The Undercount of Young Children in the Decennial Census

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The Undercount of Young Children in the Decennial Census

Introduction

- Persistent undercount of young children, ages 0 to 4, in the decennial census
- 4.6% net undercount in 2010, nearly 1 million young children
- Recent work on the issue at the Census Bureau
  - In 2013 a Census Bureau task force reviewed available information on the undercount of young children and produced a report with research recommendations
  - A team is currently conducting several research projects to try to answer key questions about why the census misses young children
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Background

- 2010 Census coverage results from Demographic Analysis
  - Demographic Analysis estimated a net overcount of 0.1 percent for the total population in 2010
  - While adults were over counted, children under 18 had a 1.7 percent net undercount
  - Children under the age of 5 were especially likely to be missed in the 2010 Census, with a net undercount of 4.6 percent
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**Background**

- Net undercount estimates from Demographic Analysis 1970 to 2010

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Background

- Net Coverage of young children by race and Hispanic origin – 2010 Census

<table>
<thead>
<tr>
<th>Race/Hispanic Origin</th>
<th>Net Coverage Error of Young Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Races</td>
<td>-4.6</td>
</tr>
<tr>
<td>Black alone or in combination</td>
<td>-6.3</td>
</tr>
<tr>
<td>Not Black alone or in combination</td>
<td>-4.2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-7.5</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>-3.6</td>
</tr>
</tbody>
</table>

Source: O'Hare 2014, using 2010 Demographic Analysis Estimates
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Background

- Percent difference between the census and vintage 2010 population estimate for young children by state

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Background

- Survey coverage ratios

<table>
<thead>
<tr>
<th>Census Survey</th>
<th>0-4</th>
<th>5-9</th>
<th>10-17</th>
<th>18+</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Community Survey (ACS)</td>
<td>0.89</td>
<td>0.97</td>
<td>0.98</td>
<td>0.95</td>
</tr>
<tr>
<td>Current Population Survey (CPS)</td>
<td>0.82</td>
<td>0.92</td>
<td>0.90</td>
<td>0.88</td>
</tr>
<tr>
<td>Survey of Income and Program Participation (SIPP)</td>
<td>0.80</td>
<td>0.88</td>
<td>0.86</td>
<td>0.86</td>
</tr>
</tbody>
</table>

Source: March 2009 Base Current Population Survey; Survey of Income and Program Participation; 2009 single-year American Community Survey, special tabulation
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Background

- Census net undercount for young children in other countries

<table>
<thead>
<tr>
<th>Country and Year</th>
<th>Net Undercount Age 0-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia 2011</td>
<td>-1.2</td>
</tr>
<tr>
<td>Canada 2011</td>
<td>-3.4</td>
</tr>
<tr>
<td>England and Wales 2011</td>
<td>-9.6</td>
</tr>
<tr>
<td>South Africa 2011</td>
<td>-15.1</td>
</tr>
<tr>
<td>Japan 2000</td>
<td>-2.3</td>
</tr>
<tr>
<td>South Korea 2000</td>
<td>-3.6</td>
</tr>
</tbody>
</table>

Source: O’Hare 2015
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Background

- Importance of this issue
  - Commitment to a complete and accurate census
  - Goal: Once, only once, and in the right place

- Implications of the undercount
  - Political representation
  - Federal funding for programs including:
    - Temporary Assistance for Needy Families
    - Special education grants
    - Head Start
    - National School Lunch Program
  - School planning
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Research Team Projects

- Research team conducting several investigations
  - Estimating Census Omissions
  - Census Coverage Measurement (CCM)
  - Coverage of Young Mothers
  - Coverage Follow-up (CFU)
  - Complex Household Typology
  - Subnational Population Estimates
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Census Coverage Measurement

- CCM included an independent enumeration of a sample of blocks that was matched to the Census
- This project studies the characteristics of the children that did not match to the census. These nonmatches include:
  - Children that the census missed
  - Children that could not be matched due to incomplete data
  - Children enumerated in the census outside of the CCM search area
- This analysis provides individual-level data that helps us understand the characteristics associated with coverage errors
The Undercount of Young Children in the Decennial Census
Census Coverage Measurement

- Nonmatch Rates for Young Children by Relationship to Householder

<table>
<thead>
<tr>
<th>Relationship to Householder</th>
<th>Nonmatch Rate for Children 0-4</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological child</td>
<td>9.8</td>
<td>0.3</td>
</tr>
<tr>
<td>Adopted child</td>
<td>6.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Stepchild</td>
<td>17.9</td>
<td>3.0</td>
</tr>
<tr>
<td>Grandchild</td>
<td>15.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Other Relative</td>
<td>22.1</td>
<td>2.0</td>
</tr>
<tr>
<td>Unrelated child</td>
<td>24.5</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11.1</strong></td>
<td><strong>0.3</strong></td>
</tr>
</tbody>
</table>

Source: 2010 Census Coverage Measurement
The Undercount of Young Children in the Decennial Census
Census Coverage Measurement

