

Analysis of Item Nonresponse Rates for the 100 Percent Housing and Population Items from Census 2000

FINAL REPORT

This evaluation study 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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EXECUTIVE SUMMARY

The goal of this evaluation is to determine the extent of item nonresponse for the Census 2000 hundred percent items (relationship, sex, age, Hispanic origin, race and tenure) which are collected for every resident and housing unit in the United States. Item nonresponse occurs when there is no answer provided to an item on the questionnaire. Inconsistent responses are not considered nonresponse. The universe for this evaluation is restricted to the housing unit population. People residing in group quarters are not included. The data for Puerto Rico was excluded from the analysis. Vacant housing units were excluded from the analysis. Rates are reported for each of the 100 percent household population items and tenure classified by form type (long versus short) and response mode (self versus enumerator). In addition, results of the Internet returns are reported. 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 reader should note that the questionnaires underwent processing including data capture and the Primary Selection Algorithm (PSA) prior to analysis that may effect the level of item nonresponse discussed in this report. For this analysis, persons are defined as Census 2000 data defined persons based on a housing unit enumeration record. A data defined person is a person record containing a predefined minimum amount of 100 percent data (U.S. Census Bureau, 2000b). People who did not answer the minimum amount of the 100 percent data are excluded from the analysis. These people are the totally allocated and whole household substitutions (See Census 2000 Evaluation B.1.a, Analysis of Imputation Rates for the 100 Percent Person and Housing Unit Data Items from Census 2000, for the analysis of these cases). The item nonresponse rates and rates apply only to the enumeration record for each housing unit (i.e., the 'return of record' as opposed to all census returns) so that comparisons between the item nonresponse and the imputation results could be performed. Examination of item nonresponse provides information about data quality. It may also suggest areas for improvement for the 2010 Census.

It should be noted, that the definition of item nonresponse 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 item nonresponse rates, and may potentially lead to conflicting rates between reports on the same topic within the Census Bureau. Therefore, when comparing item nonresponse rates across reports, it is imperative to understand the way the rates are computed to make sure that they are, in fact, comparable.

Major findings include:

- Item nonresponse for the Census 2000 100 percent items ranged from 1.13 percent for the sex item to 4.14 percent for the tenure item.
- Generally item nonresponse was higher for enumerator returns than for self-responses and

higher for long forms versus short forms. For both short and long forms, item nonresponse for all questions except Hispanic origin was higher for enumerator returns. The tenure and age items had the largest absolute differences in item nonresponse rates between response modes. The absolute differences were 6.22 and 6.91 percentage points, respectively.

- Tenure had a relatively higher overall nonresponse rate compared to other items. Specifically, long form tenure nonresponse rates are high perhaps due to the placement of tenure after all long form items for Person 1.
- Age had differentially higher nonresponse for enumerator returns, which may be due to the use of proxy in personal visit interviews. It is also possible that enumerators may have obtained date of birth and not age. From date of birth you can compute age. For this evaluation, date of birth was not considered when doing the analysis.
- For the Hispanic origin item, nonresponse was higher for self-responses. The lowest nonresponse for Hispanic origin is associated with enumerator short forms. It appears that self respondents do not understand the difference between race and Hispanic origin, so they answer the race question and leave Hispanic origin blank.
- Item nonresponse for both the sex and race items was higher for enumerator long than enumerator short forms. When looking at form type by mode there is no consistent pattern for high and low item nonresponse. The low item nonresponse is mostly associated with self-response but jumps around short and long forms. The high item nonresponse is mostly associated with enumerator returns but jumps around short and long forms.

Recommendations include:

- Review the procedures and debriefings of field staff to see if they can provide useful information about problems that could have lead to item nonresponse.
- Review the results of previous testing and continue to test question wording and placement.
- Investigate ways to reduce item nonresponse such as looking at item nonresponse in conjunction with the National Content Survey (NCS) to shed some light on reasons for high item nonresponse.
- Review the results of the Analysis of the Imputation Process for 100 percent Household Population Items, Evaluation B.1.a, in conjunction with the results of this report, to obtain a more comprehensive view of data quality.
- Investigate census content followup for relatively high item nonresponse items.
- Future analysis should look at the age item in combination with the date of birth item.

1. BACKGROUND

This report presents item nonresponse rates for the 100 percent items from Census 2000. The 100 percent questions are collected from both the short form and the long form for every resident and housing unit in the United States. The 100 percent person characteristic items ask about relationship, sex, age, Hispanic origin, and race for persons in the housing unit. Tenure is a housing unit level 100 percent item. Item nonresponse occurs when there is no answer provided to an item on the questionnaire. Inconsistent responses are not considered nonresponse.

