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## Technical Reference Guides for the Education and Labour Market Longitudinal Platform (ELMLP)

# Indicators on the interprovincial and territorial mobility of certified journeypersons, 2008 to 2019

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# Indicators on the interprovincial and territorial mobility of certified journeypersons, 2008 to 2019

## 1. Introduction

Statistics Canada, in collaboration with the provinces and territories, Employment and Social Development Canada (ESDC) and other stakeholders, has developed the Education and Labour Market Longitudinal Platform (ELMLP).

The ELMLP allows longitudinal integration of administrative data related to education with other data sources to provide customized datasets for analytical purposes.

The ELMLP Program fills data gaps and enables a greater understanding of student and apprenticeship pathways, transitions to the labour market and outcomes over time.

Data from the ELMLP can help address a wide range of policy questions pertaining to student and apprenticeship persistence, completion, mobility and pathways as well as their labour market outcomes.

These data allow policy makers to understand the different types of trajectories that students can take through their post-secondary education or apprenticeship training as well as student characteristics that may be related to these trajectories.

The target audiences for the ELMLP includes provincial ministries of education, apprenticeship authorities, postsecondary institutions, federal government departments, members of the academic community, researchers, as well as students and parents interested in graduate outcomes and other stakeholder groups involved in education and the labour market.

## 2. The Education and Labour Market Longitudinal Platform (ELMLP)

### 2.1 The key features of the ELMLP

1. **Platform** - The Platform allows researchers to unlock information about past cohorts of college/university students and registered apprentices, to better understand their pathways and the ways in which education and training affected their career prospects.
2. **Securely integrated datasets** – These integrated datasets allow us to know more than what a single dataset or survey can provide. Integrated datasets means that all of the datasets in the ELMLP may be linked with each other using an anonymous linkage identifier located on each file. After identifying which ELMLP datasets are needed to answer a specific research or policy question, researchers can then use the anonymous linkage identifier located on each file to bring these datasets together. The integration of datasets is carried out within the [Social Data Linkage Environment](#) (SDLE), which maintains the highest privacy and data security standards.
3. **Longitudinal data** – The data available within the Platform are linked longitudinally, allowing researchers to better understand the behaviours and outcomes of students, apprentices and trade qualifiers over time.
4. **Accessible data** – All datasets prepared for the Platform are made available to researchers through the Research Data Centres network across Canada.

### 2.2 Accessibility, confidentiality and privacy

The integrated datasets in the ELMLP are deemed sensitive statistical information and subject to the confidentiality requirements of the *Statistics Act*. Statistics Canada employees who build the integrated datasets for research purposes have access to the data only after it has been stripped of personal identifiers. Furthermore, only Statistics Canada employees and deemed employees who have an approved need to access the data for their analytical work are allowed access to the linked analytical files.

These data are treated with the same level of confidentiality as surveys administered by Statistics Canada.

Findings from the ELMLP are released through Statistics Canada's website.

The ELMLP data are also available in Statistics Canada's [Research Data Centres](#) (RDC) to researchers with approved projects only. These researchers are provided with access in a secure setting at the RDCs, which are staffed by Statistics Canada employees. The RDCs are operated under the provisions of the *Statistics Act* in accordance with all confidentiality rules, and are accessible to researchers once they have been sworn in under the *Statistics Act* as "deemed employees."

### 2.3 Core and supplementary datasets

The ELMLP consists of two types of datasets: **core** and **supplementary**.

Core datasets are updated in the ELMLP on an annual basis and include:

1. **The Postsecondary Student Information System (PSIS)** – an administrative dataset of all Canadian public college and university enrolments and graduates by type of program and credential, and field of study for each reporting year. The ELMLP includes PSIS data from 2009 onwards for all provinces and territories, as well as from 2005 onwards for the Maritime Provinces and from 2004 for Alberta.
2. **The Registered Apprenticeship Information System (RAIS)** - an administrative dataset of Canadian (provincial and territorial) annual data on registered apprentices and trade qualifiers. The ELMLP consists of RAIS data from 2008 onward.
3. **Income tax from the T1 Family File (T1FF)** - select information from income-tax data from 1992 onwards is available for all PSIS and RAIS records that were linked to the T1 Family File.

**Supplementary** datasets are additional datasets that will be integrated into the platform in order to add new indicators for research purposes. Over time, the number of supplementary datasets that are brought into the ELMLP will grow and could include survey data already collected by Statistics Canada, administrative data already obtained by Statistics Canada, and administrative data not yet available at Statistics Canada. The list of ELMLP files currently in the [RDCs](#) can be found by typing “ELMLP” in the Filter Items window.

