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2010 CENSUS PLANNING MEMORANDA SERIES

No. 236

MEMORANDUM FOR The Distribution List

From: Burton Reist *[signed]*
Acting Chief, Decennial Management Division

Subject: 2010 Census Avoid Followup Evaluation Report

Attached is the 2010 Census Avoid Followup Evaluation Report. The Quality Process for the 2010 Census Test Evaluations, Experiments, and Assessments was applied to the methodology development and review process. The report is sound and appropriate for completeness and accuracy.

If you have any questions about this document, please contact Geoff Jackson at (301) 763-8447 or Keith Wechter at (301) 763-7858.

Attachment

2010 Census Avoid Followup Evaluation

U.S. Census Bureau standards and quality process procedures were applied throughout the creation of this report.

Final Report

Geoff Jackson and Keith Wechter

Decennial Statistical Studies Division

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Executive Summary

The 2010 Census Avoid Followup Evaluation reports the results of the 2010 Census Alternative Individual Census Return questionnaire for group quarters and the 2010 Census Experimental Overcount questionnaire for housing units. These two experimental 2010 Census questionnaires were designed to collect enough information on the initial census return so that a determination could be made of an individual's true residence status without the need for a follow-up telephone interview as part of the Coverage Followup operation. An independent sample was chosen for each experimental questionnaire. The total number of Alternative Individual Census Return questionnaires that were completed and data captured in three sample Local Census Office areas was 99,910. There were 20,663 data captured Experimental Overcount questionnaires containing 58,674 people in six sample strata.

Alternative Individual Census Return

The Individual Census Return was used to enumerate group quarters, which are living quarters, such as college dormitories, prisons, or nursing homes. The Individual Census Return allowed people interviewed at a group quarters to provide an address of another living quarters where they live or stay most of the time. The Individual Census Return used for the majority of the country (in this research it is referred to as the Regular Individual Census Return) only asked for an address if the respondent checked a box indicating that they lived somewhere else most of the time. The Alternative Individual Census Return asked all respondents for a second address regardless of where they lived or stayed most of the time. Due to the need to develop training materials for enumerators for the specific forms, the Alternative Individual Census Return was only used in three Local Census Offices. The Local Census Offices were chosen because they contained a large amount of college/university housing, and past research has shown that this type of group quarters have the largest number of forms completed by the respondent and not by facility records or proxies. The more forms completed by respondents, the more likely there will be additional addresses to evaluate the ability of the Alternative Individual Census Return to resolve person duplication. The Local Census Offices that used the Alternative Individual Census Return were in Pittsfield, Massachusetts; Durham, North Carolina; and Charlottesville, Virginia.

If the Individual Census Return met the Usual-Home-Elsewhere-eligible eligibility criteria then addresses collected on the form were only matched to the census inventory to see if the address existed. Group quarters can be classified as two different types: Usual-Home-Elsewhere-eligible or ineligible. A respondent in a Usual-Home-Elsewhere-eligible group quarters can be potentially moved from that group quarters to be counted in a housing unit. The majority of people who lived in group quarters did not reside in Usual-Home-Elsewhere-eligible group quarters. There were nine types of group quarters that met the criteria, and thus allowed for people to be residence coded[1] at another living quarters, dependent on their responses on the form.

[1] Residence coding is an algorithm that utilizes available information (in this case, the data from the experimental overcount series) and determines at what one place a person should be considered a resident.

Those group quarters types included:

- In-Patient Hospices,
- Military Ships,
- Soup Kitchens,
- Regularly Scheduled Mobile Food Vans,
- Residential Treatment Centers for Adults,
- Maritime/Merchant Vessels,
- Workers' Group Living Quarters and Job Corps Centers,
- Religious Group Quarters, and
- Living Quarters for Victims of Natural Disasters.

For a person on an Individual Census Return to be processed as a Usual-Home-Elsewhere-eligible response that could be potentially moved to a housing unit there were several other conditions that had to be met besides residing in a Usual-Home-Elsewhere eligible type of group quarters. The responses on the Individual Census Return to the question asking if the respondent lived or stayed at the group quarters facility most of the time determined, along with the type of group quarters, if it was to be processed as Usual-Home-Elsewhere-eligible. Respondents who indicated that they did not stay at the facility most of the time, reported that they stayed both away from and at the facility most of the time, or did not indicate where they stayed most of the time were processed as Usual-Home-Elsewhere-eligible. If a respondent lived in a Usual-Home-Elsewhere-ineligible group quarters and provided an address or another place where they lived or stayed, that address was ignored during 2010 Census production processing.

This evaluation analyzed all of the addresses collected on Individual Census Returns to see if the person in a group quarters was duplicated at the housing unit of the address they provided. The type of group quarters that the duplicated person resided in could be used to resolve the person duplication. If the person was duplicated in a Usual-Home-Elsewhere ineligible group quarters and a housing unit, that person should be removed from the housing unit to be solely counted in the group quarters. The person and additional address matching in this evaluation was not conducted in the 2010 Census production environment and was done after the fact for this evaluation. This evaluation recommends that person duplication in group quarters and housing units could be resolved in the future through processing of all group quarter addresses in conjunction with person duplication matching.

During 2010 Census production the addresses collected on Regular and Alternative Individual Census Returns that were considered to be Usual-Home-Elsewhere-eligible eligible were sent to Geography Division for address matching in an attempt to assign a Master Address File Identifier to the address provided to determine if the address existed on the 2010 Census address list. If the Usual-Home-Elsewhere-eligible address matched to another address on the Master Address File, the respondent was counted at the address they provided and not at the group quarters. This evaluation examined the Usual-Home-Elsewhere addresses collected on all Individual Census Returns, and examined if people were also included on the roster of the respondent-provided "other place" address. The Alternative Individual Census Return was developed to collect more addresses than the Regular Individual Census Return. A modification to the form prompted all respondents to provide an alternative address even if they responded that they lived or stayed at the facility most of the time (i.e., no skip pattern). Respondents

provided an address on the Alternative Individual Census Return 37.3 percent of the time, while an address was provided on nine percent of the Regular Individual Census Returns. This was expected due to the design of the form and because the Local Census Offices that used the Alternative Individual Census Return had a high concentration of college/university student housing.

For both the Alternative and Regular Individual Census Returns, Decennial Statistical Studies Division analyzed the proportions of addresses provided among the spectrum of group quarters types for a more detailed comparison of the addresses collected on the forms. Nearly half of respondents who completed the Alternative Individual Census Returns in college/university student housing provided an address, compared to 10.8 percent of the Regular Individual Census Return respondents in that group quarters type. This indicates that people living in a college/university student housing are able and willing to provide an address when asked.

Nearly five percent, or 4,873, of the Alternative Individual Census Returns were completed and data captured in group quarters facilities that were considered Usual-Home-Elsewhere-eligible. Alternative Individual Census Return respondents who indicated that they did not stay at the Usual-Home-Elsewhere-eligible group quarters most of the time provided an address at a rate of 74.9 percent. Only 4.4 percent, or 4,196, of the respondents from Usual-Home-Elsewhere-ineligible group quarters indicated that they stayed somewhere else most of the time, thus allowing them to be processed as Usual-Home-Elsewhere-eligible. Nearly 92 percent of those respondents who indicated they did not stay somewhere else besides the Usual-Home-Elsewhere-ineligible group quarters provided an address. This percentage was so high because all respondents were prompted to provide an address regardless of whether they reported living or staying at the facility most of the time.

Alternative Individual Census Return respondents in Usual-Home-Elsewhere-ineligible group quarters also had a much higher frequency of providing an address even when they indicated that they did not stay somewhere besides the group quarters. Sixty-seven percent of respondents at Usual-Home-Elsewhere-ineligible group quarters who indicated they did not live somewhere else most of the time provided an address compared to only 31.7 percent of the respondents staying at Usual-Home-Elsewhere-eligible group quarters who reported they lived elsewhere most of the time and provided an address.

For this evaluation, all of the addresses collected on both types of Individual Census Returns were sent to the Geography Division to be assigned a Master Address File Identifier. Eighty percent of the addresses collected on the Alternative Individual Census Returns matched to a housing unit compared to 51.1 percent of address from the Regular Individual Census Returns. The Alternative Individual Census Return collected addresses at a higher rate and were matched to housing units at higher rates than the Regular Individual Census Return. Within college/university student-housing group quarters, 83.9 percent of the addresses collected on the Alternative Individual Census Return were matched to a housing unit, while 60.3 percent matched to a housing unit from those addresses collected on the Regular Individual Census Returns.

The Alternative Individual Census Returns' housing unit match rate was much higher (83.0 percent) for people at Usual-Home-Elsewhere-ineligible group quarters who reported that they did not stay somewhere else besides the group quarters most of the time (yet provided an address) than those at Usual-Home-Elsewhere-eligible group quarters (61.1 percent). This shows that respondents at Usual-Home-Elsewhere-ineligible group quarters provide better quality housing unit address data, thus there is a greater potential to remove potential person duplication. The rate at which the address provided matched to a housing unit for an Alternative Individual Census Return respondent who stated that they stayed elsewhere most of the time was nearly the same for Usual-Home-Elsewhere-eligible group quarters and Usual-Home-Elsewhere-ineligible group quarters, at 74 percent.

If the person who completed the Individual Census Return provided an address and was found duplicated at that address from the Decennial Statistical Studies Division person matching program there is a high certainty that the person match is correct. This person duplication can then be resolved. After an address provided on the Alternative Individual Census Return matched to a housing unit on the Master Address File, Decennial Statistical Studies Division then checked to see if the person on the form was found to be duplicated at that housing unit. Nineteen percent of all Alternative Individual Census Return respondents who provided an address that matched to a housing unit were duplicated at the housing unit address they provided. Respondents in Usual-Home-Elsewhere-ineligible group quarters only had a one-percentage-point higher rate of person duplication than those at Usual-Home-Elsewhere-eligible group quarters (19.3 percent compared to 18.3 percent). However, when the respondent reported that they stayed somewhere else besides the group quarters most of the time and provided an address, the duplication rate was higher at the Usual-Home-Elsewhere-eligible group quarters than the Usual-Home-Elsewhere-ineligible group quarters (26.1 percent compared to 21.0 percent, respectively). Approximately 21 percent of the people who provided an address on the Regular Individual Census Return that matched to a housing unit on the Master Address File were found to be duplicated at the address of the housing unit address provided. The duplication rate was much higher for Usual-Home-Elsewhere-eligible group quarters types, at nearly 30 percent, than the Usual-Home-Elsewhere-ineligible group quarters types, which had a 19.7 percent duplication rate at the address of the housing unit provided on the Regular Individual Census Return. Approximately 20 percent of respondents in college/university student housing were duplicated at the housing unit address they provided for both the Regular and Alternative Individual Census Returns.

Currently, the Census Bureau does not remove a duplicated person from a housing unit unless the housing unit was selected for the Coverage Followup operation as a result of the coverage probe. In the 2010 Census, the Coverage Followup interview was the Census Bureau's final means to establish permanent residency through a series of probes and follow-up questions designed to determine if a person who reported that they lived at a particular housing unit actually lived somewhere else. The Coverage Followup interview only deleted the duplicated person from the roster if the person they spoke with indicated that the duplicated person in question did not live at that housing unit most of the time or lived at the group quarters on April 1, 2010. If a person provided an alternate address that matched to a housing unit, they could have been removed from a group quarters with a type classified as Usual-Home-Elsewhere-

eligible. The Coverage Followup interview was not able to resolve all of the group quarters to housing unit person duplication.

The Coverage Followup interview deleted 58.8 percent of the people who were found to be duplicated at the housing unit address that they provided on the Alternative Individual Census Return and 28.0 percent from the Regular Individual Census Return. The residency status of these people could have been resolved without a Coverage Followup interview if the address information collected was used in conjunction with the person duplication results. If the address collected on the Individual Census Return matched to a housing unit and the person was found to be duplicated at that housing unit, there is no reason not to resolve the duplication using the residence rule criteria. The process would be similar to the process currently used for Usual-Home-Elsewhere-eligible group quarters types but could be applied to all group quarters. For example, if an address collected from a Usual-Home-Elsewhere-ineligible group quarters matched to a housing unit and the person was duplicated at that unit, they could be deleted from the housing unit and only counted at the group quarters in the future.

Experimental Overcount Mailout/Mailback Questionnaire

The experimental overcount mailout/mailback (also known as X13) questionnaire was designed to identify and resolve the residency of people with complex living situations where the respondent indicated that they lived or stayed at another address. Unlike the standard one-sheet mailout/mailback form, the X13 form was a booklet questionnaire that allowed for the respondent to provide an alternative address where a person sometimes lived or stayed. Additionally, the X13 form featured two follow-up questions asking where the person lived most of the time and on April 1, 2010 in an attempt to identify where the person should be counted as determined by the 2010 Census residence rule. Those components, the address fields and follow-up questions, were referred to as the "experimental overcount series." The X13 questionnaire was mailed to six sample strata that were selected based on criteria defined to identify households containing people with complex living situations. The types of complex living situations targeted were people living elsewhere for college, child custody, military, nursing home, jail, and seasonal home reasons.

The booklet design of the X13 form may have introduced additional coverage problems that were not as prevalent on the standard one-sheet design. To examine any negative impact from the booklet design the Decennial Statistical Studies Division analyzed the response rate and several coverage-problem indicators on the X13 questionnaires and compared those indicators to the standard one-sheet mailout/mailback questionnaires in the same sample strata.

The rate of response was higher for the X13 questionnaire than the non-X13[2] mailout/mailback questionnaires in all six sample strata. Seventy-percent (70.5 percent) of the 29,308 X13 questionnaires were mailed back, while only 49.8 percent of the one-sheet mailout/mailback questionnaires were mailed back within the sampled 2010 Census tracts.

[2] Non-X13 forms include every language or experimental version of the mailout/mailback form, in addition to replacement mailout/mailback forms.

A count discrepancy occurs when the respondent-provided population count does not equal the number of people entered on the unit's roster. Overall, 4.1 percent of the non-X13 mailout/mailback forms data captured in the X13 sample strata had a count discrepancy, compared to 3.2 percent of the X13 forms in the same sample strata that had a count discrepancy. Just over three percent (3.3 percent) of the X13 form respondents reported more people living in the unit than were on the roster (known as "undercount") while 3.5 percent of the respondents on non-X13 mailout/mailback forms reported that they had more people staying at their household than were included on their household roster.

Due to the booklet design, it was hypothesized that the X13 form would cause additional respondent burden and coverage issues. However, considering the response, count discrepancy, and undercount rates across the X13 and non-X13 mailout/mailback forms, this did not appear to be the case. The X13 form had a higher response rate than the traditional one-sheet mailout/mailback form in each sample strata. Additionally, there were similar proportions of count discrepancies and undercounts between the X13 form and non-X13 mailout/mailback forms in the sample strata. Thus, the booklet design of the X13 questionnaire did not seem to cause increased respondent burden or additional coverage problems.

The experimental overcount series on the X13 form captured information at the time the respondent completed the survey, which eliminated the recall bias they might demonstrate in a Coverage Followup interview weeks or months later. Thus, the experimental overcount series was designed to resolve potential over-coverage on the initial 2010 Census questionnaire and to contribute to lower costs by eliminating the need for a follow-up interview. Of the 58,674 people enumerated on X13 forms, 7.6 percent indicated that they lived or stayed somewhere else.

The ensuing item in the experimental overcount series was a group of address fields that allowed respondents to enter an alternative address where they sometimes lived or stayed. Of the 58,674 people enumerated on X13 forms, 4,993 provided an address[3] on the form. In order to identify the proper residence of persons who provided an address and answered the questions in the experimental overcount series, it was necessary to match the addresses provided to the Master Address File (via automated matching only) to determine if the address existed in the census inventory. Using the simplified residence rule, if the address matched to a housing unit, the response to the query asking where the person lived or stayed most of time determined that person's place of residence. If the respondent indicated that they lived at both places equally or the address provided matched to a group quarters, the answer to the experimental question asking where the person lived on April 1, 2010, determined their place of residence.

Of the 4,993 addresses provided on X13 forms, almost half (48.5 percent) matched to an existing housing unit that was not the address where the X13 form was mailed, on the Master Address File. Over 41 percent, or 2,081, of the addresses provided on X13 forms did not match to an address on the Master Address File, meaning there was insufficient address information in the

[3] A response was designated as having an "address provided" if information was present in any of the address fields on the form.

fields or the address simply did not exist in the census inventory. Roughly nine percent (8.9 percent) of the person-provided addresses matched to the same address to which the form was mailed; only 38 of the addresses provided on X13 forms matched to a group quarters. Thus, the 2,422 people who provided an alternative housing unit address and the 38 people who provided a group quarters address were eligible to be considered residents of the addresses provided for the purpose of this evaluation, while the other people would be considered residents of the address where the X13 form was mailed.

The responses to the questions in the experimental overcount series asking where the person lived or stayed most of the time and where they stayed on April 1, 2010, determined the residence of a person who provided an alternative housing unit address. There were 2,422 people enumerated on X13 forms who provided an alternative address that matched to a housing unit on the Master Address File. Of those, 15 percent reported that they lived or stayed most of the time at the address they provided. A majority of the people (68.5 percent) who provided an alternative housing unit address on an X13 form indicated that they lived or stayed at the address where the X13 form was mailed to most of the time. Of those 2,422 people who provided an alternative housing unit address, 366 reported living at both addresses equally. Of those 366 people, 63.4 percent indicated that they stayed at the address where the X13 form was mailed on April 1, while 31.1 percent reported living at the alternative housing unit address on April 1. Therefore, looking at the results of the experimental overcount series, 78.1 percent of the people who provided an alternative housing unit address said they were residents of the address where the X13 form was mailed and 19.7 percent said they were residents of the alternative housing unit address provided.

For addresses provided that corresponded to a group quarters, it was vital to learn where the person was staying on April 1, 2010, to determine their residence. Of the 38 respondents who provided a group quarters address, eight reported that they lived at the address where the X13 form was mailed on April 1, 2010, while 26 said they lived at the alternative address provided on April 1, 2010. The results of the experimental overcount series for the 2,422 people who provided an alternative housing unit address and the 38 people who provided a group quarters address illustrates that people are willing to provide an address when prompted and complex living situations can be resolved by the respondents without costly follow-up. In addition to the costly follow-up, recall bias presents itself in the interview, which occurs several weeks after the initial questionnaire is completed, and potentially influences the accuracy of the response.

The experimental overcount series could be utilized to resolve situations where a person was enumerated on two separate forms. Once a person provided an alternative address on the X13 form and it was matched to an existing housing unit or group quarters address, it was checked to see if they were duplicated at that address using results from the person duplication matching process.[4]

[4] The Census Bureau developed computer matching algorithms that matched the census universe against itself to identify potentially duplicated persons. The algorithms used characteristics such as first name, last name, middle initial, age, date of birth, phone number, and geographic distance to match people. Refer to Section 2.5 for more information regarding person duplication matching.

Of the 2,422 people who provided an alternative housing unit address, 398, or 16.4 percent, were duplicated at that address, 4.4 percent were duplicated at another address, and 79.2 percent were not duplicated. Of the 398 people who were duplicated at the alternative housing unit address provided, 132 (33.2 percent) responded that they lived at the alternative address most of the time, 158 (39.7 percent) indicated that they lived most of the time at the address where the X13 form was mailed, and 106 (26.6 percent) reported that they lived at both addresses equally. Of those 106 people, 52 said they stayed at the X13 mailing address on April 1, while 50 indicated staying at the address provided on April 1. Half of the 38 people who provided an alternative group quarters address were not duplicated, seven were found to be duplicated at the group quarters address provided, and 12 percent were duplicated at another living quarters. Of those seven, six said they stayed at the group quarters on April 1 and one answered that they stayed at the X13 mailing address on April 1. These results show that respondents are willing, when able, to give us information on the initial return to solve duplication without costly follow-up.

For the purpose of this evaluation, all of the households that completed an X13 form were eligible to be contacted for a Coverage Followup interview. The Coverage Followup interview only deleted the duplicated person from the roster if they replied that they did not live at that housing unit most of the time or lived at the group quarters on April 1, 2010. Of the 4,435 people who indicated an overcount response on an X13 form saying that they sometimes lived or stayed elsewhere, 68.9 percent, or 3,055, completed a Coverage Followup interview. Looking solely at the 3,055 people who provided an overcount response and completed a Coverage Followup interview, 2,350, or 76.9 percent were found to be residents of the address to which the X13 form was mailed, while 21.7 percent were found to be nonresidents of the X13 mailing address. (The remaining 1.3 percent did not provide enough information to determine residency using the simplified residence rule.)

The results of the X13 questionnaire showed that people were willing to provide an address when prompted in their initial census questionnaire, and their complex living situation and duplication could be resolved using the current residence rule without an expensive follow-up interview.

Recommendations

The key recommendations taken away from the results of this evaluation are the following:

- **Implement the overcount series questions where the respondent can provide a second address where they sometimes live or stay on the 2020 Census housing unit questionnaire.**

- **Using the Census Bureau's residence rule, resolve complex living situations in housing units utilizing the results of the overcount series and person duplication matching.**

- **Implement the Alternative Individual Census Return Usual Home Elsewhere question series on the 2020 Census Group Quarters questionnaire to collect more addresses that would be used in address matching.**

- **Regardless of Group Quarters type, when a Usual Home Elsewhere address is provided, it should be used with the person duplication matching results to resolve person duplication.**

- **Conduct further research into the potential increase in printing and data capture costs, compared to a one-sheet questionnaire, if a mailout/mailback booklet questionnaire is implemented.**

1. Introduction

1.1. Scope

The purpose of the 2010 Census Avoid Followup Evaluation is to document the results and major findings from two experimental 2010 Census questionnaires. The experimental questionnaires were designed to collect enough information on the initial census return (either the mailout/mailback (MO/MB) questionnaire for housing units (HUs) or the Individual Census Return (ICR) for group quarters (GQ)) so that a determination could be made of an individual's true residence status without the need for a follow-up telephone interview. This could allow for coverage errors to be fixed administratively instead of by a follow-up interview in future censuses, thus saving the Census Bureau time and money.

This evaluation, which features results gleaned from the HU MO/MB experimental overcount, or D-1 (X13), questionnaire and the GQ Alternative ICR, will answer the following questions:

- Does an expanded series of overcount questions on the mail form accurately and effectively identify and resolve erroneous enumerations, in place of the telephone Coverage Followup (CFU) operation?

- Can collecting an alternative address on the GQ ICR for all respondents be used to identify erroneous enumerations in the HU universe and potentially avoid a costly follow-up operation?

1.2. Intended Audience

This report assumes that the reader has at least a basic understanding of both the HU MO/MB questionnaire,[5] the Group Quarters Enumeration (GQE) operation, and the CFU operation. Refer to the "2010 Census Group Quarters Enumeration Assessment Report" (Williams, et al, 2012) and the "2010 Census Coverage Followup Assessment Report (Coombs, et al, 2012) for results of the 2010 GQE operation and 2010 CFU operation respectively. The goal is to use this document to aid research, planning, and development teams in planning the 2020 Census.

2. Background

The foundation of the decennial census is to successfully count each person once, only once, and in the correct place. Sometimes people live or stay in more than one place and their patterns of movement and lengths of residency may make it difficult to ascertain which one place is the correct place at which to count them in the decennial census.

In the census, the majority of persons are counted at either an HU or a GQ. People who spent time at more than one place, and consequently may have been enumerated more than once, are

[5] Appendix C shows a screen shot of the standard 2010 Census one-sheet MO/MB questionnaire.

considered to have complex living situations. The Census Bureau has a residence rule with detailed situations to assist in determining where to count people with complex living situations. Essentially,

- A person should be on the roster at the HU where they live or stay most of the time.
- However, a person should be counted at a GQ if they were there on April 1.
- There are a variety of types of GQs that are exceptions to this rule. Individuals staying at these GQs are allowed to identify on the ICR an address of an HU where they usually live, called a "usual home elsewhere (UHE)." Thus, these GQs are called "UHE-eligible" GQs. If the respondent in a UHE-eligible GQ provides an address on the ICR for a valid HU, they should be counted at the other address and not the GQ. The types of GQs that allow respondents to have a UHE are the following:
    - In-Patient Hospices,
    - Military Ships,
    - Soup Kitchens,
    - Regularly Scheduled Mobile Food Vans,
    - Residential Treatment Centers for Adults,
    - Maritime/Merchant Vessels,
    - Workers' Group Living Quarters and Job Corps Centers,
    - Religious Group Quarters, and
    - Living Quarters for Victims of Natural Disasters.

Both the HU MO/MB questionnaire and the GQ ICR contain a question to identify whether each person has a second place where they sometimes live or stay. However, those questions in and of themselves do not provide enough information to determine which one place is the correct location to enumerate a person in the census, and, thus additional follow-up is needed in the form of a CFU interview. Both the experimental versions of the MO/MB questionnaire and the GQ ICR aim to accurately identify a second place where someone lived or stayed and at which one place to count that person, without the need for additional follow-up interviews.

2.1. 2010 Census Alternative ICR

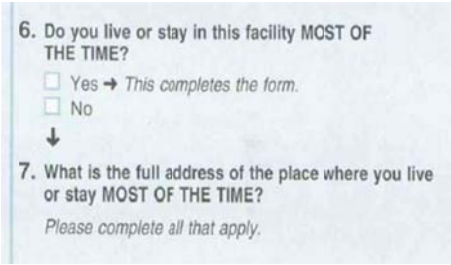
2.1.1. Usual Home Elsewhere Question on the Regular ICR

The GQE operations used ICRs to enumerate people living in GQs. Both the Regular and Alternative ICRs included a question that asked the respondents if they lived or stayed at the facility most of the time. This was Question 6 on both forms, and it will be referred to as the "UHE question" for the remainder of the report. Additionally, both forms asked a follow-up question for the respondent to provide the address of a second place. However, there was a subtle difference in how these questions were structured on the Regular and Alternative ICRs.

The 2010 Census was the first time that the ICR used a "skip pattern" when respondents answered the UHE question. Fundamentally, the skip pattern was introduced to reduce respondent burden by not asking respondents to provide an address that will not be processed (Dillman 2006). If the respondent answered 'No' to the UHE question (saying that they did not live or stay at the facility most of the time), they were instructed to provide an alternative address

where they lived or stayed most of the time. The flow of the 2010 Census UHE question series on Regular ICRs is pictured in Figure 1:

Figure 1: Standard UHE Question Series

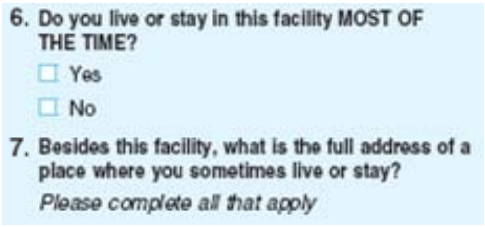


If the ICR originated from a UHE-eligible GQ and the resident indicated that they had a UHE and provided an address, then the Geography Division (GEO) attempted to match the address collected to the address of an existing HU with a Master Address File Identifier (MAFID) on the Master Address File/Topologically Integrated Geographic Encoding and Referencing database (MTdb). If possible, subsequent Census processing removed the person from the GQ and counted them in the HU.

