GRADUATES IN THE ECONOMY 17

ENVIRONMENTAL SCAN 2017

COLLEGES ONTARIO | COLLÈGES ONTARIO

GRADUATES IN THE ECONOMY17

TABLE OF CONTENTS

GRADUATES IN THE ECONOMY17

1. HIGHLIGHTS

Over the past 25 years, the rising level of skills sought by Ontario employers has led to a drop of 400,000 jobs for young adults (ages 25 to 34) without post-secondary credentials, offset by new jobs for those with credentials. The decreases have occurred in every sector. The largest percentage drops are in industries such as manufacturing, accommodation and food services.

In leading advanced economies, employment rates for young adults without post-secondary education are now typically 25 percentage points lower than for post-secondary graduates.

Measured on numbers of tertiary graduates only, Ontario ranks far above Europe and the United States. But when tradespersons are included, leading European countries score much higher.

European leaders are pursuing improvements in the quality of training programs as defined by employers. These include apprenticeships, technology programs and, often, adult skills training. The goal is to boost employment, sustain high exports per capita (three to six times the U.S. level) and reduce inequality compared to the U.S. and – to a lesser extent – to Canada and Ontario.

Asia is also quickly preparing for the digital economy. China, Japan, Korea and Indonesia alone have three times as many young adults with post-secondary credentials as does the U.S.

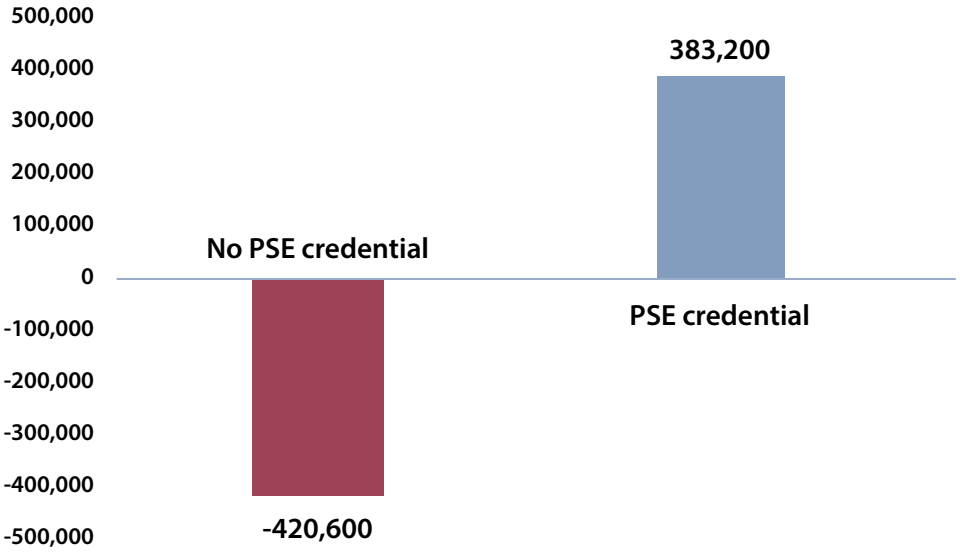
Within North America, Ontario's skills are a key competitive advantage. While Ontario's apprenticeship program is modest by Canadian standards, it has three times as many college graduates (per capita) as the U.S. The Ontario graduates' innovation and entrepreneurship contribute to exports per capita at twice the U.S. level.

In Ontario, access to post-secondary education continues to be a challenge for underrepresented groups, including immigrants, indigenous peoples, and those with disabilities, resulting in lower employment prospects. In addition, Canada's record in providing employability skills training for adults with low literacy levels is worse than Nordic countries, and is lower than the U.S.

Finally, employer-focused post-secondary education remains an excellent investment for both individuals and governments.

2. FEWER JOBS FOR YOUNG ADULTS WITHOUT POST-SECONDARY CREDENTIALS IN ONTARIO

2.1 Ontario employment change, with and without a post-secondary credential, ages 25 to 34, 1990-2015

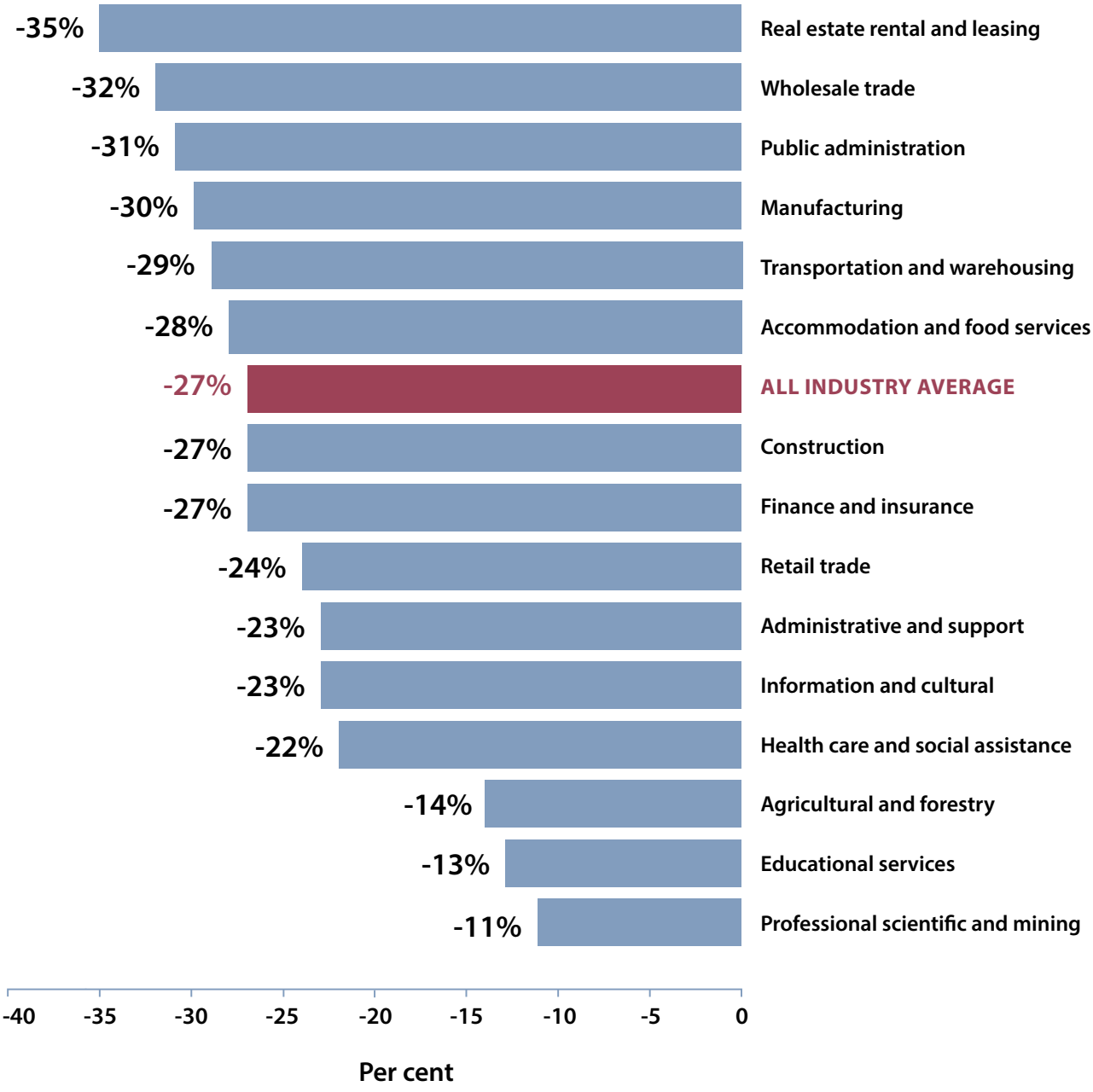


Source: Statistics Canada Labour Force Survey, special tabulation.

Over the past quarter century, there has been considerable change in the educational attainment of Ontario's workforce, and that of many advanced economies.

