2022 ENVIRONMENTAL SCAN

Graduates in the Economy



Graduates in the Economy

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Ontario college graduates: Competing in a disruptive world economy

1 HIGHLIGHTS

Over the past three decades, Ontario employers have required an increasingly more qualified and highly skilled workforce. This has led to three million more jobs by 2021 for those with post-secondary credentials.

Meanwhile, there was a drop of almost one million jobs for those who don't have post-secondary credentials.

Adults who don't have post-secondary credentials have faced reduced employment in every sector. In Canada, while 86 per cent of those with a post-secondary credential are employed, only 57 per cent of those without post-secondary credentials are employed. If all Canadians had post-secondary credentials, almost three million more would have jobs.

Ontario's post-secondary students have been preparing for a disruptive economy by enrolling more often in programs that offer employment-ready credentials, including programs that teach entrepreneurship and innovation.

College graduates continue to provide Ontario with a key competitive advantage over the U.S. They are three times as numerous per capita and contribute to exports per capita at twice the U.S. level.

Almost 300,000 more young Ontarians have post-secondary credentials than a comparable per capita number of Americans.

As well, young adults in Ontario have a higher share of post-secondary credentials than in any single state in the U.S. Some southern states graduate fewer than half as many people with post-secondary credentials on a per capita basis.

In Ontario, students from underrepresented groups – including immigrants, Indigenous Peoples and those with disabilities – each graduate from colleges at a rate that reflects their share of the population. However, this is not the case for universities. Consequently, overall post-secondary access to education for underrepresented groups is low.

2 MATCHING SKILLS TO EMPLOYER NEEDS: PATHWAYS, ENTREPRENEURSHIP, INNOVATION

2.1 Ontario employment shifts towards post-secondary credentials



Note: 1990 to 2021, Ontario.

Source: Statistics Canada Labour Force Survey, 2021, Table 14-10-0020-01.

Prepared by Colleges Ontario.

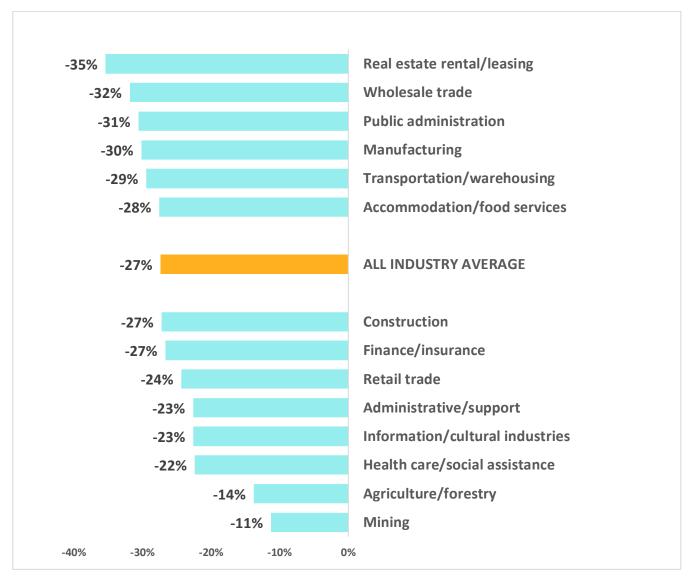


Over the past three decades, there has been considerable change in the educational attainment of Ontario's workforce, similar to that of many advanced economies.

Rising employer expectations have meant a drop of almost one million jobs in Ontario over the past three decades for those without post-secondary credentials.

In contrast, there were almost 3.1 million more jobs in 2021 for those with post-secondary credentials compared with 1990.

2.2 Ontario young adults without post-secondary credentials: employment rates by industry



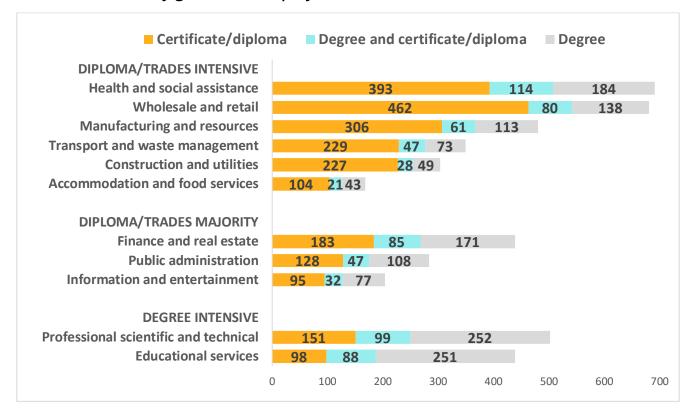
Note: Per cent employment change by industry, ages 25 to 34, 1990 to 2015, Ontario. Source: Special tabulation of the 2015 Statistics Canada Labour Force Survey. Prepared by Colleges Ontario.



Young adults in Ontario without post-secondary credentials (ages 25 to 34) are less likely to be employed in every industry sector compared with 25 years ago.

On average, the drop is 27 per cent, with higher percentage declines in formerly traditional industries such as manufacturing, accommodation and food services.

2.3 Post-secondary graduates employed in Ontario industries



Note: Thousands of jobs, 2015, Ontario.

