Labour market outcomes for college and university graduates, 2010 to 2015

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From 2010 to 2015, over 1.3 million students graduated with a postsecondary degree in Canada and entered the workforce. Their earnings outcomes in the following years were closely related to their field of study, the degree they obtained, the age at which they graduated and their gender.

Master's degree graduates earn one-third more on average than undergraduates

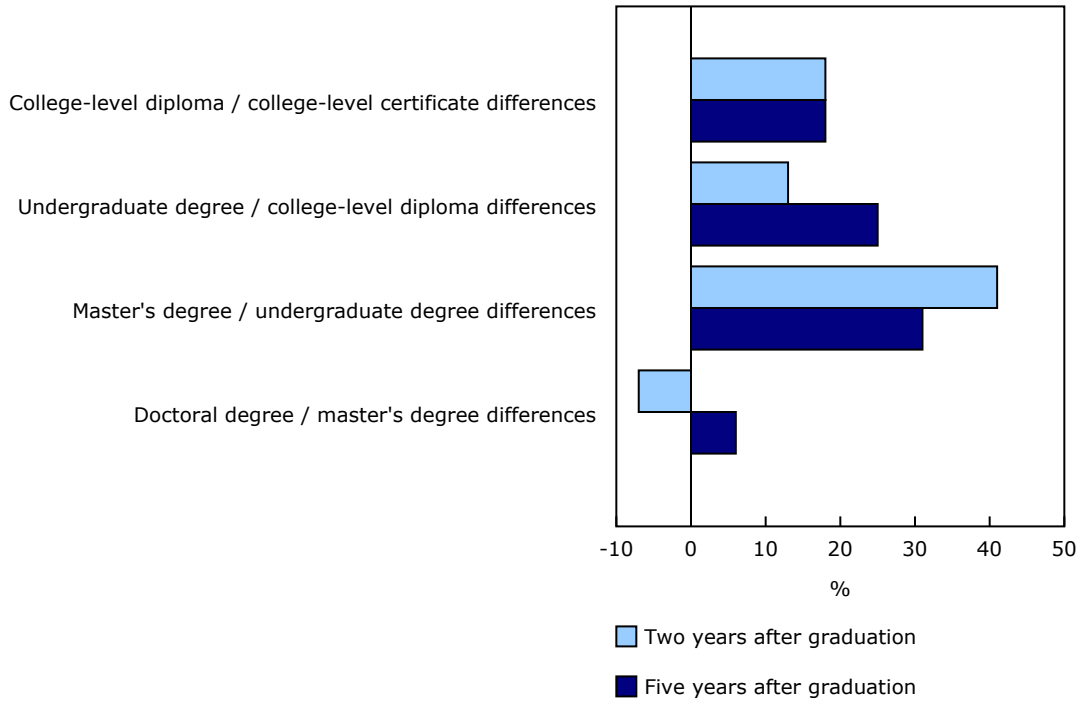
It is widely known that graduates with higher levels of education generally have higher earnings. However, when comparing earnings of graduates with different types of degrees (for example, college-level certificate versus college-level diploma; undergraduate versus master's; master's versus doctoral; etc.), the gap between earnings of undergraduate and master's degree holders is the largest.

For every graduating class from 2010 to 2015, master's degree graduates were making, on average, 40% to 47% more than undergraduate degree holders two years after graduation—a difference in median employment income ranging from $18,100 to $21,200.

This contrasts with higher earnings of 7% to 15% for college-level diploma holders compared with college-level certificate holders and up to 4% higher earnings for doctoral degree holders over their master's degrees counterparts. In 2014, two years after graduation, master's graduates of 2012 had median employment income of $65,700, while undergraduate degree holders made $46,600.

The gap in earnings between undergraduate and master's degrees remained the highest over time, compared with the difference in earnings among graduates with other types of degrees. In 2017, five years after graduation, the median employment income of 2012 master's degree graduates was 31% higher than the income of undergraduate degree holders ($74,500 versus $56,800). By comparison, graduates with a doctoral degree earned 6% more than those with a master's degree, five years after graduation.

Chart 1
Percentage differences in median employment income between educational qualifications, for the longitudinal cohort of 2012, two and five years after graduation



Source(s): Table 37-10-0115-01.

This difference in earnings five years after graduation between those holding a master's degree and those with an undergraduate degree was evident for most fields of study, but was particularly pronounced in the fields of education (58%) and business, management and public administration (45%).