Item nonresponse rates detailed in this report are an indication of the Census 2000 data quality prior to imputation. These rates can be used as one measure of respondent cooperation. The reader should note that the questionnaires underwent processing prior to analysis that may effect the level of item nonresponse discussed in this report (see Section 3. Limitations). Another measure of respondent cooperation is imputation rates, which are not addressed in this report (See Census 2000 Evaluation B.1.a, Analysis of Imputation Rates for the 100 Percent Person and Housing Unit Data Items from Census 2000). There are three components that comprise the imputation process for Census 2000: assignment, allocation and substitution. The item nonresponse results can be used in conjunction with imputation rates to give data users a more complete picture of data quality. For this analysis, persons are defined as Census 2000 data defined persons based on a housing unit enumeration record. A data defined person is a person record containing a predefined minimum amount of 100 percent data (U.S. Census Bureau, 2000b). People who did not answer the minimum amount of the 100 percent data are excluded from the analysis. These people are the totally allocated and whole household substitutions (See Census 2000 Evaluation B.1.a, Analysis of Imputation Rates for the 100 Percent Person and Housing Unit Data Items from Census 2000, for the analysis of these cases). The item nonresponse rates and imputation rates apply only to the enumeration record for each housing unit (i.e., the 'return of record' as opposed to all census returns) so that comparisons between the item nonresponse and the imputation results could be performed.

The universe for this evaluation is restricted to the housing unit population. People residing in group quarters are not included. The data for Puerto Rico was excluded from the analysis. Vacant housing units were excluded from the analysis. Rates are reported for each of the 100 percent household population items and tenure classified by form type (long versus short) and response mode (self versus enumerator). In addition, results of the Internet returns are reported. 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.

It should be noted, that the definition of item nonresponse 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 item nonresponse rates, and may potentially lead to conflicting rates between reports on the same topic within the Census Bureau. Therefore, when comparing

item nonresponse 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 Previous censuses

No direct comparison can be made to previous censuses because no documents or data exist that provide item nonresponse rates from previous censuses.

1.2 Census 2000 Dress Rehearsal

The Census 2000 Dress Rehearsal analysis regarding data completeness determined item allocation rates for the 100 percent data items (U.S. Census Bureau, 2000b). It also reported form level rates for valid responses on the six 100 percent items. The tally rates showed the rates for responses from zero to six out of six 100 percent items. The tally rates were given for each Dress Rehearsal site by form return type (e.g., self-response), and form length (e.g., short form). Of these items, only form type had a significant effect on the tally rates.

The Dress Rehearsal analysis showed that the data from self-responses were more complete than data from the enumerator returns. The percentage of self-response questionnaires with response on all six 100 percent items was greater than that of enumerator return questionnaires. Percentages for enumerator return questionnaires with at least five responses on the 100 percent items fell short of the rates of the self-response form percentages. These differences may have been a result of the problems associated with the inability of the data capture system to correctly capture markings from the pencils used by enumerators (U.S. Census Bureau, 2000b).

1.3 100 Percent Items

The universe for this evaluation is restricted to the housing unit population. People residing in group quarters are not included. Rates are produced for each of the 100 percent household population items and tenure classified by form type (long and short). Analysis by response mode is also reported. In addition, results of the Internet returns are reported. Note that for any analysis involving self-response forms, Internet responses are included.

The 100 percent person characteristics questions ask about relationship, sex, age, Hispanic origin, and race for persons in housing units. The relationship question asks respondents to mark their relationship to the householder. The householder is a member of a household who lives at a housing unit and owns, is buying, or rents the housing unit. The sex question asks respondents to mark male or female. The age question asks respondents to supply age on April 1, 2000 and their date of birth. The Hispanic origin question asks respondents to mark whether they are one of four Hispanic groups or not of Hispanic origin and provides a write-in category, if necessary. The race question asks respondents to mark one or more race and provides fifteen individual

categories and three write-in categories. The household tenure question asks households to mark if the unit is owned or rented¹. See Appendix A for an image of the first page of the short form.

For Census 2000 respondents were enumerated primarily in two ways: they either received a questionnaire that they could complete and mail back to the Census Bureau (the final mail return rate as of December 31, 2000 was 78.4 percent) or they were visited by an enumerator who filled out and returned a census form for the household (U.S. Census Bureau, 2002a). A small number of respondents filled out a questionnaire on the Internet. Internet returns are classified as self-responses. The mail-response and enumerator return questionnaires had both short and long forms versions². The short form asked a limited number of basic questions. These questions are asked of all people and housing units, and are referred to as 100 percent questions because they are asked of the entire population. The long form asks more detailed information from approximately a one in six sample, and includes the 100 percent questions as well as questions relating to the social, economic, and housing characteristics of each individual and household. Information derived only from the long form is referred to as sample data. This report will not provide item nonresponse rates for the sample data.