Rising employer expectations have especially impacted opportunities for young adults ages 25 to 34. Compared to 1990, there has been a drop of more than 400,000 jobs in Ontario for those without post-secondary credentials, with a slightly smaller increase in jobs for those who have completed at least one post-secondary credential.

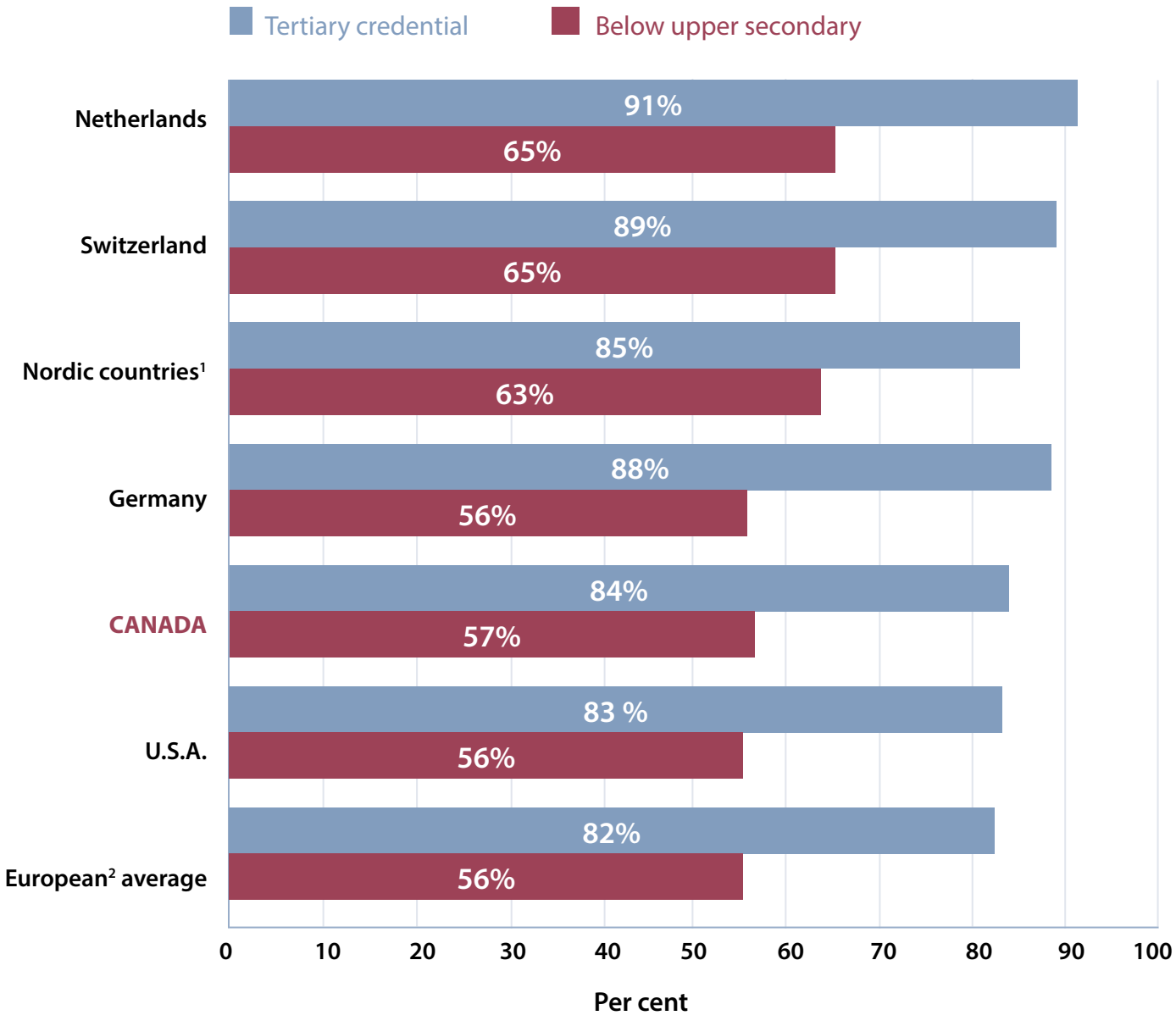
2.2 Ontario employment change without a post-secondary credential, by industry, ages 25 to 34, 1990-2015



Source: Statistics Canada Labour Force Survey, special tabulation.

For young adults (ages 25 to 34) without a post-secondary education, fewer are employed in every industry compared with the situation 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 Employment rates, with and without tertiary credentials, selected jurisdictions, ages 25 to 34, 2015



Note 1: Nordic countries include Denmark, Finland, Iceland, Norway and Sweden.

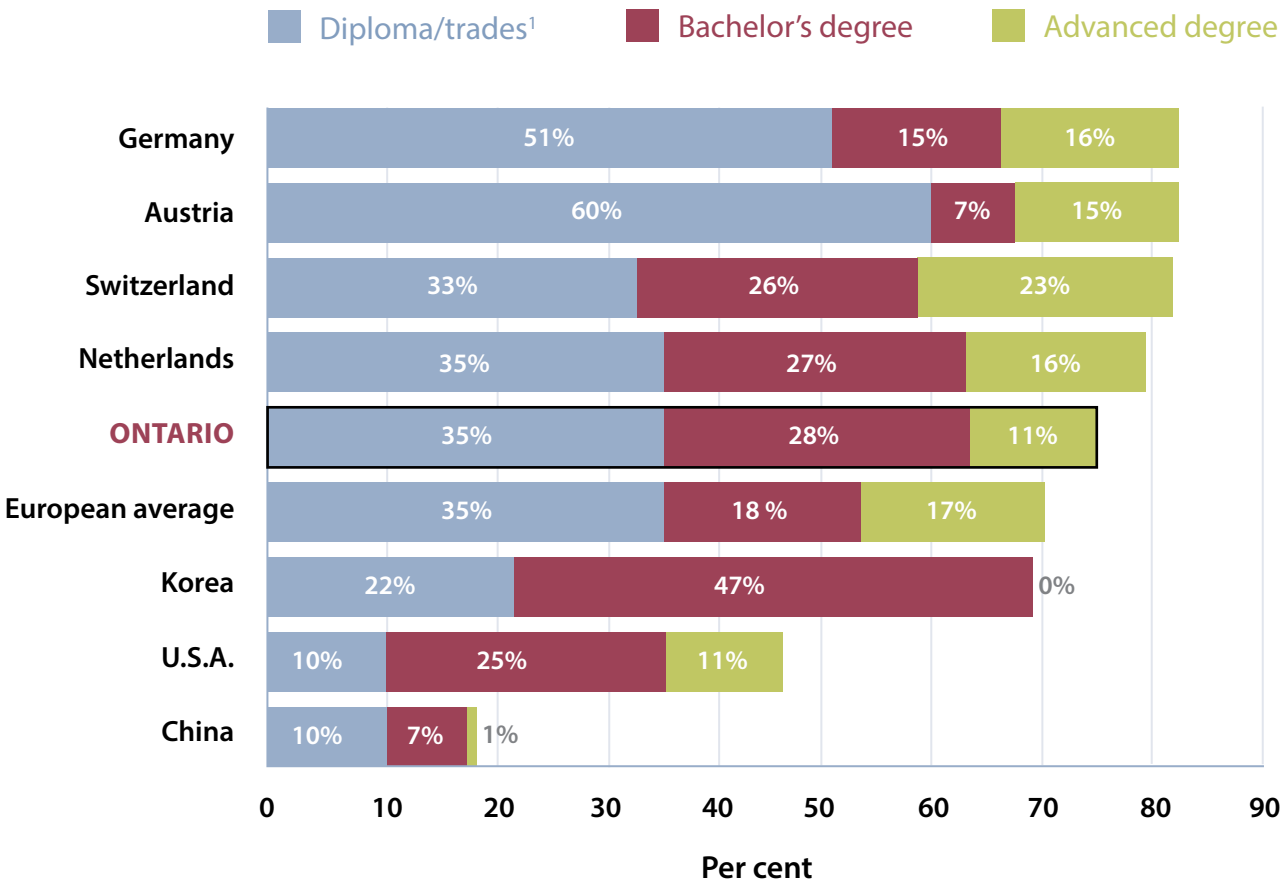
Note 2: Europe includes Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden and the United Kingdom.

