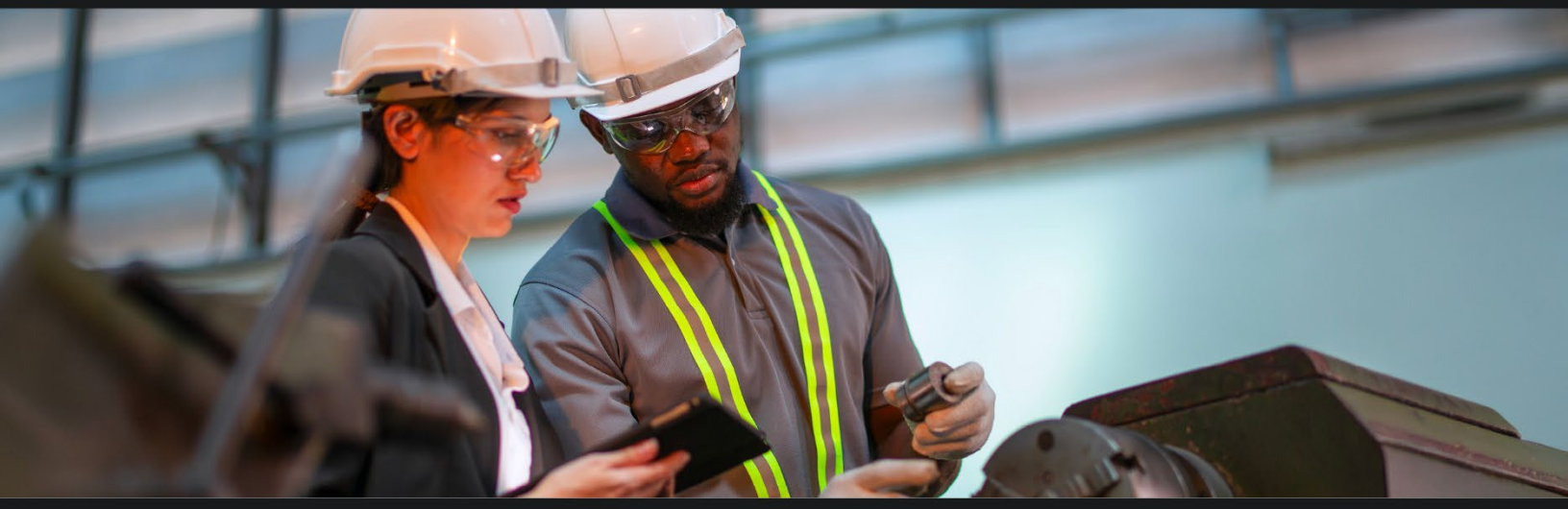
Signal49
RESEARCH

Insights on Immigrant Certification Outcomes

Methodology



NOVEMBER 2026

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Methodology

About the research

This research set out to address the following question: Regionally, which trades are most affected by low certification rates and weak alignment between intended trade and eventual certification?

To answer this, we analyzed immigration and trade certification data for skilled trades immigrants, tracking two things:

1. The share who certified in any trade within four years of arriving.
2. Of those who certified, the share who certified in the trade they had intended to pursue.

For the national story, see our issue briefing.

Data sources

IMDB and RAIS

This study uses linked data from the Longitudinal Immigration Database (IMDB, 2024) and Registered Apprenticeship Information System (RAIS, 2024). When linked, these sources provide data on immigrants who intended to work in the skilled trades in Canada (as per their permanent residence application), whether they certified in a skilled trade after arrival, and, if so, what that trade was.

The IMDB includes administrative immigration data for all immigrants since 1952 and non-permanent residents since 1980. The RAIS includes data from registered apprentices taking in-class and/or on-the-job training in either Red Seal or non–Red Seal trades and where apprenticeship training is either compulsory or voluntary. It also includes apprentices or trade qualifiers (challengers) who are granted provincial and interprovincial certificates. A trade qualifier is a tradesperson who, based on the assessment of the province or territory, has enough experience to pass the exam to obtain certification without completing an apprenticeship program.

As the RAIS uses broad criteria to classify occupations as skilled trades, we restricted our analysis to those included in the Ellis Chart, which is maintained by Employment and Social Development Canada in partnership with the Canadian Council of Directors of Apprenticeship.[1] Because our analysis relies on the five-digit National Occupational Classification (NOC) code that immigrants

1 Employment and Social Development Canada, “Ellis Chart,” Government of Canada, last modified April 5, 2022, https://ellischart.ca/eng/h.4m.2.shtml.

listed as their intended occupation, and because a single code can cover several occupations, we retained any code containing at least one Ellis Chart trade. For example, NOC 33109 (other assisting occupations in support of health services) was retained because it includes optics technicians (lens and prism makers). We further restricted our analysis to trades that at least 20 immigrants intended to work in. See below for the trades included in our analysis.

