

Surveys of Consumers: Mixed Mode Experiments

Richard Curtin
Research Professor and Director
Surveys of Consumers
University of Michigan

Box 1248 Ann Arbor, MI 48106

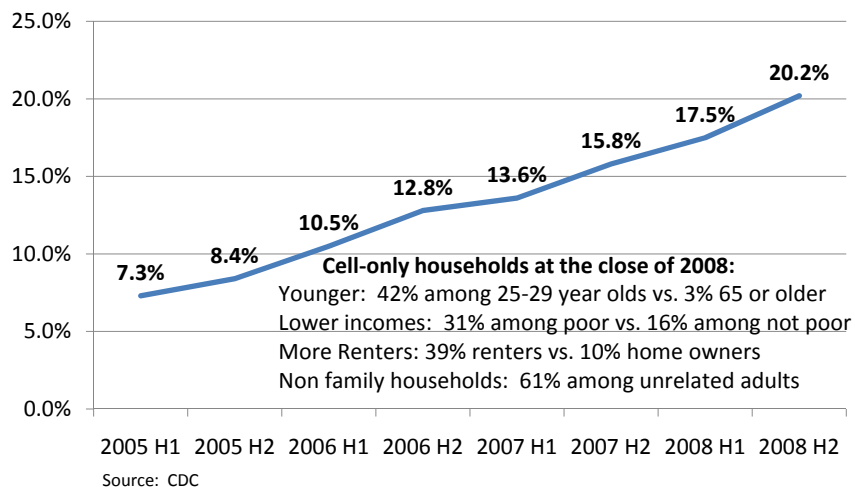
curtin@umich.edu

(734) 763-5224

Key Survey Issues: Sample Coverage and Response Rates

- **Declining coverage of RDD landline phone samples**
 - Ownership of landlines reached about 95% of all households until the early 2000's but has since declined to about 78% of U.S. households
 - Note: landline and cellular telephones are treated differently due to legal restrictions and charging mechanisms used by phone companies. Landline and cellular phone numbers are generally grouped into number ranges that can be used for identification.
- **Long term decline in response rates**
 - From about 70% to 40% during past quarter century due to answering machines, caller ID, a growing range of privacy devices as well as greater demands for privacy among public.

Decline in Sample Coverage: Missing Cell-Only Households from RDD Samples



Mixed Mode Experiment 1: Adding a Cell Phones to Landline Samples

- **Most cell phones are personal not household phones**
 - Respondent selection within the household is not feasible based on a cell phone sample:
 - Shift from sample of households to sample of adults
 - Complex weighting procedures needed for an unbiased adult sample
 - Selection probabilities vary by total number of landlines and cell phones that can reach a single person or a single household.
- **Cell phone surveys are more difficult and more expensive**
 - Can reach people in all sorts of odd situations that are not conducive to interviewing and sometimes dangerous (like driving).
 - Have traditionally covered cost of call to respondent given that both placed and received calls are subject to charges in U.S.
 - Cell phone interviews must be shorter; a longer interview needs to be broken into several pieces and done on separate calls.

Mixed Mode Strategy Experiment 1: Added Cell Supplement Starting in January 2009

- **Response rates much lower for cell phones**
 - Cell response rates = 20% compared with 40% on landline phones (calculated based on AAPOR standard RR1)
 - Sample and interviewing procedures for cell and landline sample were identical
 - Cell sample was significantly younger, more likely to be never married, a renter rather than home owner, and a male.
- **Responses to Consumer Sentiment questions**
 - After controlling for differences in the demographic characteristics of the two samples no statistically significant differences in the Sentiment Index were found:
 - Sentiment Index: 62.0 landline vs. 61.9 cell -- difference = 0.1, p=ns
 - Offsetting errors: cell sample less slightly favorable personal finances and landline sample slightly more favorable expectations for the economy.