2. METHODS

Item nonresponse rates for each of the 100 percent items are calculated at the national level, excluding Puerto Rico, broken down by the following characteristics:

- form type (long versus short)
- response mode
 - ▶ self-response mode - United States Postal Service (USPS) delivery, Local Census Office (LCO) delivery – Undeliverable As Addressed (UAA), Update/Leave, Urban Update/Leave, Internet Data Collection, Be Counted Form;
 - ▶ enumerator return mode - Coverage Edit Followup, Telephone Questionnaire Assistance, Nonresponse Followup, Coverage Improvement Followup, Update/Enumerate, List/Enumerate, Remote Alaska, other³
- form type by response mode
- Internet data collection

¹The Decennial Management Division Glossary and Abbreviation/Acronym List provides detailed information about Census 2000 terminology and definitions (U.S. Census Bureau, 2002b).

² The Internet and Telephone Questionnaire Assistance (TQA) forms had only a short form version.

³ For information about Nonresponse Followup versus other operations see the Analysis of Imputation Rates for the 100 Percent Person and Housing Unit Data Items from Census 2000, Evaluation B.1.a.

These rates are computed based on the enumeration record for each housing unit. The enumeration record is the official Census 2000 return (or compilation of returns); when more than one return was received for a housing unit, only one was selected as the official questionnaire.

2.1 Item Nonresponse Rate Definition

Item nonresponse rate (I_{NR}) is a measure of Census 2000 data quality. It refers to the number of blank question items for all persons enumerated on the questionnaire. The calculation of these rates is restricted to persons living in housing units.

Item nonresponse rates are calculated according to the following formula:

$$I_{NR} = [N_{miss} / N_{univ}] * 100;$$

where N_{miss} is the number of missing responses for a given universe and N_{univ} is the count of all items in a given universe.

N_{univ} includes the age item, date of birth is not considered with age. N_{univ} excludes relationship for Person 1 since that person is the reference person. N_{univ} also excludes vacant households, totally allocated people, and substituted people.⁴

⁴*Allocations* are performed when a response for a data item is either missing or not consistent to other responses, and an item value CANNOT be determined based on provided information from that same person. An allocation is done using a response from another person within the household or from a person in a nearby household. The type of imputation can occur for one or more of the 100 percent person characteristics. When every 100 percent characteristics for a person requires allocation, the cases can be handled in one of two ways. A person is considered totally allocated when at least one person within the household has some of their 100 percent data reported; thus not requiring 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 to 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.

2.2 Data for Evaluation

The main source of data for calculating the item nonresponse rates is the Census 2000 Hundred percent Census Unedited File (HCUF). The HCUF is a hierarchical file containing enumeration records for collection blocks, housing units (HUs), group quarters (GQs), and persons. Detailed information on the layout and contents of the HCUF is given in Appendix B. Appendix C provides information about variable recoding.

HCUF data are grouped into three types of records: block level records, housing unit level records, and person level records. These three record types were merged to produce the analysis files for this evaluation. The block level records and housing unit level records were merged. Then the substituted cases and vacant households were removed to produce the housing unit level file. After the housing unit level file was produced, it was merged with the HCUF person level records to produce the person level file.

2.2.1 Household-Level Records

For this analysis, households are defined as data defined households for which a form was received. A data defined household is a household record containing a predefined minimum amount of 100 percent data (U.S. Census Bureau, 2000b). The tenure items comes from the household-level file.

2.2.2 Person-Level Records

For this analysis, persons are defined as Census 2000 data defined persons based on a housing unit enumeration record. A data defined person is a person record containing a predefined minimum amount of 100 percent data (U.S. Census Bureau, 2000b). The relationship, age, sex, race, and Hispanic origin items come from the person level files.

2.3 Applying Quality Assurance Procedures

We applied quality assurance procedures throughout the creation of this report. They encompassed how we determined evaluation methods, created specifications for the project procedures and software, designed and reviewed computer systems, developed clerical and computer procedures, analyzed data, and prepared this report.

3. LIMITS

The following limitations associated with this evaluation should be noted:

- The national rates do not include Puerto Rico. Separate tables for Puerto Rico are provided in Appendix G. The data are not analyzed in this report.

