that occurred over the next 12 years, that figure had fallen to 17.4% by 2007-08 (Baker 2011). Although Mount Royal and the other former college that became a university at the same time, Grant MacEwan College, may have had particularly large university-parallel streams in arts sciences, this type of programming is still common in the Alberta college sector. In British Columbia, ten colleges offer associate degrees in arts & sciences and one college offers associate degrees in arts (educationplannerbc.ca).

In the United States in 2013, 67% of the credentials awarded by community colleges were in occupational education (National Center for Education Statistics 2020, Table P152, cited in Dougherty, Lahr and Morest 2019). This is well below the figure of over 97% for Ontario (though the Ontario figure is for enrolment, and the U.S. figure is for graduates). The U.S. figure is as high as it is because of certificate programs, as about 90% of those graduating with a certificate are in occupational programs. For associate's degrees, occupational programs account for about 51% of the degrees awarded (National Center for Education Statistics, Table P152). Table 3 showed that the SCTE attainment rate for 25-34 year-olds in the U.S. in 2015 was 10%. Thus, the rate of attainment of occupation-focused short-cycle tertiary education could have been as low as about 5% compared to Ontario's SCTE attainment rate of 29%, as almost all of Ontario's SCTE reflects completion of an occupational education program.

The United Kingdom is another jurisdiction in which occupational programs may account for a smaller proportion of college enrolment than in Ontario. Historically further education colleges concentrated on vocational education, but now they offer many general qualifications (Musset and Field 2013). Also, in recent years there has been increased emphasis in colleges in the United Kingdom on second-chance learning and widening access to higher education (Gallacher and Reeve 2019). However, there is such a variety of FECs and they offer so many different types of courses that it is difficult to determine the proportion of their postsecondary courses that are general as opposed to vocational. Grubb noted that in 2003, about 60% of the qualifications that FECs in England offered were in occupational areas and 80% or more of the student places were in those areas (Grubb 2005). If not many more than 80% of students were in occupational programs England's ratio of occupational to general programming would be much lower than Ontario's. A qualifier however is that it is not clear how many of the students who weren't in occupational programs were in remedial or adult upgrading programs rather than in general programs at the postsecondary level.

While several Asian countries have adopted some aspects of the American junior college model, including the name, it does not appear that as much emphasis is placed on offering university-parallel courses in arts & sciences as in U.S. community colleges. According to Grubb, Sweet, Gallagher and Tuomi (2009:25), Korea's junior colleges "exist to prepare middle-level manpower and technicians". Since the late 1980s junior colleges in Japan have been expanding their offerings of vocational programs in areas such as early childhood education, dietetics, nursing, allied health, information and management sciences, human services, and foreign languages (Tsunoda and Iida 2015). Also, the 341 junior colleges comprise a relatively small proportion of Japan's non-university postsecondary sector which also includes 57 colleges of technology and 2,817 professional training colleges (Yonezawa 2019). A movement to develop community colleges started in India in 1995 the primary goal of which was "to empower disadvantaged members of society through appropriate skills development leading to gainful employment" (Alphonse 2012:327). Gross noted that although the emphasis is on meeting the needs of local industry, occupational programs also aim to facilitate personal development (Gross 2017).

Although colleges in some jurisdictions such as the United States and some Canadian provinces have substantial programs of liberal or general education that are not focused on specific occupations, colleges in most jurisdictions are probably more like Ontario in concentrating on occupation-specific programming though Ontario is likely at the far end of the continuum in regard to this characteristic.

College-to-university Transfer

The balance between vocational programs and liberal or general education programs has long been thought to have implications for college-to-university transfer. The vocationalization of the American community college that occurred between 1970 and 1985 was alleged to have been a major contributor to a decline in transfer rates. In their critique of this movement, Brint and Karabel maintained that “the vocationalized community college was a particularly inhospitable institutional environment for transfer” (Brint and Karabel 1989:130). Grubb (1991) was one of the first to explore this factor and found substantial differences in transfer rates between students in the academic and vocational streams. For example, the 4-year transfer rates for those who started in a community college in 1980 were 31.5% for those in the academic track and 9.3% for vocational track students. Vocational track students were also much less likely than academic track students to complete a bachelor’s degree within 4 or 7 years, for example, 6% versus 25% after 7 years (Grubb 1991).

