

# AN EMPIRICAL EXPLORATION OF RESIDENCE RULES: THE LIVING SITUATION SURVEY

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**KEYWORDS:** Year 2000 Census Research,  
Undercoverage, Household  
Composition

## INTRODUCTION

The goal of the census is to count each person in the country in one place only as of the reference day. It sounds straightforward, but deciding who should be counted where in our large and diverse country is not simple. Mobile people or those with attachments to more than one place may be duplicated. Those in places not meant for habitation or in unusual arrangements may be missed. To achieve an accurate, equitable count, principles and rules on where to count people are needed.

Over time, the Census Bureau has developed a complex set of residence rules for deciding where persons should be counted, centered on the concept of "usual residence." However, misunderstanding of the rules and uncertainty about who to include on the census form appear to be sources of errors.

The Living Situation Survey was designed, in part, to try new methods of rostering households, applying residence rules, and learning more about usual residence and household composition over time. The Bureau and Research Triangle Institute developed this one-time national survey with oversampling for subpopulations at high risk of undercoverage. Data collection has just ended; results will begin appearing late in the year.

In this paper, I briefly summarize research findings on the sources and extent of coverage errors germane to residence rules for counting people within households, and identify studies designed to reduce these errors. Then, I focus on the Living Situation Survey: the objectives, key features, and general analysis plan.

## BACKGROUND

### Research on the magnitude and sources of errors

The Living Situation Survey builds on findings from other studies conducted and/or funded by the Bureau (see Gerber, Brownrigg and Wobus, Kearney et al., in this volume). Evidence on the magnitude of undercoverage comes from demographic analysis and from dual systems estimation. A persistent differential undercount of Blacks has been found through demographic analysis since the 1940 census (Robinson et al. 1992). From the 1990 Post-Enumeration Survey, Hogan (1992) estimates that about 5% of Hispanics

were not counted, while 4.6% of Blacks, 2.4% of Asian and Pacific Islanders, 12% of Native Americans on reservations, and 0.7% of others were missed. Hogan notes that in each subpopulation, renters were missed much more than owners; tenure seems to be as important as race in explaining undercount. From four large Bureau surveys, Shapiro, Diffendal, and Cantor (1993) note that within household errors account for about 60% of the undercoverage for Whites and 65% for Blacks. The net undercount figures provided take into account two types of coverage errors: people erroneously enumerated and those missed. Bureau staff have examined the sources of both types of errors.

Using 1990 PES data, Griffin and Moriarity (1992, 1993) suggest that the predominant sources of the estimated 4.3 to 4.8% erroneous enumerations may have been misunderstandings of respondents and enumerators about census residence rules and who to include on the census roster form, as well as duplications. The same misunderstandings about rostering rules may have caused errors of omission as well, because many of the categories of people erroneously included were also found to be missed (Moriarity and Childers in this volume). Hainer et al. (1988) suggest that misunderstanding of roster questions on who to list leads to omissions, particularly for those with differing cultural assumptions about household structure and differing linguistic usages of residence terms. Shapiro, Diffendal, and Cantor (1993) note a fairly close correspondence between the increasing trend in unusual living situations in a significant segment of the household population and rises in census undercoverage.

In the Ethnographic Evaluation of Behavioral Causes of Undercount project, complex and/or irregular households were mentioned as a cause of errors in nearly all of the 29 ethnographic site reports, particularly those on sites with recent immigrants (de la Puente 1993). According to de la Puente, irregular and complex households in the project sites often had unrelated individuals, mobile and/or ambiguous household members, households formed solely to share rent, and/or households comprised of two or more families. A second cause of errors (Martin and de la Puente 1993) was cultural conceptions of household and family at variance with census residence rules, found in immigrant (e.g., Sung 1991, Rodriguez and Hagan 1991) and Black study sites (e.g., Hudgins 1991, Bell

1991, and Aschenbrenner 1991). Other factors include little or no English language ability, illiteracy, residential mobility, and fear of government and outsiders. Hainer et al. (1988) identified another cause of census errors: deliberate concealment of people to protect resources.

### **1990 Census for rostering households: methods and concepts**

There are two approaches to deciding where people should be counted for census purposes. In *de facto* enumeration, a person is counted simply at the location where he/she is found on census day. In *de jure* enumeration, a person is counted at a location where he or she rightfully and/or legally belongs.

