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## Use of Administrative Data in the Canadian Census

Geoff Bowlby and Josée Morel  
Statistics Canada

UNECE Group of Experts on Population and Housing Censuses





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# Outline

1. Introduction to the Canadian Census of Population
2. Statistical Contingency Plan for the 2021 Census
3. Increased Usage of Administrative Data for the 2026 Census
4. Final Remarks



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# 1. Introduction to the Canadian Census of Population

- The Canadian Census of Population aims to enumerate and to collect information on the entire population of Canada every five years
  - Full field enumeration is conducted → Traditional Census
- Short form and long form questionnaires
  - Short form questions on basic socio demographic information and languages (100% of population)
  - Long form (25% sample in the 2016 and 2021 censuses): dwelling characteristics and additional demographic and socio-economic characteristics on individuals
- Collection:
  - Collection modes: mail out, list leave and canvasser
  - Various field operations conducted to ensure appropriate dwelling classification and response level
  - Non Response Follow Up (NRFU)



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# 1. Introduction to the Canadian Census of Population

- Coverage Studies: measured through 3 statistical activities
  - Dwelling Classification Survey (DCS): follow-up operation to estimate and correct for misclassification of dwellings on Census Day
  - Census Coverage Measurement Program: Main sources of information are administrative data
    - Census Undercoverage Survey (CUS) which was formerly known as the Reverse Record Check: estimates the population missed by the Census using various administrative data sources and to create an independent frame and follow-up with survey information
    - Census Overcoverage Study (COS), estimates the population enumerated more than once – mostly a linkage exercise
- Census of population direct use of administrative data
  - Income and some immigration variables
  - Disruption of collection, e.g. wildfires in northern region



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## 2. Statistical Contingency Plan for the 2021 Census

- In the event that COVID-19 or other disasters prevented the traditional census from a satisfactory enumeration
  - Statistics Canada developed (and eventually implemented) a “statistical contingency plan” based on the use of administrative data for post-collection imputation of 2021 Census non-responding households
    - Note that the contingency plan used data already provided to Statistics Canada, and meets the highest standards of privacy, confidentiality and data security.
  - Statistical models (see paper for details on the models) were used extensively to form households from individual government-provided administrative information (e.g., tax records) and quality indicators were developed to determine household eligibility for inclusion in imputation processes.



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## 2. Statistical Contingency Plan for the 2021 Census

- 2021 Census had a successful enumeration, with 98% of Canadians responding to the census.
  - Widespread use of the contingency plan was not necessary
  - Administrative data were used to support the imputation of non-responding households for some localized areas of the country that had response rates well below the national rates.
    - 1,045 collection units (out of 49,000 in Canada) showed a response rate below 90%.
    - Dwellings that had good quality administrative data were in-scope.
    - About 12,000 non-responding households – representing less than 0.1% of occupied private dwellings in Canada.



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## 2. Statistical Contingency Plan for the 2021 Census

- Impact of the pandemic on census response rates was unknown in the planning stage
  - Simulations were conducted and showed reduced bias in estimates compared to the existing donor imputation methods when nonresponse increased.
  - Further, the most gain was found in geographical areas where the response rate was lower than 90%.
  - Imputation of 2021 Census non-responding households was done after other collection activities had ceased



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### 3. Increased Usage of Administrative Data for the 2026 Census

- The 2026 Canadian Census of Population will still be a traditional census
- Objective for 2026:
  - Leverage 2021 success and continue to provide very high-quality data, maintain cost effectiveness on a per-dwelling basis, pay more attention to its environmental (carbon footprint and paper consumption) impact, and earn and maintain citizen trust by providing very high levels of service and reducing burden
  - Look at ways to increase the use of administrative data and identify more efficiencies in 2026 while maintaining the highest quality standard expected from the census.
- Significant census tests will be conducted in 2024
  - Currently under development





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### 3. Increased Usage of Administrative Data for the 2026 Census

- How ?
  - Operational efficiencies during the NRFU
    - Various models could be used to reduce field efforts away from some in-person activity (classification of dwelling)
    - Optimizing NRFU activities by using signal from good administrative data
  - Post-collection: Imputation of non-responding households
    - Mainly used in mail out areas in 2021; extend to non-mailout in 2026



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### 3. Increased Usage of Administrative Data for the 2026 Census

- Social and stakeholder acceptability
  - Maintaining and increasing the trust of Canadians is essential
  - One risk lies in its social acceptability from the public, the stakeholders and the data users.
  - Understanding of the social acceptability is a prerequisite for any change to census collection methods
  - A comprehensive consultation plan is being developed
- Impact on the current undercoverage estimation quality
  - Impact on the design-independence of the undercoverage program if
    - Same information are used for the purpose of the census, as well as for the measurement of undercoverage
    - Administrative data sources that would be used for the imputation may also be used in the Census Undercoverage Survey (CUS)



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## 4. Final Remarks

- Census Program has a dedicated team (Census Futures) to develop a future model for the census
- Combined census is being considered for post 2026
  - Research is on-going and various combined census models are being studied, as well as evaluation of appropriate coverage studies.
- 2026 Census: to the extent possible, test components of a combined census



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# THANK YOU / MERCI

**Geoff Bowlby**

Director General | Directeur général  
Canadian Census Program | Programme du Recensement du Canada  
Statistics Canada | Statistique Canada

[geoff.bowlby@statcan.gc.ca](mailto:geoff.bowlby@statcan.gc.ca)