In a 2005 study of student mobility, ACAATO, the predecessor of Colleges Ontario, compared transfer rates for selected Canadian provinces and American states between graduates of two-year pre-university arts and sciences programs and graduates of two-year vocational programs (ACAATO, 2005). The figures for the American states were for the late-90s and for Canadian provinces the early 2000s. The transfer rates for graduates of college occupational programs in Washington, Texas, Alberta, British Columbia, Missouri and Oregon ranged from 5% to 11%. For graduates of pre-university arts and sciences the rates were from a low of 36% in Texas to a high of 55% in Oregon. The rate in British Columbia was 41%, and no figure was available for pre-university arts and sciences in Alberta. Québec was an outlier with rates of 77% for pre-university arts and sciences and 21% for occupational programs.

It is understandable that the Québec figure for pre-university arts and sciences would be an outlier because of the unique role that colleges there have in the transition between secondary school and university. However, Québec’s high transfer rate for students in the three-year career education stream stands out — and Bégin-Caouette (2017) reported an even higher figure, 30%.

The ACAATO report showed Ontario transfer rates for occupational programs that were in the lower range of the rates for the states and other provinces. These were 4.5% for 2002-03 and 5.5% for 2003-04. The report also showed transfer rates for two-year G.A.S. programs which were 21% and 26%. The Ontario transfer rates for two-year G.A.S. programs were well below the rates for pre-university arts and sciences in the other jurisdictions. Because occupational programs constitute such a large proportion of the activity of Ontario colleges, its overall transfer rate is determined largely by the rate for occupational programs. In contrast, the substantial proportion of enrolment that is in pre-university arts and sciences helps to drive up the overall transfer rate for the other jurisdictions.

The overall transfer rate figure for the United States reported by the National Student Clearinghouse Research Center, based on a national longitudinal study of those who started in a community college in 2012 is that 30.2% of students who started in college transferred to a university within 6 years (National Student Clearinghouse Research Center 2019). In its 2019 Environmental Scan, Colleges Ontario reported that 27% of graduates of the colleges chose to further their education within six months of graduation, and 13% of those who did so enrolled in an undergraduate program in a university (Colleges Ontario 2019). This works out to a college-to-university transfer rate of about 3.5%. Ontario has a low transfer rate relative to the United States and at least some other Canadian provinces, especially Québec and British Columbia.

I could not find any data on the proportion of transfer students from Ontario colleges who subsequently earn a bachelor's degree in a university. A study in the United States reported that 42% of college-to-university transfer students earned a bachelor's degree within 6 years of entering the college (Jenkins and Fink 2017). However, this figure might understate the bachelor's degree completion rate for graduates, because the majority of transfer students in the study had not earned a certificate or associate's degree at the college before transferring. On the other hand, since the United States likely has better developed infrastructures and policies for transfer than Ontario, transfer students likely face greater difficulties in Ontario than in the United States. If for argument's sake these factors balanced out so that the 42% completion rate applied in Ontario, then about 1.5% of graduates of Ontario colleges would earn a bachelor's degree within 6 years of starting in a college.

It was difficult to find transfer rate data for other countries. China provides an example of the ability of a country to substantially increase its rate of college-to-university transfer for students in occupational programs in a short period of time. In 2001, the Ministry of Education introduced a policy which facilitated transfer from higher professional and technical colleges (HPTCs) to universities. Up to that time movement from an HPTC to a university was difficult. Under the new policy, at the end of their second year at an HPTC students could take a "top-up" test held by a provincial or municipal education bureau, and a portion of those passing the could test were allowed to enter the third year of a four-year bachelor's degree program in a university (Fleishman and Luo 2013). While the suggested cap on the percentage to be allowed to transfer was 10% of those eligible, local governments were allowed to make the decisions based on their own conditions. Fleishman and Luo report that the percentages of students taking advantage of the new policy was allowed to increase yearly over four years, and by 2005 the rates in some provinces had gone up to 20%, and in one province to 35%. By 2006, the Ministry of Education had become concerned about pressure on quality and resources that were resulting from the policy and imposed a cap of 5% on local application of the top-up policy (Fleishman and Luo 2013). The fact that some provinces in China were able to greatly expand the number of students transferring from technical and professional programs in colleges to universities in a short period suggests that this kind of movement is possible when provision for it is made by government.

