

# Analysis of Imputation Rates for the 100 Percent Person and Housing Unit Data Items from Census 2000

## FINAL REPORT

This evaluation reports the results of research and analysis undertaken by the U.S. Census Bureau. It is part of a broad program, the Census 2000 Testing, Experimentation, and Evaluation (TXE) Program, designed to assess Census 2000 and to inform 2010 Census planning. Findings from the Census 2000 TXE Program reports are integrated into topic reports that provide context and background for broader interpretation of results.

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## CONTENTS

EXECUTIVE SUMMARY .....	vi
1. BACKGROUND .....	1
1.1 Imputation definitions.....	1
1.2 Previous censuses.....	2
1.3 Comparison to item nonresponse (Evaluation B.1.b) .....	3
1.4 Other reports/sources of interest .....	3
2. METHODOLOGY .....	4
2.1 Data files for evaluation.....	4
2.2 Statistics being produced .....	4
3. LIMITATIONS.....	11
4. RESULTS .....	12
4.1 Substitution rate .....	12
4.2 Imputation rates (assignment and allocation rates).....	13
4.3 Data completeness statistic .....	45
5. CONCLUSIONS.....	48
References.....	50
Appendix A: Classification of Edit/Allocation Flag Variables into Categories from the Hundred Percent Census Edited File with the Reinstated Housing Units (HCEF_D') .....	51
Appendix B: Variable and Variable Values for Scenarios Analyzed from the Hundred Percent Census Edited File with the Reinstated Housing Units (HCEF_D') .....	53
Appendix C: Scenarios Analyzed for the Data Completeness Statistic.....	55
Appendix D: Hundred Percent Census Edited File with the Reinstated Housing Units (HCEF_D') Variable Definitions.....	56
Appendix E: Hundred Percent Census Unedited File (HCUF) Variable Definitions.....	60
Appendix F: Decennial Response File – Stage 2 (DRF2) Variable Definitions.....	61
Appendix G: Imputation Rates by Response Mode and Form Type for All Items .....	63
Appendix H: Imputation Rates by Check-In Date for All Items .....	66
Appendix I: Number of Imputed Persons for Relationship Item with Allocation Breakdown .....	78

Appendix J: Number of Imputed Persons for Sex Item with Allocation Breakdown .....	80
Appendix K: Number of Imputed Persons for Age Item with Allocation Breakdown .....	82
Appendix L: Number of Imputed Persons for Hispanic Origin Item with Allocation Breakdown .....	84
Appendix M: Number of Imputed Persons for Race Item with Allocation Breakdown .....	86
Appendix N: Number of Imputed Households for Tenure Item.....	88
Appendix O: Data Completeness Statistic Number of Persons .....	90
Appendix P: Puerto Rico Imputation Rates for Relationship Item.....	92
Appendix Q: Puerto Rico Imputation Rates for Sex Item .....	94
Appendix R: Puerto Rico Imputation Rates for Age Item.....	96
Appendix S: Puerto Rico Imputation Rates for Hispanic Origin Item .....	98
Appendix T: Puerto Rico Imputation Rates for Race Item.....	100
Appendix U: Puerto Rico Imputation Rates for Tenure Item.....	102

## LIST OF TABLES AND FIGURES

Table A. 1980 and 1990 Census Allocation Rates for 100 Percent Person and Housing Unit Items.....	3
Table 1. Number and Percent of Housing Unit and Person Substitutions .....	12
Table 2. Imputation Rates by Item.....	13
Table 3. Imputation Rates by Form Type and Imputation Rates by Response Mode for Relationship Item .....	14
Figure 1. Imputation Rates by Response Mode and Form Type for Relationship Item .....	15
Table 4. Imputation Rates by Form Language for Relationship Item .....	16
Table 5. Imputation Rates by Tenure for Relationship Item .....	16
Table 6. Imputation Rates by Form Source for Relationship Item .....	17
Table 7. Imputation Rates by Household Membership for Relationship Item .....	18
Table 8. Imputation Rates by Form Type and Imputation Rates by Response Mode for Sex Item .....	19
Figure 2. Imputation Rates by Response Mode and Form Type for Sex Item .....	20
Table 9. Imputation Rates by Form Language for Sex Item.....	20
Table 10. Imputation Rates by Tenure for Sex Item.....	21
Table 11. Imputation Rates by Form Source for Sex Item .....	22
Table 12. Imputation Rates by Household Membership for Sex Item .....	23
Table 13. Imputation Rates by Form Type and Imputation Rates by Response Mode for Age Item.....	24
Figure 3. Imputation Rates by Response Mode and Form Type for Age Item.....	25
Table 14. Imputation Rates by Form Language for Age Item .....	25
Table 15. Imputation Rates by Tenure for Age Item .....	26
Table 16. Imputation Rates by Form Source for Age Item.....	27
Table 17. Imputation Rates by Household Membership for Age Item.....	28

Table 18. Imputation Rates by Form Type and Imputation Rates by Response Mode for Hispanic Origin Item.....	29
Figure 4. Imputation Rates by Response Mode and Form Type for Hispanic Origin Item.....	30
Table 19. Imputation Rates by Form Language for Hispanic Origin Item.....	30
Table 20. Imputation Rates by Tenure for Hispanic Origin Item.....	31
Table 21. Imputation Rates by Form Source for Hispanic Origin Item.....	32
Table 22. Imputation Rates by Household Membership for Hispanic Origin Item.....	33
Table 23. Imputation Rates by Form Type and Imputation Rates by Response Mode for Race Item .....	34
Figure 5. Imputation Rates by Response Mode and Form Type for Race Item .....	35
Table 24. Imputation Rates by Form Language for Race Item.....	35
Table 25. Imputation Rates by Tenure for Race Item.....	36
Table 26. Imputation Rates by Form Source for Race Item .....	37
Table 27. Imputation Rates by Household Membership for Race Item .....	38
Table 28. Imputation Rates by Form Type and Imputation Rates by Response Mode for Tenure Item.....	39
Figure 6. Imputation Rates by Response Mode and Form Type for Tenure Item .....	40
Table 29. Imputation Rates by Form Language for Tenure Item .....	40
Table 30. Imputation Rates by Form Source for Tenure Item.....	41
Table 31. Imputation Rates by Household Membership for Tenure Item .....	42
Figure 7. Total Imputation Rates for Self Responses by Check-In Date.....	44
Figure 8. Total Imputation Rates for Enumerator Returns by Check-In Date.....	44
Table 32. Data Completeness Statistic: Number and Percent of Persons by Sum of Non-Imputed Responses to 100 Percent Person Items .....	45
Table 33. Data Completeness Statistic: Number and Percent of Persons by Sum of Non-Imputed Responses to 100 Percent Person Items and Form Type.....	46

Table 34. Data Completeness Statistic: Percent of Persons by Sum of Non-Imputed Responses to 100 Percent Person Items and Response Mode .....46

Table 35. Data Completeness Statistic: Percent of Persons by Sum of Non-Imputed Responses to 100 Percent Person Items, Form Type, and Response Mode .....47

## EXECUTIVE SUMMARY

This evaluation report provides information on data quality, specifically data completeness, for the 100 percent person and housing unit items (relationship, sex, age, Hispanic origin, race, and tenure) from Census 2000. For this report, data completeness is measured by imputation. Imputation is divided into three categories. The categories are based on the process used to impute the data. The categories also represent the level of confidence we have in the imputed data representing the "true" value. This analysis is performed to document and to give a wider perspective of the potential differences in the level of data completeness for the breakdowns within return characteristics. This will provide insight into the factors that may be influencing the respondent when completing the questionnaire.

It should be noted that the definition of imputation is sometimes interpreted in various ways across the Census Bureau depending on the scope of a particular analysis. This could lead to different methods of computing imputation rates, and may potentially lead to conflicting rates between reports on the same topic within the Census Bureau. Therefore, when comparing imputation rates across reports, it is imperative to understand the way the rates are computed to make sure that they are, in fact, comparable.

This report focuses on item assignment rates, item allocation rates, and substitution rates. These three types of imputation - assignments, allocations, and substitutions - are defined as follows:

- An *assignment* is performed when a response for a data item is either missing or not consistent with other responses, and an item value can be determined based on information provided by that same person. For the tenure item, the item value is determined based on long form information provided by that same housing unit.
- *Allocations* are performed when a response for a data item is either missing or not consistent with other responses, and an item value CANNOT be determined based on information provided from within that same person or housing unit. An allocation uses a response from another person within the household or from a person in a nearby household. For the tenure item, an allocation uses a response from a nearby household. This type of imputation can occur for one or more of the 100 percent person characteristics. When every 100 percent characteristic for a person requires allocation, the case can be handled in one of two ways. A person is considered totally allocated when at least one person within the household has data that do not require allocation. However, when every item for every person in the household requires allocation then it is covered by substitution.
- A *substitution* occurs when all the 100 percent characteristics for every person in the household are either missing or not consistent with other responses. To remedy this, a nearby housing unit with complete 100 percent data is selected to represent the missing or inconsistent person data items. This nearby housing unit

is selected using the nearest neighbor hot deck. This is also called a whole household substitution.

In addition to these three types of imputation rates, a data completeness statistic is produced to determine the number of 100 percent population items within each person that are not imputed.

This analysis report excludes group quarters. Numbers presented in this report represent occupied housing units and persons within these units. As well, the allocation rates presented in the Background section of this evaluation from the 1980 and 1990 censuses may not be directly comparable to Census 2000 imputation rates. Caution should be used when making comparisons with these numbers.

As part of this analysis, imputation rates were examined by different subgroups such as long versus short, enumerator versus self, by individual mode of response, etc. With some of the comparisons, the observed difference in the rates is solely a function of the comparison, for example long versus short. However, for other comparisons, the observed differences may also be a function of the type of respondent and their ability to complete the questionnaire. For instance, persons who complete their questionnaire over the Internet may be more likely to provide all requested data. Therefore, the reader should be careful about conclusions made from the review of the data presented in this report such as the Internet providing more complete data. What this report provides is an understanding of the enumeration process for Census 2000 and the quality of the data that are obtained.

The key findings of the evaluation follow.

- A total of 1,464,793 households were substituted nationwide in Census 2000. These represent 1.39 percent of the 105.5 million occupied housing units. Within these substituted households, there were 3,441,154 substituted persons. These persons account for 1.26 percent of the 273.6 million housing unit persons in the nation.
- Total item imputation rates for the 100 percent person data items in Census 2000 range from a low of 1.98 percent for the sex item to a high of 5.08 percent for the age item. The tenure item imputation rate was 5.48 percent.
- In general, short forms have data that are more complete than long forms. This was especially evident with the tenure item where the short form total imputation rates were 9.53 percentage points lower than long form rates. The only item where the short form total imputation rate was higher than the long form rate was for the race item, and this difference was minimal (0.15 percentage points).
- In general, self responses have data that are more complete than enumerator returns. Total imputation rates show that this is true for all items except Hispanic origin, where enumerator returns have a rate of imputation that is 0.37 percentage points lower than self responses.

- In general, when looking at item imputation rates, the form language breakdown shows that English forms have more complete data than forms designed for other languages. Korean forms also seem to have relatively complete data. Conversely, Tagalog forms have high imputation rates.
- For all items, data for owners are more complete than for renters.
- The breakdown by form source shows that data from the Internet and the Telephone Questionnaire Assistance operation have, by far, the most complete data when compared to other form sources. Data from United States Postal Service Delivery also appear to be of somewhat high quality. On Internet forms, data on all items are very good when looking at item imputation rates. On the other hand, Be Counted imputation rates are consistently high. This is also true with forms from the Remote Alaska and Coverage Improvement Followup operations.
- On enumerator returns, household members have lower item imputation rates than proxy respondents for all items.
- In general, when looking at the check-in date for self responses, the total imputation rates for all items increase over time following a similar trend. For enumerator returns, the total imputation rates seem to follow the timing of specific operations. Rates appear high during the time of the Remote Alaska, List/Enumerate, and Update/Enumerate operations, and also near the end of the Nonresponse Followup operation and at the beginning of the Coverage Improvement Followup operation. As well, the rates seem to climb within some of the operations, signaling a possible lack of cooperation by the public over time.
- Overall, the data completeness statistic shows that about 97 percent of non-substituted person records have at least four of the five 100 percent population items with non-imputed data. Looking at the response mode breakdown, it seems to confirm that self responses have more complete data than enumerator returns.

## 1. BACKGROUND

This evaluation report provides information on data quality, specifically data completeness, for the 100 percent person and housing unit items from Census 2000. For this report, data completeness is measured by imputation. Imputation is divided into three categories. The categories are based on the process used to impute the data. The categories also represent the level of confidence we have in the imputed data representing the "true" value. The rates of imputation are reported at a national level broken down by characteristics of the return, for example short forms versus long forms or self response returns versus enumerator completed returns. The characteristics of the return examined in this report are form type, response mode, language of the questionnaire, data collection operation, type of respondent, tenure, and date of enumeration. Some of the breakdowns within return characteristics are subject to interpretation. This analysis is performed to document and to give a wider perspective of the potential differences in the level of data completeness for the breakdowns within return characteristics. This will provide insight into the factors that may be influencing the respondent when completing the questionnaire.

The analysis in this report looks at the relationship, sex, age, Hispanic origin, race, and tenure items. The universe in the body of the report includes all stateside occupied housing units and persons within these units. Group quarters records are excluded. The results for Puerto Rico are documented separately in the appendix.

According to American FactFinder, "when information is missing or inconsistent, the Census Bureau uses a method called imputation to assign values. Imputation relies on the statistical principle of 'homogeneity,' or the tendency of households within a small geographic area to be similar in most characteristics." It should be noted, however, that the definition of imputation is sometimes interpreted in various ways across the Census Bureau depending on the scope of a particular analysis. This could lead to different methods of computing imputation rates, and may potentially lead to conflicting rates between reports on the same topic within the Census Bureau. Therefore, when comparing imputation rates across reports, it is imperative to understand the way the rates are computed to make sure that they are, in fact, comparable.

### 1.1 *Imputation definitions*

There are three types of imputation for Census 2000 - assignments, allocations, and substitutions.

- An *assignment* is performed when a response for a data item is either missing or not consistent with other responses, and an item value can be determined based on information provided by that same person. For the tenure item, the item value is determined based on long form information provided by that same housing unit.
- *Allocations* are performed when a response for a data item is either missing or not consistent with other responses, and an item value CANNOT be determined based on information provided from within that same person or housing unit. An

allocation uses a response from another person within the household or from a person in a nearby household. For the tenure item, an allocation uses a response from a nearby household. This type of imputation can occur for one or more of the 100 percent person characteristics. When every 100 percent characteristic for a person requires allocation, the case can be handled in one of two ways. A person is considered totally allocated when at least one person within the household has data that does not require allocation. However, when every item for every person in the household requires allocation then it is covered by substitution.

- A *substitution* occurs when all the 100 percent characteristics for every person in the household are either missing or not consistent with other responses. To remedy this, a nearby housing unit with complete 100 percent data is selected to represent the missing or inconsistent person data items. This nearby housing unit is selected using the nearest neighbor hot deck. This is also called a whole household substitution.

If the response for a data item does not require imputation, it is considered to be “as reported”. This means that other data are not used to determine a response for the item. However, pre-edits may have been done on the data to standardize it. An example of this might be where a race item write-in box was filled, but the write-in response actually corresponded to a race check box category.

## 1.2 Previous censuses

Imputation rates are documented from past censuses. However, caution should be used with these historical imputation rates because they may not be directly comparable to the imputation rates presented in the Results section of this evaluation.

In a memorandum for the record produced by Love and Dalzell (U.S. Census Bureau, 2001a), substitution rates similar to the rates in this evaluation can be computed. In 1990, there were 598,225 households substituted out of 91,947,410 total occupied housing units. This results in a substitution rate of 0.65 percent. Within these substituted households, there were 1,600,756 substituted persons. These 1.6 million substituted persons are about 0.66 percent of the 242,012,129 housing unit persons in the nation in 1990.

Allocation rates from 1980 and 1990 were also reported in the Love and Dalzell memorandum (Table A). The universe to compute allocation rates for the sex, age, Hispanic origin, and race items in 1980 and 1990 includes persons in group quarters (GQs). In this evaluation, the universe to compute allocation rates for these four items only includes housing unit persons. For the relationship item, the Love/Dalzell allocation rates are comparable with rates in this evaluation since persons in group quarters are not asked the relationship question and are therefore not part of the universe. The allocation rates for the tenure item are also comparable with this evaluation since both represent total occupied housing units. However, due to definitional differences, allocation rates

for sex, age, Hispanic origin, and race in Table A are most comparable to total imputation rates for each of these same items in the Results section of this evaluation.

**Table A. 1980 and 1990 Census Allocation Rates for 100 Percent Person and Housing Unit Items (in percent)**

Item	1980	1990
Relationship	2.1	2.6
Sex	0.8	1.2
Age	2.9	2.4
Hispanic origin	4.2	10.0
Race	1.5	2.0
Tenure	2.0	2.4

**Source: U.S. Census Bureau (2001a)**

Allocation rates for the 1980 and 1990 censuses were also published in a book called *Modernizing the U.S. Census* (National Research Council, 1995). The rates for the relationship, sex, age, Hispanic origin, and race items are consistent with the rates in Table A. The tenure item was not reported in that publication. According to this book, “if a respondent did not provide answers to each question to the census, special procedures were made by the Census Bureau to impute (or allocate) the response.” It notes that the higher allocation rates in 1990, when compared to those in the 1980 census, were partially caused by cut backs (due to budget constraints) on field followup for short form questionnaires in the 1990 census.

### *1.3 Comparison to item nonresponse (Evaluation B.1.b)*

Item nonresponse rates, which look at incoming data on the form, are not analyzed in this evaluation. Evaluation B.1.b (*Analysis of Item Nonresponse Rates for the 100 Percent Housing and Population Items from Census 2000*) specifically looks at Census 2000 item nonresponse rates. When comparing rates between the item nonresponse and the imputation evaluations, a measure can be gained as to how much assigning and allocating of the data was done where respondent information was provided but was not considered good. Note, however, that the universe in Evaluation B.1.b does not contain the totally allocated people in the rates that Evaluation B.1.a does.

### *1.4 Other reports/sources of interest*

A report comparing results of general demographic and housing characteristics between the Census 2000 Supplementary Survey (C2SS) to Census 2000 was produced as part of the American Community Survey development program. The C2SS/Census 2000 comparison also looks at item level imputation rates by collection mode for the six items analyzed in this evaluation. However, use caution as different methods are used in computing rates between the C2SS/Census comparison and this evaluation.

## 2. METHODOLOGY

### 2.1 *Data files for evaluation*

The following data files were used to determine the universe and compute the statistics for this report. Data from these three files were linked together using a unique housing unit identifier variable (MAFID). Refer to Appendix A through Appendix C for specific variable and variable values used to determine the universe for each of the scenarios.

#### 2.1.1 *Hundred Percent Census Edited File with the reinstated housing units (HCEF\_D')*

The base data file for calculating imputation rates for this report is the HCEF\_D'. The HCEF\_D' contains the edited and imputed 100 percent data from the census housing units, group quarters and persons. This file includes housing units that were originally thought to be duplicates of other units in the census, but were later reinstated after they were determined to reflect other situations such as mover households or instances of questionnaire misdelivery. Appendix D contains a list of selected HCEF\_D' variable definitions.

#### 2.1.2 *Hundred Percent Census Unedited File (HCUF)*

The HCUF is a hierarchical file containing records for collection blocks, housing units, group quarters, persons and returns. It contains 100 percent data as well as sample long form data used for editing the 100 percent items. Selected variables taken from the HCUF were merged with the base file, the HCEF\_D'. Detailed information on the layout and contents of the HCUF is given in Appendix E.

#### 2.1.3 *Decennial Response File - Stage 2 (DRF2)*

The DRF2 is the file representing the capture of questionnaire data from Census 2000. The DRF2 return level records for housing units were used. Selected variables taken from the DRF2 were merged with a combined HCEF\_D'/HCUF data file. The definitions of selected DRF2 variables can be found in Appendix F.

### 2.2 *Statistics being produced*

The rates corresponding to the three imputation categories (substitutions, allocations, assignments), as well as the "as reported" rate and data completeness statistic, are computed using the HCEF\_D', HCUF, and DRF2 below. Note that the ordering of the imputation rate definitions in this section, as well as the presentation of rates in the Results section, is in a different order than the imputation definitions in the Background section. This is done because the imputation concepts definitionally build on each other. However, in the Results section, the rates are presented in a different order since part of the universe is excluded after the presentation of substitution rates.

### 2.2.1 Substitution rate

A substitution rate is produced by taking the number of substituted records and dividing by the total number of people or households. This ratio is then multiplied by 100 and rounded to two decimal places:

$$\frac{(\# \text{ of substitutions})}{(\# \text{ of "as reported" records}) + (\# \text{ of assignments}) + (\# \text{ of allocations}) + (\# \text{ of substitutions})} * 100$$

A housing unit is considered substituted when all persons within that unit are not data defined and have been substituted by the edit. Persons are substituted when the data defined person variable (QDDP) is equal to '2'. The 'substituted values' category in Appendix A shows the values that were used to determine a substitution.

### 2.2.2 Allocation rate

For the person items (relationship, sex, age, Hispanic origin, race), an allocation rate is produced by taking the number of allocated records and dividing by the total number of people that were not substituted. This ratio is then multiplied by 100 and rounded to two decimal places:

$$\frac{(\# \text{ of allocations})}{(\# \text{ of "as reported" records}) + (\# \text{ of assignments}) + (\# \text{ of allocations})} * 100$$

For the housing unit item (tenure), an allocation rate is produced by taking the number of allocated records and dividing by the total number of households. This ratio is then multiplied by 100 and rounded to two decimal places:

$$\frac{(\# \text{ of allocations})}{(\# \text{ of "as reported" records}) + (\# \text{ of assignments}) + (\# \text{ of allocations}) + (\# \text{ of substitutions})} * 100$$

An item allocation is determined by looking at the edit/allocation flag variables for each of the six items. Appendix A shows the values that were used to determine an allocation for each item. The following conditions, by item, are allocated (verbiage taken from edit/allocation flag variables in HCEF\_D' documentation):

- Relationship - housing unit person is on a GQ form or person is in a GQ; allocated from hot deck; allocated due to consistency check
- Sex - allocated from hot deck; allocated due to consistency check
- Age - allocated from hot deck
- Hispanic Origin - mixed Hispanic and non-Hispanic response blanked; allocated from within household; allocated from hot deck (surname used); allocated from hot deck (surname not used)
- Race - allocated from within household; allocated from hot deck
- Tenure - allocated from hot deck

When a person is not data defined and is imputed by the edit according to the data defined person variable (QDDP='1'), the person is considered *totally allocated*. Totally allocated people exist in a housing unit with one or more data defined people. The concept of a totally allocated person falls under the item based category of allocation. When breaking out allocations by item, the number of totally allocated people is the same for each person item.

As stated above, for this report, totally allocated people were determined based on the data defined person variable (QDDP='1'). Another approach would be to examine the edit/allocation flags for the five person items. If all five items are allocated according to these flag variables, the person would also be totally allocated. However, some totally allocated persons (defined by QDDP='1') have person characteristics that are not considered allocated when examining the flag variables.

### 2.2.3 Assignment rate

For the person items, an assignment rate is produced by taking the number of assigned records and dividing by the total number of people that were not substituted. This ratio is then multiplied by 100 and rounded to two decimal places:

$$\frac{(\text{\# of assignments})}{(\text{\# of "as reported" records}) + (\text{\# of assignments}) + (\text{\# of allocations})} * 100$$

For the housing unit item, an assignment rate is produced by taking the number of assigned records and dividing by the total number of households. This ratio is then multiplied by 100 and rounded to two decimal places:

$$\frac{(\text{\# of assignments})}{(\text{\# of "as reported" records}) + (\text{\# of assignments}) + (\text{\# of allocations}) + (\text{\# of substitutions})} * 100$$

An item assignment is determined by looking at the edit/allocation flag variables for each of the six items. Appendix A shows the values that were used to determine an assignment for each item. The following conditions, by item, are assigned (verbiage taken from edit/allocation flag variables in HCEF\_D' documentation):

- Relationship - value changed for household consistency
- Sex - from first name; value edited for household consistency
- Age - inconsistent age and date of birth
- Hispanic Origin - assign Hispanic from race code
- Race - code changed through consistency edit; classified from race response in Hispanic question
- Tenure - assigned by consistency check

#### 2.2.4 “As Reported” rate

For the person items, an “as reported” rate is produced by taking the number of “as reported” records and dividing by the total number of people that were not substituted. This ratio is then multiplied by 100 and rounded to two decimal places:

$$\frac{(\text{\# of “as reported” records})}{(\text{\# of “as reported” records}) + (\text{\# of assignments}) + (\text{\# of allocations})} *100$$

For the housing unit item, an “as reported” rate is produced by taking the number of “as reported” records and dividing by the total number of households. This ratio is then multiplied by 100 and rounded to two decimal places:

$$\frac{(\text{\# of “as reported” records})}{(\text{\# of “as reported” records}) + (\text{\# of assignments}) + (\text{\# of allocations}) + (\text{\# of substitutions})} *100$$

An item is determined “as reported” by looking at the edit/allocation flag variables for each of the six items. The ‘non-imputed values’ category in Appendix A shows the values that were used to determine what is “as reported” for each item. The following conditions, by item, are “as reported” (verbiage taken from edit/allocation flag variables in HCEF\_D’ documentation):

- Relationship - as reported from code box; as reported from write-in
- Sex - as reported
- Age - consistent as reported; age only, date of birth only
- Hispanic Origin - 1 reported origin; multiple response given a unique Hispanic or non-Hispanic code
- Race - as reported
- Tenure - as reported

#### 2.2.5 Data completeness statistic

The data completeness statistic is a person level summary of the total number of “as reported” responses to the five 100 percent population items (relationship, sex, age, Hispanic origin, race). It is meant to give an idea of the completeness of data by person. This statistic can range from zero (all person level items imputed) to five (no person level items imputed). It is broken out by response mode (self response, enumerator return) and form type (long, short). Appendix C explains how the data completeness statistic is computed.