2.1.2. UHE Question on the Alternative ICR

The purpose of this research was to test if it was possible to collect additional addresses on the ICR where people sometimes lived or stayed so that a determination could be made of an individual's true residence status without the need for a follow-up telephone interview. These addresses helped determine the true residence status of respondents who were found to also be living at an HU in an effort to avoid conducting a CFU interview for the linked HU. This evaluation matched all addresses collected on the Alternative and Regular ICRs to the HU universe regardless of the type of GQ or the respondent's answer to the UHE question. The Alternative ICR used in the evaluation was designed to collect an additional address for all respondents and was not dependent on whether the respondent reported himself or herself as living or staying somewhere else. This was done to ensure more addresses were collected to match to the HU universe and to investigate whether respondents were counted in an HU as well as the GQ. The skip pattern following the UHE question was removed and the question that collected an address was asked of all respondents. The flow of the UHE question series on the Alternative ICR is in Figure 2:

Figure 2. Alternative ICR UHE Question Series



Additionally, all of the names collected on the ICRs were matched against the rosters of all 2010 Census HUs for potential person duplication. When a match was found, a sample of the matched HUs were selected for CFU; the CFU interview also attempted to determine if the persons listed on the roster of the HU lived or stayed at that HU most of the time or another living quarters.

2.1.3. Sample Design for the Alternative ICR

To correctly implement the Alternative ICR in the field entire Local Census Offices (LCOs) were selected to exclusively use the Alternative form, because those LCOs were provided specific training materials to correctly reflect the content of the Alternative ICR. There was funding to select three LCOs to use the Alternative ICR. Alternate ICR training materials were distributed prior to the completion of 2010 Census Address Canvassing processing, which determined the quantity, location, and types of GQs in the 2010 Census. Thus, Census 2000 GQ data were used with 2010 Census geographic data to select the LCOs that used the Alternative ICR. The Decennial Statistical Studies Division (DSSD) assumed that LCOs with certain types of GQs in Census 2000 would have similar types of GQs in the 2010 Census.

The ICR was completed either by the respondent, by an interviewer, or through the aid of administrative records. To test the form accurately, the LCOs needed to have a majority of the ICRs completed by respondents instead of through the aid of administrative records in order to maximize the collection of respondents' alternative addresses. According to the Census 2000 GQE Final Report, colleges and universities were the only facilities where most of the ICRs were respondent-completed (58 percent were respondent-completed) (Jonas 2003). Juvenile facilities also had a high percentage of respondent-completed ICRs, compared to the other types of GQs, at 24 percent (Jonas 2003).

The first criterion used for selecting LCOs for this experiment was that at least 25 percent of the GQs in the LCO had to be college dormitories or juvenile institutions. There were 18 LCOs with at least 25 percent of their GQs consisting of college dormitories or juvenile institutions. The second criterion used in the selection process was the percentage of the total GQ population in the LCO that lived in college dormitories or juvenile institutions. Twelve of the 18 LCOs had at least 50 percent of their GQ population living in college dormitories or juvenile institutions. Of those 12 LCOs, geographic location, methodological concerns, and logistical concerns were then taken into account and three LCOs were selected. The three LCOs selected to use the Alternative ICR were located in Pittsfield, MA; Durham, NC; and Charlottesville, VA (Jackson 2009).

2.2. 2010 Census Experimental Overcount MO/MB Questionnaire

The MO/MB questionnaire instructed the respondent about who should and who should not be included on the form and thus who was counted at the address to which it was mailed. In the 2010 Census, the MO/MB questionnaire also contained a question on each person panel called the overcount question.[6]

2.2.1. Overcount Question on the Standard One-Sheet MO/MB Questionnaire

In the 2010 Census, the "overcount question" was one way that the Census Bureau identified individuals with complex living situations who may have been erroneously enumerated at the MO/MB address in the census. For each person on the form, the question asked if there was another place where they sometimes lived or stayed, and provided answer options such as college housing, jail, or a seasonal residence. The overcount question that appeared on the 2010 Census standard one-sheet MO/MB questionnaire is pictured in Figure 3:

Figure 3. Overcount Question on the 2010 Census Standard One-Sheet MO/MB Questionnaire

The overcount question only flagged people who self-identified themselves as sometimes living or staying at another place other than the unit where the MO/MB form was mailed; no additional questions existed to clarify where that other place was or how often the person lived or stayed there.

2.2.2. Overcount Question on the X13 Questionnaire

An alternative approach in an attempt to gain more information about people with complex living situations was to include additional questions on the initial questionnaire that would help clarify a person's residency. That idea led to the development of an experimental mail questionnaire, the X13 questionnaire, which included the "experimental overcount series."

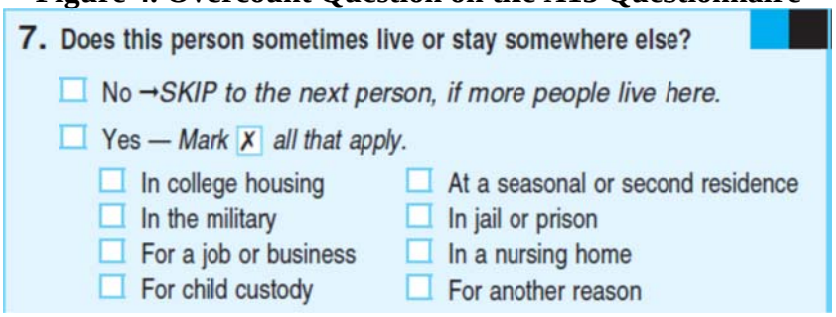
Just like the standard one-sheet MO/MB questionnaire, the X13 questionnaire asked the overcount question for each person,; however, the overcount question on the X13 questionnaire

[6] There were several experimental forms that did not have the overcount question. They were the D-1(XB), D-1(X1) to D-1(X12), and D-1(X14) to D-1(X17). The XB questionnaire had the same layout as the questionnaire used in Census 2000, when no overcount question existed and was used in the 2010 Census as a control. The overcount question had been removed from the other listed questionnaires to create more space for experimental race and Hispanic Origin questions. It was also not asked for any person listed on the continuation roster (Persons 7-12 on the D-1).

offered an eighth checkbox option, "For a job or business." The job or business option was tested in mid-decade research and was ultimately excluded from the final version of the standard one-sheet MO/MB questionnaire due to space limitations and minimal usage by respondents. Additionally, the categories on the X13 questionnaire were in a different order than on the standard form due to spacing constraints.

There were eight overcount options to answer the X13 overcount question, which asked if the person sometimes lived or stayed somewhere else. The overcount question that appeared as Question 7 in each person panel on the X13 questionnaires is pictured below in Figure 4:

Figure 4. Overcount Question on the X13 Questionnaire

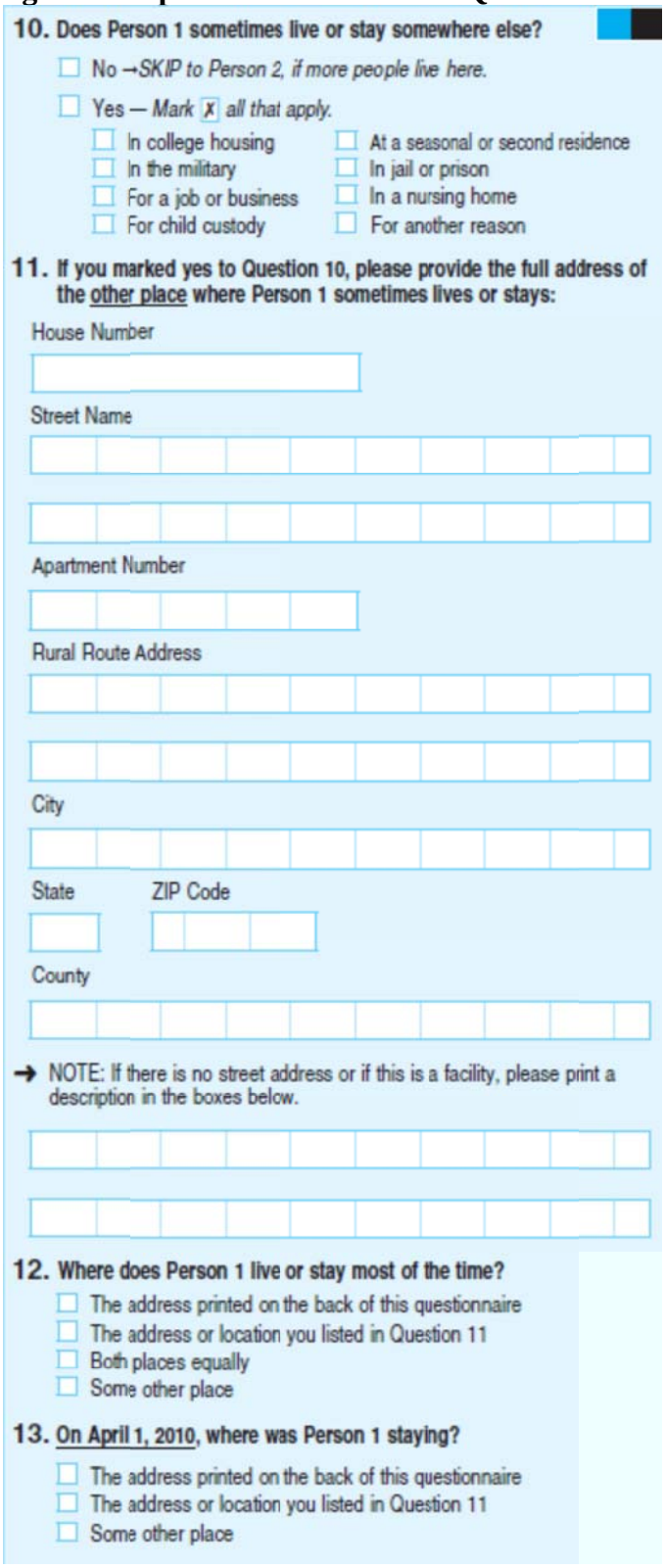


The overcount question was just a minor difference between the two forms. The major difference between the standard one-sheet MO/MB form and the X13 form was that the X13 form asked three additional questions that were intended only for people who marked the overcount question affirmatively. Ultimately, the purpose of these follow-up questions was to garner enough information on the person to properly "residence code" them and avoid a CFU interview. The three additional questions asked were:

- The address of the "other place" where the person stays,
- The location where the person lives or stays most of the time, and
- The location where the person was on April 1, 2010.

Jointly, the overcount question and the three additional questions were referred to as the "experimental overcount series." The three supplemental overcount questions are discussed in further detail in the Results Section. Figure 5 depicts the entire experimental overcount series as featured on the X13 form.

Figure 5. Experimental Overcount Question Series



10. Does Person 1 sometimes live or stay somewhere else?

- ☐ No → *SKIP to Person 2, if more people live here.*
- ☐ Yes — *Mark* ☒ *all that apply.*
  - ☐ In college housing
  - ☐ In the military
  - ☐ For a job or business
  - ☐ For child custody
  - ☐ At a seasonal or second residence
  - ☐ In jail or prison
  - ☐ In a nursing home
  - ☐ For another reason

11. If you marked yes to Question 10, please provide the full address of the other place where Person 1 sometimes lives or stays:

House Number

Street Name

Apartment Number

Rural Route Address

City

State ZIP Code

County

→ NOTE: If there is no street address or if this is a facility, please print a description in the boxes below.

12. Where does Person 1 live or stay most of the time?

- ☐ The address printed on the back of this questionnaire
- ☐ The address or location you listed in Question 11
- ☐ Both places equally
- ☐ Some other place

13. On April 1, 2010, where was Person 1 staying?

- ☐ The address printed on the back of this questionnaire
- ☐ The address or location you listed in Question 11
- ☐ Some other place

The central goal of the experimental overcount series was to acquire enough information on the initial questionnaire so that a person's living situation could be understood and the census residence rule could be applied, without the need for the CFU interview. If at least some of the coverage issues could be resolved through the experimental overcount series, then the CFU interview could focus on the households with extremely complex living situations, who need the detailed questions that are contained only in the CFU interview to correctly apply the census residence rule. For the purpose of this evaluation, all households that completed an X13 questionnaire were eligible to be contacted for a CFU interview.

An advantage of the X13 form over the CFU interview is that the experimental overcount series captured information at the time that the respondent completed the questionnaire and eliminated the recall bias they might demonstrate in a phone conversation weeks or possibly months later. Thus, the experimental overcount series could improve the quality of the data, help reduce erroneous enumerations, and lead to lower costs.

2.2.3. Sample Design for the Experimental HU Questionnaire

The sample design for the X13 questionnaire concentrated on reaching areas of the country that were expected to have significant numbers of households that were susceptible to coverage overcounts (people counted at more than one place). Coverage overcount cases indicated on the census questionnaire that they sometimes live or stay somewhere besides the address to which the form was mailed. Given that the focus was on reaching the maximum number of possible overcount cases rather than making any national estimates or comparisons, there was no comparison to a control panel (Bentley 2009).

The areas sampled for the X13 form were based on 2005-2007 American Community Survey data and Early LCO level pre-Address Canvassing MAF Extract files, combined with projections of post-canvassing counts. The design included areas that fit into at least one of the following strata:

1. The "College Stratum" was composed of tracts where 30 percent or more of the HUs had a young person between the ages of 6 and 22 and a college-educated adult (Bachelor's Degree or higher) between the ages of 40 and 60.

2. The "Child Custody Stratum" was composed of tracts where 30 percent or more of the HUs had a separated or divorced adult and the presence of a child less than 18 years old.

3. The "Military Stratum" was composed of tracts where 70 percent or more of the HUs had at least one person in active duty military since September 2001.

4. The "Nursing Home Stratum" was composed of tracts where at least 70 percent of the HUs had the presence of someone aged 70 years or older.

5. The “Jail Stratum” was composed of tracts where at least 50 percent of the HUs were located in an urban area and met the Census Bureau definition of poverty. Urban areas with a high percentage of people in poverty potentially have more incarcerated people (Patterson 2006).

6. The “Seasonal Stratum” was composed of tracts where at least 50 percent or more of the HUs had a person between the ages of 50 and 70 and a household income of at least $100,000.

An allocation of HUs was used in each of the six overcount strata that took into consideration the different selection criteria thresholds. The sample was designed such that across the country, there were approximately 6,000 HUs in both the “College Stratum” and the “Child Custody Stratum,” 4,000 HUs in both the “Military Stratum” and the “Nursing Home Stratum,” and 5,000 HUs in both the “Jail Stratum” and the “Seasonal Stratum” (Bentley 2009). For comparison, the characteristics of the data-captured non-X13 MO/MB forms in those sample strata were analyzed. The non-X13 MO/MB forms included every language or experimental version of the MO/MB form, in addition to replacement MO/MB forms in the sample strata, excluding the X13 form.

2.3. 2010 Census Coverage Followup

In the 2010 Census, the method used to resolve potential coverage issues at HUs was to follow-up with selected HUs in the form of a telephone interview called CFU. The CFU operation consisted of telephone interviews with certain respondents to determine if changes should have been made to their household roster as reported on their initial census return. The CFU interview featured probes to identify people who were not initially included on the household roster, in addition to people who, according to the census residence rule, were on the roster but should not have been enumerated at the HU. Regardless of the source of coverage improvement, all households sent for follow-up received the same core questions to identify missed and erroneously enumerated people. Information gathered during the initial enumeration was passed to the CFU interviewer, and respondents added or deleted people from the roster of the initial return (Coombs, et al, 2012).

2.4. Address Matching

For the purpose of this evaluation, GEO performed strictly automated matching of the addresses collected on the experimental forms to determine if they were valid addresses that existed in the census inventory. The automated matching algorithm used was the same matching used during 2010 Census processing. The address matching occurred after the completion of GEO’s 2010 Census address matching and included all of the addresses collected on the ICRs that were not processed during the UHE-eligible address matching and all of the addresses collected on the X13 questionnaires.

The addresses collected on UHE-eligible ICRs were processed as Type A Non-ID cases.[7] For Type A Non-ID cases, GEO attempted to geocode addresses from the UHE-eligible ICR questionnaires to the MTdb through automated and clerical procedures using the following steps:

1. Conduct automated header coding, which is a process by which a state and county code are assigned to an address. If the automated process was unable to find a state and county, the Type A case was sent to the clerical Non-ID Processing staff at the National Processing Center (NPC) for interactive clerical header coding and potentially clerical matching and geocoding. However, if automated processing successfully assigned state and county codes, the Type A record could continue on to further automated processing.
    i. If successfully assigned state and county codes during the automated header coding, GEO performed automated address matching on header-coded cases by comparing the Type A case's address to addresses in the MTdb already assigned to the same state and county.
    ii. If the Type A case did not match to a record in the MTdb, or matched to a record in the MTdb that did not have a block-level geocode, then GEO attempted to assign a block-level geocode to the case via an automated process.
2. If the case could not be matched or block-geocoded during automated processing, the case was sent to NPC for clerical processing. NPC clerks attempted to interactively match the case to the MTdb.
    i. If unable to match the case, a clerk made an attempt to clerically geocode the case.
3. If after both the automated and clerical Non-ID processes, a record did not match to the MTdb and could not be block-geocoded, then the case did not go through further processing.

2.5. Person Duplication Matching

Persons could be duplicated in the census for reasons related either to their living situation (called person-level duplication) or for reasons related to the physical address at which they live (called housing-level duplication).

In person-level duplication, a person may have been included on more than one questionnaire for reasons such as:

- Joint custody situations,
- Enrollment in college,
- Ownership of multiple residences, or,
- Other reasons that led to part-time residency situations.

Persons who spend time living or staying at more than one place are considered to have complex living situations because they are more likely to be enumerated more than once.

[7] Detailed in the "Specification for 2010 Census Non-ID Processing ADDUP File Composition Revision 2" (Niosi 2012).

The Census Bureau developed computer matching algorithms that matched the census universe against itself to identify potentially duplicated persons. The algorithms used characteristics such as first name, last name, middle initial, age, date of birth, phone number, and geographic distance to match people. The process involved multiple passes of the system where the matching parameters and constraints varied for each pass. Each time a person record matched to another person record, it was given a score that reflected the strength of the match. The scores were ranked and the matches were reviewed to establish a cutoff point. The cutoffs were set very high during the review to establish a high level of certainty that only true duplicates and not false matches were identified. All matches with scores above the cutoff were considered to be duplicate person records. The computer matching process identified duplicates but no individuals were removed from the 2010 Census during this process. The results of this process were used by this evaluation to identify if a person was duplicated at the additional address they provided.

3. Methodology

3.1. Research Questions

This section outlines the questions in the Avoid Followup Study Plan and identifies the section where the questions are answered in the evaluation.

Questions	Results
3.1.1. Experimental Overcount Questionnaire	
1. What information was obtained from the experimental overcount questionnaires[8]?	5.2
a. What was the response rate for experimental overcount questionnaires?	5.2.1.1
b. What was the rate at which other coverage problems (undercount cases, large households, count discrepancies, duplicated persons) occurred?	5.2.1
c. What was the frequency of responses to each individual question in the experimental overcount question series (overcount question, "other place" address question, most of the time question, and April 1 question), by overcount mark?	5.2.2

[8] When possible, results will be compared to non-sampled HUs within the same strata.

Questions	Results
d. What was the frequency of responses to each address field, by overcount mark?	5.2.3
e. By overcount mark, how many experimental overcount questionnaire cases would have been able to be residence coded[9], based on their answers to the experimental overcount question series?	5.2.4
2. What percent of "other place" addresses matched to the MAF?	5.2.4
a. How many of the "other place" addresses were header-coded or geocoded to an existing MAFID?[10]	5.2.4
b. How often did the address written in as the "other place" match to the address the questionnaire was mailed to?[11]	5.2.4
c. Of the "other place" addresses that were successfully matched to an existing MAFID, how often was that "other place" a GQ?	5.2.4
i. Of the "other place" addresses that were successfully matched to a GQ record on the MAF, did those cases also mark a corresponding GQ category from the initial overcount question?	5.2.4
ii. If a GQ category was marked in the initial overcount question, where did the person indicate they were living on April 1?	5.2.4
3. How does information obtained from the experimental questionnaire compare to information obtained from CFU?	5.2.6
a. If an "other place" address was listed on the experimental overcount questionnaire, was it also mentioned in CFU?	5.2.6

[9] Residence coding is an algorithm that utilizes available information (in this case, the data from the experimental overcount series) and determines at what one place a person should be considered a resident.

[10] When "other place" addresses were provided on the X13 form where people responded that they sometimes lived or stayed and were subsequently matched to living quarters on the MTdb by GEO in an attempt to determine if they existed, they were not header-coded. Header-coding is a process that attempts to assign an address to a state and county.

[11] If an address provided on an X13 form where a person answered that they sometimes lived or stayed did not match to an existing record on the MTdb, a reason as to why the address did not match to a living quarters on the MTdb was not provided.

Questions	Results
b. How did residency status as determined by the experimental questions compare to residency status as determined from CFU?	5.2.6

3.1.2. Alternative Individual Census Return

4. How many addresses were collected on the Alternative ICR?	5.1
a. How many of the addresses collected were geocoded by GEO?	5.1.2
b. How many were matched to an HU by address matching?	
i. What was the percentage of address matches by GQ type?	5.1.5
ii. If the matched HU address had a person that marked an overcount category did the overcount category match the GQ type?	5.1.6
iii. How many of the address-matched Alternative ICRs were also matched to the HU through person duplication matching?	5.1.8
5. What was the percentage of people on the Alternative ICR that stated they did not live somewhere else?	5.1.1
a. How many were responding from UHE-eligible GQs?	5.1.1
b. How many provided an “other place” address?	5.1.1
i. How many were matched to an HU by address matching?	5.1.2
ii. How many were matched to an HU by address and person duplication matching?	5.1.3
6. What was the percentage of people on the Alternative ICR that stated they did live somewhere else?	5.1.1
a. How many were responding from UHE-eligible GQs?	5.1.1
b. How many provided an “other place” address?	5.1.1
i. How many were matched to an HU by address matching?	5.1.2
ii. How many were matched to an HU by person duplication matching?	5.1.3
iii. How many were matched to an HU by address and person duplication matching?	5.1.3
7. If the matched HU was selected for CFU, what was the residency outcome of the CFU interview for the person on the Alternative ICR?	5.1.8
8. How did the results from the Alternative ICR compare to the results	

Questions	Results
from the non-experimental ICR?	5.1.5
a. Did the Alternative ICR collect address information more often than the non-experimental ICR?	5.1.5
b. Did the addresses collected on the Alternative ICRs match to another address more often than the addresses collected on the non-experimental ICRs?	5.1.6

3.2. Methods

This section describes the data sources instrumental in addressing the research questions.

3.2.1. X13 Data File

The X13 Data File includes the HU and person response data for only the data captured X13 questionnaires that were returned. The file was created and sent from the Decennial Response Integration System (DRIS) directly to DSSD.

3.2.2. X13 Geocoding File

The X13 Geocoding Data File includes the results of the additional automated address matching done by GEO for addresses provided on X13 questionnaires. This additional processing was done to determine whether the respondent-provided address matched to an existing 2010 Census living quarters.

3.2.3. 2010 Census Unedited File (CUF)

The CUF includes the core response data for only the data captured questionnaires that were included in the final 2010 Census counts. The CUF has one record for each address in the 2010 Census. Only the people counted in the 2010 Census are included in the CUF.

3.2.4. 2010 Census Decennial Response Files (DRF)

The DRF includes the core response data that comprised the Universal Response Database from all questionnaires that were data captured. Decennial Statistical Processing Office (DSPO) created the DRF.

3.2.5. 2010 Census Final Tabulation Master Address File Extract (MAFX)

GEO created the MAFX and it contains information for each address in the 2010 Census.

3.2.6. Census Programs for Evaluations and Experiments (CPEX) Sample File

DSSD created a file that contains information on the cases that were sampled to be mailed the X13 experimental questionnaire. The file contained information on the location of the selected cases and the sample stratum for which they were selected.

3.2.7. 2010 Census Mail Return/Response Rate Assessment File

The 2010 Census Mail Return/Response Rate Assessment File contains information on the number of returned and mailed MO/MB forms by collection tract.

3.2.8. 2010 Census Duplication File

The 2010 Census Duplication File includes results from person duplication matching performed by DSSD.

3.2.9. 2010 Census CFU Analysis File

The 2010 Census CFU Data File is a combination of the DRF entries for initial returns sent to CFU, the CFU returns sent to DSSD, and some additional information from data files related to the selection of Administrative Records and Unduplication cases.

3.2.10. 2010 Census CFU Geocoding File

The 2010 Census CFU Geocoding File includes the results of the additional automated address matching done by GEO for addresses mentioned during the CFU interviews. This additional processing was done to determine whether the respondent-provided addresses matched to an existing 2010 Census living quarters.

3.2.11. 2010 Census Non-ID Assessment File

GEO created the 2010 Census Non-ID Assessment File. This file included information on the geocoding and MAFID linking performed on all Non-ID cases (including addresses collected on UHE-eligible ICRs). If the UHE-eligible ICR address data were linked to an HU or GQ, the information was recorded on the 2010 Census Non-ID Assessment File.

3.2.12. ICR Geocoding File

The ICR Geocoding File includes the results of the additional automated address matching done by GEO for addresses provided on the ICRs. This additional processing was done to determine whether the respondent-provided addresses matched to an existing 2010 Census living quarters.

4. Limitations

4.1. Targeted X13 Sample Design

The X13 sample was developed to potentially maximize the overcount responses for college, child custody, military, nursing home, and jail reasons. The total number of overcount responses was as expected; however, the number of positive responses for each individual category did not generate the expected results. The nursing home and jail categories produced lower than expected overcount responses. Due to the limited number of responses for the nursing home and jail overcount reasons, our ability to draw direct conclusions about those categories is limited.

4.2. ICR Sample Design

The LCOs sampled to use the Alternative ICR were not randomly selected and they were located exclusively on the eastern side of the United States. They may not represent how people would complete the Alternative ICR in the rest of the country. To mitigate this limitation the results from the Alternative ICR were analyzed within the different GQ types with the assumption that people would be similar within the same type of GQ.

4.3. Issues checking the Alternative ICR into the Paper Based Operations Control System in the Charlotte LCO

The Charlotte LCO had issues checking in the Alternative ICR in the Paper Based Operations Control System. Due to the check-in issues, the LCO started transcribing the results of the Alternative ICR on to Regular ICRs. Thus, there could have been transcription errors on those data captured forms.

4.4. One Address Captured Per Person

There was space for only one additional address for each person on both of the experimental questionnaires. If the person sometimes lived or stayed at multiple addresses, there was only space to record one address. Therefore, that person's full living situation could not be captured.