The *de jure* principle used to determine where to count persons in the censuses over the last two hundred years is the concept of "usual residence." A person is to be counted where he/she lives and sleeps most of the time, or where he/she considers the usual residence to be (Jones 1987). These definitions may not be consistent, as we shall see.

In the 1990 Census, the person completing the form had to apply the residence rules to decide who should and should not be counted at the household. The top line of the census form, page 1, (See Appendix) says that the census counts a person at the place where he/she lives and sleeps most of the time, the usual residence. Question 1a instructs that the names of the following should be listed: 1) those living here on census day, 2) those staying here with no other home, and 3) household members. Some of these concepts overlap, some diverge. Number 2 may not fit the respondents' conceptions of who belongs in the household.

The "Include" and "Do Not Include" columns contain residence rules. A domestic helper who stays in the employer's household weeknights but returns home to his/her family on the weekends should be listed on the employer's form, not on his family's form. This rule satisfies the census definition of usual residence as the place where a person lives or sleeps most of the time, but violates a subjective definition some may have of usual residence is the place where the person belongs. Alternatively, some people not in the household on census day are to be listed, such as children away at boarding school, but others, such as college students away at school, are not. These rules appear to be inconsistent.

As noted, the rules say that a person staying here on April 1 with no other home is to be listed on the form. This rule is not based on usual residence, but rather on the location where a person is found on a specific day. This is a *de facto* determination. These rules are

complex, seem contradictory, and, in the examples given, may not fit the way respondents conceptualize their living arrangements. We do not know the extent to which respondents read and understand these rules, or whether they apply them to their own households as we intend. We do not know the extent of fit between Census Bureau meanings and respondent interpretations for key words such as "live," "stay," "visit," "usual residence" and "household," and how these vary among cultural and linguistic groups, regions, or classes.

### **Roster question and residence rule research**

Research has been funded and/or conducted by the Census Bureau to address some of these within household coverage issues by modifying the 1990 methodology for roster data collection and using new inclusive rostering probes. Some examples include: the Alternative Questionnaire Experiment (Bates 1991), two roster question studies in low-income, Black communities (Cantor and Edwards 1992, Tourangeau 1993), and cognitive interviewing with Whites, Blacks, and Hispanics on the meanings of key residence terms in progress at the Bureau.

## **THE LIVING SITUATION SURVEY**

### **Purpose and objectives**

The purpose of the Living Situation Survey is to develop new methods and questions to reduce the causes of differential undercounts within minority, renter, and other households. To this end, we simplified the roster questions and removed the burden from the respondent for applying the residence rules and determining who to include on the household roster. The results of the Living Situation Survey will be used to develop an improved questionnaire for the 1995 test census.

The Living Situation Survey has six objectives. The first is to identify a wide range of actual living situations of individuals attached to sample households and possibly other places over a two to three month reference period. The second objective is to identify changes in household composition, mobility, and residence patterns over the recent past. A third is to examine differences in how people conceptualize their residence patterns and their households, and how they determine household membership. This information will be used to make the wording more respondent friendly and applicable to a wider range of living situations.

The remaining goals have implications for data collection and tabulation methods. The fourth goal is to find the types of people we've missed in previous censuses by eliciting inclusive rosters of people attached to the household, including those with tenuous and/or multiple addresses, and obtaining information on their

residence patterns and characteristics. The fifth objective is to examine if we can better apply the residence rules or whether we need to revise them.

The sixth broader goal is to test the feasibility of transferring the burden from the respondent to Census Bureau analysts for determining who should be retained on the final household roster. This alternative enumeration method, suggested by Wolter (1985), an outside consultant (CEC Associates 1987) and Bureau staff is called, collect *de facto*, tabulate *de jure*. The roster is developed by getting the names of all people staying in the household the night before the interview as well as the names of all who lived at the address, or had some attachment to it. Subsequent questions based on the residence rules would provide the data for analysts to decide who should and should not be included on the final household roster.

### **Description of the survey**

The Living Situation Survey is being conducted in a national probability sample of 1000 households, with oversampling of some subpopulations known to be at high risk of undercoverage. Of the four sampling strata, the first is comprised of areas with a high proportion of minorities, the second, a medium proportion of minorities, the third, a high proportion of renters, and the fourth, all others.

Interviews are being conducted with household respondents, as well as selected individuals with attachments to the sample households, which I will explain further. Children are being proxied. Household interviews are being conducted in person. Individuals eligible for interviewing who are present at the time of the household interview are also interviewed in person at that time. Interviews with other eligible individuals attached to the household or with proxies are conducted by telephone, unless the person does not have access to a phone.

