Longitudinal Immigration Database (IMDB)

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Telling Canada’s story in numbers

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Overview

- What is the Longitudinal Immigration Database (IMDB)?
  - Background
  - Linkage
  - Content
  - Limitations and advantages
- What are the analytical possibilities?
  - Socioeconomic outcomes and mobility
- Dissemination options
  - Access
  - Documentation
Context of immigration in Canada

• 2 options to reside in Canada:
  • Temporary residency
  • Permanent residency

• Immigrants are admitted as permanent resident for different reasons
  • Economic immigrants: Contributing to Canada’s economy (63%)
  • Sponsored family: Reuniting with family members (24%)
  • Refugees: Seeking protection and escaping persecution (12%)

• Immigrants represent 21.9% of the population
IMDB background (1)

- Social and Aboriginal Statistics Division (SASD) manages the database on behalf of a federal-provincial consortium led by Immigration, Refugees, and Citizenship Canada (IRCC)

- The IMDB links immigrants to their tax records
  - Tax records are processed to measure mobility, socio-economic performance, family composition, etc.
  - Administrative data on immigration contains socio-demographic information and selection policy details

- Created to respond to the need for detailed and reliable data on the performance and impact of immigration policies and programs.
IMDB background (2)

- The IMDB is updated annually, it covers immigrants between 1980 and 2014, and tax information since 1982

- Provides longitudinal, detailed, and reliable data on socio-economic outcomes of immigrants after landing

- Permits analysis on immigrants’ temporary residency activity

- Connects short- and long-term outcomes with characteristics at admission
2014 Record linkage
Coverage comparison

Number of immigrants by year of immigration and data source

- 2016 Census
- Administrative count (upper bound)
- 2014 tax filers (lower bound)
Content - File structure

**Immigration Data**

- Integrated Permanent and Non-Permanent Resident File (PNRF)
- Non-permanent resident permits file

**Tax Data**

- IMDB T1FF 1982
- IMDB T1FF 1983
- IMDB T1FF 2014
Content

Dimensions:
• Admission/taxation year
• Immigration programs and policies
• Source country
• Province of destination, residence
• Sex
• Language ability
• Intended occupation
• Level of education
• Death date
• Families and marital status
• Pre-admission experience

Measures:
• Average all incomes
• Employment earnings (amount, percent with)
• Employment insurance (amount, percent with)
• Investment incomes (amount, percent with)
• Self-employment earnings (amount, percent with)
• Social assistance (amount, percent with)
• Income bracket
Data integration – Temporary Residents

• Pre-admission information for immigrants accepted as permanent resident:
  • Details on work activities…
    • Selection program
    • Occupation information
    • Number/length of permits
    • Location of permits
  • Details on study experience…
    • Level of study and location
  • Details on refugee claims…
    • Country of persecution, previous country of residence, etc.
Tax data coverage

- Date of death
- Family incomes
- Family composition for each tax year
  - Family size
  - Marital status, spousal identifier
  - Number of children, by age
  - Number of immigrants in the family
- Industry of employment (NAICS)
- Tax credit for post-secondary education
The rate of tax filing increases rapidly between 15 and 19 years of age. The tax filing rate stays constant for family class immigrants and refugees, but decreases from a peak of 81% to 70% among those in the economic class by the time they are 29 years old.
Challenges and limitation

- Not a census of the immigrant population
  - Only Immigrant taxfilers who landed between 1980-2014
  - No information on second generation

- Socio-economic outcomes restricted to tax file content
  - Labour force rates, current occupation not available

- Limited information on out-migration
  - Entry/exit variable from tax files
  - Discontinued/intermittent filing

- Linkage error can be non-random and introduces bias
  - False positive rate estimated at 0.27%
  - Varies by age, landing year
Advantages over other data holdings

• The Census
  • Cross-sectional survey every 5 years (2016)
  • Large population for refined analysis
  • Immigration and socio-economic indicators

• Household surveys
  • Covers unique topics and details on outcomes
  • Limited sample size
  • Limited capacity or details for immigrants
Advantages over other data holdings

• Longitudinal Survey of Immigrants to Canada (LSIC)
  • Tailored design that allows targeted analysis
  • Study of a single cohort (2000/01) of immigrants over time
  • Sample data designed with 3 waves
  • Covers up to 4 years of data

• Longitudinal Administrative Databank
  • Same characteristics and design as the IMDB
  • Includes immigrant and Canadian-born information
  • 20% sample
Analytical possibilities

• Longitudinal design
  • Up to 34 years of follow-up available
  • Allows for survival analysis with time-varying covariates

• Fiscal data at the individual and the family level
  • e.g. Long-term effects of family economic condition during childhood

• External geography information can be linked
  • e.g. Properties of a census tract can be added as predictors in a model of socioeconomic outcomes
Official languages

Median employment income by knowledge of official languages at landing, 2006 cohort residing in Toronto, 2014

- Median employment earnings are highest among those who spoke English and French at landing
- Those who speak neither official language have the lowest earnings
Official languages

Median employment income by knowledge of official languages at landing and tax year, 2006 cohort residing in Toronto in 2014, (2014$)

- Median employment earnings increase with time since landing
- Immigrants who speak both official languages have the largest over-time increase
- Those who speak neither English nor French have the smallest
Immigration cohorts

Employment income trajectories by selected landing cohorts
Employment earnings of immigrants admitted in 2004, by selected immigration category and years since landing

Government-assisted refugees
Privately sponsored refugees
Refugees landed in Canada
Total - Category