### 3. Data sources

#### 3.1 Data sources and record linkages

The Registered Apprenticeship Information System (RAIS) is the foremost source of information on apprentices in Canada. On an annual basis, cross-sectional statistics on registrations in apprenticeship programs and certifications in trades are produced from the RAIS. The cross-sectional annual RAIS files do not support longitudinal studies and do not contain tax information on apprentices or trade qualifiers.

To study interprovincial and territorial<sup>1</sup> mobility among recently certified journeypersons, the annual RAIS files from 2008 onward were linked longitudinally, and subsequently integrated with the T1 Family File (T1FF) and T4 tax slips for corresponding tax years. The integrated files provided the required geographic information to track interprovincial movements. Information on the jurisdiction of certification of journeypersons was obtained from the RAIS; the jurisdiction of residence was identified through the T1FF; and the jurisdiction(s) of employment were derived from the T4 tax slips.

Probabilistic record linkages of the annual RAIS files were conducted in the Social Data Linkage Environment (SDLE). Successful linkages were dependent on the completeness of personal identifiers. Nearly 99% of the records in each of the RAIS files from 2008 to 2019 were successfully linked to Statistics Canada's Derived Record Depository.

Unique identifiers were used to join the T1FF and T4 tax files to the RAIS files. Approximately 99% of the records in the T1FF and T4 files were successfully linked to the RAIS. Duplicate records were then removed by combinations of three variables: a unique identifier, the province of certification, and the trade program identifier. Therefore, each record represents a journeyperson who certified in a specific trade and province in the given calendar year, while allowing those who certify in multiple apprenticeship programs or provinces<sup>2</sup> to be counted accordingly.

For more information on record linkage, visit the [Social Data Linkage Environment](#). For more information on tax data, visit the [T1 Family File](#).

#### 3.2 Concepts derived from the Registered Apprenticeship Information System, T1 Family File and T4 tax forms

The **reference period** of the annual RAIS files is the calendar year.

**Designated trades** are trades for which apprenticeship training and trade qualifications are available in Canada. These trades are governed by provincial and territorial jurisdictions, who determine the trades for which apprenticeship training is made available and certificates are granted. The jurisdictions also determine which designated trades require certification in order to work unsupervised in the trade.

**Red Seal programs** have common standards to assess the skills of tradespersons across Canada in specific trades, referred to as the Red Seal trades. Tradespersons who pass examinations to meet these standards receive a Red Seal endorsement on their provincial or territorial trade certificates. The Red Seal endorsement certifies tradespersons to work in their trade in any province or territory, whereas other forms of certification may only be recognized by certain provinces or territories. Non-Red Seal trades do not have interprovincial standards and many of these trades do not have an examination requirement in order to work in the trade.

**Journeypersons**, for the purposes of these indicators, are defined to be apprentices or trade qualifiers who have received a certificate of qualification.

**Registered apprentices** are individuals in a supervised work training program in a designated trade within their provincial or territorial jurisdiction. Apprentices must be registered with the appropriate governing body (usually a ministry of education or labour, or a trade-specific industry governing body) to complete the training.

1. For simplicity, "interprovincial and territorial" is referred to as "interprovincial" throughout the rest of the guide.

2. Approximately 1% of journeypersons certified in multiple programs in a given calendar year. Nearly all cases corresponded to multiple certifications granted within the same province, with isolated occurrences of journeypersons certifying in separate provinces.

**Trade qualifiers** are individuals who meet the on-the-job experience required to qualify for certification within a jurisdiction, without necessarily having completed an apprenticeship program.

**Certifications** are required to work unsupervised in a number of trades in Canada. Requirements for obtaining such a designation vary widely across jurisdictions as well as across the trades themselves. In most instances, apprentices are issued a certificate if they completed requirements such as supervised on-the-job training, technical training, as well as passing one or more examinations. Meanwhile, trade qualifiers become certified once they pass an examination.

**Province of residence** is obtained from Section 1, Personal Identification, of the T1 tax form and is the province or territory of residence on December 31<sup>st</sup> of the tax year.

**Province of employment** is obtained from Box 10 of the T4 Statement of Remuneration Paid. When the journeyperson received T4 slips from multiple provinces or territories other than the jurisdiction of residence, the province or territory with the highest employment income is considered the province of employment.

### 3.3 Confidentiality and rounding

All data are subject to the confidentiality procedures of rounding and suppression. Suppression is primarily a data quality control measure for the mobility indicators, which do not contain confidential information. To this effect, all indicators with rounded cohort sizes less than 15 were suppressed.<sup>3</sup>

To support the release of the mobility indicators, counts are subject to controlled random rounding using a base of five. Rounding may increase, decrease or cause no change to counts. Rounding can affect the results obtained from calculations. For example, when percentages are calculated from rounded data, results may be distorted as both the numerator and denominator have been rounded. These distortions are greatest with small numbers. Similarly, rounding may affect the correspondence in summed versus reported values between geographic levels, selected trades and categories, as well as related indicators.