Source: Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris. Table A5.3, Trends in employment rates, by educational attainment and age group (2005 and 2015).

Workplaces have become more complex, 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.

3 MATCHING CREDENTIALS TO EMPLOYER NEEDS: AN INTERNATIONAL COMPARISON

3.1 Post-secondary educational attainment, Ontario and selected countries, ages 25 to 34, 2015



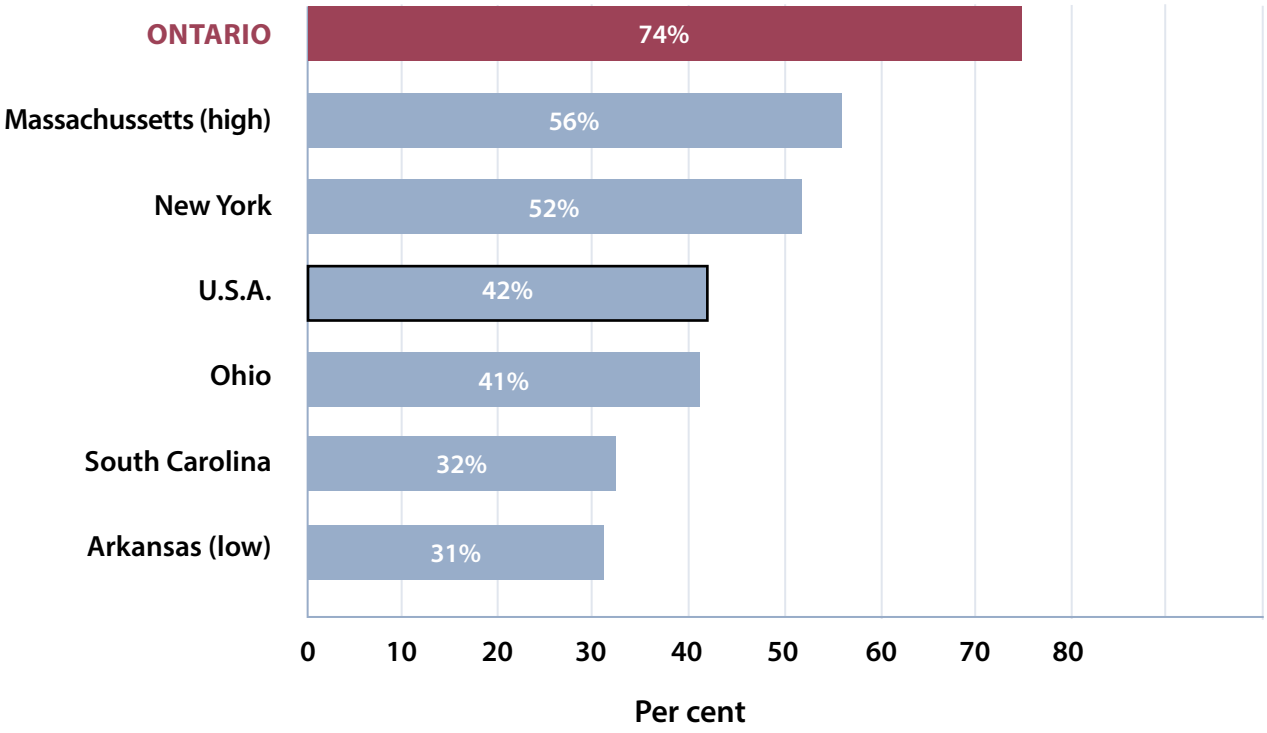
Note 1: Diploma/trades includes both OECD-defined "post-secondary non-tertiary - vocational" (mainly apprenticeship programs) and "short-cycle tertiary programs" (mainly two- to three-year diplomas).

Sources: Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris. Table A1.2, Percentage of adults who have attained tertiary education, by type of program and age group (2015); Table A1.4, Educational attainment of 25- to 34-year-olds, by program orientation (2015); Colleges Ontario estimates adjusted from a special tabulation of the Statistics Canada Labour Force Survey 2015.

When trades credentials are added to the OECD's "tertiary" education rates for 25- to 34-year-olds, Ontario's position falls from second to 11th place, just ahead of the European average. In contrast to Europe, Korea and Japan, the U.S. lags in this broader measure of post-secondary educational attainment, at 30th place.

Moreover, both Europeans and North Americans must look to rapid changes in Asia. In comparison with the United States' 10 million post-secondary graduates (ages 25 to 34), China now has 20 million graduates, and Japan, Korea and Indonesia together have nine million graduates.

3.2 Post-secondary educational attainment, Ontario, U.S.A. and selected U.S. states, ages 25 to 34, 2015

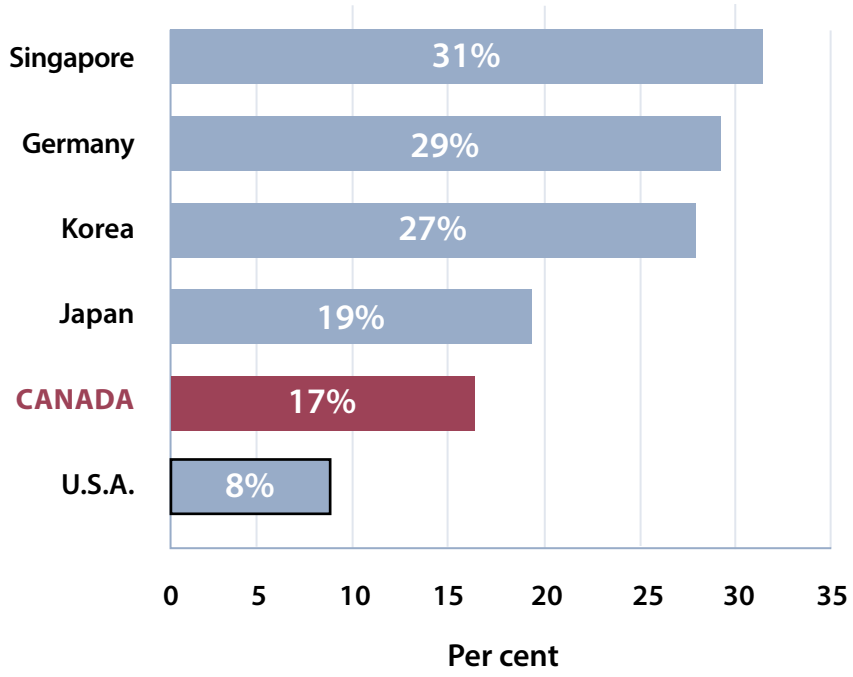


Sources: U.S. Census Bureau, 2015 American Community Survey 1-Year Estimates; Statistics Canada Labour Force Survey 2015, special tabulation.

Ontario's educational attainment compares well with the U.S. average. However, there is huge variation by state. Massachusetts has a moderately high attainment rate by advanced-economy standards, with high levels of advanced degrees.

Arkansas' rate (31 per cent) is the lowest in the U.S., and is lower than Chile or Turkey (each at 39 per cent) and only modestly better than Mexico (21 per cent) or China (18 per cent).