4.5. Cost Impacts of Implementing the X13 Questionnaire

This evaluation only analyzed impacts on coverage from using the X13 questionnaire. A cost-benefits analysis of using the X13 questionnaire was not in the scope of this evaluation. Further research should be done that would evaluate the cost and coverage impacts of using a booklet MO/MB questionnaire compared with a one-sheet questionnaire.

5. Results

5.1. Alternative ICR Questionnaire

There were 99,910 Alternative ICRs completed and data captured in the three LCOs that used the form. The number of Alternative ICRs completed for each type of GQ is shown in Table 1.

Table 1. Alternative ICRs Completed by GQ Type

GQ Type	Number	Percent
College/University Student Housing	61,182	61.2%
Jails, Prisons, Correctional Facilities (Federal, State, Local)	16,777	16.8%
Nursing Facilities/Skilled-Nursing Facilities	10,762	10.8%
Workers' Group Living Quarters and Religious Group Quarters	1,932	1.9%
Residential Treatment Centers for Adults	1,813	1.8%
Group Homes for Adults	1,565	1.6%
Military Quarters	1,389	1.4%
Soup Kitchens	1,098	1.1%
Emergency and Transitional Shelters/Targeted Non-Sheltered Outdoor Locations	984	1.0%
Juvenile Group Homes, Residential Treatment Centers, and Correctional Facilities	909	0.9%
Mental Hospital, Residential Schools for People with Disabilities	778	0.8%
Other	605	0.1%
Unlisted	86	0.1%
In-Patient Hospice	30	<0.1%
Total Alternative ICRs Completed	**99,910**	**100.0%**

Source: DRF GQ Person File

The majority (61.2 percent) of Alternative ICRs were completed in college or university student housing. This was expected because the first criterion of LCO selection for using the Alternative ICR was for the LCO to have at least 25 percent of their GQs consist of college or university student housing.

5.1.1. Alternative ICRs Reporting a Usual Home Elsewhere

As mentioned in Section 2, only certain types of GQs were eligible for the respondents to have the location of their residency change based on having a UHE and meeting the eligibility criteria.[12] These are called UHE-eligible GQs. As a reminder those types of GQs are:

- In-patient hospices,
- Military ships,

[12] The respondent had to reply that they did not live at the facility most of the time or not answer that question, the combined first and last name fields must contain at least three alphabetic letters, and the UHE address must contain a combination of state, county, and ZIP code.

- Soup kitchens,
- Regularly scheduled mobile food vans,
- Residential treatment centers for adults,
- Maritime/merchant vessels,
- Workers' group living quarters and job corps centers,
- Religious group quarters, and
- Living quarters for victims of natural disasters.

Table 2 shows the number of Alternative ICRs completed in GQ types eligible for UHE-eligible processing and the number of GQ types not eligible to have UHE-eligible addresses.

Table 2. Alternative ICRs by UHE-Eligible and UHE-Ineligible GQ Types

	Number	Percent
UHE-Eligible GQ Type	4,873	4.9%
UHE-Ineligible GQ Type	95,037	95.1%
Total	**99,910**	**100.0%**

Source: DRF GQ Person File

Ninety-five percent of the Alternative ICRs were completed in UHE-ineligible GQ types while almost five percent of Alternative ICRs completed were in GQs that were UHE-eligible. As stated earlier, the large discrepancy between UHE-eligibility was by design due to the sampling of LCOs with large populations living in college dormitories.

In addition to staying in a UHE-eligible GQ type, for the Alternative ICR to be considered UHE-eligible, the respondent reported either that they did not live or stay at the GQ facility most of the time, that they lived or stayed both at the facility and elsewhere equally, or they failed to report where they lived or stayed most of the time.

Table 3 shows how respondents from UHE-eligible GQ types and UHE-ineligible GQ types answered Question 6 on the Alternative ICR.

Table 3. Where People on the Alternative ICR Reported Living or Staying Most of the Time by UHE-Eligible and UHE-Ineligible GQ Types

Response to Where Live or Stay Most of the Time Question	UHE- Eligible GQ Type		UHE Ineligible GQ Type		Total Alternative ICRs	Total Percent
	Number	Percent	Number	Percent		
At This Facility Most of the Time	2,484	51.0%	45,087	47.4%	47,571	47.6%
Not at This Facility Most of the Time	680	14.0%	4,196	4.4%	4,876	4.9%
Both	3	0.1%	42	<0.1%	45	<0.1%
Missing	1,706	35.0%	45,712	48.1%	47,418	47.5%
Total	**4,873**	**100.0%**	**95,037**	**100.0%**	**99,910**	**100.0%**

Source: DRF GQ Person

Table 3 shows that 14.0 percent of respondents in UHE-eligible GQ types indicated they lived or stayed somewhere else besides the GQ where the questionnaire was completed most of the time, while only 4.4 percent of the respondents from UHE-ineligible GQs indicated that they lived or stayed somewhere else other than the GQ most of the time. On the Regular ICR, only after the respondent indicated that they lived or stayed somewhere else besides the GQ were they prompted to provide the address of that place. Conversely, the Alternative ICR asked the respondent to provide the address, other than that of the GQ, where they sometimes live or stay regardless of how they answered Question 6. Table 4 shows the number of times an address was provided on the Alternative ICR.

Table 4. Alternative ICRs that Did and Did Not Provide an UHE Address

	Number	**Percent**
Address Provided	37,232	37.3%
No Address Provided	62,678	62.7%
Total Alternative ICRs completed	**99,910**	**100.0%**

Source: DRF GQ Person File and DRF Add Address File

Respondents provided an address on the Alternative ICR 37.3 percent of the time. Table 5 shows the number of times an address was or was not provided on an Alternative ICR by their response to Question 6 on the form and grouped by whether or not the form was from a UHE-eligible GQ type.

Table 5. Whether or not an Address was Provided on the Alternative ICR and Where Respondent Reported Living Most of the Time by UHE Eligible and UHE Ineligible GQ Types

Response to Where Live or Stay Most of the Time Question	UHE Eligible GQ Type		UHE Ineligible GQ Type		Total	Total Percent
	Number	Percent	Number	Percent		
At This Facility Most of the Time	2,484	51.0%	45,087	47.4%	47,571	47.6%
Address Provided	787	31.7%	30,329	67.3%	31,116	65.4%
No Address Provided	1,697	68.3%	14,758	32.7%	16,455	34.6%
Not at This Facility Most of the Time	680	14.0%	4,196	4.4%	4,876	4.9%
Address Provided	509	74.9%	3,852	91.8%	4,361	89.4%
No Address Provided	171	25.1%	344	8.2%	515	10.6%
Both	3	0.1%	42	<0.1%	45	<0.1%
Address Provided	2	66.7%	34	81.0%	36	80.0%
No Address Provided	1	33.3%	8	19.0%	9	20.0%
Missing	1,706	35.0%	45,712	48.1%	47,418	47.5%
Address Provided	60	3.5%	1,659	3.6%	1,719	3.6%
No Address Provided	1,646	96.5%	44,053	96.4%	45,699	96.4%
Total	**4,873**	**100.0%**	**95,037**	**100.0%**	**99,910**	**100.0%**
Address Provided	**1,358**	**27.9%**	**35,874**	**37.7%**	**37,232**	**37.3%**
No Address Provided	**3,515**	**72.1%**	**59,163**	**62.3%**	**62,678**	**62.7%**

Source: DRF GQ Person and DRF Address

Respondents who indicated that they did not live or stay at the GQ most of the time that were in the UHE-eligible GQ types provided an address 74.9 percent of the time, while the respondents in UHE-ineligible GQs that provided the same answer to Question 6 provided an address 91.8 percent of the time. Respondents in UHE-ineligible GQs had a much higher frequency of providing an address of another place even when they indicated that they did not live or stay somewhere most of the time besides the GQ where the form was completed. Sixty-seven percent of respondents at UHE-ineligible GQs who indicated that they did not live somewhere else most of the time provided an address, compared to only 31.7 percent of the respondents staying at UHE-eligible GQs. The respondents in UHE-ineligible GQs were more likely to provide an address than the respondents in UHE-eligible GQs. This indicates that people living in UHE-ineligible GQs can have another address where they live or stay and could have also been counted at the address. If that address is an HU, the residence rule dictates that the people in UHE-ineligible GQs should be counted at that GQ and not a housing unit. The current Census Bureau processing rules would not process these addresses and the potential person duplication would have to be resolved in a CFU interview.

5.1.2. Results of Address Matching for the Alternative ICR

During 2010 Census production the addresses collected on ICRs that were considered to be UHE-eligible were sent to GEO for address matching in an attempt to assign a MAFID to the address provided to determine if the address existed on the 2010 Census address list. For the purpose of this evaluation, all of the addresses collected on the Alternative ICRs were sent to GEO for automatic address matching. This additional address matching was not conducted in the 2010 Census production environment but was done after the fact only for the purposes of this evaluation. The addresses collected could have been linked to one of the following unit types:

- HUs,
- GQs,
- Special Places,
- Transitory Units, or
- Transitory Locations.

For the analysis of these results, addresses collected on an ICR that matched to a Special Place, Transitory Unit, or Transitory Location were grouped in the "Other Unit" category in the results tables. Table 6 shows the results of the address matching by the responses to Question 6 on the Alternative ICR by whether or not the type of GQ in which the Alternative ICR was completed was UHE-eligible.

Table 6. Type of Living Quarters that the Addresses Provided on Alternative ICRs were matched to by UHE Eligible GQ and UHE Allowed Ineligible GQ Types

Response to Where Live or Stay Most of the Time Question when Address Provided	UHE Eligible GQ Type		UHE Ineligible GQ Type		Total	Total Percent
	Number	Percent	Number	Percent		
At This Facility Most of the Time with an Address Provided	787	58.0%	30,329	84.5%	31,116	83.6%
HU Match	481	61.1%	25,181	83.0%	25,662	82.5%
GQ Match	43	5.5%	151	0.5%	194	0.6%
Other Unit Match	4	0.5%	37	0.1%	41	0.1%
No Match	259	32.9%	4,960	16.4%	5,219	16.8%
Not at This Facility Most of the Time with an Address Provided	509	37.5%	3,852	10.7%	4,361	11.7%
HU Match	379	74.5%	2,853	74.1%	3,232	74.1%
GQ Match	22	4.3%	21	0.5%	43	1.0%
Other Unit Match	45	8.8%	3	0.1%	48	1.1%
No Match	63	12.4%	975	25.3%	1,038	23.8%
Both Marked with an Address Provided	2	0.1%	34	0.1%	36	0.1%
HU Match	1	50.0%	22	64.7%	23	63.9%
GQ Match	1	50.0%	2	5.9%	3	8.3%
Other Unit Match	0	0.0%	0	0.0%	0	0.0%
No Match	0	0.0%	10	29.4%	10	27.8%
Missing Response to Most of the Time Question and Address Provided	60	4.4%	1,659	4.6%	1,719	4.6%
HU Match	42	70.0%	961	57.9%	1,003	58.3%
GQ Match	4	6.7%	8	0.5%	12	0.7%
Other Unit Match	7	11.7%	1	0.1%	8	0.5%
No Match	7	11.7%	689	41.5%	696	40.5%
Total Address Provided	**1,358**	**100.0%**	**35,874**	**100.0%**	**37,232**	**100.0%**
HU Match	**903**	**66.5%**	**29,017**	**80.9%**	**29,920**	**80.4%**
GQ Match	**70**	**5.2%**	**182**	**0.5%**	**252**	**0.7%**
Other Unit Match	**56**	**4.1%**	**41**	**0.1%**	**97**	**0.3%**
No Match	**329**	**24.2%**	**6,634**	**18.5%**	**6,963**	**18.7%**

Source: DRF GQ Person, DRF Add Address, Non-ID Assessment file, ICR Geocoding File, Final Tabulation MAFX

Table 6 shows that the HU match rate is much higher (83.0 percent) for people at UHE-ineligible GQs who reported that they stayed at the GQ most of the time than those at UHE eligible GQs (61.1 percent). Even though respondents at UHE-ineligible GQs replied that they sometimes lived somewhere besides the GQ where the form was completed at a much lower rate than those at UHE-eligible GQs, the rate at which the address provided matched to an HU for a respondent who stated that they lived or stayed somewhere else besides the GQ is nearly the same for UHE-eligible GQs and UHE-ineligible GQs at 74 percent. This indicates that the quality of address collected for both types of GQs is equal when the respondent indicates they live somewhere else besides the GQ. However, if a respondent indicates they stay at the GQ most of the time and still provides an address the quality of address is much better for UHE-ineligible respondents (83.0 percent compared to 61.1 percent). The more housing unit addresses collected will increase the chance of finding duplicated people.

5.1.3. Person Duplication at the HUs Collected on the Alternative ICR

After matching the address provided on the Alternative ICR to an HU on the MTdb, DSSD checked to see if the person on the ICR was also included on a 2010 Census questionnaire roster for the HU address provided. This person duplication matching does not take into consideration where the person was counted in the Final 2010 Census results. This person duplication matching looked at all data captured 2010 Census returns and was only used for evaluation purposes. Table 7 shows the number of duplicated people at the address the respondent provided, if that address matched to an HU on the MTdb, by their response to Question 6 on the Alternative ICR and whether or not the GQ was UHE-eligible.

Table 7. People Duplicated on the Alternative ICR who provided an address that matched to an HU by Response to Question 6 and UHE-Eligible and UHE-Ineligible GQ Types

Response to Where Live or Stay Most of the Time Question when Address matched to an HU	UHE Eligible GQ Type		UHE Ineligible GQ Type		Total	Total Percent
	Number	Percent	Number	Percent		
At This Facility Most of the Time with an Address Provided Matched to an HU	481	53.3%	25,181	86.8%	25,662	85.8%
Person Duplicated at that HU	61	12.7%	4,873	19.4%	4,934	19.2%
Person Duplicated at Another HU	21	4.4%	370	1.5%	391	1.5%
Person Not Duplicated	399	83.0%	19,938	79.2%	20,337	79.2%
Not at This Facility Most of the Time with an Address Provided Matched to an HU	379	42.0%	2,853	9.8%	3,232	10.8%
Person Duplicated at that HU	99	26.1%	598	21.0%	679	21.6%
Person Duplicated at Another HU	43	11.3%	77	2.7%	120	3.7%
Person Not Duplicated	237	62.5%	2,178	76.3%	2,415	74.7%
Both Marked with an Address Provided Matched to an HU	1	0.1%	22	0.1%	23	0.1%
Person Duplicated at that HU	0	0.0%	4	18.2%	4	17.4%
Person Duplicated at Another HU	0	0.0%	0	0.0%	0	0.0%
Person Not Duplicated	1	100.0%	18	81.8%	19	82.6%
Missing Response to Most of the Time Question with an Address Provided Matched to an HU	42	4.7%	961	3.3%	1,003	3.4%
Person Duplicated at that HU	5	11.9%	134	13.9%	139	13.9%
Person Duplicated at Another HU	1	2.4%	32	3.3%	33	3.3%
Person Not Duplicated	36	85.7%	795	82.7%	831	82.9%
Total Address Provided Matched to an HU	**903**	**100.0%**	**29,017**	**100.0%**	**29,920**	**100.0%**
Person Duplicated at that HU	**165**	**18.3%**	**5,609**	**19.3%**	**5,774**	**19.3%**
Person Duplicated at Another HU	**65**	**7.2%**	**479**	**1.7%**	**544**	**1.8%**
Person Not Duplicated	**673**	**74.5%**	**22,929**	**79.0%**	**23,602**	**78.9%**

Source: DRF GQ Person, DRF Add Address, Non-ID Assessment file, ICR Geocoding File, Final Tabulation MAFX

Table 7 shows that 19.3 percent of all Alternative ICR respondents who provided an address that matched to an HU were duplicated at the HU address they provided. Respondents in UHE-ineligible GQs only had a one-percentage-point higher rate of person duplication than those at

UHE-eligible GQs (19.3 percent compared to 18.3 percent). This shows that the person duplicate rate within housing unit address provided is nearly the same for UHE-eligible and UHE-ineligible GQ types. However, when the respondent reported that they lived or stayed somewhere else most of the time besides the GQ where the form was completed and provided an address, the duplication rate was higher at the UHE-eligible GQs than at the UHE-ineligible GQs (26.1 percent compared to the 21.0 percent, respectively). Additionally, 11.3 percent of respondents who reported that they lived most the time somewhere other than the UHE-eligible GQ where the ICR was completed were found to be duplicated at an address other than the address they provided on the form. In the 2010 Census, only those people duplicated in UHE-eligible GQs that stated they lived somewhere else other than the GQ would be been resolved. There was a person duplication rate of 19.4 percent at the address provided for respondents who were in UHE-ineligible GQs who stated that they did not live most of the time somewhere else besides the GQ where the form was completed but still provided an HU address.

The results of the Alternative ICR show that a respondent is likely to provide an address when asked to regardless if they indicate that they live most of the time at the GQ. If the Census Bureau processes the UHE-ineligible addresses and finds that the address matches to a housing unit the results of the person duplication matching can be used to remove people from UHE-ineligible GQ types per the residence rule. Currently, the addresses of UHE-ineligible GQ types are not processed. The UHE-ineligible GQ types were more likely to provide an address that matched to a housing unit which allows for a greater chance of finding people duplicated at HUs and GQs.

5.1.4. Alternative and Regular ICRs Processed as a UHE-Eligible During the 2010 Census

It was possible for a person contained on an ICR to be in a UHE-eligible GQ and provide an address but not processed as UHE-eligible. The rules for the address collected on the ICR to be processed as UHE-eligible were the following:

- a UHE-eligible GQ type;
- The respondent had to reply they did not live at this facility most of the time or not answer that question;
- The combined first and last name fields must contain at least three alphabetic letters;
- A combination of state, county, and ZIP code is provided in the address field.

The results in this section will show the UHE processing results for the Alternative ICR and Regular ICR. Table 8 shows the number of Alternative and Regular ICRs that were included in the UHE-eligible production processing.

Table 8. Alternative and Regular ICRs that Provided a UHE Addresss that were Processed as UHE-Eligible

	Alternative ICR		Regular ICR	
	Number	**Percent**	**Number**	**Percent**
UHE-Eligible	461	1.2%	50,758	7.5%
UHE-Ineligible	36,771	98.8%	623,729	92.5%
Total Number of Alternative ICRs with a UHE Address	**37,232**	**100.0%**	**674,487**	**100.0%**

Source: DRF Add Address file

Only 461, or 1.2 percent, of the 37,232 Alternative ICRs that contained a UHE address were included in the production 2010 Census UHE-eligible processing. Subsequently, DSSD delivered the addresses collected from the Alternative ICRs that were not UHE-eligible to be geocoded by GEO. DSSD also sent all of the UHE-ineligible addresses from the Regular ICRs to undergo the automatic address matching process. Table 9 reports the types of units that the Alternative ICR matched to by UHE-eligible and UHE-ineligible ICRs.

Table 9. Type of Living Quarters Matched to for UHE-Eligible and UHE-Ineligible Alternative ICRs

	UHE-Eligible		UHE-Ineligible			
	Number	**Percent**	**Number**	**Percent**	**Total**	**Percent**
HU	382	82.9%	29,538	80.3%	29,920	80.4%
GQ	24	5.2%	228	0.6%	252	0.7%
Special Place	0	0.0%	40	0.1%	40	0.1%
Transitory Location	0	0.0%	5	<0.1%	5	<0.1%
Unknown	52	11.3%	0	0.0%	52	0.1%
Excluded	3	0.7%	0	0.0%	3	<0.1%
No Match	0	0.0%	6,960	18.9%	6,960	18.7%
Total	**461**	**100.0%**	**36,771**	**100.0%**	**37,232**	**100.0%**

Source: DRF Add Address, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX

Table 9 reports that 80.4 percent of Alternative ICRs that contained an address where the respondent sometimes lived or stayed matched to an HU. The address-provided HU match rate was only slightly higher for the Alternative ICRs that were returned from a UHE-eligible GQ at 82.9 percent.

Table 10 shows the percent of addresses that matched to the different living quarters for the Regular ICRs by UHE-eligible and UHE-ineligible ICRs.

Table 10. Type of Living Quarters Matched to for UHE-Eligible and UHE-Ineligible Regular ICRs

	UHE-Eligible		UHE-Ineligible			
	Number	**Number**	**Number**	**Number**	**Total**	**Percent**
HU	38,483	75.8%	306,325	49.1%	344,808	51.1%
GQ	2,651	5.2%	58,817	9.4%	61,468	9.1%
Special Place	33	0.1%	4,399	0.7%	4,432	0.7%
Transitory Location	27	0.1%	280	<0.1%	307	<0.1%
Transitory Unit	0	0.0%	128	<0.1%	128	<0.1%
Unknown	5	<0.1%	0	0.0%	5	<0.1%
No Match	9,559	18.8%	253,780	40.7%	263,339	39.0%
Total	**50,758**	**100.0%**	**623,729**	**100.0%**	**674,487**	**100.0%**

Source: DRF Add Address, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX

There were 674,487 people who completed Regular ICRs who provided an address where they sometimes lived or stayed; of those, 50,758 were processed as forms from UHE-eligible GQs. Nearly 76 percent of the person-provided addresses where respondents said they sometimes lived or stayed on Regular ICRs that were returned from UHE-eligible GQs matched to an HU. The rate of HU matches for addresses provided on Regular ICRs was much lower for the UHE-ineligible Regular ICRs; only 49.1 percent of those addresses collected matched to an HU.

The HU match rate for respondent-provided addresses on the Regular ICRs returned from UHE-ineligible GQs was much lower than the Alternative ICRs returned from UHE-ineligible ICRs. Table 9 showed that 80.3 percent of the addresses provided on the Alternative ICRs returned from UHE-ineligible GQs matched to an HU. This higher percentage is most likely due to the fact that the Alternative ICR was used in areas where at least 25 percent of the GQs in the LCO housed people living in college dormitories or student housing.

5.1.5. Addresses Provided for Alternative and Regular ICRs by GQ Type

To properly evaluate the Alternative ICR DSSD looked at the percent of addresses that matched to living quarters by the type of GQ where the Alternative and Regular ICRs were completed. DSSD assumed that people with the same GQ type share similar characteristics regardless of where they are located in the country. The number of addresses provided on Alternative and Regular ICRs by the type of GQ where the forms were completed are in Table 11 and Table 12, respectively.

Table 11. Alternative ICRs that Provided an Address by GQ Type

GQ Type	Number Provided Address	Percent Provided Address	Number No Address	Percent No Address	Total	Total Percent
College/University Student Housing	30,414	49.7%	30,768	50.3%	**61,182**	**100.0%**
Emergency and transitional shelters/Targeted Non-Sheltered Outdoor Locations	208	21.1%	776	78.9%	**984**	**100.0%**
Group Homes for Adults	122	7.8%	1,443	92.2%	**1,565**	**100.0%**
In-Patient Hospice	0	0.0%	30	100.0%	**30**	**100.0%**
Jails, Prisons, Correctional Facilities (Federal, State, Local)	3,258	19.4%	13,519	80.6%	**16,777**	**100.0%**
Juvenile Group Homes, Residential Treatment Centers, and Correctional Facilities	177	19.5%	732	80.5%	**909**	**100.0%**
Mental Hospital, Residential Schools for People with Disabilities	157	20.2%	621	79.8%	**778**	**100.0%**
Military Quarters	1,191	85.7%	198	14.3%	**1,389**	**100.0%**
Nursing Facilities/Skilled-Nursing Facilities	325	3.0%	10,437	97.0%	**10,762**	**100.0%**
Other	20	3.3%	585	96.7%	**605**	**100.0%**
Residential Treatment Centers for Adults	167	9.2%	1,646	90.8%	**1,813**	**100.0%**
Soup Kitchens	525	47.8%	573	52.2%	**1,098**	**100.0%**
Unlisted	2	2.3%	84	97.7%	**86**	**100.0%**
Workers' Group Living Quarters and Religious Group Quarters	666	34.5%	1,266	65.5%	**1,932**	**100.0%**
Total Experimental ICRs	37,232	37.3%	62,678	62.7%	**99,910**	**100.0%**

Source: DRF GQ Person, DRF Add Address

Table 12. Regular ICRs that Provided an Address by GQ Type

GQ Type	Number Provided Address	Percent Provided Address	Number No Address	Percent No Address	Total	Total Percent
College/University Student Housing	264,410	10.8%	2,184,457	89.2%	**2,448,867**	**100.0%**
Emergency and transitional shelters/Targeted Non-Sheltered Outdoor Locations	32,622	14.0%	201,197	86.0%	**233,819**	**100.0%**
Group Homes for Adults	19,751	6.6%	281,558	93.4%	**301,309**	**100.0%**
In-Patient Hospice	1,159	10.2%	10,245	89.8%	**11,404**	**100.0%**
Jails, Prisons, Correctional Facilities (Federal, State, Local, Military)	158,476	7.2%	2,052,377	92.8%	**2,210,853**	**100.0%**
Juvenile Group Homes, Residential Treatment Centers, and Correctional Facilities	12,300	8.5%	132,820	91.5%	**145,120**	**100.0%**
Living Quarters for Victims of Natural Disasters	6	23.1%	20	76.9%	**26**	**100.0%**
Mental Hospital, Residential Schools for People with Disabilities/Hospitals with Patients who have no usual home elsewhere	8,769	11.6%	67,027	88.4%	**75,796**	**100.0%**
Military Treatment Facilities with Assigned Active Duty Patients	32	86.5%	5	13.5%	**37**	**100.0%**
Military Quarters/Military Ships	265	58.5%	188	41.5%	**453**	**100.0%**
Nursing Facilities/Skilled-Nursing Facilities	66,718	4.6%	1,395,567	95.4%	**1,462,285**	**100.0%**
Other	3,247	8.5%	34,785	91.5%	**38,032**	**100.0%**
Regularly Scheduled Mobile Food Vans	2,372	19.5%	9,776	80.5%	**12,148**	**100.0%**
Residential Treatment Centers for Adults	20,992	14.3%	125,472	85.7%	**146,464**	**100.0%**
Soup Kitchens	55,566	30.2%	128,500	69.8%	**184,066**	**100.0%**
Unlisted	1,924	11.2%	15,217	88.8%	**17,141**	**100.0%**
Workers' Group Living Quarters and Religious Group Quarters	25,878	10.6%	219,314	89.4%	**245,192**	**100.0%**
Total	674,487	9.0%	6,858,525	91.0%	**7,533,012**	**100.0%**

Source: DRF GQ Person, DRF Add Address

As expected, the Alternative ICR collected addresses for people who responded that they sometimes lived or stayed somewhere besides where the form was completed at a higher rate for nearly all of the GQ types. Thirty-seven percent of the people who returned an Alternative ICR provided an address, while only nine percent of people who returned a Regular ICR provided an address. The Alternative ICR captured a much higher rate of addresses at college/university student housing GQs than the Regular ICR. Nearly 50 percent of respondents who completed the Alternative ICR in college/university student housing supplied an address where they sometimes lived or stayed, while only 10 percent of the people in college/university student housing GQs who completed a Regular ICR provided an address where they sometimes lived or stayed.

