

# LIVING SITUATION SURVEY: METHODS FOR PRETESTING ROSTERING TECHNIQUES

Barbara H. Forsyth and James F. Kennedy, Research Triangle Institute  
P.O. Box 12194, Research Triangle Park, NC 27709

## 1. INTRODUCTION

The Living Situation Survey (LSS) is a study sponsored by the Bureau of the Census under a contract to Research Triangle Institute (RTI) to support methodological development enhancing enumeration in the year 2000 Decennial Census. The LSS was designed to collect information on household living arrangements, household mobility patterns, and respondent interpretations of standard terminology used in the decennial Census and in other surveys (e.g., SIPP) conducted by the Bureau of the Census. Results from the LSS will be used to identify experimental procedures and methods for reducing undercounting and undercoverage, especially among populations containing individuals who are highly mobile and who may not be associated with a single, well-defined household unit. Schwede (1993) gives a more detailed overview of the LSS.

This paper will summarize results from preliminary pretest research activities designed to evaluate LSS draft questionnaire materials and to develop recommendations for questionnaire revision. I'll begin by giving an overview of draft LSS questionnaire materials, focusing on the diverse set of respondent tasks. I'll describe the pretest design, the methods we used, and pretest participant characteristics. Then, I'll review general pretest results and questionnaire revision strategies developed based on the first round of pretest results. I'll close by summarizing the major pretest findings.

Before beginning, it is important to note that the full LSS pretest design included two rounds of pretest activities. Today, I will focus on results from the first set of pretest interviews. The first round of pretest research activities focused in particular on question comprehension and response selection processes. Based on the results I'll discuss today, we revised questionnaire materials and designed a second pretest to ensure that interview materials could

be administered easily and with minimal error. We began field data collection for the LSS in May, 1993 and we expect field data collection will be completed in August, 1993.

### 1.1 LSS Draft Questionnaire Materials

Project staff at the Bureau of the Census developed preliminary draft questionnaire items and interacted with RTI project staff to develop strategies for question formatting, question sequencing, and item administration. The draft questionnaire materials consisted of two general parts:

- (1) Household roster materials designed to elicit an inclusive roster of individuals associated with selected housing units. Household roster materials also collected additional, general information about how rostered individuals were linked to the selected housing unit. This general information was used to determine eligibility for further followup.
- (2) Individual questionnaire materials designed to collect detailed information about the living situations and mobility patterns of eligible rostered individuals. Individual questionnaire items asked for information about the places an individual stayed the interview reference period.

Under initial draft procedures, any rostered individual who stayed at the selected housing unit at least once, who was described as staying in the selected housing unit at the time of the interview, and who did not have a usual residence somewhere else was eligible for individual followup. Draft individual interview materials were developed for (1) adults, at least 18 years of age; (2) adolescents, from 13 to 17 years of age; (3) and children under 13 years of age. Self-report methods were developed to collect information about eligible adult and adolescent individuals. Materials were developed

to identify adult proxy respondents for eligible children.

The pretest research I'll describe today was designed to examine household rostering and adult individual followup materials. Preliminary pretest activities focused on cognitive response processes respondents used to answer roster and followup questions. Our goals were to explore whether alternative question orderings, question wordings, and item response sets, could be identified that would reduce measurement error by simplifying necessary recall and response selection processes.

## 1.2 General Pretest Design

We conducted seventeen pretest interviews to explore how volunteer participants reacted to draft questionnaire materials. Volunteer pretest households were recruited in North Carolina and in Washington, DC. Volunteer households were recruited through several routes, including contacts with social agencies in the two areas, and contacts through volunteers participating in other RTI pretest research studies. Recruitment activities focused on identifying volunteer households from low-income neighborhoods and volunteer households containing individuals who belonged to minority racial or ethnic groups.

Pretest interviews were conducted using the draft roster and adult individual followup questionnaires. We interviewed a single person from each volunteer household. Individual participants completed both the household rostering questionnaire materials and the adult individual followup questionnaire materials. For this reason, we were careful to identify participants who were knowledgeable about household composition and mobility as well as their own mobility patterns. In summary, each pretest participant completed three sets of questionnaire items: (1) household roster items to elicit a complete list of individuals staying in the selected housing unit during the past three months; (2) general household mobility items collecting information about rostered individuals, including how often they stayed in the selected housing unit during the past three months and information on where rostered individuals stayed

when they were not staying in the selected housing unit; (3) individual followup items, collecting detailed information about individuals' living situations.