Red Seal

- appliance servicers and repairers
- auto body collision, refinishing and glass technicians, and damage repair estimators
- automotive service technicians, truck and bus mechanics, and mechanical repairers
- bakers
- bricklayers
- cabinetmakers
- carpenters
- concrete finishers
- construction millwrights and industrial mechanics
- construction trades helpers and labourers
- cooks
- crane operators
- electrical mechanics
- electrical power line and cable workers
- electricians (except industrial and power system)
- floor covering installers
- gas fitters
- glaziers
- hairstylists and barbers
- heating, refrigeration, and air conditioning mechanics
- heavy equipment operators
- heavy-duty equipment mechanics
- industrial electricians
- industrial instrument technicians and mechanics
- insulators
- ironworkers
- landscape and horticulture technicians and specialists
- machinists and machining and tooling inspectors
- motorcycle, all-terrain vehicle, and other related mechanics
- oil and gas well drillers, servicers, testers, and related workers
- painters and decorators (except interior decorators)
- plasterers, drywall installers and finishers, and lathers
- plumbers
- roofers and shinglers
- sheet metal workers
- steamfitters, pipefitters, and sprinkler system installers
- storekeepers and partspersons
- structural metal and platework fabricators and fitters
- tilesetters
- tool and die makers
- welders and related machine operators

Non–Red Seal

- aircraft mechanics and aircraft inspectors
- automotive and heavy truck and equipment parts installers and servicers
- binding and finishing machine operators
- butchers—retail and wholesale
- central control and process operators, petroleum, gas, and chemical processing
- chefs
- computer network and web technicians
- conference and event planners
- drafting technologists and technicians
- drillers and blasters—surface mining, quarrying, and construction
- early childhood educators and assistants
- electronic service technicians (household and business equipment)
- electronics assemblers, fabricators, inspectors, and testers
- estheticians, electrologists, and related occupations
- fish and seafood plant workers
- food and beverage servers
- geological and mineral technologists and technicians
- home support workers, caregivers, and related occupations
- hotel front desk clerks
- industrial butchers and meat cutters, poultry preparers, and related workers
- industrial engineering and manufacturing technologists and technicians
- industrial painters, coaters, and metal finishing process operators
- logging machinery operators
- machine fitters
- machine operators of other metal products
- machine operators, mineral and metal processing
- machining tool operators
- mechanical engineering technologists and technicians
- metalworking and forging machine operators
- nursery and greenhouse labourers
- other assisting occupations in support of health services
- other small engine and small equipment repairers
- other technical trades and related occupations
- other trades helpers and labourers
- outdoor sport and recreational guides
- plastics processing machine operators
- plateless printing equipment operators
- power engineers and power systems operators
- power system electricians
- printing press operators
- process control and machine operators, food and beverage processing
- residential and commercial installers and servicers
- retail salespersons and visual merchandisers
- rubber processing machine operators and related workers
- sawmill machine operators
- social and community service workers
- telecommunications equipment installation and cable television service technicians

- telecommunications line and cable installers and repairers
- transport truck drivers
- underground production and development miners
- upholsterers
- user support technicians
- water and waste treatment plant operators
- water transport deck and engine room crew

Model of Occupations, Skills, and Technology (MOST)

Occupations in the IMDB and RAIS are reported as NOC codes at the five-digit level. We linked these NOC codes to the occupational forecasts produced by Signal49's proprietary MOST model. The MOST generates occupational projections for every region in Canada. We used it to identify skilled trades with the highest projected employment growth from 2025 to 2035.

The MOST is built on Signal49's forecasts and additional data sources regarding skills, probability of automation, and other labour market information such as job postings. Key dimensions of the database, which can be combined to present data in multiple ways, include the following:

- **Occupational coverage:** The MOST contains forecasts for more than 500 different occupational groupings.
- **Industry inclusion:** Industry coverage within the MOST includes employment estimates for more than 400 different industries.
- **Regional coverage:** All provinces and territories are included in the MOST. Our analyses excluded the territories due to the small number of immigrants who intended to settle there.
- **Skill requirements:** All labour data in the MOST can be described using 35 different skills categories from O*NET.
- **Technology adoption:** The MOST can be used to create and assess the impact on the labour market of multiple technology-adoption scenarios.

Population subset

The population subset we examined includes all individuals who gained permanent residency through the economic immigration stream between 2013 and 2020 as principal applicants (i.e., as opposed to accompanying spouses or dependents) and who intended to work in the trades (included in their permanent residence application).

