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Discontinuers of apprenticeship programs: An analysis on the impact of discontinuation on the labour market outcomes of apprentices

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Introduction

Apprenticeship programs provide valuable training and on-the-job experience required for developing the skills and knowledge of tradespersons in Canada. While not all trades require certification to work in Canada, becoming a certified journeyman—either through completing an apprenticeship program or qualifying as a trade qualifier—often results in stronger labour market outcomes compared with those working uncertified in the trades. Despite this, about two in five apprentices discontinue their programs within 1.5 times program duration,¹ more than the share of those who complete their programs and become certified (Statistics Canada 2023).

This analysis provides insight into the labour market outcomes of apprenticeship program discontinuers, focusing primarily on their industry of work and earnings by using data from the Education and Labour Market Longitudinal Platform and the 2016 Census of Population. Specifically, labour market outcomes were examined for those who registered in an apprenticeship program from 2008 to 2013 but discontinued their program without achieving certification.

For this study, discontinuers are defined as apprentices who did not achieve certification in their apprenticeship program and were no longer registered in their training by the sixth year after their program registration. Please refer to the Definitions section for more details on how discontinuers and industries are defined in this study.

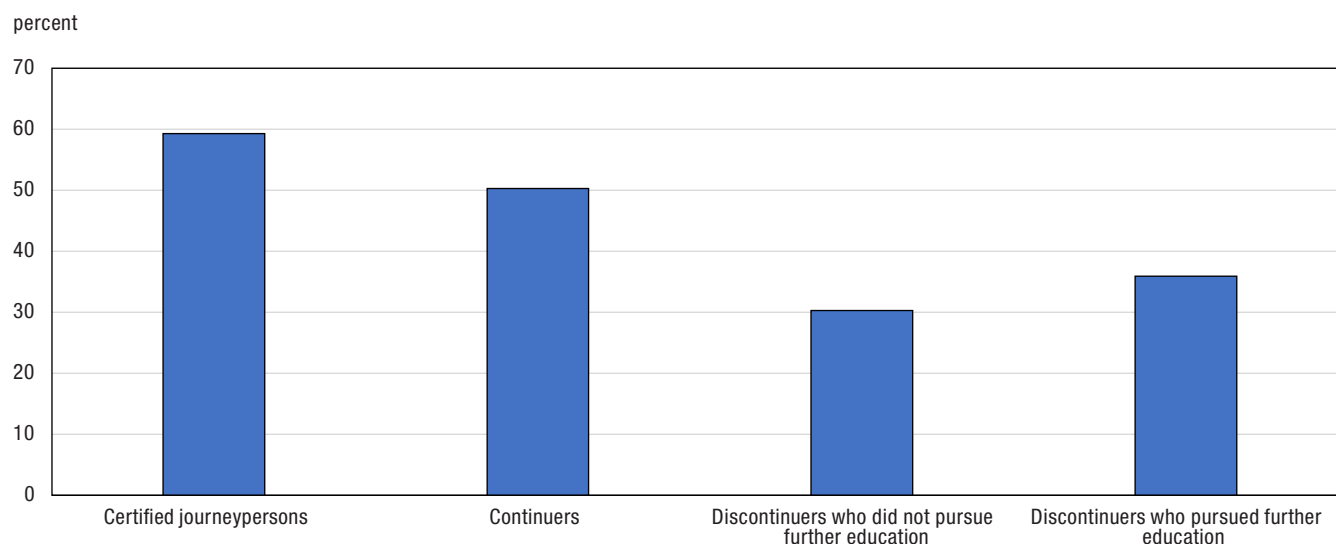
Discontinuers were less likely than other apprentices to work in related industries

Not all trades are compulsory in Canada, meaning that although training may be available, certification is not required to work in all trades in all jurisdictions. For example, certification in carpentry is compulsory only in Quebec, thus it is voluntary in all other provinces and territories. Therefore, it is possible that some discontinuers registered in programs for trades with non-compulsory certification left their apprenticeship training but continued to work in the same trade.