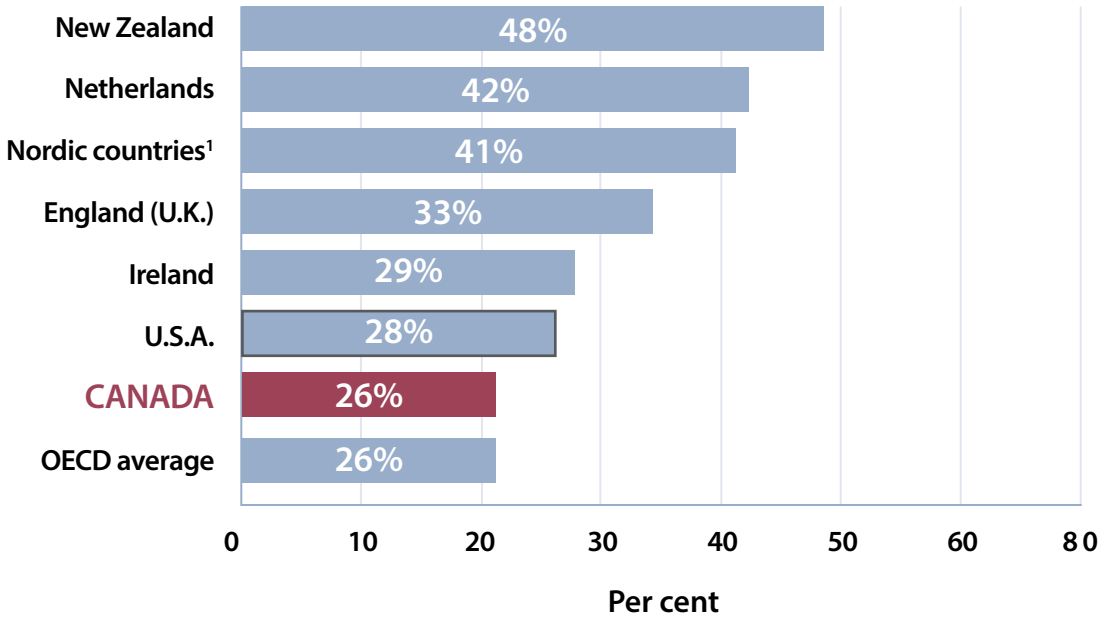
3.3 Engineering, manufacturing and construction credentials, per cent of all graduates, ages 25 to 34, 2015



Source: Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris. Figure A1.5, Field of education studied among tertiary-educated adults, by gender (2012 or 2015).

According to the OECD, the Canadian post-secondary system is about average among advanced economies in graduating engineering, manufacturing and construction credentials. However, it is widely recognized by governments in Canada that competitive success in the digital economy depends on having a sufficient number of science, technology, engineering and mathematics (STEM) graduates.

3.4 Job-related education for adults without upper secondary credentials, annual participation rates, selected countries



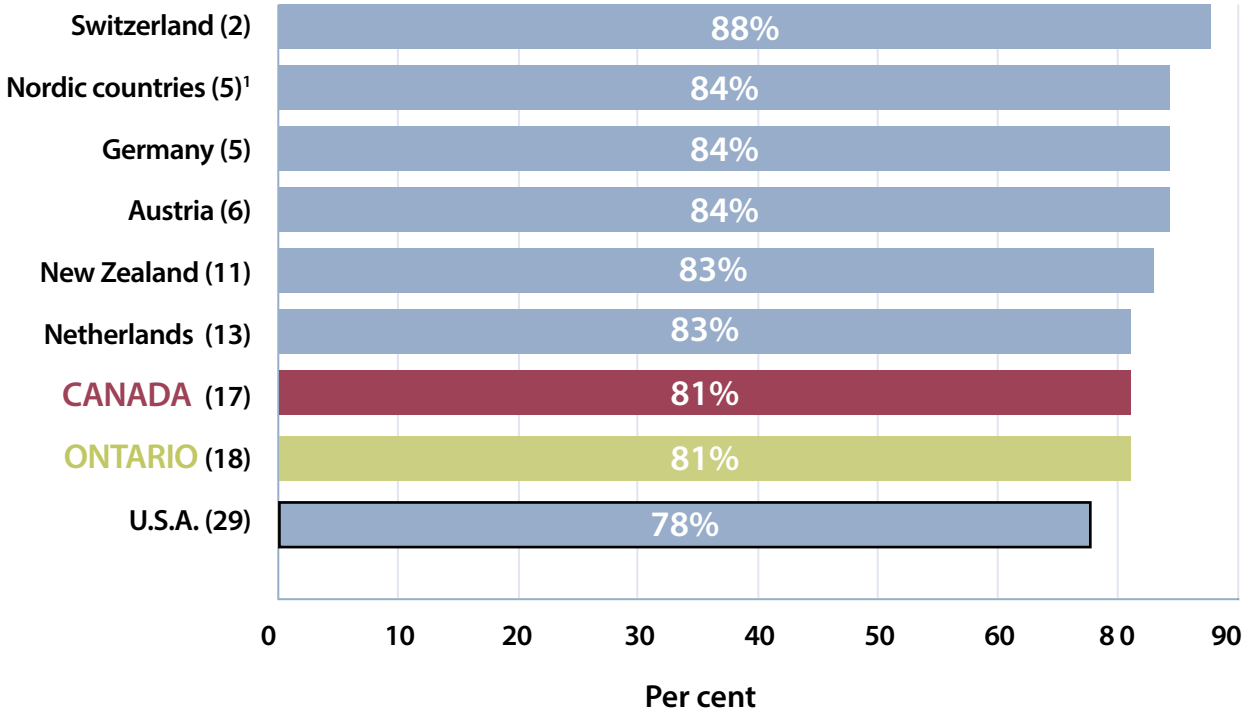
Note 1: Nordic countries include Denmark, Finland, Norway and Sweden.

Source: Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris. Table C6.3 (web only), Participation in formal and/or non-formal education, by literacy proficiency level and educational attainment (2012 or 2015).

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.

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

3.5 Employment rates, selected jurisdictions, ages 25 to 54, 2016



Note 1: Nordic countries include Denmark, Finland, Norway and Sweden.

Sources: OECD, Employment rate by age group, 25- to 54-year-olds, per cent in same age group, 2016 (https://data.oecd.org/emp/employment-rate-by-age-group.htm); Statistics Canada, Table 282-0002, Labour Force Survey estimates (LFS), by sex and detailed age group, annual.

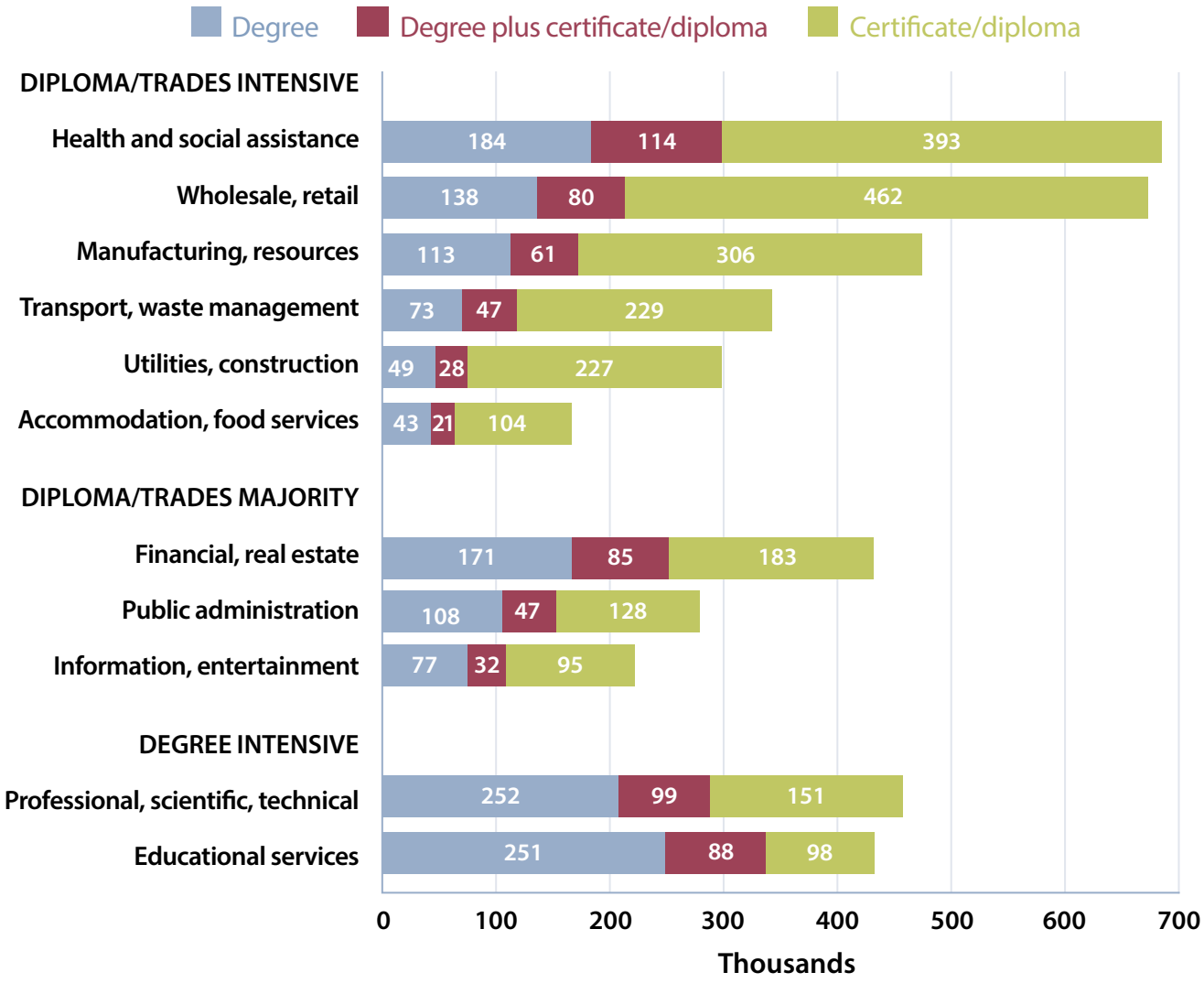
By focusing on employer-defined quality – including apprenticeships and an emphasis on technology programs and retraining older workers without educational credentials – leading European countries have been able to boost employment rates and sustain high exports per capita. They also maintain less inequality than the U.S., and to a lesser extent, Canada and Ontario.[2]