### **Design features of the Living Situation Survey**

#### **Special roster questions and probes**

The first special feature of the Living Situation Survey is a new set of roster questions and probes designed to permit a test of the collect *de facto*, tabulate *de jure* method.

As mentioned, our objectives for the study included eliciting inclusive lists of people with attachments to the household over the reference period, obtaining residence rule information from the respondents, and then attempting through analysis to make the final determinations as to where each person should be counted in the census.

We developed new roster questions and probes to obtain inclusive rosters of people with attachments to the household over the past two to three months.

Question 1 is a pure *de facto* question: "What are the first names<sup>2</sup> of all the people who stayed here last night?" Question 2 is a straightforward *de jure* question: Now I'd like the first names of any people who live here but didn't stay here last night. The next roster question is mixed: Please think back over the time since (REF DATE). Was there anyone else who lived or stayed here for one or more nights?

Eleven more probes followed to identify new people with attachments to the household, for example: others considered to be household members, persons contributing money to the household, and those eating there frequently.

One probe asked about people who might be missed because they were away, for example, on a business trip, visiting relatives or at college. Another asks about persons who stayed in the household but might not be considered members, e.g, stepchildren boarders, or live-in employees or babysitters who stayed overnight.

During the analysis stage we will determine which questions were the most productive in eliciting names of people who should be counted in the households and test those questions in future research projects.

At the conclusion of the roster-building section, the interviewer asks the household respondent for each person's demographic data as well as information on each person's living situation. These questions include: the duration and pattern of presence in the household, current presence, whether he/she is considered a household member and/or a usual resident, and whether he/she has a usual residence elsewhere. The respondent classifies each person's household relationship as living there, staying there, visiting there, or something else.

#### **New inclusive respondent rules**

The second design feature of the LSS is a set of respondent rules that specify which people with household attachments are to be interviewed. As a critical aim of our study was to get inclusive lists of people with household attachments over the reference period, we selected as household respondent, the most knowledgeable resident adult.

Our remaining respondent rules were designed to obtain more detailed individual information from people attached to the household who should, according to census residence rules, be counted there, but are likely to be missed. Four key variables form the basis of the rules for selecting individual respondents: 1) the number of nights stayed in the household during the reference period, and whether the rostered person 2) is living or staying in the household now, 3) is a college student living elsewhere, 4) has a usual residence elsewhere.

On the basis of answers to these questions, each

person on the roster is classified into one of five residence status categories. "Casual visitors" are those who stayed less than eight nights and had other usual residences; we did not conduct individual interviews with them. The second category was "college student living away at school." These students may not have spent any reference period nights in the household, but were all individually interviewed because research suggests they are a major source of in-mover enumeration errors on mail returns (Griffin and Moriarity 1993). The third category, "every night resident," includes those who spent less than eight reference period nights away from the household. As these are the people most likely to be listed accurately on rosters, we did individual interviews with them in 10% of the households sampled. The fourth and fifth residence status categories cover mobile people who are more likely to be missed in the census. The "non-every night resident," is living or staying in the household but spent eight or more reference period nights elsewhere. The fifth category, "nonresident" stayed in the household at least eight days, but was no longer there. Examples of the people in these two categories are those who travel for work or other reasons, those with tenuous and/or multiple household attachments, those who move between households and group quarters, and those with no place of their own.

#### **The individual interview**

The individual questionnaire is designed to obtain a complete record of the places each eligible roster person stayed in during the reference period, to determine the types of attachments the person has to each place, and to have the person characterize his/her ties to each place. A calendar was used to collect individual respondents' mobility patterns in the reference period, including the type of places and dates of each overnight stay.

Once the mobility history has been completed, the respondent is asked a series of questions to determine the types of attachments he/she has to each place. Examples of the fifteen types of household attachments, most of which derived from Gerber (1990), include: eating there, sleeping there, helping with chores, having name on lease or mortgage, and contributing money. We ask the individual respondent to provide reasons for movement among the places, and to tell us which he/she considers to be his/her 1) usual residence, 2) permanent address, and 3) the place(s) where he/she considers himself/herself a household member. Demographics are also collected.