Of the 213,100 apprentices who discontinued their program from 2008 to 2013, 31.8% worked in an industry related to their trade one year after their discontinuation. By comparison, 59.3% of apprentices who certified and 50.3% of those continuing in their apprenticeships worked in a related industry.

1. Apprenticeship programs have varying durations to acquire certification. Apprenticeship program durations are administrated by provinces and territories and can vary across jurisdictions. For example, an apprentice who registered in a four-year program would be measured at six years after registration if evaluated at 1.5 times program duration.

Chart 1
Related industry employment of certified journeypersons, continuers, and discontinuers



Notes: Rates are measured 7 years after initial registration in an apprenticeship program.

Sources: Education and Labour Market Longitudinal Platform (ELMLP).

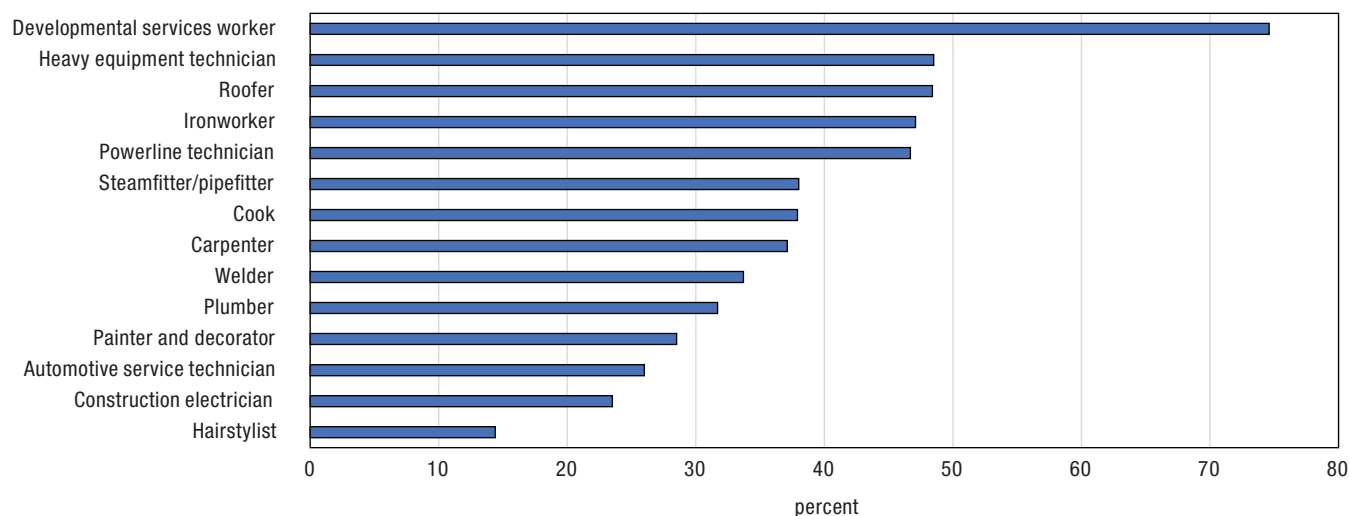
Discontinuers who registered in another trade or enrolled in other forms of postsecondary education were more likely to work in an industry related to their discontinued trade than those who did not pursue further education. Of those who pursued further education, 35.9% worked in a related industry compared with 30.3% of those who did not pursue further education, seven years after their initial registration. This aligns with a previous study on the pathways of discontinuers, which showed that many discontinuers who registered in another trade after leaving their initial program chose to register in a program related to the trade they discontinued (Jin et al. 2022).

Discontinuers were more likely to work in unrelated industries in nearly all trades

As previously mentioned, fewer than one-third (30.3%) of discontinuers who did not pursue further education worked in a related industry seven years after their initial registration. Several factors contribute to apprentices discontinuing a trade, including whether the certification is designated as compulsory or non-compulsory, whether they received a better job offer and whether they faced financial constraints. Because the reasons for apprentices discontinuing their programs varied across trades, the percentage of discontinuers who continued working in related industries also varied.

