

Using Census of Canada Small Area Dissemination Data

GEOG 204 - Introductory GIS for the Social Sciences
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OUTLINE

- Census Geographical Units
- Pros and Cons of Census Small Areas
- 2011 Census - Long Form Elimination & National Household Survey

Census Small Area Dissemination Units

- Census Backgrounder:
 - Every five years
 - De jure method
 - 2 questionnaires
 - Short form (100%)
 - Long form (20%)
 - Mandatory (except 2011)
 - Random sample

Census Small Area Dissemination Units

- Small area dissemination
- Confidentiality and suppression
 - <https://www12.statcan.gc.ca/census-recensement/2011/ref/DQ-QD/conf-eng.cfm>
- Units
 - Block face
 - Enumeration Areas
 - Dissemination Areas (2001, 2006, 2016 on?)
 - Census Tracts

Census Small Area Dissemination Units

BLOCK FACE

- Area equivalent to a city block bounded by intersecting streets
- These areas cover all of Canada
- Smallest geographic area for which population and dwelling counts are disseminated



Census Small Area Dissemination Units

ENUMERATION AREAS

- One or more neighbouring blocks
- Varies between 125 to 600 dwellings
- Area covered by one enumerator
- Full dissemination of variables (subject to confidentiality)



Census Small Area Dissemination Units

DISSEMINATION AREAS

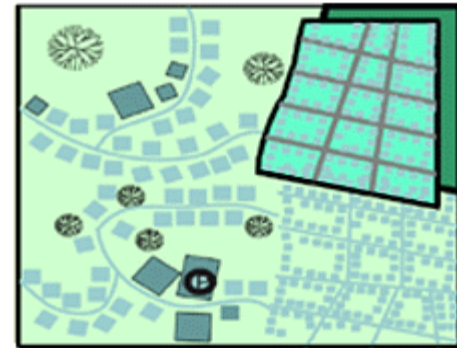
- Area composed of one or more neighbouring blocks
- 400 to 700 persons
- All of Canada
- Problem: only available from 2001 on (& not for 2011 Census)



Census Small Area Dissemination Units

CENSUS TRACTS

- Somewhat larger area that is relatively stable
- Populations of 2,500 to 8,000
- Located in large urban centres only (50,000+)





Canada

Census Small Area Dissemination Units

KEY CHALLENGES

- (I) Are the small area units meaningful to your research interests?
- (II) Small Area Estimates
 - Higher risk of **suppression** due to confidentiality concerns
 - More sensitive to rounding (alternating up and down)
 - More sensitive to non-responses
 - Leads to greater margin of error in small area estimates

Pros & Cons of Census Small Areas

Unit	PROs	CONs
<i>Block Face</i>	■ very high resolution ■ entire country covered	■ households and population counts only
<i>Enumeration Areas</i>	■ fairly high resolution ■ all Census questions ■ entire country covered	■ inconsistent boundaries ■ higher risk of data suppression, influence of rounding
<i>Dissemination Areas</i>	■ consistent boundaries ■ fairly high resolution ■ all Census questions ■ entire country covered	■ risk of data suppression ■ influence of rounding
<i>Census Tracts</i>	■ consistent boundaries ■ all Census questions ■ lower risk of data suppression	■ lowest resolution ■ potential for boundaries to become "outdated" ■ only available for larger centres

2011 - Census Long Form Elimination

- “Long Form” Census form had been around a long time (the 8 question short form was introduced in 1971)
- Sections:
 - Demography; Labour markets & income; Transportation; Education; Language; Activity Limitations; Housing; Citizenship and immigration; Ethnicity/culture

2011 Census - Long Form Elimination

- Mandatory – fill it out or else fine or jail time!
- Up to 2006, sent to one in five households (20%)
“random” sample
 - 2016 – now sent to one in four (25%) households
- 2010 – Federal government decided to cancel it
 - Replaced with a **voluntary** household survey (National Household Survey)
- Present government reinstated it in time for 2016 Census

2011 Census - National Household Survey

- **Sampling error** – statistical error resulting from choosing a non-representative sample (i.e., the difference between an estimate and the actual figure)
- Larger the # of respondents, the lower the sampling error
- Stats Canada distributed the NHS to ~33% of Canadian households (approx. 4.5 million)
 - Unweighted response rate (nationwide) was 68.6% (approx. 3 million)
 - Weighted response rate was 77.2%
 - Therefore, ~22.5% households participated, but not a random sample
 - https://www12.statcan.gc.ca/nhs-enm/2011/ref/about-a-propos/nhs-enm_ro12.cfm?Lang=E
 - https://www12.statcan.gc.ca/nhs-enm/2011/ref/sup_CT-SR-eng.cfm

2011 Census - National Household Survey

- **Selection error, or non-response bias**
 - Lower-income and upper-income households
 - “The not interested” and “the opposed” (e.g., libertarians, neo-liberals)
 - Members of marginalized groups
- Mandatory LFC had 96-98% response rates, therefore non-response bias fairly small
- Risk of non-response bias increases with decreasing response rates

Implications for Using 2011 Census Small Area Dissemination Data

- Small area dissemination data most at risk from decision to cancel the mandatory Long Form Census
 - Stricter suppression criteria of NHS (i.e., now specific to demographic variables)
 - But more lenient non-response threshold
 - 2006 – suppression cut-off was 25%
 - 2011 – cut-off was set at 50%
 - Therefore, use 2011 small area data with extra caution

References

- Canadian Centre for Policy Alternatives (no date) *All the latest on the Census long-form debacle*.
<https://www.policyalternatives.ca/newsroom/updates/all-latest-census-long-form-debacle>
- Puderer, H, 2000, *Introducing the Dissemination Area for the 2001 Census: An update*. Geography Division Working Paper Series, Catalogue no. 92Fo138MPE. Ottawa: Statistics Canada.
- Sheikh, MA, 2011, Good data and intelligent government. In A Gorbet and A Sharpe (eds) *New Directions for Public Policy in Canada: Papers in Honour of Ian Stewart*. Open access
<http://www.csls.ca/festschrift/Sheikh.pdf>