Notes on Spatially Disaggregated Income Distribution Indicators in Canada

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Meeting of providers of OECD income distribution data
Paris
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Outline

- Spatially disaggregated indicators
  - Quality measures
  - Regional price adjustments
Relevance in Canada

- Spatially disaggregated income distribution and poverty measures are common in Canada
  - Provinces play a major role in delivery of services
    - Canadian Health and Social Transfer (CHST)
    - Equalization payments for comparable services
  - Provincial poverty reduction initiatives
  - Regional branches of NGOs
  - Long history of provincial cooperation in Statistics (Focal Points)
  - StatCan maintains regional offices

Existing Sub-National Micro Income Statistics

- Poverty
  - Low Income (headcount and gap)
    - SLID – Province and large Census Metropolitan Areas
    - Census – For small communities CT
    - T1FF – LIM on Census Families for small areas

- Inequality
  - Quintile shares, Gini – Province
  - High Income
    - Thresholds, shares....... – Province and CMA
### SPSD/M sample sizes (SLID)

<table>
<thead>
<tr>
<th>Province</th>
<th>Population</th>
<th>Sample</th>
<th>Population</th>
<th>Sample</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newfoundland</td>
<td>507</td>
<td>2,728</td>
<td>213</td>
<td>1,152</td>
<td>0.5%</td>
</tr>
<tr>
<td>P.E.I.</td>
<td>140</td>
<td>1,734</td>
<td>58</td>
<td>708</td>
<td>1.2%</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>915</td>
<td>3,660</td>
<td>402</td>
<td>1,662</td>
<td>0.4%</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>742</td>
<td>3,585</td>
<td>324</td>
<td>1,621</td>
<td>0.5%</td>
</tr>
<tr>
<td>Quebec</td>
<td>7,750</td>
<td>11,695</td>
<td>3,493</td>
<td>5,305</td>
<td>0.2%</td>
</tr>
<tr>
<td>Ontario</td>
<td>12,912</td>
<td>18,226</td>
<td>5,120</td>
<td>7,567</td>
<td>0.1%</td>
</tr>
<tr>
<td>Manitoba</td>
<td>1,123</td>
<td>4,298</td>
<td>477</td>
<td>1,873</td>
<td>0.4%</td>
</tr>
<tr>
<td>Saskatchewan</td>
<td>957</td>
<td>4,733</td>
<td>411</td>
<td>2,121</td>
<td>0.5%</td>
</tr>
<tr>
<td>Alberta</td>
<td>3,583</td>
<td>6,383</td>
<td>1,420</td>
<td>2,655</td>
<td>0.2%</td>
</tr>
<tr>
<td>B.C.</td>
<td>4,347</td>
<td>6,095</td>
<td>1,840</td>
<td>2,710</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>All</strong></td>
<td>32,976</td>
<td>63,137</td>
<td>13,757</td>
<td>27,374</td>
<td></td>
</tr>
</tbody>
</table>

### Sub-National Micro Income Distribution Statistics

- Using SLID data, StatCan can complete the OECD inequality questionnaire for all Canadian provinces
  - Smaller sample sizes will add limitations
  - Local vs. national thresholds (or both)
  - Significant suppression of smaller cells
  - Quality indicators very desirable
Quality Measures

- SLID uses bootstrap weights to generate CV’s
  - 1,000 bootstrap weights
  - Can take a lot of processing time
- LAD uses a linearization method, using a unified estimating equations approach
- Census
  - No quality measures but certification process and suppressions performed
    - i.e. When imputation within geographic area hits 50%

Quality Indicator Levels Vary by Survey

<table>
<thead>
<tr>
<th></th>
<th>SEPH</th>
<th>Health</th>
<th>SLID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>A</td>
<td>0-5</td>
<td>0-2</td>
</tr>
<tr>
<td>very good</td>
<td>B</td>
<td>5-10</td>
<td>2-4</td>
</tr>
<tr>
<td>Good</td>
<td>C</td>
<td>10-15</td>
<td>4-8</td>
</tr>
<tr>
<td>Acceptable</td>
<td>D</td>
<td>15-25</td>
<td>8-16</td>
</tr>
<tr>
<td>Use with caution</td>
<td>E</td>
<td>25-35</td>
<td>15.6-33.3</td>
</tr>
<tr>
<td>Suppressed/ unacceptable</td>
<td>F</td>
<td>35+</td>
<td>33.3+</td>
</tr>
</tbody>
</table>
Current Initiatives

- There are currently discussions about new standards for quality indicators that would involve confidence intervals
- Household Survey’s Methodology Division
  - Christian Nadeau
- Statistics Canada’s Quality Secretariat
  - Claude Julien

Spatial Price Differences

- Statistics Canada collects limited information on spatial differences in price levels (e.g. regional price indexes)
- Useful for cross-province comparisons of material living conditions.
- Zhang IARIW paper
  - 11-City spatial price index – experimental
  - Local LIMs
  - MBM basket pricing (47 regions)
  - Local LIMs approximate price adjusted LIMs