For example, developmental services workers had the largest percentage (74.6%) of discontinuers working in a related industry seven years after registration, and theirs was the only trade where discontinuers were more likely than not to work in a related industry. Apprenticeship training for this trade is available only in Ontario and is designated as non-compulsory, meaning apprentices do not need certification to work in this trade or related industries. The high portion of discontinuers working in this industry indicates that most apprentices did not discontinue because of a lack of interest, but rather found it unnecessary to achieve certification to secure employment in the industry.

Chart 2
Related industry employment of discontinuers, by trade



Notes: Related industry employment is measured 7 years after initial program registration. Select trades are included in this graph, see Table A in the Appendix for all trades.
Sources: Education and Labour Market Longitudinal Platform (ELMLP).

Some construction-related trades were among those with the highest levels of discontinuers working in a related industry. Notably, heavy duty equipment technicians (48.5%), roofers (48.4%), ironworkers (47.1%) and powerline technicians (46.7%) were four of the five trades with the highest rates of discontinuers working in a related industry. Conversely, construction electricians (23.5%), painters and decorators (28.5%), and plumbers (31.7%) were construction-related trades with lower rates of employment in related industries for discontinuers.

Hairstylists had one of the lowest rates of related industry employment, with 14.4% of discontinuers working in a related industry seven years after their initial registration. Although hairstylists are among the trades with the lowest rates of discontinuers (Statistics Canada 2023), the low percentage of discontinuers working in a related industry, along with this certification being designated compulsory in most jurisdictions, implies that those who left the trade were unlikely to find employment in the industry without certification.

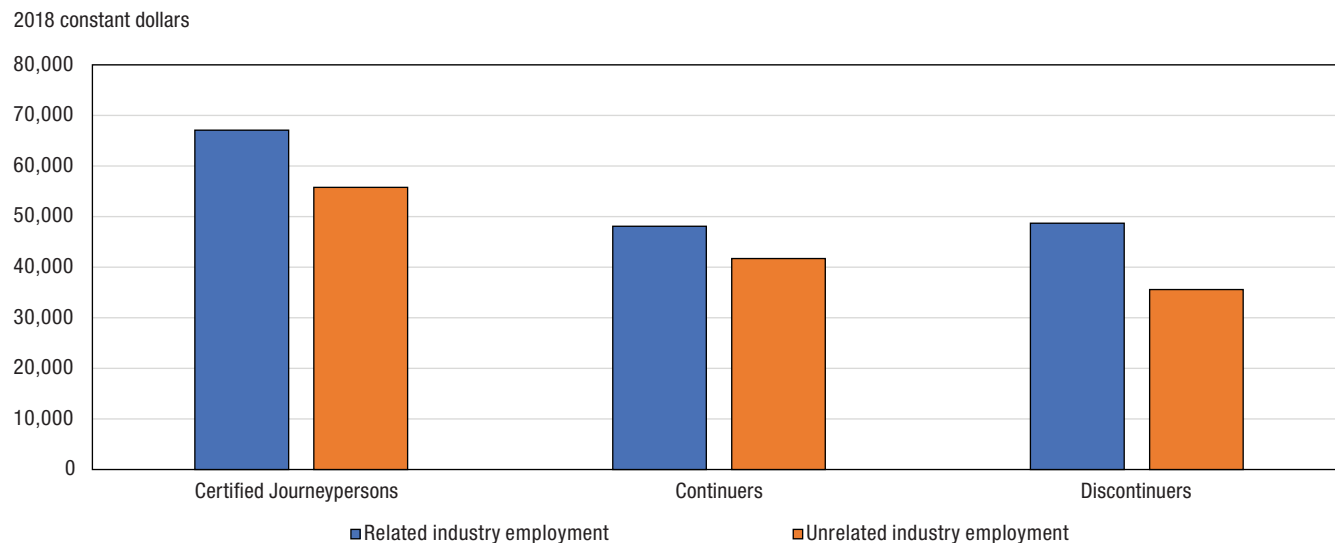
Working in related industries was correlated with higher employment income

Discontinuers who worked in an industry related to the trade they left had higher employment income than those who worked in an unrelated industry. This finding is also true for apprentices who were continuing their programs and those who certified. For this section, the median employment income of discontinuers, continuers and certified journeypersons was compared seven years after registration for those who were working in a related industry and those who were not.

