Evaluating Questionnaire Issues in Mail Surveys of All Adults in a Household

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Using Mail Survey to Collect Data on All Adults

- Send multiple surveys to each household
  - Not cost effective or efficient
  - Depresses response rates
    - Multiple surveys appear burdensome
    - Usually one person distributes surveys to others

- Random selection of household respondent
  - Self-administered sampling instructions are generally unreliable (Olson et al. 2004)
  - Sampling instructions can be confusing to recipient
Using a Single Household Respondent

- Alternative: rely on single household respondent
  - No sampling or need to communicate selection instructions
  - Selection unimportant since we want data on all adults

- Concerns
  - Is household respondent willing to report on experiences of other adults?
  - Is household respondent aware of other adults’ experiences?
Measuring Victimization Incidence in NCVS

- National Crime Victimization Survey (NCVS)
  - Sponsored by Bureau of Justice Statistics
  - Provides national estimates on criminal victimization in U.S.
    including “unreported victimization”
  - In-person panel survey conducted by Census Bureau

- Need for local area estimates
  - Current NCVS design too costly to extend to this level

- Mail survey attractive for this purpose
  - Low cost and can achieve reasonable response
  - ABS design can target large cities or specific geographic areas such as police jurisdictions
Adapting NCVS Content to Mail Mode

- Companion Survey (NCVS-CS) based on the core NCVS
  - subset of items to classify victimization and limited demos
  - NCVS-CS had 12 month reference period (core – 6 month)
  - Community and Policing Questions (CPQ) – 9 questions including fear of crime and satisfaction with police

- Questionnaire Decisions
  - Focus: victimization incident or person’s experience
    - Implications for respondent burden and type of estimates possible
  - Placement of CPQ measures
    - Potential impact on response (Williams et al. 2016)
    - Potential affect on victimization recall (Shapiro 1987)
Field Test Experiments and Outcomes

- Questionnaire Version x Form Experiment
  - Goal is to identify superior questionnaire approach
    - Version: ILS (Incident Level Survey); PLS (Person Level Survey)
    - Form: (A) CPQ asked first; (B) CPQ asked last
  - Outcome measures
    - Unit response rates
    - Item nonresponse
    - Correlations with NCVS
Field Test Design

- Large scale field test to test feasibility of mail design
  - Conducted Sept. – Dec. 2015
  - Sample of ~ 230,000
  - In 40 largest core-based statistical areas (CBSAs)
  - Mailing protocol similar to Dillman and colleagues.
    - Initial mailing; postcard reminder; NR follow-up mailing; final NR follow-up via FedEx.
    - Included $2 in initial mailing
  - 2x2 factorial design (version by form) randomly assigned in each of 40 CBSA

- Second wave in late 2016 to estimate change over time
Results: Response Rates

- Overall response rate
  - AAPOR RR3: 47.1 (across version & form)

- Response rate by Version (ILS vs PLS) across Forms
  - ILS: 43.6%
  - PLS: 44.2%
  - Roughly equivalent performance (small, but significant difference $z = -2.75, P = 0.006$)

- Results by Form (A – CPQ first/B – CPQ last)
  - Differential response by Version (ILS & PLS)
Results: Response Rates by Version & Form

- ILS: CPQ items presented last, response significantly depressed ($z = 5.83$, $P = 0.003$)
- PLS: No difference by CPQ placement

<table>
<thead>
<tr>
<th>Version</th>
<th>Overall</th>
<th>Form A</th>
<th>Form B</th>
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</thead>
<tbody>
<tr>
<td>ILS</td>
<td>43.6%</td>
<td>44.5%</td>
<td>42.7%</td>
</tr>
<tr>
<td>PLS</td>
<td>44.2%</td>
<td>44.2%</td>
<td>44.2%</td>
</tr>
</tbody>
</table>
Summary: Response Rates

- Overall response
  - Mail approach feasible and superior to similar telephone effort (see Edwards et al., 2012)

- Incident level focus or person level focus
  - No difference in response
  - No clear decision on questionnaire approach

- CPQ placement – Form A (CPQ first) preferred
  - ILS – when last (B) first questions are HH roster – may be perceived intrusive or not relevant (see Williams et al. 2016)
  - PLS – no difference due to no change in item perception
Results: Item Nonresponse – Victimization Date