[1] 2014 exports per capita for the U.S. were $5,057; for Ontario ($11,780); Germany ($18,316); the Nordic countries ($19,273); and the Netherlands ($33,652). Sources: https://en.wikipedia.org/wiki/List_of_countries_by_exports_per_capita; http://www.sourcefromontario.com/tradefactsheet/en/page/tradefactsheet_ontario.php; and http://www.canadianforex.ca/forex-tools/historical-rate-tools/yearly-average-rates.

[2] "Income inequality in Canada exceeded that in most European countries, including France, Germany, Denmark, Sweden, Norway and Finland (where the Gini coefficient ranged from 0.248 to 0.295); was similar to that in Japan, New Zealand and Australia; and was below that in the United Kingdom (0.345) and the United States (0.378)," David A. Green, W. Craig Riddell and France St-Hilaire, editors, Income Inequality: The Canadian Story. The Institute for Research on Public Policy (IRPP), 2016, Page 6.

4 MATCHING CREDENTIALS TO EMPLOYER NEEDS: INDUSTRY, ENTREPRENEURSHIP AND INNOVATION

4.1 Post-secondary graduates employed in Ontario industries, 2015



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

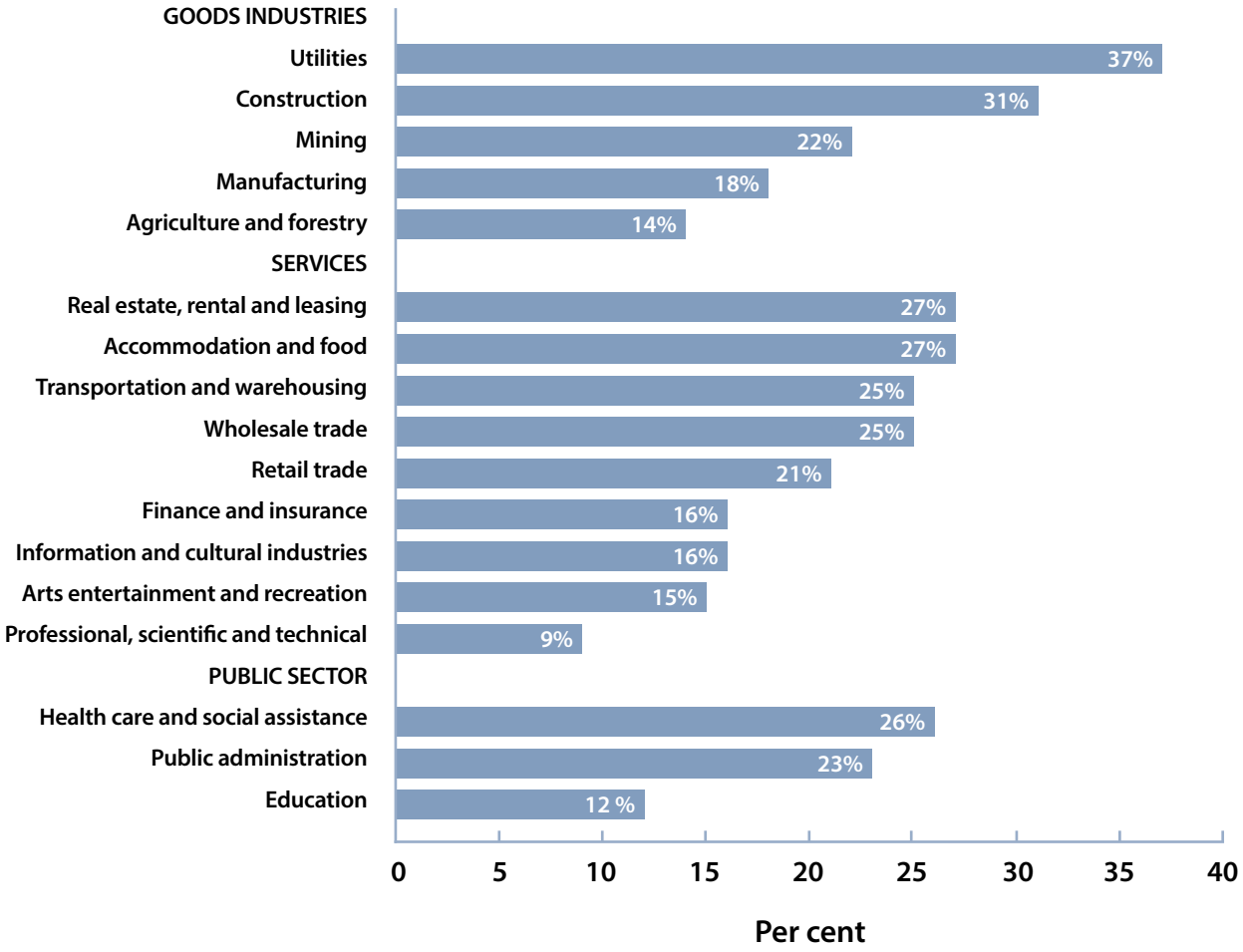
Ontario's diploma and trades graduates play a critical role in export industries (manufacturing, resources and tourism), electric power generation and transmission, infrastructure, real estate, insurance and health care.

A recent survey of more than 1,500 employers that employ 13.5 per cent of Ontario's workforce found that "smaller firms (one to 19 employees) have the greatest need for two- or three-year college diplomas, followed by trades and four-year degrees." [3]

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 degrees as the private sector.

[3] The Conference Board of Canada, The Need to Make Skills Work: The Cost of Ontario's Skills Gap, 2013, Page 20.

