Longitudinal Survey of Immigrants to Canada

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Longitudinal Survey of Immigrants to Canada

Presentation Outline

- Survey Objectives and Overview
- Questionnaire Content Overview
- Data Dissemination and Products
- Survey Methodology
- Questions
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Survey Objectives and Overview
Survey Objectives:

- To study how new immigrants adjust to life in Canada over time

- To provide information on the factors that can help or hinder this adjustment
Target population includes immigrants who:

- arrived in Canada between October 2000 and September 2001
- are age 15 and over
- landed from abroad

About 165,000 immigrants meet these criteria
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LSIC Sample

- Frame: Administrative database provided by Citizenship and Immigration Canada (CIC)

- It contains a complete list of landed immigrants with some demographics used for selection

- Sample of 20,300 immigrants selected (including buy-ins)
Longitudinal Survey of Immigrants to Canada
Survey Timelines

Longitudinal - 3 interviews – approximately 6 months, 2 years and 4 years after arriving in Canada

- Wave 1: April 2001 to March 2002
- Wave 2: December 2002 to November 2003
- Wave 3: November 2004 to October 2005
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Survey Design

- Computer assisted interview (CAI)
- Face-to-face interview environment
- Average household visit of 90 minutes
- The longitudinal respondent is the unit of analysis
- Monotonic (funnel-shaped) approach
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Data Collection

Interviews are conducted in 15 different languages:

- English
- French
- Chinese (Mandarin, Cantonese)
- Punjabi
- Farsi/Dari (one language)
- Arabic
- Spanish
- Russian
- Serbo-Croatian
- Urdu
- Korean
- Tamil
- Tagalog, and
- Gujarati
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Attrition Rates

- Initial sample size: 20,300 immigrants
- N. of wave 1 respondents: 12,040 (41%)
- N. of wave 2 respondents: 9,500 (13%)
- Expected n. of wave 3 respondents: 7,500 (10%)
Questionnaire Content

Overview of Wave One
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What type of questions are immigrants being asked?

- Socio-demographic information (*Wave 1 only*)
- Social Interactions
  - sponsor and host, and support network
  - ethnic diversity and interaction with others
  - volunteer participation
- Language Skills
  - language abilities (English and French)
  - acquisition of language skills (incl. training)
What type of questions are immigrants being asked? (continued)

- **Housing** *(all locations since arrival and moving dates)*
  - mobility (within and outside Canada)
  - type of residences (permanent versus temporary)
  - number of rooms, home ownership, cost of living

- **Education**
  - recognition of foreign credentials and qualifications
  - barriers to education and training availability/accessibility)
  - reasons for/not furthering their education and/or training
Employment
- detailed questions on all jobs since arriving in Canada
- recognition of foreign work experience and training, including assessment process

Health
- current health status
- access to health care and use of health services available to newcomers
- language, gender and cultural or ethnic background of health care providers
Values and Attitudes
- importance of maintaining ethnic/cultural ties
- importance of adopting Canadian values and traditions

Citizenship
- plans to move from or remain within Canada
- intentions of applying for citizenship
What type of questions are immigrants being asked? (continued)

- **Income**
  - sources of family and personal income
  - changes to financial status (*wave 2*)
  - trans-national activity

- **Perceptions of settlement**
  - likes and dislikes about Canada
  - material well-being and quality of life
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What types of questions are immigrants being asked? (continued)

- Event history analysis for housing, employment and education experiences since arrival in Canada

- Problems or difficulties encountered, type of help needed, and sources of any help received with:
  - finding housing
  - finding employment
  - arranging for education
  - accessing health care
Comparing Wave One and Wave Two

What has changed?
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Major changes between wave one and wave two

- Structural changes
- Pre-fill data
- Self-assessment language test dropped
- Random selection of child implemented for wave two
- Important expansion of the social interactions/network module
Data Dissemination and Products
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Wave 1 Data Dissemination and Products

- A major release in *The Daily*, accompanied by an analytical article of results and tables - **September 4, 2003**
- Master microdata files for RDCs – **Available in RDCs**
- A joint publication between STC and CIC - **Summer 2004**
- Production of a set of standard data tables
- Remote data access and custom tabulations
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*What will I find in the RDCs?*

- Two file structures available:
  - A text file structure (ASCII) with SAS and SPSS syntax cards to enable their formatting
  - A data model structure using SAS files
- Survey User’s Guide
- Codebooks with and **without** frequencies
  - Codebooks without counts also available on StatCan Web Site
User-friendly tools were developed by LSIC team for LSIC data:

- Integrated Extraction Program
- Coefficient of Variation Extraction Module
- Macro programs to use bootstrap weights for SAS and STATA users
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About 1,500 variables to analyze

- Geographic variables include: Province, region, CMA and CA, and full postal code.
- Some variables from a CIC administrative file (FOSS): Class of immigrants, intended destination (province and CMA), intended occupation and date of arrival
- Coded variables using SC standard codesets:
  - Census (country of birth, country of citizenship)
  - Industry (NAICS-1997) and occupation (SOC-1991)
- Derived variables
- Final weight (applicable to the longitudinal respondent)
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Contacts?