- Date used to determine eligibility of incident
  - If missing, assumed ineligible
  - Acceptable if outside ref period – can determine eligibility
  - ILS: unique incidents – up to 4 violent & 4 property starting with most recent
  - PLS: any experience – most recent only for each type (physical attack, threats, sexual assault, personal theft)

- Hypothesis
  - ILS: more temporally distant have more item NR
  - PLS: adults reported later (adult 3 or 4) have more item NR
### Results: ILS Date Item Nonresponse

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<table>
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</thead>
<tbody>
<tr>
<td></td>
<td>Both Forms</td>
<td>Form A</td>
<td>Form B</td>
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<td></td>
<td>Outside</td>
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<td>Outside</td>
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<td></td>
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<tr>
<td>Number 1</td>
<td>15.2%</td>
<td>6.0%</td>
<td>78.9%</td>
<td>17.5%</td>
<td>6.2%</td>
<td>76.3%</td>
<td>12.2%</td>
<td>5.7%</td>
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<tr>
<td>Number 2</td>
<td>20.6%</td>
<td>14.2%</td>
<td>65.2%</td>
<td>22.6%</td>
<td>12.4%</td>
<td>65.0%</td>
<td>18.2%</td>
<td>16.4%</td>
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<tr>
<td>Property</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Number 1</td>
<td>12.0%</td>
<td>5.1%</td>
<td>83.0%</td>
<td>13.5%</td>
<td>5.6%</td>
<td>80.8%</td>
<td>10.2%</td>
<td>4.4%</td>
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<tr>
<td>Number 2</td>
<td>10.5%</td>
<td>10.6%</td>
<td>78.9%</td>
<td>9.9%</td>
<td>12.3%</td>
<td>77.7%</td>
<td>11.3%</td>
<td>8.1%</td>
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<tr>
<td>Number 3</td>
<td>9.2%</td>
<td>19.4%</td>
<td>71.4%</td>
<td>9.1%</td>
<td>19.4%</td>
<td>71.4%</td>
<td>9.1%</td>
<td>40.3%</td>
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<td>Number 4</td>
<td>5.3%</td>
<td>73.7%</td>
<td>21.0%</td>
<td>4.6%</td>
<td>78.5%</td>
<td>16.9%</td>
<td>7.4%</td>
<td>59.3%</td>
</tr>
</tbody>
</table>

- Later victimizations have increasing item nonresponse
  - More difficult to recall
  - Ambiguity about when event occurred?
### Results: PLS Date Item Nonresponse

<table>
<thead>
<tr>
<th></th>
<th>Both Forms</th>
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<tbody>
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<td></td>
<td>Outside</td>
<td>Missing</td>
<td>Valid</td>
<td>Outside</td>
<td>Missing</td>
<td>Valid</td>
<td>Outside</td>
</tr>
<tr>
<td><strong>Property</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Break-in</td>
<td>14.7%</td>
<td>9.1%</td>
<td>76.1%</td>
<td>17.7%</td>
<td>9.8%</td>
<td>72.6%</td>
<td>10.5%</td>
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<tr>
<td>Theft</td>
<td>14.7%</td>
<td>4.8%</td>
<td>80.5%</td>
<td>17.4%</td>
<td>4.9%</td>
<td>77.6%</td>
<td>11.7%</td>
</tr>
<tr>
<td><strong>Attack</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person 1</td>
<td>10.0%</td>
<td>12.5%</td>
<td>77.5%</td>
<td>12.9%</td>
<td>14.6%</td>
<td>72.5%</td>
<td>6.7%</td>
</tr>
<tr>
<td>Person 2</td>
<td>12.2%</td>
<td>15.6%</td>
<td>72.1%</td>
<td>14.5%</td>
<td>13.1%</td>
<td>72.4%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Person 3</td>
<td>12.4%</td>
<td>11.6%</td>
<td>76.0%</td>
<td>11.9%</td>
<td>10.7%</td>
<td>77.4%</td>
<td>13.3%</td>
</tr>
</tbody>
</table>

- **Recall of date (victimization type & reported adult)**
  - Property: thefts more salient than burglaries
  - Personal: no clear pattern – relationship? (not collected)
    - PLS item NR double ILS - (placement)
Summary: Item Nonresponse

- **Reporting/Recall of victimization date**
  - ILS – older victimizations are more difficult to pinpoint
    - Consistent with hypothesis
  - PLS – asking date later collects more uncertain victimizations
    - No support for hypothesis

- **CPQ placement**
  - No effect on item NR of CPQ placement
Validity Test: Correlation with Core NCVS

- Correlation between NCVS-CS and core NCVS?