## 1.3 Pretest Methods

We conducted two types of pretest interviews. Roughly half of the seventeen pretest interviews were conducted using intensive, think-aloud interview methods. Under "think-aloud" instructions, participants were asked to answer draft questionnaire items and to report things they had to think about in order to answer the draft items. For example, under think-aloud instructions, participants might indicate how they interpret vague question wording, they might describe how they go about selecting a response, or they might report on factors that make particular items difficult for them to understand or answer.

The other half of the pretest interviews were conducted using followup debriefing pretest methods. Under followup debriefing methods, each participant completed the entire set of draft questionnaire materials. Then, the interviewer and the participant reviewed the draft materials together, and the interviewer asked detailed probe questions to determine how participants interpreted draft items, to identify factors participants considered when answering draft questionnaire items, and to explore aspects of the draft items that may make them difficult to understand or to answer.

For example, we were interested in how well the roster items functioned as memory cues to aid the retrieval of unlisted individuals. Therefore, after participants completed the roster items, interviewers reviewed participants' answers and asked specific questions about rostered individuals' ties to the selected housing unit. Interviewers also asked participants to identify items that did not seem to apply to particular participants, items that seemed redundant, and items that seemed unnecessary.

Followup probe questions were developed to cover a range of topics including participant interpretations of individual questionnaire items, participant understandings of potentially vague terms (e.g., "household

member", "live here", "stay here", "tied to this household"), participant reactions to potentially sensitive questions about household composition, and participant descriptions of recall strategies used to complete the calendar task items, among other things.

It is important to note that the intensive "think-aloud" method and the followup debriefing interview method have complementary strengths and weaknesses when used to investigate respondent reactions to draft survey materials and draft survey procedures. Think-aloud interview results are useful because they focus on collecting respondents' reactions to draft materials as respondents answer the survey items. However, under think-aloud instructions, respondent reports may be affected by the unusual focus on cognitive processes such as comprehension, memory recall and response selection. This focus on cognitive processes may encourage respondents to report difficulties that they might not recognize under standard interview conditions (e.g., Forsyth & Lessler, 1991; Nisbett & Wilson, 1977).

Under followup debriefing pretest methods, initial interview responses are collected under more standard interview conditions. Therefore, difficulties reported by respondents may be more likely to reflect difficulties expected under standard interview conditions. At the same time, there is a delay between the time when respondents answer questionnaire items and the time when they give more detailed information about factors affecting their answers. Furthermore, the time between the initial answer and related followup probes is generally devoted to completing related survey tasks that may affect how respondents perceive their original answers. The delay may lead to incomplete or inaccurate reports of processes by which survey responses are selected (e.g., Ericsson & Simon, 1980; Forsyth & Lessler, 1991; Nisbett & Wilson 1977). Based on the methods' complementary strengths and weaknesses, we expected that the two sets of results, taken together, would give a relatively accurate and complete picture of participant reactions to draft LSS survey materials and procedures.

## **1.4 Pretest Participant Characteristics**

Seventeen volunteer participants participated in LSS pretest activities. There were five white participants, eleven black participants and one Asian participant. Three pretest participants were Hispanic. The pretest participants ranged in age from 23 to 75 years of age, with an average age of approximately 35 years. There were ten female participants and 7 male participants.

## **2. SUMMARY OF MAJOR RESULTS**

We identified five major pretest results and we used these results to develop four general recommendations for revising LSS materials.

### **2.1 Respondent Motivation**

Based on informal comments made during pretest interviews, we identified respondent motivation to participate as an important component of LSS measurement accuracy. Among the seventeen pretest participants interviewed, four refused to release tape recordings of their comments even though no identifying information was associated with any interview recording or paperwork. One additional participant refused to allow tape recording at all, even though pretest procedures gave participants an opportunity to request that the tapes be destroyed at the end of the interview.