Source: Colleges Ontario, based on a special tabulation of the 2015 Statistics Canada Labour Force Survey and a special tabulation of the 2011 National Housing Survey.

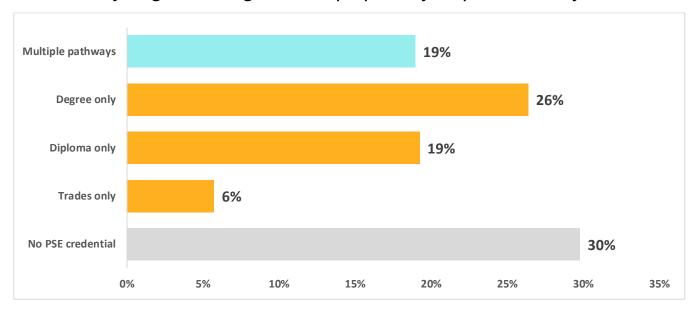
Prepared by Colleges Ontario.



Ontario's college diploma and trades graduates have high representation in export industries (manufacturing, resources and tourism), electric power generation and transmission, infrastructure, real estate, insurance and health care.

The broader public sector (educational services, health and social services, and public administration) and the professional, scientific and technical services sector each employ twice the concentration of people with degrees as the private sector.

2.4 Ontario young adults: single vs. multiple pathways to post-secondary credentials



Note: Ages 25 to 34, Ontario.

Source: Colleges Ontario, based on a special tabulation of the 2011 Statistics Canada National Housing Survey. Prepared by Colleges Ontario.



One-fifth of Ontario post-secondary students select multiple post-secondary pathways, such as obtaining a post-graduate certificate after a post-secondary degree.

2.5 Ontario entrepreneurs with college credentials

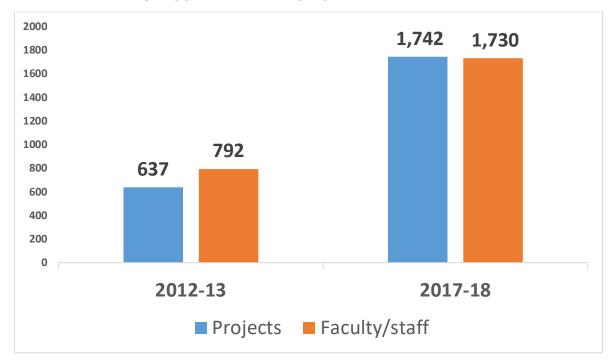
| ONTARIO REGIONS | Certificate | Trades | Diploma | KEY INDUSTRIES | Certificate | Trades | Diploma |
|---------------------------|-------------|--------|---------|---|-------------|--------|---------|
| Ottawa | 2,340 | 6,695 | 17,570 | Construction | 3,750 | 24,260 | 23,715 |
| KingstonPembroke | 1,095 | 3,180 | 6,070 | Professional and technical | 3,275 | 2,960 | 33,920 |
| MuskokaKawarthas | 1,185 | 3,670 | 6,925 | Administrative and maintenance | 3,580 | 11,160 | 19,060 |
| Toronto | 9,650 | 28,535 | 83,635 | Wholesale and retail | 2,425 | 5,450 | 19,085 |
| KitchenerWaterlooBarrie | 3,130 | 8,630 | 18,640 | Health and education | 2,100 | 2,575 | 22,050 |
| HamiltonNiagara Peninsula | 2,820 | 8,715 | 19,250 | Information, entertainment, hospitality | 1,970 | 3,825 | 17,495 |
| London | 1,445 | 3,765 | 9,195 | Finance and real estate | 2,545 | 2,660 | 13,930 |
| WindsorSarnia | 1,050 | 3,550 | 7,730 | Resources | 1,015 | 3,355 | 9,615 |
| StratfordBruce Peninsula | 875 | 3,345 | 6,225 | Transportation | 1,160 | 3,550 | 7,405 |
| Northeast | 1,180 | 3,645 | 6,435 | Manufacturing | 715 | 3,445 | 7,285 |
| Northwest | 450 | 1,430 | 1,920 | OTHER | 2,685 | 11,920 | 10,035 |
| TOTAL | 25,220 | 75,160 | 183,595 | TOTAL | 25,220 | 75,160 | 183,595 |

Note 1: "Entrepreneur" includes self-employed with and/or without employees. Source: Colleges Ontario, based on a special tabulation of the 2016 Statistics Canada Census. Prepared by Colleges Ontario.



There are almost 300,000 entrepreneurs in Ontario with college credentials, distributed across a wide range of industries and in communities across the province.

2.6 Ontario college applied research projects



Source: Colleges and Institutes Canada, annual survey of applied research, Ontario data. Prepared by Colleges Ontario.



Over the past five years, applied research in Ontario colleges has grown quickly.

