Interviewing Proxy Versus Self-Reporting Respondents to Obtain Information Regarding Living Situations[1]

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Abstract

Research continues to seek a greater understanding of the quality of proxy reporting versus self-reporting responses. This paper examines the use of proxy reports versus self-report responses in a study conducted by the U.S. Census Bureau designed to increase understanding of living situations in which individuals are likely to be duplicated (persons listed at more than one residence) in the decennial census. Cognitive interviews were conducted with either duplicated adults (self-report) or an adult within-household proxy. The purpose of this paper is to examine whether there was a significant difference in quality of living situation information provided by the proxy versus the self-reporting respondent. Of the 226 cognitive interviews conducted, 130 respondents were self-reports and 96 respondents were proxies. Our analysis includes findings from interviewer observations as well as potential data quality indicators including percent providing match to duplicate address, percent providing complete dates and address for moves and other transitions, item nonresponse, and mention of privacy concerns. Results suggest that self-reports are of higher quality than proxy reports.

Keywords: proxy versus self report, survey research, census

1. Introduction

1.1 Background of Census and Duplication in Census

The U.S. Census Bureau carries out the constitutional mandate of a complete count of the U.S. population every ten years. The Census has attempted a complete and accurate count with the expectation that "every person is counted once, only once, and in the right place" (Williams, 2011). As the size of the U.S. population grows and as people become more mobile, this task has proven to be more and more challenging. In addition, as a society the U.S. population is more geographically dispersed and demographically diverse overall than it used to be. Given these challenges the Census Bureau has had to contend with issues regarding accuracy of the census, including avoiding undercounting and over-counting particular subpopulations. Undercounting has been seen historically in various situations, but is most recurrent within households of racial and ethnic minorities. Challenges in enumeration leading to undercounting can stem from multiple families in a household, a household without members who are English-proficient, households with members who do not have legal status in the United States, households that generally

[1] Disclaimer: This paper is released to inform interested parties of research and to encourage discussion of work in progress. Any views expressed on methodological or operational issues are those of the authors and not necessarily those of the U.S. Census Bureau.

distrust government and various other atypical situations (Williams, 2011). Though undercounting is an issue that concerns the Census Bureau, the current study focuses on the problem of duplication, which is one aspect of overcounting. It is worth noting that overcounting becomes more of a problem when it is a different subpopulation that is being overcounted than the population that is undercounted (potentially leading to a differential undercount).

Issues with duplication or over-counting of some subpopulations are seen in situations as simple as the Census Bureau receiving multiple census forms from the same person or household. In addition, other more complicated situations contribute to the duplication of individuals or households. For example, a family who owns a second or vacation home and completes a census form at both their usual residence and their second or vacation home might be counted twice in the census. Another example includes parents who list a child in error on their census form when their child is away at college despite instructions that indicate their child will be counted at their college residence. Children who are part of a shared custody agreement and live with both parents at different times throughout the year are also increasingly duplicated by being counted on both parents' census forms (Williams, 2011). Despite concerted efforts, the Census Bureau has been unsuccessful at finding and eliminating all of these types of duplications.

This paper explores recent research the Census Bureau has conducted to address the issue of duplication. We specifically examine whether there was a significant difference in quality of living situation information provided by the proxy versus the targeted respondent in the *Qualitative Interviewing with Suspected Duplicates and Cognitive Testing of the Targeted Coverage Follow-up (TCFU) Interview* study (Peytcheva et al, 2011).

The Census Bureau has historically undertaken research in trying to better understand, evaluate and measure coverage issues since the 1950 Census (U.S. Census Bureau, 2004). Since the 2000 Census this research began to focus on employing new methods to not only understand and evaluate coverage issues but also to influence procedures that might also reduce incidences of undercounting and over-counting of individuals and households and provide a means for correcting coverage errors (Fay, 2002; Fay, 2004; Mule, 2002, U.S. Census Bureau, 2004). Of particular interest to this line of work has been research on duplication that has resulted in both statistical and survey operations to identify duplication (for example, the 2000 Accuracy and Coverage Evaluation, the Executive Steering Committee on Accuracy and Coverage Evaluation, and the Housing Unit Duplication Operation). In Census 2000, Mule (2002) estimated that there were 5,826,477 duplicates. These efforts have largely been quantitative in nature.

