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Measuring emigration

Measuring the emigration of immigrants in Canada using longitudinal administrative data

Note by Statistics Canada*

Abstract

Canada has a rich history of immigration. In 2021, almost one-quarter of the Canadian population was born abroad. Moreover, Canada's international migration, both permanent and temporary, is now reaching record-high levels and accounts for nearly all the country's population growth.

However, the fact that Canada is often seen as a country of immigration tends to obscure the opposite trend: emigration. Measuring emigration accurately is a challenge in Canada because the country does not have a population register. Consequently, the study of emigration must rely on indirect sources and definitions.

Some studies report that immigrants are more likely to emigrate from Canada than the rest of the population. Given the marked increase in immigration, it is more and more relevant to develop a robust measure of the emigration of immigrants to evaluate and inform immigration policies.

This note shows how a linkage between immigration and tax data, called the Longitudinal Immigration Database (IMDB), allowed the development of an indirect method to measure the emigration of immigrants. The key result from the study is that over 15% of immigrants who were admitted between 1982 and 2017 emigrated within 20 years of landing.

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NOTE: The designations employed in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

I. Introduction

1. Canada has a rich history of immigration. In 2021, almost one-quarter of the Canadian population was born abroad. Moreover, Canada's international migration, both permanent and temporary, is now reaching record-high levels and accounts for nearly all the country's population growth. In 2023, Canada posted its strongest demographic growth (+3.2%) since 1957 following the arrival of more than 1.2 million permanent and temporary immigrants.
2. However, the fact that Canada is often seen as a country of immigration tends to obscure the opposite trend: emigration. Measuring emigration accurately is a challenge in Canada because the country does not have a population register. Consequently, the study of emigration must rely on indirect sources and definitions (Bérard-Chagnon 2018).
3. Some studies report that immigrants are more likely to emigrate from Canada than the rest of the population (Finnie 2006). Moreover, while some characteristics associated with the emigration of immigrants are known, the underlying mechanisms are less clear. New demographic dynamics are also emerging, such as two-step migration and the increasing diversity of immigrants' countries of origin, that could shape future emigration patterns. As a result, it is more and more relevant to develop a robust measure of the emigration of immigrants to answer emerging data users' needs, to maintain accurate demographic statistics as well as to evaluate and inform immigration policies, such as Canadian immigration targets.
4. This note shows how Statistics Canada used a linkage between immigration and tax data, called the Longitudinal Immigration Database (IMDB), to develop an indirect method to measure the emigration of immigrants for several characteristics in the absence of a population register. It is a summary of a paper entitled Emigration of Immigrants: Results from the Longitudinal Immigration Database published on Statistics Canada website on February 2, 2024. Section 2 and 3 respectively introduce the IMDB and the indirect definition of emigration used for this paper. Then, section 4 presents the results of some evaluations to assess the accuracy of this definition. Lastly, section 5 shows selected results of the study.

II. The Longitudinal Immigration Database

5. The IMDB is the result of an ongoing collaboration between Statistics Canada and Canada's immigration department (Immigration, Refugees and Citizenship Canada [IRCC]) to create a yearly, comprehensive and detailed longitudinal file to shed more light on immigrant behaviour.
6. The IMDB essentially combines administrative data from IRCC on the number of immigrant admissions and temporary resident permits issued with annual tax data from the Canada Revenue Agency (CRA). Immigrant admission data notably include the admission date and various immigrant characteristics, such as the level of education at admission, the country of origin and the admission category, whereas tax data provides data on the province/territory of residence and on marital status.
7. The immigration data date back to 1980 while the linked tax return data start in 1982. The IMDB is updated annually through record linkages to add new information from IRCC and the CRA. The 2020 version of the IMDB was used in this study.