Source: Statistics Canada, 2014 Longitudinal Immigration Database
Age at arrival

Mean employment income by age and age at landing, 1990 cohort (2014 constant dollars)

- The younger immigrants are at landing, the steeper their income growth.
- The income trajectory of those who landed at age 20 is the most distinct.
Gender analysis

Proportion of immigrant taxfilers in the 2002 landing cohort reporting employment insurance income, by sex and tax year

- Women are more likely to declare employment insurance
- Both men and women exhibit a spike in 2009 as a result of the financial crisis
  - The increase in the rate of men reporting employment insurance income is greater
Post-secondary training after arrival


• Participants in post-secondary training obtain higher average incomes for all categories over time

1. Immigrant adults who arrived at age 25-54. Employment income greater than $1,000 are considered working.
2. Proxied by the presence of a tuition claim and part-time/full-time education amounts in a previous tax year

Source: Statistics Canada, 2013 Longitudinal Immigration Database
Likelihood of staying in Atlantic provinces

Life-Table Survival Curves: Prelanding Experience

Note 1: Pre-landing experience is only considered for immigrants filing tax before landing. Category "none" may include immigrants with non permanent permits that never filed before admission.
### Mobility 5 years after landing, cohort 2009

<table>
<thead>
<tr>
<th>Destination Province</th>
<th>Out-Migration</th>
<th>Destination and remaining Resident</th>
<th>In-Migration</th>
<th>Resident in tax year</th>
<th>Retention Rate</th>
<th>Mobility</th>
<th>Net mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newfoundland-and-Labrador</td>
<td>455</td>
<td>235</td>
<td>220</td>
<td>95</td>
<td>315</td>
<td>48.4%</td>
<td>51.6%</td>
</tr>
<tr>
<td>Prince Edward Island</td>
<td>1,275</td>
<td>1,045</td>
<td>230</td>
<td>35</td>
<td>265</td>
<td>18.0%</td>
<td>82.0%</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>1,605</td>
<td>560</td>
<td>1,045</td>
<td>310</td>
<td>1,355</td>
<td>65.1%</td>
<td>34.9%</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>1,310</td>
<td>620</td>
<td>690</td>
<td>150</td>
<td>840</td>
<td>52.7%</td>
<td>47.3%</td>
</tr>
<tr>
<td>Quebec</td>
<td>35,045</td>
<td>4,795</td>
<td>30,250</td>
<td>1,655</td>
<td>31,905</td>
<td>86.3%</td>
<td>13.7%</td>
</tr>
<tr>
<td>Ontario</td>
<td>76,360</td>
<td>6,415</td>
<td>69,945</td>
<td>7,535</td>
<td>77,480</td>
<td>91.6%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Manitoba</td>
<td>9,755</td>
<td>7,765</td>
<td>2,555</td>
<td>830</td>
<td>4,300</td>
<td>99.9%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>5,015</td>
<td>1,060</td>
<td>3,955</td>
<td>800</td>
<td>4,755</td>
<td>78.9%</td>
<td>21.1%</td>
</tr>
<tr>
<td>Alberta</td>
<td>20,100</td>
<td>1,255</td>
<td>17,945</td>
<td>6,240</td>
<td>24,185</td>
<td>89.3%</td>
<td>10.7%</td>
</tr>
<tr>
<td>British Columbia</td>
<td>30,130</td>
<td>3,375</td>
<td>26,835</td>
<td>4,525</td>
<td>31,360</td>
<td>88.8%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Other</td>
<td>240</td>
<td>55</td>
<td>185</td>
<td>415</td>
<td>600</td>
<td>77.1%</td>
<td>22.9%</td>
</tr>
<tr>
<td>Avg all provinces</td>
<td>181,370</td>
<td>22,305</td>
<td>159,065</td>
<td>22,305</td>
<td>181,370</td>
<td>87.7%</td>
<td>12.3%</td>
</tr>
</tbody>
</table>

Source: IMDB 2014

- **Destination Province**: Number of tax filers in the province at landing
- **Out-Migration**: Number of tax filers residing in another province than the destination province
- **Destination and remaining res.**: Number of tax filers that remained in their province of destination
- **In-Migration**: Number of tax filers that had a different province of destination
- **Resident in tax year**: Number of tax filers in the province regardless of the province of destination (includes destined and moving in)
- **Retention Rate**: Rate of tax filers that stayed in their province of destination (excludes in-migration)
- **Mobility**: Rate of tax filers that left or moved out of the province (excludes in-migration)
- **Net mobility**: Rate of tax filers gain/loss by the province (includes in-migration)
Access and usage

• Technical report / User Guide
  • Describe the IMDB, components, and data quality
  • Provide guidance/examples on how to analyse results

• CANSIM tables
  • 28 national/provincial tables released annually
  • Income and mobility outcomes

• Custom tabulations
  • Tables produced by Statistics Canada upon request
Access and usage

• Micro-data in Research Data Centers (RDC):
  • Extend data access in Statistics Canada regional offices (within 29 universities, 8 provinces)
  • Provide support for analytical needs and data manipulation

• Dynamic tables for provinces to cover latest data development
  • Improve usability of sub-provincial mobility
  • Incorporate pre-admission (temporary residency) indicators
Selected publications


Contact - Social and Aboriginal Statistical Division (SASD)

- IMDB Team -

Tristan Cayn - *Project lead, immigration expertise*
Rose Evra - *Data development, analysis, support*
Tiana Major - *Special projects, support, data request*
Ian Marrs - *Data processing, data access/contract, dissemination, data request*