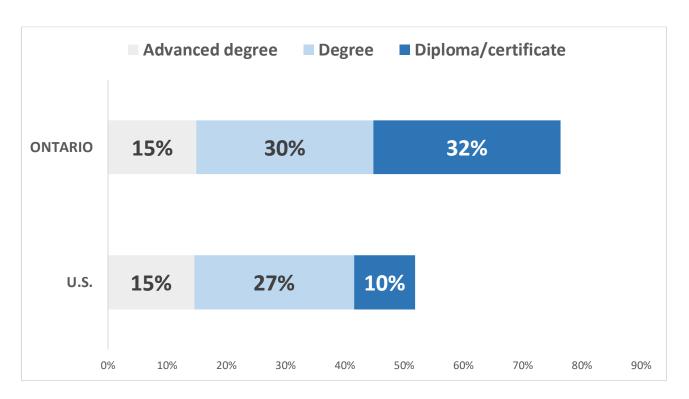
The number of businesses and other sectors partnering with colleges on applied research projects has increased over 170 per cent in five years, to 1,742 in 2017-18. There has been a similar increase in faculty and staff engaged in applied research.

Among the clients, two-thirds are small and medium-sized enterprises (SMEs), one-tenth are large companies and the remainder include non-profits, international clients and government.

These projects, combined with in-class projects defined by business partners, provide close to 14,000 students each year with work-integrated-learning experiences and opportunities to present themselves to employers. These projects improve students' prospects for good jobs once they graduate – often with the client for whom they worked on the project.

3 ONTARIO'S COLLEGE GRADUATE ADVANTAGE COMPARED TO THE U.S.

3.1 Post-secondary educational attainment of young adults, Ontario compared to the U.S.



Note: Population ages 25 to 44 years, 2021, U.S.A. and Ontario. Sources: U.S. Bureau of Labor Statistics, Table 10, 2021 and Statistics Canada, Table 14-10-0020-01. Prepared by Colleges Ontario.

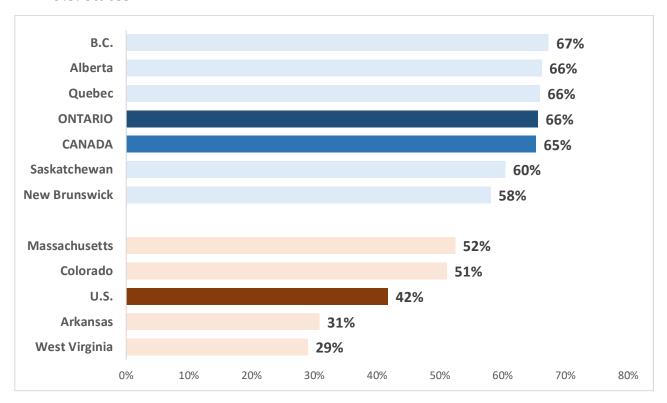


A higher proportion of younger adults in Ontario (ages 25 to 44) have a post-secondary credential compared with their U.S. counterparts.

The difference is especially pronounced for shorter-term credentials such as diplomas, which are generally offered by colleges, as younger Ontarians are three times as likely to have obtained a college credential.

About 300,000 young Ontarians have post-secondary credentials that they wouldn't have obtained if they lived in the U.S.

3.2 Post-secondary educational attainment of adults: select Canadian provinces and U.S. states



Note 1: Population 25 years and older, 2020, U.S.A. and Ontario.

Note 2: Attainment data include graduates of apprenticeship training and Quebec's CEGEP programs. Sources: U.S. Census Bureau, 2020, American Community Survey, Table S1501 and Statistics Canada, Table 14-10-0020-01.

Prepared by Colleges Ontario.

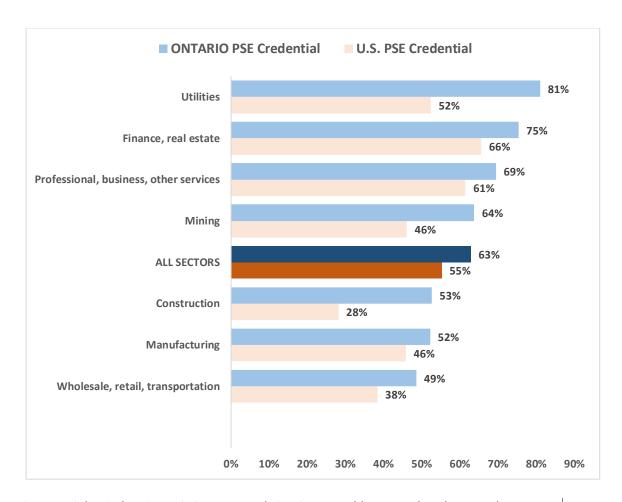


The post-secondary educational attainment of Ontario's population age 25 or older is slightly higher than the Canadian average and among the highest in the country.

New Brunswick's adult population has the lowest level of post-secondary educational attainment in Canada but it is higher than any U.S. state and much higher than the U.S. average.

There is huge variation by U.S. state. Massachusetts has a moderately high post-secondary attainment rate by advanced economy standards, with high levels of advanced degrees. West Virginia's rate (29 per cent) is the lowest in the U.S. and less than half the Ontario rate.

3.3 Post-secondary educational attainment by industry, Ontario compared to the U.S.



Sources: Select industries, U.S. Current Population Survey, Table 11, Employed persons by intermediate industry, educational attainment, sex, race and Hispanic or Latino ethnicity (25 years and over), annual average 2020; and Statistics Canada, 2016 Census, Catalogue 98-400-X2016371. Prepared by Colleges Ontario.