#### 2.2.6 Breakdown of rates

The universe is restricted to occupied housing units and non-substituted persons. (Persons in group quarters are not included.) Rates are produced for each of the 100 percent person and housing unit data items - relationship, sex, age, Hispanic origin, race, and tenure. Rates are also broken down by the following characteristics:

- Form Type – The RFT variable (form type) from the HCEF\_D’ is used to classify forms into short and long. (Note: The RFT variable from the DRF2 was used when there was a blank value for RFT on the HCUF. See Limitations section.)
  - The following are considered short forms:
 

D-1 and D-1(UL)	Short Form Mail Return
D-1(E)	Short Form Enumerator Questionnaire
D-10	Be Counted
D-15A	Individual Census Questionnaire, Short
D-20A	Individual Census Record, Short
D-1(E)SUPP	Enumerator Supplement, Short
D-1(E)(ccf)	Short Form Enumerator Questionnaire converted to continuation
  - The following are considered long forms:
 

D-2 and D-2(UL)	Long Form Mail Return
D-2(E)	Long Form Enumerator Questionnaire
D-15B	Individual Census Questionnaire, Long
D-20B	Individual Census Record, Long
D-2(E)SUPP	Enumerator Supplement, Long
D-2(E)(ccf)	Long Form Enumerator Questionnaire converted to continuation
- Form Language – The RBC17 (printed bar code character 17 - language) and RJIC1C2 variables (just-in-case #1, character 2) from the DRF2 are used to determine the language of the form.
  - A form is English if RBC17 is English-US or English-PR, or if RBC17 is transcribed or translated from foreign language and RJIC1C2 is English-PR.
  - A form is Spanish if RBC17 is Spanish-US or Spanish-PR, or if RBC17 is transcribed or translated from foreign language and RJIC1C2 is Spanish-US or Spanish-PR.
  - A form is Chinese if RBC17 is transcribed or translated from foreign language and RJIC1C2 is Chinese.
  - A form is Korean if RBC17 is transcribed or translated from foreign language and RJIC1C2 is Korean.
  - A form is Tagalog if RBC17 is transcribed or translated from foreign language and RJIC1C2 is Tagalog.
  - A form is Vietnamese if RBC17 is transcribed or translated from foreign language and RJIC1C2 is Vietnamese.
  - A form is “not determined” if RBC17 has no bar code, is Chinese, Korean, Tagalog, or Vietnamese, or if RBC17 is transcribed or translated from foreign language and RJIC1C2 has no response.

- Tenure – The STENURE variable (“Is this house, apartment, or mobile home...”) from the HCEF\_D’ is used to determine owner or renter status. (Note: The edited value for tenure was used to distinguish this breakdown.)
  - A form is considered to be from an owner if the structure is owned by someone in the household with or without a mortgage or loan.
  - A form is considered to be from a renter if the structure is rented for cash rent or occupied without payment of cash rent.
  
- Household Membership – The RHHMEM variable (respondent household member?) from the HCEF\_D’ is used to classify the respondent as a household member or proxy. The respondent household member question is asked only on enumerator questionnaires.
  - A form is considered to be from a household member when the respondent lived at the structure on April 1, 2000.
  - A form is considered to be from a proxy when the respondent moved into the structure after April 1, 2000, or if the respondent is a neighbor or other.
  
- Response Mode – The RSOURCE variable (source of return) from the HCUF is used to determine whether a form is from a self response or is an enumerator return. (Note: The RSOURCE variable from the DRF2 was used when there was a blank value for RSOURCE on the HCUF. See Limitations section.)
  - The following are considered self response. This category includes forms filled out by respondents with no enumerator assistance and returned through the mail or via the Internet.
    - United States Postal Service (USPS) delivery* - Paper mail back questionnaires from mail out, from Telephone Questionnaire Assistance (TQA) mail out with no identification, and from Request for Foreign Language
    - Local Census Office (LCO) delivery - Undeliverable As Addressed (UAA)* - Paper mail back questionnaires from mail out
    - Update/Leave (U/L)* - Paper mail back questionnaires from U/L, from U/L Adds, and from U/L Substitutes (replacement forms)
    - Urban Update/Leave (UU/L)* - Paper mail back questionnaires from UU/L, from UU/L Adds, and from UU/L Substitutes (replacement forms)
    - Internet* - Electronic short forms from Internet Data Collection (IDC)
    - Be Counted* - Paper mail back questionnaires from Be Counted Form (BCF) whole households and from BCF partial households
  - The following are considered enumerator returns. This includes all forms filled out by enumerators, as well as forms where the final enumeration for the household was done by a telephone agent.
    - Coverage Edit Followup (CEFU)* – Electronic CEFU from long or short forms, from BCFs for whole household, and from IDC
    - TQA* – Electronic TQA reverse-Computer Assisted Telephone Interview (reverse-CATI) short forms, reverse-CATI BCFs for whole household, and reverse-CATI BCFs for partial household
    - Nonresponse Followup (NRFU)* - Paper enumerator questionnaires from NRFU, from NRFU Adds, from NRFU Substitutes (replacement forms),

from NRFU Whole Household Usual Home Elsewhere, and from NRFU In-Mover

*Coverage Improvement Followup (CIFU)* - Paper enumerator questionnaires from CIFU, from CIFU Adds, and from CIFU Substitutes (replacement forms)

*Update/Enumerate (U/E)* - Paper enumerator questionnaires from U/E, from U/E Adds, and from U/E Substitutes (replacement forms)

*List/Enumerate (L/E)* – Paper enumerator questionnaires from L/E

*Remote Alaska* – Paper enumerator questionnaires from L/E

*Other: Transient-Night (T-Night), “orphans”* – Paper enumerator questionnaires from T-Night and paper enumerator continuation forms: unlinked “orphans”

*GQ Enumerations* – Paper enumerator questionnaires for Usual Home Elsewhere from Service-based enumeration (Individual Census Questionnaires), from GQ enumeration (Individual Census Reports), from Military GQ enumeration (Military Census Reports), and from Shipboard GQ enumeration (Shipboard Census Reports)

Within each of these response modes (self response and enumerator returns), rates are produced by:

- Form Type – short form versus long form (see above for variable explanation)
- Check-In Date – The REPDATE variable (earliest form processing date from Census 2000 data capture system) from the HCEF\_D’ is used to determine the check-in date of the form. This date is grouped by week.
- Form Source – The RSOURCE variable (source of return) from the HCUF, the UAA variable (undeliverable as addressed) from the HCEF\_D’, and the TEA variable (type of enumeration area) from the HCEF\_D’ are used to determine the source of the form.
  - The following form sources are considered self response:
    - USPS delivery
    - LCO delivery – UAA
    - U/L
    - UU/L
    - Internet
    - Be Counted
  - The following form sources are considered enumerator returns:
    - CEFU\*
    - TQA\*
    - NRFU
    - CIFU
    - U/E
    - L/E
    - Remote Alaska

Other (T-Night, “orphans”)

GQ Enumerations

\*Note that forms with a source of CEFU or TQA are classified as enumerator returns. The CEFU forms started as self response forms, but there was agent interaction resulting in the final enumeration for the household. For the TQA forms, a respondent called for assistance in completing their form. Based on the interaction between the respondent and agent, the agent determined the respondent probably would not complete the questionnaires thus having to be enumerated in NRFU. Due to the agent interaction in both CEFU and TQA, these forms are considered enumerator returns.

### *2.2.7 Discussion of definitional differences*

It should be noted that imputation is viewed in different ways across the Census Bureau. Therefore, the categorization of rates is specific to this report and may differ from other reports. For the general purposes of this report, imputation consists of assignments, allocations, and substitutions. However, for a majority of the analysis, substituted persons are excluded from the universe. Therefore, after the substitution numbers have been presented in Results section 4.1, population item imputation rates will refer only to assignments and allocations. This is done strictly for ease of reading.

## **3. LIMITATIONS**

- Allocation rates presented in the Background section of this evaluation from the 1980 and 1990 censuses may not be directly comparable to Census 2000 imputation rates. Caution should be used when making comparisons with these numbers.
- This analysis report excludes group quarters. Numbers presented in the Results section of this report represent occupied housing units and persons within these units.
- For the RSOURCE variable (source of return), a value of blank on the HCUF means not computed. For these cases only, we go to the DRF2 to find a value for RSOURCE.
- For the RFT variable (form type), a value of "00" on the HCEF\_D' means that there was no return form selected. For these cases only, we go to the DRF2 to find a value for RFT.

## 4. RESULTS

The Results section below presents imputation rates for the United States from Census 2000. (Results for Puerto Rico are in Appendix P through Appendix U.) A substitution rate is presented at a national level followed by assignment and allocation rates for each of the 100 percent person and housing unit data items – relationship, sex, age, Hispanic origin, race, and tenure. Within each item, assignment and allocation rates are examined by several characteristics. Additionally, a national level data completeness statistic is presented at a person level to look at the frequency of non-imputed responses to the five 100 percent items within a person.

As part of this analysis, imputation rates were examined by different subgroups such as long versus short, enumerator versus self, by individual mode of response, etc. With some of the comparisons, the observed difference in the rates is solely a function of the comparison, for example long versus short. However, for other comparisons, the observed differences may also be a function of the type of respondent and their ability to complete the questionnaire. For instance, persons who complete their questionnaire over the Internet may be more likely to provide all requested data. Therefore, the reader should be careful about conclusions made from the review of the data presented in this report such as the Internet providing more complete data. What this report provides is an understanding of the enumeration process for Census 2000 and the quality of the data that are obtained.

(Note: Differences of rates in some tables may be slightly off due to rounding error.)

### 4.1 *Substitution rate*

Table 1 shows the number and percent of occupied housing unit and person substitutions in the United States. In Census 2000, there were a total of 105,480,101 occupied housing units nationwide. These housing units contained 273,643,273 persons. Of the approximately 105.5 million housing units, 1.39 percent (1,464,793 housing units) were whole household substitutions. A whole household substitution occurs when no data characteristics were provided for an entire housing unit. Within these substituted households, there were 3,441,154 substituted persons. These 3.4 million substituted persons are nearly 1.26 percent of the 273.6 million housing unit persons in the nation.

**Table 1. Number and Percent of Occupied Housing Unit and Person Substitutions**

	Occupied Housing Units		Persons	
	Number	Percent	Number	Percent
TOTAL	105,480,101	100.00	273,643,273	100.00
› substituted	1,464,793	1.39	3,441,154	1.26
› not substituted	104,015,308	98.61	270,202,119	98.74

Source: HCEF\_D'

For the remaining tables in this analysis report, substituted persons will not be included in calculating rates. Thus, the person base to determine rates for the five person-level items (relationship, sex, age, Hispanic origin, and race) will be 270,202,119. For the tenure item, an occupied housing unit base of 105,480,101 will be used to compute the assignment and allocation rates. In addition, imputation will refer only to assignment and allocation for the remainder of this report.

#### 4.2 Imputation rates (assignment and allocation rates)

(For an explanation of how allocation and assignment rates are computed, refer back to Methodology sections 2.2.2 and 2.2.3 of this report.)

Table 2 breaks down imputation rates by item. In looking only at the population items, total imputation rates range from a low of 1.98 percent for the sex characteristic to a high of 5.08 for the age characteristic. For the relationship, race, and Hispanic origin items, the total imputation rates are 2.57 percent, 3.96 percent, and 4.37 percent, respectively. For all population items, the majority of total imputation is due to allocation. However, assignment plays a more substantial role in imputation rates for age and sex in comparison to the other items. This is likely due to the fact that these two items can be assigned using other responses within the same person record – age can be assigned by date of birth and sex can be assigned by name.

For tenure, a housing item, the total imputation rate is 5.48 percent. Of this rate, 4.82 percentage points is due to allocation.

**Table 2. Imputation Rates by Item (in percent)**

Item	As Reported	Imputed		
		Total	Assigned	Allocated
Relationship	97.43	2.57	0.39	2.18
Sex	98.02	1.98	0.88	1.10
Age	94.92	5.08	1.45	3.63
Hispanic origin	95.63	4.37	0.15	4.22
Race	96.04	3.96	0.02	3.94
Tenure*	94.52	5.48	0.66	4.82

Source: HCEF\_D'

Person Base: 270,202,119

\*Housing Unit Base: 105,480,101

The following sections (4.2.1 through 4.2.5) contain analysis of imputation rates for each of the 100 percent person data items by form type, response mode, form type and response mode, form language, tenure, form source, and household membership. Section 4.2.6 contains analysis of imputation rates for the 100 percent housing unit data item (tenure) by form type, response mode, form type and response mode, form language, form source, and household membership. Section 4.2.7 contains analysis of imputation rates for all the 100 percent person and housing unit data items by check-in date.

#### 4.2.1 Relationship item

(For an explanation of how allocation and assignment rates are computed, refer back to Methodology sections 2.2.2 and 2.2.3 of this report.)

Table 3 gives imputation rates for the relationship item by form type (short versus long) as well as imputation rates by response mode (self versus enumerator). Looking at form type, the short form total imputation rate for relationship is 2.45 percent. This is 0.72 percentage points lower than the long form total imputation rate of 3.17 percent. Long form assignment and allocation rates (0.50 percent and 2.67 percent, respectively) are both higher than the short form item assignment and allocation rates of 0.37 percent and 2.08 percent, respectively.

Exploring imputation rates by response mode, the relationship item is imputed over twice as often for data collected by enumerators than for self responses. The relationship item total imputation rate for self responses is 1.99 percent while the enumerator rate is 4.13 percent, a difference of about 2.13 percentage points. Enumerator assignment and allocation rates (0.69 percent and 3.44 percent, respectively) for relationship are both higher than the self response item assignment and allocation rates of 0.28 percent and 1.71 percent, respectively. Universe counts corresponding to Table 3 appear in Appendix I, Table I-1.

**Table 3. Imputation Rates by Form Type and Imputation Rates by Response Mode for Relationship Item (in percent)**

	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	97.43	2.57	0.39	2.18
› short form	97.55	2.45	0.37	2.08
› long form	96.83	3.17	0.50	2.67
Difference	0.72	-0.72	-0.13	-0.59
› self	98.01	1.99	0.28	1.71
› enumerator	95.87	4.13	0.69	3.44
Difference	2.13	-2.13	-0.41	-1.73

Sources: HCEF\_D', HCUF

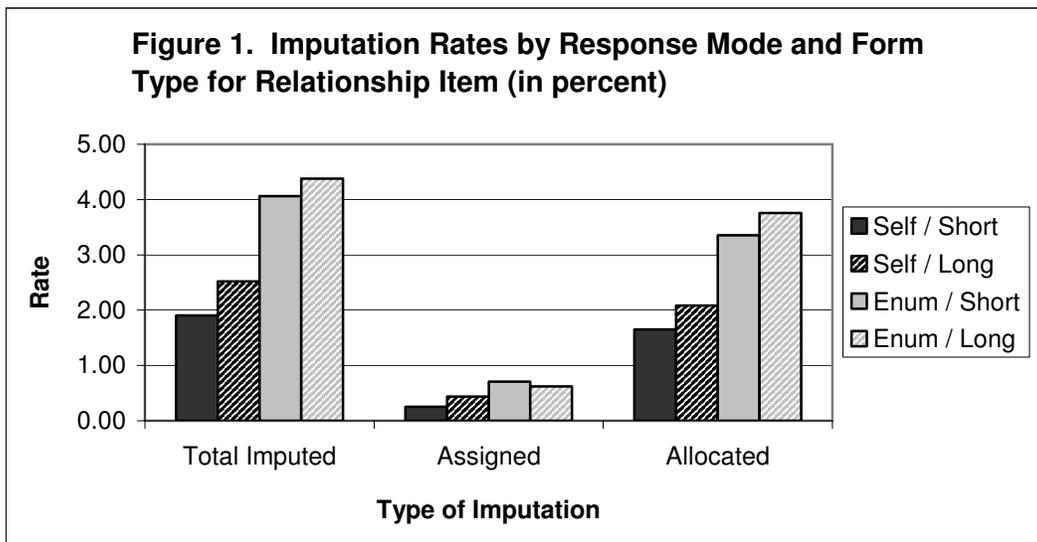
TOTAL Person Base: 270,202,119

Figure 1 shows imputation rates by response mode and form type for the relationship item. Overall, self response short forms have the lowest total imputation rate at just under two percent while enumerator long forms have the highest at about 4.5 percent. All four combinations between response mode and form type show that the majority of imputation is caused by allocation rather than assignment.

Within each response mode, short forms are imputed less often than long forms. For self responses, short forms are imputed less than two percent of the time for relationship while long forms are imputed at around 2.5 percent. Similarly, for enumerator returns,

the relationship item imputation rate for short forms is just over four percent, lower than the approximately 4.5 percent long form imputation rate.

In looking at response mode within form type, the relationship item imputation rates for enumerators are higher than the imputation rates for self responses. The enumerator long form imputation rate is nearly 4.5 percent while the self response long form rate is only about 2.5 percent. Likewise, the enumerator short form imputation rate for relationship is just above four percent compared to the imputation rate of less than two percent for self response short forms. Tables of imputation rates by response mode and form type for the relationship item appear in Appendix G, Table G-1. Universe counts corresponding to Figure 1 appear in Appendix I, Table I-2.



Sources: HCEF\_D', HCUF

Table 4 displays imputation rates by form language for the relationship item. The “not determined” category indicates rates for records where the form language could not be established using information on the data files. This category represents just over 2.4 million of the 270 million non-substituted persons nationwide.

Overall, the lowest total imputation rates occurred on English forms (2.46 percent) while the highest rates are seen on Tagalog forms (10.09 percent). For Korean language forms, the total imputation rate is the closest to English forms at 3.62 percent. For Chinese, Spanish, and Vietnamese, the difference is substantially greater. The total imputation rate for forms that are “not determined” is 8.15 percent. For all form languages, allocation accounts for a greater part of imputation than assignments. Universe counts corresponding to Table 4 appear in Appendix I, Table I-3.

**Table 4. Imputation Rates by Form Language for Relationship Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	97.43	2.57	0.39	2.18
› English	97.54	2.46	0.38	2.08
› Spanish	93.06	6.94	0.55	6.39
› Chinese	94.00	6.00	0.57	5.42
› Korean	96.38	3.62	0.69	2.93
› Tagalog	89.91	10.09	1.29	8.81
› Vietnamese	92.39	7.61	0.26	7.34
› not determined	91.85	8.15	1.28	6.87

Sources: HCEF\_D', DRF2

TOTAL Person Base: 270,202,119

Table 5 gives imputation rates by tenure (owner versus renter) for the relationship item. The total imputation rate for relationship is 1.42 percentage points lower for owners than for renters. The relationship data for owners are imputed at a rate of 2.12 percent while relationship for renters is imputed 3.54 percent of the time. Both of these rates are driven by allocation rather than by assignment, meaning it was rare to have other available data to assign a value for relationship. Universe counts corresponding to Table 5 appear in Appendix I, Table I-4.

**Table 5. Imputation Rates by Tenure for Relationship Item (in percent)**

Tenure	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	97.43	2.57	0.39	2.18
› owner	97.88	2.12	0.33	1.80
› renter	96.46	3.54	0.54	3.01
Difference	1.42	-1.42	-0.21	-1.21

Source: HCEF\_D'

TOTAL Person Base: 270,202,119

Table 6 presents imputation rates for relationship by form source within each response mode. Across all form sources, both the highest and lowest total imputation rates for the relationship item are seen in the self response mode. The rate for Internet responses is 1.28 percent while responses from Be Counted have an extremely poor imputation rate of nearly 18 percent. The total imputation rates for USPS Delivery, UU/L, and LCO Delivery-UAA are all between 2.0 and 2.5 percent. All form sources within self response mode have allocation rates that are higher than assignment rates.

The total imputation rates of the relationship item by form sources within enumerator response mode range from 2.88 percent (TQA) to 12.55 percent (Remote Alaska). The

imputation rate of relationship for U/E and NRFU are both 3.93 percent. CEFU, L/E, and CIFU impute the relationship item 4.33, 4.51, and 6.29 percent of the time, respectively. The “other” category, which includes responses from any remaining form sources such as T-Night and unlinked “orphan” forms, has a total imputation rate of 10.10 percent for relationship. This “other” category is also the only form source where the assignment rate (5.55 percent) is greater than the allocation rate (4.55 percent). Universe counts corresponding to Table 6 appear in Appendix I, Table I-5.

**Table 6. Imputation Rates by Form Source for Relationship Item (in percent)**

Form Source	As Reported	Imputed		
		Total	Assigned	Allocated
<b>Self</b>				
TOTAL – Self Response	98.01	1.99	0.28	1.71
› USPS Delivery	97.97	2.03	0.28	1.77
› LCO Delivery - UAA	97.54	2.46	0.32	2.15
› Update/Leave	98.32	1.68	0.26	1.42
› Urban Update/Leave	97.73	2.27	0.34	1.94
› Internet	98.72	1.28	0.18	1.12
› Be Counted	82.04	17.96	4.79	13.52
<b>Enumerator</b>				
TOTAL – Enumerator Returns	95.87	4.13	0.69	3.44
› Coverage Edit Followup	95.67	4.33	0.68	3.65
› Telephone Questionnaire Assistance	97.12	2.88	1.07	1.81
› Nonresponse Followup	96.07	3.93	0.68	3.24
› Coverage Improvement Followup	93.71	6.29	0.81	5.47
› Update/Enumerate	96.07	3.93	0.51	3.43
› List/Enumerate	95.49	4.51	0.46	4.05
› Remote Alaska	87.45	12.55	0.31	12.24
› Other: T-Night, Orphans	89.90	10.10	5.55	4.55

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491

Enumerator Person Base: 72,262,628

Table 7 displays imputation rates for the relationship item by household membership (household member versus proxy). Note that the rates in this table refer to a subset of enumerator returns since there is no household membership question on self response forms. The person base is 63.8 million for this table and only includes returns from the NRFU, CIFU, U/E, L/E, and Remote Alaska operations.

Household members give more complete data for the relationship item than do proxy respondents. The total imputation rate for household members is 3.34 percent, 5.78 percentage points lower than the proxy imputation rate. In both cases, the allocation rates are substantially higher than the assignment rates. Universe counts corresponding to Table 7 appear in Appendix I, Table I-6.

**Table 7. Imputation Rates by Household Membership\* for Relationship Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	95.97	4.03	0.68	3.35
› household member	96.66	3.34	0.63	2.70
› proxy	90.88	9.12	1.01	8.11
Difference	5.78	-5.78	-0.38	-5.40

Source: HCEF\_D'

TOTAL Person Base: 63,813,958

#### 4.2.2 Sex item

(For an explanation of how allocation and assignment rates are computed, refer back to Methodology sections 2.2.2 and 2.2.3 of this report.)

Table 8 gives imputation rates for the sex item by form type as well as imputation rates by response mode. Looking at form type, the short form total imputation rate for sex is 1.97 percent while the long form total imputation rate is 2.05 percent. The long form assignment rate of 0.71 percent for the sex item is lower than the short form item assignment rate of 0.92 percent, while the allocation rate for long forms (1.34 percent) is higher than the short form allocation rate of 1.06 percent. Short forms, therefore, had a larger proportion of imputation for the sex item due to assignment than did long forms.

Exploring imputation rates by response mode, the sex item is imputed over one percentage point more for enumerator returns than for self response. The sex item total imputation rate for self response is 1.70 percent while the enumerator rate is 2.76 percent. Enumerator assignment and allocation rates (1.18 percent and 1.59 percent, respectively) for sex are both higher than the self response item assignment rate, 0.77 percent, and allocation rate, 0.93 percent. Universe counts corresponding to Table 8 appear in Appendix J, Table J-1.

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\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.

**Table 8. Imputation Rates by Form Type and Imputation Rates by Response Mode for Sex Item (in percent)**

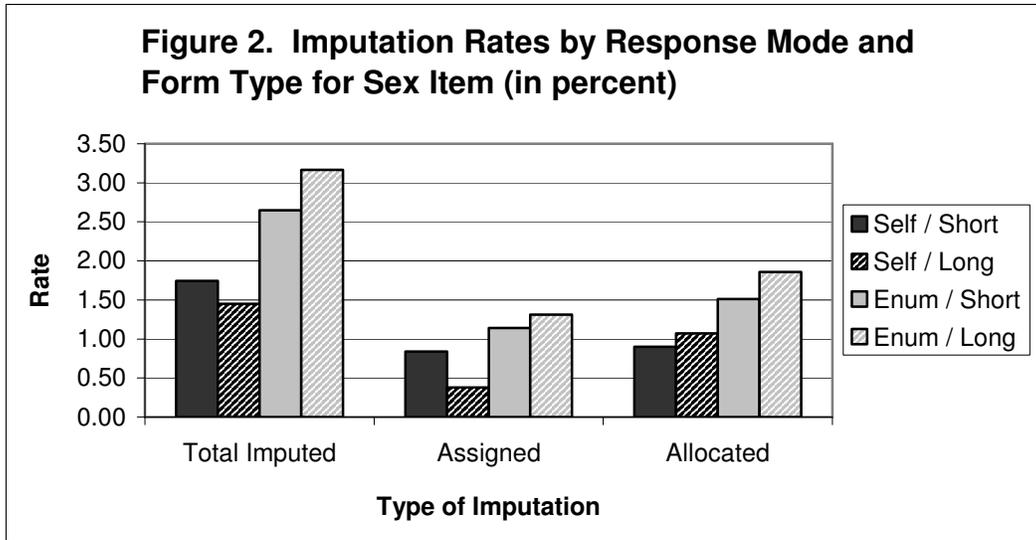
	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	98.02	1.98	0.88	1.10
› short form	98.03	1.97	0.92	1.06
› long form	97.95	2.05	0.71	1.34
<b>Difference</b>	0.08	-0.08	0.21	-0.29
› self	98.30	1.70	0.77	0.93
› enumerator	97.24	2.76	1.18	1.59
<b>Difference</b>	1.06	-1.06	-0.40	-0.66

Sources: HCEF\_D', HCUF TOTAL Person Base: 270,202,119

Figure 2 graphs imputation rates by response mode and form type for the sex item. Overall, self response long forms have the lowest total imputation rate at just under 1.5 percent while enumerator long forms have the highest at just over three percent. Three of the four combinations between response mode and form type clearly show that the majority of imputation is caused by allocation rather than assignment. The self response short form imputation rate appears to be almost evenly distributed between assignment and allocation.

Within self response mode, short forms are surprisingly imputed more often than long forms. When looking back at imputation rates for sex by response mode in Table 8, short forms have a slightly lower rate than long forms. For the self response category, short forms are imputed about 1.75 percent of the time for sex while long forms are imputed at under 1.5 percent. For enumerator returns, the sex item imputation rate for short forms is just over 2.50 percent compared to the long form imputation rate of over three percent.

In looking at response mode within form type, the sex item imputation rates for data collected by enumerators are higher than the imputation rates for self response. The enumerator long form imputation rate is more than three percent while the self response long form rate is 1.5 percent. Likewise, the enumerator long form imputation rate for sex is just above three percent compared to the imputation rate for enumerator short forms at just above 2.5 percent. Tables of imputation rates by response mode and form type for the sex item appear in Appendix G, Table G-2. Universe counts corresponding to Figure 2 appear in Appendix J, Table J-2.



Sources: HCEF\_D', HCUF

Table 9 displays imputation rates by form language for the sex item. Overall, the lowest total imputation rates occurred on English forms (1.90 percent) while the highest rates are seen on Tagalog forms (7.10 percent). For Korean language forms, the total imputation rate is the closest to English forms at about 0.5 percentage point difference. For Chinese, Vietnamese, and Spanish forms, the difference was substantially greater. The total imputation rate for forms that are “not determined” is 5.22 percent. For all form languages, allocation accounts for a greater part of imputation than do assignments. Universe counts corresponding to Table 9 appear in Appendix J, Table J-3.