4.2 Ontario's post-secondary graduate advantage[1] compared with the U.S., as a per cent of all employed, by sector, 2015

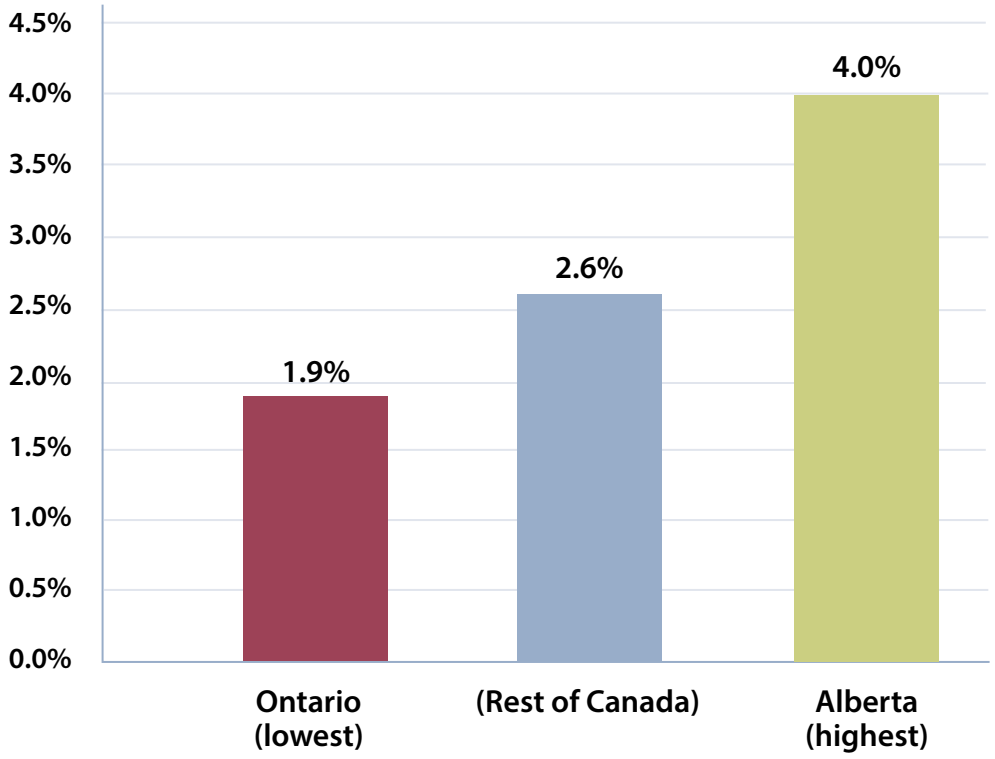


Note 1: Ontario's post-secondary advantage over the U.S.A., measured as the per cent point difference in post-secondary educational attainment.

Source: US Bureau of Labor Statistics. Table 13, Employed persons by detailed industry and educational attainment (25 years and over), Annual Average 2015 (Current Population Survey); Statistics Canada Labour Force Survey 2015, special tabulation.

Ontario's strong post-secondary education system enables every Ontario industry to employ a significantly more skilled workforce than its U.S. counterpart industry. For example, Ontario utilities employ 37 percentage points more post-secondary graduates. Ontario manufacturers employ 18 percentage points more, while Ontario information and cultural industries employ 17 percentage points more. In finance and insurance, companies employ 16 percentage points more post-secondary graduates.

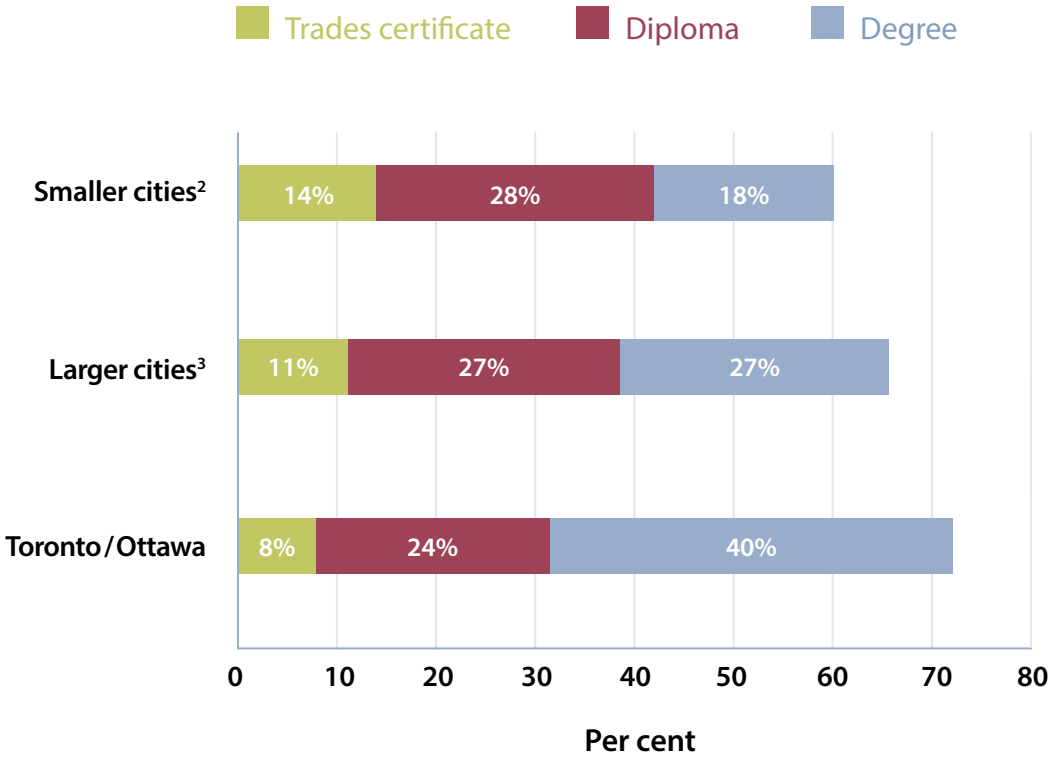
4.3 Certification of tradespersons[1] as a per cent of employment, Ontario vs. Alberta and the rest of Canada, 2014



Note 1: Apprentices who passed their certificates of qualification examinations.
Source: Colleges Ontario, based on Statistics Canada tables 282-0004 and 477-0054.

In 2014, other provinces had one-third more apprentices who succeeded in passing their certificate of qualification examinations (after completing both educational and workplace training requirements) to qualify as tradespersons as compared to Ontario, when measured against the size of the provincial workforce.

4.4. Post-secondary credentials held by self-employed[1] in Ontario communities, per cent of total self-employed, 2011

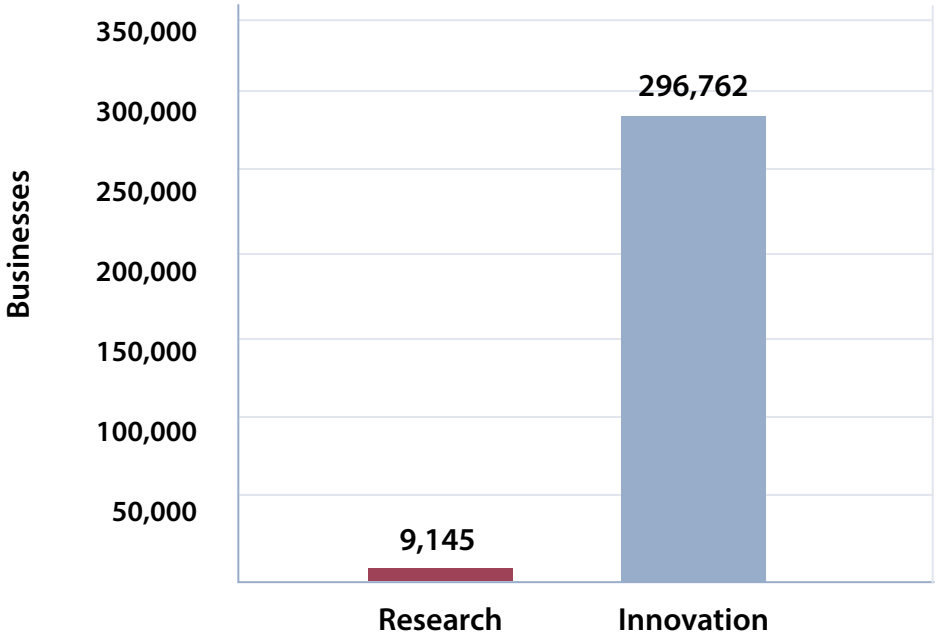


Note 1. "Self-employed" includes those with and without employees.
Note 2. "Smaller cities" refers to Ontario Census Areas (average).
Note 3. "Larger cities" refers to Ontario Census Metropolitan Areas (average), excluding Toronto and Ottawa.
Source: Colleges Ontario, based on a Statistics Canada National Housing Survey 2011, special tabulation.