Mid-career master's degree graduates make more than their younger counterparts

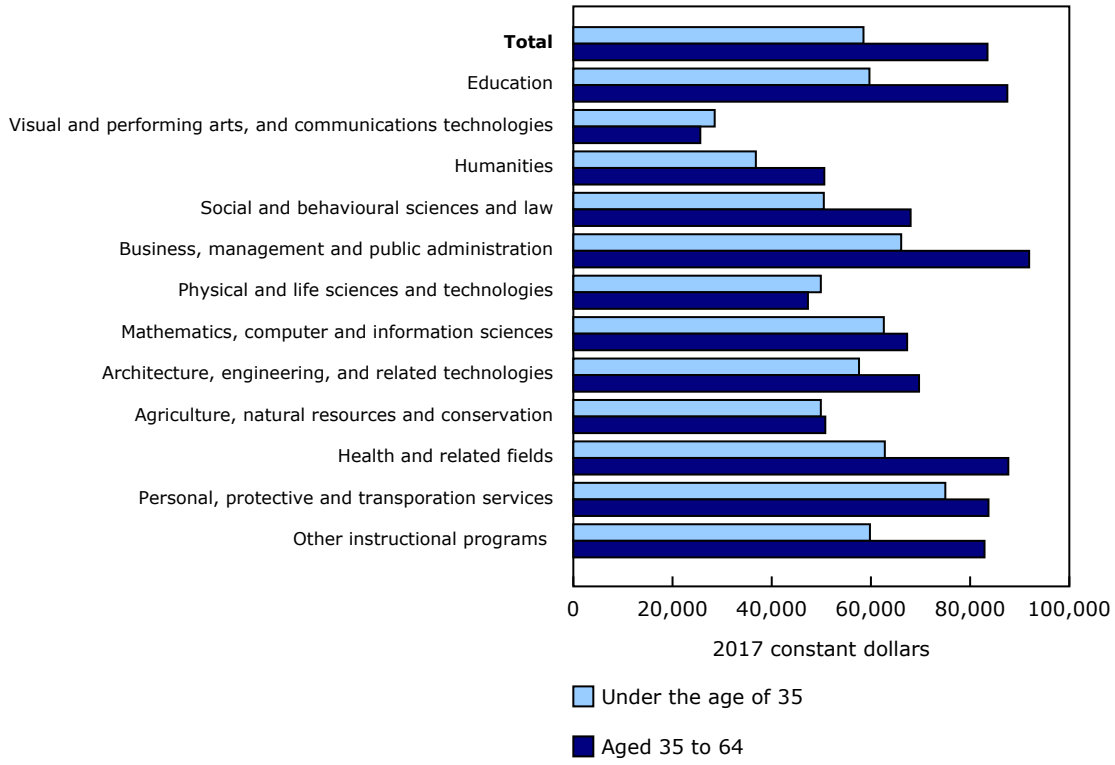
Among graduates entering the labour market from 2010 to 2015, older graduates (35 to 64 years of age at graduation) represented about 17% to 20% of the total each year. Likely due to prior work experience (although work experience is not something that this study is able to control for), they generally earned more than their younger counterparts, regardless of their level of study.

The difference in earnings between younger and older graduates was the most pronounced for master's degree holders. For example, older students who graduated with a master's degree in 2015 earned, on average, 43% more than their younger counterparts two years after graduation.

Further, older master's degree graduates were more concentrated in higher-paying fields than younger master's degree graduates. In 2017, the three highest-paying fields for older master's degree graduates of 2015 were business, management and public administration ($91,900), health and related fields ($87,700) and education ($87,500). These fields accounted for 71% of all master's degree graduates aged 35 to 64.

Comparatively, the three highest-paying fields for the younger master's degree graduates under the age of 35 were personal, protective and transportation services ($75,000), business, management and public administration ($66,100), and health and related fields ($62,800), which together account for 42% of younger master's degree graduates.

Chart 2
Median employment earnings of master's degree graduates of 2015, two years after graduation, by field of study and age at graduation



Source(s): Table 37-10-0122-01.