III. Measuring immigrant emigration using the IMDB

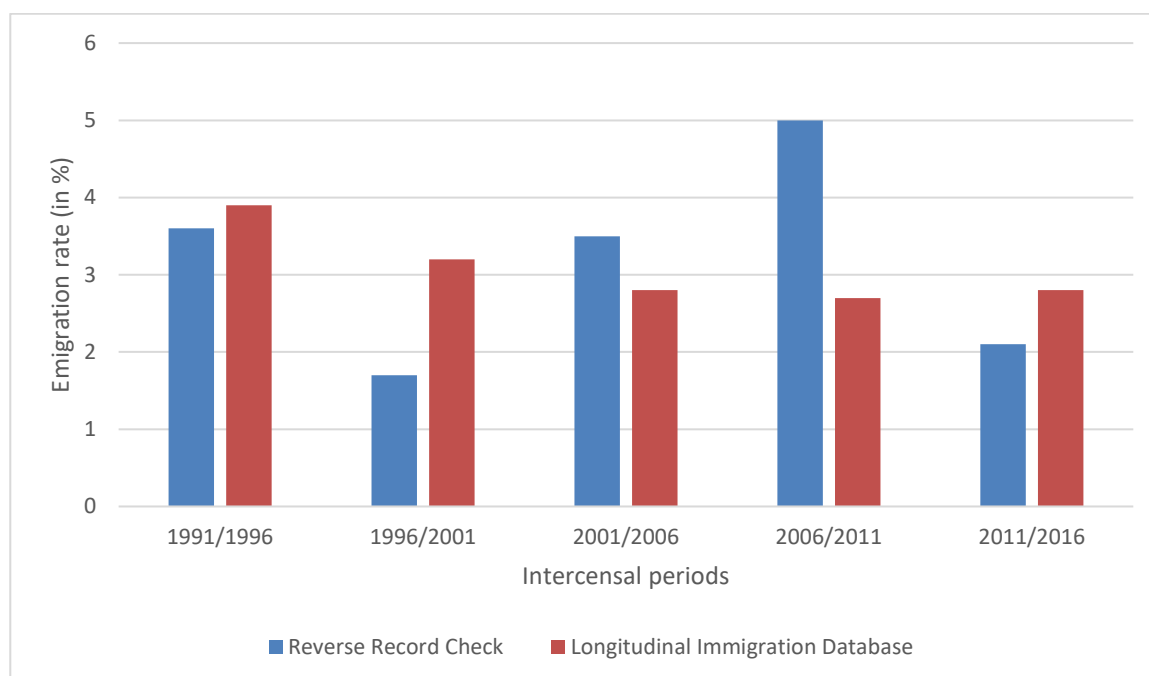
8. Emigration is a very difficult demographic event to measure accurately in Canada. Canadians who emigrate are not required to report their departure, making it very difficult to track them accurately in different Canadian data sources. Moreover, immigrants who emigrate from Canada don't appear in many international databases since they use the country of birth to compute Canadian emigration.
9. In this study, immigrants are identified as emigrants if they have permanently stopped filing a tax return. The majority of Canadians have to fill tax returns every year so the coverage of tax data is high for adults.
10. Immigrants who do not file a tax return are not necessarily emigrants. Additional criteria were developed to better identify emigrants among these immigrants. Immigrants who have permanently stopped filing a tax return are considered emigrants if they:
 - a. were 18 years of age or older at the time of admission;
 - b. have not died since landing;
 - c. filed a tax return at least once after their admission;
 - d. stopped filing a tax return for at least three consecutive years;
 - e. are assumed not to be non-tax filers.
11. The reasons behind these criteria are the following.
 - a. The age criterion was set because of the very low coverage of children in tax returns.
 - b. Dates of death were derived from tax and vital statistics data. The estate of a deceased tax filer must register the date of death when filing the deceased person's last tax return.
 - c. This study is limited to immigrants who completed at least one tax return after admission and who were matched by the IMDB team. This decision was made to ensure that immigrants had indeed settled in Canada before leaving and to avoid classifying immigrants who could not be linked by the IMDB as emigrants.
 - d. The three-year criterion was chosen to minimize the risk that the immigrant was either a late tax filer or a non-tax filer, rather than an emigrant. In those cases, the immigrant is likely to file a tax return in the following years.
 - e. Some of these tax filers permanently stop filing a tax return while still residing in Canada. In this study, two groups were identified as especially likely to be in that situation: immigrant women of child-bearing age (19 to 45) and immigrants who are not eligible to receive Canada Old Age Security pension (65 years of age or older).
12. While the definition chosen for this study makes it possible to measure immigrant emigration indirectly, two limitations cannot be overlooked.
13. First, the definition used in this study only captures "permanent emigration" (those who left as of the 2020 version of the IMDB) and omits immigrants who left and subsequently returned to Canada.
14. Second, the 2018 and 2019 immigration cohorts were excluded from the study because they arrived too recently in the country to properly measure emigration according to the definition used.