5.1.6. Results of Address Matching for Alternative and Regular ICRs by GQ Type

After the addresses were collected, they were sent to GEO who assigned a MAFID to records that were found to match to existing records on the MTdb through an automated matching process. Table 13 and Table 14 report the percentage of respondent-provided addresses that matched to an HU, GQ, and other[13] type of living quarters for the Alternative and Regular ICRs.

[13] The other type of living quarters includes special places, transitory locations, and transitory units.

Table 13. Types of Living Quarters that the Addresses Collected on the Alternative ICR matched to by GQ Type

GQ Type	HU Match	Percent HU	GQ Match	Percent GQ	Other[14] Match	Percent Other	No Match	Percent No Match	Total	Percent Total
College/University Student Housing	25,532	83.9%	59	0.2%	2	0.0%	4,821	15.9%	**30,414**	**100.0%**
Emergency and transitional shelters/Targeted Non-Sheltered Outdoor Locations	86	41.3%	36	17.3%	0	0.0%	86	41.3%	**208**	**100.0%**
Group Homes for Adults	53	43.4%	40	32.8%	0	0.0%	29	23.8%	**122**	**100.0%**
In-Patient Hospice	0	0.0%	0	0.0%	0	0.0%	0	0.0%	**0**	**100.0%**
Jails, Prisons, Correctional Facilities (Federal, State, Local)	1,901	58.3%	16	0.5%	3	0.1%	1,338	41.1%	**3,258**	**100.0%**
Juvenile Group Homes, Residential Treatment Centers, and Correctional Facilities	108	61.0%	14	7.9%	0	0.0%	55	31.1%	**177**	**100.0%**
Mental Hospital, Residential Schools for People with Disabilities	96	61.1%	3	1.9%	0	0.0%	58	36.9%	**157**	**100.0%**
Military Quarters	1,026	86.1%	0	0.0%	1	0.1%	164	13.8%	**1,191**	**100.0%**
Nursing Facilities/Skilled-Nursing Facilities	200	61.5%	12	3.7%	35	10.8%	78	24.0%	**325**	**100.0%**
Other	15	75.0%	2	10.0%	0	0.0%	3	15.0%	**20**	**100.0%**
Residential Treatment Centers for Adults	92	55.1%	17	10.2%	2	1.2%	56	33.5%	**167**	**100.0%**
Soup Kitchens	368	70.1%	18	3.4%	49	9.3%	90	17.1%	**525**	**100.0%**
Unlisted	0	0.0%	0	0.0%	0	0.0%	2	100.0%	**2**	**100.0%**
Workers' Group Living Quarters and Religious Group Quarters	443	66.5%	35	5.3%	5	0.8%	183	27.5%	**666**	**100.0%**
Total	29,920	80.4%	252	0.7%	97	0.3%	6,963	18.7%	**37,232**	**100.0%**

Source: DRF GQ Person, DRF Add Address, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX

[14] The other type of living quarters includes special places, transitory locations, and transitory units.

Table 14. Types of Living Quarters that the Addresses Collected on the Regular ICR matched to by GQ Type

GQ Type	HU Match	Percent HU	GQ Match	Percent GQ	Other Match	Percent Other	No Match	Percent No Match	Total	Percent Total
College/University Student Housing	159,345	60.3%	12,452	4.7%	967	0.4%	91,646	34.7%	**264,410**	**100.0%**
Emergency and transitional shelters/Targeted Non-Sheltered Outdoor Locations	8,967	27.5%	5,696	17.5%	360	1.1%	17,599	53.9%	**32,622**	**100.0%**
Group Homes for Adults	3,656	18.5%	9,047	45.8%	213	1.1%	6,835	34.6%	**19,751**	**100.0%**
In-Patient Hospice	625	53.9%	190	16.4%	0	0.0%	344	29.7%	**1,159**	**100.0%**
Jails, Prisons, Correctional Facilities (Federal, State, Local, Military)	72,129	45.5%	8,628	5.4%	1,109	0.7%	76,610	48.3%	**158,476**	**100.0%**
Juvenile Group Homes, Residential Treatment Centers, and Correctional Facilities	5,654	46.0%	2,003	16.3%	211	1.7%	4,432	36.0%	**12,300**	**100.0%**
Living Quarters for Victims of Natural Disasters	0	0.0%	5	83.3%	0	0.0%	1	16.7%	**6**	**100.0%**
Mental Hospital, Residential Schools for People with Disabilities/Hospitals with Patients who have no UHE	5,349	61.0%	649	7.4%	22	0.3%	2,749	31.5%	**8,769**	**100.0%**
Military Treatment Facilities with Assigned Active Duty Patients	13	40.6%	0	0.0%	0	0.0%	19	59.4%	**32**	**100.0%**
Military Quarters/Military Ships	223	84.2%	4	1.5%	0	0.0%	38	14.3%	**265**	**100.0%**
Nursing Facilities/Skilled-Nursing Facilities	33,540	50.3%	9,120	13.7%	951	1.4%	23,107	34.6%	**66,718**	**100.0%**
Other	875	26.9%	614	18.9%	48	1.5%	1,710	52.7%	**3,247**	**100.0%**
Regularly Scheduled Mobile Food Vans	1,321	55.7%	38	1.6%	3	0.1%	1,010	42.6%	**2,372**	**100.0%**
Residential Treatment Centers for Adults	8,846	42.1%	4,431	21.1%	292	1.4%	7,423	35.4%	**20,992**	**100.0%**
Soup Kitchens	34,919	62.8%	2,337	4.2%	143	0.3%	18,167	32.7%	**55,566**	**100.0%**
Unlisted	342	17.8%	592	30.8%	5	0.3%	985	51.2%	**1,924**	**100.0%**
Workers' Group Living Quarters and Religious Group Quarters	9,004	34.8%	5,662	21.9%	548	2.1%	10,664	41.2%	**25,878**	**100.0%**
Total	344,808	51.1%	61,468	9.1%	4,872	0.7%	263,339	39.0%	**674,487**	**100.0%**

Source: DRF GQ Person, DRF Add Address, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX

The Alternative ICR collected addresses at a higher rate than the Regular ICR and was more successful in matching those addresses to HUs than the Regular ICR. Table 13 shows that, as mentioned earlier, 80.4 percent of all the addresses collected on the Alternative ICR were geocoded and matched to an HU on the MTdb. The percentage of Regular ICRs that contained a respondent-provided address that was subsequently geocoded and matched to an HU on the MTdb was only 51.1 percent, as shown in Table 14. The percentage of HU matches for college/university student housing GQs was much higher for addresses provided on the Alternative ICR (83.9 percent) than the Regular ICR (60.3 percent). Each percentage of Alternative ICR addresses provided that matched to an HU on the MTdb was higher or the same as its counterpart for the Regular ICR addresses provided for nearly all GQ types.

Questionnaires that were completed for HUs asked respondents to indicate if anyone included on the HU's roster sometimes lived or stayed somewhere for other reasons—this was referred to as the overcount question. Those reasons were:

- In college housing,
- In the military,
- For a job or business[15],
- For child custody,
- At a seasonal or second residence,
- In jail or prison,
- In a nursing home, or
- For another reason.

Four of the eight overcount responses refer to another place that is specifically a GQ--"in college housing," "in the military," "in jail or prison," and "in a nursing home." For respondents who completed an Alternative ICR and provided an address that matched to an HU, the corresponding HU return was analyzed to see if a person indicated that they stayed at another address in the overcount question that matched to the type of GQ at which the Alternative ICR was completed. Table 15 presents the results of this analysis.

[15] Only included on the experimental X13 MO/MB questionnaire.

Table 15. Alternative ICR Addresses Provided that Matched to an HU Where a Person Living at that HU Indicated that they Stayed Somewhere Else that was or was not the same as the GQ Type of the GQ Where the Alternative ICR was Completed

Overcount Category and GQ Type	Overcount Category and GQ Type Match Total	Overcount Category and GQ Type Match Percent	GQ Type Did Not Match Overcount Total	GQ Type Did Not Match Overcount Percent	Total Alternative ICRs	Total Percent
College	2,369	9.3%	23,163	90.7%	**25,532**	**100.0%**
Jail	36	1.9%	1,865	98.1%	**1,901**	**100.0%**
Military	13	1.3%	1,013	98.7%	**1,026**	**100.0%**
Nursing Home	10	5.0%	190	95.0%	**200**	**100.0%**

Source: DRF, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX, CUF

Overall, an overcount question response from a respondent who provided an address that matched to an HU did not match very often to the type of GQ where the Alternative ICR was completed. Only 9.3 percent of the addresses provided on the Alternative ICR from college/university student housing matched to an HU where someone in the HU indicated that they sometimes lived or stayed in college housing. Only five percent of the addresses collected from nursing homes on Alternative ICRs were linked to an HU where someone indicated they sometimes lived or stayed in a nursing home. For Alternative ICRs received from both jails and military GQs that matched to an HU, less than two percent of rosters from the HU matches indicated that someone sometimes lived or stayed in a jail or prison or in a nursing home, respectively. These results show that a person potentially duplicated in a GQ and an HU is not very likely to mention the GQ type where they might be duplicated on the HU questionnaire. The HU questionnaire had to self identify the potential duplication in the overcount question to be eligible for CFU to be resolved in the 2010 Census.

5.1.7. Results of Person Duplication for Alternative and Regular ICRs by GQ Type

For the addresses indicating that the respondent sometimes lived or stayed somewhere collected on the Alternative and Regular ICRs that matched to an HU, DSSD then looked to see if the person on the ICR was duplicated at that HU or another HU. The results for the Alternative ICR address-provided duplication matching is in Table 16, and the results for the Regular ICR address-provided duplication matching are in Table 17.

Table 16. People on the Alternative ICR who Provided an Address that Matched to an HU who were or were not duplicated

	UHE-Eligible		UHE-Ineligible		Total Alternative ICRs	Total Percent
	Total	Percent	Total	Percent		
Person Duplicated at that HU	101	26.4%	5,673	19.2%	5,774	19.3%
Person Duplicated at Another HU	43	11.3%	501	1.7%	544	1.8%
Person Not Duplicated	238	62.3%	23,364	79.1%	23,602	78.9%
Total HU Matches	**382**	**100.0%**	**29,538**	**100.0%**	**29,920**	**100.0%**

Source: DRF, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX, CUF, Duplicate File

Just over nineteen percent of the people who provided an address on the Alternative ICR that matched to an HU on the MTdb were duplicated at that HU. The rate was slightly higher for UHE-eligible GQ types, where 26.4 percent were duplicated at the address of the HU provided on the Alternative ICR, than for UHE-ineligible GQ types, where 19.2 percent were duplicated at the address of the HU provided.

Table 17. People on the Regular ICR who provided an address that matched to an HU who were or were not duplicated

	UHE-Eligible		UHE-Ineligible		Total Regular ICRs	Total Percent
	Total	Percent	Total	Percent		
Person Duplicated at that HU	11,456	29.8%	60,395	19.7%	71,851	20.8%
Person Duplicated at Another HU	3,495	9.1%	11,262	3.7%	14,757	4.3%
Person Not Duplicated	23,532	61.1%	234,668	76.6%	258,200	74.9%
Total HU Matches	**38,483**	**100.0%**	**306,325**	**100.0%**	**344,808**	**100.0%**

Source: DRF GQ Person, DRF Add Address, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX, CUF HU Person file, Duplicate File

The duplication rate at the HU address provided on the Regular ICRs was very similar to that of the Alternative ICRs. Approximately 21 percent of the people who provided an address on the Regular ICR that matched to an HU on the MTdb were duplicated at the address of the HU provided. The duplication rate was much higher for UHE-eligible GQ types, at nearly 30 percent, than for the UHE-ineligible GQ types, which had a 19.7 percent duplication rate at the address of the HU provided on the Regular ICR.

The distribution of the duplication rate within the HU of the address provided by GQ type for the Alternative ICR is shown in Table 18. The results by GQ type for the Regular ICR can be found in Table 19.

Table 18. People Duplicated on the Alternative ICR who Provided an Address that Matched to an HU by GQ Type

GQ Type	Number Duplicated at that HU	Percent Duplicated at that HU	Number Duplicated at Another HU	Percent Duplicated at Another HU	Number Not Duplicated	Percent Not Duplicated	Total	Total Percent
College/University Student Housing	5,169	20.2%	374	1.5%	19,989	78.3%	**25,532**	**100.0%**
Emergency and transitional shelters/Targeted Non-Sheltered Outdoor Locations	7	8.1%	1	1.2%	78	90.7%	**86**	**100.0%**
Group Homes for Adults	4	7.5%	1	1.9%	48	90.6%	**53**	**100.0%**
In-Patient Hospice	0	--	0	--	0	--	**0**	**--**
Jails, Prisons, Correctional Facilities (Federal, State, Local)	114	6.0%	43	2.3%	1,744	91.7%	**1,901**	**100.0%**
Juvenile Group Homes, Residential Treatment Centers, and Correctional Facilities	38	35.2%	10	9.3%	60	55.6%	**108**	**100.0%**
Mental Hospital, Residential Schools for People with Disabilities	37	38.5%	14	14.6%	45	46.9%	**96**	**100.0%**
Military Quarters	150	14.6%	13	1.3%	863	84.1%	**1,026**	**100.0%**
Nursing Facilities/Skilled-Nursing Facilities	87	43.5%	23	11.5%	90	45.0%	**200**	**100.0%**
Other	3	20.0%	0	0.0%	12	80.0%	**15**	**100.0%**
Residential Treatment Centers for Adults	9	9.8%	2	2.2%	81	88.0%	**92**	**100.0%**
Soup Kitchens	103	28.0%	44	12.0%	221	60.1%	**368**	**100.0%**
Unlisted	0	--	0	--	0	--	**0**	**--**
Workers' Group Living Quarters and Religious Group Quarters	53	12.0%	19	4.3%	371	83.7%	**443**	**100.0%**
Total Experimental ICRs	5,774	19.3%	544	1.8%	23,602	78.9%	**29,920**	**100.0%**

Source: DRF GQ Person, DRF Add Address, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX, CUF HU Person file, Duplicate File

Table 19. People Duplicated on the Regular ICR who Provided an Address that Matched to an HU by GQ Type

GQ Type	Number Duplicated at that HU Number	Percent Duplicated at that HU Percent	Number Duplicated at Another HU	Percent Duplicated at Another HU	Number Not Duplicated	Percent Not Duplicated	Total	Total Percent
College/University Student Housing	33,083	20.8%	4,163	2.6%	122,099	76.6%	**159,345**	**100.0%**
Emergency and transitional shelters/Targeted Non-Sheltered Outdoor Locations	1,119	12.5%	440	4.9%	7,408	82.6%	**8,967**	**100.0%**
Group Homes for Adults	520	14.2%	175	4.8%	2,961	81.0%	**3,656**	**100.0%**
In-Patient Hospice	219	35.0%	49	7.8%	357	57.1%	**625**	**100.0%**
Jails, Prisons, Correctional Facilities (Federal, State, Local, Military)	7,070	9.8%	2,395	3.3%	62,664	86.9%	**72,129**	**100.0%**
Juvenile Group Homes, Residential Treatment Centers, and Correctional Facilities	1,258	22.2%	323	5.7%	4,073	72.0%	**5,654**	**100.0%**
Living Quarters for Victims of Natural Disasters	0	--	0	--	0	--	**0**	**--**
Mental Hospital, Residential Schools for People with Disabilities/Hospitals with Patients who have no UHE	1,874	35.0%	468	8.7%	3,007	56.2%	**5,349**	**100.0%**
Military Treatment Facilities with Assigned Active Duty Patients	2	15.4%	1	7.7%	10	76.9%	**13**	**100.0%**
Military Quarters/Military Ships	1	0.4%	0	0.0%	222	99.6%	**223**	**100.0%**
Nursing Facilities/Skilled-Nursing Facilities	13,917	41.5%	2,748	8.2%	16,875	50.3%	**33,540**	**100.0%**
Other	216	24.7%	68	7.8%	591	67.5%	**875**	**100.0%**
Regularly Scheduled Mobile Food Vans	247	18.7%	52	3.9%	1,022	77.4%	**1,321**	**100.0%**
Residential Treatment Centers for Adults	1,640	18.5%	534	6.0%	6,672	75.4%	**8,846**	**100.0%**
Soup Kitchens	8,830	25.3%	2,859	8.2%	23,230	66.5%	**34,919**	**100.0%**
Unlisted	0	0.0%	0	0.0%	342	100.0%	**342**	**100.0%**
Workers' Group Living Quarters and Religious Group Quarters	1,855	20.6%	482	5.4%	6,667	74.0%	**9,004**	**100.0%**
Total	71,851	20.8%	14,757	4.3%	258,200	74.9%	**344,808**	**100.0%**

Source: DRF GQ Person, DRF Add Address, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX, CUF HU Person file, Duplicate File

The duplication rates within GQ type differ only slightly between the Alternative and Regular ICR. People who returned ICRs from the college/university student housing GQ type—the GQ type with the largest population and that had collected the most

respondent-provided addresses that matched to an HU—were duplicated at the HU address they provided at a rate of approximately 20 percent for both the Alternative and Regular ICR.

Jails and prisons, which collected the second largest number of addresses that matched to HUs of the GQ types, had a much lower duplication rate than people who provided an address that matched to HUs on the MTdb from college/university housing for both the Alternative and Regular ICR. The rate of person duplication at the HU of the address provided and address that matched to an HU on the MTdb for people who returned an Alternative ICR from a jail or prison was 6.0 percent, compared to 9.8 percent for the Regular ICR.

People who returned an ICR from nursing and skilled nursing facilities were duplicated at the HU address they provided on the ICR at a higher rate than any other GQ type for both the Alternative and Regular ICR. Forty-three percent of the 200 people in a nursing facility who completed an Alternative ICR and provided an address that matched to an HU were found to be duplicated at that HU, while the duplication rate at the HU address provided on the Regular ICR was similarly high at 41.5 percent.

5.1.8. Results from CFU for People Duplicated at HUs from Alternative and Regular ICR

Alternative and Regular ICR respondents who were duplicated at the HU address that was provided on the ICR were eligible to be contacted for a CFU interview (at the HU only). The CFU interview was the Census Bureau's final means to establish residency through a series of probes and follow-up questions designed to determine if a person who said they lived at a particular HU actually lived somewhere else. The number of Alternative ICR respondents who were duplicated at the address of the HU they provided on the ICR after their CFU interview is in Table 20.

Table 20. CFU Interview Results for People Duplicated at the Address they Provided on the Alternative ICR that Matched to an HU

	UHE-Eligible		UHE-Ineligible			
	Total	**Percent**	**Total**	**Percent**	**Total**	**Percent**
Deleted in CFU	0	0.0%	3,393	59.8%	3,393	58.8%
Not Deleted in CFU	101	100.0%	2,280	40.2%	2,381	41.2%
Total Duplicate Matches	**101**	**100.0%**	**5,673**	**100.0%**	**5,774**	**100.0%**

Source: DRF GQ Person, DRF Add Address, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX, CUF HU Person file, Duplicate File, CFU Analysis File

Table 20 shows that 58.8 percent of the 5,774 people who were found to be duplicated at the address of the HU they provided on the Alternative ICR were found to be erroneously enumerated at the Alternative ICR address provided in the CFU interview and were subsequently deleted from the HU of the address provided. All of the people who were found to be duplicated at the HU address provided on the Alternative ICR form in the CFU interview and were deleted at the HU address they provided were in UHE-ineligible GQ types.

The CFU interview results for the people duplicated at the address of the HU they provided on the Regular ICR are in Table 21.

Table 21. CFU Interview Results for People Duplicated at the Address they Provided on the Regular ICR that Matched to an HU

	UHE-Eligible		UHE-Ineligible			
	Total	**Percent**	**Total**	**Percent**	**Total**	**Percent**
Deleted in CFU	113	1.0%	20,008	33.1%	20,121	28.0%
Not Deleted in CFU	11,343	99.0%	40,387	66.9%	51,730	72.0%
Total Duplicate Matches	**11,456**	**100.0%**	**60,395**	**100.0%**	**71,851**	**100.0%**

Source: DRF GQ Person, DRF Add Address, Non-ID Assessment File, ICR Geocoding File, Final Tabulation MAFX, CUF HU Person file, Duplicate File, CFU Analysis File

The CFU success rate of deleting people from the HU of the address they provided on the Regular ICR that they were duplicated in was only 33.1 percent for UHE-ineligible GQ types. The CFU interview has a high rate of not removing people from an HU that were duplicated in a UHE-eligible GQ type which is desired because they should be counted at the HU. CFU deleted only one percent of people in UHE-eligible GQ types that were duplicated at an HU of the address they provided on the Regular ICR.

The CFU interview was not able to resolve all of the group quarters to housing unit duplication. CFU interviews deleted 58.8 percent of the people who were found to be duplicated at the housing unit address that they provided on the Alternative ICR form and 28.0 percent from the Regular ICR form. The residency status of these people could be have been resolved without a CFU interview if the address information collected in conjunction is used with the person duplication results.

5.2. X13 Form

DSSD will now examine the results from the second experimental questionnaire, the X13 questionnaire. The X13 was a booklet questionnaire designed to identify and resolve the residency of people in households with complex living situations where the respondent claimed to live or stay at another address. The X13 form was distributed to six sample strata that were chosen for their believed propensity to include households with complex living situations. The addresses in those strata that were not targeted to receive the X13 form received the standard one-sheet MO/MB questionnaire.

5.2.1. Form Design and the X13 Form

The response rates of the X13 and non-X13 MO/MB forms in the sample strata were compared to determine if the booklet design of the X13 form contributed to additional respondent burden. In addition, DSSD compared the number of large households, the number of count discrepancies, and undercount responses for the X13 and non-X13 MO/MB forms in the sample strata to determine if the X13 form led to more coverage issues.

5.2.1.1. Response Rates in the X13 Sample Strata

Table 22 presents the distribution of the number of X13 forms mailed out for each sample stratum. Overall, there were 29,308 X13 forms mailed throughout the six X13 sample strata.

Table 22. X13 Forms Mailed by Sample Stratum

Sample Stratum	Number of Forms Mailed	Percent of Forms Mailed
Child Custody	5,977	20.4%
College	6,036	20.6%
Jail	4,801	16.4%
Military	3,824	13.0%
Nursing Home	3,797	13.0%
Seasonal	4,873	16.6%
Total	**29,308**	**100.0%**

Source: X13 Data File and CPEX Sample File

Approximately 20 percent of the 29,308 X13 forms were mailed to each of the college and child custody sample strata. About 16 percent of the X13 forms were mailed to each of the jail and seasonal strata. Thirteen percent of the X13 forms were mailed to military or nursing home strata.

Table 23 shows the rates of response for the X13 form by sample stratum. Over seventy percent of the X13 forms that were mailed out were data captured.

Table 23. Response Rates of X13 Forms by Sample Stratum

Sample Stratum	Forms Data Captured[16]		Forms Not Data Captured		Forms Mailed	
	Number	Percent	Number	Percent	Number	Percent
Child Custody	3,489	58.4%	2,488	41.6%	5,977	100.0%
College	5,180	85.8%	856	14.2%	6,036	100.0%
Jail	2,694	56.1%	2,107	43.9%	4,801	100.0%
Military	2,115	55.3%	1,709	44.7%	3,824	100.0%
Nursing Home	3,029	79.8%	768	20.2%	3,797	100.0%
Seasonal	4,156	85.3%	717	14.7%	4,873	100.0%
Total	**20,663**	**70.5%**	**8,645**	**29.5%**	**29,308**	**100.0%**

Source: X13 Data File and CPEX Sample File

The college and seasonal strata had the highest X13 form response rates, both at approximately 85 percent. The nursing home stratum had a response rate of close to 80 percent. The remaining three strata, child custody, jail, and military, all had X13 form rates of response between 55 percent and 59 percent.

[16] There were 33 forms returned with no person information that were not included in the results.

For comparison, Table 24 presents the response rates for every iteration of the MO/MB form, excluding X13 forms, in the X13 sample strata. The table includes every language or experimental version of the MO/MB form, in addition to replacement MO/MB forms.

Table 24. Response Rates of Non-X13 MO/MB Forms by Sample Stratum

Sample Stratum	Forms Data Captured		Forms Not Data Captured		Forms Mailed	
	Number	Percent	Number	Percent	Number	Percent
Child Custody	20,756	43.7%	26,760	56.3%	47,516	100.0%
College	78,386	70.0%	33,545	30.0%	111,931	100.0%
Jail	177,436	41.3%	252,300	58.7%	429,736	100.0%
Military	39,331	41.0%	56,511	59.0%	95,842	100.0%
Nursing Home	45,547	73.6%	16,329	26.4%	61,876	100.0%
Seasonal	40,613	67.0%	19,989	33.0%	60,602	100.0%
Total	**402,069**	**49.8%**	**405,434**	**50.2%**	**807,503**	**100.0%**

Source: 2010 Census Mail Return/Response Rate Assessment File and CPEX Sample File

Though the non-X13 MO/MB form rates of response were lower than the X13 form, it is evident that the college, seasonal, and nursing home strata have the highest response rates among the X13 sample strata, which is consistent with the general order of X13 form response rates across sample strata (in Table 23). Overall, the response rates for the X13 form were universally higher than the non-X13 MO/MB form rates of response across sample strata. This illustrates that the longer booklet questionnaire did not have a negative impact on the rates of response within each stratum.

5.2.1.2. Large Households in the X13 Sample Strata

The X13 questionnaire was designed to collect all of the demographic characteristics data for up to nine people, and there was additional space for abbreviated demographic characteristics data for up to five people. Comparatively, the standard one-sheet MO/MB form provided panels to collect all of the demographic characteristics data for up to six people and abbreviated demographic characteristics data for up to six additional people. Large households have been linked to coverage issues in the past.

HUs were considered "large households" when the number of people on the form was equal to or exceeded the number of person panels for which the questionnaire could capture all of the demographic characteristics information. Thus, the identification of large households was dependent upon the form design. Consequently, an HU that completed the X13 questionnaire was defined as a large household when nine or more people were included on the roster, and a non-X13 MO/MB questionnaire was classified as a large household when it contained six or more people on its roster.

Table 25 presents the distribution of X13 forms that were considered to be large households by the number of people included on the form grouped by X13 sample stratum. The number of data-defined people included on the X13 form determined the number of people in the household.