The Coverage Follow-Up (CFU) operation has been the operation tasked with resolving duplication in the census. In the CFU, the Census Bureau interviews the household again, following up on the initial census enumeration, and asks some questions aimed at resolving complicated living situations. The interview does not focus on any particular coverage situation but simply asks if any person in the household stayed at another place. A list of the places where people are often duplicated is also provided (e.g., college, at a job, in the military, with parents in custody situations). In conducting the CFU many respondents who had been identified as duplicates through computer matching did not reveal or admit to having another place where they or the duplicated person(s) lived or

stayed (Heimel, 2010). It was determined that the CFU interview was ineffective at resolving duplication, thus leading to revisions in the wording.

A study conducted in 2008 in North Carolina employed cognitive interviews with a fairly small sample to test some revisions to the CFU. Though this study did yield some insights on how to better ask follow-up questions of potential duplicates, questions still remained about how to best deal with issues of duplication (Childs, Fernandez, Clifton, Meyers, 2009). In 2009, the Census Bureau developed and piloted a new questionnaire to address identified duplicates: the Targeted Coverage Follow-up (TCFU) questionnaire. These new questions involved asking for much more detailed information about the suspected duplicate persons. The TCFU was revised based on the findings and recommendations of this study and plans for a larger scale qualitative study with computer-identified duplicates from the 2010 Census began (Childs, Sorokin, & Jurgenson, 2011).

This next phase of testing the TCFU was the study discussed here (Peytcheva et al, 2011). This larger scale study aimed to conduct approximately 300 interviews with individuals who were identified through computer matching as either suspected duplicates in the 2010 Census, or with individuals reporting for household members who were suspected duplicates in the 2010 Census.

1.2 Proxy Reporting versus Self-Reporting

Use of proxy reporting in lieu of participant self-reporting in research continues to be a topic of methodological discussion in survey research. When sampled participants are unable or unavailable to provide responses on their own, an alternative (proxy) participant is often sought. Proxy respondents in many cases are other members of the sampled unit or household, however, in some cases, a proxy may even be a neighboring unit. In surveys where interviewing all household members is neither feasible nor practical, an alternative or proxy respondent is often utilized (Bureau of Labor Statistics, 2010).

Like many other government agencies, use of proxy reporting in Census Bureau research has been utilized for many years. Specifically, research has asked respondents to provide information about themselves as well as other members of their household and even neighboring households (Moore, 1988). Different surveys use different definitions and rules for proxy reporting and, thus, have different frequencies of occurrence. For example, more than 40 percent of the Current Population Survey (CPS) sample was reported by proxy in 1992, 1996 and 2000. In the CPS, a proxy is one member of a household reporting for another member, rather than each individual reporting for themselves (Highton, 2005). About one-third of the Survey of Income and Program Participation (SIPP) interviews are conducted by proxy. Though normal procedures call for each adult in the sampled household to respond for themselves, in situations where they are unable, unwilling or unavailable, rather than have the interviewer make a repeat trip back to the home, a within-household proxy interview is allowed (Moore, 2010).

A household response for the census is considered self-report as long as a household member completes the form. Though the census form asks for information for each household member, it does not require an interview with each member, but generally relies on one member to report for the entire household. A proxy, in the case of the

census, is a non-household member completing the form – like a neighbor, a non-resident caregiver, a landlord or a postal worker. Because the census form asks for relatively little information, in many cases a nonresident can provide this information. In a follow-up to the census, like the TCFU described here, a proxy would be defined somewhat differently. Because much more detailed data are gathered, we define a proxy report as anyone reporting for the suspected duplicated person who is not that person – including other current or former household members.

Moore (1988) discussed the increased use of proxy reporting being largely due to the increasing cost of data collection and increased challenges in reaching all sampled participants. Whether or not this is a problem for data collectors depends on the data quality of proxy reports.

1.3 Data Quality in Proxy Reports

Quality of proxy responses in lieu of self-report no matter the reason has been the subject of great debate in survey research at least since the early 1950s (Moore, 1988). Moore presented one of the most frequently referenced literature reviews on the topic. He states that few studies have concretely demonstrated better measurement quality in self reports over proxy reports despite assumptions that the best information about a sampled participant must come from that person. He concluded that though studies should certainly aim to collect most data via self-reporting, studies need not sacrifice response rates and concerns with rising data collection cost for fear of marked affects on data quality. In addition, Moore recommended a more rigorous, systematic approach to conducting research on quality of responses and measurement error in proxy versus self-report information (1988). Miller, Massagli, & Clarridge (1986) conducted research using the Wisconsin Health Status Survey, to examine quality of proxy versus self reports. They examined the extent of agreement between the proxy- and self-reported responses to twenty health questions asking specifically about health complaints, finding that agreement between self and proxy reports was not very good. Their overall finding argued that proxy reports typically underestimated the health complaints even in serious situations.