Another place where there appears to have been considerable success in expanding transfer to university for graduates of occupationally-focused programs in colleges is the United Kingdom. Although the primary purpose of the two-year Foundation Degrees (FD) that were introduced in 2002 in England, Wales and Northern Ireland is the provision of knowledge and skills for employment, the degrees can also lead to an honours bachelor's degree (Quality Assurance Agency for Higher Education 2020). As of 2014-15, 42% of FD students in the UK were at universities, another 22% were registered in universities but taught under agreement in FECs, and 36% were actually registered in FECs (Parry, Saraswat and Thompson 2017, Table 5.1). An analysis of data compiled by the Higher Education Funding Council for England (HEFCE) on students who completed an FD in 2007-08 showed that 54% proceeded to an honours bachelor's degree program (Gallacher, Ingram and Reeve 2012). However this figure was based only on students who were registered in universities, and the study did not provide a corresponding figure for those who were registered in an FEC.

Scotland did not introduce foundation degrees, but the Higher National Certificate (HNC) and Higher National Diploma (HND) play a similar role there as the FD does elsewhere in the UK. Although these are vocational credentials, the Scottish Qualifications Authority states on its web site that the HNC and HND "don't just qualify learners for work" (Scottish Qualifications Authority 2020:9). It goes on to state that some HNCs, which normally take one year to complete, allow entry into the second year of a bachelor's degree program, and some HNDs, which normally take two years to complete, allow entry into the third year of a bachelor's degree program. In Scotland HNCs and HNDs are awarded primarily by colleges. To help facilitate progression to the bachelor's degree, the Scottish Funding Council provided funding to some universities to develop articulation hubs to strengthen links with colleges and develop

improved articulation routes from HNCs and HNDs (Gallacher, Ingram and Reeve 2012). A study by Gallacher and Ingram found that 61% of full-time students who completed an HNC/D proceeded to some form of further study which in 77% of cases was in a bachelor's degree program (Gallacher and Ingram 2012). This works out to a college-to-university transfer rate of 44% which is high even compared to the United States where transfer has been an important part of the ethos of the higher education for a long time. Of those who went directly into third year, almost all did so at a post-1992 university rather than at one of the older, more prestigious universities. As former technical institutes, the post-1992 universities may have more affinity, both philosophically and in terms of curriculum, with the colleges than do the older universities. The absence — or near absence — of this type of university in Ontario may be one of the factors that helps explain the difference in transfer rates between Ontario and Scotland. On the other hand, the absence of this type of university in Ontario may have helped to create a greater opportunity or need for colleges to offer bachelor's degree programs than in jurisdictions like the United Kingdom and Australia where former polytechnics and colleges of advanced education became part of the university sector (Wheelahan et al 2017).

A noteworthy feature of higher education in Ontario is the high rate of movement of students from universities to colleges. Earlier it was noted that more than three-quarters of the students in Ontario Graduate Certificate programs are university graduates. Adding those who attended university but did not complete a degree, about 81% of the students in graduate certificate programs had previous university experience. While the figures are lower for other types of college programs, they are still significant. The percentages of college students with previous university experience in 2015-16 were: advanced diploma, 21.1%; diploma, 21.3%; and certificate, 15.5% (Wheelahan et al. 2017b). For each program category university graduates constituted more than half the students with university experience.

A 2009 study by Colleges Ontario utilized data from the application service for each sector to compare the flows of students between colleges and universities in each direction. It found that in 2007, the latest year for which it contained application data for both sectors, the number of students with previous university experience applying to a college exceeded the number with previous college experience applying to a university (Colleges Ontario 2009). From the data on registrants in the report, I was able to calculate that in fall 2007, 9,627 persons with previous university experience registered in a college, while 5,630 individuals with previous college experience registered in a university. The substantial flow of students from universities to colleges relative to the other direction is more consistent with the parallel than the vertical model of the relationship between Ontario's postsecondary sectors.

In the educational attainment statistics reported by the OECD, individuals are categorized according to their highest level of education attained. For someone who has completed both a program of short-cycle tertiary education and a bachelor's degree, only the latter will be reflected in the educational attainment statistics (assuming they haven't also completed a postgraduate degree). So while the OECD statistics give a good picture of the highest levels of educational attainment of the population, they may understate the extent of short-cycle tertiary education in jurisdictions where a high proportion of SCTE graduates subsequently complete a bachelor's degree relative to jurisdictions where this is not the case.

