sampling is rarely used today. It has been replaced by list-assisted random-digit dialing.

Michael P. Battaglia

See also Directory Sampling; Random-Digit Dialing (RDD); Telephone Surveys

Further Readings

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Address-Based Sampling

Address-based sampling (ABS) involves the selection of a random sample of addresses from a frame listing of residential addresses. The technique was developed in response to concerns about random-digit dialed (RDD) telephone surveys conducted in the United States because of declining landline frame coverage brought on by an increase in cell phone only households and diminishing geographic specificity as a result of telephone number portability. The development and maintenance of large, computerized address databases can provide researchers with a relatively inexpensive alternative to RDD for drawing household samples. In the United States, address files made available by the U.S. Postal Service (USPS) contain all delivery addresses serviced by the USPS, with the exception of general delivery. Each delivery point is a separate record that conforms to all USPS addressing standards, making the files easy to work with for sampling purposes.

Initial evaluations of the USPS address frame focused on using the information to reduce the costs associated with enumeration of primarily urban households in area probability surveys or in replacing traditional counting and listing methods altogether. These studies showed that for a survey of the general population, the USPS address frame offers coverage of approximately 97% of U.S. households. The frame's standardized format also facilitates geocoding of addresses and linkage to other external data sources, such as the U.S. Census Zip Code Tabulation Areas data. These data can be used to stratify the frame for sampling target populations.

Use of ABS in conjunction with the USPS address frame does have some drawbacks. Researchers cannot obtain the address frame directly from the USPS but must purchase the information through private list vendors. The quality and completeness of the address information obtained from these vendors can vary significantly based on (a) how frequently the company updates the listings, (b) the degree to which the listings are augmented with information from other available databases, and (c) if the company purges records based on requests from householders not to release their information. Moreover, vendors differ in their experience with and ability to draw probability samples from the USPS list. This can be problematic for researchers who do not wish to draw their own samples and tend to rely upon vendor expertise for this task.

Another drawback is that coverage in rural areas tends to be somewhat lower than in urban areas. Additionally, in some rural areas, the USPS files contain simplified (i.e., city, state, and zip code only) listings rather than full street addresses. The percentage of these types of addresses in the database is declining, however, as local governments adopt emergency 911 protocols, which require that all households be identified with a street address. Therefore, over time, simplified address designations are expected to be replaced by full street address information. Another potential issue is that the USPS address frame contains post office (P.O.) boxes and multi-drop addresses (i.e., multiple persons associated with the same address), which may be problematic for both in-person and telephone surveys in which a street address is required to locate the household or to identify a telephone number associated with the household. Such addresses may be less problematic for mail surveys, where the initial goal is to ensure that the mailed questionnaire is delivered to the sampled household.

Households with multiple mailing addresses (e.g., a street address and a residential P.O. box) may also induce selection multiplicities. Research suggests that in some localities a fairly large percentage of households with residential P.O. boxes may also have mail delivered to a street address. Inclusion of P.O. boxes may be necessary, however, to ensure coverage of all households.

Some of the first tests of ABS as an alternative to RDD for general population surveys were conducted by the Centers for Disease Control and Prevention for

use on the Behavioral Risk Factor Surveillance System (BRFSS), a large RDD health survey. Two rounds of testing during 2005 and 2006 were conducted with households sampled from the USPS address frame, first using mail surveys, then later utilizing mail surveys with telephone survey follow-up of nonrespondents (a mixed-mode approach). In both instances, the mail survey and mixed-mode approaches produced significantly higher response rates than those obtained in the RDD surveys in states where the RDD response rate was below 40%. The ABS approach also provided access to households with only cell phones, and to a smaller degree, to households with no telephone coverage in percentages that corresponded with other national estimates for the proportional size of these groups. Moreover, the mail survey cost less to conduct than the RDD survey; the mixed-mode approach was cost neutral.

While ABS appears to be an effective sampling frame for conducting mail surveys of the general population, its true potential may be in facilitating mixed-mode surveys. Cross-referencing USPS addresses with other public databases yields telephone numbers for half to two thirds of the addresses. Moreover, ABS may facilitate use of other more cost-effective data collection modes, such as Internet or Web surveys or interactive voice response (IVR). Households could be sampled through ABS, then provided a link to a Web site, given the telephone number for an IVR survey, mailed a hard-copy questionnaire, or any combination of these approaches. Resources permitting, face-to-face surveys could also be added to this mix, particularly since use of the USPS address frame was initially tested as a means of identifying households for such surveys. ABS has the potential, therefore, to serve as a sampling base for a wide variety of single or multi-mode survey designs.

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See also Area Probability Sample; Cell Phone Only Household; Multi-Stage Sample; Number Portability; Random-Digit Dialing (RDD)

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Advance Contact

Advance contact is any communication to a sampled respondent prior to requesting cooperation and/or presenting the respondent with the actual survey task in order to raise the likelihood (i.e., increase the response propensity) of the potential respondent cooperating with the survey. As explained by Leverage-Saliency Theory, a respondent's decision to participate in research is influenced by several factors, including his or her knowledge of and interest in the survey research topic and/or the survey's sponsor. A researcher can improve the likelihood of a respondent agreeing to participate through efforts to better inform the respondent about the research topic and sponsor through the use of advance contact. Factors in considering the use of advance contacts are (a) the goals of the advance contact and (b) the mode of contact.

The goals of advance contact should be to educate and motivate the respondent to the survey topic and the sponsor in order to improve the likelihood of cooperation with the survey task. The cost and additional effort of advance contact should be balanced against the cost effects of reducing the need for refusal conversion and lessening nonresponse. The first goal of educating respondents is to help them better understand or identify with the topic and/or the sponsor of the research through increasing awareness and positive attitudes toward both. Respondents are more likely to participate when they identify with the research topic or sponsor. Additionally, it is an opportunity to inform the respondent of survey dates, modes of survey participation (e.g., "Watch your U.S. mail for our questionnaire that will be arriving in a first-class [*color and size description of mailer*] around [*anticipated arrival date*]"), and contact information to answer questions or concerns (e.g., "Feel free to contact us toll-free at [*contact number*] or via the Web at [*Web site address*]"). The second goal is