In an analysis of proxy data in the 2000 A.C.E., comparing responses for five variables important for coverage measurement (age/sex, tenure, race and Hispanic origin domain, type of structure and household size), it was found that item non-response was lower when responses were provided by household members versus proxies such as postal workers or landlords (Wolfgang, Byrne & Spratt, 2003). Similarly, in a study of item nonresponse to the Census 2000 long form, Chesnut (2005) found that households where data were collected by a nonresident proxy resulted in an item completion rate that was on average 13 percentage points lower than a self-reported household. Both studies suggest that in a census environment, where a proxy report is often not a household member, worse data quality can be seen as indicated by levels of item nonresponse.

In situations where proxy reporting occurs because parents need to provide information about children (because they are too young to self-report), problems with quality of responses have been observed. In the NHIS, parent-reported height and weight for their school-aged children was often misreported, yielding lower estimates for body mass index. It was noted that weight was the primary point of error in proxy reporting (Reither & Utz, 2009).

In a study looking specifically at coverage issues, Martin (1999) examined proxy reporting errors for the concept of "usual residence." She found that proxy reports of "usual residence" increased undercoverage for young black males in particular. The current study seeks to examine whether similar patterns apply to populations who are overcovered.

The use of proxy reporting continues despite mixed reviews. The assessment of quality of responses continues to vary across survey topic, relationship of proxy to sample members, gender, race and age (Bureau of Labor Statistics, 2010; Moore, 2010; Reither & Utz, 2009). This study seeks to add to that body of knowledge by examining self versus proxy reporting of living situation information for people who were suspected to have been duplicated in the 2010 Census.

2. Proxy reporting in the TCFU Follow-up Study

This paper takes a closer look at the use of proxy reports versus self-report responses in the TCFU study conducted by the US Census Bureau, RTI International and RSS (Peytcheva et al, 2011). The study was designed to collect detailed contextual information regarding the different living situations in which individuals are likely to be listed at more than one address (or duplicated) in the census. Two hundred and twenty-six cognitive interviews were conducted with either self-reporting (suspected duplicate) adults or an adult household proxy[2].

The purpose of this paper is to assess whether there was a significant difference in quality of living situation information provided by the proxy versus the targeted respondent in the cognitive interviews. Of the 226 cognitive interviews conducted, 130 respondents were the targeted duplicates themselves and 96 respondents were proxies. An adult household member was allowed to serve as a proxy when the targeted respondent was either unavailable or a child. However the proxy had to be an adult listed on the original census form for the household; therefore, the proxy had to live with the targeted person at the time of the census. TCFU questions were asked only about the targeted person. In the case of a proxy respondent, questions were asked about another person (or other people) only. In the case of a self-report, the respondent was asked questions about him or herself, as well as anyone else within the household who was also duplicated at the same address.

The goal of the cognitive study was to assess the efficacy of the TCFU questionnaire in uncovering the addresses where people had been duplicated across a broad range of living situations. The cognitive interview was structured so that participants were first administered the TCFU questionnaire. Participants then took part in a retrospective think-aloud discussion of how they answered the survey questions. Interviewers used a structured cognitive protocol guide to gauge the respondent's understanding of the TCFU questions, their perception of the threat or sensitivity of any questions, and to assess the overall perception of burden in completing the TCFU interview. At the end of the interview, respondents were asked some final debriefing questions regarding their experience with the 2010 census and asked if they would be willing to provide the kind of information the TCFU was collecting over the phone. If time permitted, only self-

[2] In addition 50 Qualitative interviews were completed. The focus of this paper is the Cognitive Interviews.

reporting respondents were asked to complete an Event History Calendar that was designed to further cue recall and possibly close gaps in dates and activities reported in the TCFU. The duplicate address could be revealed during any portion of the interview described here.

There are some limitations to our study that should be noted. One goal of this paper is to assess item completeness, including how much information was provided when a date was requested from a respondent. We were only able to include in this analysis interviews through the early part of the second round of interviews due to a change in how dates were collected and reported in the interviews.

Additionally, proxy and self-report data were not obtained for the same person to directly compare the responses on the same items for the same person. Instead, the quality of reports in general are compared across the two groups.

2.1 Examination of Quality of Reporting Across Proxy and Self-Report Interviews

The TCFU questionnaire and the cognitive interview presented several opportunities to assess the quality of responses across proxy and self-report interviews. We aimed to look at variation in variables across the interview including providing or revealing the duplicated address of record, providing complete addresses and dates, item completeness for selected questions, refusal to provide information, and mention of privacy concerns. In addition, we looked at interviewers' comments for additional context.