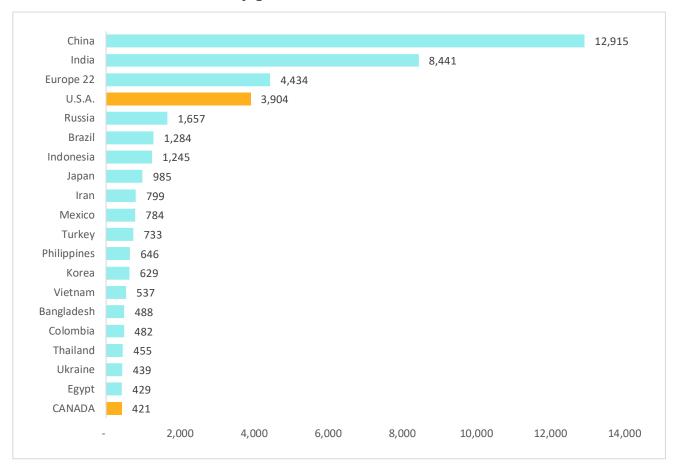
Ontario's strong post-secondary education system – and especially its employer-oriented colleges – allows every Ontario industry to employ a significantly more skilled workforce than its U.S. counterpart.

Eighty-one per cent of the employees of Ontario utilities are post-secondary graduates, compared to only 52 per cent of U.S. utilities' employees.

The gap is almost as large in construction. In Ontario, 53 per cent have post-secondary credentials, while in the U.S. only 28 per cent have post-secondary credentials. Likewise, 52 per cent of Ontario manufacturing employees have post-secondary credentials, compared to 46 per cent in U.S. manufacturing.

4 ONTARIO'S POST-SECONDARY GRADUATES IN THE WORLD ECONOMY

4.1 Annual number of tertiary graduates worldwide



Note 1: 2018 data or latest available. Countries with the highest number of tertiary graduates.

Note 2: "Tertiary" education does not generally include apprenticeship programs.

Note 3: Europe 22 includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden and the United Kingdom.

Source: UNESCO Institute for Statistics.

Prepared by Colleges Ontario.



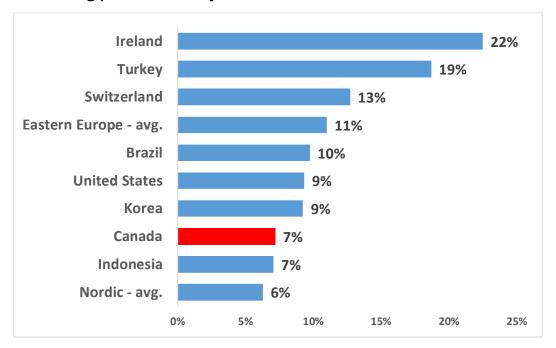
China now has 13 million annual post-secondary graduates and India has 8.4 million graduates. That compares to the United States' four-million annual graduates, Europe's 4.5 million and Canada's 420,000.

"China has increased the proportion of its college-age population in higher education to over 20 per cent now from 1.4 per cent in 1978. At the same time, China is improving the quality of education through a major effort at school curriculum reform."

Canada and other advanced countries can no longer compete on numbers of graduates. They can only maintain a high standard of living if their post-secondary graduates receive the highest quality education, incorporating innovation and entrepreneurship along with state-of-the-art skills that enable their employers to compete in the world economy.

¹ China Education Center. https://www.chinaeducenter.com/en/cedu.php

4.2 Rising post-secondary educational attainment – select countries



Note 1: Select jurisdictions, ages 25 to 34, 2009-2019.

Note 2: Nordic countries include Denmark, Finland, Iceland, Norway and Sweden.

Note 3: Eastern European countries include Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland,

Slovenia and the Slovak Republic.

Source: Education at a Glance 2020, OECD Publishing, Table A1.2.

Prepared by Colleges Ontario.



While Canada has been a leader in post-secondary education, that lead is at risk due to rapid increases in the numbers of graduates in other countries during the past decade.

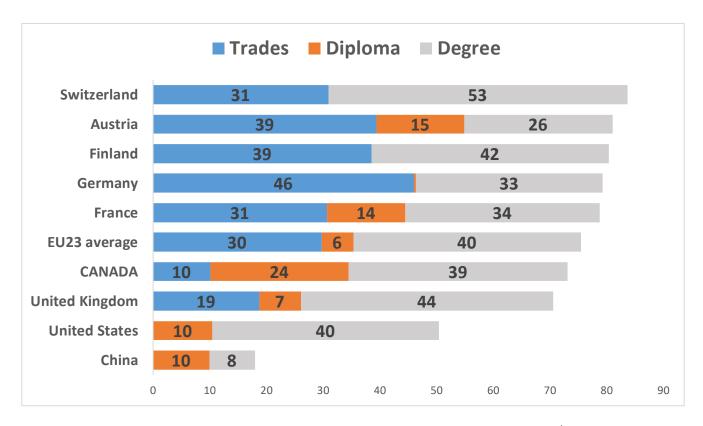
The OECD reports that Ireland has had the most rapid increase in the number of young adults (ages 25 to 34) with post-secondary credentials, along with many 'middle-income' countries in Eastern Europe, Turkey, Brazil and Korea.