Web Site:  www.statcan.ca
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Methodological issues
Methodological issues
Outline

- Overview of sample design
- Weights, weights and... weights
- Error measurement
- Disclosure rules
Overview of Sample design
Methodological Issues
LSIC sample design

Target population

- At least 15 years old
- Landed between October 2000 and September 2001
- Landed from abroad

Sampling Frame

Administrative source from CIC

Select from the sampling frame

Sample
Methodological Issues
LSIC sample design

How do we select a sample?

Probability Sample
Methodological issues
Sampling design

- Every unit on the frame has a chance to be selected
- Completely at random

Ability to measure the representativity of each unit
  - Design weight

Ability to make inference from sample to the frame
  - Target population

Ability to actually measure correctly the errors
  - Variance, coefficient of variation, confidence interval, statistical testing, etc...
Methodological issues
Sampling design

- Two-stage PPS stratified sample
- Stratification
  - Months of arrival: 12
  - Classes of immigrants: 6
  - Intended geographical destinations: 5 groupings

Sample size: 20,300 immigrants
Response wave 1: 12,000 immigrants
\( \approx 60\% \)
Methodological issues
Collection highlights

- Higher response than expected
- Few partial response
- 15 languages is a good idea.

Difficult to trace...

Who are the non-traceable?
Are they still in Canada?
Are they similar to the non-respondent?
Non-response is adjusted

- We inflate the respondents’ weights.

For the untraced

If they are in Canada

- Treated as non-response

If they are out of Canada

- Out of scope / Not in population of interest
Methodological issues
NEW concepts

Target population: Immigrants that have \textit{landed}

3 criteria

Population of interest

\textit{Landed immigrants and still residing in Canada for the duration of each survey cycle}

Population OOI

\textit{Landed immigrants no longer living in Canada}
Methodological issues

Out of Interest (OOI) → Population of interest → Frame

Untraced

Respondent

Non-Respondent

OOI

Traced

Sample
Weight, weight and... weight
Methodological issues
Weight, weight and... weight

- Two types of records need to be weighted: in the population of interest vs. out of interest

For in interest “traced” immigrants
- Incorporate the sample design weights
- Adjustment for non-traceable
- Adjustment for non-response
- Post-stratification
  - Represent the population of interest
Methodological issues
Weight, weight and... weight

Probability sampling gives us a framework
Based on the design and random selection
Allow us to calculate design weights

Design Weight:
Indicate the number of immigrants each selected immigrant represents in its stratum
Same class, province of destination and month
Methodological issues
Weight, weight and... weight

How to take into account non-response

Look at the non-response patterns:

Is it random or is it concentrated in some groups?
Methodological issues
Weight, weight and... weight

Substantial study of the untraceable and non-respondents

- Different patterns for different groupings
  - Non-response: Age, class of immigrants
  - Untraceable: Education, language
- Non-random

Extensive use of models
Prediction of inscope for untraceable
Methodological issues
Weight, weight and... weight

Post-stratification
Update information from the administrative source
Still represent the target population
- Refered to as Post-stratification file

Used of new grouping more in-sync with estimation

Country of birth (World Area), Age groupings, Class of immigrants, Sex
Methodological issues
Post-stratification

Target population

Stratification = Control of the sample

Classes of immigrants
Intended province of destination
Month of arrival

Post-Stratification = Control of the estimation

Classes of immigrants
Country of birth
Age
Sex
Methodological issues
Weight, weight and... weight

Record = One responding immigrant living in Canada
One final weight associated to each record

Weights

Demographics  Education  Income
Housing       Health

Total of the weights: Immigrants in population of interest
Methodological issues
Weight, weight and... weight

For out of interest “traced” immigrants

We have also calculated a final weight

- Incorporate the sample design weights
- Adjustment for non-traceable
- Post-stratification
  - Represent the population of OOI

NOT available at the micro-level NOR on the file
Tabulation will be available
What is the unit of analysis?

Longitudinal respondent: The immigrant

NOT the group
NOT the member of the group
NOT the household
NOT the children of the immigrants
Error Measurements
Methodological issues

*Error Measurement*

- Does not affect the point estimates
- **Weighted** estimation results in **correct** point estimates

- Affect the variance estimates (variability)
- Most statistical software and procedures developed on the assumption that observations are iid
- Iid assumption does not hold for complex sampling method
Methodological issues

Error Measurement

- Statistical software calculate variance based on simple random sample.
- Weights are not incorporated into the standard deviation formula.
- Complex survey designs, i.e., two stages, require approximate variance estimation based on replicate methods.
  - Jackknife, Bootstrap, BRR...
- LSIC: bootstrap
- File of 1000 bootstrap weights for variance calculations.
Methodological issues

Error Measurement Tools

Exploratory tools:
- Rules of thumb
- Approximated thresholds
- CV extraction module

Exact tools: (similar to bootvar)
- program - SAS (LSIC) + macro to dichotomize
- program - STATA (general)
- program - SPSS (to come)
Methodological issues

Error Measurement

Rules of thumb:

$CV$ is a function of:
- Sampling fraction (class and geographical difference)
- Size of population in domain
- Size of responding sample in domain
- Proportion: numerator/denominator
  driven by the size of numerator

Approximated threshold
Methodological issues

Disclosure Rules

- Confidentiality policies
- Quality guidelines

- 10 respondents minimum [unweighted]
- 30 immigrants weighted
Thank-you!

Statistics Canada

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