Out of the 226 completed interviews, in 155 of them, the respondent confirmed or mentioned the other address where the Census Bureau had identified that they had been duplicated. We refer to these as resolved duplicate situations. The reasons uncovered for duplication in the 2010 census were (in order of frequency discovered): moving, group quarters (e.g., college dorm, nursing home), other property, relatives' household, convenience address used for a purpose other than living (e.g., to get mail, for school), custody, nonresident/completed wrong form.

Table 1 shows that proxy reports were almost as successful as self-reports in verifying the duplicate address. Approximately 70 percent of the self-report interviews resolved the duplicate situation, while 68 percent of proxy interviews verified the situation. The "Unresolved situation" reflects cases where the interview could not sufficiently determine whether the computer-identified duplicate was, indeed, a true match or a false match[3]. Table 1 also shows that the incidence of "Unresolved situations" is higher in proxy interviews (20%) than in self-reports (15%). This is evidence suggesting that a self-report allows more resolution of interviews than a proxy may, at least when detailed living situation information is required.

Table 1. Case Outcome by Proxy versus Self-Report Respondent

Case Outcome	Self-Report	Proxy
Verified/Resolved Duplicate Situation*	91 (70%)	65(68%)
Unresolved Situation	19 (15%)	19 (20%)

[3] A false match is when the computer algorithm links two records as duplicates when they are actually two different people.

False Match or Suspected False Match	20 (15%)	12 (13%)
Total	**130**	**96**

*Included is one case of an address problem that led to duplication rather than a complex living situation. It is included in the "Resolved" category because through the interviewing procedures, we were able to resolve this situation.

Ideally, to resolve living situation status, complete date and address information should be provided during the completion of the TCFU interview for the place where the person should have been counted on Census Day. Table 2 examines how often the proxy versus the self-reporting respondent provided complete address information. Table 2 shows, of the 226 interviews with a proxy or self-reporting respondent, how often the respondent provided complete addresses versus partial or both (if multiple addresses were provided) during their interviews.

Table 2. Completeness of Addresses Provided by Proxy versus Self-Report Respondent

	Only Complete Addresses	Only Partial Addresses	Both Partial and Complete Addresses	No Addresses Provided	Total Cognitive Interviews
Proxy	20 (21%)	31 (32%)	25 (26%)	20 (21%)	96
Self-Report	36 (28%)	16 (12%)	30 (23%)	48 (37%)	130

Table 2 shows that the self-reporting respondent was able to provide complete addresses during the interview about their living situations more frequently than was the proxy respondent. This provides further indication that non-proxy respondents can provide more complete information on themselves than proxy respondents can. However, one can also see that the self-report provides no address at a higher rate (37%) than a proxy report (21%), which could be reflecting concealed privacy concerns of the self-reporting person when reporting on themselves. It seems as though, overall, proxy respondents are more likely to provide some information, though not necessarily complete information, about other addresses than self-reports.

Coding of dates as complete (month and date in 2010) or incomplete/partial (month only) took place during the early part of data collection prior to a change in the way that data were collected for this study. As seen in Table 3, when these data were available, more self-reporting respondents (35%) provided only complete dates throughout the interview than proxy respondents (23%). This provides further indication that non-proxy respondents can provide more complete information on themselves than proxy respondents can. Similar to the address data collection, there was a high rate of item nonresponse, but in this case it was higher for proxies (64%) than for self-reports (51%).

Table 3. Completeness of Dates Provided by Proxy versus Self-Report Respondent

	Only Complete Dates	Only Incomplete Dates	Both Complete and Incomplete Dates	No Dates Provided
Proxy	22 (23%)	6 (6%)	7 (7%)	61(64%)
Self-Report	45 (35%)	5 (4%)	13 (10%)	67(51%)

2.2 Don't Know and Refusal Responses

Another way of looking at data quality is examining the number and proportion of "don't know" and refusal responses. Table 4 compares "don't know" responses to the "gate" questions that asked whether or not the targeted person had another address. There are many gate questions for each potential targeted person. The specific questions depend on the targeted person's situation and age.