Discontinuers who worked in a related industry had a median employment income of \$48,700, earning \$13,100, or 36.8%, more than those who worked in an unrelated industry. Certified journeypersons and continuers who worked in related industries also had significantly higher earnings than their counterparts who did not, but the variance was less significant. Certified journeypersons who worked in an industry related to their trade had a median employment income of \$67,100 seven years after registration, earning \$11,300, or 20.3%, more than those who worked in an unrelated industry (\$55,800). Apprentices continuing in their programs had the smallest gap in earnings, with those who worked in a related industry earning a median employment income of \$48,100, 15.3% more than those in unrelated industries (\$41,700).

Regardless of whether they worked in a related or an unrelated industry, certified journeypersons had a higher median employment income than continuers and discontinuers. Even certified journeypersons who worked in industries unrelated to their trade earned more than continuers or discontinuers who worked in industries related to their trade of study. This finding suggests that certification plays a more significant role in determining earnings.

Chart 3
Income by type of apprentice, related vs unrelated industry employment



Notes: Median employment income is measured 7 years after initial program registration.

Sources: Education and Labour Market Longitudinal Platform (ELMLP), Census of population 2016.

Data sources and definitions

Data sources

This study used data from Statistics Canada's Education and Labour Market Longitudinal Platform (ELMLP). The ELMLP was developed to enable anonymized information from the Registered Apprenticeship Information System (RAIS) and the Postsecondary Student Information System and tax data from the T1 Family File to be combined with information from other datasets.

The RAIS provides information on individuals who registered for apprenticeship training and those who obtained a certification within a trade where apprenticeship training is offered. Apprentices' progress can be followed over time to identify those who stopped registering without receiving a certificate; they are considered to have discontinued their program. This study uses RAIS records from 2008 to 2020.

Tax file data do not contain occupation information. While it was not possible to confirm whether someone worked in the trade (occupation) they studied, the industry of employment could be determined. The 2016 Census of Population was used to determine whether tradespersons' industries of employment were related or unrelated to the trades they studied. For this study, if more than 10% of tradespersons from a given trade worked in an industry, it was defined as a related industry, while all others were considered unrelated industries. This threshold was used to determine whether a tradesperson was employed in an industry that was related or unrelated to the trade they studied.²

2. See the Definitions section for the detailed definition of related industries.

Definitions

Discontinuers are individuals who stopped their apprenticeship training without obtaining a certificate. In this study, the discontinuers of interest are apprentices who started training from 2008 to 2013 and were no longer registered in an apprenticeship program by the sixth year after their initial registration, while also not receiving a certificate in their trade. By this definition, apprentices who discontinued their program and subsequently re-registered before the sixth year are not considered discontinuers. Similarly, those who discontinued in the seventh year or later are not considered discontinuers, because the time frame does not allow adequate tracking of their post-discontinuation pathways.

Similarly, **certified journeypersons** and **continuers** also started training from 2008 to 2013; certified journeypersons received a certificate within six years from registration, and continuers continued their training in the seventh year.

Related industries are defined using occupation and industry information from the 2016 Census of Population. Industry sectors (two-digit North American Industry Classification System code) in which more than 10% of tradespersons in a given trade (four-digit National Occupational Classification code) work are defined as related industries. The threshold value of 10% was chosen so that at least one industry was assigned as related to each selected trade without having too many designated industries per trade. See Table B in the appendix for the list of related industries by trade.