**Table 9. Imputation Rates by Form Language for Sex Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	98.02	1.98	0.88	1.10
› English	98.10	1.90	0.86	1.04
› Spanish	93.67	6.33	2.36	3.98
› Chinese	95.83	4.17	1.20	2.97
› Korean	97.63	2.37	1.08	1.29
› Tagalog	92.90	7.10	1.90	5.20
› Vietnamese	94.45	5.55	1.61	3.94
› not determined	94.78	5.22	1.09	4.13

Sources: HCEF\_D', DRF2

TOTAL Person Base: 270,202,119

Table 10 gives imputation rates by tenure for the sex item. The total imputation rate for sex is 0.89 percentage point lower for owners than for renters. The sex item for owners is imputed at a rate of 1.71 percent while the same item for renters is imputed 2.60 percent of the time. The item allocation rate is slightly higher than the assignment rate for

owners and considerably higher for renters. Universe counts corresponding to Table 10 appear in Appendix J, Table J-4.

**Table 10. Imputation Rates by Tenure for Sex Item (in percent)**

Tenure	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	98.02	1.98	0.88	1.10
› owner	98.29	1.71	0.80	0.91
› renter	97.40	2.60	1.07	1.53
Difference	0.89	-0.89	-0.27	-0.62
<b>Source: HCEF_D'</b>		<b>TOTAL Person Base: 270,202,119</b>		

Table 11 presents imputation rates for sex by form source within each response mode. Across all form sources, both the highest and lowest total imputation rates for the sex item are seen in the enumerator response mode. The rate for TQA responses is 0.54 percent while responses from the Remote Alaska operation have a very high imputation rate of over 12 percent. The sex item total imputation rates for NRFU, the “other” category, U/E, CEFU, L/E, and CIFU are all between 2.55 and 4.28 percent. All form sources within the enumerator response mode, except for TQA, have allocation rates that are higher than assignment rates.

The total imputation rates of form sources within self response modes range from 1.16 percent (Internet) to 7.77 percent (Be Counted) for the sex item. The imputation rates of sex for U/L, USPS Delivery, UU/L, and LCO Delivery-UAA range from 1.59 to 2.19 percent. U/L and UU/L are the only self response mode form sources where the assignment rate is higher than the allocation rate. Universe counts corresponding to Table 11 appear in Appendix J, Table J-5.

**Table 11. Imputation Rates by Form Source for Sex Item (in percent)**

Form Source	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	98.30	1.70	0.77	0.93
	› USPS Delivery	98.29	1.71	0.76	0.95
	› LCO Delivery - UAA	97.94	2.06	0.94	1.11
	› Update/Leave	98.41	1.59	0.84	0.74
	› Urban Update/Leave	97.81	2.19	1.13	1.07
	› Internet	98.84	1.16	0.39	0.77
	› Be Counted	92.23	7.77	1.25	6.52
	TOTAL – Enumerator Returns	97.24	2.76	1.18	1.59
Enumerator	› Coverage Edit Followup	96.65	3.35	1.56	1.79
	› Telephone Questionnaire Assistance	99.46	0.54	0.36	0.17
	› Nonresponse Followup	97.45	2.55	1.12	1.43
	› Coverage Improvement Followup	95.72	4.28	1.38	2.90
	› Update/Enumerate	96.91	3.09	1.23	1.86
	› List/Enumerate	96.24	3.76	0.96	2.80
	› Remote Alaska	87.78	12.22	0.65	11.57
	› Other: T-Night, Orphans	97.22	2.78	1.11	1.67

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491

Enumerator Person Base: 72,262,628

Table 12 displays imputation rates for the sex item by household membership. Note that the rates in this table refer to a subset of enumerator returns since there is no household membership question on self response forms. The person base is 63.8 million for this table and only includes returns from the NRFU, CIFU, U/E, L/E, and Remote Alaska operations.

Household members give more complete data for the sex item than do proxy respondents. The total imputation rate for household members is 2.16 percent, nearly four percentage points lower than the proxy imputation rate. Within proxy respondents, the allocation rate for the sex item is substantially higher than the assignment rate. For household members, however, these two rates (assignment and allocation) are both 1.08 percent. Universe counts corresponding to Table 12 appear in Appendix J, Table J-6.

**Table 12. Imputation Rates by Household Membership\* for Sex Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	97.36	2.64	1.11	1.53
› household member	97.84	2.16	1.08	1.08
› proxy	93.88	6.12	1.29	4.84
Difference	3.96	-3.96	-0.20	-3.76
<b>Source: HCEF_D'</b>		<b>TOTAL Person Base: 63,813,958</b>		

#### 4.2.3 Age item

(For an explanation of how allocation and assignment rates are computed, refer back to Methodology sections 2.2.2 and 2.2.3 of this report.)

Table 13 gives imputation rates for the age item by form type as well as imputation rates by response mode. Looking at form type, the short form total imputation rate for age is 4.96 percent. This is 0.76 percentage point lower than the long form total imputation rate. The short and long form assignment rates for the age item are virtually the same (1.45 percent and 1.46 percent, respectively). The age item allocation rate for long forms, however, is about 0.75 percentage points higher than the short form allocation rate.

Exploring imputation rates by response mode, the age item is imputed nearly eight percentage points more for enumerator returns than for self response. The age item total imputation rate for self response is 2.95 percent while the enumerator rate is 10.92 percent. Enumerator assignment and allocation rates (1.89 percent and 9.03 percent, respectively) for age are both higher than the self response item assignment and allocation rates of 1.29 percent and 1.66 percent, respectively. Universe counts corresponding to Table 13 appear in Appendix K, Table K-1.

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\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.

**Table 13. Imputation Rates by Form Type and Imputation Rates by Response Mode for Age Item (in percent)**

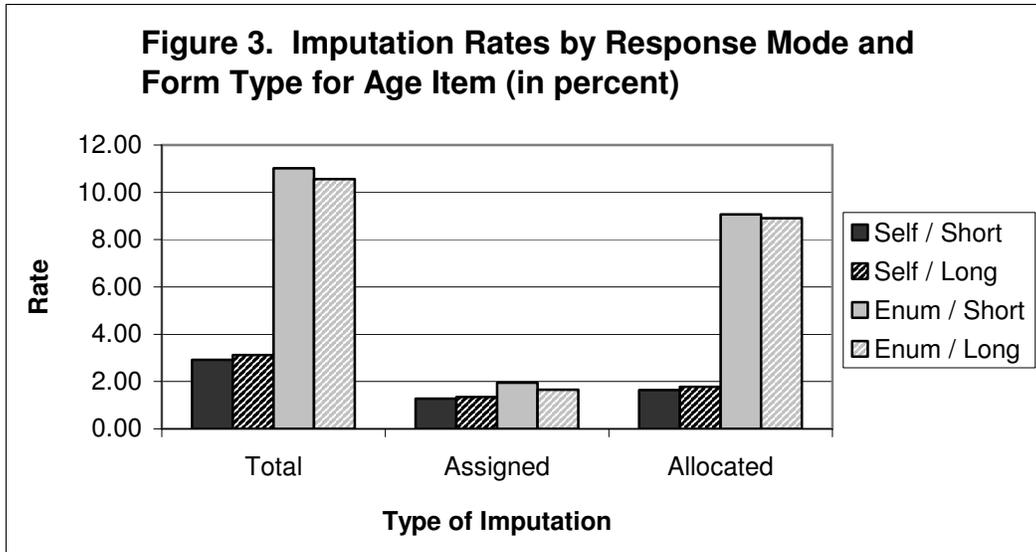
	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	94.92	5.08	1.45	3.63
› short form	95.04	4.96	1.45	3.51
› long form	94.29	5.71	1.46	4.26
<b>Difference</b>	0.76	-0.76	0.00	-0.75
› self	97.05	2.95	1.29	1.66
› enumerator	89.08	10.92	1.89	9.03
<b>Difference</b>	7.97	-7.97	-0.60	-7.38

Sources: HCEF\_D', HCUF TOTAL Person Base: 270,202,119

Figure 3 graphs imputation rates by response mode and form type for the age item. Overall, self response short forms have the lowest total imputation rate at about three percent while enumerator short forms have the highest at about 11 percent. All four combinations between response mode and form type show that the majority of imputation is caused by allocation rather than assignment.

Within self response mode, data for the age item on short forms are imputed only slightly less often than long forms. The imputation rates of self response short and long forms are both around three percent. Conversely, for enumerators, the age item imputation rate for short forms is about 11 percent, slightly higher than the long form imputation rate of about 10.5 percent.

In looking at response mode within form type, the age item imputation rates for enumerators are much higher than the imputation rates for self response. The enumerator long form imputation rate is above 10 percent while the self response long form rate is only about three percent. Likewise, the self response short form imputation rate for age is near three percent compared to the imputation rate of around 11 percent for enumerator short forms. Tables of imputation rates by response mode and form type for the age item appear in Appendix G, Table G-3. Universe counts corresponding to Figure 3 appear in Appendix K, Table K-2.



Sources: HCEF\_D', HCUF

Table 14 displays imputation rates by form language for the age item. Overall, the lowest total imputation rates occurred on Korean forms (3.01 percent) while the highest rates are seen on forms that are “not determined” (10.30 percent). The total imputation rate for English forms is about two percentage points higher than Korean forms. This is a shift from what is seen for the relationship and sex items where English forms had the lowest total imputation rate. Chinese and Vietnamese forms have total imputation rates that are about 2.5 and 3.5 percentage points greater than Korean forms. The differences for Tagalog and Spanish forms are much greater. For all form languages, allocation accounts for a much greater part of the total imputation than do assignments. Universe counts corresponding to Table 14 appear in Appendix K, Table K-3.

**Table 14. Imputation Rates by Form Language for Age Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	94.92	5.08	1.45	3.63
› English	95.02	4.98	1.44	3.54
› Spanish	90.37	9.63	2.26	7.37
› Chinese	94.54	5.46	1.17	4.29
› Korean	96.99	3.01	1.13	1.88
› Tagalog	90.43	9.57	1.82	7.75
› Vietnamese	93.44	6.56	1.34	5.22
› not determined	89.70	10.30	1.54	8.76

Sources: HCEF\_D', DRF2

TOTAL Person Base: 270,202,119

Table 15 gives imputation rates by tenure for the age item. The total imputation rate for age is over three percentage points lower for owners than for renters. The age data for

owners is imputed at a rate of 4.14 percent for the age item while the age data for renters is imputed 7.17 percent of the time. Item allocation rates are higher than item assignment rates for both owners and renters. Universe counts corresponding to Table 15 appear in Appendix K, Table K-4.

**Table 15. Imputation Rates by Tenure for Age Item (in percent)**

Tenure	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	94.92	5.08	1.45	3.63
› owner	95.86	4.14	1.31	2.83
› renter	92.83	7.17	1.77	5.40
Difference	3.03	-3.03	-0.46	-2.57

Source: HCEF\_D' TOTAL Person Base: 270,202,119

Table 16 presents imputation rates for age by form source within each response mode. Across all form sources, the lowest total imputation rate for the age item is seen in self response mode (Internet, 1.47 percent). Self response mode total imputation rates go up to a high of 9.16 percent from Be Counted. The imputation rates for U/L, USPS Delivery, UU/L, and LCO Delivery-UAA range from 2.72 to 3.78 percent. Only Internet and U/L total imputation rates fall below the self response mode average of 2.95 percent. For all form sources, the allocation rates are higher than the assignment rates.

Total imputation rates for enumerators by form source range from 2.89 to 21.61 percent. CIFU, at 21.61 percent, also has the highest total imputation rate for a form source across response modes. Total imputation rates for TQA (2.89 percent), U/E (6.81 percent), L/E (7.26 percent), CEFU (9.69 percent), and NRFU (10.40 percent) all show better quality than the overall enumerator imputation rate of 10.92 percent. The total imputation rates for the “other” category, Remote Alaska, and CIFU are considerably higher than the enumerator average. All form sources within the enumerator response mode have allocation rates that are higher than assignment rates. Universe counts corresponding to Table 16 appear in Appendix K, Table K-5.

**Table 16. Imputation Rates by Form Source for Age Item (in percent)**

Form Source	As Reported	Imputed		
		Total	Assigned	Allocated
<b>Self</b>				
TOTAL – Self Response	97.05	2.95	1.29	1.66
› USPS Delivery	97.02	2.98	1.31	1.67
› LCO Delivery - UAA	96.22	3.78	1.51	2.28
› Update/Leave	97.28	2.72	1.19	1.52
› Urban Update/Leave	96.69	3.31	1.40	1.91
› Internet	98.53	1.47	0.33	1.14
› Be Counted	90.84	9.16	1.42	7.74
<b>Enumerator</b>				
TOTAL – Enumerator Returns	89.08	10.92	1.89	9.03
› Coverage Edit Followup	90.31	9.69	1.33	8.35
› Telephone Questionnaire Assistance	97.11	2.89	0.04	2.85
› Nonresponse Followup	89.60	10.40	1.99	8.42
› Coverage Improvement Followup	78.39	21.61	1.66	19.95
› Update/Enumerate	93.19	6.81	1.99	4.82
› List/Enumerate	92.74	7.26	1.56	5.69
› Remote Alaska	84.74	15.26	1.36	13.90
› Other: T-Night, Orphans	88.43	11.57	1.72	9.85

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491

Enumerator Person Base: 72,262,628

Table 17 displays imputation rates for the age item by household membership. Note that the rates in this table refer to a subset of enumerator returns since there is no household membership question on self response forms. The person base is 63.8 million for this table and only includes returns from the NRFU, CIFU, U/E, L/E, and Remote Alaska operations.

Household members give more complete data for the age item than do proxy respondents. The total imputation rate for household members is 6.66 percent, over 36 percentage points lower than the proxy imputation rate. Within household members, the allocation rate for the age item is over double the assignment rate. For proxy respondents, the assignment rate is less than one percent while the allocation rate is almost 42 percent. These rates suggest that proxy respondents seldom provide data for the age item. Universe counts corresponding to Table 17 appear in Appendix K, Table K-6.

**Table 17. Imputation Rates by Household Membership\* for Age Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	89.04	10.96	1.95	9.01
› household member	93.34	6.66	2.09	4.57
› proxy	57.31	42.69	0.92	41.77
Difference	36.03	-36.03	1.17	-37.20

Source: HCEF\_D'

TOTAL Person Base: 63,813,958

#### 4.2.4 Hispanic origin item

(For an explanation of how allocation and assignment rates are computed, refer back to Methodology sections 2.2.2 and 2.2.3 of this report.)

Table 18 gives imputation rates for the Hispanic origin item by form type as well as imputation rates by response mode. Looking at form type, the short form total imputation rate for Hispanic origin is 4.33 percent. This is 0.25 percentage point lower than the long form total imputation rate. The short and long form assignment rates for the Hispanic origin item are virtually the same (0.16 percent and 0.15 percent, respectively). The allocation rate for Hispanic origin on long forms is about 0.25 percentage points higher than the short form allocation rate of 4.18 percent.

Exploring imputation rates by response mode, the Hispanic origin item is imputed more often for self response than for enumerators. This could be due, in part, to the conscious choice for a respondent who is not Hispanic to skip the question. Enumerators, on the other hand, are able to explain to the respondent that the question requires a response. The Hispanic origin item total imputation rate for self response is 4.47 percent while the enumerator rate is 4.10 percent. The self response assignment rate (0.13 percent) is slightly lower than the enumerator assignment rate of 0.21 percent and the self response allocation rate of 4.34 percent is about 0.45 percentage point higher than the rate for enumerator returns for the Hispanic origin item. Universe counts corresponding to Table 18 appear in Appendix L, Table L-1.

\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.

**Table 18. Imputation Rates by Form Type and Imputation Rates by Response Mode for Hispanic Origin Item (in percent)**

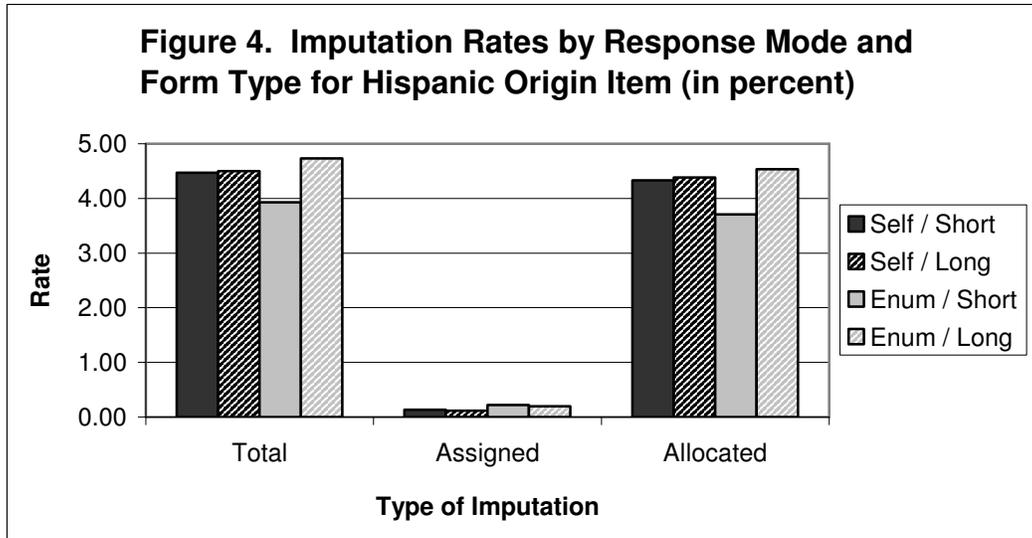
	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	95.63	4.37	0.15	4.22
› short form	95.67	4.33	0.16	4.18
› long form	95.42	4.58	0.15	4.43
<b>Difference</b>	0.25	-0.25	0.01	-0.26
› self	95.53	4.47	0.13	4.34
› enumerator	95.90	4.10	0.21	3.88
<b>Difference</b>	-0.37	0.37	-0.08	0.45

Sources: HCEF\_D', HCUF TOTAL Person Base: 270,202,119

Figure 4 graphs imputation rates by response mode and form type for the Hispanic origin item. Overall, enumerator short forms have the lowest total imputation rate at about four percent while enumerator long forms have the highest at nearly five percent. All four combinations between response mode and form type show that almost all of the imputation is caused by allocation.

Within the self response mode, short forms are imputed only slightly less often than long forms. The imputation rates of self response short and long forms are both around 4.5 percent. Enumerator imputation rates for short forms are also lower than long forms. The Hispanic origin item imputation rate for enumerator short forms is about four percent while the enumerator long form imputation rate is over 4.5 percent.

In looking at response mode within short forms, the Hispanic origin item shows that imputation rates are higher for self responses than for enumerators. Self response short forms are imputed at about 4.5 percent compared to the enumerator rate of under four percent. Conversely, within long forms, self response imputation rates appear lower than rates for enumerators in the graph. Total imputation rates for both self and enumerator long forms are approximately 4.5 percent. Tables of imputation rates by response mode and form type for the Hispanic origin item appear in Appendix G, Table G-4. Universe counts corresponding to Figure 4 appear in Appendix L, Table L-2.



Sources: HCEF\_D', HCUF

Table 19 displays imputation rates by form language for the Hispanic origin item. Overall, the lowest total imputation rates occurred on English forms (4.29 percent) while the highest rates are seen on Vietnamese forms (20.72 percent). Chinese forms are also imputed at a very high rate of 20.50 percent. Forms that were “not determined”, Spanish forms, Korean forms, and Tagalog forms all have total imputation rates that are more than 2.75 percentage points higher than English forms. For all form languages, allocation accounts for a greater part of imputation than do assignments. Spanish forms show a much higher assignment rate than the other form languages. Universe counts corresponding to Table 19 appear in Appendix L, Table L-3.

**Table 19. Imputation Rates by Form Language for Hispanic Origin Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	95.63	4.37	0.15	4.22
› English	95.71	4.29	0.14	4.14
› Spanish	91.91	8.09	1.36	6.73
› Chinese	79.50	20.50	0.01	20.49
› Korean	91.14	8.86	0.01	8.85
› Tagalog	86.74	13.26	0.18	13.08
› Vietnamese	79.28	20.72	0.01	20.72
› not determined	92.93	7.07	0.16	6.91

Sources: HCEF\_D', DRF2

TOTAL Person Base: 270,202,119

Table 20 gives imputation rates by tenure for the Hispanic origin item. The total imputation rate for Hispanic origin is 1.69 percentage points lower for owners than for renters. The Hispanic origin item for owners is imputed at a rate of 3.85 percent while the same item for renters is imputed 5.54 percent of the time. For both owners and

renters, the item allocation rate is much higher than the assignment rate. Universe counts corresponding to Table 20 appear in Appendix L, Table L-4.

**Table 20. Imputation Rates by Tenure for Hispanic Origin Item (in percent)**

Tenure	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	95.63	4.37	0.15	4.22
› owner	96.15	3.85	0.10	3.74
› renter	94.46	5.54	0.27	5.27
Difference	1.69	-1.69	-0.16	-1.53
<b>Source: HCEF_D'</b>		<b>TOTAL Person Base: 270,202,119</b>		

Table 21 presents imputation rates for Hispanic origin by form source within each response mode. Across all form sources, both the highest and lowest total imputation rates for the Hispanic origin item are seen in the enumerator response mode. The rate for TQA responses is 1.70 percent while responses from the Remote Alaska operation have a very high imputation rate of over 12 percent. Compared to the 4.10 percent overall enumerator imputation rate, the NRFU and U/E rates (3.56 percent, and 3.58 percent, respectively) are the only form sources (along with TQA) that have better quality. The total imputation rates for L/E, CIFU, CEFU are between 4.43 and 6.78 percent. Forms that fell into the “other” category were imputed at a rate of 8.91 percent. All form sources within enumerator response mode have allocation rates that are much higher than assignment rates.

The total imputation rates of form sources within self response modes range from 3.02 percent (Internet) to 12.45 percent (Be Counted) for the Hispanic origin item. Internet (3.02 percent) and USPS Delivery (4.43 percent) are the only two form sources for the Hispanic origin item within self response mode that have total imputation rates which fall below the overall self response imputation rate. U/L, UU/L, and LCO Delivery-UAA are all within one percentage point of each other, ranging from 4.58 to 5.53 percent. All self response mode form sources have allocation rates that are higher than assignment rates. Universe counts corresponding to Table 21 appear in Appendix L, Table L-5.

**Table 21. Imputation Rates by Form Source for Hispanic Origin Item (in percent)**

Form Source	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	95.53	4.47	0.13	4.34
	› USPS Delivery	95.57	4.43	0.15	4.28
	› LCO Delivery - UAA	94.47	5.53	0.12	5.41
	› Update/Leave	95.42	4.58	0.06	4.52
	› Urban Update/Leave	94.57	5.43	0.11	5.32
	› Internet	96.98	3.02	0.09	2.94
	› Be Counted	87.55	12.45	0.28	12.16
Enumerator	TOTAL – Enumerator Returns	95.90	4.10	0.21	3.88
	› Coverage Edit Followup	93.22	6.78	0.50	6.28
	› Telephone Questionnaire Assistance	98.30	1.70	0.25	1.44
	› Nonresponse Followup	96.44	3.56	0.19	3.38
	› Coverage Improvement Followup	93.29	6.71	0.17	6.54
	› Update/Enumerate	96.42	3.58	0.09	3.49
	› List/Enumerate	95.57	4.43	0.07	4.36
	› Remote Alaska	87.35	12.65	0.01	12.64
› Other: T-Night, Orphans	91.09	8.91	0.32	8.59	

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491

Enumerator Person Base: 72,262,628

Table 22 displays imputation rates for the Hispanic origin item by household membership. Note that the rates in this table refer to a subset of enumerator returns since there is no household membership question on self response forms. The person base is 63.8 million for this table and only includes returns from the NRFU, CIFU, U/E, L/E, and Remote Alaska operations.

Household members give better quality data for the Hispanic origin item than do proxy respondents. The total imputation rate for household members is 2.63 percent, nearly nine percentage points lower than the proxy imputation rate. For both household member and proxy respondents, the allocation rate for the Hispanic origin item is substantially higher than the assignment rate. Compared to the overall assignment rate of 0.18 percent, the proxy respondent rate is lower while household members show a higher rate when compared to the average. Universe counts corresponding to Table 22 appear in Appendix L, Table L-6.

**Table 22. Imputation Rates by Household Membership\* for Hispanic Origin Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	96.30	3.70	0.18	3.52
› household member	97.37	2.63	0.19	2.44
› proxy	88.41	11.59	0.14	11.46
<b>Difference</b>	8.97	-8.97	0.05	-9.02

Source: HCEF\_D'

TOTAL Person Base: 63,813,958

#### 4.2.5 Race item

(For an explanation of how allocation and assignment rates are computed, refer back to Methodology sections 2.2.2 and 2.2.3 of this report.)

Table 23 gives imputation rates for the race item by form type as well as imputation rates by response mode. Looking at form type, the short form total imputation rate for race is 3.98 percent. This is 0.15 percentage point higher than the long form total imputation rate. The allocation rate for long forms is 0.14 percentage points lower than the short form allocation rate of 3.96 percent. Assignment rates for both short and long forms are near zero.

Exploring imputation rates by response mode, the race item is imputed about 0.5 percentage points more for enumerators than for self responses. The race item total imputation rate for self responses is 3.83 percent, while the enumerator rate is 4.31 percent. The enumerator allocation rate (4.29 percent) for race is higher than the self response item allocation rate of 3.81 percent. Assignment rates for both self and enumerator response modes are about zero. Universe counts corresponding to Table 23 appear in Appendix M, Table M-1.

\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.

**Table 23. Imputation Rates by Form Type and Imputation Rates by Response Mode for Race Item (in percent)**

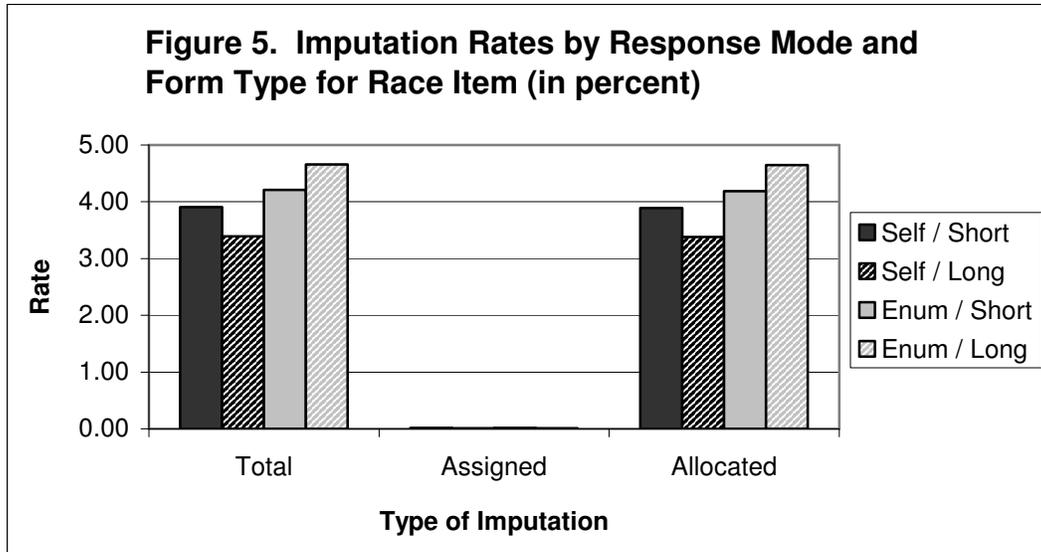
	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	96.04	3.96	0.02	3.94
› short form	96.02	3.98	0.02	3.96
› long form	96.17	3.83	0.01	3.82
Difference	-0.15	0.15	0.01	0.14
› self	96.17	3.83	0.02	3.81
› enumerator	95.69	4.31	0.02	4.29
Difference	0.48	-0.48	0.00	-0.47

Sources: HCEF\_D', HCUF TOTAL Person Base: 270,202,119

Figure 5 graphs imputation rates by response mode and form type for the race item. Overall, self response long forms have the lowest total imputation rate at about 3.5 percent while enumerator long forms have the highest at about 4.5 percent. All four combinations between response mode and form type show that nearly all of the imputation is caused by allocation rather than assignment.