Even participants who allowed release of their interview responses indicated that they would be unlikely to speak with equal candor under more standard survey settings. For example, one participant noted that she believed her public housing assistance and her assistance under Aid to Families with Dependent Children (AFDC) might be jeopardized if she gave accurate reports about her household composition in government sponsored studies.

Refusals to release tape recordings from pretest interviews give relatively direct behavioral measures of motivation to participate in tape-recorded data collection efforts. The refusals suggest that anonymity may be an

important factor affecting motivation to participate in LSS data collection efforts.

Informal comments from pretest participants are less direct measures of respondent motivation because they are likely based on subjective evaluations of imagined interview conditions. The small-scale pretest methods used here give only weak measures of motivation to participate in LSS data collection efforts under standard survey conditions. Comparisons between pretest results and survey response rates from the field will give information about the value of using intensive pretest interview methods to develop expectations about survey participation.

## 2.2 Unspecified Reference Periods

Preliminary draft roster and individual followup items all dealt with a single reference period of at least two full months. (Under draft procedures, reference periods depended on the date of the rostering interview and therefore varied across households.) In addition, preliminary instructions were developed to anchor interview reference periods to a specific date. We hoped that these consistencies across questions would make it possible to simplify individual items by repeating the reference periods only occasionally, at points in the interview when question content shifted.

Pretest results suggested that the consistent reference period and reference period anchoring instructions were not sufficient to ensure consistent question comprehension and interpretation. Participants' requests for clarification and their reports on response selection strategies suggested that response inaccuracies were introduced when items failed to explicitly specify a reference period. In the absence of a question reference period, different participants seemed to interpret questions differently, depending in part on their own experiences.

Two examples will illustrate the kinds of difficulties participants had answering items that did not explicitly state a reference period. One participant reported that her adult son moved out of her household before the interview reference date. However, the participant became ill during

the reference period, and her son stayed with her regularly during her illness. The participant indicated that she was not sure how to answer the question, "Do you consider (your son) to be a member of this household?" because the question did not specify a specific time period. When asked to select a single response, the participant appeared to focus on the period of her illness and reported that she did consider her adult son to be a member of her household, even though he had moved to his own apartment more than three months ago.

Another participant reported difficulty answering a question about one of her roommates who moved out during the interview reference period. The draft question asked, "Do you consider this address to be (your roommate's) usual address, that is, the place where (your roommate) lives and sleeps most of the time?" The pretest participant reported that she did not know how to answer the item because it did not specify a time period. The participant said that her answer might differ depending on whether the question referred to the roommate's current status or to the roommate's status across the entire three-month reference period.

Questionnaire design staff chose to retain short item wordings and to repeat reference periods only occasionally. Based on pretest results, we developed enhanced anchoring instructions to increase the likelihood of consistent question interpretation. We developed expanded anchoring instructions that made use of calendar show cards to remind LSS respondents of the questionnaire reference periods. After LSS data collection is completed, we plan to implement internal consistency analyses to assess measurement error. We expect that some of these analyses will be useful in determining whether measurement accuracy under standard survey conditions is reduced when consistent, well-anchored item reference periods are not explicitly repeated with each item.

## 2.3 Multiple Question Structures

The LSS was designed as an exploratory study to identify patterns of household mobility. Preliminary ethnographic research identified

some potentially interesting mobility patterns. However, the same ethnographic studies make clear that there is not a single, common language that can be used to discuss mobility patterns with respondents having different social, economic, and ethnic backgrounds or with respondents from different geographical locations.

We attempted to use question structure to implicitly define survey-specific terms. For example, one draft roster item asked respondents, "Was (rostered individual) here for a special occasion or (does rostered individual) stay here regularly?" Our intention was to define the vague common language term, "special occasion" as any "non-regular" visit. However, pretest interview results suggested that participants resisted the implicit definition. Several participants noted that staying in the housing unit for "special occasions" and staying "regularly" were not necessarily mutually exclusive. Thus, items structured to give implicit definitions were often interpreted as multiple questions that required multiple responses.