Appendix

Table A
Related industry employment by trade

Trade	Cohort	Related industry employment
	number	percent
Developmental services worker	530	74.6
Heavy equipment technician	1360	48.5
Roofer	740	48.4
Ironworker	950	47.1
Powerline technician	170	46.7
Early childhood educator	1025	43.4
Landscape horticulturist	340	42.4
Sheet metal worker	695	39.6
Steamfitter/pipefitter	1495	38.0
Cook	1445	37.9
Crane operator	275	37.8
Carpenter	5805	37.1
Agricultural equipment technician	125	36.9
Bricklayer	570	36.2
Child and youth worker	100	34.5
Educational assistant	55	34.4
Welder	1760	33.7
Plumber	1150	31.7
Refrigeration and air conditioning mechanic	355	29.8
Painter and decorator	400	28.5
Automotive service technician	1290	26.0
Industrial electrician	225	25.6
Construction electrician	2140	23.5
Auto body repairer	255	23.3
Industrial instrumentation and control technician	295	21.8
Industrial mechanic (millwright)	490	21.6
Esthetician	20	20.0
Truck and transport mechanic	285	19.1
Hairstylist	630	14.4
Machinist	20	2.0

Sources: Education and Labour Market Longitudinal Platform (ELMLP), Census of population 2016.

Table B
Related industries by trade

Trade	Related industries (NAICS 2012)
Construction electrician	23 Construction
Carpenter	23 Construction
Automotive service technician	44 -45 Retail trade 81 Other services (except public administration)
Hairstylist	81 Other services (except public administration)
Welder	23 Construction 31-33 Manufacturing 81 Other services (except public administration)
Steamfitter/pipefitter	23 Construction 31-33 Manufacturing
Plumber	23 Construction
Cook	72 Accommodation and food services
Heavy equipment technician	21 Mining, quarrying, and oil and gas extraction 23 Construction 41 Wholesale trade 81 Other services (except public administration)
Industrial mechanic (millwright)	21 Mining, quarrying, and oil and gas extraction 31-33 Manufacturing 81 Other services (except public administration)
Truck and transport mechanic	44 -45 Retail trade 81 Other services (except public administration)
Industrial electrician	21 Mining, quarrying, and oil and gas extraction 23 Construction 31-33 Manufacturing
Sheet metal worker	23 Construction 31-33 Manufacturing
Refrigeration and air conditioning mechanic	23 Construction
Ironworker	23 Construction 31-33 Manufacturing
Machinist	31-33 Manufacturing
Roofer	23 Construction 56 Administrative and support, waste management and remediation services
Industrial instrumentation and control technician	21 Mining, quarrying, and oil and gas extraction 31-33 Manufacturing 54 Professional, scientific and technical services
Bricklayer	23 Construction
Powerline technician	22 Utilities 23 Construction
Painter and decorator	23 Construction
Crane operator	23 Construction 31-33 Manufacturing
Landscape horticulturist	11 Agriculture, forestry, fishing and hunting 56 Administrative and support, waste management and remediation services 71 Arts, entertainment and recreation 91 Public administration
Agricultural equipment technician	21 Mining, quarrying, and oil and gas extraction 23 Construction 41 Wholesale trade 81 Other services (except public administration)
Auto body repairer	81 Other services (except public administration)

Table B
Related industries by trade

Trade	Related industries (NAICS 2012)
Child and youth worker	62 Health care and social assistance 81 Other services (except public administration) 91 Public administration
Developmental services worker	62 Health care and social assistance 81 Other services (except public administration) 91 Public administration
Early childhood educator	61 Educational services 62 Health care and social assistance
Educational assistant	61 Educational services 62 Health care and social assistance
Esthetician	44 -45 Retail trade 81 Other services (except public administration)

Sources: Education and Labour Market Longitudinal Platform (ELMLP), Census of population 2016.

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Statistics Canada. (2023). [Certification, continuation and discontinuation rates of newly registered apprentices within program duration, 1.5 times program duration and 2 times program duration](https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3710019301). Retrieved from Statistics Canada: <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3710019301>