Rounding and suppression because of small cohort sizes and unavailability for a given reference period are well documented in the resulting statistical tables [37-10-0204-01](#) and [37-10-0205-01](#).

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3. Suppressions were implemented after aggregating datasets. This broadly maintains the correspondence between the reported and unrounded estimates, yet in conjunction with rounding procedures may yield discrepancies between reported and summed values.



## 4. Methodology of the mobility indicators for certified journeypersons

The primary purpose of the mobility tables is to produce indicators on the direction ([37-10-0204-01](#)) and prevalence ([37-10-0205-01](#)) of interprovincial movements among certified journeypersons in Canada. The purpose of this section is to define these indicators and inform data users of their limitations. See Appendix D for more information on how the indicators were derived from the merged RAIS-tax files.

### 4.1 Indicator definitions

The indicators are established for all trades at the aggregate level and for selected trades, categories and geographic levels (see Section 5). The formulas for calculating percentages are included in the indicator definitions and are also displayed in Table 1. Cohort size through tax filers are available in both mobility tables.

Please note the use of '**migrants**' in these indicators refers to individuals that reside in a different province or territory from where they certified. This should not be confused or compared with interprovincial migration tables or indicators of the Canadian population (see section 4.2).

**Cohort size** is the number of journeypersons who certified during the given calendar year.

**Tax filers** are journeypersons who filed taxes, specifically T1 records, one or three years after certification. The percentage of tax filers is calculated using cohort size as the denominator.

**Filed tax in the province of certification** indicates the number of journeypersons who filed tax in the province of certification, according to the T1 records.

**Median age at certification** is available for journeypersons who certified in the given calendar year. The median is determined by sorting values and selecting the middle value. When there is an even number of observations, the median is the average of the two middle values.

**Year(s) after certification** represent the timeframes over which the mobility indicators are reported, specifically one year and three years after certification.

The following indicators are only available in Table [37-10-0204-01](#).

**Province or grouped territories, origin** is the jurisdiction where journeypersons certified in the given calendar year.

**Province or grouped territories, destination** represents the jurisdiction where journeypersons reside or work, one or three years after certification.

The following indicators are only available in Tables [37-10-0204-01](#) and [37-10-0205-01](#).

Three **types of mobility** are measured by comparing the jurisdiction(s) of certification in a trade to the province or territory of residence one and three years after certification. The types of mobility include the migrant population, shadow population and total mobility. When the jurisdiction of residence matches where the journeyperson certified, the jurisdiction of employment is also compared to determine whether the journeyperson works outside the province or territory of certification and residence.

All percentage measures are available in table [37-10-0205-01](#) only, and are calculated using tax filers as the denominators.

For each of these three types of mobility, **absence of mobility** refers to journeypersons who either only reside (in the context of migrant population), or reside and work exclusively (in the context of shadow and total population) in the same province or territory in which they certified. The percentage of **absence of mobility** is calculated using Tax filers as the denominator. In addition, the measures **in**, **out**, and **net** denote the count and percentage of mobility for each of these measures of mobility.

The **migrant population of journeypersons** refers to those who live in a different province or territory from which they certified. This is calculated and measured by comparing the jurisdiction of certification in a trade, obtained from the RAIS, to the province or territory of residence, recorded in the T1FF, one or three years after certification. Based on the correspondence of these jurisdictions, journeypersons are classified as showing an absence of mobility or as migrants (*i.e.* in and out).

**In** and **out** refers to journeypersons who reside in a different jurisdiction from where they certified. Mobile journeypersons contribute to the **out** count of the jurisdiction they certified and contribute to the **in** count of the jurisdiction they reside (filed taxes). At the provincial-territorial level, these indicators give the magnitude of journeypersons entering or leaving a jurisdiction. As percentages, these are calculated with tax filers as the denominator.

**Net** refers to the difference between in and out for the migrant population of journeypersons. At the provincial-territorial level, this measure indicates whether there is a gain (inflow) or loss (outflow) in the number of journeypersons. A positive value indicates more journeypersons are entering a province or territory than those that have left. Given in and out-migrants are equivalent at the national level, net-migrants is correspondingly equal to zero.

The **shadow population of journeypersons** refers to those who work in a province or territory different from their jurisdiction of residence and certification. This group is derived from journeypersons who filed tax in the province or territory they certified in and are further classified as shadow or non-shadow based on the location(s) of their work. This information is obtained from T4 tax slips and compared to the province or territory where the journeyperson certified and resides. Therefore, the jurisdiction(s) of employment are considered only when the province or territory of residence and certification match, as seen in those exhibiting an absence of mobility in the migrant population. Based on the correspondence of these jurisdictions, journeypersons who show an absence of mobility contribute to the following estimates.