Educational attainment of entrepreneurs tends to vary by the size of the community:

- Typically, smaller communities rely more heavily on diploma and trades certificate holders.
- Toronto – due to its concentration of specialized business services, head offices, post-secondary institutions and government – has a high number of business owners who hold degrees.
- Due largely to the requirements of the federal government, Ottawa has the greatest concentration in Ontario of business owners with degrees.

4.5 Ontario businesses engaged in research compared to innovation



Sources: Key Small Business Statistics, June 2016, Table 1.1-1; Statistics Canada, Table 358-0221; Catalogue no. 88-202-x, Industrial Research and Development Intentions, 2015, Table 14-2.

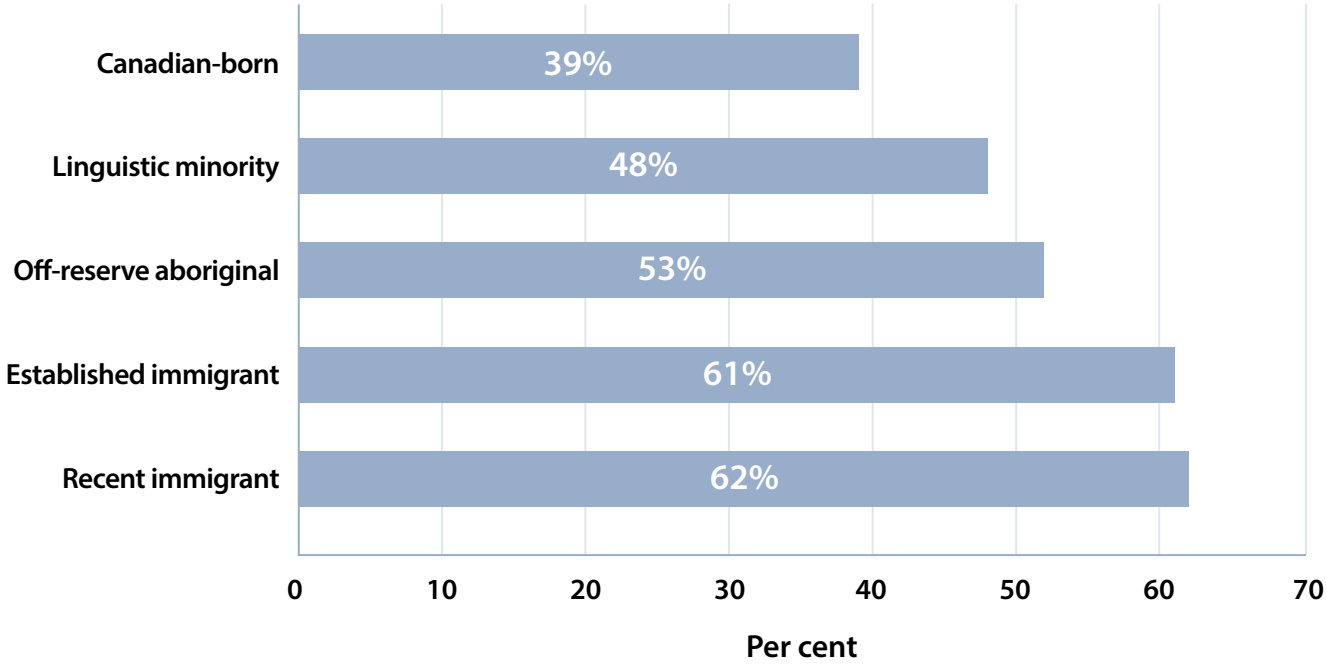
With $14 billion invested annually, Ontario research is a significant component of efforts to improve the competitiveness of the select group of 9,000 businesses that are involved.

Statistics Canada measures the number of firms that engage in product, process, organizational and marketing innovation. This is a far broader activity than research, and involves almost 300,000 firms in Ontario. The underlying expectation is that moderate growth experienced by a large number of firms is key to economic prosperity.

College applied research is focused almost entirely on client-driven requirements to innovate to improve their competitive positions.

5 ACCESS TO POST-SECONDARY EDUCATION IN ONTARIO

5.1 Adult literacy and numeracy rating for selected Ontario populations, per cent scoring at or below level 2 in literacy and numeracy, 2012



Source: Statistics Canada. Table 477-0087, Literacy and numeracy, average scores and distribution of proficiency levels, by aboriginal (off-reserve), immigrant or minority language status, by sex, population aged 16 to 65, selected provinces and territories, 2012.

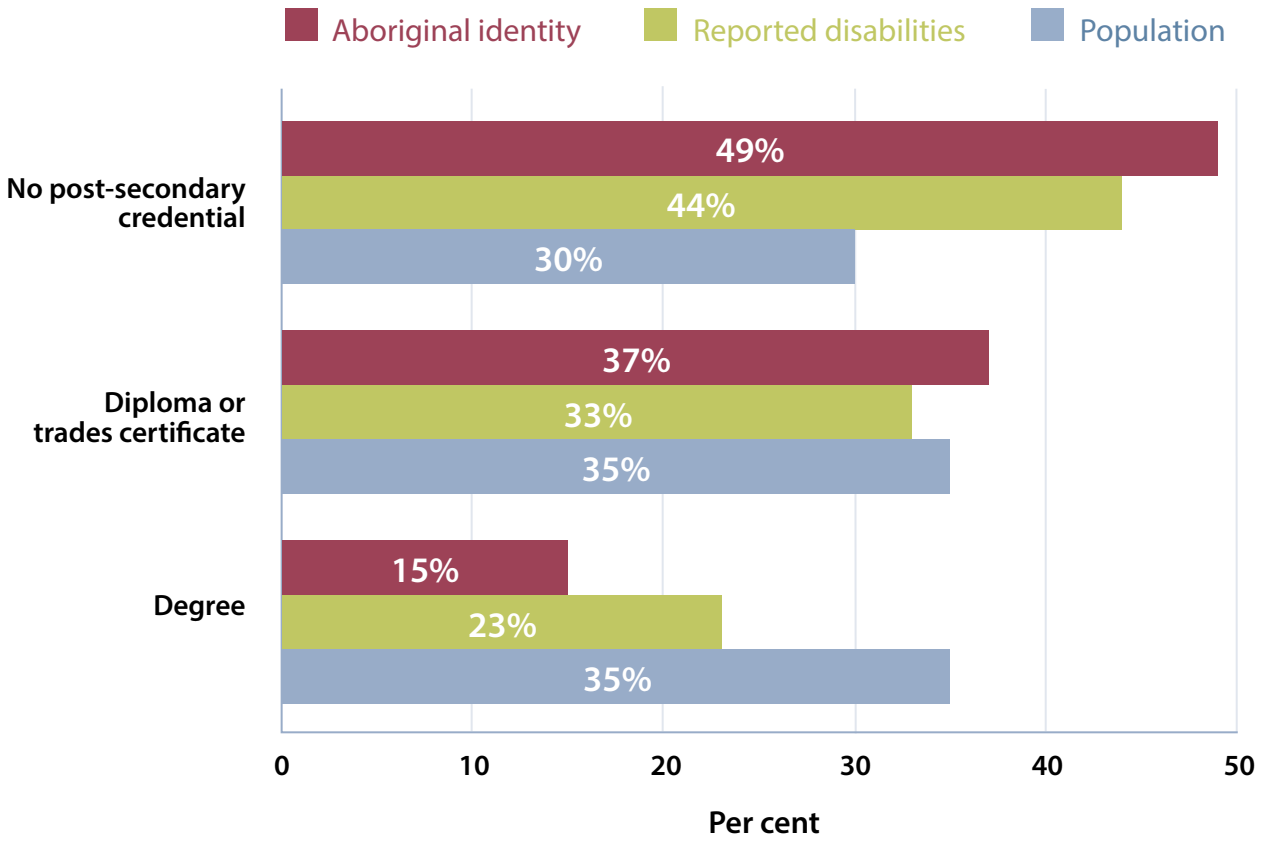
In Ontario, close to half the population score at or below level 2 in literacy and numeracy, a level considered minimal for success in the workforce.