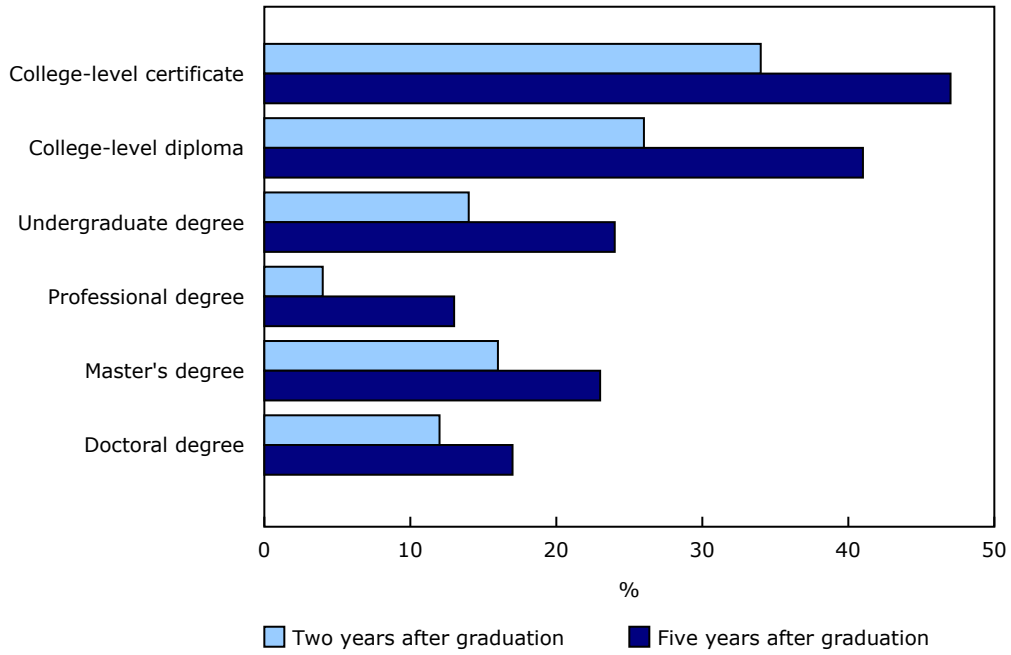
Women continue to earn less than men

While higher educational qualifications tend to boost graduates' earnings, a gender gap persists regardless of the degree earned or field of study. Gender differences in employment income are influenced by various factors, such as occupation and hours of work. Although the current study cannot control for these factors, a recent Statistics Canada analytical report, controlling for level of education, job tenure, job attributes, occupational and industrial segregation, and demographics, found that female employees earn 13.3% less per hour, on average, than men. The report pointed to the distribution of men and women across industries and occupations, and the relative over-representation of women in part-time work, as the most important factors explaining the wage gap.

Keeping in mind that the current study cannot account for occupational factors, when the earnings of male and female graduates were compared after graduation, the gender gap was smaller at higher levels of education. For 2012 graduates, two years after graduation, the difference in earnings between men and women ranged from 4% for those with a professional degree ($81,300 for men versus $78,400 for women) to 34% among graduates with a college-level certificate ($42,900 for men, compared with $32,100 for women). Men with a college-level diploma earned 26% more than women with a college-level diploma ($47,500 versus $37,800); men with undergraduate degrees earned 14% more ($50,300 versus $44,300); male master's degree graduates made 16% more ($71,600 versus $61,700); and men with a doctoral degree earned 12% more than their female counterparts ($64,800 versus $58,000).

In addition, regardless of the level of education, the gap in earnings between women and men widened between two and five years after graduation. By 2017, or five years after graduation, the gap ranged from 13% for those with a professional degree to 47% for college-level certificate graduates.

Chart 3
Gender gaps in median employment income by educational qualification, for the longitudinal cohort of 2012, two and five years after graduation



Source(s): Table 37-10-0115-01.

Gender pay gaps were also persistent for graduates in almost every field of study and for all educational qualifications.

For 2012 graduates with a master's degree, gender pay gaps five years after graduation were most pronounced in mathematics, computer and information sciences, where women made 34%, or $21,300, less than their male counterparts. This was followed by graduates from business, management and public administration, where women made 29%, or $22,300, less than men.

However, the gender pay gap is narrower for older graduates. For example, male college-level certificate graduates under the age of 35 at the time of graduation earned 56% more than their female counterparts in 2017, five years after graduation. Male college-level certificate graduates aged 35 to 64 at graduation earned 36% more than their female counterparts. This decrease in the gender gap occurred across almost all educational qualifications, except for professional degrees, where the gap increased for older graduates.

Note to readers

Context

This release includes data on the labour market outcomes of postsecondary graduates—including median employment income by educational qualification, field of study, age group, gender, and status of student—for Canada, provinces and the territories.

Statistics Canada acknowledges the contributions and collaboration of the provinces and territories, Employment and Social Development Canada, and other stakeholders in the development of the Education and Labour Market Longitudinal Platform and the indicators.

Data definitions and concepts

Data used for this analysis and related tables come from the Postsecondary Student Information System (PSIS) (cohorts of graduates for the calendar years 2010 to 2015), integrated with the T1 Family File for the tax years of 2011 to 2017.