Mixed Mode Experiment 2: Mail versus Telephone Interviewing

- **Interview mode differed, not sampling frames**
 - Previously interviewed all respondents, only mode of subsequent interview differed between phone and mail
 - Regularly obtain postal mailing addresses and e-mail address for all respondents as part of first interview
 - Sent letters with mail survey as well as email and postal mail follow-ups over a month long period
- **Mail surveys have advantages and disadvantages**
 - No control over who actually completes the interview
 - Mail surveys are less expensive to conduct
 - Mail surveys don't have interviewer's aid to avoid missing or incomplete answers, to ask for clarifying details when inconsistencies are found, etc.
 - Mail surveys are less flexible and more difficult to conduct on a tight monthly schedule given postal delays.

Mixed Mode Experiment 2: Mail Supplement Conducted Since Spring 2009

- **Completion rates slightly lower for mail surveys**
 - Completion rate of 61% vs. 69% for telephone surveys
 - Restricted time period had greater impact on mail completion rates
 - Mail survey respondents were older but otherwise comparable
- **Responses to the Sentiment questions:**
 - After controlling for differences in the demographic characteristics between the two samples, the differences were significant at the 10% level:
 - Sentiment Index: 66.8 phone vs. 58.8 mail – difference = 8.0 $p < .1$
 - The entire difference was due to answers on the personal finance questions, suggesting that the correction for older respondents in the mail survey may not have completely corrected the differences in the sample composition.

Mixed Mode Experiment 3: Web versus Telephone Interviewing

- **Interview mode differed, not sampling frames**
 - Previously interviewed all respondents, only mode of subsequent interview differed between phone and internet (random split)
 - Regularly obtain postal mailing addresses and e-mail address for all respondents
 - Same follow-up procedures for those that did not respond
- **Web surveys have advantages and disadvantages**
 - Web surveys are less expensive to conduct---larger sample sizes
 - Web surveys offer significant expansion of what constitutes a question
 - Never sure who completed the survey on the internet
 - No good sample frame for web surveys; need to use other means (such as a postal frame) to select a probability sample
 - Greater flexibility in web surveys

Mixed Mode Experiment 3: Web and Phone Experiment Conducted in Summer 2009

- **Completion rates slightly lower for web surveys**
 - Completion rate of 30% vs. 60% for telephone survey
 - Restricted time period had greater impact on web completion rates
 - Web survey respondents were younger, had higher income and education, more often married and female
- **Responses to the Sentiment questions:**
 - After controlling for differences in the demographic characteristics between the two samples, no significant differences found:
 - Sentiment Index: 73.5 phone vs. 72.8 web – difference=0.7, p=ns
 - No differences were found in any of the questions included in the Sentiment Index.

Integrating Survey Results Across Modes

- **Interview mode effects due to number of causes that make response distribution difficult to integrate**
 - Given identical question wording, mode effects may be present due to:
 - Oral versus visual presentation of questions
 - Interviewer assisted versus self-administered technology
 - Interviewer – respondent interactions and content involvement
 - Mode effects (and mode interactions with respondent, survey content and interviewers) are yet to be fully understood
- **No theory suggests that changes in responses from one time to another is affected by the mode of the interview**
 - Assume two components of a variable are actually measured at time t , its true state (A) and an error based on mode m : $M_t = A_t + E_{mt}$
 - Time-series change would be unaffected by mode since:
 - $\Delta M_t = M_t - M_{t-1} = (A_t + E_{mt}) - (A_{t-1} + E_{m,t-1}) = A_t - A_{t-1}$
given that $E_{mt} = E_{m,t-1}$

This implies that mode effect is independent of time period and the measured response distributions across short periods of time

New Balance of Sample Coverage and Response Rates

- **Shift to postal address sample frame from RDD frames**
 - Comprehensive lists of all housing units in U. S.
 - Still lack coverage of homeless population
 - Have address and could find phone numbers for about half the listings
- **Shift to combination of mail and internet survey administration**
 - The two modes excel at opposite ends of age distributions
 - Preference for internet mode since coverage of most economically active population is better than mail for most topics, and can increasingly take advantage of unique capacities of internet
 - Both have lower marginal costs of administration, especially internet surveys, which could expand total number of completed interviews
- **Expand rotating panel design: questions as well as respondents**
 - Divide interviews into separate packages so that each month a respondent will complete two packages and the respondent would repeat those same packages when re-interviewed