**In** and **out** refers to journeypersons who work in a jurisdiction outside of where they certified and reside. Mobile journeypersons contribute to the **out** count of the jurisdiction they certified in and contribute to the **in** count of the employment jurisdiction. For example, a journeyperson who certified and lives in Nova Scotia, but works in Alberta is counted as an out for Nova Scotia and an in for Alberta. This ensures that in and out match at a national level. At the provincial-territorial level, these measures broadly indicate the prevalence of work-related mobility, specifically the number of journeypersons entering or leaving a jurisdiction for employment.

**Net** refers to difference between in and out for the shadow population of journeypersons. At the provincial-territorial level, this measure indicates the balance in the number of journeypersons entering a jurisdiction for work versus the number of journeypersons leaving for employment elsewhere. As such, the measure broadly informs whether there is a gain (inflow) or loss (outflow) in employed journeypersons for a jurisdiction. Given in and out are equivalent at the national level, net is correspondingly equal to zero.

**Total mobility** refers to journeypersons who reside and or work in a province or territory different from their jurisdiction of certification. It reflects the combined mobility in number or percentage for both the migrant and shadow population of journeypersons.

**In** and **out** refers to journeypersons who live or work in a jurisdiction outside of where they certified. Mobile journeypersons contribute to the **out** count of the jurisdiction they certified and contribute to the **in** count of the jurisdiction or residence or employment.

**Net** is the difference between in and out for total mobility. At the provincial-territorial level, this measure indicates the balance in the number of journeypersons entering a jurisdiction for work or residence versus the number of journeypersons moving or working elsewhere. As such, the measure informs whether there is a gain (inflow) or loss (outflow) in journeypersons for a given jurisdiction. Given in and out are equivalent at the national level, net is correspondingly equal to zero.

See **Appendix B** for a workflow chart detailing the process for classifying journeypersons and the corresponding indicator(s) to which they contribute.

## 4.2 Limitations

### 4.2.1 Comparability to other measures of mobility

There are many ways to measure the interprovincial mobility of individuals. Statistics Canada defines interprovincial migration as representing a change in the *usual place of residence* between provinces or territories.<sup>4</sup> However, this definition differs from the mobility indicators presented in this document, which defines journeyperson movements using the jurisdiction of certification as the origin and the province or territory of residence, one or three years later, as the destination. Therefore, any movements captured in these indicators, away from the jurisdiction where individuals certified, can be seen as a loss of investment for these provinces or territories. It should be noted that some journeypersons may live near provincial borders thereby allowing them to study or work in one jurisdiction while maintaining their residence in another. This also relates to the geography of provinces and grouped territories, which is detailed further in Section 4.2.3.

### 4.2.2 Identifying mobility from tax records

Data on the jurisdictions of residence and employment are obtained from the T1FF and T4 tax slips respectively. Journeypersons who do not file taxes (e.g. emigrants, deceased or individuals not in the labour force) one or three years after certification are excluded from these estimates. The number of tax filers are provided in Tables [37-10-0204-01](#) and [37-10-0205-01](#) as important data quality indicators.<sup>5</sup> For more information on tax data, visit the [T1 Family File](#).

Regarding employment and shadow population estimates, the T4 data may not reflect work in the trade in which a journeyperson certified, full-time or full-year employment, nor does it account for the number of hours worked. Although the method used to determine a journeyperson's employment jurisdiction may not reflect their primary work (location, occupation or earnings), it was chosen to register any employment outside of where they certified and reside.

### 4.2.3 Geographic borders and distribution of journeypersons

The mobility measures are sensitive to the geography<sup>6</sup> of the data (provinces and grouped territories) and the distribution of journeypersons within these boundaries. Specifically, these measurements are sensitive to provinces or territories with population centres located near their borders. For example, an individual who certified in Ottawa and moved across Ontario to Thunder Bay is a non-migrant, while a similar individual who certified in Ottawa, but lives in Gatineau, Quebec is considered a migrant (see Appendix A). In this case the distance moved by the 'migrant' is substantially smaller than that of the 'non-migrant'. Variations in jurisdictional size and the proximity of journeypersons to borders also affect the shadow population estimates, influencing the potential for employment outside the province or territory of certification.

4. Statistics Canada. From east to west: 140 years of interprovincial migration. [Canadian Megatrends](#). Last update: May 17, 2019.

5. Larger counts of tax filers indicate a greater reliability in the provided estimates.

6. The geographic levels for which the indicators are provided was limited by available information in data sources and establishing sufficient cohort sizes to support their release.