We selected 2013 as our lower cut-off year because it marked the launch of the Federal Skilled Trades Program—the first immigration pathway designed specifically for skilled trades workers. Including immigrants from before 2013 may have confounded our results because the population of skilled trades immigrants may have differed. We selected 2020 as our upper cut-off year because we used a four-year follow-up period to allow for trade certification, and 2024 is the latest year both IMDB and RAIS data is available. This window captures most immigrants who go on to certify in the skilled trades given that (1) the average skilled trades program length is four years; (2) 48 per cent of skilled trades immigrants who complete training do so within three years of arrival; and (3)

67 per cent of skilled trades immigrants bypass formal training in Canada altogether by becoming trade qualifiers.[2]

As immigrants may take more than four years to complete training in the skilled trades, we also conducted a sensitivity analysis with a seven-year follow-up period for the 2013–17 cohorts. As certification outcomes did not differ substantially (see Table 1), we report results based on the four-year certification period to increase the recency of our data through the inclusion of 2018–20 cohorts.

Table 1

Certification outcomes by follow-up length

Certification period	Certification rate	Alignment rate
Four years	7 per cent	76 per cent
Seven years	11 per cent	72 per cent

Sources: Signal49 Research; Statistics Canada.

The population subset we examined excludes permanent residents who never filed taxes or who did not live in Canada within four years of arrival for our primary analysis and within seven years of arrival for our sensitivity analysis.

Data analysis

We analyzed data from the IMDB, RAIS, and MOST using Excel. We used PowerBI to visualize the data.

We used Kendall's tau correlation (r_τ) to examine whether trades that rank higher on certification alignment (IMDB and RAIS data) also rank higher on projected 10-year employment growth at the regional level (MOST data). This non-parametric correlation is appropriate for small datasets with non-normal distributions and many tied ranks.[3] Correlations of 0.20, 0.50, and 0.80 represent small, medium, and large effect sizes, respectively.[4] We conducted this analysis in SPSS. None of the correlations were statistically significant:

- British Columbia: r_τ = −0.18 for the 43 trades in the analysis ($p \geq .05$)
- The Prairies: r_τ = 0.13 for the 50 trades in the analysis ($p \geq .05$)
- Ontario: r_τ = –0.08 for the 50 trades in the analysis ($p \geq .05$)

[2] Hyeongsuk Jin and Amanda Kopp, "Post-migration education of immigrants admitted in 2010 and 2011: The impact of completing skilled trades training in Canada on economic outcomes," Education, learning and training: Research Paper Series (Ottawa: Statistics Canada, August 28, 2023), https://www150.statcan.gc.ca/n1/pub/81-595-m/81-595-m2022002-eng.htm.

[3] Andy Field, *Discovering Statistics Using IBM SPSS Statistics*, 6th ed. (London: SAGE Publications, 2024).

[4] Gail M. Sullivan and Richard Feinn, "Using Effect Size—or Why the *P* Value Is Not Enough," *Journal of Graduate Medical Education* 4, no. 3 (2012): 279–82, https://doi.org/10.4300/JGME-D-12-00156.1.

- Quebec: r_τ = –0.19 for the 39 trades in the analysis ($p \geq .05$)
- Atlantic Canada: r_τ = –0.33 for the 11 trades in the analysis ($p \geq .05$)

To determine the Red Seal status of trades, we used NOC, Canada's national system for describing occupations. NOC codes can contain a mix of Red Seal and non–Red Seal trades. For example, the occupation of auto body collision, refinishing and glass technicians, and damage repair estimators includes both Red Seal trades (e.g., auto body and collision technicians, automotive refinishing technicians) and non–Red Seal trades (e.g., motor vehicle body repairers). In this dashboard, non–Red Seal trades refer to NOC categories that contain only non–Red Seal trades, whereas Red Seal trades refer to NOC categories that contain at least one Red Seal trade.

Limitations

The measures in this dashboard reflect certification recorded in administrative apprenticeship or certification data linked to immigration records. Certification is an important marker of progression through trades pathways but is not the same as being employed in a trade. Individuals can work in trade-related roles without appearing as certified within the follow-up window. For this reason, results should be interpreted as evidence about credentialling and certification pathways among immigrants who intended to work in the trades, not as a direct measure of employment in the trades.

The territories were excluded from these analyses due to the small number of immigrants who intended to settle in this region, limiting the generalizability of results.

Trades were classified using NOC codes, which can contain a mix of Red Seal and non–Red Seal trades. In this analysis, occupations containing at least one Red Seal trade were classified as Red Seal trades, meaning some individuals in non–Red Seal trades may be captured within the Red Seal category. As a result, findings for Red Seal trades should be interpreted as reflecting occupational groupings rather than Red Seal designation at the individual trade level.

Forecasts and research often involve numerous assumptions and data sources, and are subject to inherent risks and uncertainties. This information is not intended as specific investment, accounting, legal, or tax advice. The responsibility for the findings and conclusions of this research rests entirely with Signal49 Research.

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