Using Administrative Records to Evaluate Reporting Accuracy in Surveys

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Motivation

- Surveys = only data source for estimates of uninsured
- Most surveys ask about discrete coverage types:
  1. Do you have coverage through an employer?
  2. Do you have coverage from Medicaid (low income)?
  3. Do you have coverage from Medicare (elderly)?
  4. Etc...
     ➔ no to all ➔ uninsured

- Problems:
  1. Limited research on:
     - Reporting accuracy by coverage type
     - How misreporting of one coverage type affects:
       ▪ Estimates of other coverage types
       ▪ Final estimate of uninsured
       ▪ How the ACA may have affected reporting accuracy
  2. Methods, accuracy and reporting issues vary by survey
Research Objective

- Conduct a study starting with enrollment records as sample so coverage type is “known”
- Include sample from multiple coverage types, including private, public and marketplace
- Randomly assign sample to health insurance modules from different surveys; conduct survey
- Measure reporting accuracy:
  - Across coverage types
  - Across surveys
CHIME Validation Study Design

- Partnered with a private health plan in Midwest
- Health plan provided enrollment records randomly sampled from multiple “strata” including:
  - Employer-Sponsored Insurance (ESI)
  - Direct Purchase
  - Marketplace
  - Medicaid
- Randomly assigned sample to survey modules:
  - Current Population Survey ASEC (CPS)
  - American Community Survey (ACS)
- Conduct phone survey; compare survey reports on coverage type to enrollment records
ACS Health Insurance Question

15. Is this person CURRENTLY covered by any of the following types of health insurance or health coverage plans? Mark "Yes" or "No" for EACH type of coverage in items a – h.

a. Insurance through a current or former employer or union (of this person or another family member)

b. Insurance purchased directly from an insurance company (by this person or another family member)

c. Medicare, for people 65 and older, or people with certain disabilities

d. Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability

e. TRICARE or other military health care

f. VA (including those who have ever used or enrolled for VA health care)

g. Indian Health Service

h. Any other type of health insurance or health coverage plan – Specify

[kind of coverage]
Private Health Insurer Sample

- ~175,000 eligible policyholders across strata
- Conducted power analysis to determine how to allocate sample across strata, given budget
- Randomly selected sample from each strata
- Mailed advance letter with opt-out option
- Culled opt-outs and bad addresses ➔ delivered 16,000 phone numbers to Census
CHIME Survey Methods

- 17-minute phone survey conducted in Spring, 2015
- Content: subset of questions from both CPS and ACS:
  - Demographics
  - Labor force
  - Government program participation (food stamps, WIC, etc.)
  - Health insurance randomization
- Stratified sample: oversampled Medicaid, undersampled ESI → weighted data to health insurance population totals
- 22% response rate (AAPOR RR4)
- Data collected on all household members
- Individuals in surveys matched to enrollment records: at least one person matched in 87% of households
- Final matched dataset: 3,823 people

1,989 received CPS
1,834 received ACS
# Sample Distribution by Survey Treatment

<table>
<thead>
<tr>
<th>STRATA</th>
<th>Person-Level Sample Distribution (Individuals &lt; 65)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CPS</td>
<td>ACS</td>
</tr>
<tr>
<td>ESI</td>
<td>313</td>
<td>248</td>
</tr>
<tr>
<td>Direct Purchase</td>
<td>640</td>
<td>538</td>
</tr>
<tr>
<td>Marketplace</td>
<td>178</td>
<td>152</td>
</tr>
<tr>
<td>Medicaid</td>
<td>432</td>
<td>476</td>
</tr>
</tbody>
</table>
Results

- Sample demographics
- Accuracy metrics
  - Sensitivity: Among those with Coverage Type X according to the records, how many report Coverage Type X in the survey?
  - Predictive Power: Among those who report Coverage Type X in the survey, how many could be validated to have Coverage Type X in the records?
  - Prevalence: How does the insurer population prevalence compare to the survey estimate?
ACS & CPS sample similarities & differences

SIMILARITIES
- Gender
- Employment status
- Employer size
- Relationship to respondent
- Education
- Marital status

DIFFERENCES
- Household size
- Family income
- Race

Adjust for differences in characteristics with regression models and predicted probabilities assuming same characteristics.
Sensitivity (Under-reporting)

Among those with CovType X According to Records, How Many Reported CovType X in the Survey?

- Private
- ESI
- Direct/Mkt
- Medicaid
- Uninsured

CPS
ACS
Among those reported to have CovType X in the Survey, How Many Were Validated to Have CovType X in the Records?

- Private: CPS 90, ACS 90
- ESI: CPS 90, ACS 90
- Direct/Mkt: CPS 50, ACS 60
- Medicaid: CPS 100, ACS 90

Legend: CPS, ACS
Prevalence: Survey vs Records

CPS

ACS

Private
ESI
Direct/Mkt
Medicaid
Insured

CPS
Records

Private
ESI
Direct/Mkt
Medicaid
Insured

ACS
Records
## Summary

<table>
<thead>
<tr>
<th>Coverage Type</th>
<th>Sensitivity</th>
<th>Predictive Power</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>CPS</td>
<td>ACS</td>
</tr>
<tr>
<td>Private</td>
<td>98.8</td>
<td>96.5</td>
</tr>
<tr>
<td>Public</td>
<td>83.2</td>
<td>83.2</td>
</tr>
<tr>
<td>Insured</td>
<td>98.2</td>
<td>96.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coverage Type</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Recs</td>
</tr>
<tr>
<td>Private</td>
<td>65.6</td>
</tr>
<tr>
<td>Public</td>
<td>25.9</td>
</tr>
<tr>
<td>Uninsured</td>
<td>0</td>
</tr>
</tbody>
</table>
Next Steps

- Compare demographic profile of enrollees in records to those reported in survey, by coverage type
- Examine experimental questions on ACS:
  - **ACS_MKT**: Was this plan obtained through a State or Federal Marketplace, Healthcare.gov, or a similar state website?
  - **ACS_PREM**: Do you or another family member pay a premium for this health insurance plan? A premium is a fixed amount of money paid on a regular basis for health coverage. It does not include copays, deductibles, or other expenses such as prescription costs.
  - **ACS_SUBS**: Based on family income, do you or another family member receive financial assistance through a subsidy or tax credit to help pay part or all of the cost of the premium for this plan?
Thank you!

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