We noted earlier that the SCTE attainment rate for 25-34 year-olds in the United States in 2015 was 10%, and that the corresponding rate for Ontario was 29%. With its 30% transfer rate, it might be expected that quite a few of those who complete an SCTE program in an American college — typically an associate's degree — would also earn a bachelor's degree and so the 10% figure would understate the extent of SCTE activity in U.S. colleges relative to Ontario. However, the majority of community college students in the U.S. who earn a bachelor's degree at a university have left the college before completing an associate's degree or certificate (Shapiro et al. 2017). Data from a national study of the cohort of students who started in fall 2011 indicate that about 23% of those who completed a certificate or

associate's degree at U.S. community college also completed a bachelor's degree within six years (Shapiro et al. 2017). That would mean that differences in college-to-university transfer would account for no more than about 2.3 percentage points of the 19 percentage point difference in SCTE attainment rates between Ontario and the United States.

Extending the purview beyond six years could increase the portion of the difference in SCTE attainment rates explained by differences in transfer rates but not by a great deal. For example, based on the 8-year degree completion rates reported by Shapiro et al. (2017), about 16% more community college graduates would have earned a bachelor's degree than after 6 years (Skolnik et al. 2018). This would mean that no more than 2.7 of the 19 percentage point difference in SCTE attainment rates could be explained by differences in transfer rates between Ontario and the United States. However, that is likely an overestimate, because the definition of a community college graduate in the Shapiro et al. study is someone who earned "a degree or certificate of any kind" (Shapiro et al. 2017:6). Some of the certificates may not have been SCTE credentials. Moreover, the estimate takes no account of the percentage of SCTE graduates of Ontario colleges who subsequently attained a bachelor's degree. Also, given the differences in transfer rates between pre-university arts and sciences and vocational programs noted earlier, the portion of the overall difference in SCTE attainment rates that could be explained by differences in transfer rates for students in college vocational programs between Ontario and the United States would be relatively small, probably not more than one percentage point. The conclusion is that even allowing for differences in college-to-university transfer between Ontario and some other jurisdictions, the SCTE attainment rate is still a pretty good indicator of difference in the extent of non-degree vocational program activity.

Colleges and Universities

Table 9 provides tertiary education attainment rates for 25-34 year-olds in 2015 and numbers of colleges and universities for Ontario and the same countries for which data were provided earlier in Table 3. The first two columns show that while Ontario ranked first in SCTE attainment rate, it was around the middle of the pack in the rate of attainment of bachelor's and higher degrees. On the strength of its high SCTE attainment rate it ranked a close second to Korea in the total tertiary attainment rate for 25-34 year olds.

Table 9: SCTE and Degree Attainment Rates for 25-34 Year-olds, 2015, and Numbers of Colleges and Universities, Ontario and Selected OECD Member Countries

	SCTE Attainment Rate (%) 25-34 Year- olds	Degree Attainment Rate (%) 25-34 Year- olds	Total Tertiary	Number of Colleges	Number of Universities	Ratio Colleges to Universities
Ontario	29	38	67	28	30	0.93
Canada	25	34	59	125	95	1.32
Australia	10	38	48	41	39	1.05
Austria	16	23	39	21	38	0.55
Finland	0	41	41	25	13	1.92
Germany	0	30	30	213	107	1.99
Ireland	12	40	52	14	7	2.00
Korea	22	47	69	148	175	0.85
Netherlands	1	44	45	36	21	1.71
New Zealand	3	36	39	16	8	2.00
United Kingdom	8	41	49	287	142	2.02
United States	10	37	47	1,003	1,886	0.53

Source: SCTE and degree attainment rates, (OECD 2016; Statistics Canada 2016). For all jurisdictions except Canada, Ontario, and Australia figures for numbers of colleges and universities were obtained from national government web sites or web sites of national ministries of education or national statistics agencies. For Canada and Ontario, the figures are from the membership in Colleges and Institutes Canada and Universities Canada respectively. Former colleges that have become universities and are members of both organizations are counted only as universities. For Australia, the number of universities is taken from Universities Australia, and the number of TAFEs from Parliament of Australia (2018). The latter's figure of 41 is consistent with Brown (2017) who put the number of standalone TAFEs at "40 or so" (Brown 2017:53). The figures for Germany exclude colleges of education, theology, art, music, or public administration. The college figures for the United Kingdom exclude sixth form colleges. For the United States, see note 2, Table 7. The figures are for 2019 or 2020 except for Australia (colleges, 2017); Ireland (2018); Korea (2007); and the UK (2017).