Table 25. Number of Large Households that Mailed Back X13 Forms by Sample Stratum

Sample Stratum	Large Households		Not Large Households		Total	
	Number	Percent	Number	Percent	Number	Percent
Child Custody	95	2.7%	3,394	97.3%	3,489	100.0%
College	6	0.1%	5,174	99.9%	5,180	100.0%
Jail	26	1.0%	2,668	99.0%	2,694	100.0%
Military	6	0.3%	2,109	99.7%	2,115	100.0%
Nursing Home	5	0.2%	3,024	99.8%	3,029	100.0%
Seasonal	9	0.2%	4,147	99.8%	4,156	100.0%
Total	**147**	**0.7%**	**20,516**	**99.3%**	**20,663**	**100.0%**

Source: X13 Data File and CPEX Sample File

Less than one percent of all households that returned an X13 form included nine or more people and were classified as large households. Nearly three percent of the X13 forms returned in the child custody stratum were from large households, while about one percent of the X13 forms returned in the jail stratum were from large households. Less than one percent of the X13 forms returned in the remaining sample strata were from large households.

Interestingly, 61 respondents filled in the continuation roster section (person panels 10-14 on the form) before exhausting all of the long response person sections (person panels 1-9 on the form) on the X13 questionnaire, which is also a coverage issue. It is possible that these respondents eschewed at least one of the person panels 1-9 believing there were too many questions to answer and continued to person panels 10-14 where they could disclose less information about the person or maybe they were confused by the booklet design.

Table 26 shows the number of large households on the non-X13 MO/MB forms. The non-X13 MO/MB forms had a one-sheet design, as opposed to the booklet format of the X13 form. The one-sheet design MO/MB forms allowed space for six people to provide all of their demographic characteristics information and for six additional people to be captured with limited demographic characteristics information.

Table 26. Number of Large Households that Mailed Back a Non-X13 MO/MB Form by Sample Stratum

Sample Stratum	Large Households		Not Large Households		Total	
	Number	Percent	Number	Percent	Number	Percent
Child Custody	2,697	13.0%	18,059	87.0%	20,756	100.0%
College	3,169	4.0%	75,217	96.0%	78,386	100.0%
Jail	12,582	7.1%	164,854	92.9%	177,436	100.0%
Military	2,461	6.3%	36,870	93.7%	39,331	100.0%
Nursing Home	197	0.4%	45,350	99.6%	45,547	100.0%
Seasonal	1,582	3.9%	39,031	96.1%	40,613	100.0%
Total	**22,688**	**5.6%**	**379,381**	**94.4%**	**402,069**	**100.0%**

Source: DRF and CPEX Sample File

Households that completed a one-sheet MO/MB form compared to the X13 form clearly had a greater propensity to be considered large households because of the differing rules between the two forms in defining large households. Nearly six percent of the non-X13 MO/MB questionnaires returned in the X13 sample strata met the criterion for a large household, while less than one percent of the X13 questionnaires met the X13 large household criterion. This, coupled with the knowledge that only 61 of the X13 respondents skipped at least one of the person panels 1-9, demonstrates that allotting more roster space for respondents allows for more person-level data to be collected without additional respondent burden.

5.2.1.3. Count Discrepancies in the X13 Sample Strata

The first question on the front page of the X13 form asked the respondent how many people lived or stayed in the HU on April 1, 2010. This question served as a method to identify count discrepancies of people in a household if the respondent erroneously omitted or erroneously included people listed in the roster portion of the questionnaire.

Table 27 shows the number of discrepancies between the respondent-provided person counts and the number of people listed on the HU roster for each X13 form grouped by sample stratum.

Table 27. Discrepancies in Respondent-Provided Person Count on X13 Forms and People on the HU Roster by Sample Stratum

Sample Stratum	Count Discrepancy Found		Did Not Respond to Person Count		No Count Discrepancy Found		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Child Custody	170	4.9%	107	3.1%	3,212	92.1%	3,489	100.0%
College	108	2.1%	61	1.2%	5,011	96.7%	5,180	100.0%
Jail	115	4.3%	69	2.6%	2,510	93.2%	2,694	100.0%
Military	51	2.4%	16	0.8%	2,048	96.8%	2,115	100.0%
Nursing Home	111	3.7%	101	0.7%	2,817	93.0%	3,029	100.0%
Seasonal	104	2.5%	54	1.3%	3,998	96.2%	4,156	100.0%
Total	**659**	**3.2%**	**408**	**2.0%**	**19,596**	**94.8%**	**20,663**	**100.0%**

Source: X13 Data File and CPEX Sample File

Just over three percent of the 20,663 X13 questionnaires that were returned had a count discrepancy between the respondent-provided person counts and the person count on the X13 form roster. Nearly five percent of the X13 forms returned in the child custody stratum had a count discrepancy, which was the highest count discrepancy rate across sample strata. About four percent of the X13 forms returned in the jail stratum had a count discrepancy. Two percent of the respondents failed to answer the person count question on the form.

Table 28 presents the number of discrepancies between the respondent-provided person counts and the number of people listed on the HU roster for each non-X13 MO/MB form grouped by sample stratum.

Table 28. Discrepancies in Respondent-provided Person Count on Non-X13 MO/MB Forms and People on the HU Roster by Sample Stratum

Sample Stratum	Count Discrepancy Found		Did Not Respond to Person Count		No Count Discrepancy Found		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Child Custody	1,211	5.8%	680	3.3%	18,865	90.9%	20,756	100.0%
College	1,538	2.0%	947	1.2%	75,901	96.8%	78,386	100.0%
Jail	10,233	5.8%	5,965	3.4%	161,238	90.9%	177,436	100.0%
Military	1,063	2.7%	301	0.8%	37,967	96.5%	39,331	100.0%
Nursing Home	1,413	3.1%	1,165	2.6%	42,969	94.3%	45,547	100.0%
Seasonal	841	2.1%	492	1.2%	39,280	96.7%	40,613	100.0%
Total	**16,299**	**4.1%**	**9,550**	**2.4%**	**376,220**	**93.6%**	**402,069**	**100.0%**

Source: DRF and CPEX Sample File

Overall, 4.1 percent of the non-X13 MO/MB forms in X13 sample strata had a count discrepancy, compared to 3.2 percent of the X13 forms in the same strata that had a count discrepancy. Approximately 2 percent of the respondents in the X13 sample strata for both the non-X13 and X13 MO/MB forms failed to respond to the question on the form asking how many people lived in the household.

5.2.1.4. Undercount in the X13 Sample Strata

The second question on the front page of both X13 and non-X13 MO/MB forms was a follow-up to Question 1 that asked the respondent if there were any additional people staying at the household on April 1, 2010 who were not included in the count provided in Question 1. If a reason was marked, it acted as an alert for additional follow-up for the possibility of omitted people. This was referred to as the "undercount" question. Below, Figure 6 shows Question 2 from the X13 questionnaire.

Figure 6. Undercount Question on X13 form

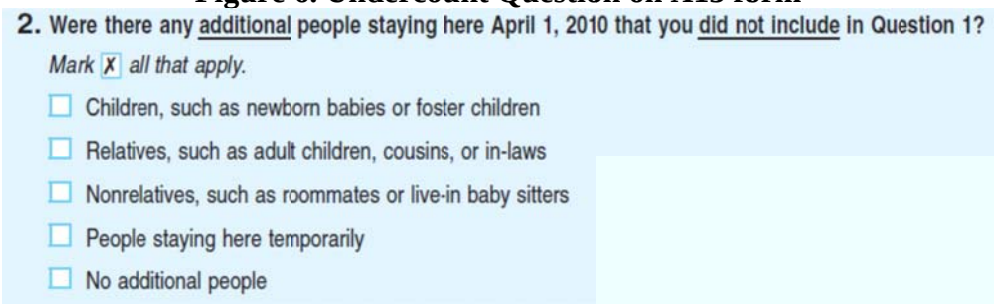


Table 29 presents the responses to the undercount question for respondents who returned an X13 form that was subsequently data captured. In the table, all of the four undercount categories were condensed into one category, as DSSD were not concerned with the specific reasons for this evaluation.

Table 29. Responses to Undercount Question on Returned X13 Forms by Sample Stratum

Sample Stratum	Undercount Category Marked		No Additional People Marked		Did Not Respond		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Child Custody	181	5.2%	2,950	84.6%	358	10.3%	3,489	100.0%
College	158	3.1%	4,659	89.9%	363	7.0%	5,180	100.0%
Jail	119	4.4%	2,337	86.7%	238	8.8%	2,694	100.0%
Military	56	2.6%	2,006	94.8%	53	2.5%	2,115	100.0%
Nursing Home	42	1.4%	2,612	86.2%	375	12.4%	3,029	100.0%
Seasonal	124	3.0%	3,725	89.6%	307	7.4%	4,156	100.0%
Total	**680**	**3.3%**	**18,289**	**88.5%**	**1,694**	**8.2%**	**20,663**	**100.0%**

Source: X13 Data File and CPEX Sample File

Just over three percent of the respondents who returned an X13 questionnaire reported that there were additional people staying at their household on April 1, 2010 that they did not include in their population count in Question 1 of the form.

Table 30 shows the distribution of the responses to the undercount question for the non-X13 MO/MB questionnaires returned and data captured from the X13 sample strata, grouped by sample stratum.

Table 30. Responses to Undercount Question on Returned Non-X13 MO/MB Forms by Sample Stratum

Sample Stratum	Undercount Category Marked		No Additional People Marked		Did Not Respond		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Child Custody	1,028	5.0%	17,474	84.2%	2,254	10.9%	20,756	100.0%
College	2,276	2.9%	70,239	89.6%	5,871	7.5%	78,386	100.0%
Jail	8,254	4.7%	151,214	85.2%	17,968	10.1%	177,436	100.0%
Military	941	2.4%	37,167	94.5%	1,223	3.1%	39,331	100.0%
Nursing Home	621	1.4%	40,432	88.8%	4,494	9.9%	45,547	100.0%
Seasonal	1,803	2.7%	36,400	89.6%	3,130	7.7%	40,613	100.0%
Total	**14,203**	**3.5%**	**352,926**	**87.8%**	**34,940**	**8.7%**	**402,069**	**100.0%**

Source: DRF and CPEX Sample File

Similar to the responses to the undercount question on the X13 form, 3.5 percent of the respondents on non-X13 MO/MB forms reported that there were additional people staying at their household on April 1, 2010, who they did not include in the population count on the form. The proportion of each response was nearly identical to the proportion of responses to the same undercount question on the X13 questionnaire across all X13 sample strata.

Looking at the results of this section, the X13 form had a higher response rate than the traditional one-sheet MO/MB forms in each sample strata. Additionally, there was a similar proportion of count discrepancies and undercount for the X13 form and one-sheet MO/MB forms in the sample

strata. Thus, the booklet design of the X13 questionnaire did not appear to cause additional coverage problems.

5.2.2. Responses to the Overcount Question Series on X13 Form

In this section, the responses to the overcount question series for the 58,674 people included on the 20,663 X13 forms that were returned and data captured were examined. The experimental overcount series captured information at the time the respondent completed the survey, which eliminated the recall bias they might demonstrate in a CFU interview weeks later. Thus, the experimental overcount series (shown in Figure 5) was designed to resolve potential over-coverage on the initial 2010 Census questionnaire by allowing the respondent to do so themselves and eliminate the need for supplemental, costly follow-up.

5.2.2.1. Responses to the Overcount Question

The initial question in the experimental overcount series, called the "overcount question," asked if the person sometimes lived or stayed somewhere else. Table 31 presents the results of the overcount question on the X13 form by sample stratum.

Table 31. Overcount Responses Selected on X13 Form by Sample Stratum

Overcount Response	Sample Stratum: College Number	College Percent	Military Number	Military Percent	Custody Number	Custody Percent	Seasonal Number	Seasonal Percent	Jail Number	Jail Percent	Nursing Number	Nursing Percent	Total Number	Total Percent
Total Overcount	1,157	7.2%	769	10.4%	417	3.6%	918	7.6%	834	12.0%	340	7.1%	**4,435**	**7.6%**
College	213	1.3%	7	0.1%	34	0.3%	151	1.3%	113	1.6%	7	0.1%	**525**	**0.9%**
Military	6	<0.1%	621	8.4%	38	0.3%	8	0.1%	5	0.1%	2	<0.1%	**680**	**1.2%**
Job	67	0.4%	3	<0.1%	28	0.2%	47	0.4%	15	0.2%	8	0.2%	**168**	**0.3%**
Custody	109	0.7%	30	0.4%	39	0.3%	81	0.7%	19	0.3%	0	0.0%	**278**	**0.5%**
Seasonal	572	3.6%	23	0.3%	101	0.9%	490	4.1%	377	5.4%	221	4.6%	**1,784**	**3.0%**
Jail	1	<0.1%	0	0.0%	10	0.1%	0	0.0%	5	0.1%	0	0.0%	**16**	**<0.1%**
Nursing	1	<0.1%	0	0.0%	2	<0.1%	3	<0.1%	5	0.1%	13	0.3%	**24**	**<0.1%**
Another	103	0.6%	52	0.7%	92	0.8%	76	0.6%	199	2.9%	46	1.0%	**568**	**1.0%**
Yes Only	61	0.4%	13	0.2%	67	0.6%	49	0.4%	64	0.9%	42	0.9%	**296**	**0.5%**
Multiple	24	0.1%	20	0.3%	6	0.1%	13	0.1%	32	0.5%	1	<0.1%	**96**	**0.2%**
None	14,917	92.8%	6,604	89.6%	11,057	96.4%	11,145	92.4%	6,095	88.0%	4,421	92.9%	**54,239**	**92.4%**
Total	16,074	100.0%	7,373	100.0%	11,474	100.0%	12,063	100.0%	6,929	100.0%	4,761	100.0%	**58,674**	**100.0%**

Source: X13 Data File and CPEX Sample File

Nearly eight percent of the 58,674 people included on the 20,663 X13 forms that were mailed back and data captured indicated that they lived or stayed somewhere else for one of the overcount answer category reasons. Three percent of the people responded that they sometimes lived or stayed at a seasonal or second residence. The sample strata associated with the overcount reasons were not always successful in identifying the intended overcount types. The seasonal or second residence response to the overcount question was the most prevalent overcount response in each X13 sample stratum, with the exception of the military stratum. The military stratum was successful at identifying people sometimes living or staying elsewhere for military reasons, which accounted for 8.4 percent of the total responses in that sample stratum.

The jail stratum only had five of its 6,929 respondents report that they sometimes lived or stayed somewhere else for jail or prison reasons. However, this stratum had the highest percentage of its respondents answer that they sometimes lived or stayed somewhere for Another Reason, 2.9 percent. The Another Reason category could include jail or prison responses if the respondent did not want to indicate that directly for privacy reasons.

Just over one percent of the people who were enumerated on an X13 questionnaire responded that they sometimes lived or stayed elsewhere for military reasons, which was the second most frequent overcount reason overall. Sometimes living or staying somewhere else for another reason or in college housing were the third and fourth most prevalent overcount responses respectively.

5.2.2.2. Providing an Address on X13 Form

If the respondent answered "Yes" to the overcount question, they were prompted to enter the alternative address where they sometimes lived or stayed in the next item on the X13 form. This portion of the questionnaire, Question 8, is pictured in Figure 7:

Figure 7. Alternative Address Fields on the X13 Questionnaire

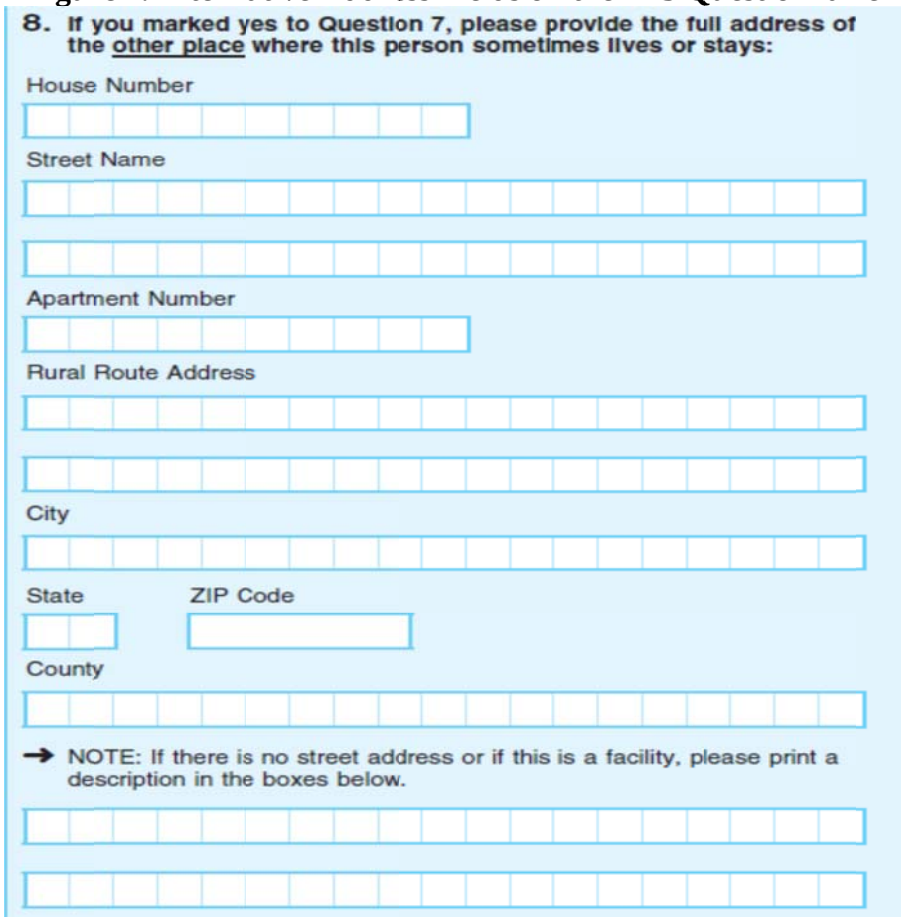


Table 32 shows the number of addresses provided[17] in the alternative address section of the X13 questionnaires by the corresponding overcount response. The address fields provided on the X13

[17] A response was designated as having an "address provided" if information was present in any of the address fields in Question 8 of the form.

form were the same address fields included on the 2010 Census Be Counted questionnaire. Of the 58,674 people who were included on X13 forms, 4,993 had a respondent-provided address on the form associated with them.

Table 32. People Who Provided an Address on X13 Form by Type of Overcount Response

Overcount Response	Provided an Address		Did Not Provide an Address		Total	
	Number	Percent	Number	Percent	Number	Percent
Total Overcount	4,060	91.5%	375	8.5%	4,435	100.0%
College	485	92.4%	40	7.6%	525	100.0%
Military	520	76.5%	160	23.5%	680	100.0%
Job	148	88.1%	20	11.9%	168	100.0%
Custody	259	93.2%	19	6.8%	278	100.0%
Seasonal	1,750	98.1%	34	1.9%	1,784	100.0%
Jail	10	62.5%	6	37.5%	16	100.0%
Nursing	23	95.8%	1	4.2%	24	100.0%
Another	515	90.7%	53	9.3%	568	100.0%
Yes Only	257	86.8%	39	13.2%	296	100.0%
Multiple	93	96.9%	3	3.1%	96	100.0%
None	933	1.7%	53,306	98.3%	54,239	100.0%
Total	**4,993**	**8.5%**	**53,681**	**91.5%**	**58,674**	**100.0%**

Source: X13 Data File and X13 Geocoding File

Of the 58,674 people enumerated on X13 forms, 8.5 percent provided an address. Naturally, the prevalence of a respondent-provided address was much more likely if an overcount reason was selected. Of the 4,435 people who marked an overcount category, 91.5 percent provided an address. Additionally, 933 people did not provide an overcount reason but provided an address on an X13 form.

There was a high rate of providing an address for each of the overcount reasons provided by respondents. The two lowest rates of providing an address were for people who responded that they sometimes lived or stayed in a jail or prison and in the military. However, because only 16 people gave a jail overcount reason, not much inference can be made. Only 76.5 percent of the 680 people who reported that they sometimes lived or stayed elsewhere for military reasons provided an address on the X13 questionnaire, which was the lowest proportion of people to provide an address respective to overcount response (excluding the jail overcount response).

People who responded that they sometimes lived or stayed at a seasonal or second residence, which was the most common overcount reason selected, were more likely to provide an address than people who offered any other overcount reason. Of the 1,784 people who gave a seasonal or second home overcount reason, 98.1 percent subsequently provided an address.

Table 33 presents the distribution of the type of information filled in the address fields for people who provided an address on the data captured X13 forms. As shown in Figure 7, there were fields for the house number, street name, apartment number, rural route address, city, state, ZIP code, and county, as well as a box for facility type on the form. The table examines the house

number, street name or rural route, and ZIP code fields, as these are the most vital fields when attempting to geocode and match addresses to the existing census inventory. The results look merely for the presence of alpha/numeric characters in the given fields to determine if they were filled on the X13 form, and not that the data in the fields were valid and correct.

Table 33. Content of X13 Form Address Fields for People Who Provided an Address by Type of Overcount Response

	House Number, Street Name or Rural Route, and ZIP Code							
Overcount Response	**All Filled**	**All Filled Percent**	**All Blank**	**All Blank Percent**	**At Least One Filled**	**At Least One Filled Percent**	**Total**	**Total Percent**
Total Overcount	3,027	74.6%	547	13.5%	486	12.0%	4,060	100.0%
College	307	63.3%	65	13.4%	113	23.3%	485	100.0%
Military	102	19.6%	346	66.5%	72	13.8%	520	100.0%
Job	90	60.8%	37	25.0%	21	14.2%	148	100.0%
Custody	227	87.6%	7	2.7%	25	9.7%	259	100.0%
Seasonal	1,593	91.0%	27	1.5%	130	7.4%	1,750	100.0%
Jail	7	70.0%	0	0.0%	3	30.0%	10	100.0%
Nursing	16	69.6%	4	17.4%	3	13.0%	23	100.0%
Another	401	77.9%	44	8.5%	70	13.6%	515	100.0%
Yes Only	215	83.7%	8	3.1%	34	13.2%	257	100.0%
Multiple	69	74.2%	9	9.7%	15	16.1%	93	100.0%
None	677	72.6%	53	5.7%	203	21.8%	933	100.0%
Total	**3,704**	**74.2%**	**600**	**12.0%**	**689**	**13.8%**	**4,993**	**100.0%**

Source: X13 Data File

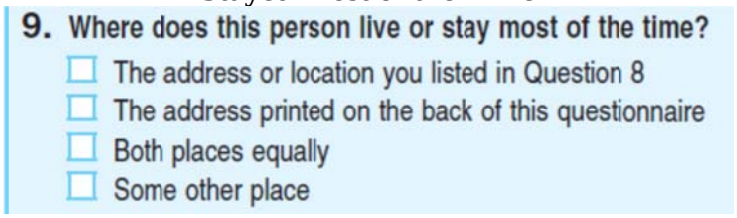
Almost three-quarters of the 4,993 people who provided an address filled in each of the house number, street name or rural route, and ZIP code fields on the X13 form. Six hundred, or 12 percent, of the people who provided an address failed to enter any information in the house number, street name or rural route, and ZIP code fields. Those respondents did however enter information in at least one of the other address fields in Question 8 on the form.

People who responded that they sometimes lived or stayed at a seasonal or second residence and provided an address filled all of the key address fields at a higher rate than any other overcount reason, at 91.0 percent. Those who marked the college overcount category and provided an address included all key address fields 63.3 percent of the time. Respondents who indicated that they sometimes lived or stayed somewhere else for military reasons were only able to provide all the key address variables 19.6 percent of the time.

5.2.3. Responses to Follow-up Overcount Questions on X13 Form

If the respondent identified an overcount reason and an address on the X13 form, they were prompted to answer two follow-up questions, Question 9 and Question 10, for each person panel. Question 9, which is pictured in Figure 8, asked the respondent: where does this person live or stay most of the time?

Figure 8. Follow-up Overcount Question on X13 Form Asking Where the Person Lived or Stayed Most of the Time



This question was designed for determining residency of the roster member if they provided an alternative address that matched to an HU on the MTdb. For this evaluation, a person's residence was decided by where a person lived or stayed most of the time if they indicated that they had two HU addresses where they sometimes lived or stayed. The Census Bureau's detailed residence rule can be found in the *Residence Rule and Residence Situations for the 2010 Census* document.

Table 34 presents the results of the overcount question asking where the person lived or stayed most of the time by overcount response for each person included on an X13 questionnaire regardless of if they provided an address.

Table 34. Most of the Time Question Responses for People on X13 Forms by Overcount Response

Overcount Response	Lived at the HU Where Form was Mailed		Lived at the Alternative HU Provided		Lived at HU Where Form was Mailed and Alternative HU		Lived at Some Other Address		Did Not Respond to Question		Total	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Overcount	2,843	64.1%	720	16.2%	602	13.6%	66	1.5%	204	4.6%	4,435	100.0%
College	168	32.0%	206	39.2%	123	23.4%	1	0.2%	27	5.1%	525	100.0%
Military	565	83.1%	29	4.3%	24	3.5%	10	1.5%	52	7.6%	680	100.0%
Job	76	45.2%	53	31.5%	18	10.7%	6	3.6%	15	8.9%	168	100.0%
Custody	161	57.9%	14	5.0%	91	32.7%	1	0.4%	11	4.0%	278	100.0%
Seasonal	1,359	76.2%	181	10.1%	205	11.5%	4	0.2%	35	2.0%	1,784	100.0%
Jail	9	56.3%	2	12.5%	0	0.0%	2	12.5%	3	18.8%	16	100.0%
Nursing	7	29.2%	13	54.2%	1	4.2%	0	0.0%	3	12.5%	24	100.0%
Another	295	51.9%	117	20.6%	91	16.0%	37	6.5%	28	4.9%	568	100.0%
Yes Only	144	48.6%	85	28.7%	34	11.5%	4	1.4%	29	9.8%	296	100.0%
Multiple	59	61.5%	20	20.8%	15	15.6%	1	1.0%	1	1.0%	96	100.0%
None	19,075	35.2%	288	0.5%	41	0.1%	19	<0.1%	34,816	64.2%	54,239	100.0%
Total	**21,918**	**37.4%**	**1,008**	**1.7%**	**643**	**1.1%**	**85**	**0.1%**	**35,020**	**59.7%**	**58,674**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Final Tabulation MAFX

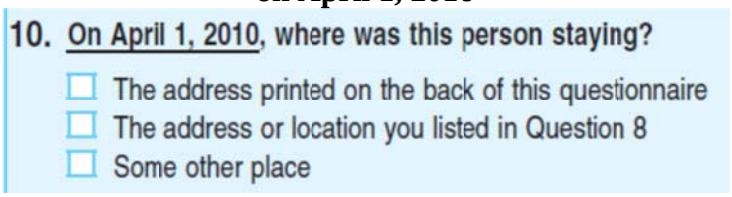
Of the 680 people who responded that they sometimes lived or stayed somewhere else for military reasons, 83.1 percent answered that they lived or stayed most of the time at the address where the X13 form was mailed. Over three-quarters of the 1,784 people who said they sometimes lived or stayed at a seasonal or second residence responded that they lived most of the time at the address where the X13 form was mailed. Of the overcount responses with more than one hundred responses, people who said they sometimes lived or stayed in college housing had the highest percentage (39.2 percent) of their responses saying they lived or stayed most of the time at the address they provided.