Table 4. Don't Know to "Gate" Questions by Proxy versus Self-Report

Number of "Don't Know" Responses	Proxy	Self-Report
Stayed anywhere else, even for just one night or on the weekend	4	0
Stayed with any other people, such as friends	2	0
Stay anywhere for…financial problems	1	0
Stayed with a brother or sister	1	0
Stayed anywhere else, even for just one night or on the weekend	1	0
Stayed at a seasonal or vacation home	1	0
Spent even one night…on base housing	1	0
Spent even one night in…a military academy	1	0
Spent even one night in any of the following places…	1	0
TOTAL	**13 (100%)**	**0 (0%)**

Table 4 shows that all "don't know" responses came from proxy respondents. There were no cases where a self-reporting person said that he or she did not know if he or she stayed at one of these other types of places. This provides evidence that proxies, in some situations, had less knowledge of whether the person stayed at other places than the person him or herself and were less able to provide data of good quality. Particularly for the questions about staying with "other people" or "anywhere else, even for just one night or on the weekend," proxies were much more likely than self-reporters to say that they did not know whether the person had been in this situation or not.

Table 5 examines the number of refusals to all questions in the TCFU by proxy or self-report.

Table 5. Number of Item Refusals to TCFU Questions by Proxy or Self-Report (N=14[4])

TCFU Question	Proxy	Self-Report
Names of the people who usually live there	4	8
What was the address of that place?	2	3
Was [dup] there on April 1st, 2010?	0	2
Stay anywhere else	0	1
Did [dup] move?	0	1
Total	**6 (29%)**	**15 (71%)**

Table 5 tells a different story than Table 4. Though all "don't know" reports were from proxy reports, the majority of refusals were self-reported. While the "don't know" reports were likely a result of lack of knowledge on behalf of the proxy, refusals are likely a reaction to a perceived invasion of privacy.

All proxy refusals and the majority of self-reported refusals were to the items asking about the names of the other people living at the other addresses and for the actual other address. Interestingly, this may be the point in the questionnaire where it crosses the line between asking about the respondent's household and begins to ask about a perceived other person's household, which may cause a negative reaction. The other questions that had refusals from self-reports were small in number, and included questions asking about where a person was on Census Day, one of the "gate" questions asking if the person stayed anywhere else, and whether the person moved.

2.3 Privacy Concerns

Interviewers were asked to note during interviews any instances where the respondent expressed concerns regarding privacy. There were instances where it was explicitly clear that a respondent outright refused or chose not to disclose detailed information because they had concerns related to privacy. Twenty-seven percent (26 out of 96) of proxy respondents and twenty-two percent (29 out of 130) of self-reporting respondents expressed explicit privacy concerns. Interestingly, this differed from the direction of refusals. Though self-responders were more likely to refuse, proxies were more likely to mention privacy concerns. In both cases, the common theme is that asking respondents about people other than themselves sometimes raised privacy concerns.

2.4 Interviewer Observations

It is important to take note of interviewer observations in cognitive interviews. Interviewers have a unique lens in understanding the context of participant responses. Some of the observations noted in the interviewers' summaries were specific in regard to proxy respondents versus self-report respondents. For example, during the interviewing period, interviewers continued to raise an issue—the design feature of only asking about the suspected duplicated people in the TCFU interview. This was problematic when the respondent was a proxy. Interviewers reported that proxy respondents were surprised that the interviewer had no questions about them, the respondent. Because of protecting confidentiality and privacy, the interviewers could not disclose the suspected duplication

[4] Where "N" is the number of participants who refused at least once.

of other household members. Proxy respondents, however, were in general accepting of the reason provided by the interviewers that not everyone in the household is covered in the TCFU. However, when the duplicate was a minor child, in jail, or some other socially undesirable situation, the situation became quite sensitive. This accounted for many of the refusals to certain items or information in the TCFU and comments regarding privacy. One proxy respondent, a parent of a duplicated minor, noted that he had no issues with providing information about his household for the census; however, because the questions were focused only on his daughter he became apprehensive and suspicious. Another proxy respondent noted that they were uncomfortable providing information regarding their family member because that family member had not explicitly given their permission to disclose their private information. Many respondents, both proxy and non/proxy, noted that it was the details regarding stays at different places (dates, addresses, length of stays, etc.) that caused concern, as they did not understand the reason for collecting such a fine level of detail.

3. Conclusions

This study provides evidence to suggest that when examining living situations, self-reports can provide more complete data than proxy reports are able to provide. Overall self-report respondents provided more complete information than proxy respondents in this study. Both proxy and self-report respondents provided evidence that asking about people other than themselves could be perceived as invading privacy. Though they reacted in different ways (self-reports refused questions and sometimes failed to provide requested information and proxies commented on sensitivity of questions), both showed evidence of sensitivities.

Future research should examine these data items in a production setting, looking at item completeness and refusal rates by proxy status to see if the same findings maintain in a nationally representative sample.

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