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

Adults from underrepresented groups are much more likely than Canadian-born adults to have lower levels of literacy and numeracy than are often required for effective participation in today's workforce.

[4]At 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.

5.2 Educational attainment of underrepresented groups, Ontario, ages 25 to 34, 2011

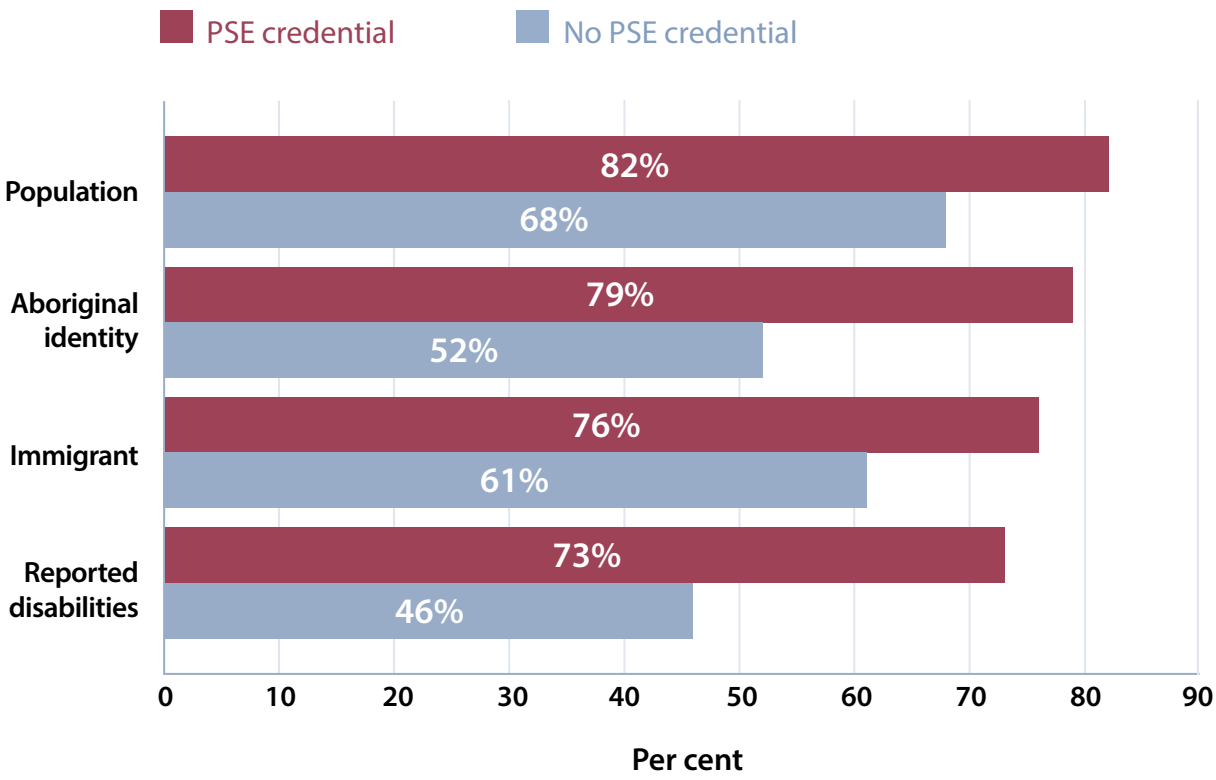


Source: Colleges Ontario, based on a Statistics Canada special tabulation, National Housing Survey, 2011.

Young Ontarians (ages 25 to 34) reporting disabilities or aboriginal identity are as successful in completing college diplomas or becoming certified tradespersons as other Ontarians.

However, they fall far behind the general population in gaining degrees.

5.3 Employment rates for underrepresented groups, by educational attainment, Ontario, ages 25-34, 2011



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

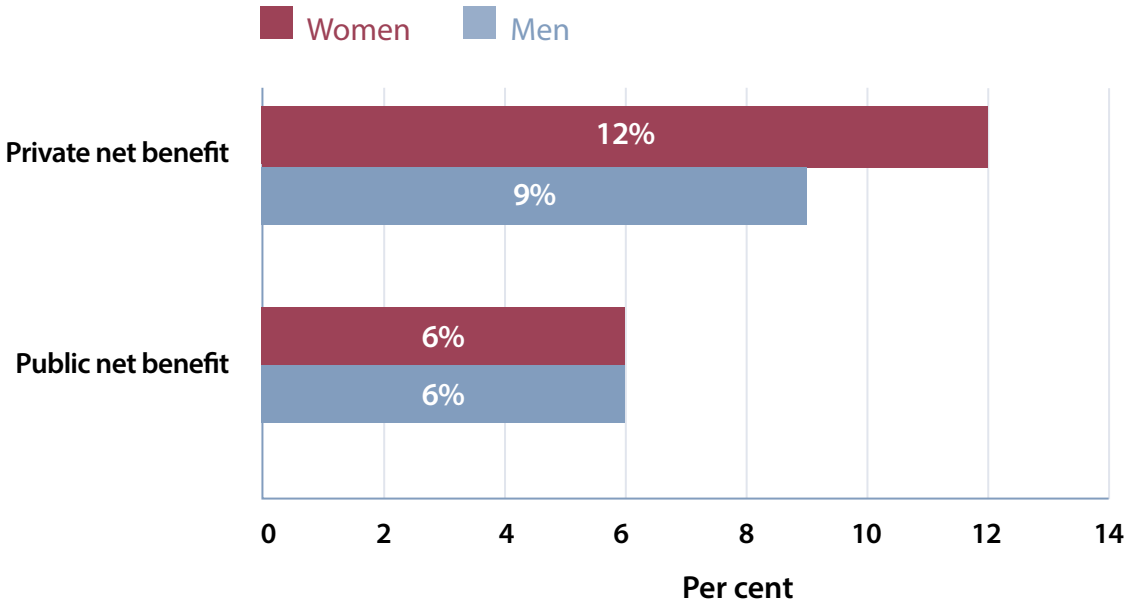
Young adults (ages 25 to 35) in underrepresented groups generally experience lower employment rates than the general Ontario population, even when educational attainment is taken into account.

Those with a post-secondary education credential and reporting aboriginal identity, immigrant, or disabilities status are between three and nine percentage points less likely to be employed than are Ontarians generally.

The difference is especially great for young adults without post-secondary credentials as the gap ranges from seven to 22 percentage points.

6 RETURN ON INVESTMENTS IN POST-SECONDARY EDUCATION

6.1 Net benefits[1] for Canadians attaining tertiary[2] education, 2012



Note 1: Net benefits are calculated as an internal rate of return.

Note 2: These 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 post-secondary data.

Source: Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris. Tables A7.3a, A7.3b, A7.4a and A7.4b.

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 than individuals without tertiary education do."
- "The public also benefits from a large proportion of tertiary-educated individuals through greater tax revenues and social contributions."

For Canada as a whole, the OECD calculates that individuals receive roughly a 10 per cent rate of return while governments receive six per cent on their investments in post-secondary education.

Another study concluded that Ontario college students receive an internal rate of return of 14 per cent for the time and money they invest in an education, while the Ontario government receives an internal rate of return of 20 per cent. A third study, focused on special programs for Ontario college students at risk, concluded that the returns to students and Ontario government, respectively, were 11 and 14 per cent for these programs alone.

[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