People who responded that somebody sometimes lived or stayed somewhere else for child custody reasons had the highest percentage of people who reported that those persons lived at both the X13 address and the address provided equally across overcount responses, with 32.7 percent. The respondent-provided overcount reason with the second highest percentage of its responses reporting that the person stayed at both the address provided and the address where the X13 form was mailed equally was the college housing overcount reason, at 23.4 percent.

Overall, looking solely at the 4,435 people who responded to the initial overcount question, 64.1 percent replied that they lived or stayed most of the time at the address in which the X13 form was mailed; 16.2 percent answered that they lived or stayed most of the time at the address provided; and 13.6 percent responded that they lived or stayed most of the time at both the X13 address and the address provided. There were 204 people who responded to the overcount question but did not respond to this particular question. Interestingly, over 35 percent of the respondents who did not provide an overcount reason ignored the instructions to skip to the next person and provided an answer to this question.

As stated earlier, if the respondent identified an overcount reason and provided an address on the X13 form, they were prompted to answer two follow-up questions, Question 9 (shown in Figure 8) and Question 10, for each person panel. Question 10 on the X13 questionnaire, which is pictured in Figure 9, asked where the person was staying on April 1, 2010.

Figure 9. Follow-up Overcount Question on X13 Form Asking Where Person was staying on April 1, 2010



This question was designed for people who provided a GQ address. The residence rule for people who stayed at a GQ is more complicated than determining residence at two distinct HUs due to the UHE-eligibility rule (see Section 2). If a respondent provided a GQ address that was considered UHE-eligible, then the person staying at that GQ is eligible to be counted at the HU. However, if a respondent provided a UHE-ineligible GQ address, they were to be counted at the address of the GQ only if they reporting staying at that GQ on April 1, 2010.

Additionally, Question 10 helped determine the residency for a person who indicated that they stayed at two distinct HUs equally; the Residence Rule states that person should be counted at the HU address they stayed at on April 1, 2010 if they responded that they stayed at two separate HU addresses equally.

Table 35 presents the results of the final question in the overcount series, asking the respondent where the person was staying on April 1, 2010, for each person included on an X13 questionnaire regardless of how they answered Question 9 or if they provided an address. The responses are grouped by the overcount response from Question 7.

Table 35. April 1, 2010 Question Responses for People on X13 Forms by Overcount Response

Overcount Response	Stayed at the HU Where Form was Mailed		Stayed at the Alternative HU Provided		Stayed at HU Where Form was Mailed and Alternative HU[18]		Stayed at Some Other Address		Did Not Respond to Question		Total	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Overcount	3,105	70.0%	977	22.0%	5	0.1%	140	3.2%	208	4.7%	4,435	100.0%
College	184	35.0%	298	56.8%	1	0.2%	16	3.0%	26	5.0%	525	100.0%
Military	504	74.1%	92	13.5%	0	0.0%	35	5.1%	49	7.2%	680	100.0%
Job	68	40.5%	71	42.3%	0	0.0%	13	7.7%	16	9.5%	168	100.0%
Custody	206	74.1%	50	18.0%	1	0.4%	9	3.2%	12	4.3%	278	100.0%
Seasonal	1,505	84.4%	213	11.9%	1	0.1%	29	1.6%	36	2.0%	1,784	100.0%
Jail	7	43.8%	2	12.5%	0	0.0%	3	18.8%	4	25.0%	16	100.0%
Nursing	6	25.0%	14	58.3%	1	4.2%	1	4.2%	2	8.3%	24	100.0%
Another	377	66.4%	132	23.2%	1	0.2%	25	4.4%	33	5.8%	568	100.0%
Yes Only	179	60.5%	85	28.7%	0	0.0%	4	1.4%	28	9.5%	296	100.0%
Multiple	69	71.9%	20	20.8%	0	0.0%	5	5.2%	2	2.1%	96	100.0%
None	18,965	35.0%	302	0.6%	11	<0.1%	98	0.2%	34,863	64.3%	54,239	100.0%
Total	**22,070**	**37.6%**	**1,279**	**2.2%**	**16**	**<0.1%**	**238**	**0.4%**	**35,071**	**59.8%**	**58,674**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Final Tabulation MAFX

Nearly 85 percent of the 1,784 people who responded that they sometimes lived or stayed at a seasonal or second residence answered that they stayed at the address where the X13 form was mailed on April 1, 2010. This was the overcount response that had the highest rate of people who said that they stayed at the address where the X13 form was mailed on April 1, 2010. Almost 57 percent (56.8 percent) of the people who answered the initial overcount question saying that they sometimes lived or stayed in college housing reported that they were staying at the address they entered in Question 8 on the X13 questionnaire on April 1, 2010. This was higher than those who answered a similar response to Question 9, where only 39.2 percent reported living most of the time at the address provided.

[18] In this situation, the respondent marked both boxes saying they stayed at the address where the X13 form was mailed and the alternative address provided on April 1, 2010.

Examining the 4,435 respondents who answered the initial overcount question affirmatively, 70 percent responded that they lived at the address where the X13 form was mailed on April 1, 2010; 22 percent said they stayed at the address provided on April 1, 2010; and 3.2 percent answered that they stayed at another address not mentioned on the form on April 1, 2010. There were 208 respondents who entered an overcount reason in Question 7 but did not answer Question 10. Interestingly, over 35 percent of the respondents who did not provide an overcount reason ignored the instructions to skip to the next person and provided an answer to this question.

Table 36 presents the distribution of responses to where the person was staying on April 1, 2010 for the 643 people on the X13 form who answered in Question 9 that they lived or stayed equally at both the address where the X13 form was mailed and the address they provided in Question 8.

Table 36. April 1, 2010 Question Responses for People on X13 Forms who Responded that they Lived or Stayed Equally at the HU Address Where the Form was Mailed and the Alternative Address provided by Overcount Response

Overcount Response	Stayed at the HU Where Form was Mailed		Stayed at the Alternative HU Provided		Stayed at HU Where Form was Mailed and Alternative HU[19]		Stayed at Some Other Address		Did Not Respond to Question		Total	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Overcount	339	56.3%	230	38.2%	4	0.7%	20	3.3%	9	1.5%	602	100.0%
College	31	25.2%	84	68.3%	1	0.8%	4	3.3%	3	2.4%	123	100.0%
Military	15	62.5%	7	29.2%	0	0.0%	2	8.3%	0	0.0%	24	100.0%
Job	6	33.3%	9	50.0%	0	0.0%	3	16.7%	0	0.0%	18	100.0%
Custody	55	60.4%	31	34.1%	1	1.1%	3	3.3%	1	1.1%	91	100.0%
Seasonal	148	72.2%	51	24.9%	1	0.5%	4	2.0%	1	0.5%	205	100.0%
Jail	0	--	0	--	0	--	0	--	0	--	0	--
Nursing	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Another	54	59.3%	32	35.2%	1	1.1%	3	3.3%	1	1.1%	91	100.0%
Yes Only	18	52.9%	13	38.2%	0	0.0%	1	2.9%	2	5.9%	34	100.0%
Multiple	11	73.3%	3	20.0%	0	0.0%	0	0.0%	1	6.7%	15	100.0%
None	14	34.1%	14	34.1%	9	22.0%	3	7.3%	1	2.4%	41	100.0%
Total	**353**	**54.9%**	**244**	**37.9%**	**13**	**2.0%**	**23**	**3.6%**	**10**	**1.6%**	**643**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Final Tabulation MAFX

Of the 643 people who responded that they lived or stayed equally at the address where the X13 form was mailed and the address they entered in Question 8 of the questionnaire, 54.9 percent answered that they lived at the address at which the X13 form was mailed on April 1, 2010. Almost 38 percent of the people who said they lived at or stayed equally at the address where the X13 form was mailed and the address they entered in Question 8 said they stayed at the address they provided on April 1, 2010.

[19] In this situation, the respondent marked both boxes saying they stayed at the address where the X13 form was mailed and the alternative address provided on April 1, 2010.

5.2.4. Matching to the MTdb and Identifying Residence of the People who provided an Address on the X13 Form

According to the *Residence Rule and Residence Situations for the 2010 Census* document, the general residence rule used for determining where people should be counted in the 2010 Census is as follows:

> "Count people at their usual residence, which is the place where they live and sleep most of the time. People in certain types of GQs on Census Day should be counted at the GQ...People who do not have a usual residence or cannot determine a usual residence…should be counted where they [were] on Census Day."

In order to determine the residence of people who provided an address and answered the questions in the experimental overcount series, it was necessary to match the addresses to the MTdb to determine to which type of address the address provided matched. For the purpose of this evaluation, if the alternative address provided matched to an HU, the answer to Question 9 asking where the person lived or stayed most of time determined their place of residence, unless they indicated that they stayed at both places equally. Alternatively, if the address provided matched to a GQ, the answer to Question 10 asking where the person lived on April 1, 2010 determined their place of residence for the purpose of this evaluation.

Table 37 shows the distribution of the types of living quarters that the addresses provided by 4,993 people on X13 questionnaires matched to on the MTdb by overcount response. There were four types of matches and a "did not match" category. The match categories were: matched to the same address that the X13 form was mailed to, matched to an alternative HU address, matched to a GQ address, and matched to a special place (SP) address.

Table 37. Types of Living Quarters Matches to the MTdb for People who provided an Address on the X13 Form by Overcount Response

Overcount Response	Matched to HU Address Where Form Was Mailed		Matched to Alternative HU Address Provided		Matched to GQ Address Provided		Matched to Special Place Address Provided		Did Not Match		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Overcount	65	1.6%	2,375	58.5%	37	0.9%	6	0.1%	1,577	38.8%	4,060	100.0%
College	9	1.9%	194	40.0%	27	5.6%	4	0.8%	251	51.8%	485	100.0%
Military	31	6.0%	57	11.0%	0	0.0%	0	0.0%	432	83.1%	520	100.0%
Job	6	4.1%	61	41.2%	1	0.7%	0	0.0%	80	54.1%	148	100.0%
Custody	4	1.5%	197	76.1%	0	0.0%	0	0.0%	58	22.4%	259	100.0%
Seasonal	2	0.1%	1,327	75.8%	0	0.0%	0	0.0%	421	24.1%	1,750	100.0%
Jail	0	0.0%	1	10.0%	4	40.0%	1	10.0%	4	40.0%	10	100.0%
Nursing	1	4.3%	4	17.4%	3	13.0%	0	0.0%	15	65.2%	23	100.0%
Another	1	0.2%	329	63.9%	2	0.4%	0	0.0%	183	35.5%	515	100.0%
Yes Only	10	3.9%	154	59.9%	0	0.0%	1	0.4%	92	35.8%	257	100.0%
Multiple	1	1.1%	51	54.8%	0	0.0%	0	0.0%	41	44.1%	93	100.0%
None	381	40.8%	47	5.0%	1	0.1%	0	0.0%	504	54.0%	933	100.0%
Total	**446**	**8.9%**	**2,422**	**48.5%**	**38**	**0.8%**	**6**	**0.1%**	**2,081**	**41.7%**	**4,993**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Final Tabulation MAFX

Almost half (48.5 percent) of the 4,993 people who provided an address on the X13 questionnaire provided an address that matched to an existing HU on the MTdb that was not the address to which the X13 form was mailed. Roughly nine percent (8.9 percent) of the person-provided addresses matched to the same address to which the form was mailed. Only 38, or 0.8 percent, of the 4,993 addresses provided on X13 forms matched to a GQ. Over 41 percent (41.7 percent) of the addresses provided on the X13 forms did not match to an address on the MTdb. This was because those 2,081 respondent-provided addresses were either unable to be geocoded during the geocoding process due to insufficient address information or they just did not match to an address in the census inventory. In theory, the number of addresses that matched to GQs could have been higher and the number that did not match lower if the matching process was able to utilize the facility name field.

Of the people who provided an address, there were five different overcount response categories that matched to an alternative HU at a rate of over 50 percent. Those overcount response categories were that the person sometimes lived or stayed somewhere else: for child

custody reasons (76.1 percent of people who provided an address that matched to a different HU), at a seasonal or second residence (75.8 percent), for another reason (63.9 percent), by responding "Yes" only (59.9 percent), and for multiple reasons (54.8 percent).

There were 446 of 58,674 people on all of the X13 forms who provided the address where the X13 form was mailed to on the X13 questionnaire. For the purpose of this evaluation, these 446 people, along with the 2,081 people who provided an address that did not match to an address on the MTdb would be considered residents of the address where the X13 form was mailed. The remaining 2,466 persons who provided an address would be eligible to be residents of the address provided (after further investigation) for evaluation purposes only.

The answers to the question in the experimental overcount series asking where the person lived or stayed most of the time determined the residence of a person who provided an alternative address that matched to an HU on the MTdb. Table 38 shows the distribution of responses to that question on the X13 questionnaire for the 2,422 people who provided alternative HU addresses grouped by their overcount response.

Table 38. Most of the Time Question Responses for People on X13 Form who provided an Alternative HU Address by Overcount Response

Overcount Response	Lived at the HU Where Form was Mailed		Lived at the Alternative HU Provided		Lived at HU Where Form was Mailed and Alternative HU		Lived at Some Other Address		Did Not Respond to Question		Total	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Overcount	1,635	68.8%	348	14.7%	364	15.3%	14	0.6%	14	0.6%	2,375	100.0%
College	83	42.8%	64	33.0%	47	24.2%	0	0.0%	0	0.0%	194	100.0%
Military	49	86.0%	7	12.3%	1	1.8%	0	0.0%	0	0.0%	57	100.0%
Job	25	41.0%	26	42.6%	9	14.8%	0	0.0%	1	1.6%	61	100.0%
Custody	113	57.4%	8	4.1%	74	37.6%	0	0.0%	2	1.0%	197	100.0%
Seasonal	1,056	79.6%	122	9.2%	143	10.8%	2	0.2%	4	0.3%	1,327	100.0%
Jail	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Nursing	2	50.0%	1	25.0%	0	0.0%	0	0.0%	1	25.0%	4	100.0%
Another	195	59.3%	55	16.7%	63	19.1%	11	3.3%	5	1.5%	329	100.0%
Yes Only	82	53.2%	54	35.1%	17	11.0%	0	0.0%	1	0.6%	154	100.0%
Multiple	29	56.9%	11	21.6%	10	19.6%	1	2.0%	0	0.0%	51	100.0%
None	25	53.2%	15	31.9%	2	4.3%	0	0.0%	5	10.6%	47	100.0%
Total	**1,660**	**68.5%**	**363**	**15.0%**	**366**	**15.1%**	**14**	**0.6%**	**19**	**0.8%**	**2,422**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Final Tabulation MAFX

Only 15 percent of the people included on an X13 form who provided an alternative address that matched to an HU on the MTdb reported that they lived or stayed most of the time at that HU address. A majority of the people (68.5 percent) who provided an alternative HU address on an X13 form reported that they lived or stayed most of the time at the address where the X13 form was mailed. Just over 15 percent (15.1 percent) reported that they lived equally at both the address where the X13 form was mailed and the address provided. The remaining 33, or 1.4 percent, of the people indicated either that they lived at some other address most of the time or did not respond to the question. Those 33 people were unable to be placed in a residence for the purpose of this evaluation.

Nearly eighty percent (79.6 percent) of the 1,327 people included on an X13 form who responded that they sometimes lived or stayed at a seasonal or second residence and provided an alternative HU address answered that they lived or stayed most of the time at the address to which the X13 form was mailed. Nine percent (9.2 percent) of those people reported that they lived or stayed at the seasonal or second home most of the time, while 10.8 percent said they lived or stayed at both residences most of the time.

Eighty-six percent of the 57 people included on an X13 form who responded that they sometimes lived or stayed elsewhere for military reasons and provided an alternative HU address answered that they lived or stayed most of the time at the address to which the X13 form was mailed.

Thirty-three percent of the 194 people included on an X13 form who responded that they sometimes lived or stayed in college housing and provided an alternative HU address answered that they lived or stayed most of the time at the address provided.

For people who provided an alternative HU address and answered that they stayed equally at the address where the X13 form was mailed and the address they provided, it is important to learn where the person was staying on April 1, 2010 to properly determine the residence of the person. The people who indicated child custody as a reason for sometimes living or staying somewhere else had the highest percentage of reporting that they lived at both places equally, at 37.6 percent. Those who reported sometimes living or staying in college housing had the next highest rate of reporting that they lived at both places equally at 24.2 percent.

Table 38 showed that 366 people who provided an alternative HU address and responded that they lived equally at that address and the address where the X13 form was mailed. Table 39 shows the responses to the question in the experimental overcount series that asked where the person stayed on April 1, 2010, for those 366 people.

Table 39. April 1, 2010 Question Responses for People Who Provided an Alternative HU Address and Reported they Lived or Stayed at Both the Address where the X13 Form was Mailed and the Alternative Address Provided Most of the Time by Overcount Response

Overcount Response	Stayed at the HU Where Form was Mailed		Stayed at the Alternative HU Provided		Stayed at HU Where Form was Mailed and Alternative HU[20]		Stayed at Some Other Address		Did Not Respond to Question		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Overcount	232	63.7%	113	31.0%	3	0.8%	13	3.6%	3	0.8%	364	100.0%
College	18	38.3%	27	57.4%	0	0.0%	2	4.3%	0	0.0%	47	100.0%
Military	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Job	3	33.3%	5	55.6%	0	0.0%	1	11.1%	0	0.0%	9	100.0%
Custody	48	64.9%	21	23.4%	1	1.4%	3	4.1%	1	1.4%	74	100.0%
Seasonal	109	76.2%	29	20.3%	1	0.7%	3	2.1%	1	0.7%	143	100.0%
Jail	0	--	0	--	0	--	0	--	0	--	0	--
Nursing	0	--	0	--	0	--	0	--	0	--	0	--
Another	35	55.6%	24	38.1%	1	1.6%	3	4.8%	0	0.0%	63	100.0%
Yes Only	10	58.8%	5	29.4%	0	0.0%	1	5.9%	1	5.9%	17	100.0%
Multiple	8	80.0%	2	20.0%	0	0.0%	0	0.0%	0	0.0%	10	100.0%
None	0	0.0%	1	50.0%	1	50.0%	0	0.0%	0	0.0%	2	100.0%
Total	**232**	**63.4%**	**114**	**31.1%**	**4**	**1.1%**	**13**	**3.6%**	**3**	**0.8%**	**366**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Final Tabulation MAFX

Of the 366 people who reported that they lived equally at both the address they provided and the X13 address, 63.4 percent responded that they lived at the X13 address on April 1, 2010. The overcount categories with the largest number of people who reported living at both places equally were for child custody or seasonal or second residence reasons. Of those who reported sometimes living or staying somewhere else for child custody reasons, 64.9 percent reported living at the X13 address on April 1, 2010. Of the people who answered that they lived somewhere else for seasonal or second residence reasons, 76.2 percent reported that they lived at the

[20] In this situation, the respondent marked both boxes saying they stayed at the address where the X13 form was mailed and the alternative address provided on April 1, 2010.

X13 address on April 1, 2010. Of the overcount reason categories with over ten respondents who indicated that they lived equally at both the address provided and the address where the X13 form was mailed, college housing was the only reason where the majority of the people reported they stayed at the address provided on April 1, 2010 (57.4 percent).

In summary, looking at Table 38 and Table 39, of the 2,422 people who provided an alternative HU address, 1,892, or 78.1 percent, reported they were residents of the address where the X13 form was mailed, 447, or 19.7 percent, indicated they were residents of the alternative HU address, and 83 (3.4 percent) did not provide enough information to determine a residence based on the simplified residence rule used for this evaluation.

For respondent-provided addresses that corresponded to a GQ, it was important to learn where the person was staying on April 1, 2010 to properly residence code the person, because a UHE-eligible GQ address is likely temporary. Table 40 shows the responses to the question in the experimental overcount series that asked where the person stayed on April 1, 2010 for people who provided an address that matched to a GQ.

Table 40. April 1, 2010 Question Responses for People on X13 Forms who provided a GQ Address by Overcount Response

Overcount Response	Stayed at the HU Where Form was Mailed		Stayed at the Alternative HU Provided		Stayed at Some Other Address		Did Not Respond to Question		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Overcount	7	18.9%	26	70.3%	1	2.7%	3	8.1%	37	100.0%
College	4	14.8%	21	77.8%	0	0.0%	2	7.4%	27	100.0%
Military	0	--	0	--	0	--	0	--	0	--
Job	0	0.0%	1	100.0%	0	0.0%	0	0.0%	1	100.0%
Custody	0	--	0	--	0	--	0	--	0	--
Seasonal	0	--	0	--	0	--	0	--	0	--
Jail	1	25.0%	1	25.0%	1	25.0%	1	25.0%	4	100.0%
Nursing	1	33.3%	2	66.7%	0	0.0%	0	0.0%	3	100.0%
Another	1	50.0%	1	50.0%	0	0.0%	0	0.0%	2	100.0%
Yes Only	0	--	0	--	0	--	0	--	0	--
Multiple	0	--	0	--	0	--	0	--	0	--
None	1	100.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Total	**8**	**21.1%**	**26**	**68.4%**	**1**	**2.6%**	**3**	**7.9%**	**38**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Final Tabulation MAFX

There were only 38 of the 58,674 people enumerated on an X13 form that provided an address that was geocoded and matched to a GQ on the MTdb. Twenty-seven of the 38 people who provided an address that matched to a GQ indicated that they sometimes lived or stayed in college housing in the overcount question. Of those 27 people, 21 reported that they lived at the address they provided on April 1, 2010.

To examine whether the GQ address entered on the X13 form matched to the overcount reason given on the form, Table 41 shows the type of GQ of the address provided by the 38 people who entered an address on an X13 form that matched to a GQ by their corresponding overcount response. Thirty-four of those 38 people responded to the overcount question with one of the four GQ overcount options (college housing, military, jail, and nursing home).

Table 41. Alternative Addresses Provided on X13 Forms that Matched to a GQ on the MTdb whose GQ Type Matched or Did Not Match to a Corresponding Overcount Response

Overcount Response	GQ Type Matched		GQ Type Did Not Match		Total	
	Number	Percent	Number	Percent	Number	Percent
College	25	92.6%	2	7.4%	**27**	**100.0%**
Jail	4	100.0%	0	0.0%	**4**	**100.0%**
Nursing Home	2	66.7%	1	33.3%	**3**	**100.0%**
Total	31	91.2%	3	8.8%	**34**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Final Tabulation MAFX

Thirty-one of the 34 people who said they sometimes lived or stayed at one of the four GQ options to the overcount question supplied an address that matched to a GQ that subsequently matched to the type of GQ that corresponded to the overcount question response. Twenty-five of the 27 people who answered that they sometimes lived or stayed in college housing provided an address that matched to a college housing GQ type on the MTdb.

For the purpose of this evaluation, DSSD examined the results of the matching of the addresses provided and the responses to the experimental overcount series questions to determine the residency of those people, using the simplified residence rule. Table 42 presents those results for the 2,422 people who provided an alternative HU address and the 38 people who provided a GQ address on an X13 form.

Table 42. Residency Results Based on Experimental Overcount Series Responses for the People Who Provided an Alternative HU Address or a GQ Address on an X13 Form

Type of Address Provided	Resident of X13 Mailing Address		Resident of Address Provided		Indeterminate Residence		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
HU	1,892	78.1%	477	19.7%	53	2.2%	2,422	100.0%
GQ	8	21.1%	26	63.4%	4	10.5%	38	100.0%
Total	**1,900**	**77.2%**	**503**	**20.4%**	**57**	**2.3%**	**2,460**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Final Tabulation MAFX

Of the 2,460 people who provided either an alternative HU address or GQ address, only 2.3 percent were unable to be identified as a resident of either the X13 mailing address or the alternative address provided using the simplified residence rule. Of the 2,422 people who provided an alternative HU address, 78.1 percent said they were residents of the address where the X13 form was mailed and 19.7 percent indicated they were residents of the address they provided. This illustrates that the experimental overcount series can be utilized to identify the residence of people with complex living situations without the need for a costly follow-up telephone interview.

5.2.5. Duplication of People Enumerated on X13 Forms

This section examines whether people included on the X13 forms were determined to be duplicated during the person duplication matching process.[21] It also reports on how these duplicated persons responded to the experimental overcount series. To find the amount of person duplication of people enumerated on X13 forms, DSSD performed person duplication matching of the people listed on the X13 questionnaire by matching them to the other questionnaires and returns completed. Table 43 shows the results of this matching process by overcount response.

[21] The Census Bureau developed computer matching algorithms that matched the census universe against itself to identify potentially duplicated persons. The algorithms used characteristics such as first name, last name, middle initial, age, date of birth, phone number, and geographic distance to match people. Refer to Section 2.5 for more information regarding person duplication matching.

Table 43. Person Duplication of People on X13 Forms by Overcount Response

Overcount Response	Person Duplicated		Person Not Duplicated		Total	
	Number	Percent	Number	Percent	Number	Percent
Total Overcount	806	18.2%	3,629	81.8%	4,435	100.0%
College	194	37.0%	331	63.0%	525	100.0%
Military	25	3.7%	655	96.3%	680	100.0%
Job	23	13.7%	145	86.3%	168	100.0%
Custody	86	30.9%	192	69.1%	278	100.0%
Seasonal	281	15.8%	1,503	84.2%	1,784	100.0%
Jail	5	31.3%	11	68.8%	16	100.0%
Nursing	8	33.3%	16	66.7%	24	100.0%
Another	104	18.3%	464	81.7%	568	100.0%
Yes Only	59	19.9%	237	80.1%	296	100.0%
Multiple	21	21.9%	75	78.1%	96	100.0%
None	1,699	3.1%	52,540	96.9%	54,239	100.0%
Total	**2,505**	**4.3%**	**56,169**	**95.7%**	**58,674**	**100.0%**

Source: X13 Data File, X13 Geocoding File, CUF, and Duplication File

Of the 58,674 people included on X13 forms, 4.3 percent were identified as being duplicated during the person duplication matching process. People who answered that they sometimes lived or stayed in college housing (525 people) were duplicated at a rate of 37 percent, which was the highest percentage of person duplication among the overcount response categories.

Of the 4,435 people who answered the overcount question, 806, or 18.2 percent, were identified as duplicates during the person duplication matching process. Comparatively, 3.1 percent, or 1,699, of the 54,239 people who did not provide an overcount reason were identified as duplicates. This illustrates that people who indicated that they lived or stayed somewhere else were more likely to be duplicated than those who did not report living elsewhere.

Table 44 examines the 2,422 people (see Table 37) who entered an alternative HU address. The table shows whether each person was duplicated at the alternative HU, duplicated at another living either quarters, or not duplicated at all during the person duplication matching process.