IV. Evaluating the definition of immigrant emigration

15. This section presents one of the evaluations made to assess the accuracy of the definition used in this analysis.
16. The results obtained using the IMDB and the definition chosen were compared with those other sources. The evaluation showed in this note is done using the Reverse Record Check (RRC), the postcensal survey that estimates census undercoverage. The RRC can be used to estimate the level of emigration of recent immigrants admitted to the country (within the last five years before census as Canada conducts a census every five years). The following chart compares emigration rates from the IMDB and from the RRC for several censuses.

Figure 1

Emigration rates (in %) of recent immigrants from the Reverse Record Check and the Longitudinal Immigration Database, 1996, 2001, 2006, 2011 and 2016



Sources: Statistics Canada, Longitudinal Immigration Database and Reverse Record Check.

17. Both sources suggest that the emigration rates of recent immigrants range from 1.7% to 5% from 1991/1996 to 2011/2016. The main differences observed between the two sources concern the 1996/2001 and 2006/2011 periods. In the first case, the IMDB reports a higher emigration rate than the RRC by 1.6 percentage points. Conversely, in 2006-2011, the IMDB reports a lower emigration rate than the RRC by about two percentage points.
18. Similar conclusions can be drawn from the results of additional comparisons, suggesting that the criterion developed in this document produces emigration levels that are reasonably accurate.

V. Selected results of immigrant emigration

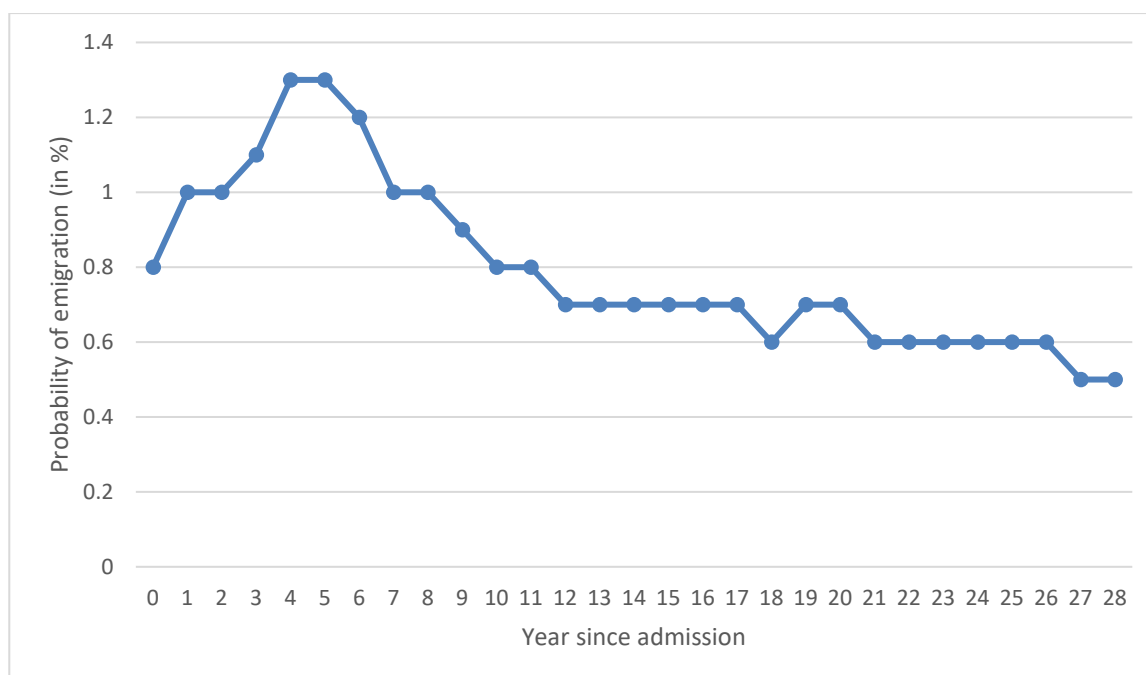
19. This section presents selected results from this study.