## 5. Geography and trades

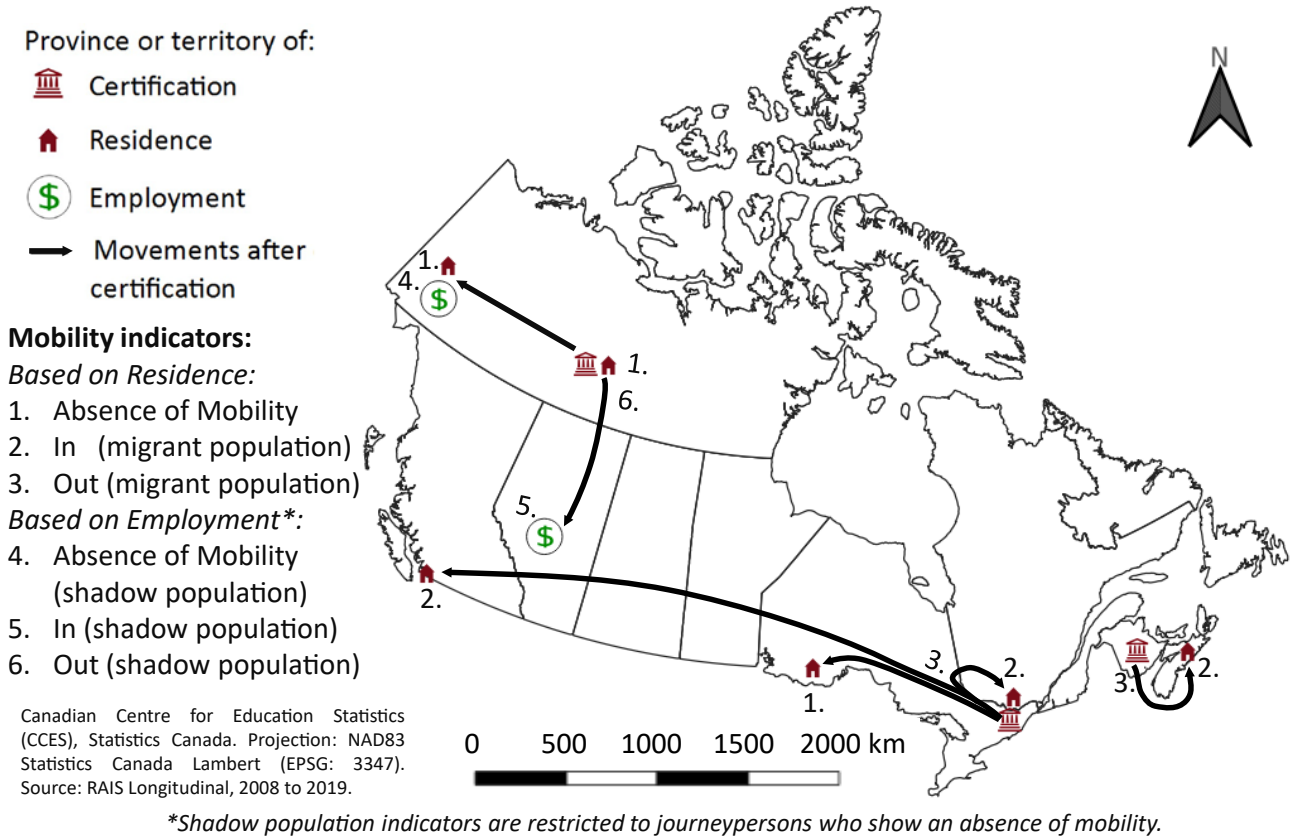
The mobility indicators for certified journeypersons are produced for all trades at the aggregate level as well as some select trades ([37-10-0205-01](#)) and categories ([37-10-0204-01](#) and [37-10-0205-01](#)). The selected trades comprise the 15 Red Seal trades with the largest number of certifications granted in Canada between 2008 and 2019. In addition, five categories correspond to the totals of All trades, the selected 15 Red Seal trades, all Red-Seal trades, other Red Seal trades, and non-Red Seal trades. Estimates are available for Canada ([37-10-0205-01](#)), all provinces and grouped territories ([37-10-0204-01](#) and [37-10-0205-01](#)). The territories were combined to obtain sufficient cohort sizes. See Appendix C for further information on the selected trades and categories.

In Canada, apprenticeship programs and certifications in trades are administered by provincial and territorial jurisdictions. As a result, definitions that govern apprenticeship programs and the way data are reported to Statistics Canada can vary considerably across jurisdictions and across trades themselves. Thus, focusing on the most common Red Seal trades in Canada helps to reduce some of these administrative differences.

