Predicting the Coverage of Address-Based Sampling Frames Prior to Sample Selection

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National Survey on Drug Use and Health (NSDUH)

Target population:
Civilian, non-institutionalized population 12 and older
- Households (HHs) and
- Non-institutional group quarters (GQs)

Data collected quarterly in all 50 states and DC
- 7,200 local areas known as segments
- 140,000 screenings and 67,500 interviews completed annually
Field Enumeration (FE) for the NSDUH

• Frame construction requires field staff to completely enumerate a local area or segment
• Coverage supplemented during screening process
Costs Associated with Field Enumeration (FE)

- Lister training and field work
- Map production
- Field support during listing
- Processing of listing data
- Half-open interval
Address-Based Sampling (ABS)

Pros:
- Less costly
- Faster
- Enables larger segments

Con:
- Undercoverage in:
  - rural areas
  - group quarters
Costs Associated with Address-Based Sampling (ABS)

- Purchase of address lists
- Map production
- Implementation of the CHUM:
  - Interviewer training and field labor
  - Field support
NSDUH Field Study

Objective:
Develop and test an ABS/FE hybrid frame that provides cost savings without sacrificing coverage.

Evaluation factors:
- Changes in coverage
- Cost savings
Field Study Implementation

- Subsampled 200 NSDUH segments
- Matched SDUs to ABS Frame to estimate actual coverage
- Used field staff to aid matching

\[
\text{Actual Segment Coverage} = \frac{\text{Matched SDUs}}{\text{Total SDUs}}
\]
Predicted Segment Coverage = \[
\frac{\# \text{ Locatable Addresses}}{(\# \text{ HH} + \# \text{ GQ})}
\]
Sources of Inaccurate Predictions

• # Locatable Adds
  – Geocoding error

• #HHs + #GQs
  – Estimates out of date
  – High growth/High decline areas
Implications of Inaccurate Predictions

- Using ABS when should use FE
  - Loss in coverage
  - Unnecessarily increases costs

- Using FE when should use ABS
  - Unnecessarily increases costs
Actual Segment Coverage vs Predicted Segment Coverage

Rural
Urban

ABS
FE

1% ABS 84%
7% FE 8%

Predicted Segment Coverage
Actual Segment Coverage

Rural
Urban

0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1
85% of segments above 50% threshold
Conclusions

Improving coverage prediction will:

• Further decrease costs
  – ABS where appropriate
  – Reduce field burden

• Increase coverage
  – FE where appropriate
  – Reduce field burden
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