Revised questionnaire items were developed that (1) eliminated all identified multiple question structures and (2) included additional items when feasible to investigate how respondents interpret vague common language terms. For example, we developed a single item that asked, "Does (rostered individual) stay here regularly?" We hope that respondent interpretations of "staying regularly" can be clarified by examining their responses to an item about how often the rostered individual stayed in the selected housing unit during the reference period and another item about the rostered individual's patterns of staying in the selected housing unit (e.g., generally stay only on weekends or generally stay during work week).

#### **2.4 Non-exclusive, Non-exhaustive and Complex Response Categories**

Several draft items seemed difficult for participants to understand and answer because the response categories overlapped, were non-exhaustive, or conveyed complex concepts. Several of the problematic items dealt with terms used to describe an individual's status in the selected housing unit. We have already noted

that some ethnographic research indicates that terms such as "live here", "stay here", and "visit here" seem to convey different meanings to individuals from different social, economic and ethnic backgrounds. As a result, response categories that require respondents to distinguish among these terms may seem nonexclusive to some respondents.

For example, there were differences between pretest participants in their reports of response overlap. Some participants reported that "live here" and "stay here" were similar, other participants reported that "stay here" and "visit here" were similar, and still other participants reported that "visit here" and "come for a special event" were similar. It is difficult to eliminate apparent response category overlap when respondents interpret the response categories differently. Thus for items where response overlap seem a necessary result due to the terms used, we developed instructions for interviewers to emphasize that respondents should select the best response.

For other draft items, pretest participants reported that response categories seemed non-exhaustive. For example, several participants reported rostered individuals who were frequent but non-regular visitors in the household. Neither "staying here regularly" nor "staying here for a special occasion" seemed adequate to describe these rostered individuals. Based on our review of items with reported non-exhaustive response categories, we expect that most difficulties due to apparently non-exhaustive response categories will be eliminated by removing items that use multiple question structures to define potentially vague common language terms.

#### **2.5 Calendar Task**

The individual followup questionnaire used a calendar-based recall task to help respondents reconstruct inter-household movements during the interview reference period. Preliminary draft procedures asked pretest participants to report where they stayed each day on a calendar that covered the entire interview reference period. Several participants seemed to have difficulty understanding and

completing the calendar task. In addition, pretest interviewers reported that the calendar task instructions were difficult to administer and that additional instructions were necessary to help participants understand the task.

On a few occasions when participants had difficulty completing the calendar task, interviewers used an alternative question strategy, asking participants to list places they stayed during the reference period and then to recall the dates they stayed in each place. Some pretest participants seemed to have less trouble listing places stayed and using the places as memory cues for dates. Thus, we developed revised individual followup questionnaire materials that focused more directly on the places stayed during the reference period. Interviewers will be trained to help respondents use the places as memory cues for recalling dates.

### 3. CONCLUSIONS

The pretest interview results were useful for identifying general draft questionnaire design features and more specific draft item characteristics that may interfere with question comprehension and response. We used the pretest results to develop four general recommendations for questionnaire revision. These recommendations were reflected in revised draft questionnaires that were submitted to a second round of pretest activities in April, 1993.

- Each question should specify a well-defined reference period. In the absence of repeated reference periods, enhanced anchoring instructions may encourage consistent item interpretation.
- Multiple question structures should be eliminated. Each question should address a single, relatively simple concept (e.g., Staying regularity; degree of regularity; special occasions)
- Items using complex or overlapping response categories should also be simplified to address single, relatively simple concepts.

- Calendar task instructions and questionnaire items might be answered more accurately when structured to develop a complete list of places stayed during the reference period. Then, the places recalled may serve as effective cues for recalling associated dates.

### REFERENCES

- Ericsson, K.A. & Simon, H.A. (1980). Verbal reports as data. Psychological Review, 87, 215-251.
- Forsyth, B.H. & Lessler, J.T. (1991). Cognitive laboratory methods: A taxonomy. In P.P. Biemer, R.M. Groves, L.E. Lyberg, N.A. Mathiowetz & S. Sudman (Eds). Measurement Errors in Surveys (pp 393-418). NY: Wiley.
- Nisbett, R.E. & Wilson, T.D. (1977). Telling more than we can know: Verbal reports on mental processes. Psychological Review, 84, 231-259.
- Schwede, L. (August, 1993). A empirical exploration of residence rules: The Living Situation Survey. Paper presented to the American Statistical Association, San Francisco.