A. Emigration probabilities

20. The following chart illustrates the probability of emigrating in each year after landing. Note that these results were obtained using life tables in order to take into account that some immigrants have died and thus are no longer at risk of emigrating.

Figure 2

Annual probability (in %) of the emigration of immigrants, 1982 to 2017



Source: Statistics Canada, Longitudinal Immigration Database.

21. The main finding emerging from the analysis of the probability of emigrating is that immigrants are much more likely to emigrate within the first few years after admission. The annual probability of emigrating reaches the highest level from three to seven years after admission, and peaks at almost 1.4% in the fourth and fifth years after admission. Thereafter, the annual probability of emigrating falls and holds steady at 0.6% to 0.7%. These findings echo those of other studies on this topic, i.e., that recent immigrants are more likely to emigrate from Canada than are immigrants from older cohorts.
22. We can obtain the cumulative emigration probabilities by summing the annual probabilities just presented. Five years after admission, just over 5% of immigrants have emigrated. This probability increases to more than 10% a decade after admission. Slightly more than one in five immigrants have emigrated 25 years after their admission to Canada based on the IMDB and this study's definition. These results indicate that while emigration of immigrants is quite low annually, it becomes a relatively significant phenomenon over the long term.

B. Emigration probabilities for key immigrant characteristics

23. The following table displays the cumulative emigration probabilities ten years after admission for selected immigrant characteristics.

Table 1

Cumulative probability (in %) of the emigration of immigrants ten years after admission for selected characteristics and categories, 1982 to 2017

Characteristic	Cumulative probability (in %)
Total	10.5
Country of birth	
Taiwan	20.1
Jamaica	4.6
France	24.0
Lebanon	18.3
Viet Nam	4.1
United States	27.5
Sri Lanka	3.5
United Kingdom	16.1
Hong Kong	20.1
Philippines	4.5
Admission category	
Caregivers	3.7
Entrepreneurs	17.0
Investors	21.9
Refugees	4.9
Presence of child on tax data	
No	27.9
Yes	6.2
Level of education at admission	
Master's degree	16.4
Doctorate	20.5
Non-permanent resident status before admission	
Study permit	20.9

Source: Statistics Canada, Longitudinal Immigration Database.

24. The propensity to emigrate varies widely by country of birth, admission category, presence of child on tax data, level of education at admission and non-permanent resident status before admission.
25. More than 20% of immigrants whose country of birth is Taiwan, the United States, France, or Hong Kong emigrated within 10 years after admission. Two key dynamics could be at work among immigrants from these countries. First, immigrants from countries with a standard of living similar to Canada's are more likely to emigrate. These countries may continue to hold a strong attraction for their nationals even years after their arrival in Canada. The geographic proximity of Canada and the United States may also encourage US-born immigrants to emigrate. Second, immigrants from locations like Hong Kong or