Within self response mode, short forms are imputed more often than long forms for the race item. The imputation rate for self response short forms is just under four percent while the long form rate is around 3.5 percent. Conversely, for enumerators, the race item imputation rate for short forms is a little more than four percent. This is lower than the enumerator long form imputation rate of about 4.5 percent.

In looking at response mode within form type, the race item imputation rates for enumerators are higher than the imputation rates for self responses. The enumerator long form imputation rate is about one percentage point more than the self response long form imputation rate. The enumerator short form imputation rate for race is only slightly higher than the self response short form imputation rate, both of which are around four percent. Tables of imputation rates by response mode and form type for the race item appear in Appendix G, Table G-5. Universe counts corresponding to Figure 5 appear in Appendix M, Table M-2.



Sources: HCEF\_D', HCUF

Table 24 displays imputation rates by form language for the race item. Overall, the lowest total imputation rates occurred on Korean forms (1.80 percent) while the highest rates are seen on Spanish forms (17.51 percent). Chinese forms have a total imputation rate closest to Korean forms at about 1.8 percentage point difference. The total imputation rate for English forms is about two percentage points different from the Korean forms. For Vietnamese and Tagalog forms, the difference is substantially greater. The total imputation rate for forms that are “not determined” is 6.67 percent. For all form languages, allocation accounts for nearly all of the total imputation. The Spanish allocation rate for race is especially high. This is likely because most people filling out Spanish forms are Hispanic, and they often leave race blank since they answered the Hispanic origin item. Universe counts corresponding to Table 24 appear in Appendix M, Table M-3.

**Table 24. Imputation Rates by Form Language for Race Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	96.04	3.96	0.02	3.94
› English	96.22	3.78	0.02	3.76
› Spanish	82.49	17.51	0.02	17.50
› Chinese	96.39	3.61	0.04	3.57
› Korean	98.20	1.80	0.03	1.77
› Tagalog	93.78	6.22	0.09	6.13
› Vietnamese	94.77	5.23	0.06	5.17
› not determined	93.33	6.67	0.01	6.66

Sources: HCEF\_D', DRF2

TOTAL Person Base: 270,202,119

Table 25 gives imputation rates by tenure for the race item. The total imputation rate for race is 2.28 percentage points lower for owners than for renters. Owners are imputed at a rate of 3.25 percent for the race item while renters are imputed 5.53 percent of the time. Allocation makes up almost all of the imputation for owners and renters. Universe counts corresponding to Table 25 appear in Appendix M, Table M-4.

**Table 25. Imputation Rates by Tenure for Race Item (in percent)**

Tenure	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	96.04	3.96	0.02	3.94
› owner	96.75	3.25	0.01	3.23
› renter	94.47	5.53	0.02	5.51
Difference	2.28	-2.28	-0.01	-2.27

Source: HCEF\_D'

TOTAL Person Base: 270,202,119

Table 26 presents imputation rates for race by form source within each response mode. Across all form sources, both the highest and lowest total imputation rates for the race item are seen in the enumerator response mode. The rate for TQA responses is 2.15 percent, while responses from the Remote Alaska operation have a very high imputation rate of about 12 percent. Imputation rates for U/E (3.22 percent), NRFU (3.36 percent), and L/E (4.27 percent), along with the TQA rate, all fall below the overall enumerator imputation rate of 4.31 percent. The total imputation rates for CIFU and CEFU are 6.33 percent and 10.87 percent, respectively. The “other” category is imputed at a rate of 5.48 percent. All form sources within enumerator response mode, except CEFU, have assignment rates that are close to zero. Therefore, allocation accounts for nearly all of the total imputation for enumerator form sources – rarely are data available to assign a value for the race item.

The total imputation rates of form sources within self response mode range from 2.60 percent (U/L) to 11.73 percent (Be Counted) for the race item. The U/L imputation rate and the Internet rate (3.25 percent) are the only two rates that fall below the overall self response rate. The imputation rates for USPS Delivery, LCO Delivery-UAA, and UU/L are all slightly higher than the 3.83 percent overall self response imputation rate, ranging from 4.07 to 4.47 percent. For all self response form sources, all assignment rates are near zero. Thus, allocation makes up nearly all of the total imputation for self response form sources. Universe counts corresponding to Table 26 appear in Appendix M, Table M-5.

**Table 26. Imputation Rates by Form Source for Race Item (in percent)**

Form Source	As Reported	Imputed		
		Total	Assigned	Allocated
<b>Self</b>				
TOTAL – Self Response	96.17	3.83	0.02	3.81
› USPS Delivery	95.93	4.07	0.02	4.06
› LCO Delivery - UAA	95.78	4.22	0.02	4.20
› Update/Leave	97.40	2.60	0.01	2.59
› Urban Update/Leave	95.53	4.47	0.02	4.45
› Internet	96.75	3.25	0.01	3.24
› Be Counted	88.27	11.73	0.03	11.70
<b>Enumerator</b>				
TOTAL – Enumerator Returns	95.69	4.31	0.02	4.29
› Coverage Edit Followup	89.13	10.87	0.10	10.77
› Telephone Questionnaire Assistance	97.85	2.15	0.01	2.14
› Nonresponse Followup	96.64	3.36	0.01	3.35
› Coverage Improvement Followup	93.67	6.33	0.01	6.32
› Update/Enumerate	96.78	3.22	<0.01	3.22
› List/Enumerate	95.73	4.27	<0.01	4.27
› Remote Alaska	88.01	11.99	0.01	11.99
› Other: T-Night, Orphans	94.52	5.48	0.02	5.47

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491

Enumerator Person Base: 72,262,628

Table 27 displays imputation rates for the race item by household membership. Note that the rates in this table refer to a subset of enumerator returns since there is no household membership question on self response forms. The person base is 63.8 million for this table and only includes returns from the NRFU, CIFU, U/E, L/E, and Remote Alaska operations.

Household members give much better quality data for the race item than do proxy respondents. For household members, the total imputation rate is 2.46 percent. This is over 8.5 percentage points lower than the proxy imputation rate. Within both household member and proxy respondents, the assignment rates are near zero, thus causing the allocation rates to be almost identical to the total imputation rates. Universe counts corresponding to Table 27 appear in Appendix M, Table M-6.

**Table 27. Imputation Rates by Household Membership\* for Race Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	96.51	3.49	0.01	3.48
› household member	97.54	2.46	0.01	2.46
› proxy	88.97	11.03	0.01	11.02
<b>Difference</b>	8.56	-8.56	0.00	-8.56

Source: HCEF\_D'

TOTAL Person Base: 63,813,958

#### 4.2.6 Tenure item

(For an explanation of how allocation and assignment rates are computed, refer back to Methodology sections 2.2.2 and 2.2.3 of this report.)

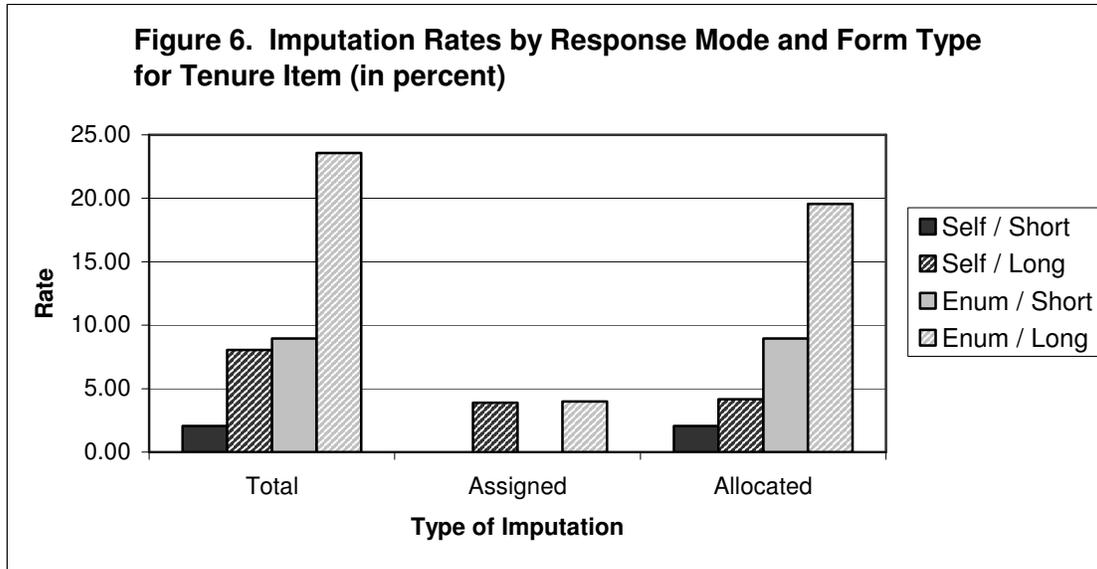
Table 28 gives imputation rates for the tenure item by form type as well as imputation rates by response mode. Looking at form type, the short form total imputation rate for tenure is 3.71 percent. This is 9.53 percentage points lower than the long form total imputation rate of 13.24 percent. The assignment and allocation rates for the tenure item on long forms are 3.92 percent and 9.32 percent, respectively. For short forms, the tenure item allocation rate is 3.71 percent. The short form assignment rate for tenure is zero because there are no other housing unit items that can be used to assign a value for tenure on short forms. An assignment for the tenure item only uses long form data.

Exploring imputation rates by response mode, the tenure item is imputed over four times as often for enumerators than for self responses. The tenure item total imputation rate for self responses is 2.95 percent, while the enumerator rate is 12.17 percent, a difference of about 9.22 percentage points. Enumerator assignment and allocation rates (0.88 percent and 11.29 percent, respectively) for tenure are both higher than the self response item assignment and allocation rates of 0.58 percent and 2.37 percent, respectively. Universe counts corresponding to Table 28 appear in Appendix N, Table N-1.

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\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.





Sources: HCEF\_D', HCUF

Table 29 displays imputation rates by form language for the tenure item. Overall, the lowest total imputation rates occurred on Chinese forms (4.75 percent) while the highest rates are seen on forms that were “not determined” (26.73 percent). English forms have a total imputation rate closest to Chinese forms at about half a percentage point difference. For Tagalog, Spanish, Vietnamese, and Korean forms, the difference is somewhat greater. For all form languages, allocation accounts for a majority of the total imputation. Universe counts corresponding to Table 29 appear in Appendix N, Table N-3.

**Table 29. Imputation Rates by Form Language for Tenure Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	94.52	5.48	0.66	4.82
› English	94.77	5.23	0.65	4.58
› Spanish	93.53	6.47	1.36	5.11
› Chinese	95.25	4.75	1.40	3.35
› Korean	91.87	8.13	1.49	6.64
› Tagalog	94.28	5.72	1.32	4.40
› Vietnamese	92.88	7.12	2.04	5.08
› not determined	73.27	26.73	0.48	26.25

Sources: HCEF\_D', DRF2

TOTAL Housing Unit Base: 105,480,101

Table 30 presents imputation rates for tenure by form source within each response mode. Across all form sources, both the highest and lowest total imputation rates for the tenure item are seen in the enumerator response mode. The rate for TQA responses is 0.81 percent while responses on GQ Enumeration forms are imputed 100 percent of the time. Imputation rates for Remote Alaska (3.70 percent), CEFU (6.91 percent), L/E (9.89

percent), U/E (10.11 percent), and NRFU (11.43 percent), along with the TQA rate, all fall below the overall enumerator imputation rate of 12.17 percent. The total imputation rate for CIFU is 22.84 percent. For the “other” category, this rate is 46 percent. All form sources within enumerator response mode have allocation rates that are higher than assignment rates, although the difference between the assignment and allocation rate for Remote Alaska is only 0.16 percentage points.

The total imputation rates of form sources within self response mode range from 1.39 percent (Internet) to 4.12 percent (LCO Delivery-UAA) for the tenure item. The Internet imputation rate and the USPS Delivery rate (2.76 percent) are the only two rates that fall below the overall self response rate. The imputation rates for UU/L, Be Counted, and U/L are all a bit higher than the 2.95 percent overall self response imputation rate, ranging from 3.38 to 3.79 percent. For all self response form sources, all assignment rates are less than one percent. Allocation accounts for the majority of imputation for all self response modes. Universe counts corresponding to Table 30 appear in Appendix N, Table N-4.

**Table 30. Imputation Rates by Form Source for Tenure Item (in percent)**

Form Source	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	97.05	2.95	0.58	2.37
	› USPS Delivery	97.24	2.76	0.50	2.26
	› LCO Delivery - UAA	95.88	4.12	0.63	3.50
	› Update/Leave	96.21	3.79	0.96	2.83
	› Urban Update/Leave	96.62	3.38	0.66	2.72
	› Internet	98.61	1.39	0.00	1.39
	› Be Counted	96.41	3.59	0.00	3.59
	TOTAL – Enumerator Returns	87.83	12.17	0.88	11.29
Enumerator	› Coverage Edit Followup	93.09	6.91	1.13	5.77
	› Telephone Questionnaire Assistance	99.19	0.81	0.00	0.81
	› Nonresponse Followup	88.57	11.43	0.80	10.63
	› Coverage Improvement Followup	77.16	22.84	1.56	21.28
	› Update/Enumerate	89.89	10.11	0.94	9.17
	› List/Enumerate	90.11	9.89	1.14	8.75
	› Remote Alaska	96.30	3.70	1.77	1.93
	› Other: T-Night, Orphans	54.00	46.00	0.85	45.15
› Group Quarter Enumerations	0.00	100.00	0.00	100.00	

Sources: HCEF\_D’, HCUF

Self Housing Unit Base: 78,299,626  
 Enumerator Housing Unit Base: 26,992,873

Table 31 displays imputation rates for the tenure item by household membership. Note that the rates in this table refer to a subset of enumerator returns since there is no household membership question on self response forms. The housing unit base is

25 million for this table and only includes returns from the NRFU, CIFU, U/E, L/E, and Remote Alaska operations.

Household members give more complete data for the tenure item than do proxy respondents. The total imputation rate for household members is 7.32 percent, nearly 23 percentage points lower than the proxy imputation rate. Within both household member and proxy respondents, the allocation rate for the tenure item is substantially higher than the assignment rate. Compared to the overall assignment and allocation rates of 0.87 percent and 10.72 percent, respectively, the proxy respondent rates are higher than the overall rates while household members show a lower rate when compared to the average. Universe counts corresponding to Table 31 appear in Appendix N, Table N-5.

**Table 31. Imputation Rates by Household Membership\* for Tenure Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	88.41	11.59	0.87	10.72
› household member	92.68	7.32	0.69	6.63
› proxy	69.91	30.09	1.61	28.48
Difference	22.77	-22.77	-0.92	-21.85

Source: HCEF\_D' TOTAL Housing Unit Base: 25,047,589

#### 4.2.7 Check-in date

The check-in date is the earliest processing date for a Census 2000 form. It represents the month and day that the form was read by the Census 2000 data capture system. In Figures 7 and 8, these dates are grouped into week intervals. For visual comparison purposes, these two figures are graphed on the same page and have similar total imputation rate ranges.

Figure 7 graphs total imputation rates for self responses by check-in date. The graph plots rates for each of the 100 percent population and housing unit data items. The areas of this graph prior to March 5 and after August 12 includes every week interval which checked-in less than 10,000 people (less than 3,900 housing units).

Overall, Figure 7 shows that the rates seem to follow the same general trend over time. Imputation rates for all items seem to show that self responses during March are the most complete. Looking at specific items, Hispanic origin appears to almost consistently have the highest total imputation rates within self responses when compared to the other items. The imputation rate for Hispanic origin is highest during the week of June 25 to July 1 when it peaked at about nine percent. The sex item, on the other hand, seems to

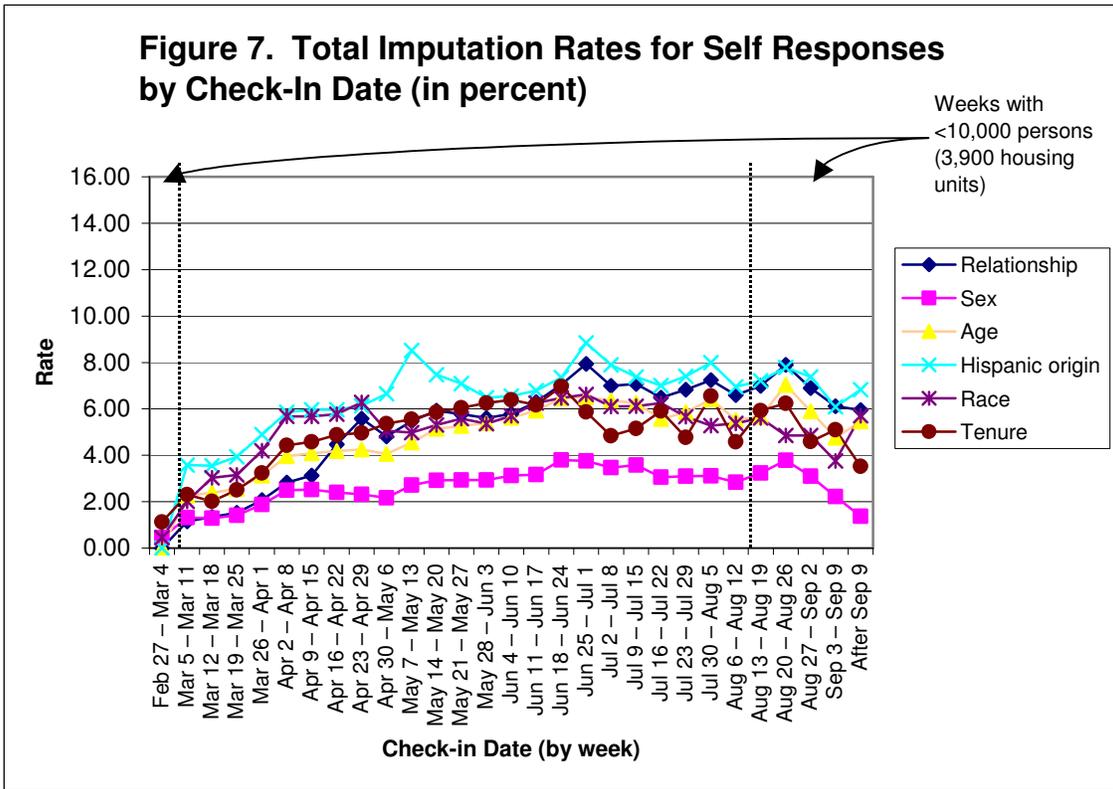
\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.

consistently have the lowest total imputation rates over time in comparison to the other items. The sex item imputation rates by week all appear to be less than four percent, and mostly ranging between two and four percent. Tables of imputation rates for self responses by check-in date for all items appear in Appendix H, Tables H-1 through H-6.

Figure 8 displays total imputation rates for enumerator returns by check-in date. The area of this graph after September 2 includes every week interval which checked-in less than 10,000 people (less than 3,900 housing units). To make this graph comparable to Figure 7, the graph is only displayed up to a total imputation rate of 16 percent. Due to this cut off, some values for the age and tenure items are not visible in Figure 8. The age item total imputation rates for the week periods from July 16 and September 2 range from between about 20 and 28 percent. The total imputation rates for the tenure item for the weeks from July 16 to August 19 and for the week from August 27 to September 2 range from about 17 to 22 percent.

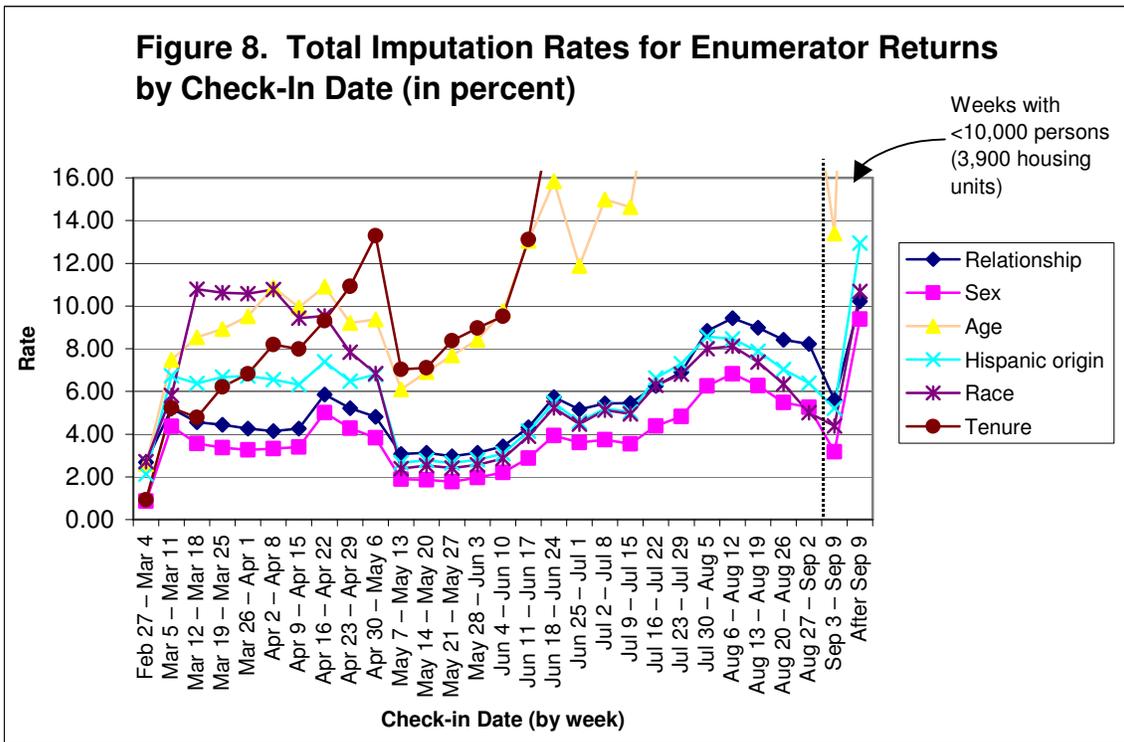
There is no general trend that appears for all items over the entire time. This is likely a function of more than one operation happening at a time. However, a common trend can be seen for the relationship, Hispanic origin, race, and sex items from early May to September. Looking at early to mid-March, the imputation rates seem to rise and stay relatively constant until sometime in May. This time frame coincides with the timing of the “enumerate” operations (Remote Alaska, L/E, U/E). In June, another spike in the rates start to appear, especially for the age and tenure items. This is likely due to the end of the NRFU operation and the start of the CIFU operation. These rates climb through about the middle of August – a possible sign of lack of cooperation by the public over time. Tables of imputation rates for enumerator returns by check-in date for all items appear in Appendix H, Tables H-7 through H-12.

**Figure 7. Total Imputation Rates for Self Responses by Check-In Date (in percent)**



Sources: HCEF\_D', HCUF

**Figure 8. Total Imputation Rates for Enumerator Returns by Check-In Date (in percent)**



Sources: HCEF\_D', HCUF

### 4.3 Data completeness statistic

Tables 32 through 35 give an idea of how often the responses for the five 100 percent population items (relationship, age, sex, Hispanic origin, and race) are “as reported” for a person. The greater the number of data items that are non-imputed, the better the chance of quality data. The following tables use a non-substituted person base of 270,202,119.

Table 32 shows the number and percent of persons by the sum of non-imputed responses to the 100 percent person items. In looking at the table, the responses for all five items are not imputed 88.11 percent of the time. Persons whose data reflected at least four “as reported” responses account for 97.26 percent. In other words, 97 percent of the time, a person provided data requiring no assignment or allocation to four or more of the five population items.

**Table 32. Data Completeness Statistic: Number and Percent of Persons by Sum of Non-Imputed Responses to 100 Percent Person Items**

Number of Characteristics Reported	Number	Percent	Cumulative Percent
TOTAL	270,202,119	100.00	
› 5 of 5	238,071,569	88.11	88.11
› 4 of 5	24,734,641	9.15	97.26
› 3 of 5	3,322,714	1.23	98.49
› 2 of 5	1,487,397	0.55	99.04
› 1 of 5	235,963	0.09	99.13
› 0 of 5	2,349,835	0.87	100.00

Source: HCEF\_D'

Table 33 displays the number and percent of persons by the sum of non-imputed responses to the 100 percent population items and form type. This table shows the same information presented in Table 33, but broken down between short and long forms.

Similar to the results we see in Table 33, the responses for all five items are not imputed about 88 percent of the time for both short and long forms. As well, at least four of the five responses needed no assignment or allocation about 97 percent of the time for both short and long forms. Universe counts corresponding to Table 33 appear in Appendix O, Table O-1.

**Table 33. Data Completeness Statistic: Percent of Persons by Sum of Non-Imputed Responses to 100 Percent Person Items and Form Type**

Number of Characteristics Reported	TOTAL		short form		long form	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
TOTAL	100.00		100.00		100.00	
› 5 of 5	88.11	88.11	88.07	88.07	88.31	88.31
› 4 of 5	9.15	97.26	9.29	97.36	8.48	96.78
› 3 of 5	1.23	98.49	1.25	98.61	1.12	97.90
› 2 of 5	0.55	99.04	0.49	99.10	0.86	98.76
› 1 of 5	0.09	99.13	0.08	99.18	0.13	98.90
› 0 of 5	0.87	100.00	0.82	100.00	1.10	100.00

Source: HCEF\_D'

Short Form Person Base: 225,589,359

Long Form Person Base: 44,612,760

Table 34 displays the number and percent of persons by the sum of non-imputed responses to the 100 percent population items and response mode. This table shows the same information presented in Table 33, but broken down between self response and enumerator returns. The data completeness statistic shows self response forms are likely to have more complete data on the five population items than enumerator returns. Within self responses, all five items were non-imputed 89.91 percent of the time while enumerator returns were non-imputed 83.17 percent. Within self response, 97.86 percent of the responses to four or more of the five characteristics were “as reported”. On enumerator returns, only 95.63 percent of the responses to four or more of the five items did not need to be assigned or allocated. Universe counts corresponding to Table 34 appear in Appendix O, Table O-2.