All jurisdictions where the selected 15 Red Seal trades are designated as trades contribute to the Canada level estimates. Some jurisdictional estimates may be unavailable due to small cohort sizes that fall below the predetermined threshold of 15. This threshold was implemented to ensure the indicators are of acceptable quality. For more information, see Appendix E of this document.

## Appendix A

**Figure 1**  
**Map showing mobility indicator classifications of certified journeypersons**

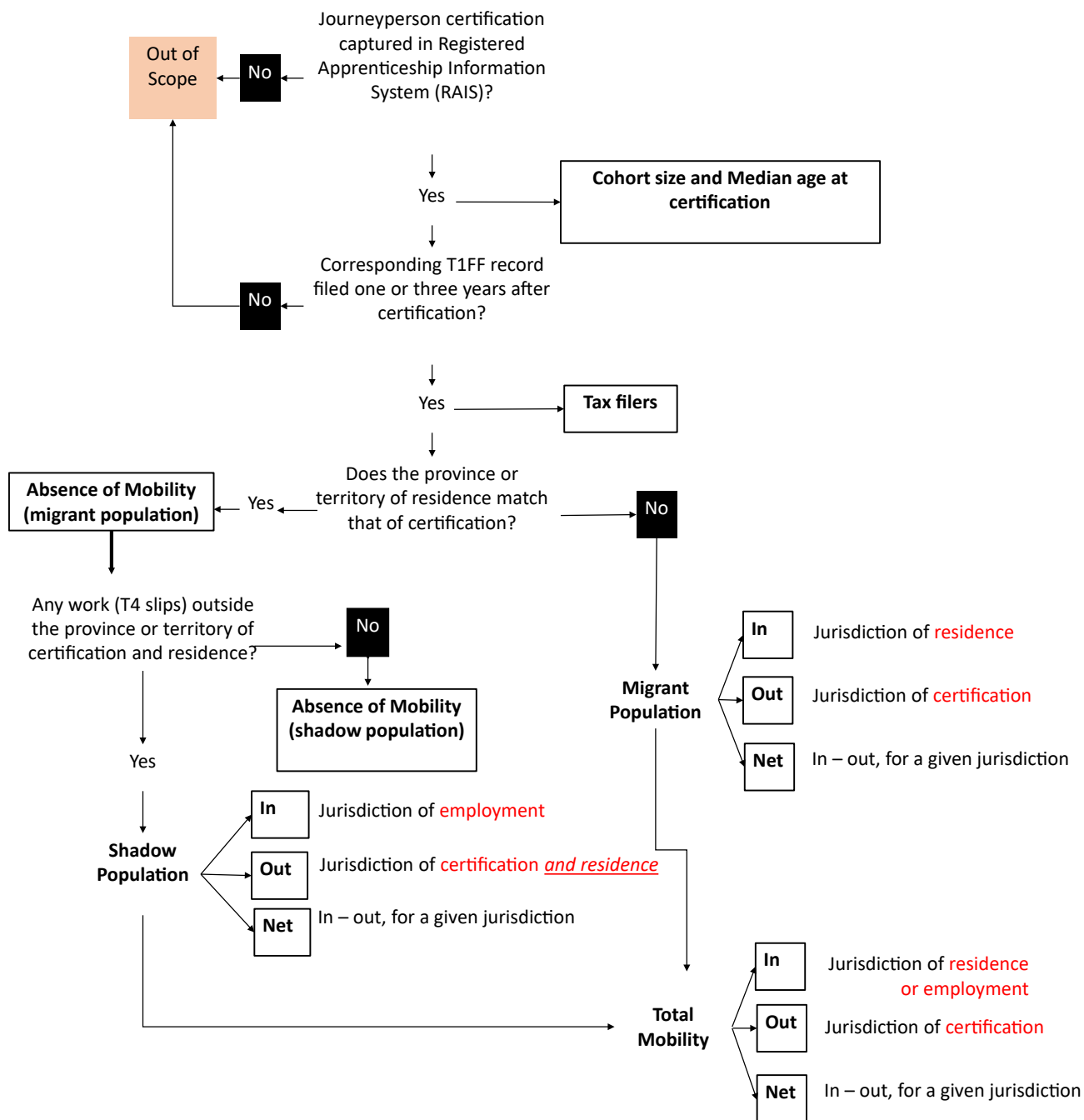


Source: Statistics Canada, RAIS longitudinal (2008 to 2019).

Figure 1 - Illustrates the classification of journeypersons and the mobility indicators to which they contribute, according to the correspondence between the province(s) or grouped territories of certification, residence and employment. The figure also depicts how the distribution of journeypersons within these borders may influence these classifications and estimates.

## Appendix B

**Figure 2**  
**Mobility classification workflow for newly certified journeypersons**



Source: Statistics Canada, RAIS longitudinal (2008 to 2019).