Using the numbers of Ontario members of Colleges and Institutes Canada and of Universities Canada respectively gives a ratio of colleges to universities of slightly below 1.00. Counting only colleges of applied arts and technology and excluding university-level institutions that are affiliated or federated with members of the Council of Ontario Universities would yield a ratio a little greater than 1.00. Either way the ratio for Ontario is well above those with the lowest ratios of colleges to universities (the United States and Austria) and well below that of the several countries where the ratio is around 2:1. Three of the four jurisdictions that have most even balance in numbers of colleges and universities, Ontario, Canada and Korea, have the highest total tertiary attainment rates. The total tertiary attainment rate of the other jurisdiction with a ratio of colleges to universities close to 1.0, Australia ranked in the top half of the jurisdictions in Table 9.

Apparently having a relatively large number of universities does not guarantee a high degree attainment rate. The two countries with the lowest ratios of colleges to universities — Austria and the United States — have among the lower degree attainment rates, Austria's being the lowest of all. However, some of the countries that have the highest college-university ratios — Germany and New Zealand — also have low degree attainment rates.

Five countries have degree attainment rates of 40% or greater. Colleges are instrumental in achieving the rate of attainment of degrees in three of them — Finland, Ireland, and Netherlands. In Finland and the Netherlands the colleges are universities of applied sciences which concentrate on

degree programs — to the exclusion of short-cycle programs in Finland and to the near exclusion in the Netherlands. As a consequence of their low SCTE attainment rates these two countries have relatively low total tertiary attainment rates. As noted earlier, in Ireland the colleges (institutes of technology) contribute significantly to degree level programming, but retain a residual role in short-cycle education, enabling Ireland to rank next after Korea and Ontario/Canada in total tertiary attainment.

The UK's numbers in the first two columns aren't that far off from Ireland's but the patterns underlying the numbers are quite different. Further education colleges in the United Kingdom play a much smaller role in the provision of bachelor's degrees than do the institutes of technology in Ireland. Yet the UK's SCTE attainment rate for 25-34 year-olds in 2015 was only two-thirds of Ireland's rate, and well less than one-third of Ontario's rate. Wolf (2016) has expressed concern about lack of attention given to this type of postsecondary education in England and questioned whether the country is making the best use of its FECs (Wolf 2016). She says that graduates of these types of programs are "both few in number and in rapid decline" (Wolf 2016:24), while the main funding for FECs is for 16-18 year-olds to complete secondary school and for remedial education. There are however differences of opinion as to how much the decline in SCTE programs is the result of policymakers' fixation on expanding degree level higher education as opposed to being a response to a decline of the manufacturing sector (Little 2017).

In any event, unlike countries such as Finland and the Netherlands where the expansion of baccalaureate degrees has been fuelled in considerable part by the non-university sector, in England the growth is coming mainly from the universities. In 2009-10, only about 2% of students registered in a bachelor's degree program were being taught in college, many of them under franchise agreements with a university (Parry, Callender, Scott and Temple 2012).

Summary and Conclusions

Table 10 provides a summary of how Ontario ranks relative to other jurisdictions with respect to the main programmatic activity indicators examined in this paper.

Table 10: Relative Ranking of Ontario Colleges on Indicators of Programmatic Activity

Indicator	Rank	Comment
SCTE Attainment Rate	High	Higher rate than any OECD member country Within 2 percentage points of highest in Canada
Ratio of ISCED Level 5 to ISCED Level 4 Activity	High	Highest in Canada by a large margin
College SCTE as a % of Total SCTE Enrolment	High	Almost 100% in Ontario while much lower in many jurisdictions
Graduate Certificates	High	Largest number in Canada by large margin Extent in other countries unknown
3-year Non-degree Programs	High	Largest number in Canada by large margin None in U.S. or Europe, some in Asia and South Africa
Ratio of Vocational to General Ed. Programs	High	More than 97% of enrolment is in occupational programs; percentage is much lower in many jurisdictions
College-to-university Transfer Rate	Low	Most recent estimate of transfer rate is about 3.5% which is lower than in many jurisdictions
College Bachelor's Degrees % of College Activity	Low	Low among jurisdictions where colleges have been awarding bachelor's degrees for as long as Ontario
College Bachelor's Degrees % of Total Bachelor's Degrees	Low	Low among jurisdictions where colleges have been awarding bachelor's degrees for as long as Ontario