**Table 34. Data Completeness Statistic: Percent of Persons by Sum of Non-Imputed Responses to 100 Percent Person Items and Response Mode**

Number of Characteristics Reported	TOTAL		self		enumerator	
	Percent	Cumulative Percent	Percent	Cumulative Percent	Percent	Cumulative Percent
TOTAL	100.00		100.00		100.00	
› 5 of 5	88.11	88.11	89.91	89.91	83.17	83.17
› 4 of 5	9.15	97.26	7.95	97.86	12.46	95.63
› 3 of 5	1.23	98.49	1.05	98.91	1.71	97.34
› 2 of 5	0.55	99.04	0.24	99.15	1.40	98.74
› 1 of 5	0.09	99.13	0.06	99.21	0.17	98.91
› 0 of 5	0.87	100.00	0.79	100.00	1.09	100.00

Source: HCEF\_D'

Self Person Base: 197,939,491

Enumerator Person Base: 72,262,628

Table 35 displays the number and percent of persons by the sum of non-imputed responses to the 100 percent person items, form type, and response mode. This table shows the interaction between form type and response mode for the data completeness statistic.

The percent of “as reported” responses to the five data items is similar across short and long forms. Within self response, the responses to all five items on the short form were not imputed 89.79 percent of the time. On self response long forms, 90.64 percent of the responses on all five items were “as reported”. For enumerator return short forms, the responses to all five items needed no assignment or allocation 82.96 percent of the time. This same rate for enumerator return long forms was 83.94 percent. The numbers stay similarly consistent across form type when four or more responses to the five items are “as reported”.

Comparing the percentages across response mode and within form type, self response forms appear to have more complete data than enumerator returns. Within short forms, the percent of self response with all five items non-imputed is nearly seven percentage points more than for enumerator returns. Within long forms, this same pattern can be seen. The five items require imputation about seven percentage points more often on enumerator returns when compared to self response forms. Universe counts corresponding to Table 35 appear in Appendix O, Table O-3.

**Table 35. Data Completeness Statistic: Percent of Persons by Sum of Non-Imputed Responses to 100 Percent Person Items, Form Type, and Response Mode**

Number of Characteristics Reported	short form		long form	
	Percent	Cumulative Percent	Percent	Cumulative Percent
self	100.00		100.00	
› 5 of 5	89.79	89.79	90.64	90.64
› 4 of 5	8.10	97.89	7.08	97.72
› 3 of 5	1.06	98.95	0.99	98.71
› 2 of 5	0.24	99.19	0.23	98.94
› 1 of 5	0.05	99.24	0.07	99.01
› 0 of 5	0.76	100.00	0.99	100.00
enumerator	100.00		100.00	
› 5 of 5	82.96	82.96	83.94	83.94
› 4 of 5	12.83	95.78	11.10	95.04
› 3 of 5	1.81	97.59	1.36	96.40
› 2 of 5	1.23	98.82	2.03	98.43
› 1 of 5	0.15	98.97	0.26	98.69
› 0 of 5	1.03	100.00	1.31	100.00

Source: HCEF\_D'

Self Person Base: 197,939,491

Enumerator Person Base: 72,262,628

## 5. CONCLUSIONS

- Nationwide, there were 1,464,793 whole household substitutions. These represent 1.39 percent of the 105.5 million occupied housing units. Within these substituted households, there were 3,441,154 substituted persons. These persons account for 1.26 percent of the 273.6 million housing unit persons in the nation.
- In general, data on short forms are more complete than on long forms. Looking at total imputation rates, the relationship, sex, age, Hispanic origin, and tenure items all had short form rates that were less than long form rates. The only item with a higher short form rate was race, and this was only 0.15 percentage points greater than the long form imputation rate.
- In general, self responses generate more complete data than enumerator returns. Total imputation rates show that this is true for all items except Hispanic origin. For the Hispanic origin item, enumerator returns show a total imputation rate that is 0.37 percentage points lower than self responses.
- In general, the breakdown by form language shows that data on English forms are more complete than the other languages. English has the lowest total imputation rates for relationship, sex, and Hispanic origin. It has the second lowest rate for age and tenure, and the third lowest rate for race when compared to the other languages. Korean forms also have relative complete data. The age and race items show Korean forms to have the lowest total imputation rates when compared to the other languages. Korean forms also have the second lowest rates for relationship and sex. Data on Tagalog forms show a low level of completeness, having the worst total imputation rate for relationship and sex. Tagalog also has worse than average imputation rates for the other four items.
- In all cases, data for owners are more complete than for renters. The total imputation rates for every item show that owners have consistently lower rates.
- The breakdown by form source shows that Internet and TQA have, by far, the most complete data. Internet has the lowest total imputation rate for the relationship, sex, and age items, while TQA gives the lowest rates for Hispanic origin, race, and tenure. Data completeness on Internet forms for all items is excellent. Data from USPS Delivery also have relatively low imputation rates. On the other end, Be Counted consistently shows high imputation rates. The Remote Alaska and CIFU operations also give poor data, in general.
- On enumerator returns, data for household members are more complete than for proxy respondents in all cases. Every item showed household members to have lower total imputation rates than proxies.
- In general, when looking at check-in date by week for self responses, the total imputation rates for all items increase over time following a similar trend. For self responses, the sex item has the lowest rates across all weeks while Hispanic

origin has the highest. The graph of check-in date for enumerator returns shows that rates seem to follow the timing of specific operations. Rates appear high during the Remote Alaska, L/E, and U/E operations, and also around the end of the NRFU operation and during the beginning of the CIFU operation. Additionally, the rates seem to climb within some of the operations, signaling a possible lack of cooperation by the public over time.

- Overall, the data completeness statistic shows that about 97 percent of non-substituted person records have at least four of the five 100 percent population items with non-imputed data. Looking at the breakdown by response mode, it seems to confirm that self responses have more complete data than enumerator returns.

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Appendix A: Classification of Edit/Allocation Flag Variables Into Categories from the Hundred Percent Census Edited File with the Reinstated Housing Units (HCEF\_D')

Item	Variable (Variable Number)	Category	Values
Relationship	FREL (3028)  Possible values: 0, 1, 2, 3, 4, 5, 7	Non-imputed values	0 = As reported from code box 1 = As reported from write-in
		Assigned values	2 = Value change for household consistency 3 = Housing unit person is on a GQ form or Person is in a GQ
		Allocated values	4 = Allocated from hot deck 5 = Allocated due to consistency check
		Substituted values	7 = Substituted
Sex	FSEX (3029)  Possible values: 0, 1, 2, 4, 5, 7	Non-imputed values	0 = As reported
		Assigned values	1 = From first name 2 = Value edited for household consistency
		Allocated values	4 = Allocated from hot deck 5 = Allocated due to consistency check
		Substituted values	7 = Substituted
Age	FAGE (3030)  Possible values: 0, 1, 2, 3, 4, 7	Non-imputed values	0 = Consistent as reported 1 = Age only 2 = Date of birth only
		Assigned values	3 = Inconsistent age and date of birth
		Allocated values	4 = Allocated from hot deck
		Substituted values	7 = Substituted
Hispanic origin	FSPAN (3032)  Possible values: 0, 1, 2, 3, 4, 5, 6, 7	Non-imputed values	0 = 1 reported origin 2 = Multiple response given a unique Hispanic or non-Hispanic code
		Assigned values	3 = Assign Hispanic from race code
		Allocated values	1 = Mixed Hispanic and non-Hispanic response blanked (replaced by 4-6 on HCEF_D') 4 = Allocated from within household 5 = Allocated from hot deck (surname used) 6 = Allocated from hot deck (surname not used)
		Substituted values	7 = Substituted

- Continued on next page -

Item	Variable (Variable Number)	Category	Values
Race	FRACE (3033)  Possible values: 0, 1, 3, 4, 5, 7	Non-imputed values	0 = As reported
		Assigned values	1 = Code changed through consistency edit 3 = Classified from race response in Hispanic question
		Allocated values	4 = Allocated from within household 5 = Allocated from hot deck
		Substituted values	7 = Substituted
Tenure  <i>Note: vacants included</i>	FTENURE (2031)  Possible values: 0, 1, 4	Non-imputed values	0 = As reported
		Assigned values	1 = Assigned by consistency check
		Allocated values	4 = Allocated from hot deck
		Substituted values	None

\* NOTE: The data defined person variable (QDDP) is used in addition to the logic above. As stated in the Methodology section of this report, a person record is considered totally allocated when it is not data defined and is imputed by the edit according to the QDDP variable. However, some totally allocated persons have individual characteristics that are not considered allocated when examining the flag variables.

Appendix B: Variable and Variable Values for Scenarios Analyzed from the Hundred Percent Census Edited File with the Reinstated Housing Units (HCEF\_D')

Response Mode		Universe	
TOTAL		(1A) RT=2	
Form Type	long form	(1B) RT=2 and RFT=02,04,06,10,12,18,20	
	short form	(1C) RT=2 and RFT=01,03,05,07,09,11,17,19	
Form Language	English	(1D) RT=2 and *RBC17=0,6 or *RBC17=8,9 and *RJIC1C2=6	
	Spanish	(1E) RT=2 and *RBC17=1,7 or *RBC17=8,9 and *RJIC1C2=1,7	
	Chinese	(1F) RT=2 and *RBC17=8,9 and *RJIC1C2=2	
	Korean	(1G) RT=2 and *RBC17=8,9 and *RJIC1C2=3	
	Tagalog	(1H) RT=2 and *RBC17=8,9 and *RJIC1C2=4	
	Vietnamese	(1I) RT=2 and *RBC17=8,9 and *RJIC1C2=5	
	not determined	(1J) RT=2 and *RBC17=[-1],2,3,4,5 or *RBC=8,9 and *RJIC1C2=blank	
Tenure <i>Note: imputed value used so that no blanks appear</i>	owner	(1K) RT=2 and STENURE=1, 2	
	renter	(1L) RT=2 and STENURE=3, 4	
Household Membership <sup>§</sup> <i>Note: blanks excluded in calculation</i>	HH member	(1M) 3G, 3H, 3I, 3J, 3K and RHHMEM=1	
	proxy	(1N) 3G, 3H, 3I, 3J, 3K and RHHMEM=2, 3	

- Continued on next page -

Response Mode		Universe		
Self	TOTAL		(2A) RT=2 and †RSOURCE=01, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 30	
	Form Type	long form	(2B) 2A and RFT=02,04,10,12	
		short form	(2C) 2A and RFT=01,03,07,09,11	
	Check-In Date	by week	(2D) 2A and †REPDATE	
	Form Source	United States Postal Service delivery		(2E) RT=2 and †RSOURCE=01 and UAA=0,1,2,3,4,6,7,8 or †RSOURCE=03,10
		Local Census Office delivery (UAA)		(2F) RT=2 and †RSOURCE=01 and UAA=5
		Update/Leave		(2G) RT=2 and †RSOURCE=04,05,06
		Urban Update/Leave		(2H) RT=2 and †RSOURCE=07,08,09
		Internet		(2I) RT=2 and †RSOURCE=30
		Be Counted		(2J) RT=2 and †RSOURCE=11,12
Enumerator	TOTAL		(3A) RT=2 and †RSOURCE=blank, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36, 37	
	Form Type	long form	(3B) 3A and RFT=06,18,20	
		short form	(3C) 3A and RFT=05,17,19	
	Check-In Date	by week	(3D) RT=2 and †REPDATE	
	Form Source	Coverage Edit Followup		(3E) RT=2 and †RSOURCE=34,35,36
		Telephone Questionnaire Assistance		(3F) RT=2 and †RSOURCE=31,32,33
		Nonresponse Followup		(3G) RT=2 and †RSOURCE=17,18,19,20,21
		Coverage Improvement Followup		(3H) RT=2 and †RSOURCE=22,23,24
		Update/Enumerate		(3I) RT=2 and †RSOURCE=14,15,16
		List/Enumerate	<i>error checks where TEA ≠ 3,4</i>	(3J) RT=2 and †RSOURCE=13 and TEA=3
		Remote Alaska		(3K) RT=2 and †RSOURCE=13 and TEA=4
		Other (T-Night, “orphans”)		(3L) RT=2 and †RSOURCE=25,37
	Group Quarter Enumerations		(3M) RT=2 and †RSOURCE=26,27,28,29	

\* Variable comes from the DRF2.

† Variable comes from the HCUF.

§ The analysis of Household Membership only includes records from the Nonresponse Followup, Coverage Improvement Followup, Update/Enumerate, List/Enumerate, and Remote Alaska operations.

### Appendix C: Scenarios Analyzed for the Data Completeness Statistic

Response Mode		Universe
TOTAL	TOTAL	Use “Non-imputed values” from the Category column in Appendix A and 1A from the Universe column in Appendix B
	long form	Use “Non-imputed values” from the Category column in Appendix A and 1B from the Universe column in Appendix B
	short form	Use “Non-imputed values” from the Category column in Appendix A and 1C from the Universe column in Appendix B
Self	TOTAL	Use “Non-imputed values” from the Category column in Appendix A and 2A from the Universe column in Appendix B
	long form	Use “Non-imputed values” from the Category column in Appendix A and 2B from the Universe column in Appendix B
	short form	Use “Non-imputed values” from the Category column in Appendix A and 2C from the Universe column in Appendix B
Enumerator	TOTAL	Use “Non-imputed values” from the Category column in Appendix A and 3A from the Universe column in Appendix B
	long form	Use “Non-imputed values” from the Category column in Appendix A and 3B from the Universe column in Appendix B
	short form	Use “Non-imputed values” from the Category column in Appendix A and 3C from the Universe column in Appendix B

Appendix D: Hundred Percent Census Edited File with the Reinstated Housing Units (HCEF\_D') Variable Definitions

**RT** RECORD TYPE

- 1 = Block record
- 2 = Housing unit record
- 3 = Housing unit person record

**ST** COLLECTION FIPS STATE CODE (Right justified, zero filled)

The state code for this block at the point in time when the collection blocks are numbered.

**COU** COLLECTION FIPS COUNTY CODE (Right justified, zero filled)

The county code for this block at the point in time when the collection blocks are numbered.

**BKN** COLLECTION BLOCK NUMBER (Right justified, blank filled)

This field must be used in conjunction with fields ST and COU.

**BKP** BLOCK PART

- blank = No block part
- alpha = Block part

**TEA** TYPE OF ENUMERATION AREA

- 1 = Mailout Mailback
- 2 = Update Leave
- 3 = List Enumerate
- 4 = Remote Alaska
- 5 = "Rural" Update Enumerate (from TEA 2)
- 6 = Military in Update Leave Area
- 7 = Urban Update Leave
- 8 = "Urban" Update Enumerate (converted from TEA 1)
- 9 = Update Leave (converted from TEA 1)

**LCO** LOCAL CENSUS OFFICE CODE

**TRACT** NONRESPONSE FOLLOW-UP TRACT (This is the 1990 tract adjusted to 2000 collection block boundaries.)

This field must be used in conjunction with fields ST and.  
Implied decimal after 1<sup>st</sup> 4 digits.

**MAFID** MAF AND DMAF ID (EXCLUDING THE 2 CHARACTER CHECK DIGIT)

- characters 1-2 = state code when the MAF ID was assigned
- characters 3-5 = county code when the MAF ID was assigned
- characters 6-12 = control ID

**UAA** UNDELIVERABLE AS ADDRESSED (UAA)

- 0 = No UAA check-in
- 1 = UAA check-in in NPC only
- 2 = UAA check-in in NPC; in LCO check-in; no LCO check-out
- 3 = UAA check-in in NPC; no LCO check-in; in LCO check-out
- 4 = UAA check-in in NPC; in LCO check-in; in LCO check-out
- 5 = No UAA check-in in NPC; in LCO check-in; no LCO check-out
- 6 = No UAA check-in in NPC; no LCO check-in; in LCO check-out
- 7 = No UAA check-in in NPC; in LCO check-in; in LCO check-out
- 8 = Not enough Address information - Excluded from the Mailout

**RFT** FORM TYPE

- 00 = No return record selected by DRF2 processing
- 01 = D-1 (Short Form MR)
- 02 = D-2 (Long Form MR)
- 03 = D-1(UL) (Short Form MR)
- 04 = D-2(UL) (Long Form MR)
- 05 = D-1(E) (Short Form EQ)
- 06 = D-2(E) (Long Form EQ)
- 07 = D-10 (Be Counted)
- 08 = (not used)
- 09 = D-15A (ICQ, Short)
- 10 = D-15B (ICQ, Long)
- 11 = D-20A (ICR, Short)
- 12 = D-20B (ICR, Long)
- 13 = (not used)
- 14 = D-21 (MCR)
- 15 = (not used)
- 16 = D-23 (SCR)
- 17 = D-1(E)SUPP (Enumerator Supplement, short)
- 18 = D-2(E)SUPP (Enumerator Supplement, long)
- 19 = D-1(E)(ccf) (Short EQ converted to continuation)
- 20 = D-2(E)(ccf) (Long EQ converted to continuation)

**RHHMEM** RESPONDENT HOUSEHOLD MEMBER? [EQ only]

- blank = No response or not in universe
- 1 = Lived here on April 1, 2000 [household member]
- 2 = Moved in after April 1, 2000
- 3 = Is neighbor or other

**STENURE** "Is THIS HOUSE, APARTMENT, OR MOBILE HOME--" (This is the edited value of the RTENURE variable from the HCUF.)  
0 = Not in universe (vacant)  
1 = Owned by you or someone in this household with a mortgage or loan  
2 = Owned by you or someone in this household free and clear (without a mortgage or loan)  
3 = Rented for cash rent  
4 = Occupied without payment of cash rent

**FTENURE** STENURE EDIT/ALLOCATION FLAG  
0 = As reported  
1 = Assigned by consistency check  
4 = Allocated from hot deck

**PUID** UNIT ID NUMBER  
characters 1-2 = state code when the MAF ID was assigned  
characters 3-5 = county code when the MAF ID was assigned  
characters 6-12 = control ID

**QDDP** DATA DEFINED PERSON  
0 = Yes (The person is on the HCUF.)  
1 = No--imputed by the edit (Not a data defined person in a housing unit with a data defined person)  
2 = No--substituted by the edit

**FREL** QREL EDIT/ALLOCATION FLAG  
0 = As reported from code box  
1 = As reported from write-in  
2 = Value changed for household consistency  
3 = Housing unit person is on a GQ form or Person is in a GQ  
4 = Allocated from hot deck  
5 = Allocated due to consistency check  
7 = Substituted (QDDP=2)

**FSEX** QSEX EDIT/ALLOCATION FLAG  
0 = As reported  
1 = From first name  
2 = Value edited for household consistency  
4 = Allocated from hot deck  
5 = Allocated due to consistency check  
7 = Substituted (QDDP=2)

**FAGE** QAGE EDIT/ALLOCATION FLAG

- 0 = Consistent as reported
- 1 = Age only
- 2 = Date of birth only
- 3 = Inconsistent age and date of birth
- 4 = Allocated from hot deck
- 7 = Substituted (QDDP=2)

**FSPAN** HISPANIC ORIGIN (QSPAN) EDIT/ALLOCATION FLAG

- 0 = 1 reported origin
- 1 = Mixed Hispanic and non-Hispanic response blanked (This value only applies to the pre-edited file; on the edited file [the HCEF] this value will be replaced by a 4-6.)
- 2 = Multiple response given a unique Hispanic or Non-Hispanic code
- 3 = Assign Hispanic from race code
- 4 = Allocated from within household
- 5 = Allocated from hot deck (surname used)
- 6 = Allocated from hot deck (surname not used)
- 7 = Substituted (QDDP=2)

**FRACE** RACE (QRACE1-QRACE8) EDIT/ALLOCATION FLAG

- 0 = As reported
- 1 = Code changed through consistency edit
- 3 = Classified from race response in Hispanic question
- 4 = Allocated from within household
- 5 = Allocated from hot deck
- 7 = Substituted (QDDP=2)

## Appendix E: Hundred Percent Census Unedited File (HCUF) Variable Definitions

### **RT** RECORD TYPE

2 = Housing unit record

### **MAFID** MAF AND DMAF ID (EXCLUDING THE 2 CHARACTER CHECK DIGIT)

characters 1-2 = state code when the MAF ID was assigned

characters 3-5 = county code when the MAF ID was assigned

characters 6-12 = control ID

### **REPDATE** EARLIEST FORM PROCESSING DATE (from DCS2000 capture system)

blank = Date not captured

0101-1231 = Earliest date (month and day)

### **RSOURCE** SOURCE OF RETURN (RECODE) (From DRF2 Processing)

blank = Not computed

01 = Paper mail back questionnaire from mail out

02 = (not used)

03 = Paper mail back questionnaire from TQA mail out with NO ID

04 = Paper mail back questionnaire from Update Leave

05 = Paper mail back questionnaire from Update Leave ADD

06 = Paper mail back questionnaire from Update Leave SUBSTITUTE

07 = Paper mail back questionnaire from Urban Update Leave

08 = Paper mail back questionnaire from Urban Update Leave ADD

09 = Paper mail back questionnaire from Urban Update Leave SUBSTITUTE

10 = Paper mail back questionnaire from Request for Foreign Language

11 = Paper mail back questionnaire from BCF marked as whole household

12 = Paper mail back questionnaire from BCF partial household (i.e., NOT marked as whole household)

13 = Paper enumerator questionnaire from List Enumerate

14 = Paper enumerator questionnaire from Update Enumerate

15 = Paper enumerator questionnaire from Update Enumerate ADD

16 = Paper enumerator questionnaire from Update Enumerate SUBSTITUTE

17 = Paper enumerator questionnaire from Nonresponse Follow-up (NRFU)

18 = Paper enumerator questionnaire from NRFU ADD

19 = Paper enumerator questionnaire from NRFU SUBSTITUTE

20 = Paper enumerator questionnaire from NRFU Whole Household Usual Home Elsewhere (WHUHE)

21 = Paper enumerator questionnaire from NRFU In-mover

22 = Paper enumerator questionnaire from Coverage Improvement Follow-up (CIFU)

23 = Paper enumerator questionnaire from CIFU ADD

24 = Paper enumerator questionnaire from CIFU SUBSTITUTE

25 = Paper enumerator questionnaire from T-Night

26 = Paper questionnaire for UHE from Service-based Enumeration (SBE) (ICQ)

27 = Paper questionnaire for UHE from Group Quarters (GQ) enumeration (ICR)

28 = Paper questionnaire for UHE from Military GQ enumeration (MCR)

29 = Paper questionnaire for UHE from Shipboard GQ enumeration (SCR)

30 = Electronic short form from IDC

31 = Electronic TQA reverse-CATI short form

32 = Electronic TQA reverse-CATI BCF for whole household

33 = Electronic TQA reverse-CATI BCF for partial household

34 = Electronic Coverage Edit Follow-up (CEFU) from long or short form

35 = Electronic CEFU from BCF for whole household

36 = Electronic CEFU from IDC

37 = Paper enumerator continuation form – unlinked “orphan”

Appendix F: Decennial Response File – Stage 2 (DRF2) Variable Definitions

Record Types 2 and 3: Return-Level Record for Housing Units

**RUID** UNIT ID NUMBER (DMAF)  
characters 1-2 = state (when MAF ID was assigned)  
characters 3-5 = county  
characters 6-12 = sequence ID

**RFT** FORM TYPE (DRF2)

1	= D-1	(Short Form MR)
2	= D-2	(Long Form MR)
3	= D-1(UL)	(Short Form MR)
4	= D-2(UL)	(Long Form MR)
5	= D-1(E)	(Short Form EQ)
6	= D-2(E)	(Long Form EQ)
7	= D-10	(Be Counted)
8	= (not used)	
9	= D-15A	(ICQ, Short)
10	= D-15B	(ICQ, Long)
11	= D-20A	(ICR, Short)
12	= D-20B	(ICR, Long)
13	= (not used)	
14	= D-21	(MCR)
15	= (not used)	
16	= D-23	(SCR)
17	= D-1(E)SUPP	(Enumerator Supplement, short)
18	= D-2(E)SUPP	(Enumerator Supplement, long)
19	= D-1(E)(ccf)	(Short EQ converted to continuation)
20	= D-2(E)(ccf)	(Long EQ converted to continuation)

**RBC17** PRINTED BAR CODE CHARACTER 17 – Language (DRF2)

-1	= No bar code
0	= English (US)
1	= Spanish (US)
2	= Chinese
3	= Korean
4	= Tagalog
5	= Vietnamese
6	= English (PR)
7	= Spanish (PR)
8	= Transcribed from foreign language
9	= Translated from foreign language

## **RSOURCE** SOURCE OF RETURN (Recode) (DRF2)

- 1 = Not computed
- 1 = Paper mail back questionnaire from mail out
- 2 = (not used)
- 3 = Paper mail back questionnaire from TQA mail out with NO ID
- 4 = Paper mail back questionnaire from Update Leave
- 5 = Paper mail back questionnaire from Update Leave ADD
- 6 = Paper mail back questionnaire from Update Leave SUBSTITUTE
- 7 = Paper mail back questionnaire from Urban Update Leave
- 8 = Paper mail back questionnaire from Urban Update Leave ADD
- 9 = Paper mail back questionnaire from Urban Update Leave SUBSTITUTE
- 10 = Paper mail back questionnaire from Request for Foreign Language
- 11 = Paper mail back questionnaire from BCF marked as whole household
- 12 = Paper mail back questionnaire from BCF partial household (i.e., NOT marked as whole household)
- 13 = Paper enumerator questionnaire from List Enumerate
- 14 = Paper enumerator questionnaire from Update Enumerate
- 15 = Paper enumerator questionnaire from Update Enumerate ADD
- 16 = Paper enumerator questionnaire from Update Enumerate SUBSTITUTE
- 17 = Paper enumerator questionnaire from Nonresponse Follow-up (NRFU)
- 18 = Paper enumerator questionnaire from NRFU ADD
- 19 = Paper enumerator questionnaire from NRFU SUBSTITUTE
- 20 = Paper enumerator questionnaire from NRFU Whole Household Usual Home Elsewhere (WHUHE)
- 21 = Paper enumerator questionnaire from NRFU In-mover
- 22 = Paper enumerator questionnaire from Coverage Improvement Follow-up (CIFU)
- 23 = Paper enumerator questionnaire from CIFU ADD
- 24 = Paper enumerator questionnaire from CIFU SUBSTITUTE
- 25 = Paper enumerator questionnaire from T-Night
- 26 = Paper questionnaire for UHE from Service-based Enumeration (SBE) (ICQ)
- 27 = Paper questionnaire for UHE from Group Quarters (GQ) enumeration (ICR)
- 28 = Paper questionnaire for UHE from Military GQ enumeration (MCR)
- 29 = Paper questionnaire for UHE from Shipboard GQ enumeration (SCR)
- 30 = Electronic short form from IDC
- 31 = Electronic TQA reverse-CATI short form
- 32 = Electronic TQA reverse-CATI BCF for whole household
- 33 = Electronic TQA reverse-CATI BCF for partial household
- 34 = Electronic Coverage Edit Follow-up (CEFU) from long or short form
- 35 = Electronic CEFU from BCF for whole household
- 36 = Electronic CEFU from IDC
- 37 = Paper enumerator continuation form – unlinked “orphan”