A key reason for rising post-secondary attainment in Europe is its process for ensuring comparability in the standards and quality of higher-education qualifications for 47 countries. The 'Europe 2020' strategy set a target that 40 per cent of young Europeans would have a higher education qualification² in 2020.

In the Nordic countries, the U.K., and Germany, three-year bachelor's degrees are the norm. In most cases in Europe, it now takes three to four years to earn a bachelor's degree and another one to two years for a master's degree. The European Union believes a modernized higher education system provides the highly skilled human capital and the engaged citizens that Europe needs to create jobs, economic growth and prosperity.

² https://ec.europa.eu/education/policies/higher-education/about-higher-education-policy en

4.3 Post-secondary attainment of young adults: Canada and select countries



Note 1: Select jurisdictions, ages 25-34, 2019.

Note 2: "Trades" includes OECD-defined "upper secondary - vocational" and "post-secondary non-tertiary – vocational." "Diploma" includes OECD-defined "short-cycle tertiary programs."

Note 3: Europe 23 includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden and the United Kingdom.

Sources: Education at a Glance 2020: OECD Indicators, OECD Publishing, Paris.

Tables A1.2 and A1.4.



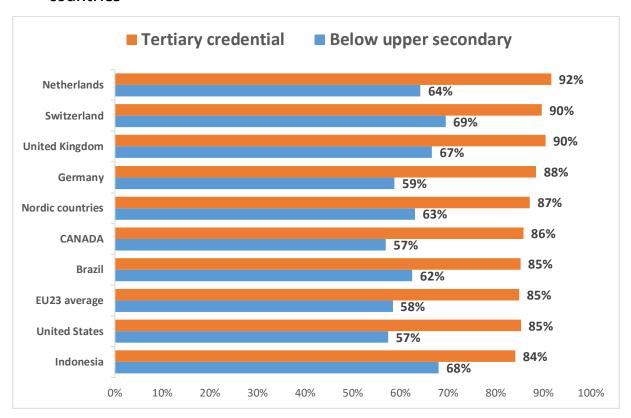
At one time, Canada was considered to have one of the highest post-secondary completion rates in the world.

But apprenticeships in most of Europe (e.g., Switzerland, Germany, Austria, and France) are often not counted since they are considered to be "upper secondary – vocational" training.

When these graduates are added to the OECD's "tertiary" education graduates for 25 to 34 year olds, Canada's position falls from third (behind Ireland and Korea) to 13th place, just behind the European average.

In contrast to Canada and Europe, the U.S. has very little vocational education, either at the upper-secondary or at the post-secondary levels. The U.S. is in 32nd place and substantially lags in this broader measure of post-secondary educational attainment.

4.4 Employment of young adults with and without tertiary credentials, select countries



Note 1: Select jurisdictions, ages 25 to 34, 2019.

Note 2: Nordic countries include Denmark, Finland, Iceland, Norway and Sweden.

Note 3: Europe 23 includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden and the United Kingdom.

Source: Education at a Glance 2020: OECD Indicators, OECD Publishing, Paris, Table A3.1.

Prepared by Colleges Ontario.



Workplaces have become more complex the world over, requiring ever more sophisticated and specific skill sets.

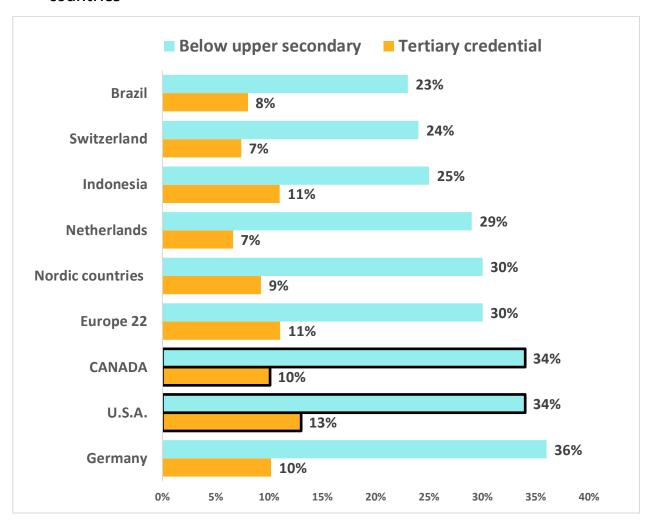
As a result, in many advanced economies, there is a 25 to 35 percentage point difference in employment rates between young adults (ages 25 to 34) with and without post-secondary credentials.

In Canada, while 86 per cent of those with a post-secondary credential are employed, only 57 per cent of those without post-secondary credentials are employed.

If all Canadians had post-secondary credentials, almost three million more would be employed. In Ontario, 1.2 million more would be employed³.

³ Statistics Canada, Table 14-10-0020-01, Unemployment rate, participation rate and employment rate by educational attainment, annual.

4.5 Inactivity rates of young adults with and without tertiary credentials, select countries



Note 1: Select jurisdictions, ages 25 to 34, 2017.

Note 2: Nordic countries include Denmark, Finland, Iceland, Norway and Sweden.

Note 3. Europe 22 includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden and the United Kingdom.

Source: Education at a Glance 2018: OECD Publishing, Table A3.3.

Prepared by Colleges Ontario.