#### **Cognitive questions:**

Earlier we saw that census question 1a included several related, but not identical, residence concepts:

usual residence, household member, live, and stay. We developed cognitive questions and probes to explore the meanings respondents attach to these concepts. As mentioned, "usual residence" is the cornerstone of census residence rules. We asked the household respondent for each rostered person: "Do you consider this address to be NAME'S usual residence, that is, the place where NAME lives and sleeps most of the time?" In the first pretest think-aloud interviews, Forsyth and Kennedy (this volume) found that respondents used different reference periods to decide on "usual residence:" such as the present, the time since moving to the household, or some completed past period. As a result, we added cognitive questions to the survey on time periods respondents had in mind when answering the usual residence question.

We also asked the household respondent to tell us whether he/she considered each rostered person to be a household member. A "no" response led to asking why not. In addition, each individual respondent was asked to identify the place(s) in which he/she considered him/herself to be a household member. We plan to compare the household and individual respondents' answers to the household membership question for consistency. We will run tests to identify the household attachments most closely related to the determination of household membership and usual residence.

We included cognitive questions to learn about the meanings respondents have for key verbs in determining residence, having respondents compare live and stay, and stay and visit, for similarity or difference and provide reasons for their answers.

The results of the cognitive questions will be used to decide how to ask residence questions in a manner consistent with how respondents think about their living situations.

#### **SUMMARY AND PLANS FOR ANALYSIS**

In the preceding sections, I have summarized research on residence rules and coverage errors and identified problems with the 1990 Census rostering method. I described the Living Situation Survey and presented its objectives and special features: inclusive rostering questions and probes, new respondent rules, probes for attachments associated with residence determinations, individual interviews, and cognitive questions.

I will summarize briefly some of the main features of our analysis plan.

1. Assess whether the current residence rules can be applied better or whether they need to be revised or simplified.
2. Assess the feasibility, practicality, and extent of coverage improvement yield in using a collect *de facto*,

tabulate *de jure* enumeration method.

3. Decide which roster questions and probes are the most promising for reducing differential coverage.

4. Determine which household attachments are most closely correlated with the subjective assessment of household membership by the household and individual respondents.

5. Assess the consistency of household and individual respondents' reports of: a) usual residence and b) household membership.

6. Examine the meanings respondents provide for key residence concepts, such as "usual residence," "household membership," "live," and "stay," and look for possible variation by race/ethnicity and by region. Revise the 1995 Test Census questions.

7. Examine the time periods respondents are using to determine usual residence. Decide if a reference period should be added to the question.

We believe that the Living Situation Survey will provide us with valuable data on the dynamics of people's living situations as well as changes in household composition and mobility patterns over time. We will use the results to improve census and survey questions and methods, particularly for reducing the differential undercount.

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February 11, 1993.

**NOTES**

1. Others involved in survey development include: Elizabeth Martin, Eleanor Gerber, Leslie Brownrigg, Debbie Griffin, Gary Shapiro, Henry Woltman, Carol Miller, Bob Speaker, Don Hernandez, Judy Lynch, Mary-Anne Ardini, and Barb Forsyth. Elizabeth Martin, Eleanor Gerber, Debbie Griffin and John Paletta reviewed an earlier draft of this paper.

2. During rostering we asked for first names only. Last names were requested only for out-movers whom we had to contact. Tourangeau (1993) found that a first name only panel elicited significantly more rostered people than full name panels.

Appendix: 1990 CENSUS FORM, PAGE 1, QUESTION 1a

The 1990 census must count every person at his or her "usual residence." This means the place where the persons lives and sleeps most of the time.

1a. List on the numbered lines below the name of each person living here on Sunday, April 1, including all persons staying here who have no other home. If EVERYONE at this address is staying here temporarily and usually lives somewhere else, follow the instructions given in questions 1b below.	
Include	Do NOT Include
Everyone who usually lives here such as family members, housemates and roommates, foster children, roomers, boarders, and live-in employees	Persons who usually live somewhere else
Persons who are temporarily away on a trip, on vacation, or in a general hospital	Persons who are away in an institution such as a prison, mental hospital, or a nursing home
College students who stay here while attending college	College students who live somewhere else while attending college
Persons in the Armed Forces who live here	Persons in the Armed Forces who live somewhere else
Newborn babies still in the hospital	
Children in boarding schools below the college level	
Persons who stay here most of the week while working even if they have a home somewhere else	Persons who stay somewhere else most of the week while working
Persons with no other home who are staying here on April 1	

Print last name, first name, and middle initial for each persons. Begin on line 1 with the household member (or one of the household members) in whose name this house or apartment is owned, being bought, or rented. If there is no such persons, start on line 1 with any adult household member.