## **RPRSTAT** RETURN AND PSA HOUSEHOLD STATUS (PSA)

- 1 = Not computed
- 1 = Basic return for primary PSA household
- 2 = Other return for primary PSA household
- 3 = Basic return for non-primary PSA household
- 4 = Other return for non-primary PSA household
- 5 = Redundant
- 6 = Ineligible

## **RJIC1C2** JUST-IN-CASE #1, CHARACTER 2 [*bcdef*]

on MR: Language From Which Transcribed or Translated

on EQ: Interview Summary Item L – JIC1, Just-in-case #1, character 2

- blank = No response
- 1 = Spanish (US)
- 2 = Chinese
- 3 = Korean
- 4 = Tagalog
- 5 = Vietnamese
- 6 = English (PR)
- 7 = Spanish (PR)

Appendix G: Imputation Rates by Response Mode and Form Type for All Items

**Table G-1. Imputation Rates by Response Mode and Form Type for Relationship Item (in percent)**

		As Reported	Imputed		
			Total	Assigned	Allocated
Self	TOTAL – Self Response	98.01	1.99	0.28	1.71
	› short form	98.10	1.90	0.26	1.65
	› long form	97.48	2.52	0.44	2.08
	Difference	0.62	-0.62	-0.18	-0.44
Enum	TOTAL – Enumerator Returns	95.87	4.13	0.69	3.44
	› short form	95.94	4.06	0.71	3.35
	› long form	95.62	4.38	0.62	3.76
	Difference	0.32	-0.32	0.09	-0.41

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491  
 Enumerator Person Base: 72,262,628

**Table G-2. Imputation Rates by Response Mode and Form Type for Sex Item (in percent)**

		As Reported	Imputed		
			Total	Assigned	Allocated
Self	TOTAL – Self Response	98.30	1.70	0.77	0.93
	› short form	98.26	1.74	0.84	0.90
	› long form	98.55	1.45	0.38	1.07
	Difference	-0.29	0.29	0.46	-0.17
Enum	TOTAL – Enumerator Returns	97.24	2.76	1.18	1.59
	› short form	97.35	2.65	1.14	1.51
	› long form	96.83	3.17	1.31	1.86
	Difference	0.52	-0.52	-0.17	-0.35

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491  
 Enumerator Person Base: 72,262,628

**Table G-3. Imputation Rates by Response Mode and Form Type for Age Item (in percent)**

		As Reported	Imputed		
			Total	Assigned	Allocated
Self	TOTAL – Self Response	97.05	2.95	1.29	1.66
	› short form	97.08	2.92	1.28	1.64
	› long form	96.87	3.13	1.35	1.78
	Difference	0.21	-0.21	-0.07	-0.14
Enum	TOTAL – Enumerator Returns	89.08	10.92	1.89	9.03
	› short form	88.98	11.02	1.96	9.07
	› long form	89.44	10.56	1.65	8.91
	Difference	-0.47	0.47	0.30	0.16

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491  
Enumerator Person Base: 72,262,628**Table G-4. Imputation Rates by Response Mode and Form Type for Hispanic Origin Item (in percent)**

		As Reported	Imputed		
			Total	Assigned	Allocated
Self	TOTAL – Self Response	95.53	4.47	0.13	4.34
	› short form	95.53	4.47	0.14	4.33
	› long form	95.50	4.50	0.12	4.38
	Difference	0.03	-0.03	0.02	-0.05
Enum	TOTAL – Enumerator Returns	95.90	4.10	0.21	3.88
	› short form	96.07	3.93	0.22	3.71
	› long form	95.27	4.73	0.20	4.53
	Difference	0.80	-0.80	0.02	-0.82

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491  
Enumerator Person Base: 72,262,628

**Table G-5. Imputation Rates by Response Mode and Form Type for Race Item (in percent)**

		As Reported	Imputed		
			Total	Assigned	Allocated
Self	TOTAL – Self Response	96.17	3.83	0.02	3.81
	› short form	96.09	3.91	0.02	3.89
	› long form	96.61	3.39	0.01	3.38
	Difference	-0.52	0.52	0.01	0.51
Enum	TOTAL – Enumerator Returns	95.69	4.31	0.02	4.29
	› short form	95.79	4.21	0.02	4.19
	› long form	95.34	4.66	0.01	4.65
	Difference	0.45	-0.45	0.01	-0.46

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491  
 Enumerator Person Base: 72,262,628

**Table G-6. Imputation Rates by Response Mode and Form Type for Tenure Item (in percent)**

		As Reported	Imputed		
			Total	Assigned	Allocated
Self	TOTAL – Self Response	97.05	2.95	0.58	2.37
	› short form	97.95	2.05	0.00	2.05
	› long form	91.96	8.04	3.88	4.16
	Difference	5.99	-5.99	-3.88	-2.11
Enum	TOTAL – Enumerator Returns	87.83	12.17	0.88	11.29
	› short form	91.04	8.96	0.00	8.96
	› long form	76.44	23.56	3.99	19.57
	Difference	14.61	-14.61	-3.99	-10.61

Sources: HCEF\_D', HCUF

Self Housing Unit Base: 78,299,626  
 Enumerator Housing Unit Base: 26,992,873

Appendix H: Imputation Rates by Check-In Date for All Items

**Table H-1. Self Response Imputation Rates by Check-In Date for Relationship Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Self Response	98.01	1.99	0.28	1.71
› Feb 27 – Mar 4	100.00	0.00	0.00	0.00
› Mar 5 – Mar 11	98.85	1.15	0.21	0.94
› Mar 12 – Mar 18	98.66	1.34	0.22	1.12
› Mar 19 – Mar 25	98.48	1.52	0.24	1.28
› Mar 26 – Apr 1	97.92	2.08	0.30	1.78
› Apr 2 – Apr 8	97.18	2.82	0.36	2.46
› Apr 9 – Apr 15	96.88	3.12	0.41	2.72
› Apr 16 – Apr 22	95.53	4.47	0.49	3.99
› Apr 23 – Apr 29	94.43	5.57	0.57	5.01
› Apr 30 – May 6	95.19	4.81	0.43	4.38
› May 7 – May 13	94.53	5.47	0.43	5.03
› May 14 – May 20	94.07	5.93	0.51	5.42
› May 21 – May 27	94.23	5.77	0.44	5.33
› May 28 – Jun 3	94.39	5.61	0.45	5.16
› Jun 4 – Jun 10	94.21	5.79	0.39	5.39
› Jun 11 – Jun 17	93.70	6.30	0.42	5.88
› Jun 18 – Jun 24	92.96	7.04	0.40	6.64
› Jun 25 – Jul 1	92.06	7.94	0.48	7.47
› Jul 2 – Jul 8	93.00	7.00	0.38	6.61
› Jul 9 – Jul 15	92.93	7.07	0.40	6.67
› Jul 16 – Jul 22	93.51	6.49	0.30	6.19
› Jul 23 – Jul 29	93.18	6.82	0.42	6.41
› Jul 30 – Aug 5	92.76	7.24	0.40	6.84
› Aug 6 – Aug 12	93.41	6.59	0.50	6.09
› Aug 13 – Aug 19	93.01	6.99	0.42	6.57
› Aug 20 – Aug 26	92.10	7.90	0.39	7.50
› Aug 27 – Sep 2	93.10	6.90	0.38	6.52
› Sep 3 – Sep 9	93.89	6.11	0.38	5.73
› After Sep 9	94.04	5.96	0.12	5.83

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491

**Table H-2. Self Response Imputation Rates by Check-In Date for Sex Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Self Response	98.30	1.70	0.77	0.93
› Feb 27 – Mar 4	99.54	0.46	0.46	0.00
› Mar 5 – Mar 11	98.68	1.32	0.82	0.50
› Mar 12 – Mar 18	98.72	1.28	0.66	0.62
› Mar 19 – Mar 25	98.59	1.41	0.69	0.72
› Mar 26 – Apr 1	98.12	1.88	0.82	1.07
› Apr 2 – Apr 8	97.50	2.50	0.97	1.54
› Apr 9 – Apr 15	97.47	2.53	1.00	1.53
› Apr 16 – Apr 22	97.60	2.40	1.07	1.33
› Apr 23 – Apr 29	97.68	2.32	1.07	1.25
› Apr 30 – May 6	97.84	2.16	1.05	1.11
› May 7 – May 13	97.28	2.72	1.14	1.58
› May 14 – May 20	97.08	2.92	1.03	1.89
› May 21 – May 27	97.06	2.94	0.99	1.95
› May 28 – Jun 3	97.07	2.93	0.98	1.95
› Jun 4 – Jun 10	96.87	3.13	0.87	2.26
› Jun 11 – Jun 17	96.84	3.16	0.93	2.23
› Jun 18 – Jun 24	96.20	3.80	0.96	2.84
› Jun 25 – Jul 1	96.24	3.76	1.20	2.56
› Jul 2 – Jul 8	96.53	3.47	1.41	2.06
› Jul 9 – Jul 15	96.42	3.58	1.29	2.30
› Jul 16 – Jul 22	96.94	3.06	1.24	1.82
› Jul 23 – Jul 29	96.90	3.10	1.22	1.88
› Jul 30 – Aug 5	96.89	3.11	1.04	2.07
› Aug 6 – Aug 12	97.16	2.84	1.07	1.77
› Aug 13 – Aug 19	96.76	3.24	0.97	2.27
› Aug 20 – Aug 26	96.21	3.79	1.43	2.36
› Aug 27 – Sep 2	96.90	3.10	1.43	1.67
› Sep 3 – Sep 9	97.78	2.22	1.14	1.08
› After Sep 9	98.64	1.36	0.12	1.24

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491

**Table H-3. Self Response Imputation Rates by Check-In Date for Age Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Self Response	97.05	2.95	1.29	1.66
› Feb 27 – Mar 4	100.00	0.00	0.00	0.00
› Mar 5 – Mar 11	97.73	2.27	1.18	1.09
› Mar 12 – Mar 18	97.61	2.39	1.23	1.16
› Mar 19 – Mar 25	97.44	2.56	1.24	1.32
› Mar 26 – Apr 1	96.87	3.13	1.32	1.81
› Apr 2 – Apr 8	96.04	3.96	1.42	2.54
› Apr 9 – Apr 15	95.92	4.08	1.43	2.64
› Apr 16 – Apr 22	95.82	4.18	1.51	2.66
› Apr 23 – Apr 29	95.75	4.25	1.50	2.76
› Apr 30 – May 6	95.93	4.07	1.49	2.58
› May 7 – May 13	95.45	4.55	1.48	3.07
› May 14 – May 20	94.86	5.14	1.57	3.57
› May 21 – May 27	94.73	5.27	1.55	3.72
› May 28 – Jun 3	94.61	5.39	1.57	3.82
› Jun 4 – Jun 10	94.38	5.62	1.52	4.10
› Jun 11 – Jun 17	94.08	5.92	1.51	4.41
› Jun 18 – Jun 24	93.54	6.46	1.49	4.97
› Jun 25 – Jul 1	93.50	6.50	1.60	4.90
› Jul 2 – Jul 8	93.63	6.37	1.75	4.61
› Jul 9 – Jul 15	93.75	6.25	1.54	4.72
› Jul 16 – Jul 22	94.43	5.57	1.74	3.83
› Jul 23 – Jul 29	94.15	5.85	1.81	4.04
› Jul 30 – Aug 5	93.58	6.42	1.72	4.70
› Aug 6 – Aug 12	94.47	5.53	1.50	4.03
› Aug 13 – Aug 19	94.33	5.67	1.48	4.19
› Aug 20 – Aug 26	92.96	7.04	1.32	5.72
› Aug 27 – Sep 2	94.10	5.90	1.62	4.28
› Sep 3 – Sep 9	95.24	4.76	1.51	3.24
› After Sep 9	94.54	5.46	1.74	3.72

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491

**Table H-4. Self Response Imputation Rates by Check-In Date for Hispanic Origin Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Self Response	95.53	4.47	0.13	4.34
› Feb 27 – Mar 4	100.00	0.00	0.00	0.00
› Mar 5 – Mar 11	96.42	3.58	0.04	3.53
› Mar 12 – Mar 18	96.45	3.55	0.10	3.45
› Mar 19 – Mar 25	96.07	3.93	0.10	3.83
› Mar 26 – Apr 1	95.11	4.89	0.15	4.74
› Apr 2 – Apr 8	94.15	5.85	0.22	5.63
› Apr 9 – Apr 15	94.04	5.96	0.21	5.76
› Apr 16 – Apr 22	94.03	5.97	0.22	5.75
› Apr 23 – Apr 29	93.87	6.13	0.21	5.93
› Apr 30 – May 6	93.35	6.65	0.18	6.47
› May 7 – May 13	91.49	8.51	0.16	8.35
› May 14 – May 20	92.53	7.47	0.15	7.32
› May 21 – May 27	92.91	7.09	0.18	6.91
› May 28 – Jun 3	93.52	6.48	0.17	6.31
› Jun 4 – Jun 10	93.45	6.55	0.15	6.40
› Jun 11 – Jun 17	93.21	6.79	0.21	6.58
› Jun 18 – Jun 24	92.65	7.35	0.17	7.19
› Jun 25 – Jul 1	91.16	8.84	0.19	8.65
› Jul 2 – Jul 8	92.10	7.90	0.20	7.70
› Jul 9 – Jul 15	92.62	7.38	0.13	7.26
› Jul 16 – Jul 22	93.00	7.00	0.17	6.84
› Jul 23 – Jul 29	92.60	7.40	0.07	7.33
› Jul 30 – Aug 5	92.01	7.99	0.10	7.89
› Aug 6 – Aug 12	93.05	6.95	0.19	6.77
› Aug 13 – Aug 19	92.79	7.21	0.00	7.21
› Aug 20 – Aug 26	92.21	7.79	0.11	7.68
› Aug 27 – Sep 2	92.63	7.37	0.13	7.25
› Sep 3 – Sep 9	93.92	6.08	0.05	6.03
› After Sep 9	93.18	6.82	0.00	6.82

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491

**Table H-5. Self Response Imputation Rates by Check-In Date for Race Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Self Response	96.17	3.83	0.02	3.81
› Feb 27 – Mar 4	99.54	0.46	0.00	0.46
› Mar 5 – Mar 11	97.99	2.01	0.01	2.01
› Mar 12 – Mar 18	96.97	3.03	0.01	3.02
› Mar 19 – Mar 25	96.85	3.15	0.01	3.13
› Mar 26 – Apr 1	95.80	4.20	0.02	4.18
› Apr 2 – Apr 8	94.33	5.67	0.02	5.65
› Apr 9 – Apr 15	94.32	5.68	0.02	5.66
› Apr 16 – Apr 22	94.23	5.77	0.02	5.75
› Apr 23 – Apr 29	93.72	6.28	0.03	6.25
› Apr 30 – May 6	94.94	5.06	0.03	5.04
› May 7 – May 13	95.02	4.98	0.03	4.95
› May 14 – May 20	94.70	5.30	0.03	5.27
› May 21 – May 27	94.42	5.58	0.03	5.56
› May 28 – Jun 3	94.64	5.36	0.02	5.34
› Jun 4 – Jun 10	94.29	5.71	0.02	5.69
› Jun 11 – Jun 17	93.74	6.26	0.02	6.23
› Jun 18 – Jun 24	93.53	6.47	0.02	6.45
› Jun 25 – Jul 1	93.38	6.62	0.05	6.57
› Jul 2 – Jul 8	93.90	6.10	0.03	6.07
› Jul 9 – Jul 15	93.89	6.11	0.03	6.09
› Jul 16 – Jul 22	93.75	6.25	0.00	6.25
› Jul 23 – Jul 29	94.34	5.66	0.02	5.64
› Jul 30 – Aug 5	94.72	5.28	0.02	5.26
› Aug 6 – Aug 12	94.62	5.38	0.04	5.34
› Aug 13 – Aug 19	94.40	5.60	0.04	5.56
› Aug 20 – Aug 26	95.14	4.86	0.00	4.86
› Aug 27 – Sep 2	95.14	4.86	0.02	4.84
› Sep 3 – Sep 9	96.24	3.76	0.11	3.65
› After Sep 9	94.29	5.71	0.25	5.46

Sources: HCEF\_D', HCUF

Self Person Base: 197,939,491

**Table H-6. Self Response Imputation Rates by Check-In Date for Tenure Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Self Response	97.05	2.95	0.58	2.37
› Feb 27 – Mar 4	98.88	1.12	0.00	1.12
› Mar 5 – Mar 11	97.70	2.30	0.56	1.74
› Mar 12 – Mar 18	97.99	2.01	0.34	1.67
› Mar 19 – Mar 25	97.49	2.51	0.51	2.00
› Mar 26 – Apr 1	96.76	3.24	0.68	2.56
› Apr 2 – Apr 8	95.56	4.44	0.90	3.54
› Apr 9 – Apr 15	95.42	4.58	0.83	3.75
› Apr 16 – Apr 22	95.11	4.89	0.87	4.02
› Apr 23 – Apr 29	95.04	4.96	0.87	4.10
› Apr 30 – May 6	94.64	5.37	1.02	4.35
› May 7 – May 13	94.43	5.57	0.99	4.57
› May 14 – May 20	94.14	5.86	1.34	4.52
› May 21 – May 27	93.94	6.06	1.45	4.62
› May 28 – Jun 3	93.73	6.27	1.46	4.80
› Jun 4 – Jun 10	93.60	6.40	1.60	4.79
› Jun 11 – Jun 17	93.83	6.17	1.48	4.69
› Jun 18 – Jun 24	93.02	6.98	1.89	5.08
› Jun 25 – Jul 1	94.13	5.87	1.28	4.59
› Jul 2 – Jul 8	95.16	4.84	0.52	4.32
› Jul 9 – Jul 15	94.80	5.20	0.89	4.31
› Jul 16 – Jul 22	94.08	5.92	1.20	4.72
› Jul 23 – Jul 29	95.23	4.77	0.67	4.10
› Jul 30 – Aug 5	93.46	6.54	1.30	5.24
› Aug 6 – Aug 12	95.42	4.58	0.76	3.82
› Aug 13 – Aug 19	94.08	5.92	1.10	4.82
› Aug 20 – Aug 26	93.77	6.23	0.47	5.77
› Aug 27 – Sep 2	95.41	4.59	0.63	3.96
› Sep 3 – Sep 9	94.91	5.09	0.56	4.54
› After Sep 9	96.47	3.53	0.59	2.94

Sources: HCEF\_D', HCUF

Self Housing Unit Base: 78,299,626

**Table H-7. Enumerator Response Imputation Rates by Check-In Date for Relationship Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Enumerator Returns	95.87	4.13	0.69	3.44
› Feb 27 – Mar 4	97.32	2.68	0.87	1.81
› Mar 5 – Mar 11	94.79	5.21	0.60	4.60
› Mar 12 – Mar 18	95.45	4.55	0.64	3.91
› Mar 19 – Mar 25	95.57	4.43	0.67	3.76
› Mar 26 – Apr 1	95.73	4.27	0.68	3.59
› Apr 2 – Apr 8	95.85	4.15	0.67	3.48
› Apr 9 – Apr 15	95.74	4.26	0.66	3.60
› Apr 16 – Apr 22	94.15	5.85	0.62	5.24
› Apr 23 – Apr 29	94.79	5.21	0.61	4.59
› Apr 30 – May 6	95.19	4.81	0.64	4.17
› May 7 – May 13	96.93	3.07	0.64	2.44
› May 14 – May 20	96.88	3.12	0.66	2.46
› May 21 – May 27	97.03	2.97	0.63	2.34
› May 28 – Jun 3	96.87	3.13	0.64	2.49
› Jun 4 – Jun 10	96.58	3.42	0.67	2.75
› Jun 11 – Jun 17	95.68	4.32	0.72	3.60
› Jun 18 – Jun 24	94.26	5.74	0.78	4.95
› Jun 25 – Jul 1	94.84	5.16	0.72	4.44
› Jul 2 – Jul 8	94.56	5.44	0.75	4.69
› Jul 9 – Jul 15	94.55	5.45	0.76	4.69
› Jul 16 – Jul 22	93.74	6.26	0.76	5.50
› Jul 23 – Jul 29	93.10	6.90	0.78	6.11
› Jul 30 – Aug 5	91.17	8.83	0.90	7.93
› Aug 6 – Aug 12	90.57	9.43	0.93	8.50
› Aug 13 – Aug 19	91.02	8.98	1.08	7.90
› Aug 20 – Aug 26	91.58	8.42	1.00	7.43
› Aug 27 – Sep 2	91.78	8.22	0.83	7.40
› Sep 3 – Sep 9	94.40	5.60	0.76	4.84
› After Sep 9	89.79	10.21	0.59	9.62

Sources: HCEF\_D', HCUF

Enumerator Person Base: 72,262,628

**Table H-8. Enumerator Response Imputation Rates by Check-In Date for Sex Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Enumerator Returns	97.24	2.76	1.18	1.59
› Feb 27 – Mar 4	99.14	0.86	0.60	0.26
› Mar 5 – Mar 11	95.63	4.37	1.30	3.06
› Mar 12 – Mar 18	96.44	3.56	1.40	2.16
› Mar 19 – Mar 25	96.64	3.36	1.43	1.93
› Mar 26 – Apr 1	96.74	3.26	1.51	1.75
› Apr 2 – Apr 8	96.68	3.32	1.70	1.62
› Apr 9 – Apr 15	96.60	3.40	1.53	1.86
› Apr 16 – Apr 22	95.00	5.00	1.48	3.52
› Apr 23 – Apr 29	95.72	4.28	1.23	3.05
› Apr 30 – May 6	96.16	3.84	1.33	2.51
› May 7 – May 13	98.11	1.89	0.78	1.11
› May 14 – May 20	98.14	1.86	0.74	1.12
› May 21 – May 27	98.23	1.77	0.94	0.83
› May 28 – Jun 3	98.04	1.96	1.03	0.93
› Jun 4 – Jun 10	97.80	2.20	1.11	1.09
› Jun 11 – Jun 17	97.12	2.88	1.26	1.62
› Jun 18 – Jun 24	96.06	3.94	1.45	2.49
› Jun 25 – Jul 1	96.39	3.61	1.47	2.14
› Jul 2 – Jul 8	96.26	3.74	1.40	2.34
› Jul 9 – Jul 15	96.45	3.55	1.31	2.24
› Jul 16 – Jul 22	95.62	4.38	1.43	2.95
› Jul 23 – Jul 29	95.18	4.82	1.46	3.36
› Jul 30 – Aug 5	93.74	6.26	1.73	4.53
› Aug 6 – Aug 12	93.18	6.82	1.76	5.06
› Aug 13 – Aug 19	93.73	6.27	1.79	4.47
› Aug 20 – Aug 26	94.52	5.48	1.89	3.59
› Aug 27 – Sep 2	94.74	5.26	1.25	4.01
› Sep 3 – Sep 9	96.82	3.18	1.13	2.04
› After Sep 9	90.62	9.38	3.09	6.29

Sources: HCEF\_D', HCUF

Enumerator Person Base: 72,262,628

**Table H-9. Enumerator Response Imputation Rates by Check-In Date for Age Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Enumerator Returns	89.08	10.92	1.89	9.03
› Feb 27 – Mar 4	97.41	2.59	0.02	2.57
› Mar 5 – Mar 11	92.53	7.47	1.19	6.28
› Mar 12 – Mar 18	91.46	8.54	1.26	7.28
› Mar 19 – Mar 25	91.08	8.92	1.28	7.64
› Mar 26 – Apr 1	90.47	9.53	1.32	8.20
› Apr 2 – Apr 8	89.12	10.88	1.40	9.48
› Apr 9 – Apr 15	90.07	9.93	1.39	8.54
› Apr 16 – Apr 22	89.10	10.90	1.58	9.32
› Apr 23 – Apr 29	90.79	9.21	1.44	7.77
› Apr 30 – May 6	90.62	9.38	1.54	7.83
› May 7 – May 13	93.91	6.09	2.09	4.00
› May 14 – May 20	93.09	6.91	2.07	4.84
› May 21 – May 27	92.31	7.69	2.07	5.61
› May 28 – Jun 3	91.58	8.42	2.01	6.40
› Jun 4 – Jun 10	90.24	9.76	2.02	7.73
› Jun 11 – Jun 17	86.95	13.05	1.94	11.11
› Jun 18 – Jun 24	84.16	15.84	1.81	14.03
› Jun 25 – Jul 1	88.13	11.87	1.85	10.02
› Jul 2 – Jul 8	85.02	14.98	1.85	13.13
› Jul 9 – Jul 15	85.37	14.63	1.78	12.86
› Jul 16 – Jul 22	78.20	21.80	1.65	20.15
› Jul 23 – Jul 29	76.68	23.32	1.65	21.67
› Jul 30 – Aug 5	72.37	27.63	1.61	26.03
› Aug 6 – Aug 12	72.49	27.51	1.82	25.69
› Aug 13 – Aug 19	77.25	22.75	2.08	20.67
› Aug 20 – Aug 26	80.19	19.81	2.03	17.77
› Aug 27 – Sep 2	78.24	21.76	1.90	19.86
› Sep 3 – Sep 9	86.61	13.39	1.82	11.57
› After Sep 9	56.41	43.59	0.59	42.99

Sources: HCEF\_D', HCUF

Enumerator Person Base: 72,262,628

**Table H-10. Enumerator Response Imputation Rates by Check-In Date for Hispanic Origin Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Enumerator Returns	95.90	4.10	0.21	3.88
› Feb 27 – Mar 4	97.87	2.13	0.24	1.89
› Mar 5 – Mar 11	93.27	6.73	0.14	6.59
› Mar 12 – Mar 18	93.63	6.37	0.40	5.97
› Mar 19 – Mar 25	93.32	6.68	0.41	6.27
› Mar 26 – Apr 1	93.28	6.72	0.49	6.23
› Apr 2 – Apr 8	93.44	6.56	0.64	5.92
› Apr 9 – Apr 15	93.68	6.32	0.52	5.81
› Apr 16 – Apr 22	92.61	7.39	0.43	6.95
› Apr 23 – Apr 29	93.52	6.48	0.29	6.19
› Apr 30 – May 6	93.21	6.79	0.25	6.54
› May 7 – May 13	97.34	2.66	0.17	2.49
› May 14 – May 20	97.23	2.77	0.18	2.59
› May 21 – May 27	97.34	2.66	0.17	2.48
› May 28 – Jun 3	97.19	2.81	0.17	2.64
› Jun 4 – Jun 10	96.91	3.09	0.16	2.93
› Jun 11 – Jun 17	95.86	4.14	0.17	3.97
› Jun 18 – Jun 24	94.54	5.46	0.19	5.27
› Jun 25 – Jul 1	95.42	4.58	0.24	4.34
› Jul 2 – Jul 8	94.81	5.19	0.24	4.95
› Jul 9 – Jul 15	94.96	5.04	0.27	4.77
› Jul 16 – Jul 22	93.37	6.63	0.17	6.46
› Jul 23 – Jul 29	92.70	7.30	0.16	7.14
› Jul 30 – Aug 5	91.43	8.57	0.14	8.43
› Aug 6 – Aug 12	91.54	8.46	0.17	8.29
› Aug 13 – Aug 19	92.12	7.88	0.25	7.64
› Aug 20 – Aug 26	92.96	7.04	0.29	6.75
› Aug 27 – Sep 2	93.60	6.40	0.21	6.19
› Sep 3 – Sep 9	94.78	5.22	0.15	5.07
› After Sep 9	87.05	12.95	0.48	12.47

