Survey Nonresponse

Survey Research Laboratory
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Outline:

I. Unit nonresponse (UN)
   A. Definition
   B. Causes of UN
   C. Impact of UN on data
   D. Strategies for minimizing UN
   E. Correcting for UN
   F. Reporting issues and UN

II. Item nonresponse (IN)
   A. Definition
   B. Causes of IN
   C. Impact of IN on data
   D. Strategies for minimizing IN
   E. Correcting for IN
   F. Reporting issues and IN
I. Unit Nonresponse

• A. Definition: “Nonresponse occurs when a sampled unit does not respond to the request to be surveyed…” Groves et al. (2002)
  – increasing concern, especially in telephone surveys

• B. Causes of unit nonresponse
  – noncontact
  – noncooperation
Failure to contact

- Non-contact patterns vary by survey mode and across different subgroups
  - Restricted-access buildings & communities
  - Telephone numbers connected to answering machines, caller ID . . .
Percent of Eligible Sample Households by Calls to First Contact, for Five Surveys (Groves, 2001)
Failure to gain cooperation (refusals)

- Survey requests commonly misclassified
- Repeated callbacks distinguish surveys
Evidence that survey requests are misclassified

- Refusals made quickly (<30 seconds)
- Many refusers reconsider later
- Persons apparently focus on a small number of factors when making the decision.
Factors typically considered by respondents

- Burden
- Saliency (topic importance)
- Incentive
- Authority of sponsor
Implications

• Many different reasons for refusals
• No single introduction may be suitable for all
• Interviewers must tailor introductions
  – information from initial refusal or contact attempt
C. Impact of UN on data:

• UN will result in nonresponse bias to the extent that respondents and nonrespondents differ on variables of interest
  – types of nonresponse bias
    • representativeness
    • data quality
    • distribution of responses
  – strategies for estimating nonresponse bias
    • number of calls or refusal conversions and data
    • data from studies with different response rates
    • using census data to compare respondents and nonrespondents
Nonresponse bias as function of response rate ($t_R$)
Empirical research in general finds no response rate effect:

- Keeter et al. (2000)
- Curtin, Presser and Singer (2000)
Example of no relationship between nonresponse and measurement error

Figure 16.2. 1996 response rates and signed error.

D. Strategies for Reducing UN

• Mode
• Increase benefits
  – Incentives
  – Convince potential respondents of importance
    • introduction
    • publicity
    • trusted source or sponsor
• Reduce perceived burden
• Initial contact before interview (advance letter)
• Persistence:
  – refusal conversions
  – follow-ups
  – change societal perceptions
  – mode changes
  – interviewer changes
E. Correcting for UN

• Post data-collection weighting
• Assumptions
  – respondents and nonrespondents in a particular category (e.g., African-Americans) are interchangeable
  – known population parameters of relevant characteristics
F. Reporting issues and UN

- Standards can be found at www.aapor.org
- Disposition codes
  - Known eligible
    - Completes
    - Refusals
  - Known ineligible
    - Businesses
    - Disconnected numbers
  - Unknown eligibility
    - Ring, no answers
    - Always busy
## AAPOR Response Rates

<table>
<thead>
<tr>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Known Eligible</td>
<td>Known Eligible</td>
</tr>
<tr>
<td></td>
<td>Known Eligible + Unknown Eligibility</td>
</tr>
<tr>
<td>Completes</td>
<td>Lowest</td>
</tr>
<tr>
<td>Completes + Partial</td>
<td>Highest</td>
</tr>
</tbody>
</table>
Reporting of response rates

- AAPOR standards
- Examination of reporting in recent journal articles done by Johnson et al. (2003)
  AAPOR paper
Journal article audit

- Sample of 95 papers selected from same set of 18 journals
- Published January 2000 or more recent
- Unit of analysis = individual
- Noninstitutional population
- Reporting primary survey data (no secondary analyses)
Journals

• **Health science journals**
  - American Journal of Psychiatry
  - Amer Jour of Preventive Medicine
  - American Journal of Public Health
  - Annals of Epidemiology
  - JAMA
  - Journal of Studies on Alcohol
  - Medical Care
  - Preventive Medicine
  - Substance Use & Misuse

• **Social science journals**
  - Amer J of Community Psychology
  - Amer J of Political Science
  - Amer Political Science Review
  - International J Public Opinion Research
  - Journal of Community Psychology
  - Journal of Health & Soc Behavior
  - Public Administration Review
  - Public Opinion Quarterly
  - Social Forces
Disclosure typology

1. Report no information (5.3%)
2. Report other information only (23.2%)
3. Report non-AAPOR response rate (26.3%)
4. Report AAPOR-consistent response rate (24.2%)
5. Report summary of sample dispositions (21.1%)
Disclosure typology II

- Mail surveys are most likely to provide AAPOR response rate and/or full sample disposition information (88%).
- Telephone, face-to-face surveys are most likely to provide no response rate information (44% and 43%).
- $p < .001$
Other Observations

• Some argue that “no definitive formula for response rate estimates exists”

• No papers under-estimate response rates

• Many appear to be over-estimating response rates
II. Item nonresponse

• A. Definition: When a given unit does not provide a substantive response to a particular question.
  – Sometimes called “missing data”

• B. Causes of IN
  – ability to provide information
  – willingness to provide information
  – privacy and anonymity concerns
C. Impact of IN on data

• IN introduces nonresponse bias if it is associated with key variables
• Examine associations between IN and key variables
  – representativeness (demographics)
  – other substantive variables
D. Strategies for minimizing IN

• reassurance of anonymity
• follow-up question(s)
• sometimes ask for less specific information (e.g., income)
E. Correcting for IN

- dropping variables
- dropping observations
- pairwise deletion
- imputation of values for missing data
- person mean substitution (scales)
- item mean substitution
- impact on central tendency
F. Reporting issues and IN

- Steps to deal with IN should be reported
- If a correction strategy is used, the impact of that strategy should be reported (comparison of analysis with and without correction strategy)
Summary

• Ideally reduce nonresponse
• Correct for nonresponse
• Distinction between nonresponse and nonresponse bias
• Test for nonresponse bias
• Report nonresponse issues and correction strategies