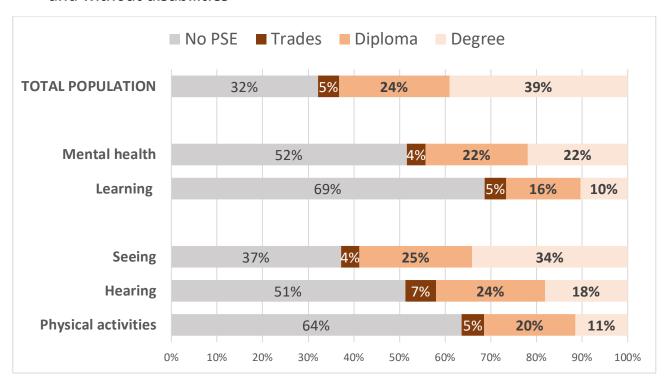
The huge difference in employment rates between those with and without post-secondary credentials is explained mainly by those who are inactive: i.e., neither working nor seeking a job.

In Canada – as in other developed and some developing countries – one-tenth of those with a post-secondary credential are inactive, while a third of those without post-secondary credentials are inactive.

Because Canada has such a high share of college graduates, it has relatively few young adults without post-secondary credentials. As a result, it has a lower share of inactive youth than many other countries.

5 EDUCATIONAL ATTAINMENT AND EMPLOYMENT OF ONTARIANS FROM UNDER-REPRESENTED GROUPS

5.1 Post-secondary educational attainment for young adults in Ontario – people with and without disabilities



Note: Ontarians, ages 25 to 34.

Source: Colleges Ontario, based on a special tabulation of the 2016 Statistics Canada Census.

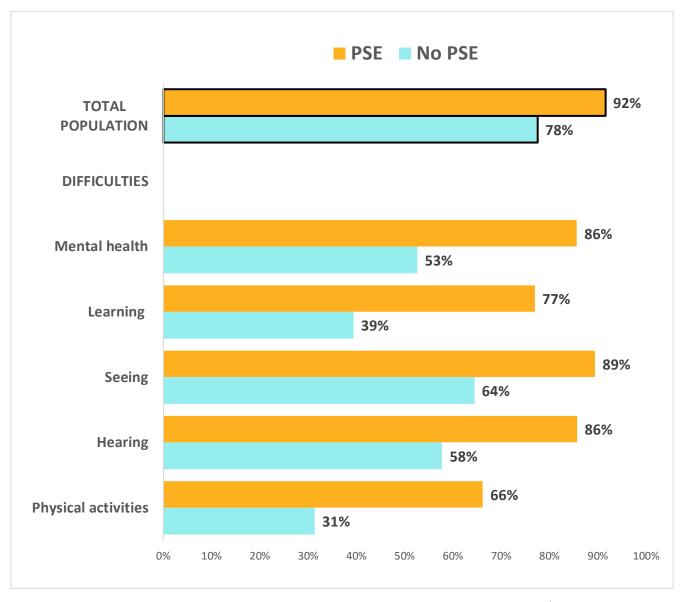


Young adults (ages 25 to 34) with disabilities are significantly less likely to have completed a post-secondary credential than those without reported disabilities. The data include individuals who reported experiencing one of the disabilities listed in the chart 'often' or 'always.'

The gap is greatest for those with learning or physical disabilities, somewhat less for those with mental health or hearing disabilities and least for those with sight challenges.

In each case, those with disabilities are far less likely to have completed a degree. However, for all disabilities except learning, these young adults have completed a college or trades credential at the same rate as other young adults without disabilities.

5.2 Employment rates of young adults in Ontario – people with and without disabilities



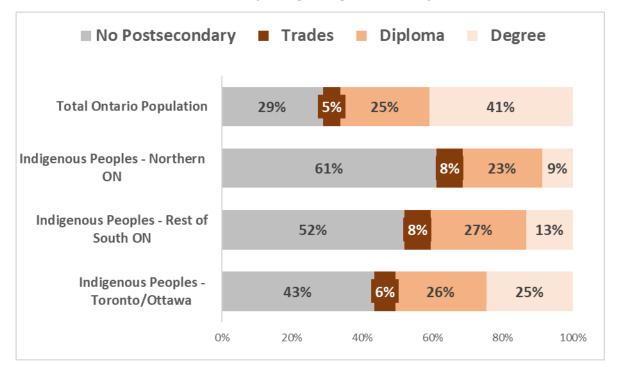
Note: Ontarians, ages 25 to 34. The employment levels in this chart and two that follow (sections 5.4 and 5.5) are significantly higher than the ones in the chart on Page 14 because the Statistics Canada census enumerates many individuals as employed who would not be considered employed in many other surveys. As well, "no post-secondary" is more inclusive than the term "below upper secondary" used by international agencies.

Source: Colleges Ontario, based on a special tabulation of the 2016 Statistics Canada Census.



Young adults (ages 25 to 34) reporting disabilities 'often' or 'always' are less likely to be employed than those with comparable educational attainment but without disabilities. The difference in employment rates is especially pronounced for those without post-secondary credentials.

5.3 Educational attainment of young Indigenous Peoples in Ontario



Note: Ontario, ages 25 to 34. Indigenous identity includes persons who are First Nations (North American Indian), Métis or Inuk (Inuit), along with registered or treaty Indians and/or those who have membership in a First Nation or Indian band.