Sources: HCEF\_D', HCUF

Enumerator Person Base: 72,262,628

**Table H-11. Enumerator Response Imputation Rates by Check-In Date for Race Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Enumerator Returns	95.69	4.31	0.02	4.29
› Feb 27 – Mar 4	97.29	2.71	0.01	2.70
› Mar 5 – Mar 11	94.19	5.81	0.04	5.77
› Mar 12 – Mar 18	89.22	10.78	0.12	10.66
› Mar 19 – Mar 25	89.37	10.63	0.12	10.51
› Mar 26 – Apr 1	89.43	10.57	0.09	10.49
› Apr 2 – Apr 8	89.23	10.77	0.07	10.71
› Apr 9 – Apr 15	90.58	9.42	0.05	9.38
› Apr 16 – Apr 22	90.47	9.53	0.04	9.49
› Apr 23 – Apr 29	92.17	7.83	0.04	7.79
› Apr 30 – May 6	93.16	6.84	0.03	6.81
› May 7 – May 13	97.61	2.39	0.01	2.38
› May 14 – May 20	97.47	2.53	0.01	2.52
› May 21 – May 27	97.58	2.42	0.01	2.41
› May 28 – Jun 3	97.43	2.57	0.01	2.56
› Jun 4 – Jun 10	97.14	2.86	0.01	2.85
› Jun 11 – Jun 17	96.09	3.91	0.01	3.90
› Jun 18 – Jun 24	94.77	5.23	0.01	5.21
› Jun 25 – Jul 1	95.53	4.47	0.01	4.46
› Jul 2 – Jul 8	94.87	5.13	0.01	5.12
› Jul 9 – Jul 15	95.06	4.94	0.01	4.94
› Jul 16 – Jul 22	93.71	6.29	0.01	6.28
› Jul 23 – Jul 29	93.20	6.80	0.01	6.79
› Jul 30 – Aug 5	92.00	8.00	0.01	7.99
› Aug 6 – Aug 12	91.87	8.13	0.02	8.10
› Aug 13 – Aug 19	92.62	7.38	0.02	7.35
› Aug 20 – Aug 26	93.66	6.34	0.03	6.32
› Aug 27 – Sep 2	95.00	5.00	0.02	4.99
› Sep 3 – Sep 9	95.61	4.39	0.00	4.39
› After Sep 9	89.31	10.69	0.00	10.69

Sources: HCEF\_D', HCUF

Enumerator Person Base: 72,262,628

**Table H-12. Enumerator Response Imputation Rates by Check-In Date for Tenure Item (in percent)**

Check-In Date (by week)	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL – Enumerator Returns	87.83	12.17	0.88	11.29
› Feb 27 – Mar 4	99.08	0.92	0.00	0.92
› Mar 5 – Mar 11	94.77	5.23	1.30	3.94
› Mar 12 – Mar 18	95.21	4.79	0.68	4.11
› Mar 19 – Mar 25	93.79	6.21	1.05	5.16
› Mar 26 – Apr 1	93.18	6.82	1.16	5.65
› Apr 2 – Apr 8	91.81	8.19	1.45	6.74
› Apr 9 – Apr 15	92.01	7.99	1.37	6.62
› Apr 16 – Apr 22	90.70	9.30	1.26	8.04
› Apr 23 – Apr 29	89.08	10.92	0.56	10.36
› Apr 30 – May 6	86.71	13.29	0.78	12.51
› May 7 – May 13	92.96	7.04	0.50	6.53
› May 14 – May 20	92.90	7.10	0.52	6.58
› May 21 – May 27	91.63	8.37	0.58	7.79
› May 28 – Jun 3	91.04	8.96	0.65	8.32
› Jun 4 – Jun 10	90.48	9.52	0.59	8.93
› Jun 11 – Jun 17	86.90	13.10	0.93	12.17
› Jun 18 – Jun 24	80.45	19.55	1.41	18.14
› Jun 25 – Jul 1	80.15	19.85	1.86	17.99
› Jul 2 – Jul 8	81.83	18.17	1.08	17.09
› Jul 9 – Jul 15	82.59	17.41	1.14	16.27
› Jul 16 – Jul 22	76.66	23.34	1.54	21.79
› Jul 23 – Jul 29	75.28	24.72	1.48	23.24
› Jul 30 – Aug 5	68.48	31.52	1.55	29.97
› Aug 6 – Aug 12	67.46	32.54	1.33	31.20
› Aug 13 – Aug 19	64.35	35.65	0.89	34.76
› Aug 20 – Aug 26	74.04	25.96	1.22	24.74
› Aug 27 – Sep 2	77.98	22.02	1.67	20.34
› Sep 3 – Sep 9	81.36	18.64	1.80	16.83
› After Sep 9	60.81	39.19	1.71	37.47

Sources: HCEF\_D', HCUF

Enumerator Housing Unit Base: 26,992,873

Appendix I: Number of Imputed Persons for Relationship Item with Allocation Breakdown

**Table I-1. Imputation Counts by Form Type and Imputation Counts by Response Mode for Relationship Item**

	Imputed					
	As Reported	Total	Assigned	Allocated		
				Total	Totally	Other
TOTAL	263,269,187	6,932,932	1,055,675	5,877,257	2,333,112	3,544,145
› short form	220,070,000	5,519,359	832,107	4,687,252	1,844,779	2,842,473
› long form	43,199,187	1,413,573	223,568	1,190,005	488,333	701,672
› self	193,990,677	3,948,814	557,785	3,391,029	1,553,206	1,837,823
› enumerator	69,278,510	2,984,118	497,890	2,486,228	779,906	1,706,322

Source: HCEF\_D', HCUF

**Table I-2. Imputation Counts by Form Type and Response Mode for Relationship Item**

		Imputed					
		As Reported	Total	Assigned	Allocated		
					Total	Totally	Other
Self	TOTAL – Self Response	193,990,677	3,948,814	557,785	3,391,029	1,553,206	1,837,823
	› short form	165,635,631	3,215,299	430,658	2,784,641	1,265,842	1,518,799
	› long form	28,355,046	733,515	127,127	606,388	287,364	319,024
Enum	TOTAL – Enumerator Returns	69,278,510	2,984,118	497,890	2,486,228	779,906	1,706,322
	› short form	54,434,369	2,304,060	401,449	1,902,611	578,937	1,323,674
	› long form	14,844,141	680,058	96,441	583,617	200,969	382,648

Source: HCEF\_D', HCUF

**Table I-3. Imputation Counts by Form Language for Relationship Item**

Form Language	Imputed					
	As Reported	Total	Assigned	Allocated		
				Total	Totally	Other
TOTAL	263,269,187	6,932,932	1,055,675	5,877,257	2,333,112	3,544,145
› English	257,830,078	6,500,540	1,005,920	5,494,620	2,118,391	3,376,229
› Spanish	2,835,520	211,360	16,748	194,612	110,529	84,083
› Chinese	163,058	10,401	991	9,410	4,696	4,714
› Korean	106,219	3,993	762	3,231	1,185	2,046
› Tagalog	11,037	1,239	158	1,081	553	528
› Vietnamese	109,842	9,042	314	8,728	4,430	4,298
› not determined	2,213,433	196,357	30,782	165,575	93,328	72,247

Sources: HCEF\_D', DRF2

**Table I-4. Imputation Counts by Tenure for Relationship Item**

Tenure	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL	263,269,187	6,932,932	1,055,675	5,877,257	2,333,112	3,544,145
› owner	182,232,934	3,955,642	605,336	3,350,306	1,353,386	1,996,920
› renter	81,036,253	2,977,290	450,339	2,526,951	979,726	1,547,225

**Sources: HCEF\_D'****Table I-5. Imputation Counts by Form Source for Relationship Item**

Form Source	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL – Self Response	193,990,677	3,948,814	557,785	3,391,029	1,553,206	1,837,823
› USPS Delivery	158,592,901	3,282,165	446,845	2,835,320	1,314,874	1,520,446
› LCO Delivery - UAA	568,209	14,309	1,889	12,420	5,062	7,358
› Update/Leave	34,052,694	580,300	90,980	489,320	207,372	281,948
› Urban Update/Leave	320,772	7,440	1,116	6,324	2,760	3,564
› Internet	171,077	2,214	320	1,894	1,238	656
› Be Counted	285,024	62,386	16,635	45,751	21,900	23,851
TOTAL – Enumerator Returns	69,278,510	2,984,118	497,890	2,486,228	779,906	1,706,322
› Coverage Edit Followup	6,918,767	312,824	48,880	263,944	88,802	175,142
› Telephone Questionnaire Assistance	151,211	4,484	1,659	2,825	238	2,587
› Nonresponse Followup	55,729,884	2,278,412	396,889	1,881,523	559,736	1,321,787
› Coverage Improvement Followup	4,297,305	288,240	37,292	250,948	82,425	168,523
› Update/Enumerate	1,563,032	63,991	8,237	55,754	27,036	28,718
› List/Enumerate	534,549	25,251	2,573	22,678	14,757	7,921
› Remote Alaska	48,302	6,930	169	6,761	6,351	410
› Other: T-Night, Orphans	35,460	3,986	2,191	1,795	561	1,234

**Source: HCEF\_D', HCUF****Table I-6. Imputation Counts by Household Membership for Relationship Item**

Household Membership	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL	61,242,623	2,571,335	433,792	2,137,543	662,829	1,474,714
› household member	54,313,663	1,876,139	356,552	1,519,587	463,117	1,056,470
› proxy	6,928,960	695,196	77,240	617,956	199,712	418,244

**Sources: HCEF\_D'**

Appendix J: Number of Imputed Persons for Sex Item with Allocation Breakdown

**Table J-1. Imputation Counts by Form Type and Imputation Counts by Response Mode for Sex Item**

	Imputed					
	As Reported	Total	Assigned	Allocated		
				Total	Totally	Other
TOTAL	264,840,365	5,361,754	2,380,750	2,981,004	2,333,112	647,892
› short form	221,141,777	4,447,582	2,065,676	2,381,906	1,844,779	537,127
› long form	43,698,588	914,172	315,074	599,098	488,333	110,765
› self	194,573,178	3,366,313	1,530,686	1,835,627	1,553,206	282,421
› enumerator	70,267,187	1,995,441	850,064	1,145,377	779,906	365,471

Source: HCEF\_D', HCUF

**Table J-2. Imputation Counts by Form Type and Response Mode for Sex Item**

		Imputed					
		As Reported	Total	Assigned	Allocated		
					Total	Totally	Other
Self	TOTAL – Self Response	194,573,178	3,366,313	1,530,686	1,835,627	1,553,206	282,421
	› short form	165,907,127	2,943,803	1,418,949	1,524,854	1,265,842	259,012
	› long form	28,666,051	422,510	111,737	310,773	287,364	23,409
Enum	TOTAL – Enumerator Returns	70,267,187	1,995,441	850,064	1,145,377	779,906	365,471
	› short form	55,234,650	1,503,779	646,727	857,052	578,937	278,115
	› long form	15,032,537	491,662	203,337	288,325	200,969	87,356

Source: HCEF\_D', HCUF

**Table J-3. Imputation Counts by Form Language for Sex Item**

Form Language	Imputed					
	As Reported	Total	Assigned	Allocated		
				Total	Totally	Other
TOTAL	264,840,365	5,361,754	2,380,750	2,981,004	2,333,112	647,892
› English	259,304,894	5,025,724	2,277,237	2,748,487	2,118,391	630,096
› Spanish	2,853,865	193,015	71,856	121,159	110,529	10,630
› Chinese	166,226	7,233	2,077	5,156	4,696	460
› Korean	107,603	2,609	1,185	1,424	1,185	239
› Tagalog	11,405	871	233	638	553	85
› Vietnamese	112,286	6,598	1,917	4,681	4,430	251
› not determined	2,284,086	125,704	26,245	99,459	93,328	6,131

Sources: HCEF\_D', DRF2

**Table J-4. Imputation Counts by Tenure for Sex Item**

Tenure	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL	264,840,365	5,361,754	2,380,750	2,981,004	2,333,112	647,892
› owner	183,010,121	3,178,455	1,485,937	1,692,518	1,353,386	339,132
› renter	81,830,244	2,183,299	894,813	1,288,486	979,726	308,760

**Sources: HCEF\_D'****Table J-5. Imputation Counts by Form Source for Sex Item**

Form Source	As Reported	Imputed					
		Total	Assigned	Total	Totally	Other	
TOTAL – Self Response	194,573,178	3,366,313	1,530,686	1,835,627	1,553,206	282,421	
› USPS Delivery	159,107,087	2,767,979	1,224,015	1,543,964	1,314,874	229,090	
› LCO Delivery - UAA	570,544	11,974	5,499	6,475	5,062	1,413	
› Update/Leave	34,082,846	550,148	292,451	257,697	207,372	50,325	
› Urban Update/Leave	321,014	7,198	3,696	3,502	2,760	742	
› Internet	171,279	2,012	678	1,334	1,238	96	
› Be Counted	320,408	27,002	4,347	22,655	21,900	755	
TOTAL – Enumerator Returns	70,267,187	1,995,441	850,064	1,145,377	779,906	365,471	
› Coverage Edit Followup	6,989,085	242,506	112,883	129,623	88,802	40,821	
› Telephone Questionnaire Assistance	154,860	835	565	270	238	32	
› Nonresponse Followup	56,531,583	1,476,713	647,220	829,493	559,736	269,757	
› Coverage Improvement Followup	4,389,281	196,264	63,308	132,956	82,425	50,531	
› Update/Enumerate	1,576,775	50,248	19,936	30,312	27,036	3,276	
› List/Enumerate	538,768	21,032	5,357	15,675	14,757	918	
› Remote Alaska	48,484	6,748	358	6,390	6,351	39	
› Other: T-Night, Orphans	38,351	1,095	437	658	561	97	

**Source: HCEF\_D', HCUF****Table J-6. Imputation Counts by Household Membership for Sex Item**

Household Membership	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL	62,132,240	1,681,718	706,812	974,906	662,829	312,077
› household member	54,974,856	1,214,946	608,701	606,245	463,117	143,128
› proxy	7,157,384	466,772	98,111	368,661	199,712	168,949

**Sources: HCEF\_D'**

Appendix K: Number of Imputed Persons for Age Item with Allocation Breakdown

**Table K-1. Imputation Counts by Form Type and Imputation Counts by Response Mode for Age Item**

	Imputed					
	As Reported	Total	Assigned	Allocated		
				Total	Totally	Other
TOTAL	256,469,050	13,733,069	3,926,165	9,806,904	2,333,112	7,473,792
› short form	214,404,990	11,184,369	3,276,549	7,907,820	1,844,779	6,063,041
› long form	42,064,060	2,548,700	649,616	1,899,084	488,333	1,410,751
› self	192,100,573	5,838,918	2,559,704	3,279,214	1,553,206	1,726,008
› enumerator	64,368,477	7,894,151	1,366,461	6,527,690	779,906	5,747,784

Source: HCEF\_D', HCUF

**Table K-2. Imputation Counts by Form Type and Response Mode for Age Item**

		Imputed					
		As Reported	Total	Assigned	Allocated		
					Total	Totally	Other
Self	TOTAL – Self Response	192,100,573	5,838,918	2,559,704	3,279,214	1,553,206	1,726,008
	› short form	163,921,639	4,929,291	2,166,483	2,762,808	1,265,842	1,496,966
	› long form	28,178,934	909,627	393,221	516,406	287,364	229,042
Enum	TOTAL – Enumerator Returns	64,368,477	7,894,151	1,366,461	6,527,690	779,906	5,747,784
	› short form	50,483,351	6,255,078	1,110,066	5,145,012	578,937	4,566,075
	› long form	13,885,126	1,639,073	256,395	1,382,678	200,969	1,181,709

Source: HCEF\_D', HCUF

**Table K-3. Imputation Counts by Form Language for Age Item**

Form Language	Imputed					
	As Reported	Total	Assigned	Allocated		
				Total	Totally	Other
TOTAL	256,469,050	13,733,069	3,926,165	9,806,904	2,333,112	7,473,792
› English	251,161,010	13,169,608	3,815,194	9,354,414	2,118,391	7,236,023
› Spanish	2,753,512	293,368	68,716	224,652	110,529	114,123
› Chinese	163,981	9,478	2,033	7,445	4,696	2,749
› Korean	106,899	3,313	1,245	2,068	1,185	883
› Tagalog	11,101	1,175	223	952	553	399
› Vietnamese	111,084	7,800	1,597	6,203	4,430	1,773
› not determined	2,161,463	248,327	37,157	211,170	93,328	117,842

Sources: HCEF\_D', DRF2

**Table K-4. Imputation Counts by Tenure for Age Item**

Tenure	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL	256,469,050	13,733,069	3,926,165	9,806,904	2,333,112	7,473,792
› owner	178,481,373	7,707,203	2,439,537	5,267,666	1,353,386	3,914,280
› renter	77,987,677	6,025,866	1,486,628	4,539,238	979,726	3,559,512

**Sources: HCEF\_D'****Table K-5. Imputation Counts by Form Source for Age Item**

Form Source	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL – Self Response	192,100,573	5,838,918	2,559,704	3,279,214	1,553,206	1,726,008
› USPS Delivery	157,043,839	4,831,227	2,127,325	2,703,902	1,314,874	1,389,028
› LCO Delivery - UAA	560,479	22,039	8,785	13,254	5,062	8,192
› Update/Leave	33,692,592	940,402	413,493	526,909	207,372	319,537
› Urban Update/Leave	317,351	10,861	4,580	6,281	2,760	3,521
› Internet	170,737	2,554	574	1,980	1,238	742
› Be Counted	315,575	31,835	4,947	26,888	21,900	4,988
TOTAL – Enumerator Returns	64,368,477	7,894,151	1,366,461	6,527,690	779,906	5,747,784
› Coverage Edit Followup	6,531,081	700,510	96,364	604,146	88,802	515,344
› Telephone Questionnaire Assistance	151,199	4,496	62	4,434	238	4,196
› Nonresponse Followup	51,974,421	6,033,875	1,151,468	4,882,407	559,736	4,322,671
› Coverage Improvement Followup	3,594,621	990,924	76,061	914,863	82,425	832,438
› Update/Enumerate	1,516,283	110,740	32,326	78,414	27,036	51,378
› List/Enumerate	519,184	40,616	8,750	31,866	14,757	17,109
› Remote Alaska	46,806	8,426	750	7,676	6,351	1,325
› Other: T-Night, Orphans	34,882	4,564	680	3,884	561	3,323

**Source: HCEF\_D', HCUF****Table K-6. Imputation Counts by Household Membership for Age Item**

Household Membership	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL	56,818,698	6,995,260	1,244,368	5,750,892	662,829	5,088,063
› household member	52,449,168	3,740,634	1,174,119	2,566,515	463,117	2,103,398
› proxy	4,369,530	3,254,626	70,249	3,184,377	199,712	2,984,665

**Sources: HCEF\_D'**

Appendix L: Number of Imputed Persons for Hispanic Origin Item with Allocation Breakdown

**Table L-1. Imputation Counts by Form Type and Imputation Counts by Response Mode for Hispanic Origin Item**

	As Reported	Imputed				
		Total	Assigned	Allocated		
				Total	Totally	Other
TOTAL	258,386,433	11,815,686	417,786	11,397,900	2,333,112	9,064,788
› short form	215,817,061	9,772,298	352,609	9,419,689	1,844,779	7,574,910
› long form	42,569,372	2,043,388	65,177	1,978,211	488,333	1,489,878
› self	189,085,963	8,853,528	263,026	8,590,502	1,553,206	7,037,296
› enumerator	69,300,470	2,962,158	154,760	2,807,398	779,906	2,027,492

Source: HCEF\_D', HCUF

**Table L-2. Imputation Counts by Form Type and Response Mode for Hispanic Origin Item**

	As Reported	Imputed					
		Total	Assigned	Allocated			
				Total	Totally	Other	
Self							
TOTAL – Self Response	189,085,963	8,853,528	263,026	8,590,502	1,553,206	7,037,296	
› short form	161,306,596	7,544,334	228,376	7,315,958	1,265,842	6,050,116	
› long form	27,779,367	1,309,194	34,650	1,274,544	287,364	987,180	
Enum							
TOTAL – Enumerator Returns	69,300,470	2,962,158	154,760	2,807,398	779,906	2,027,492	
› short form	54,510,465	2,227,964	124,233	2,103,731	578,937	1,524,794	
› long form	14,790,005	734,194	30,527	703,667	200,969	502,698	

Source: HCEF\_D', HCUF

**Table L-3. Imputation Counts by Form Language for Hispanic Origin Item**

Form Language	As Reported	Imputed				
		Total	Assigned	Allocated		
				Total	Totally	Other
TOTAL	258,386,433	11,815,686	417,786	11,397,900	2,333,112	9,064,788
› English	253,003,305	11,327,313	372,548	10,954,765	2,118,391	8,836,374
› Spanish	2,800,423	246,457	41,326	205,131	110,529	94,602
› Chinese	137,898	35,561	25	35,536	4,696	30,840
› Korean	100,448	9,764	9	9,755	1,185	8,570
› Tagalog	10,648	1,628	22	1,606	553	1,053
› Vietnamese	94,247	24,637	8	24,629	4,430	20,199
› not determined	2,239,464	170,326	3,848	166,478	93,328	73,150

Sources: HCEF\_D', DRF2

**Table L-4. Imputation Counts by Tenure for Hispanic Origin Item**

Tenure	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL	258,386,433	11,815,686	417,786	11,397,900	2,333,112	9,064,788
› owner	179,027,930	7,160,646	194,175	6,966,471	1,353,386	5,613,085
› renter	79,358,503	4,655,040	223,611	4,431,429	979,726	3,451,703

**Sources: HCEF\_D'****Table L-5. Imputation Counts by Form Source for Hispanic Origin Item**

Form Source	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL – Self Response	189,085,963	8,853,528	263,026	8,590,502	1,553,206	7,037,296
› USPS Delivery	154,705,340	7,169,726	240,510	6,929,216	1,314,874	5,614,342
› LCO Delivery - UAA	550,300	32,218	714	31,504	5,062	26,442
› Update/Leave	33,047,721	1,585,273	20,311	1,564,962	207,372	1,357,590
› Urban Update/Leave	310,382	17,830	362	17,468	2,760	14,708
› Internet	168,052	5,239	149	5,090	1,238	3,852
› Be Counted	304,168	43,242	980	42,262	21,900	20,362
TOTAL – Enumerator Returns	69,300,470	2,962,158	154,760	2,807,398	779,906	2,027,492
› Coverage Edit Followup	6,741,191	490,400	36,383	454,017	88,802	365,215
› Telephone Questionnaire Assistance	153,051	2,644	397	2,247	238	2,009
› Nonresponse Followup	55,940,403	2,067,893	108,059	1,959,834	559,736	1,400,098
› Coverage Improvement Followup	4,277,878	307,667	7,989	299,678	82,425	217,253
› Update/Enumerate	1,568,748	58,275	1,437	56,838	27,036	29,802
› List/Enumerate	535,023	24,777	366	24,411	14,757	9,654
› Remote Alaska	48,245	6,987	4	6,983	6,351	632
› Other: T-Night, Orphans	35,931	3,515	125	3,390	561	2,829

**Source: HCEF\_D', HCUF****Table L-6. Imputation Counts by Household Membership for Hispanic Origin Item**

Household Membership	As Reported	Imputed				
		Total	Assigned	Total	Totally	Other
TOTAL	61,453,947	2,360,011	115,470	2,244,541	662,829	1,581,712
› household member	54,713,809	1,475,993	104,835	1,371,158	463,117	908,041
› proxy	6,740,138	884,018	10,635	873,383	199,712	673,671

**Sources: HCEF\_D'**

Appendix M: Number of Imputed Persons for Race Item with Allocation Breakdown

**Table M-1. Imputation Counts by Form Type and Imputation Counts by Response Mode for Race Item**

	Imputed					
	As Reported	Total	Assigned	Allocated		
				Total	Totally	Other
TOTAL	259,510,273	10,691,846	45,486	10,646,360	2,333,112	8,313,248
› short form	216,607,096	8,982,263	40,218	8,942,045	1,844,779	7,097,266
› long form	42,903,177	1,709,583	5,268	1,704,315	488,333	1,215,982
› self	190,359,025	7,580,466	32,578	7,547,888	1,553,206	5,994,682
› enumerator	69,151,248	3,111,380	12,908	3,098,472	779,906	2,318,566

Source: HCEF\_D', HCUF

**Table M-2. Imputation Counts by Form Type and Response Mode for Race Item**

		Imputed					
		As Reported	Total	Assigned	Allocated		
					Total	Totally	Other
Self	TOTAL – Self Response	190,359,025	7,580,466	32,578	7,547,888	1,553,206	5,994,682
	› short form	162,256,521	6,594,409	29,422	6,564,987	1,265,842	5,299,145
	› long form	28,102,504	986,057	3,156	982,901	287,364	695,537
Enum	TOTAL – Enumerator Returns	69,151,248	3,111,380	12,908	3,098,472	779,906	2,318,566
	› short form	54,350,575	2,387,854	10,796	2,377,058	578,937	1,798,121
	› long form	14,800,673	723,526	2,112	721,414	200,969	520,445

Source: HCEF\_D', HCUF

**Table M-3. Imputation Counts by Form Language for Race Item**

Form Language	Imputed					
	As Reported	Total	Assigned	Allocated		
				Total	Totally	Other
TOTAL	259,510,273	10,691,846	45,486	10,646,360	2,333,112	8,313,248
› English	254,348,339	9,982,279	44,468	9,937,811	2,118,391	7,819,420
› Spanish	2,513,221	533,659	553	533,106	110,529	422,577
› Chinese	167,189	6,270	70	6,200	4,696	1,504
› Korean	108,231	1,981	33	1,948	1,185	763
› Tagalog	11,513	763	11	752	553	199
› Vietnamese	112,665	6,219	74	6,145	4,430	1,715
› not determined	2,249,115	160,675	277	160,398	93,328	67,070