Table 44. Rate of Person Duplication at the Alternative HU Address Provided on the X13 Form by Overcount Response

Overcount Response	Person Duplicated at Alternative HU		Person Duplicated at Another Living Quarters		Percent Not Duplicated		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Overcount	387	16.3%	103	4.3%	1,885	79.4%	2,375	100.0%
College	38	19.6%	23	11.9%	133	68.6%	194	100.0%
Military	2	3.5%	2	3.5%	53	93.0%	57	100.0%
Job	11	18.0%	5	8.2%	45	73.8%	61	100.0%
Custody	58	29.4%	7	3.6%	132	67.0%	197	100.0%
Seasonal	178	13.4%	39	2.9%	1,110	83.6%	1,327	100.0%
Jail	0	0.0%	0	0.0%	1	100.0%	1	100.0%
Nursing	0	0.0%	0	0.0%	4	100.0%	4	100.0%
Another	64	19.5%	10	3.0%	255	77.5%	329	100.0%
Yes Only	28	18.2%	13	8.4%	113	73.4%	154	100.0%
Multiple	8	15.7%	4	7.8%	39	76.5%	51	100.0%
None	11	23.4%	3	6.4%	33	70.2%	47	100.0%
Total	**398**	**16.4%**	**106**	**4.4%**	**1,918**	**79.2%**	**2,422**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Duplication File

Of the 2,422 people who provided an alternative HU address, 16.4 percent were duplicated at that HU and 4.4 percent proved to be duplicated at another living quarters. Living somewhere else for child custody reasons had the highest duplication rate for those who provided an alternative HU address (29.4 percent), followed by living elsewhere for college reasons (19.6 percent).

In the subsequent tables in this section, DSSD will examine the answers to Question 9 and Question 10 on the X13 form for the people who were duplicated at the alternative address they provided that matched to either an HU or a GQ. Table 45 presents the responses to the question asking where the person lived or stayed most of the time for the 398 people who provided an alternative HU address and were found to be duplicated during the person duplication matching process.

Table 45. Most of the Time Question Responses for People Who Provided an Alternative HU Address and Were Found to be Duplicated at that Address by Overcount Response

Overcount Response	Lived at the HU Where Form was Mailed		Lived at the Alternative HU Provided		Lived at HU Where Form was Mailed and Alternative HU		Lived at Some Other Address		Did Not Respond to Question		Total	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Overcount	155	40.1%	125	32.3%	105	27.1%	1	0.3%	1	0.3%	387	100.0%
College	11	28.9%	19	50.0%	8	21.0%	0	0.0%	0	0.0%	38	100.0%
Military	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	2	100.0%
Job	3	27.3%	7	63.6%	1	9.1%	0	0.0%	0	0.0%	11	100.0%
Custody	14	24.1%	3	5.2%	41	70.7%	0	0.0%	0	0.0%	58	100.0%
Seasonal	88	49.4%	54	30.3%	34	19.1%	1	0.6%	1	0.6%	178	100.0%
Jail	0	--	0	--	0	--	0	--	0	--	0	--
Nursing	0	--	0	--	0	--	0	--	0	--	0	--
Another	28	43.8%	20	31.3%	16	25.0%	0	0.0%	0	0.0%	64	100.0%
Yes Only	7	25.0%	18	64.3%	3	10.7%	0	0.0%	0	0.0%	28	100.0%
Multiple	3	37.5%	3	37.5%	2	25.0%	0	0.0%	0	0.0%	8	100.0%
None	3	27.3%	7	63.6%	1	9.1%	0	0.0%	0	0.0%	11	100.0%
Total	**158**	**39.7%**	**132**	**33.2%**	**106**	**26.6%**	**1**	**0.3%**	**1**	**0.3%**	**398**	**100.0%**

Source: X13 Data File, X13 Geocoding File, Duplication File and Final Tabulation MAFX

Just over 33 percent (33.2 percent) of the 398 people who provided an alternative address that matched to an HU on the MTdb and were found to be duplicated at that address responded that they lived or stayed at the alternative address most of the time. This means that those 132 people should be counted as residents of the alternative address they provided and not the address at which the X13 form was mailed. Over one-quarter (26.6 percent), or 106, of the 398 people reported that they lived equally at both the alternative address and the address where the X13 form was mailed.

Table 46 presents the responses to the April 1, 2010 question for the 106 people who were found to be duplicates at the alternative HU address they provided and reported that they lived equally at both the HU address provided and HU address where the X13 form was mailed.

Table 46. April 1, 2010 Question Responses for People Who Were Duplicated at the Alternative HU Address Provided and Reported that they Lived Equally at Both that Address and the Address where the X13 Form was Mailed

Overcount Response	Stayed at the HU Where Form was Mailed		Stayed at the Alternative HU Provided		Stayed at HU Where Form was Mailed and Alternative HU[22]		Stayed at Some Other Address		Did Not Respond to Question		Total	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Overcount	52	49.5%	49	46.7%	2	1.9%	2	1.9%	0	0.0%	105	100.0%
College	2	25.0%	6	75.0%	0	0.0%	0	0.0%	0	0.0%	8	100.0%
Military	0	--	0	--	0	--	0	--	0	--	0	--
Job	0	0.0%	0	0.0%	0	0.0%	1	100.0%	0	0.0%	1	100.0%
Custody	24	58.5%	16	39.0%	1	2.4%	0	0.0%	0	0.0%	41	100.0%
Seasonal	16	47.1%	17	50.0%	1	2.9%	0	0.0%	0	0.0%	34	100.0%
Jail	0	--	0	--	0	--	0	--	0	--	0	--
Nursing	0	--	0	--	0	--	0	--	0	--	0	--
Another	8	50.0%	7	43.8%	0	0.0%	1	6.3%	0	0.0%	16	100.0%
Yes Only	1	33.3%	2	66.7%	0	0.0%	0	0.0%	0	0.0%	3	100.0%
Multiple	1	50.0%	1	50.0%	0	0.0%	0	0.0%	0	0.0%	2	100.0%
None	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Total	**52**	**49.1%**	**50**	**47.2%**	**2**	**1.9%**	**2**	**1.9%**	**0**	**0.0%**	**106**	**100.0%**

Source: X13 Data File, X13 Geocoding File, Duplication File and Final Tabulation MAFX

Of the 106 duplicates who provided an alternative HU address and reported staying most of the time at both the alternative address and the address where the X13 form was mailed, 49.1 percent answered that they stayed at the address where the X13 was mailed on April 1, 2010; 47.2 percent responded that they were living at the alternative address they provided on April 1, 2010. Table 47 shows whether the person who entered an alternative address that matched to a GQ on the MTdb was duplicated at that address, duplicated at another living quarters, or not duplicated at all during the person duplication matching process

[22] In this situation, the respondent marked both boxes saying they stayed at the address where the X13 form was mailed and the alternative address provided on April 1, 2010.

Table 47. Rate of Person Duplication at the GQ Address Provided on the X13 Form by Overcount Response

Overcount Response	Person Duplicated at the GQ Provided		Person Duplicated at Another Living Quarters		Person Not Duplicated		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Overcount	7	18.9%	11	29.7%	19	51.4%	37	100.0%
College	6	22.2%	9	33.3%	12	44.4%	27	100.0%
Military	0	--	0	--	0	--	0	--
Job	0	0.0%	0	0.0%	1	100.0%	1	100.0%
Custody	0	--	0	--	0	--	0	--
Seasonal	0	--	0	--	0	--	0	--
Jail	0	0.0%	2	50.0%	2	50.0%	4	100.0%
Nursing	1	33.3%	0	0.0%	2	66.7%	3	100.0%
Another	0	0.0%	0	0.0%	2	100.0%	2	100.0%
Yes Only	0	--	0	--	0	--	0	--
Multiple	0	--	0	--	0	--	0	--
None	0	0.0%	1	100.0%	0	0.0%	1	100.0%
Total	**7**	**18.4%**	**12**	**31.6%**	**19**	**50.0%**	**38**	**100.0%**

Source: X13 Data File X13 Geocoding File, and Duplication File

Half of the 38 people who provided an alternative address that matched to a GQ on the MTdb were not identified as duplicates. Eighteen percent (18.4 percent) were found to be duplicated at the GQ address provided and 31.6 percent were duplicated at another living quarters.

Table 48 presents the responses as to where the person stayed on April 1, 2010 for people found to be duplicated at the GQ address provided. Seven people included on X13 forms fell in to this category.

Table 48. April 1, 2010 Question Responses on the X13 Form for People who provided a GQ Address and Were Found to be Duplicated at that Address by Overcount Response

Overcount Response	Stayed at the HU Where Form was Mailed		Stayed at the Alternative HU Provided		Stayed at HU Where Form was Mailed and Alternative HU[23]		Stayed at Some Other Address		Did Not Respond to Question		Total	
	Number	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Total Overcount	1	14.3%	6	85.7%	0	--	0	--	0	--	7	100.0%
College	1	16.7%	5	83.3%	0	0.0%	0	0.0%	0	0.0%	6	100.0%
Military	0	--	0	--	0	--	0	--	0	--	0	--
Job	0	--	0	--	0	--	0	--	0	--	0	--
Custody	0	--	0	--	0	--	0	--	0	--	0	--
Seasonal	0	--	0	--	0	--	0	--	0	--	0	--
Jail	0	--	0	--	0	--	0	--	0	--	0	--
Nursing	0	0.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
Another	0	--	0	--	0	--	0	--	0	--	0	--
Yes Only	0	--	0	--	0	--	0	--	0	--	0	--
Multiple	0	--	0	--	0	--	0	--	0	--	0	--
None	0	--	0	--	0	--	0	--	0	--	0	--
Total	**1**	**14.3%**	**6**	**85.7%**	**0**	**--**	**0**	**--**	**0**	**--**	**7**	**100.0%**

Source: X13 Data File, X13 Geocoding File, Duplication File and Final Tabulation MAFX

All seven of the people who were duplicated and provided an alternative address on the X13 form that matched to a GQ on the MTdb answered Question 10 on the X13 form asking where they stayed on April 1, 2010. One of the seven people responded that they lived at the address to which the X13 was mailed on April 1, 2010, while the remaining six people said they stayed at the alternative address they provided on April 1, 2010. Five of the people who reported living at the alternative address given, provided a college housing overcount reason, and the other one person provided an overcount reason for a nursing home.

[23] In this situation, the respondent marked both boxes saying they stayed at the address where the X13 form was mailed and the alternative address provided on April 1, 2010.

Table 49 shows whether or not the 2,081 people (see Table 37) who provided an address that did not match to an address on the MTdb were duplicated at a living quarters during the person duplication matching process.

Table 49. Rate of Person Duplication for People on the X13 Form Who Provided an Address that Did Not Match on the MTdb by Overcount Response

Overcount Response	Person Duplicated at a Living Quarters		Person Not Duplicated		Total	
	Number	Percent	Number	Percent	Number	Percent
Total Overcount	268	17.0%	1,309	83.0%	1,577	100.0%
College	106	42.2%	145	57.8%	251	100.0%
Military	17	3.9%	415	96.1%	432	100.0%
Job	7	8.8%	73	91.3%	80	100.0%
Custody	17	29.3%	41	70.7%	58	100.0%
Seasonal	64	15.2%	357	84.8%	421	100.0%
Jail	1	25.0%	3	75.0%	4	100.0%
Nursing	7	46.7%	8	53.3%	15	100.0%
Another	29	15.8%	154	84.2%	183	100.0%
Yes Only	12	13.0%	80	87.0%	92	100.0%
Multiple	8	19.5%	33	80.5%	41	100.0%
None	24	4.8%	480	95.2%	504	100.0%
Total	**292**	**14.0%**	**1,789**	**86.0%**	**2,081**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Duplication File

Fourteen percent of the 2,081 people who provided an address on an X13 form that did not match to an address on the MTdb were identified as duplicates at another living quarters. This rate is slightly lower than the person duplication rate of 16.4 percent who provided an address that matched to an HU (see Table 44). Of the 251 people who reported living elsewhere for a college housing reason and provided an address that did not match to an address in the census inventory, 42.2 percent were found to be duplicated at a living quarters.

Table 50 shows whether or not the 53,681 people who did not provide an address on the X13 form were duplicated.

Table 50. Rate of Person Duplication for People on the X13 Form Who Did Not Provide an Address by Overcount Response

Overcount Response	Person Duplicated at a Living Quarters		Person Not Duplicated		Total	
	Number	Percent	Number	Percent	Number	Percent
Total Overcount	23	6.1%	352	93.9%	375	100.0%
College	10	25.0%	30	75.0%	40	100.0%
Military	4	2.5%	156	97.5%	160	100.0%
Job	0	0.0%	100	100.0%	20	100.0%
Custody	3	15.8%	16	84.2%	19	100.0%
Seasonal	0	0.0%	34	100.0%	34	100.0%
Jail	1	16.7%	5	83.3%	6	100.0%
Nursing	0	0.0%	1	100.0%	1	100.0%
Another	1	1.9%	52	98.1%	53	100.0%
Yes Only	3	7.7%	36	92.3%	39	100.0%
Multiple	1	33.3%	2	66.7%	3	100.0%
None	1,651	3.1%	51,655	96.9%	53,306	100.0%
Total	**1,674**	**3.1%**	**52,007**	**96.9%**	**53,681**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Duplication File

Three percent (3.1 percent) of the 53,681 people who did not provide an address on the X13 form were found to be duplicated. Of the 53,306 people who did not report living somewhere else other than the address where the X13 form was mailed, only 3.1 percent were found to be duplicated at another living quarters.

For the purpose of this evaluation, DSSD examined the duplication results and the responses to the experimental overcount series questions of the people who were duplicated at the alternative HU address or GQ address provided to determine their residency, using the simplified residence rule. Table 51 presents those results for the 398 people who were duplicated at the alternative HU address provided and the seven people who were duplicated at the GQ address provided.

Table 51. Residency Results Based on Experimental Overcount Series Responses for the People Who Were Duplicated at the Alternative HU Address or a GQ Address Provided on an X13 Form

Type of Address Provided	Resident of X13 Mailing Address		Resident of Address Provided		Indeterminate Residence		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
HU	210	52.8%	182	45.7%	6	1.5%	398	100.0%
GQ	1	14.3%	6	85.7%	0	0.0%	7	100.0%
Total	**211**	**52.1%**	**188**	**46.4%**	**6**	**1.5%**	**405**	**100.0%**

Source: X13 Data File, X13 Geocoding File, and Final Tabulation MAFX

Of the 405 people who were duplicated at either the alternative HU address or GQ address provided, only 1.5 percent were unable to be identified as a resident of either the X13 mailing address or the alternative address provided using the simplified residence rule. Of the 398

people who were duplicated at the alternative HU address provided, 52.8 percent said they were residents of the address where the X13 form was mailed and 45.7 percent indicated they were residents of the address they provided on the X13 form. This illustrates that the experimental overcount series can be utilized to identify the residence of people with complex living situations who were duplicated without the need for a costly follow-up telephone interview.

5.2.6. CFU Results for People Enumerated on X13 Forms

The CFU operation was a telephone follow-up interview that occurred several weeks to several months after the initial census questionnaire was data captured. CFU only followed up with HUs and not GQs. The CFU interviews were used to determine if changes should be made to the household roster as reported on the initial census return. The questions in the follow-up interview included probes to determine if people were counted in error because they should have been counted at another address, among other probes, to best determine the household roster. Corrections to the household roster were made, if necessary, and the interview was treated as the final census response. To meet the goal of this evaluation, HUs that completed X13 forms were eligible to be contacted for a CFU interview.

There were drawbacks to relying on CFU to correct coverage errors, notably:

- There was an inability to obtain a follow-up interview with some households. Not all households provided a phone number where they could be contacted and phone lookup operations are limited.
- Some respondents refused to respond to the follow-up interview.
- Those respondents who completed an interview could be contacted months after they had returned the questionnaire, creating the potential for recall bias.
- There was a limited budget and workload for the follow-up operation, so only the types of cases found to be the most successful in past tests were sent for follow-up in the 2010 Census.

As shown earlier, there were 58,674 persons enumerated on X13 questionnaires in the 2010 Census. Table 52 shows how often those individuals were in HUs that completed a CFU interview by their response to the overcount question on the X13 form.

Table 52. CFU Completion Rates for Persons Enumerated on X13 Forms by Overcount Response

Overcount Response	Completed CFU Interview		Did Not Complete CFU Interview		Total	
	Number	Percent	Number	Percent	Number	Percent
Total Overcount	3,055	68.9%	1,380	31.1%	4,435	100.0%
College	366	69.7%	159	30.3%	525	100.0%
Military	472	69.4%	208	30.6%	680	100.0%
Job	106	63.1%	62	36.9%	168	100.0%
Custody	202	72.7%	76	27.3%	278	100.0%
Seasonal	1,287	72.1%	497	27.9%	1,784	100.0%
Jail	10	62.5%	6	37.5%	16	100.0%
Nursing	15	62.5%	9	37.5%	24	100.0%
Another	368	64.8%	200	35.2%	568	100.0%
Yes Only	162	54.7%	134	45.3%	296	100.0%
Multiple	67	69.8%	29	30.2%	96	100.0%
None	6,184	11.4%	48,055	88.6%	54,239	100.0%
Total	**9,239**	**15.7%**	**49,435**	**84.3%**	**58,674**	**100.0%**

Source: X13 Data File, X13 Geocoding File, CFU Analysis File, and Final Tabulation MAFX

Nearly 16 percent (15.7 percent) of the 58,674 people data captured from X13 forms were in HUs that completed a CFU interview. Of the 4,435 people who indicated an overcount response saying they sometimes lived or stayed elsewhere, 68.9 percent, or 3,055, were in HUs that completed a CFU interview.

Table 53 shows the number of people who were found to be living at an address other than the X13 address during the CFU interview for the 9,239 people who were enumerated on X13 forms and completed a CFU interview regardless of if they provided an address.

Table 53. CFU Residency Status Outcomes of X13 People who were in HUs that Completed a CFU Interview by Overcount Response

Overcount Response	Resident of HU Where X13 Form was Mailed		Nonresident of HU Where X13 Form was Mailed		Unknown CFU Outcome		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Overcount	2,350	76.9%	664	21.7%	41	1.3%	3,055	100.0%
College	101	27.6%	263	71.9%	2	0.5%	366	100.0%
Military	360	76.3%	106	22.5%	6	1.3%	472	100.0%
Job	79	74.5%	27	25.5%	0	0.0%	106	100.0%
Custody	171	84.7%	30	14.9%	1	0.5%	202	100.0%
Seasonal	1,151	89.4%	123	9.6%	13	1.0%	1,287	100.0%
Jail	3	30.0%	7	70.0%	0	0.0%	10	100.0%
Nursing	6	40.0%	8	53.3%	1	6.7%	15	100.0%
Another	298	81.0%	57	15.5%	13	3.5%	368	100.0%
Yes Only	129	79.6%	28	17.3%	5	3.1%	162	100.0%
Multiple	52	77.6%	15	22.4%	0	0.0%	67	100.0%
None	6,044	97.7%	108	1.7%	32	0.5%	6,184	100.0%
Total	**8,394**	**90.9%**	**772**	**8.4%**	**73**	**0.8%**	**9,239**	**100.0%**

Source: X13 Data File, X13 Geocoding File, CFU Analysis File and Final Tabulation MAFX

Nearly 91 percent (90.9 percent) of the 9,239 people on X13 forms who were in HUs that completed a CFU interview were determined to be residents at the address to which the X13 was mailed. Slightly over eight percent (8.4 percent) of the people on an X13 form who were in HUs that participated in a CFU interview were determined to be nonresidents of the X13 address.

Only 27.6 percent of the 366 people who indicated that they sometimes lived or stayed in college housing were found to be residents of the address where the X13 questionnaire was mailed. Across overcount categories, this was the smallest proportion of X13 people who were in HUs that were interviewed to be identified as residents of the HU where the X13 form was mailed. Almost 72 percent of the people enumerated on X13 forms who responded that they sometimes lived or stayed in college housing were identified as nonresidents of the address where the X13 form was mailed after CFU, which illustrates that people who stay in college housing and at another address were more prone to be residents of college housing.

Eighty-nine percent of the 1,287 people who reported that they sometimes lived or stayed at a seasonal or second residence were identified after CFU to be residents of the address where the X13 form was mailed. This was a higher percentage than any other overcount category.

Looking solely at the 3,055 people who provided an overcount response and were in HUs that completed a CFU interview, 2,350, or 76.9 percent, were identified as residents of the address to which the X13 form was mailed, while 21.7 percent were found to be nonresidents of the address to which the X13 form was mailed.

Next, DSSD examined the results from the 9,239 people who completed a CFU interview to determine if any addresses provided on X13 forms that were geocoded and matched to the MTdb were mentioned during the CFU interviews. Table 54 shows whether or not addresses that matched to the MTdb provided on X13 forms were mentioned during the CFU interviews.

Table 54. Whether or Not Addresses Provided on X13 Forms Were Mentioned During CFU Interview by Overcount Response

Overcount Response	Address Provided Mentioned During CFU Interview		Address Provided Not Mentioned During CFU Interview		Total	
	Number	Percent	Number	Percent	Number	Percent
Total Overcount	647	21.2%	2,408	78.8%	3,055	100.0%
College	36	9.8%	330	90.2%	366	100.0%
Military	4	0.8%	468	99.2%	472	100.0%
Job	14	13.2%	92	86.8%	106	100.0%
Custody	58	28.7%	144	71.3%	202	100.0%
Seasonal	434	33.7%	853	66.3%	1,287	100.0%
Jail	2	20.0%	8	80.0%	10	100.0%
Nursing	0	0.0%	15	100.0%	15	100.0%
Another	58	15.8%	310	84.2%	368	100.0%
Yes Only	32	19.8%	130	80.2%	162	100.0%
Multiple	9	13.4%	58	86.6%	67	100.0%
None	5	0.1%	6,179	99.9%	6,184	100.0%
Total	**652**	**7.1%**	**8,587**	**92.9%**	**9,239**	**100.0%**

Source: X13 Data File, X13 Geocoding File, CFU Analysis File, CFU Geocoding File, and Final Tabulation MAFX

Only 7.1 percent of the 9,239 people who were included on X13 forms and were in HUs that completed a CFU interview mentioned the address where they indicated that they sometimes lived or stayed on the X13 form. Of the 3,055 people who reported that they sometimes lived or stayed somewhere else on the X13 form and were in HUs that completed a CFU interview, 647, or 21.2 percent, mentioned the geocoded address they provided on the X13 form during the CFU interview. This is evidence that capturing information on the initial return is crucial in understanding a person's living situation.

When comparing CFU outcomes to the responses on the X13 forms, there were similar results. Of the 3,055 people who reported living elsewhere and were in HUs that completed a CFU

interview 76.9 percent were identified as residents of the address to which the X13 form was mailed, while 21.7 percent were found to be nonresidents of the address to which the X13 form was mailed. (The remaining 1.3 percent did not provide enough information to determine their residency using the residence rule.) Comparatively, looking only at the 2,422 people who provided an alternative HU address on the X13 form, 78.1 percent indicated they were residents of the address where the X13 was mailed, 19.7 percent reported they were residents of the alternative HU address provided, and 3.4 percent did not provide enough information to determine residency using simplified residence rule.

6. Related Evaluations, Experiments, and/or Assessments

The following assessments, evaluations, and experiments are related to the Avoid Followup Evaluation:

- 2010 Census Group Quarters Enumeration Assessment Report
- 2010 Census Effectiveness of Unduplication Evaluation
- 2010 Census Coverage Followup Assessment Report

7. Conclusions and Recommendations

7.1. Conclusions

7.1.1. Alternative ICR

In the 2010 Census, the ICR used at GQs allowed respondents to enter an address if they replied that they sometimes lived or stayed somewhere else besides that facility. The addresses collected on the ICRs were only matched to the MTdb if they met the eligibility criteria to be considered UHE-eligible. There are nine types of GQs that meet the UHE-eligible criteria, and thus allow people to be residence coded at another living quarters. However, the majority of people who live in GQs reside in UHE-ineligible GQs. If an address of another place where they sometimes lived or stayed was provided for people in UHE-ineligible GQs, it was ignored during 2010 Census processing. This evaluation looked at the addresses collected on both the Regular and Alternative ICRs, and looked to see if people were duplicated at the respondent-provided other place address.

The Alternative ICR was developed to collect address information regardless of whether the respondent indicated they only lived or stayed at the GQ or not. The results of the Alternative ICRs showed that people will provide addresses at a much greater frequency if they are instructed to on the form, even if they stated that they only lived or stayed at the GQ.

The Alternative ICR collected addresses for 37.3 percent of the respondents while only 9.0 percent of respondents to the Regular ICR provided an address. Eighty-nine percent of Alternative ICR respondents who indicated that they sometimes lived or stayed somewhere else besides the GQ provided an address. Even the Alternative ICR respondents who indicated that they stayed at the GQ facility most of the time provided an address 65.4 percent of the time. People in College/University Student Housing GQs contributed one of the largest increases in

addresses collected on the Alternative ICR. Nearly half of respondents who completed the Alternative ICR in College/University Student Housing provided an address compared to 10.8 percent of the Regular ICR respondents in College/University Student Housing.

Not only did the Alternative ICR have a higher rate of addresses collected than the Regular ICR, it also had a greater percentage of its respondent-provided addresses matching to HUs. Eighty percent of the addresses collected on the Alternative ICR matched to an HU compared to 51.1 percent of the Regular ICR. The Regular ICR had a high rate of address matches to other GQs, with 9.1 percent of the addresses provided matching to GQs. Matches to GQs were not prevalent in the LCOs that used the Alternative ICR where under one percent of the people provided an address that subsequently matched to a GQ. College/University Student Housing GQs saw an increase in addresses that matched to HUs when the Alternative ICRs were used. Eighty-four percent of the addresses collected on the Alternative ICR from respondents in College/University Student Housing GQs were matched to an HU on the MTdb, while 60.3 percent matched to an HU from a Regular ICR.

All of the data captured HU and group quarters records underwent a person duplication matching process in the 2010 Census to see if they were duplicated. Nearly 20 percent of the respondents on both the Alternative and Regular ICRs who provided an address that matched to HUs were duplicated at the HU address they provided. Approximately 20 percent of respondents in College/University Student Housing were duplicated at the HU address they provided. College/University Student Housing GQs are classified as an UHE-ineligible GQ. Past research has shown that people living away from their parent/guardian's home at College/University Student Housing are likely duplicated and counted at their parent/guardian's HU. This evaluation corroborates that research by showing that 20 percent were duplicated at the HU address provided.

Respondents in Nursing Facilities/Skilled-Nursing Facilities had the highest person duplication rate for both ICR types. Forty-three percent of the people who provided an HU address on the Alternative ICR and 41.5 percent on the Regular ICR were duplicated. Nursing Facilities/Skilled-Nursing Facilities are classified as UHE-ineligible.