Graduate counts, *in PSIS, refer to the total number of degrees, diplomas and certificates awarded to graduates. In contrast to the PSIS published counts, the approach used in this analysis focuses on outcomes for unique persons, rather than for each reported credential earned. The target population includes one record per graduate with an in-scope postsecondary credential (no multiple records), and excludes individuals with missing key demographic variables (age and gender).*

Results presented are for graduates from 2010 to 2015 who had income data available, and were not full-time students in the year(s) of income analysis. Data on income two years after graduation are available for all these cohorts, while data for five years after graduation are currently available only for the 2010 to 2012 cohorts of graduates.

For further information on the data quality, concepts and methodology, see the "Labour market outcomes for college and university graduates, 2010 to 2015" technical reference guide.

Employment income *includes wages, salaries and commissions (wages and salaries, commissions from employment, training allowances, tips and gratuities, tax-exempt employment income earned by registered Indians) and net self-employment income (net income from business, profession, farming, fishing and commissions). Net self-employment income may be positive, negative or zero.*

Median employment income *for a specified group is the value that divides the employment income distribution of that group into two halves, i.e., the incomes of half of the units in that group are below the median, while those of the other half are above the median. The median employment income of graduates is calculated for those with employment income (positive or negative) and expressed in 2017 constant dollars.*

Cross-sectional analysis *allows the comparison of graduate outcomes between different cohorts at the same amount of time elapsed after graduation. At each point in time (e.g., in the second year after graduation) only graduates who had income information and were not attending school full time were included in the analysis population. As a result, cohorts may be composed of different individual graduates at different points in time.*

Longitudinal analysis *refers to the growth analysis for the median employment income of the 2012 cohort from two to five years after graduation. Graduates who had income information and were not attending school full time for the entire period of observation (e.g., from the first year after up to year five) were included in the analysis population. Doing this allows comparison of the same individuals over time and ensures that the analysis population is the same in every year of the analysis period.*

College-level certificate *refers to a Career, technical or professional training certificate in the Classification of programs and credentials - professional degree variant.*

College-level diploma *refers to a Career, technical or professional training diploma in the Classification of programs and credentials - professional degree variant.*

Professional degree *includes undergraduate degree and post-baccalaureate non-graduate degree programs in the following fields of study (based on Classification of Instructional Programs (CIP) Canada 2016, six-digit classes): 22.0101 Law (LLB, JD, BCL); 51.1201 Medicine (MD); 51.0401 Dentistry (DDS, DMD); 51.2401 Veterinary medicine (DVM); 51.1701 Optometry (OD); 51.2001 Pharmacy (PharmD, BS, BSc, BPharm) as per the Classification of programs and credentials - professional degree variant.*

Data interpretation and limitations

Due to data gaps, the analysis excludes Ontario college graduates. Similarly, the 2010 and 2011 data from the territories were not available.

Median employment income values were calculated without controlling for:

- *full- vs. part-time hours or full- vs. part-year employment*

- *occupation or whether or not employment is related to a graduate's field of study*
- *the effect on employment income of previous credentials, multiple credentials, or additional education that may have been obtained since the cohort graduation year*
- *previous work experience, if present*
- *geographical location of employment and associated labour market conditions.*

Graduate cohorts include both Canadian and international students with income information. A significant proportion of international students leave Canada after graduation and as such their income information is not available; therefore, they are excluded from this study.

Available tables: 37-10-0114-01, 37-10-0115-01, 37-10-0122-01 and 37-10-0156-01 to 37-10-0158-01 .

Definitions, data sources and methods: survey number 5017.

The technical reference guide entitled "Labour market outcomes for college and university graduates, 2010 to 2015," which is part of the *Technical Reference Guides for the Education and Labour Market Longitudinal Platform (ELMLP)* (**37200001**), is now available.

The infographic entitled "Postsecondary students five years after graduation: How much do they earn?," which is part of the series *Statistics Canada—Infographics* (**11-627-M**), is also available.

The data visualization tool entitled "Labour market outcomes for college and university graduates: Interactive tool," which is part of the series *Statistics Canada — Data Visualization Products* (**71-607-X**), is also available.

For more information, or to enquire about the concepts, methods or data quality of this release, contact us (toll-free 1-800-263-1136; 514-283-8300; **STATCAN.infostats-infostats.STATCAN@canada.ca**) or Media Relations (613-951-4636; **STATCAN.mediahotline-ligneinfomedias.STATCAN@canada.ca**).