Supplementing Address-Based Sampling Frames with Physical Addresses of Housing Units with Unlocatable Mailing Addresses

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Overview

1. Sources of undercoverage for in-person Address-Based Sampling (ABS) surveys
2. Commercial database supplementation
3. Study overview
4. Results
5. Conclusions
6. Future research
ABS Coverage for In-Person Household Surveys

- ABS frame derived from USPS Computerized Delivery Sequence (CDS) File
- For in-person household surveys, frame restricted to *locatable* residential mailing addresses allocated to sampled area segments
- Primary sources of undercoverage are unlocatable mailing addresses and geocoding error
Primary Sources of Undercoverage

- Unlocatable Mailing Addresses
  - “Only Way to Get Mail” Post Office Boxes (e.g. PO Box 100, Eleanor, WV 25070)
  - Rural Route Boxes (e.g. RR3 Box 2, Eleanor, WV 25070)
  - Highway Contract Boxes (e.g. HC2 Box 14, Eleanor, WV 25070)
  - Simplified Addresses (e.g. John Smith, Eleanor, WV 25070)

- Geocoding Error
  - Addresses allocated to the wrong area segments
  - Error decreases for larger area segments
  - More problematic in rural areas
## Prevalence of Unlocatable Mailing Addresses in the United States

<table>
<thead>
<tr>
<th>Address Type</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Locatable</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>122,291,026</td>
<td>98.5%</td>
</tr>
<tr>
<td><strong>Unlocatable</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Only Way To Get Mail” Post Office Boxes</td>
<td>1,499,175</td>
<td>1.2%</td>
</tr>
<tr>
<td>Rural Route Boxes</td>
<td>222,673</td>
<td>0.2%</td>
</tr>
<tr>
<td>Highway Contract Boxes</td>
<td>112,826</td>
<td>0.1%</td>
</tr>
<tr>
<td>Simplified Addresses</td>
<td>32,699</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>124,158,399</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

1 Count of residential addresses from the January 2011 Valassis Lists file
Prevalence of Unlocatable Mailing Addresses in the United States by Urban/Rural\(^1\)

<table>
<thead>
<tr>
<th>Address Type</th>
<th>Overall</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locatable</td>
<td>98.5</td>
<td>94.1</td>
<td>99.2</td>
</tr>
<tr>
<td>Unlocatable</td>
<td>1.5</td>
<td>5.9</td>
<td>0.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

\(^1\) Distribution of residential addresses from the January 2011 Valassis Lists file.
Commercial Database Addresses

- Sources include white pages, credit reports, vehicle registration records, and hundreds of other sources
- Contain a mixture of mailing addresses and physical addresses
- With E-911 conversion, growing number of households with unlocatable mailing addresses have physical addresses
- Example: PO Box 100, Eleanor WV 25070 - mailing address
  100 Main St., Eleanor WV 25070 - physical address
- Addresses allocated to census geography
# Commercial Database Addresses Supplementation

<table>
<thead>
<tr>
<th>ABS</th>
<th>Commercial Database</th>
<th>Final Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 MAIN ST</td>
<td>101 MAIN ST</td>
<td>100 MAIN ST</td>
</tr>
<tr>
<td>101 MAIN ST</td>
<td>102 MAIN ST</td>
<td>101 MAIN ST</td>
</tr>
<tr>
<td>103 MAIN ST</td>
<td>15 DAVIS AVE</td>
<td>102 MAIN ST</td>
</tr>
<tr>
<td>PO Box 1000</td>
<td></td>
<td>103 MAIN ST</td>
</tr>
<tr>
<td>RR3 Box 750</td>
<td></td>
<td>15 DAVIS AVE</td>
</tr>
</tbody>
</table>
Study Background

- The National Survey on Drug Use and Health (NSDUH) provides national, state and substate data on substance use and mental health in the civilian, noninstitutionalized population age 12 and older.

- Conducted by RTI under contract with SAMHSA.

- Data are collected on a quarterly basis each year.

- Approximately 700 Field Interviewers (FIs) staffed.

- Approximately 140,000 household screenings and 67,500 interviews completed annually.
2009 NSDUH Field Study

- Sampled 200 segments from the 2009 NSDUH
- Purchased ABS list for Census Block Groups associated with 200 segments
- Matched 3,729 screened and eligible housing units from NSDUH Field Enumerated (FE) frame to the ABS frame
- Followed up non-matches via phone and field verifications to resolve as many addresses as possible
- Sent remaining non-matching addresses to Marketing Systems Group to match to commercial database (CD)
2009 NSDUH Field Study Results

3,729 Households

3,191 (90.7%)
ABS in segment

538 (9.3%)
Not ABS in segment

3,191 (90.7%)
ABS in segment

432 (6.9%)
Not CD in segment

106 (2.4%)
CD in segment

3,191 (90.7%)
ABS in segment

432 (6.9%)
Not CD in segment

66 (1.1%)
Not ABS

106 (2.4%)
CD in segment

106 (2.4%)
CD in segment

40 (1.3%)
ABS out of segment
# ABS and Commercial Database Coverage of the US Household Population

<table>
<thead>
<tr>
<th>Frame Source</th>
<th>Overall Coverage</th>
<th>Overall Lower 95% CI</th>
<th>Rural Segments Coverage</th>
<th>Rural Segments Lower 95% CI</th>
<th>Urban Segments Coverage</th>
<th>Urban Segments Lower 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>90.7</td>
<td>82.2</td>
<td>72.3</td>
<td>59.9</td>
<td>95.6</td>
<td>85.3</td>
</tr>
<tr>
<td>Commercial Database</td>
<td>2.4</td>
<td>1.3</td>
<td>7.6</td>
<td>2.9</td>
<td>1.0</td>
<td>0.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>93.0</strong></td>
<td><strong>91.3</strong></td>
<td><strong>79.9</strong></td>
<td><strong>75.1</strong></td>
<td><strong>96.5</strong></td>
<td><strong>95.0</strong></td>
</tr>
</tbody>
</table>

1 Excludes Alaska and Hawaii
Conclusions

Commercial database supplementation:
- improves ABS coverage for in-person surveys, especially in rural areas
- reduces reliance on more costly field supplementation procedures
Future Research

- Estimate the number of physical addresses associated with unlocatable mailing addresses contained on commercial databases
- Explore targeting only areas known to contain unlocatable mailing addresses for commercial database supplementation
- Examine potential for increasing the coverage of ABS phone surveys using commercial databases
Contact

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