Figure 2 - Depicts the workflow for classifying certified journeypersons in Table 37-10-0205-01 as migrants or absence of mobility, and further classifying absence of mobility as either shadow or non-shadow, based on the jurisdictions of certification, residence and employment. The migrant and shadow population of journeypersons further contribute toward measures of total mobility. The indicator(s) to which individuals contribute are depicted in the black rectangular boxes. For in and out measures, this is followed by the jurisdiction to which counts are applied, listed in red

## Appendix C

**Figure 3**  
**Selected trades and categories**

No.	Trade categories	Selected trades
1	<p style="text-align: center;"><b>Sum = Total, Selected 15 Red Seal trades</b></p> <p style="text-align: center;">↓</p>	Automotive service technician [7321]
2		Carpenter [7271]
3		Construction electrician [7241]
4		Cook [6322]
5		Hairstylists and barbers [6341]
6		Heavy duty equipment technician [7312]
7		Industrial electrician [7242]
8		Industrial mechanic (millwright) [7311]
9		Ironworker [7236]
10		Plumber [7251]
11		Refrigeration and air conditioning mechanic [7313]
12		Sheet metal worker [7233]
13		Steamfitter – pipefitter [7252]
14		Truck and transport mechanic [7321]
15		Welder [7237]
16	Selected 15 Red Seal trades	<p style="text-align: center;"><b>Sum = Total, All trades</b></p>
17	Other Red Seal trades	
18	Non-Red Seal trades	
19	All Red Seal Trades	
20	All trades	

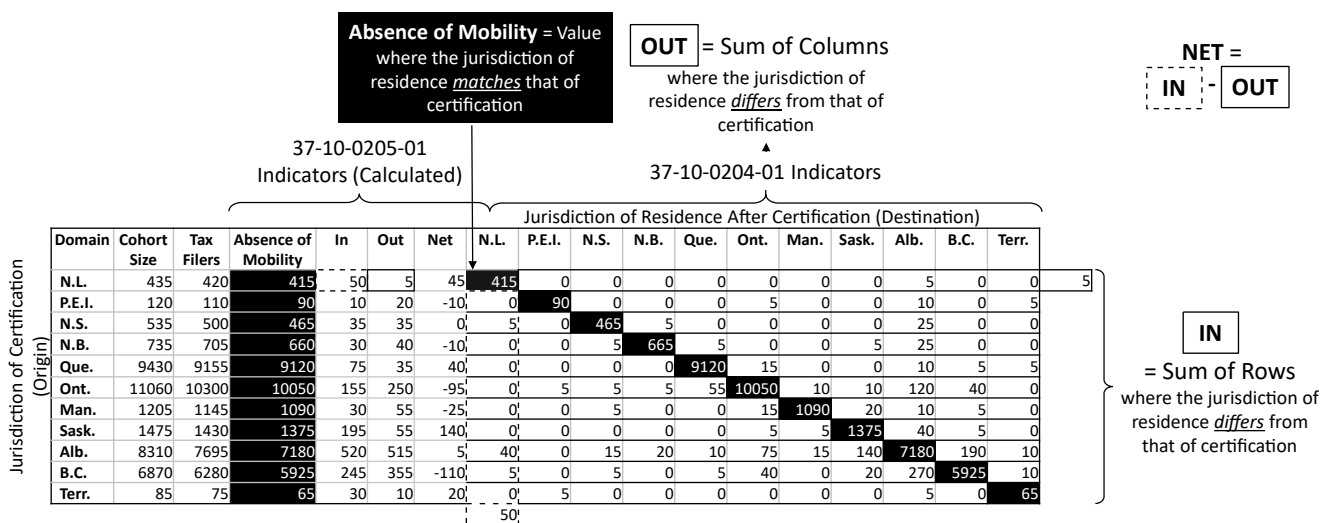
Source: Statistics Canada, RAIS longitudinal (2008 to 2019).

Figure 3 - Lists the selected trades and categories for which the mobility indicators are reported. The correspondence between the sum of the selected trades and the selected 15 Red Seal trades, as well as the relations between other trade categories are also shown. The selected 15 Red Seal, Other Red Seal and Non-Red Seal trades are mutually exclusive. For example, summing the selected 15 Red Seal and Other Red Seal trades provides a total for all Red Seal trades. Similarly, summing these categories with Non-Red Seal trades provides the estimates for all trades. The 2016 [National Occupation Classification](#) (NOC) identifiers used in the creation of these indicators are shown in square brackets for the selected trades.