- Types of Young Children Nonmatches - Nonmovers

<table>
<thead>
<tr>
<th>Type of Nonmatch</th>
<th>Percent of All Nonmatches</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HU nonmatch</td>
<td>15.5</td>
<td>1.6</td>
</tr>
<tr>
<td>HU match</td>
<td>84.4</td>
<td>1.6</td>
</tr>
<tr>
<td>Child &amp; whole HH nonmatch</td>
<td>46.0</td>
<td>1.8</td>
</tr>
<tr>
<td>Child &amp; another HH member nonmatch</td>
<td>22.2</td>
<td>1.4</td>
</tr>
<tr>
<td>Child is only nonmatch</td>
<td>16.2</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Total Nonmover Nonmatches</strong></td>
<td><strong>100.0</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: 2010 Census Coverage Measurement
The Undercount of Young Children in the Decennial Census Estimating Census Omissions

- DA estimates total population & net coverage error
- The CCM program estimates components of census coverage (correct and erroneous enumerations)
- We combined DA estimates of total population and CCM estimates of correct enumerations to estimate census omissions by age
- We also analyzed CCM data on whole person imputations and erroneous enumerations by age
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Estimating Census Omissions

- Omission Rates and Net Coverage Error Rates by Age

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Omissions</th>
<th>Net Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>50+f</td>
<td>-2.5</td>
<td>1.9</td>
</tr>
<tr>
<td>50+m</td>
<td>-0.5</td>
<td>4.0</td>
</tr>
<tr>
<td>30-49f</td>
<td>-1.7</td>
<td>2.9</td>
</tr>
<tr>
<td>30-49m</td>
<td></td>
<td>7.3</td>
</tr>
<tr>
<td>18-29f</td>
<td>-1.4</td>
<td>2.3</td>
</tr>
<tr>
<td>18-29m</td>
<td></td>
<td>6.4</td>
</tr>
<tr>
<td>10-17</td>
<td>-0.3</td>
<td>4.8</td>
</tr>
<tr>
<td>5-9</td>
<td>-0.5</td>
<td></td>
</tr>
<tr>
<td>0-4</td>
<td></td>
<td>4.6</td>
</tr>
</tbody>
</table>

Source: Revised 2010 DA Estimates (released May 2012) Middle series Tables 3, 4 & 5; 2010 Census Coverage Measurement estimates
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Census Coverage Followup

- The 2010 Census included a coverage followup (CFU) operation to improve the accuracy of the list of rostered household members
- CFU resulted in the addition of about 55,000 young children
- This project profiles the characteristics of the CFU-added young children
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- 2010 Coverage Followup – Relationship of Added Young Children

Source: 2010 Census Coverage Followup
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Coverage of Young Mothers

- **Background**
  - Statistics Canada found that their census was more likely to exclude young children if the child’s mother was young and unmarried
  - We wanted to explore the hypothesis that U.S. censuses and surveys miss young children because we also miss their young mothers
  - Compared estimates of births from vital statistics by maternal age with ACS estimates of women giving birth by age

- **Preliminary Findings**
  - The ACS undercounts young mothers
  - Undercount exists for all race and Hispanic origin groups
  - Undercount exists for both married and unmarried young mothers but unmarried young mothers are especially at risk
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Coverage of Young Mothers

- Characteristics of young mothers, aged 15 to 22

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not married or never married</td>
<td>75.9</td>
</tr>
<tr>
<td>Not living in own household</td>
<td>60.4</td>
</tr>
<tr>
<td>Foreign-born</td>
<td>10.0</td>
</tr>
<tr>
<td>Below 100 percent of poverty</td>
<td>47.7</td>
</tr>
<tr>
<td>Receiving public assistance</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Source: 2012 American Community Survey
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Complex Households

- Use data from the 2010 Census
- New household typology to classify wider range of living situations
- "Complex households" have more complicated structures (e.g., Blended families and multigenerational families)
- Provides a more detailed profile of the living situations of young children
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Complex Households

Source: 2010 Census tabulation
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Initial Conclusions

- Young children are more likely to be omitted from the census than persons in other age groups
- Multiple sources of error - Frame, whole household, within household
- Complex living situations of young children is a contributing factor
  - Unrelated children, grandchildren and other related children more at risk of omission
- Young children may be missed along with their young mothers
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Future Projects

- Administrative Records Matching
- Characteristics of Young Children and Young Mothers (using 2010 Census, CPS, and ACS data)
- Extension of CCM analysis to look at characteristics of housing unit omissions
- Subnational population estimates in conjunction with data from the Census Planning Database and ACS to understand which characteristics are most highly correlated with coverage error for young children
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Opportunities for Improvement

- Potential opportunities for improvement in the 2020 Census
  - Work with communications contractor to focus advertising on key audiences, such as young mothers and grandparents
  - Focus on partnership efforts with advocacy groups and local organizations to get the word out
  - Statistics in schools
  - Enhance the Census Coverage Measurement program to better understand the extent and nature of the problem
  - Testing possibilities for future census tests
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Questions?

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