- Examined correlations of TBC rates for NCVS-CS
  - Version (ILS/PLS) and form (CPQ first/last) to core NCVS at the CBSA level
  - NCVS years 2013-2015 combined to estimate
<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>Household level</strong></td>
<td></td>
</tr>
<tr>
<td>TBC-Property</td>
<td>Households touched by property crime, excludes attempts</td>
</tr>
<tr>
<td>TBC-Vehicle theft</td>
<td>Households touched by motor vehicle theft</td>
</tr>
<tr>
<td>TBC-H violent</td>
<td>Households touched by violent crime, excluding threats</td>
</tr>
<tr>
<td><strong>Person level</strong></td>
<td></td>
</tr>
<tr>
<td>TBC-P violent</td>
<td>Persons touched by violent crime, excluding threats</td>
</tr>
<tr>
<td>TBC-P serious violent</td>
<td>Persons touched by serious violent crime</td>
</tr>
</tbody>
</table>
## Results: Correlations with NCVS

<table>
<thead>
<tr>
<th>NCVS-core</th>
<th>NCVS-CS</th>
<th>ILS-both</th>
<th>ILS A</th>
<th>ILS B</th>
<th>PLS-both</th>
<th>PLS A</th>
<th>PLS B</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBC-Property</td>
<td>TBC-Property1</td>
<td>0.64***</td>
<td>0.67***</td>
<td>0.52***</td>
<td>0.65***</td>
<td>0.67***</td>
<td>0.56***</td>
</tr>
<tr>
<td>TBC-Vehicle theft</td>
<td>TBC-Vehicle theft</td>
<td>0.34*</td>
<td>0.34*</td>
<td>0.18</td>
<td>0.59***</td>
<td>0.71***</td>
<td>0.26</td>
</tr>
<tr>
<td>TBC-H violent</td>
<td>TBC-H violent1</td>
<td>0.54***</td>
<td>0.40*</td>
<td>0.44**</td>
<td>0.47**</td>
<td>0.33*</td>
<td>0.24</td>
</tr>
<tr>
<td>TBC-P violent</td>
<td>TBC-P violent1</td>
<td>0.45**</td>
<td>0.14</td>
<td>0.48**</td>
<td>0.50***</td>
<td>0.39*</td>
<td>0.29</td>
</tr>
<tr>
<td>TBC-P serious viol</td>
<td>TBC-P serious viol</td>
<td>0.47**</td>
<td>0.14</td>
<td>0.50***</td>
<td>0.51***</td>
<td>0.44**</td>
<td>0.30</td>
</tr>
</tbody>
</table>

* * p < 0.05; ** p < 0.01; *** p < 0.001

- **Correlations:** all positive and nearly all significant between core NCVS and NCVS-CS
  - Questionnaire version – similar; vehicle theft higher for PLS
  - CPQ placement
    - ILS form A higher for property; form B higher for personal violent
    - PLS for A slightly higher for prop and violent victimization
Conclusions

- NCVS-CS mail approach is feasible
  - Response rates nearly 50% (AAPOR RR3); superior to earlier telephone effort
  - High positive correlations - validity of CBSA level estimates

- Item nonresponse an issue
  - Victimization reports must have a date
  - Indication of victimization – uncertainty when
    - Unwillingness to estimate date – even when instructed
Next Steps

- ILS vs PLS
  - No definitive evidence one is better than the other
- CPQs (first vs last)
  - Placement (first) important in ILS - improving perceived relevance
  - Slightly better correlations, mostly for property victimization

- Wave 2
  - Continue test of ILS vs PLS
    - Does one do better estimating change over time
  - CPQ first only
  - Test few revisions to items to try to improve quality
Thank you!

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References