## Appendix D

The mobility indicators were derived by aggregating the integrated longitudinal RAIS-tax files. First, the number of journeypersons who certified in the given calendar year and their median age were calculated. Then, the province or territory of certification (origin) was compared to the jurisdiction of residence (destination). Where these match, this was further compared against the jurisdiction(s) of employment to determine if journeypersons had any work elsewhere (shadow). This established the interprovincial movements of certified journeypersons. The formulas depicted below were then applied to the rounded origin-destination counts, which comprise the principal indicators of Table 37-10-0204-01, to calculate the net mobility indicators reported in Table 37-10-0205-01.

**Figure 4**  
**Mobility indicators derived from the integrated RAIS-Tax records**



Source: Statistics Canada, RAIS longitudinal (2008 to 2019).

Figure 4 – An example of the output datasets, after controlled random rounding and indicator calculations, containing the mobility indicators reported in Tables 37-10-0204-01 and 37-10-0205-01. These were compiled both for migrant (shown) and shadow populations of interest. The latter was established by comparing the jurisdiction of employment, as detailed in Section 4.1, to the province or territory of certification and residence for non-migrant journeypersons.



## Appendix E

**Table 1**  
**Trades and jurisdictions included in the RAIS mobility table for journeypersons who certified as apprentices and trade qualifiers 37-10-0205-01**

Top 15 Red Seal trades	Number of jurisdictions	Jurisdictions who contribute to the indicators available at the Canada level										
		N.L.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Territories
Automotive service technician <sup>2,4</sup>	10	✓	✓	✓	✓	.	✓	✓	✓	✓	E	✓
Carpenter	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Construction electrician	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cook <sup>4</sup>	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	E	✓
Hairstylist and barbers <sup>4,5</sup>	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	E	✓
Heavy-duty equipment technician	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industrial electrician <sup>6</sup>	9	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industrial mechanic (millwright) <sup>1</sup>	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ironworker <sup>3</sup>	10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	.
Plumber <sup>2</sup>	11	✓	✓	✓	✓	.	✓	✓	✓	✓	✓	✓
Refrigeration and air conditioning mechanic	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sheet metal worker	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Steamfitter - pipefitter <sup>2</sup>	11	✓	✓	✓	✓	E	✓	✓	✓	✓	✓	✓
Truck and transport mechanic <sup>2</sup>	10	✓	✓	✓	✓	.	✓	✓	✓	✓	✓	✓
Welder <sup>4</sup>	11	✓	✓	✓	✓	✓	✓	✓	✓	✓	E	✓

. not available for any reference period

<sup>E</sup> use with caution

1. While some jurisdictions were able to contribute to the Canada-level results, some jurisdictional-level estimates or estimates for women may not be available due to small cohort sizes that fall below predetermined thresholds. These were specified to ensure estimates of acceptable quality and to ensure the confidentiality of the data.

2. In Quebec, different administrative practices led to the following trades being excluded from the RAIS statistical tables (37-10-0204-01 and 37-10-0205-01):

- **Automotive service technician** — Quebec does not provide data for this trade as a part of the RAIS.

- **Truck and transport mechanic** — Apprenticeship training is not offered.

The following two trades are still available for specific years and for specific individuals:

- **Plumber** — Few new registrations and certifications were recorded in the RAIS for individuals who completed an apprenticeship program. Therefore, they were removed from the data.

- **Steamfitter/pipefitter** — Certifications for apprentices in 2008 were removed due to data quality issues.

3. In Quebec, in 2013, different administrative practices had an impact on the number of certifications granted to trade qualifiers:

- **Ironworker** — A regulatory change came into effect in 2013 which affects both Ornamental ironworkers and Structural steel erectors under the jurisdiction of the Commission de la construction du Québec. Workers in these two trades are now considered to be Ironworkers, which increase the number of certification for Other non-Red Seal trades. The impact of these changes is also seen in 2014 and 2015.

4. In British Columbia, different administrative practices can have an impact on comparisons over time and with other jurisdictions for individuals who completed an apprenticeship program in the following trades:

- **Automotive service technician** — In 2009, this four-year program was divided into four one-year programs, with certificates granted at the end of each year completed.

- **Cook** — In 2009, this three-year program was divided into three one-year programs, with certificates granted at the end of each year completed.

- **Hairstylist and barbers** — The Red Seal exam was not offered prior to 2014, which resulted in no certifications being granted for the reference periods of 2008 to 2013.

- **Welder** — Apprentices who newly registered in this trade have already completed the required training; certificates are therefore granted almost immediately upon registration for the reference periods of 2008 to 2010.

5. Hairstylist is not a designated trade in Nova Scotia or New Brunswick for individuals who completed an apprenticeship program. See Section 3.2 for the definition of a designated trade.

6. Industrial electrician is not a designated trade in Saskatchewan or Alberta. See Section 3.2 for the definition of a designated trade.

**Source:** Statistics Canada, RAIS longitudinal (2008 to 2019).