In general, Ontario ranks high with respect to every indicator pertaining to the scale of college provision of high level non-degree vocationally-oriented postsecondary education, but low with respect to the role of colleges in facilitating attainment of bachelor's degrees. Short-cycle tertiary education (SCTE) is at Level 5 in the International Standard Classification of Education (ISCED), the highest level of education below the bachelor's degree, which is at Level 6. Ontario has a higher rate of SCTE attainment than any OECD country, a rate that is higher than most by a large margin. In many OECD countries a substantial portion of SCTE is provided by other organizations than colleges, such as universities, secondary schools and private training providers, while in Ontario it is provided exclusively by colleges. The fact that relatively more people complete a program of SCTE in Ontario than in all OECD countries, and that the proportion of those who complete such a program that do so in a college is higher than in many OECD countries implies that the extent of SCTE activity of Ontario colleges greatly exceeds that of all OECD countries.

Ontario's SCTE attainment rate is above the Canadian average, and Ontario accounts for 62% of all SCTE graduates in Canadian colleges. In Ontario's colleges about 4.7 times as many students complete an SCTE program as complete a program of the next lower ISCED category, postsecondary non-tertiary (PSNT). In the rest of Canada, the number of SCTE graduates is about 25% less than the number of PSNT graduates.

The highest level SCTE programs in Canada are graduate certificate and advanced diploma programs. In 2017-18, the Ontario Graduate Certificate and the Ontario Advanced Diploma accounted for over 30% of graduates of Ontario colleges. Data are not available on numbers of graduates of comparable programs in other provinces, but except for Newfoundland & Labrador, three-year college diploma programs are rare in the rest of Canada. In 2017, about 87% of completions of a graduate certificate program in a Canadian college were in Ontario. It was not possible to find data on the extent of comparable programs in other countries. Non-degree programs of three years' duration do not appear to exist in the United States or Europe but are found in colleges in China, Japan, Korea, Singapore, and South Africa though data on the scale of such programs could not be found.

In contrast to the substantial scale of their non-degree programs, Ontario colleges have a relatively small footprint in regard to baccalaureate degrees. Baccalaureate degrees as a proportion of postsecondary qualifications awarded by colleges, college baccalaureate degrees as a proportion of all baccalaureate degrees awarded in the province, and the rate of transfer of college graduates to university each hovers around 4% or lower. The third of these indicators has long been much lower in Ontario than in British Columbia or Alberta, but it is noteworthy the first two also are smaller in Ontario even *after* all but one of the former colleges in those provinces that were their largest providers of bachelor's degree programs became universities.

Ontario's colleges differ from colleges in most of the United States and those in some Canadian provinces in their nearly exclusive concentration on career education programs. In that regard they are similar to polytechnics in Europe except that those institutions concentrate on degree-level education, whereas Ontario colleges are largely restricted to offering non-degree programs.

By itself, a comparative study like this one is an insufficient base for developing policy proposals. However, such a study can be useful for identifying anomalies that may warrant further examination. The combination of Ontario's outlier status in the provision of short-cycle tertiary vocational education and training and comparatively low level of vocationally-oriented bachelor's degrees may constitute such an anomaly. Ontario colleges offer career education programs at the highest level of non-degree tertiary education on a very large scale. Their record in assessment of their bachelor's degree programs by the Postsecondary Education Quality Assessment Board shows that the colleges have the capability to create and deliver degree programs that meet the standards of an honours bachelor's degree. Previous research by the author has shown that the degree standards employed by the PEQAB are more numerous and detailed than those of the quality assurance agencies that assess college bachelor's

degree programs in other jurisdictions (Skolnik 2016a). In spite of their capability to deliver quality degree programs, Ontario colleges stand out in comparison with other jurisdictions for having a disproportionately low ratio of degree program to high level non-degree program activity. I don't think we know the extent to which it is the demand side or the supply side that is more responsible for the low transfer rate. A better understanding of the answer to that question would be important in deciding on future directions for the college bachelor's degree.