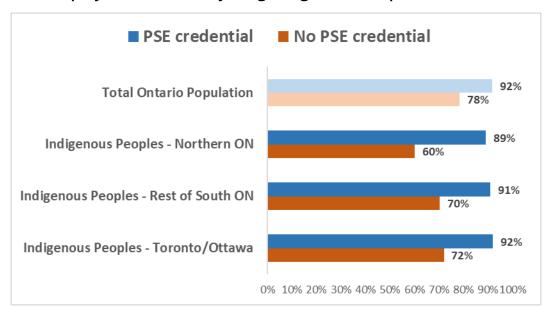
Source: Colleges Ontario, based on a special tabulation of the 2016 Statistics Canada Census of individuals reporting Indigenous identity.



Young adults reporting as Indigenous Peoples are at least as likely as other young Ontarians to have obtained a college diploma or a trade certificate.

However, they are only about one-third as likely to have completed a degree program. Overall, a large proportion lack any post-secondary credentials, especially in Northern Ontario.

5.4 Employment rates for young Indigenous Peoples in Ontario



Note: Ontario, ages 25 to 34.

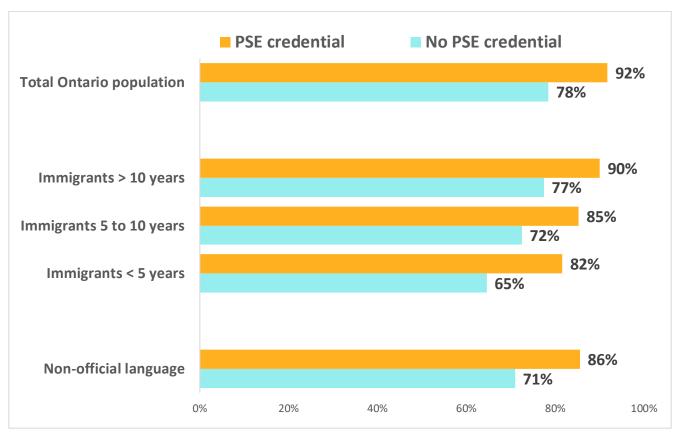
Source: Colleges Ontario, based on a special tabulation of the 2016 Statistics Canada Census.



Young adults reporting as Indigenous Peoples with post-secondary credentials are almost as likely as other young Ontarians to be employed.

However, those who do not have a post-secondary credential are significantly less likely to be employed, especially in northern Ontario.

5.5 Employment rates for young immigrants and those who do not speak an official language



Note: Ontario, ages 25 to 34.

Source: Colleges Ontario, based on a special tabulation of the 2016 Statistics Canada Census.



Immigrants (ages 25 to 34) generally experience lower employment rates than the general Ontario population, even when educational attainment is taken into account.

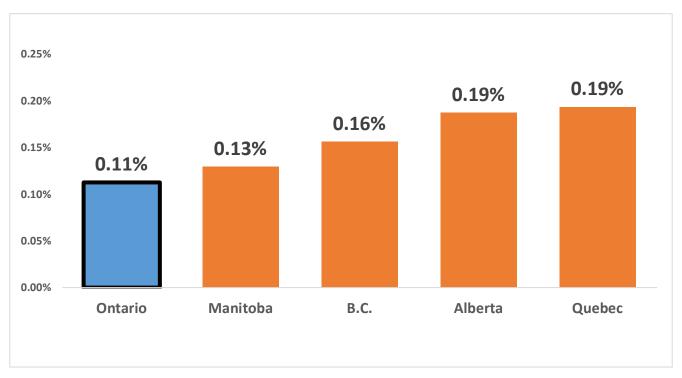
The difference is especially great for immigrants who have been in Canada less than five years.

However, once they have been in Canada at least 10 years, employment rates are almost the same as for all Ontarians with comparable post-secondary credentials.

Young adults (ages 25 to 34) whose mother tongue is not English or French are less likely to be working than those with comparable educational attainment whose mother tongue is an official language.

6 APPRENTICESHIP AND ADULT EDUCATION

6.1 Certification of tradespersons, Ontario compared to select provinces



Note 1: Newly certified tradespersons as a per cent of total employment, 2020.

Note 2: Apprentices who passed their certificates of qualification examinations in 2020.

Source: Prepared by Colleges Ontario, based on Statistics Canada tables 37-10-0024-01 and 14-10-0375-01.



Apprenticeship is a specialized form of vocational education in which most of the formal skills training is provided by employers in the workplace.

Depending on the country, apprenticeship may range from a very large share to a negligible share of vocational education.

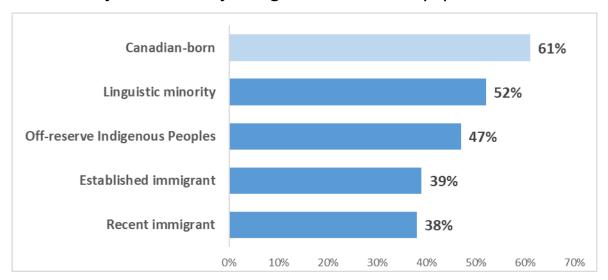
Apprenticeship in Canada represents a large proportion of vocational training in only a few industries, such as construction, resources and energy. For most sectors and for the large majority of students, vocational training is provided by post-secondary programs in colleges.