Sources: HCEF\_D', DRF2

**Table M-4. Imputation Counts by Tenure for Race Item**

Tenure	As Reported	Imputed				
		Total	Assigned	Allocated		
		Total	Assigned	Total	Totally	Other
TOTAL	259,510,273	10,691,846	45,486	10,646,360	2,333,112	8,313,248
› owner	180,143,241	6,045,335	25,102	6,020,233	1,353,386	4,666,847
› renter	79,367,032	4,646,511	20,384	4,626,127	979,726	3,646,401

**Sources: HCEF\_D'****Table M-5. Imputation Counts by Form Source for Race Item**

Form Source	As Reported	Imputed				
		Total	Assigned	Allocated		
		Total	Assigned	Total	Totally	Other
TOTAL – Self Response	190,359,025	7,580,466	32,578	7,547,888	1,553,206	5,994,682
› USPS Delivery	155,281,115	6,593,951	29,086	6,564,865	1,314,874	5,249,991
› LCO Delivery - UAA	557,929	24,589	100	24,489	5,062	19,427
› Update/Leave	33,732,117	900,877	3,191	897,686	207,372	690,314
› Urban Update/Leave	313,535	14,677	79	14,598	2,760	11,838
› Internet	167,662	5,629	20	5,609	1,238	4,371
› Be Counted	306,667	40,743	102	40,641	21,900	18,741
TOTAL – Enumerator Returns	69,151,248	3,111,380	12,908	3,098,472	779,906	2,318,566
› Coverage Edit Followup	6,445,614	785,977	7,087	778,890	88,802	690,088
› Telephone Questionnaire Assistance	152,355	3,340	13	3,327	238	3,089
› Nonresponse Followup	56,061,405	1,946,891	5,314	1,941,577	559,736	1,381,841
› Coverage Improvement Followup	4,295,496	290,049	407	289,642	82,425	207,217
› Update/Enumerate	1,574,597	52,426	56	52,370	27,036	25,334
› List/Enumerate	535,889	23,911	22	23,889	14,757	9,132
› Remote Alaska	48,608	6,624	3	6,621	6,351	270
› Other: T-Night, Orphans	37,284	2,162	6	2,156	561	1,595

**Source: HCEF\_D', HCUF****Table M-6. Imputation Counts by Household Membership for Race Item**

Household Membership	As Reported	Imputed				
		Total	Assigned	Allocated		
		Total	Assigned	Total	Totally	Other
TOTAL	61,588,443	2,225,515	5,521	2,219,994	662,829	1,557,165
› household member	54,805,094	1,384,708	4,767	1,379,941	463,117	916,824
› proxy	6,783,349	840,807	754	840,053	199,712	640,341

**Sources: HCEF\_D'**

Appendix N: Number of Imputed Households for Tenure Item

**Table N-1. Imputation Counts by Form Type and Imputation Counts by Response Mode for Tenure Item**

	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	99,699,281	5,780,820	691,733	5,089,087
› short form	84,382,134	3,252,501	0	3,252,501
› long form	15,317,147	2,337,768	691,733	1,646,035
› self	75,990,872	2,308,754	455,498	1,853,256
› enumerator	23,708,409	3,284,464	236,235	3,048,229

Source: HCEF\_D', HCUF

**Table N-2. Imputation Counts by Form Type and Response Mode for Tenure Item**

	As Reported	Imputed		
		Total	Assigned	Allocated
Self TOTAL – Self Response	75,990,872	2,308,754	455,498	1,853,256
› short form	65,195,553	1,364,993	0	1,364,993
› long form	10,795,319	943,761	455,498	488,263
Enum TOTAL – Enumerator Returns	23,708,409	3,284,464	236,235	3,048,229
› short form	19,186,581	1,887,508	0	1,887,508
› long form	4,521,828	1,394,007	236,235	1,157,772

Source: HCEF\_D', HCUF

**Table N-3. Imputation Counts by Form Language for Tenure Item**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	99,699,281	5,780,820	691,733	5,089,087
› English	98,098,903	5,411,164	675,226	4,735,938
› Spanish	616,772	42,694	8,981	33,713
› Chinese	47,082	2,350	692	1,658
› Korean	31,579	2,796	513	2,283
› Tagalog	2,934	178	41	137
› Vietnamese	25,810	1,980	568	1,412
› not determined	876,201	319,658	5,712	313,946

Sources: HCEF\_D', DRF2

**Table N-4. Imputation Counts by Form Source for Tenure Item**

Form Source	As Reported	Imputed		
		Total	Assigned	Allocated
<b>Self</b>				
TOTAL – Self Response	75,990,872	2,308,754	455,498	1,853,256
› USPS Delivery	62,254,554	1,769,719	321,541	1,448,178
› LCO Delivery - UAA	257,286	11,066	1,685	9,381
› Update/Leave	13,165,725	518,067	131,395	386,672
› Urban Update/Leave	128,914	4,510	877	3,633
› Internet	63,435	891	0	891
› Be Counted	120,958	4,501	0	4,501
<b>Enumerator</b>				
TOTAL – Enumerator Returns	23,708,409	3,284,464	236,235	3,048,229
› Coverage Edit Followup	1,165,443	86,451	14,206	72,245
› Telephone Questionnaire Assistance	60,896	495	0	495
› Nonresponse Followup	20,111,870	2,594,631	180,808	2,413,823
› Coverage Improvement Followup	1,621,618	479,961	32,736	447,225
› Update/Enumerate	511,872	57,566	5,363	52,203
› List/Enumerate	205,912	22,591	2,594	19,997
› Remote Alaska	15,822	608	291	317
› Other: T-Night, Orphans	14,976	12,759	237	12,522
› Group Quarter Enumerations	0	29,402	0	29,402

**Source: HCEF\_D', HCUF****Table N-5. Imputation Counts by Household Membership for Tenure Item**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	22,145,022	2,902,567	217,144	2,685,423
› household member	18,864,280	1,490,450	141,451	1,348,999
› proxy	3,280,742	1,412,117	75,693	1,336,424

**Sources: HCEF\_D'**

Appendix O: Data Completeness Statistic Number of Persons

**Table O-1. Data Completeness Statistic: Number of Persons by Sum of Non-Imputed Responses to 100 Percent Population Items and Form Type**

Number of Characteristics Reported	TOTAL	short form	long form
TOTAL	270,202,119	225,589,359	44,612,760
› 5 of 5	238,071,569	198,675,425	39,396,144
› 4 of 5	24,734,641	20,953,600	3,781,041
› 3 of 5	3,322,714	2,821,890	500,824
› 2 of 5	1,487,397	1,103,782	383,615
› 1 of 5	235,963	176,165	59,798
› 0 of 5	2,349,835	1,858,497	491,338

Source: HCEF\_D'

**Table O-2. Data Completeness Statistic: Number of Persons by Sum of Non-Imputed Responses to 100 Percent Population Items and Response Mode**

Number of Characteristics Reported	TOTAL	self	enumerator
TOTAL	270,202,119	197,939,491	72,262,628
› 5 of 5	238,071,569	177,973,207	60,098,362
› 4 of 5	24,734,641	15,732,840	9,001,801
› 3 of 5	3,322,714	2,083,664	1,239,050
› 2 of 5	1,487,397	475,627	1,011,770
› 1 of 5	235,963	109,775	126,188
› 0 of 5	2,349,835	1,564,378	785,457

Source: HCEF\_D'

**Table O-3. Data Completeness Statistic: Number of Persons by Sum of Non-Imputed Responses to 100 Percent Population Items, Form Type, and Response Mode**

Number of Characteristics Reported	short form	long form
self	168,850,930	29,088,561
› 5 of 5	151,608,015	26,365,192
› 4 of 5	13,674,518	2,058,322
› 3 of 5	1,794,636	289,028
› 2 of 5	407,331	68,296
› 1 of 5	90,797	18,978
› 0 of 5	1,275,633	288,745
enumerator	56,738,429	15,524,199
› 5 of 5	47,067,410	13,030,952
› 4 of 5	7,279,082	1,722,719
› 3 of 5	1,027,254	211,796
› 2 of 5	696,451	315,319
› 1 of 5	85,368	40,820
› 0 of 5	582,864	202,593

Source: HCEF\_D'

Appendices P: Puerto Rico Imputation Rates for Relationship Item

**Table P-1. Imputation Rates by Form Type and Imputation Rates by Response Mode for Relationship Item (in percent)**

	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	97.13	2.87	0.37	2.49
› short form	97.30	2.70	0.36	2.34
› long form	96.26	3.74	0.45	3.29
Difference	1.04	-1.04	-0.09	-0.95
› self	97.02	2.98	0.33	2.65
› enumerator	97.29	2.71	0.44	2.27
Difference	-0.26	0.26	-0.12	0.38

Sources: HCEF\_D', HCUF Person Base: 3,711,142

**Table P-2. Imputation Rates by Response Mode and Form Type for Relationship Item (in percent)**

	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	97.02	2.98	0.33	2.65
	› short form	97.29	2.71	0.30	2.41
	› long form	95.34	4.66	0.48	4.18
	Difference	1.95	-1.95	-0.18	-1.77
Enum	TOTAL – Enumerator Returns	97.29	2.71	0.44	2.27
	› short form	97.32	2.68	0.45	2.23
	› long form	97.16	2.84	0.41	2.43
	Difference	0.16	-0.16	0.04	-0.20

Sources: HCEF\_D', HCUF Person Base: 3,711,142

**Table P-3. Imputation Rates by Form Language for Relationship Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	97.13	2.87	0.37	2.49
› English	97.43	2.57	0.43	2.14
› Spanish	97.07	2.93	0.33	2.60
› not determined	95.79	4.21	0.48	3.73

Sources: HCEF\_D', DRF2 Person Base: 3,711,142

**Table P-4. Imputation Rates by Tenure for Relationship Item (in percent)**

Tenure	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	97.13	2.87	0.37	2.49
› owner	97.26	2.74	0.36	2.38
› renter	96.78	3.22	0.42	2.80
Difference	0.48	-0.48	-0.06	-0.42

Source: HCEF\_D' Person Base: 3,711,142

**Table P-5. Imputation Rates by Form Source for Relationship Item (in percent)**

Form Source	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	97.02	2.98	0.33	2.65
	› USPS Delivery	94.74	5.26	0.00	5.26
	› Update/Leave	97.03	2.97	0.33	2.65
	› Internet	100.00	0.00	0.00	0.00
	› Be Counted	88.93	11.07	3.99	7.08
Enumerator	TOTAL – Enumerator Returns	97.29	2.71	0.44	2.27
	› Coverage Edit Followup	97.26	2.74	0.35	2.38
	› Telephone Questionnaire Assistance	97.33	2.67	0.22	2.44
	› Nonresponse Followup	97.47	2.53	0.42	2.10
	› Coverage Improvement Followup	95.70	4.30	0.53	3.76
› Other: T-Night, Orphans	49.77	50.23	44.52	5.71	

Sources: HCEF\_D', HCUF

Person Base: 3,711,142

**Table P-6. Imputation Rates by Household Membership\* for Relationship Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	97.33	2.67	0.43	2.24
› household member	97.63	2.37	0.42	1.95
› proxy	94.11	5.89	0.58	5.31
Difference	3.52	-3.52	-0.17	-3.36

Source: HCEF\_D' Person Base: 1,415,534

\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.

Appendices Q: Puerto Rico Imputation Rates for Sex Item

**Table Q-1. Imputation Rates by Form Type and Imputation Rates by Response Mode for Sex Item (in percent)**

	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	96.86	3.14	1.80	1.34
› short form	96.78	3.22	1.90	1.32
› long form	97.27	2.73	1.25	1.49
Difference	-0.48	0.48	0.66	-0.17
› self	96.74	3.26	1.62	1.64
› enumerator	97.03	2.97	2.06	0.91
Difference	-0.29	0.29	-0.44	0.73

Sources: HCEF\_D', HCUF Person Base: 3,711,142

**Table Q-2. Imputation Rates by Response Mode and Form Type for Sex Item (in percent)**

	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	96.74	3.26	1.62	1.64
	› short form	96.64	3.36	1.79	1.57
	› long form	97.41	2.59	0.48	2.11
	Difference	-0.78	0.78	1.32	-0.54
Enum	TOTAL – Enumerator Returns	97.03	2.97	2.06	0.91
	› short form	97.01	2.99	2.08	0.91
	› long form	97.12	2.88	2.00	0.88
	Difference	-0.11	0.11	0.07	0.04

Sources: HCEF\_D', HCUF Person Base: 3,711,142

**Table Q-3. Imputation Rates by Form Language for Sex Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	96.86	3.14	1.80	1.34
› English	97.16	2.84	2.07	0.77
› Spanish	96.79	3.21	1.62	1.59
› not determined	95.62	4.38	1.79	2.59

Sources: HCEF\_D', DRF2 Person Base: 3,711,142

**Table Q-4. Imputation Rates by Tenure for Sex Item (in percent)**

Tenure	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	96.86	3.14	1.80	1.34
› owner	96.97	3.03	1.75	1.27
› renter	96.54	3.46	1.91	1.55
Difference	0.43	-0.43	-0.16	-0.27

Source: HCEF\_D' Person Base: 3,711,142

**Table Q-5. Imputation Rates by Form Source for Sex Item (in percent)**

Form Source	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL – Self Response</b>	96.74	3.26	1.62	1.64
› USPS Delivery	100.00	0.00	0.00	0.00
› Update/Leave	96.74	3.26	1.62	1.64
› Internet	100.00	0.00	0.00	0.00
› Be Counted	96.31	3.69	1.33	2.36
<b>TOTAL – Enumerator Returns</b>	97.03	2.97	2.06	0.91
› Coverage Edit Followup	96.97	3.03	1.93	1.09
› Telephone Questionnaire Assistance	98.00	2.00	1.11	0.89
› Nonresponse Followup	97.20	2.80	1.98	0.82
› Coverage Improvement Followup	95.48	4.52	2.88	1.64
› Other: T-Night, Orphans	97.72	2.28	1.83	0.46

Sources: HCEF\_D', HCUF

Person Base: 3,711,142

**Table Q-6. Imputation Rates by Household Membership\* for Sex Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	97.09	2.91	2.02	0.89
› household member	97.38	2.62	1.95	0.68
› proxy	94.00	6.00	2.83	3.16
Difference	3.37	-3.37	-0.89	-2.49

Source: HCEF\_D' Person Base: 1,415,534

\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.

Appendices R: Puerto Rico Imputation Rates for Age Item

**Table R-1. Imputation Rates by Form Type and Imputation Rates by Response Mode for Age Item (in percent)**

	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	94.96	5.04	1.83	3.21
› short form	94.99	5.01	1.85	3.17
› long form	94.80	5.20	1.75	3.45
Difference	0.18	-0.18	0.10	-0.28
› self	95.88	4.12	1.65	2.47
› enumerator	93.60	6.40	2.09	4.31
Difference	2.28	-2.28	-0.44	-1.84

Sources: HCEF\_D', HCUF Person Base: 3,711,142

**Table R-2. Imputation Rates by Response Mode and Form Type for Age Item (in percent)**

	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	95.88	4.12	1.65	2.47
	› short form	95.98	4.02	1.64	2.38
	› long form	95.20	4.80	1.77	3.04
	Difference	0.79	-0.79	-0.13	-0.66
Enum	TOTAL – Enumerator Returns	93.60	6.40	2.09	4.31
	› short form	93.40	6.60	2.18	4.42
	› long form	94.41	5.59	1.73	3.85
	Difference	-1.02	1.02	0.45	0.57

Sources: HCEF\_D', HCUF Person Base: 3,711,142

**Table R-3. Imputation Rates by Form Language for Age Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	94.96	5.04	1.83	3.21
› English	93.77	6.23	2.14	4.09
› Spanish	95.82	4.18	1.63	2.55
› not determined	93.99	6.01	1.86	4.15

Sources: HCEF\_D', DRF2 Person Base: 3,711,142

**Table R-4. Imputation Rates by Tenure for Age Item (in percent)**

Tenure	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	94.96	5.04	1.83	3.21
› owner	95.16	4.84	1.81	3.03
› renter	94.38	5.62	1.90	3.72
Difference	0.78	-0.78	-0.09	-0.69

Source: HCEF\_D' Person Base: 3,711,142

**Table R-5. Imputation Rates by Form Source for Age Item (in percent)**

Form Source	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	95.88	4.12	1.65	2.47
	› USPS Delivery	98.25	1.75	1.75	0.00
	› Update/Leave	95.88	4.12	1.65	2.47
	› Internet	100.00	0.00	0.00	0.00
	› Be Counted	95.50	4.50	1.70	2.80
Enumerator	TOTAL – Enumerator Returns	93.60	6.40	2.09	4.31
	› Coverage Edit Followup	92.25	7.75	1.17	6.58
	› Telephone Questionnaire Assistance	97.78	2.22	0.00	2.22
	› Nonresponse Followup	94.34	5.66	2.12	3.53
	› Coverage Improvement Followup	87.21	12.79	2.20	10.59
› Other: T-Night, Orphans	60.27	39.73	2.05	37.67	

Sources: HCEF\_D', HCUF

Person Base: 3,711,142

**Table R-6. Imputation Rates by Household Membership\* for Age Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	93.70	6.30	2.12	4.18
› household member	95.84	4.16	2.17	1.98
› proxy	70.70	29.30	1.57	27.73
Difference	25.15	-25.15	0.60	-25.75

Source: HCEF\_D' Person Base: 1,415,534

\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.

Appendices S: Puerto Rico Imputation Rates for Hispanic Origin Item

**Table S-1. Imputation Rates by Form Type and Imputation Rates by Response Mode for Hispanic Origin Item (in percent)**

	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	96.86	3.14	0.11	3.03
› short form	96.92	3.08	0.11	2.98
› long form	96.57	3.43	0.11	3.32
Difference	0.34	-0.34	0.00	-0.34
› self	96.02	3.98	0.14	3.84
› enumerator	98.10	1.90	0.05	1.84
Difference	-2.08	2.08	0.09	1.99

Sources: HCEF\_D', HCUF Person Base: 3,711,142

**Table S-2. Imputation Rates by Response Mode and Form Type for Hispanic Origin Item (in percent)**

	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	96.02	3.98	0.14	3.84
	› short form	96.14	3.86	0.14	3.72
	› long form	95.23	4.77	0.16	4.62
	Difference	0.92	-0.92	-0.01	-0.90
Enum	TOTAL – Enumerator Returns	98.10	1.90	0.05	1.84
	› short form	98.15	1.85	0.05	1.80
	› long form	97.90	2.10	0.06	2.04
	Difference	0.25	-0.25	-0.01	-0.24

Sources: HCEF\_D', HCUF Person Base: 3,711,142

**Table S-3. Imputation Rates by Form Language for Hispanic Origin Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	96.86	3.14	0.11	3.03
› English	98.30	1.70	0.05	1.65
› Spanish	96.06	3.94	0.14	3.80
› not determined	95.56	4.44	0.13	4.31

Sources: HCEF\_D', DRF2 Person Base: 3,711,142

**Table S-4. Imputation Rates by Tenure for Hispanic Origin Item (in percent)**

Tenure	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	96.86	3.14	0.11	3.03
› owner	96.93	3.07	0.10	2.97
› renter	96.67	3.33	0.14	3.19
Difference	0.26	-0.26	-0.04	-0.22

Source: HCEF\_D' Person Base: 3,711,142

**Table S-5. Imputation Rates by Form Source for Hispanic Origin Item (in percent)**

Form Source	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	96.02	3.98	0.14	3.84
	› USPS Delivery	100.00	0.00	0.00	0.00
	› Update/Leave	96.02	3.98	0.14	3.84
	› Internet	99.28	0.72	0.00	0.72
	› Be Counted	94.83	5.17	0.22	4.94
Enumerator	TOTAL – Enumerator Returns	98.10	1.90	0.05	1.84
	› Coverage Edit Followup	96.42	3.58	0.18	3.40
	› Telephone Questionnaire Assistance	97.33	2.67	0.00	2.67
	› Nonresponse Followup	98.33	1.67	0.05	1.62
	› Coverage Improvement Followup	96.68	3.32	0.07	3.25
› Other: T-Night, Orphans	98.40	1.60	0.23	1.37	

Sources: HCEF\_D', HCUF

Person Base: 3,711,142

**Table S-6. Imputation Rates by Household Membership\* for Hispanic Origin Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	98.20	1.80	0.05	1.75
› household member	98.61	1.39	0.05	1.34
› proxy	93.83	6.17	0.05	6.12
Difference	4.78	-4.78	0.00	-4.78

Source: HCEF\_D' Person Base: 1,415,534

\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.

Appendices T: Puerto Rico Imputation Rates for Race Item

**Table T-1. Imputation Rates by Form Type and Imputation Rates by Response Mode for Race Item (in percent)**

	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	95.11	4.89	0.01	4.88
› short form	95.08	4.92	0.01	4.91
› long form	95.27	4.73	0.01	4.72
Difference	-0.19	0.19	0.00	0.19
› self	93.36	6.64	0.01	6.63
› enumerator	97.69	2.31	0.01	2.30
Difference	-4.33	4.33	-0.01	4.33

Sources: HCEF\_D', HCUF Person Base: 3,711,142

**Table T-2. Imputation Rates by Response Mode and Form Type for Race Item (in percent)**

	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	93.36	6.64	0.01	6.63
	› short form	93.43	6.57	0.01	6.56
	› long form	92.91	7.09	0.01	7.09
	Difference	0.52	-0.52	0.00	-0.52
Enum	TOTAL – Enumerator Returns	97.69	2.31	0.01	2.30
	› short form	97.71	2.29	0.01	2.28
	› long form	97.59	2.41	0.02	2.39
	Difference	0.11	-0.11	0.00	-0.11

Sources: HCEF\_D', HCUF Person Base: 3,711,142

**Table T-3. Imputation Rates by Form Language for Race Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	95.11	4.89	0.01	4.88
› English	97.99	2.01	0.01	1.99
› Spanish	93.42	6.58	0.01	6.58
› not determined	93.34	6.66	0.01	6.64

Sources: HCEF\_D', DRF2 Person Base: 3,711,142

**Table T-4. Imputation Rates by Tenure for Race Item (in percent)**

Tenure	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	95.11	4.89	0.01	4.88
› owner	95.26	4.74	0.01	4.73
› renter	94.68	5.32	0.02	5.30
Difference	0.58	-0.58	-0.01	-0.57

Source: HCEF\_D' Person Base: 3,711,142

**Table T-5. Imputation Rates by Form Source for Race Item (in percent)**

Form Source	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	93.36	6.64	0.01	6.63
	› USPS Delivery	96.49	3.51	0.00	3.51
	› Update/Leave	93.36	6.64	0.01	6.64
	› Internet	98.55	1.45	0.00	1.45
	› Be Counted	95.28	4.72	0.07	4.65
Enumerator	TOTAL – Enumerator Returns	97.69	2.31	0.01	2.30
	› Coverage Edit Followup	93.35	6.65	0.01	6.64
	› Telephone Questionnaire Assistance	94.67	5.33	0.00	5.33
	› Nonresponse Followup	98.07	1.93	0.01	1.92
	› Coverage Improvement Followup	96.01	3.99	0.01	3.97
› Other: T-Night, Orphans	98.63	1.37	0.00	1.37	

Sources: HCEF\_D', HCUF

Person Base: 3,711,142

**Table T-6. Imputation Rates by Household Membership\* for Race Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
<b>TOTAL</b>	97.91	2.09	0.01	2.07
› household member	98.38	1.62	0.01	1.60
› proxy	92.88	7.12	0.01	7.10
Difference	5.50	-5.50	0.00	-5.50

Source: HCEF\_D' Person Base: 1,415,534

\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.

Appendices U: Puerto Rico Imputation Rates for Tenure Item

**Table U-1. Imputation Rates by Form Type and Imputation Rates by Response Mode for Tenure Item (in percent)**

	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	92.83	7.17	0.78	6.40
› short form	94.62	5.38	0.00	5.38
› long form	86.34	13.66	4.78	8.88
Difference	8.29	-8.29	-4.78	-3.51
› self	94.69	5.31	0.70	4.62
› enumerator	91.20	8.80	0.91	7.89
Difference	3.48	-3.48	-0.21	-3.27

Sources: HCEF\_D', HCUF Housing Unit Base: 1,261,325

**Table U-2. Imputation Rates by Response Mode and Form Type for Tenure Item (in percent)**

	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	94.69	5.31	0.70	4.62
	› short form	95.91	4.09	0.00	4.09
	› long form	86.91	13.09	5.09	7.99
	Difference	9.00	-9.00	-5.09	-3.91
Enum	TOTAL – Enumerator Returns	91.20	8.80	0.91	7.89
	› short form	92.58	7.42	0.00	7.42
	› long form	85.77	14.23	4.47	9.76
	Difference	6.81	-6.81	-4.47	-2.34

Sources: HCEF\_D', HCUF Housing Unit Base: 1,261,325

**Table U-3. Imputation Rates by Form Language for Tenure Item (in percent)**

Form Language	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	92.83	7.17	0.78	6.40
› English	91.13	8.87	0.93	7.94
› Spanish	94.75	5.25	0.70	4.56
› not determined	86.12	13.88	0.61	13.27

Sources: HCEF\_D', DRF2 Housing Unit Base: 1,261,325

**Table U-4. Imputation Rates by Form Source for Tenure Item (in percent)**

Form Source	As Reported	Imputed			
		Total	Assigned	Allocated	
Self	TOTAL – Self Response	94.69	5.31	0.70	4.62
	› USPS Delivery	95.65	4.35	4.35	0.00
	› Update/Leave	94.68	5.32	0.70	4.62
	› Internet	100.00	0.00	0.00	0.00
	› Be Counted	98.18	1.82	0.00	1.82
Enumerator	TOTAL – Enumerator Returns	91.20	8.80	0.91	7.89
	› Coverage Edit Followup	93.38	6.62	0.92	5.70
	› Telephone Questionnaire Assistance	100.00	0.00	0.00	0.00
	› Nonresponse Followup	92.54	7.46	0.88	6.57
	› Coverage Improvement Followup	80.20	19.80	1.09	18.71
	› Other: T-Night, Orphans	13.81	86.19	0.42	85.77

Sources: HCEF\_D', HCUF

Housing Unit Base: 1,261,325

**Table U-5. Imputation Rates by Household Membership\* for Tenure Item (in percent)**

Household Membership	As Reported	Imputed		
		Total	Assigned	Allocated
TOTAL	91.69	8.31	0.91	7.40
› household member	94.71	5.29	0.94	4.35
› proxy	71.78	28.22	0.74	27.48
Difference	22.93	-22.93	0.20	-23.13

Source: HCEF\_D'

Housing Unit Base: 487,982

\* Household membership refers to whether responses for a household were given by a household member or a proxy respondent. Since self response forms are filled out by a household member by definition, the household membership characteristic applies only to a subset of enumerator returns. This changes the person base for household membership and ends up producing different TOTAL rates in the table.