There are some obvious strengths in the present program mix of Ontario colleges. The unrivalled emphasis on high level, non-degree programs likely has enabled many individuals who might not otherwise have been able to do so to complete a demanding postsecondary education program and obtain a satisfying, well-paying job. By all accounts the graduates of the colleges' diploma and certificate programs are in demand by industry and perform important roles in the provincial economy. In countries that have made strong cuts in or eliminated this type education and training concerns have been expressed about the consequences of having such a wide gulf between secondary school vocational education and degree-level professional education (Fazekas and Litjens 2014; Wolf 2016; van Houten 2018; Kokkonen 2019). An OECD review of vocational education and training in the Netherlands advised that strengthening the country's provision of SCTE was important both because of the need for workers with the skills that this type of education provides and to provide opportunities for secondary school leavers to advance their education (Fazekas and Litjens 2014). In Finland programs for training technicians were discontinued when the former technical colleges were reorganized into a system of universities of applied sciences in the 1990s. The intention was that engineers would take on the work formerly done by technicians. Since then, industry has voiced concerns about problems of site management and other technical functions when older technicians retire, and there has been an ongoing debate about whether there is a need for a more practice-oriented educational qualification (Kokkonen 2019).

A full analysis of the pros and cons of expanding the degree-granting role of the colleges is beyond the scope of this paper. However, having noted some possible benefits of the present program mix, it is only fair to also say something about possible benefits of altering that mix. While the colleges' concentration on high level non-degree programs likely enables some individuals to attain a type of education and position in the workforce that they might not otherwise be able to reach, more extensive provision of degree programs in the colleges might facilitate even greater upward mobility for some students. The challenge for educators and policymakers is to find ways to increase opportunities for the second type of mobility without diminishing opportunities for the first type.

In regard to the balance between high level non-degree career education and applied degree level education, Ontario is at the opposite end of the continuum from countries like Finland, the Netherlands and Ireland, and a long ways from New Zealand. Even to reach the relative scale of the college bachelor's degree in British Columbia would take a considerable effort. For Ontario, the operative questions are whether it should allow/enable the colleges to do more to provide opportunity for their students to advance their education and develop their work-related skills to a higher level, and if so, how to do that. Should there be an interest in expanding the role of the colleges in the provision of career education at the bachelor's degree level, the review of other jurisdictions has identified three possible approaches for consideration which could be used individually or in combination.

One approach would be to increase the number of honours bachelor's degree programs offered by the colleges through such means as raising or removing limits on the proportion of college activity that degree programs may constitute and — as some other jurisdictions have done — developing procedures for expedited review of *new* program proposals for institutions that have a strong track record of review and operation of bachelor's degrees (Skolnik 2016a). Second, colleges could be allowed to award three-year bachelor's degrees. In New Zealand almost all of the bachelor's degrees awarded by the ITPs are three-year degrees, as are more than a third of the bachelor's degrees awarded by the

Institutes of Technology in Ireland. This reform was recommended in Ontario as long ago as 1972 (Commission on Postsecondary Education in Ontario 1972) and as recently as 2020 (Strategy Corp Institute of Public Policy and the Economy 2020). The legislation which enables colleges to award bachelor's degrees does not specify honours or regular bachelor's degrees. The PEQAB's decision nearly 20 years ago that the colleges could offer only bachelor's degrees that met the standards for the honours degree was made before the Ontario Qualifications Framework came into existence — and before many other changes in the economy and society — and warrants reconsideration. There may be concern that allowing colleges to offer three-year baccalaureates could diminish the stature of their four-year baccalaureates. However, it is also possible that if institutions and students were given the choice an efficient matching of institutional and student preferences could be achieved.

The third approach would be to do more to enable graduates of diploma programs to complete bachelor's degrees in related areas. Doing this would address directly the problems that diploma graduates have when they attempt to continue their education at a university (Skolnik 2017). One way of pursuing this goal would be to introduce laddering between a diploma and the corresponding bachelor's degree as is done in Florida. Another option would be to develop two-year bachelor's degree programs that would require a diploma in a related area for admission.

Colleges in several other jurisdictions that previously concentrated on non-degree programs have evolved to assume a significant role in the provision of bachelor's and master's degrees in applied areas of study. Ontario has every bit as strong a base for such a move as the colleges in other jurisdictions that have made the move had. The capabilities and the models are there if there is a will to make even a modest move in this direction.

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