As a result of Ontario's unusually diverse industrial base, there are relatively few apprentices and tradespersons compared to other provinces.

Compared with Ontario, other provinces in 2020 had about one-third more apprentices on average (measured against the size of the workforce) who succeeded in passing their certificate of apprenticeship or qualification to qualify as tradespersons.

New apprentices may have challenges with numeracy or literacy or may have disabilities that can impede their progress. In Ontario, about half of apprentices do not complete their programs to become registered tradespersons.

6.2 Adult literacy and numeracy rating for select Ontario populations



Note: Per cent scoring above level 2 in literacy and numeracy, 2012. Source: Statistics Canada, 37-10-0055-01 (formerly CANSIM 477-0087), 2012.



In Canada, three-fifths of adults score above level 2⁴ in literacy and numeracy, a level considered minimal for success in the workforce.

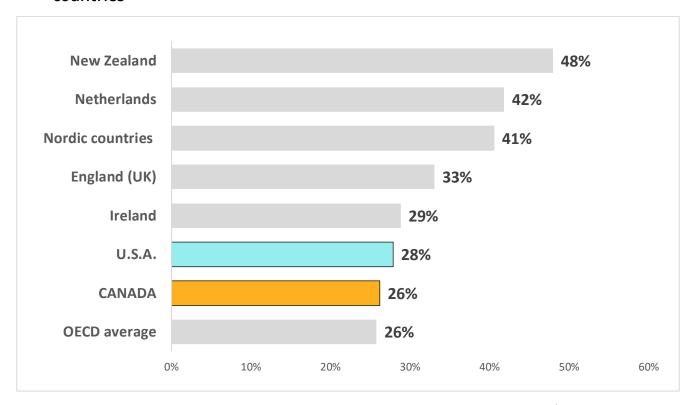
However, about two in five Canadian-born adults have only level 2 or lower levels of literacy and numeracy. Many of these individuals may experience difficulties in their careers.

Moreover, adults from underrepresented groups are much more likely than Canadian-born adults to have literacy and numeracy levels below what is generally required for effective participation in the workforce.

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⁴At level 2 in mathematics, for example, students can interpret and recognize situations in contexts that require no more than direct inference. They can extract relevant information from a single source and make use of a single representational mode. Students at this level can employ basic algorithms, formulae, procedures or conventions. They are capable of direct reasoning and making literal interpretations of the results.

6.3 Job-related education for adults without upper secondary credentials, select countries



Note 1: Annual participation rates, select countries.

Note 2: Nordic countries include Denmark, Finland, Norway and Sweden.

Source: Education at a Glance, 2016, OECD Publishing, Table C6.3 (web only).

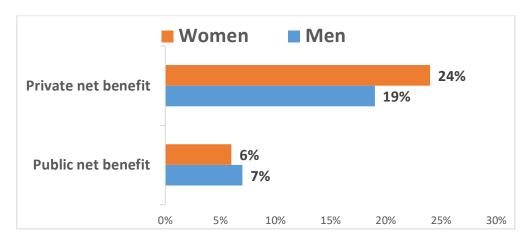
Prepared by Colleges Ontario.



Several countries – notably New Zealand, the Netherlands and the Nordic countries – are well ahead of other advanced economies in providing retraining to older workers without educational credentials.

By comparison, the U.S. and Canada are at the OECD average.

7 RETURN ON INVESTMENT IN CANADIAN POST-SECONDARY EDUCATION



Note 1: Net benefits are calculated as an internal rate of return, per cent, 2017.

Note 2: This data exclude OECD-defined "post-secondary non-tertiary," i.e., post-secondary programs of one year or less, primarily apprenticeship programs, which are included in Statistics Canada's post-secondary data. Source: Education at a Glance 2020: OECD Indicators, OECD Publishing, Paris. web tables A5.5; A5.6; A5.7; A5.8.



The OECD states that 5:

- "Individuals completing tertiary education benefit from substantial returns on investment: they are more likely to be employed and earn more."
- "The public also benefits from a large proportion of tertiary-educated individuals through greater tax revenues and social contributions."

For Canada, the OECD calculates that individuals receive a rate of return ranging from 19 per cent (men) to 24 per cent (women). College graduates gain a net financial benefit of over \$200,000. Governments receive up to seven per cent on their investments in post-secondary education.

An Ontario study⁶ concluded that Ontario college students receive a rate of return of 14 per cent while the Ontario government receives an internal rate of return of 20 per cent.

Another study⁷ examined special programs for at-risk Ontario college students. It concluded there is an 11 per cent return on investment to these students and a 14 per cent return on investment to the Ontario government.

⁵ Education at a Glance 2014: OECD Indicators, OECD Publishing, Paris, Page 150.

⁶ Economic Modeling Specialists Intl., Demonstrating the Value of the Ontario College Sector: Analysis of the Economic Impact and Return on Investment of Education, 2014, Page 11.

⁷ Deloitte, Breaking Down Barriers to Student Success: Expanding a High-Performance Workforce, 2012, Page 2.