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## Use of administrative data as a contingency plan to support the 2021 Census of Population

UNECE Online Meetings on Population and Housing Censuses 2020

*Census operations in the context of the COVID crisis*

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## New Census plan in reaction to COVID-19

There is a high probability that COVID-19 will remain an issue during the next Canadian Census of Population (May 2021). As a result:

- New adapted plans were developed to ensure the success of the 2021 Census operations while protecting the health and safety of Canadians.
- Statistical contingency plans are being developed and evaluated. These are based on an increased, safe and appropriate use of available administrative data to support the 2021 Census.



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## Statistical Contingency Plan: increased used of admin data

The **Statistical Demographic Database** (SDD) will be created using administrative sources and will consist of a list of individuals living in Canada in May 2021 along with qualifying attributes like name, date of birth, sex and address. The steps to build the SDD are the following:

1. Collect records (individuals along with their attributes) from various administrative data sources (such as various tax files, immigration files, vital stats files, etc.)
2. Identify which records pertain to the same individual through record linkage
3. Identify the in-scope individuals
4. Select the most plausible value for each attribute



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## Admin Data Criteria Proposed

- How to determine which nonresponding dwellings have SDD (admin) data of sufficient quality to be eligible to the admin data replacement?
- **Quality Indicators** will be used to identify eligible dwellings:
  - Household Model indicators:
    - The **'person-place' model**: assess the probability that the admin address reflects the true address for an individual. Using this model, choose address with highest probability for each individual and form household.
    - The **'household composition' model**: assess the probability that the admin derived household members reflect the true household composition at a given address.
  - Probability that the attributes (e.g. date of birth and sex) from the SDD are correct
  - Probability that the dwelling is occupied
- Perform evaluations on Census 2016 data to determine complete strategy



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## Main takeaways (preliminary models)

- Household Model showed good accuracy overall
- However, predictive power of the models decreases as collection progresses
  - Higher error rates for late respondents
- Using admin data replacement as a collection mode suggests doing a replacement earlier in Non-Response Follow-up (NRFU) because this is when we are most confident in the quality of the admin data.



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## Main takeaways (preliminary models)

- Proposed Strategy:
  - Closely monitor recruitment and collection progress
  - Invoke the contingency plan if NRFU workload is high due to low self-response and/or inability to hire or retain staff
    - This means that for the eligible dwellings – those with good quality admin data – NRFU is stopped. If no Census response is obtained for these selected dwellings, then the associated SDD attributes would be used as responses
  - The degree to which the contingency plan is invoked will depend on the scope of the problem and the impacts on the quality of the census outputs
  - Focus NRFU efforts on cases for which admin data is unavailable or of low quality.
- Flexible strategy that can adapt to various contingency scenarios



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## Ongoing and Future Work

- Continue to improve the models and finalise models by December 2020
- Find the best way to combine all the quality indicators
- Assess the performance of the final strategy, using simulations with 2016 data
- Consider other uses of admin data, post-collection (e.g. imputation step)
- Evaluate impact of admin data replacement on post-collection processes (weighting of the long-form questionnaire, coverage studies, estimates)



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Thank you! / Merci!

Questions?

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