- Lebanon may have been admitted to Canada amid political instability and may view their settlement and departure as two stages of a more complex migration strategy.
26. In contrast, immigrants from other countries show significantly lower propensities to emigrate. ten years after being admitted to Canada, less than 5% of immigrants born in the Philippines, Sri Lanka, Viet Nam or Jamaica had left the country. The circumstances in which immigrants born in these countries are admitted to Canada may explain these results. They tend to belong to admission categories with lower emigration rates, such as the refugees and caregivers categories.
 27. More than 20% of immigrants admitted as investors and 17% admitted as entrepreneurs emigrated within ten years of admission. These categories include wealthy immigrants who tend to be highly mobile and who may intend to leave Canada even at the time of their admission.
 28. On the other hand, less than 5% of the immigrants admitted as refugees and caregivers emigrated within ten years of admission. Refugees are admitted to Canada with reasons to fear returning to their country of origin and are more likely to stay in the country. Immigrants admitted as caregivers are predominantly women from the Philippines. The Philippines encourages some of its workers to emigrate so that they can send their foreign earnings back to their families in the Philippines. These immigrants may be less likely to emigrate because one of the admission criteria for this category is to have a job in Canada and because immigration in these categories is often seen as a gateway to Canada for immigrants who are not eligible in other categories (Bonifacio 2008).
 29. The presence of children in the tax family relates closely to emigration. Around 28% of immigrants who never had children in their tax family emigrated within one decade of admission compared with less than 7% of those who already had children in their tax family.
 30. The propensity to emigrate follows a clear gradient based on level of education at admission. Just over 20% of immigrants who had a doctorate at the time of admission and slightly more than 16% of those with a master's degree emigrated within ten years of admission.
 31. Some immigrants arrive in Canada as non-permanent residents as part of a two-step migration approach. A little bit more than 20% of immigrants who held a study permit prior to being admitted as immigrants left Canada within ten years of admission. Because they were students while in Canada as non-permanent residents, many of these immigrants may have had fewer ties to the country, such as family in Canada or stable employment. They may also have originally planned to return to their home country after their studies or to continue their studies in another country.

VI. Conclusion

32. Immigration is an increasingly important facet of Canada's migration dynamics. As the country's population growth becomes increasingly reliant on international migration and as policies are developed to attract and integrate immigrants, the emigration of immigrants is becoming an issue of interest for users and policy makers. The purpose of this analysis was to highlight certain factors associated with this phenomenon using IMDB data. Since Canada does not have a population register, emigration was examined indirectly through immigrants who permanently stop filing a tax return.
33. Based on the criterion developed for this study, the emigration of immigrants is a numerically significant phenomenon. A little bit more than 10% of immigrants admitted

between 1982 and 2017 emigrated within ten years of admission. The propensity to emigrate varies widely by country of birth, admission category, presence of child on tax data, level of education at admission and non-permanent resident status before admission.

A. Refining the measurement of emigration in Canada

34. Migration is a very complex phenomenon. Technological advances in communication and transportation, as well as globalization, foster international migration and the development of economic and social ties in more than one country. Some immigrants may not emigrate permanently, but rather as part of a more complex migration strategy. Since the emigration criterion used in this study was obtained by examining immigrants who permanently stopped filing tax returns, return migration and circular migration were not analyzed. These forms of migration could increase in the future not only for immigrants but also for people born in Canada.
35. Border data could shed new light on the emigration trajectories of Canadians. Data from the Entry/Exit Program could potentially be leveraged in this regard similarly to what is done in New Zealand and Australia, two countries also without population registers.
36. Finally, the accurate measurement of a complex phenomenon such as emigration must rely on clear concepts and data appropriate to its measurement. Canadian administrative data do not always measure emigration in the same way as other key demographic databases such as censuses. A better understanding of how tax data (and admin data in general) reflect different facets of emigration is needed to improve measurement.

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