The Census Bureau currently does not remove a duplicated person from an HU unless the HU is selected for CFU for other coverage reasons and the CFU interview deletes the duplicated person from the roster or if the GQ type is classified as UHE-eligible. The CFU interview was not able to resolve all of the HU duplication. The CFU operation deleted 58.8 percent of the people who were duplicated at the HU address that they provided on the Alternative ICR and 28.0 percent from the Regular ICR. The residency status of these people could have been resolved without a CFU interview if the address information collected was used in conjunction with the person duplication results. If the address collected on the ICR matches to an HU and the person is duplicated at that HU, there is no reason that the Census Bureau could not remove the duplication using decision rules based on the residence rule criteria. The process would be similar to the process that is currently used for UHE-eligible GQ types but could be applied to all GQs. For example, if an address collected from a UHE-ineligible GQ matched to an HU and the person was duplicated at that unit, they could be deleted from the HU and only counted at the GQ.

7.1.2. X13

The purpose of the X13 questionnaire was to obtain enough respondent-provided information, via the experimental overcount series, to confidently determine the residency status of people with complex living situations, without the need for a costly and time-consuming followup interview. To maximize the number of overcount respondents on X13 questionnaires, a sample was drawn from six strata that were determined to potentially have a higher percentage of people with complex living situations. Among the six strata (sampled for their believed propensity to included people with complex living situations for college, child custody, military, nursing home, jail, and seasonal or second home reasons), 20,663 X13 forms were returned that enumerated 58,674 people. Of these people, 4,435, or 7.6 percent, responded that they sometimes lived or stayed somewhere else, and 4,993, or 8.5 percent, provided an address where they said they sometimes lived or stayed.

The X13 questionnaire was designed as a booklet questionnaire that allowed for an HU to provide full demographic information for up to nine people and partial demographic information for five people. Due to the booklet design, there was concern that the X13 form could have caused additional respondent burden. However, there was no evidence that the design decreased response. The X13 form had a higher response rate than the traditional one-sheet MO/MB forms in each sample strata. Additionally, there was a similar proportion of count discrepancies and undercount for the X13 form and one-sheet MO/MB forms in the sample strata. Thus, the booklet design of the X13 questionnaire did not appear to cause additional coverage problems.

Nine percent of the people who provided an address provided the same address to where the X13 form was mailed, which implies that they were confused with the question. Nearly 50 percent of those who provided an address entered an alternative HU address. Only about one percent of the people who provided an address gave an address that matched to either a GQ or SP, while approximately 42 percent provided an incomplete address or one that did not match to a living quarters in the census inventory. Only the people who provided an alternative HU or GQ address were eligible to be residents of an address different from where the X13 form was mailed. There were 2,422 people who provided an alternative HU address on an X13 form and 38 who provided a GQ address.

Examining only the 2,422 people who provided an alternative HU address, almost 70 percent reported that they lived most of the time at the address where the X13 form was mailed, while 15 percent said they lived most of the time at the alternative address they provided. Of the 366 people who said they lived at both addresses most of the time, 63.4 percent responded that they lived at the X13 address on April 1, 2010, while 31.1 percent said they lived at the alternative address they provided. Looking at the 2,422 people who provided an alternative HU address on the X13 form, 78.1 percent indicated they were residents of the address where the X13 was mailed, 19.7 percent reported they were residents of the alternative HU address provided, and 2.2 percent did not provide enough information to identify their residence using the simplified residence rule. This illustrates that the Census Bureau can utilize the experimental overcount series to resolve people with complex living situations without costly follow-up.

Of the 2,422 people who provided an alternative HU address, 398, or 16.4 percent were duplicated at the address they provided. Of those 398 people, all but six were identified as residents of either the X13 mailing address or the alternative HU address provided based on their responses to the experimental overcount series questions. This illustrates that the experimental overcount series can be utilized to determine the residence of people who were duplicated at the address they provided on the form without the need for a costly follow-up interview.

Therefore, the X13 questionnaire was able to obtain enough information, without decreasing response rates, to determine the residence of nearly all the people who provided an address where they sometimes lived or stayed (especially for those who sometimes lived or stayed in a seasonal or second residence). However, the lack of cases where people sometimes lived or stayed in jail or nursing homes made it difficult to make inferences on those complex living situations. Because DSSD was able to determine the residence of nearly all of the people enumerated on X13 forms based on their responses (using the simplified residence rule) and that the longer form did not appear to cause undue respondent burden, the implementation of the experimental overcount series lessened the need for costly additional follow-up via the CFU interview.

The CFU interview was used in the 2010 Census to resolve complex living situations. Of the 4.435 people enumerated on an X13 form who provided an overcount reason, 3,055 were in HUs that completed a CFU interview. Of those 3,055 people, 21.7 percent were found to be nonresidents of the X13 mailing address during their interview, and 76.9 percent were determined to be residents of the X13 mailing address. Comparatively, examining the 2,422 people who provided an alternative HU address on the X13 form, 19.7 percent reported that they were residents of the alternative HU address provided, and 78.1 percent indicated they were residents of the X13 mailing address based on their responses to the experimental overcount series.

The X13 questionnaire showed that people are willing to provide an address when prompted in their initial census questionnaire and their complex living situation can be resolved using the current residence rule without an expensive follow-up interview. For the 2020 Census, DSSD recommends that additional addresses where the person sometimes lives or stays be collected when the respondent initially responds, in additional to the follow-up overcount series questions that ask where the person lived most of the time and where they stayed on April 1. With the usage of an internet questionnaire and without the extra costs of printing the booklet questionnaire, this recommendation should be feasible to enact for the 2020 Census.

7.2. Recommendations

- Implement the overcount series questions where the respondent can provide a second address where they sometimes live or stay on the 2020 Census HU questionnaire.
- Resolve complex living situations in HUs by residence coding using the results of the overcount series questions asking where they live or stay.
- Implement the Alternative ICR UHE Question Series on the 2020 Census GQ questionnaire to collect more addresses that would be used in address matching.

- Regardless of GQ type, when a UHE address is provided it should be used with the person duplication matching results to resolve person duplication.
- Conduct further research into the potential increase in printing and data capture costs, compared to a one-sheet questionnaire, if a mailout/mailback booklet questionnaire is implemented.

8. Acknowledgements

We wish to thank the many individuals who contributed valuable insight and assistance into improving early drafts, or answered occasional questions that arose as we assembled this report. Kelly Govern and Sarah Heimel provided an especially thorough and valuable review of this document. Many thanks also to Frank Anderson for fact-checking every number in this report and catching additional errors in earlier drafts.

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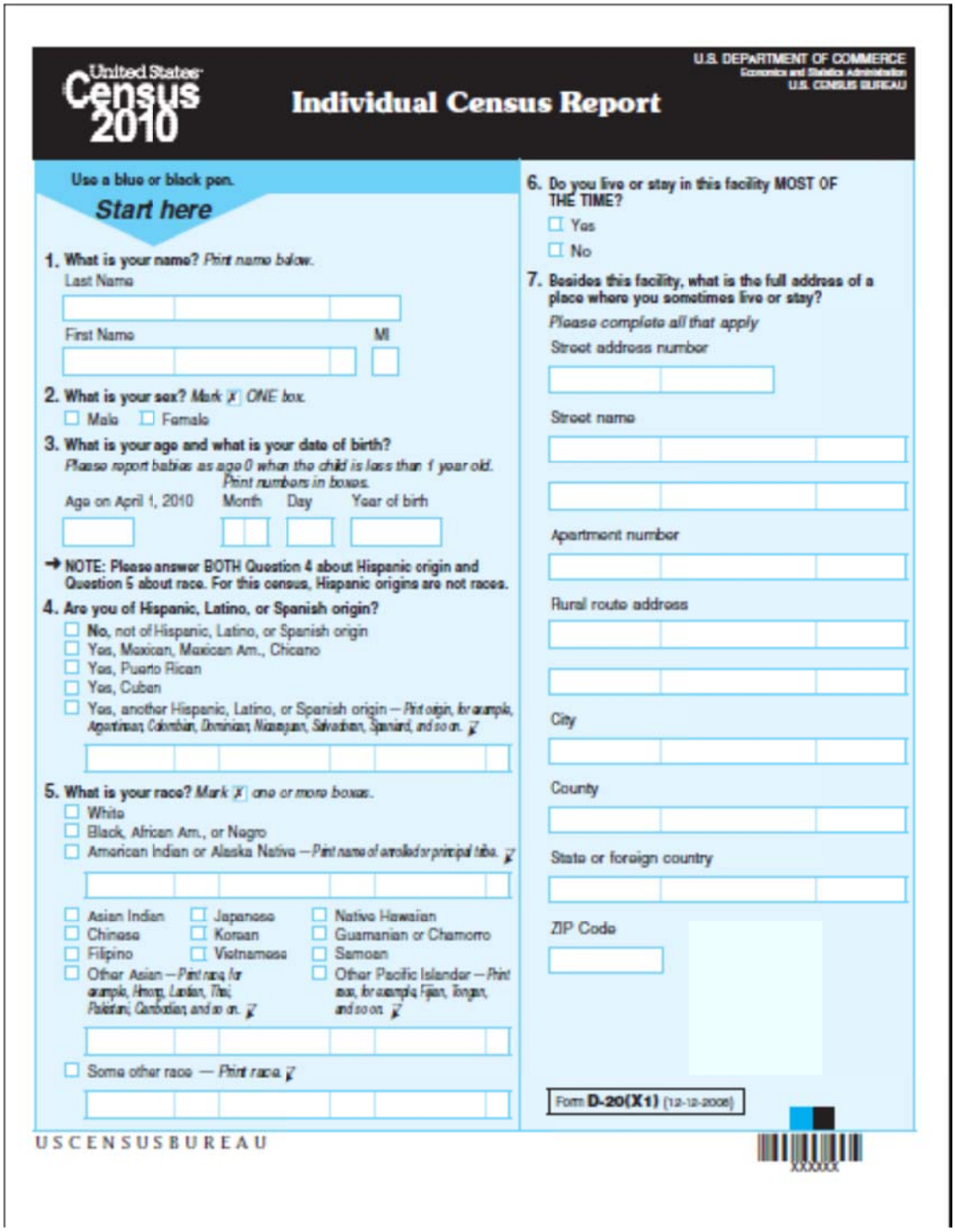
Appendix A. 2010 Census Alternative Individual Census Return



United States Census 2010

U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

Individual Census Report

Use a blue or black pen.

Start here

1. What is your name? *Print name below.*

Last Name

First Name MI

2. What is your sex? *Mark [X] ONE box.*

☐ Male ☐ Female

3. What is your age and what is your date of birth?

Please report babies as age 0 when the child is less than 1 year old.
Print numbers in boxes.

Age on April 1, 2010 Month Day Year of birth

→ **NOTE: Please answer BOTH Question 4 about Hispanic origin and Question 5 about race. For this census, Hispanic origins are not races.**

4. Are you of Hispanic, Latino, or Spanish origin?

☐ **No,** not of Hispanic, Latino, or Spanish origin
☐ Yes, Mexican, Mexican Am., Chicano
☐ Yes, Puerto Rican
☐ Yes, Cuban
☐ Yes, another Hispanic, Latino, or Spanish origin — *Print origin, for example, Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard, and so on.* [X]

5. What is your race? *Mark [X] one or more boxes.*

☐ White
☐ Black, African Am., or Negro
☐ American Indian or Alaska Native — *Print name of enrolled or principal tribe.* [X]

☐ Asian Indian ☐ Japanese ☐ Native Hawaiian
☐ Chinese ☐ Korean ☐ Guamanian or Chamorro
☐ Filipino ☐ Vietnamese ☐ Samoan
☐ Other Asian — *Print race, for example, Hmong, Laotian, Thai, Pakistani, Cambodian, and so on.* [X] ☐ Other Pacific Islander — *Print race, for example, Fijian, Tongan, and so on.* [X]

☐ Some other race — *Print race.* [X]

6. Do you live or stay in this facility MOST OF THE TIME?

☐ Yes
☐ No

7. Besides this facility, what is the full address of a place where you sometimes live or stay?

Please complete all that apply

Street address number

Street name

Apartment number

Rural route address

City

County

State or foreign country

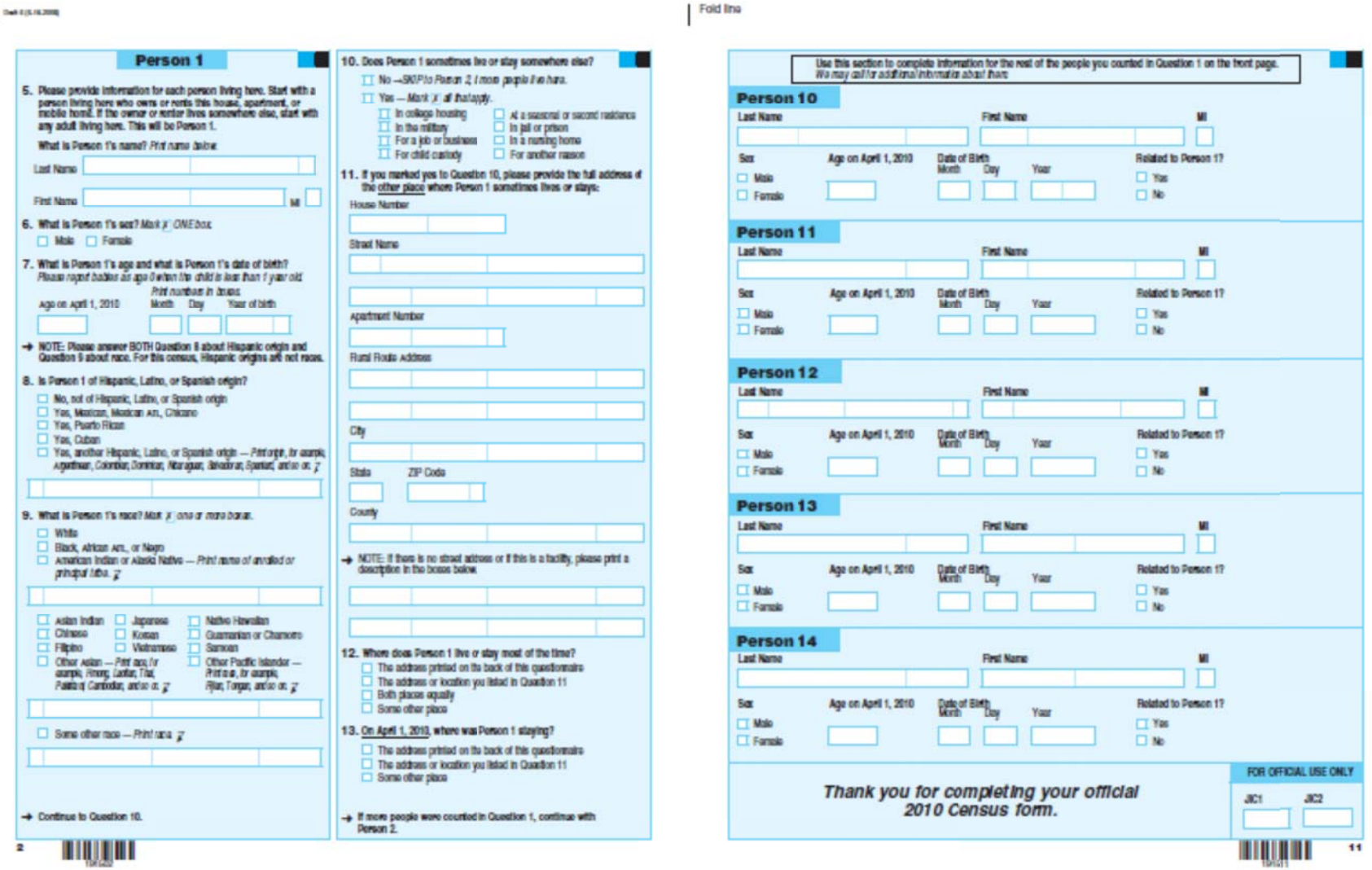
ZIP Code

Form **D-20(X1)** (12-12-2008)

U S C E N S U S B U R E A U

XXXXXX

Appendix B. 2010 Census Experimental MO/MB (X13) Form (Excerpt)



Person 1

5. Please provide information for each person living here. Start with a person living here who owns or rents this house, apartment, or mobile home. If the owner or renter lives somewhere else, start with any adult living here. This will be Person 1.

What is Person 1's name? *Print name below.*

Last Name

First Name MI

6. What is Person 1's sex? *Mark (X) ONE box.*

☐ Male ☐ Female

7. What is Person 1's age and what is Person 1's date of birth?
Please report babies as age 0 when the child is less than 1 year old.
Print numbers in boxes.

Age on April 1, 2010 | Month | Day | Year of birth

→ NOTE: Please answer BOTH Question 8 about Hispanic origin and Question 9 about race. For this census, Hispanic origins are not races.

8. Is Person 1 of Hispanic, Latino, or Spanish origin?

☐ No, not of Hispanic, Latino, or Spanish origin
☐ Yes, Mexican, Mexican Am., Chicano
☐ Yes, Puerto Rican
☐ Yes, Cuban
☐ Yes, another Hispanic, Latino, or Spanish origin — *Print origin, for example, Argentinian, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard, and so on.* (X)

9. What is Person 1's race? *Mark (X) one or more boxes.*

☐ White
☐ Black, African Am., or Negro
☐ American Indian or Alaska Native — *Print name of enrolled or principal tribe.* (X)

☐ Asian Indian ☐ Japanese ☐ Native Hawaiian
☐ Chinese ☐ Korean ☐ Guamanian or Chamorro
☐ Filipino ☐ Vietnamese ☐ Samoan
☐ Other Asian — *Print race, for example, Hmong, Laotian, Thai, Pakistani, Cambodian, and so on.* (X) ☐ Other Pacific Islander — *Print race, for example, Fijian, Tongan, and so on.* (X)

☐ Some other race — *Print race.* (X)

→ Continue to Question 10.

10. Does Person 1 sometimes live or stay somewhere else?

☐ No — *SKIP to Person 2 if more people live here.*
☐ Yes — *Mark (X) all that apply.*
☐ In college housing ☐ At a seasonal or second residence
☐ In the military ☐ In jail or prison
☐ For a job or business ☐ In a nursing home
☐ For child custody ☐ For another reason

11. If you marked yes to Question 10, please provide the full address of the other place where Person 1 sometimes lives or stays:

House Number

Street Name

Apartment Number

Rural Route Address

City

State ZIP Code

County

→ NOTE: If there is no street address or if this is a facility, please print a description in the boxes below.

12. Where does Person 1 live or stay most of the time?

☐ The address printed on the back of this questionnaire
☐ The address or location you listed in Question 11
☐ Both places equally
☐ Some other place

13. On April 1, 2010, where was Person 1 staying?

☐ The address printed on the back of this questionnaire
☐ The address or location you listed in Question 11
☐ Some other place

→ If more people were counted in Question 1, continue with Person 2.

2

Fold line

Use this section to complete information for the rest of the people you counted in Question 1 on the front page. We may call for additional information about them.

Person 10

Last Name First Name MI

Sex ☐ Male ☐ Female | Age on April 1, 2010 | Date of Birth Month Day Year | Related to Person 1? ☐ Yes ☐ No

Person 11

Last Name First Name MI

Sex ☐ Male ☐ Female | Age on April 1, 2010 | Date of Birth Month Day Year | Related to Person 1? ☐ Yes ☐ No

Person 12

Last Name First Name MI

Sex ☐ Male ☐ Female | Age on April 1, 2010 | Date of Birth Month Day Year | Related to Person 1? ☐ Yes ☐ No

Person 13

Last Name First Name MI

Sex ☐ Male ☐ Female | Age on April 1, 2010 | Date of Birth Month Day Year | Related to Person 1? ☐ Yes ☐ No

Person 14

Last Name First Name MI

Sex ☐ Male ☐ Female | Age on April 1, 2010 | Date of Birth Month Day Year | Related to Person 1? ☐ Yes ☐ No

Thank you for completing your official 2010 Census form.

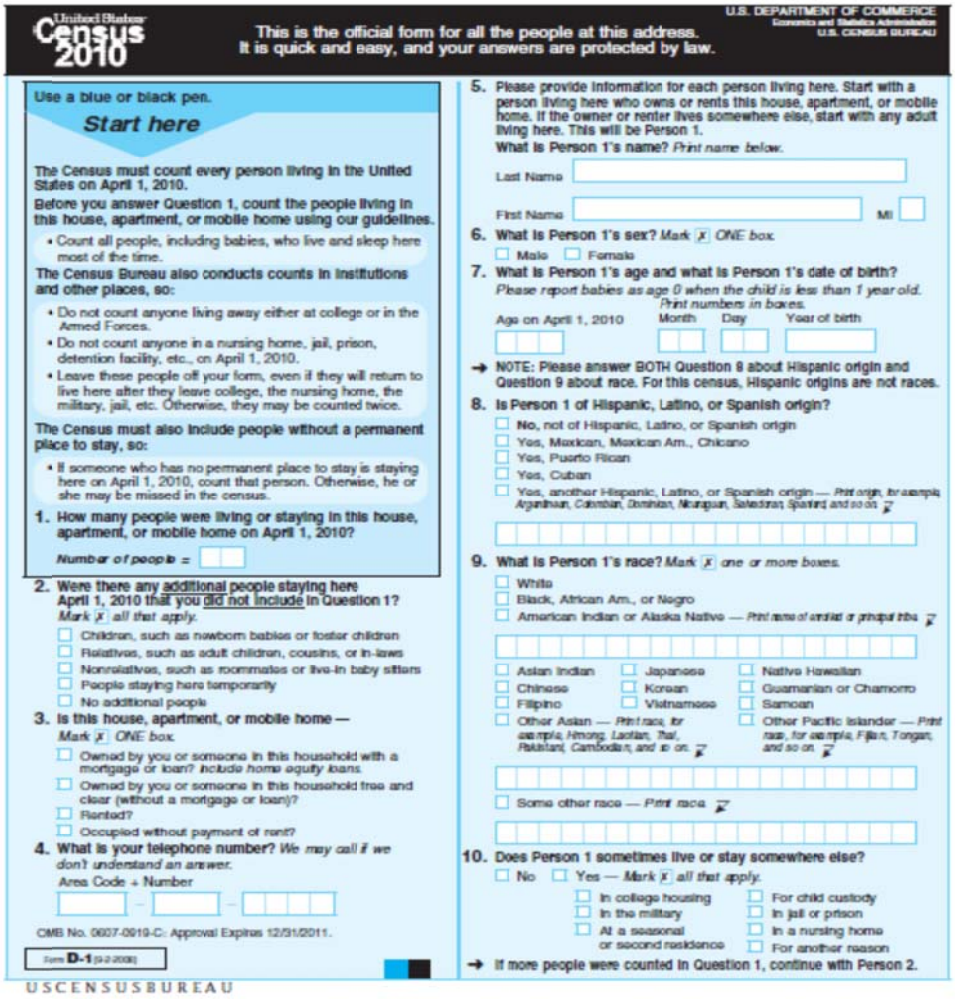
FOR OFFICIAL USE ONLY

JIC1 JIC2

11

D-1(X13), Page 2 & 11 Base copy - Prints Black Ink
D-1(X13) - Pages 2 & 11 - Prints Pantone Process Cyan, 10%, 25%, 50% and 100%

Appendix C. 2010 Census Standard One-Sheet MO/MB Form



United States Census 2010

This is the official form for all the people at this address.
It is quick and easy, and your answers are protected by law.

U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

Use a blue or black pen.

Start here

The Census must count every person living in the United States on April 1, 2010.

Before you answer Question 1, count the people living in this house, apartment, or mobile home using our guidelines.

- Count all people, including babies, who live and sleep here most of the time.

The Census Bureau also conducts counts in institutions and other places, so:

- Do not count anyone living away either at college or in the Armed Forces.
- Do not count anyone in a nursing home, jail, prison, detention facility, etc., on April 1, 2010.
- Leave these people off your form, even if they will return to live here after they leave college, the nursing home, the military, jail, etc. Otherwise, they may be counted twice.

The Census must also include people without a permanent place to stay, so:

- If someone who has no permanent place to stay is staying here on April 1, 2010, count that person. Otherwise, he or she may be missed in the census.

1. How many people were living or staying in this house, apartment, or mobile home on April 1, 2010?
   Number of people =

2. Were there any additional people staying here April 1, 2010 that you did not include in Question 1? *Mark [X] all that apply.*
   - Children, such as newborn babies or foster children
   - Relatives, such as adult children, cousins, or in-laws
   - Nonrelatives, such as roommates or live-in baby sitters
   - People staying here temporarily
   - No additional people

3. Is this house, apartment, or mobile home — *Mark [X] ONE box.*
   - Owned by you or someone in this household with a mortgage or loan? *Include home equity loans.*
   - Owned by you or someone in this household free and clear (without a mortgage or loan)?
   - Rented?
   - Occupied without payment of rent?

4. What is your telephone number? *We may call if we don't understand an answer.*
   Area Code + Number

OMB No. 0607-0919-C: Approval Expires 12/31/2011.

Form D-1 (9-2-2009)

5. Please provide information for each person living here. Start with a person living here who owns or rents this house, apartment, or mobile home. If the owner or renter lives somewhere else, start with any adult living here. This will be Person 1.
   What is Person 1's name? *Print name below.*
   Last Name
   First Name MI

6. What is Person 1's sex? *Mark [X] ONE box.*
   - Male
   - Female

7. What is Person 1's age and what is Person 1's date of birth?
   Please report babies as age 0 when the child is less than 1 year old.
   Print numbers in boxes.
   Age on April 1, 2010 | Month | Day | Year of birth

→ NOTE: Please answer BOTH Question 8 about Hispanic origin and Question 9 about race. For this census, Hispanic origins are not races.

8. Is Person 1 of Hispanic, Latino, or Spanish origin?
   - No, not of Hispanic, Latino, or Spanish origin
   - Yes, Mexican, Mexican Am., Chicano
   - Yes, Puerto Rican
   - Yes, Cuban
   - Yes, another Hispanic, Latino, or Spanish origin — *Print origin, for example, Argentinian, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard, and so on.*

9. What is Person 1's race? *Mark [X] one or more boxes.*
   - White
   - Black, African Am., or Negro
   - American Indian or Alaska Native — *Print name of enrolled or principal tribe.*
   - Asian Indian
   - Japanese
   - Native Hawaiian
   - Chinese
   - Korean
   - Guamanian or Chamorro
   - Filipino
   - Vietnamese
   - Samoan
   - Other Asian — *Print race, for example, Hmong, Laotian, Thai, Pakistani, Cambodian, and so on.*
   - Other Pacific Islander — *Print race, for example, Fijian, Tongan, and so on.*
   - Some other race — *Print race.*

10. Does Person 1 sometimes live or stay somewhere else?
    - No
    - Yes — *Mark [X] all that apply.*
      - In college housing
      - In the military
      - At a seasonal or second residence
      - For child custody
      - In jail or prison
      - In a nursing home
      - For another reason

→ If more people were counted in Question 1, continue with Person 2.

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