- Persons residing in group quarters are not included in the analysis.
- Selected enumeration records were removed from this analysis. Vacant housing units were removed. There were 1,371,320 duplicate records for housing units removed from this analysis⁵. All totally allocated persons are excluded from the analysis (See the Census 2000 Evaluation B.1.a, Analysis of Imputation Rates for the 100 Percent Person and Housing Unit Data Items from Census 2000 for a detailed definition of totally allocated). All whole household substitution cases were removed from the tenure and person item analysis. These are cases that were deemed valid households but had no person records associated with the housing unit enumeration record. An additional three cases were removed from analysis for this evaluation because it was determined that they were reclassified as imputed cases in the subsequent census file.
- No direct comparison can be made between Census 2000 and 1990 Census item nonresponse, since 1990 Census item nonresponse rates are not available. Direct comparison to 1990 data is limited because 1990 data provide allocation rates rather than item missing data rates. Allocation rates include item missing data as well as all other data that required editing, such as out-of-range responses.
- Inconsistent responses are treated as responses. The Analysis of Imputation Rates for the 100 Percent Person and Housing Unit Data Items from Census 2000, Evaluation B.1.a, will provide additional information about imputation rates for Census 2000 (U.S. Census Bureau, 2001).

4. RESULTS

The results section answers questions at the national level concerning the extent of item nonresponse for Census 2000. Note that the national rates do not include Puerto Rico. The five 100 percent person level items are reported in the order that they appear in the census questionnaires. In addition, tenure is also reported.

Table 1 shows the distribution of totally allocated people for Census 2000. To compare the numbers produced in the Analysis of the Imputation Process for 100 percent Household Population Items, Evaluation B.1.a, to this report, add the number of totally allocated people to the universe used for this analysis and consider those cases as item nonresponse for each person characteristic. See Appendix D for the distribution of persons and households by response mode and form type.

⁵These duplicates are housing units that were identified as a results of the housing unit unduplication program. They were determined to be duplicated of other housing units already in the HCUF and are not included in subsequent files (see U.S. Census Bureau, 2000c and 2000d for more details).

Table 1: Distribution of Totally Allocated People by Response Mode and Form Type

Response Mode	Total	Form Type	
		Short	Long
Total	2,333,112	1,844,779	488,333
Self	1,553,206	1,265,842	287,364
Enumerator	779,906	578,937	200,969

Data source: Census 2000 Evaluation Report B.1.a

Table excludes data for Puerto Rico

4.1 Overall Item Nonresponse Rates

Table 2 contains the overall item nonresponse for the five 100 percent person items and housing unit tenure. Item nonresponse ranged from 1.13 percent to 4.14. Tenure has the highest item nonresponse with 4.14 percent. Age has the highest nonresponse rate among person items.

Table 2: Overall Item Nonresponse Rates for the 100 Percent Items

Item	Percent Item Nonresponse
Relationship	1.33
Sex	1.13
Age	3.74
Hispanic Origin	3.11
Race	2.93
Tenure	4.14

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

4.2 Item Nonresponse Rates by Form Type

Table 3 contain a comparison of the item nonresponse by form type (short vs. long) for the five 100 percent items and tenure. The difference column is calculated by subtracting the long form rates from the short form rates. For relationship, age, Hispanic origin and tenure, the rate of item nonresponse is lower for the short form then for the long form. For sex and race, the long forms had lower levels of nonresponse than the short forms. For each of the person items the absolute difference is small, all less than 0.5 percentage points. For tenure the absolute difference is 6.55 percentage points. A possible reason for such a large difference in item nonresponse rate

between the two forms is the placement of the tenure question on the long form. The tenure question comes after all long form questions for Person 1. It is directly after the income question which may be a sensitive item for some respondents.

Table 3: Item Nonresponse Rate by Form Type for the 100 Percent Items

Item	Total	Form Type		Difference
		Short	Long	
Relationship	1.33	1.26	1.66	-0.40
Sex	1.13	1.16	0.96	0.20
Age	3.74	3.67	4.12	-0.45
Hispanic Origin	3.11	3.10	3.16	-0.06
Race	2.93	2.99	2.63	0.36
Tenure	4.14	3.05	9.60	-6.55

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

4.3 Item Nonresponse Rates by Response Mode

Table 4 contains a comparison of the item nonresponse by response mode (self-response vs. enumerator return) for the five 100 percent person items and tenure. The difference column is calculated by subtracting the enumerator return rates from the self-response rates. For age, the absolute difference between self-responses and enumerator returns is almost seven percentage points. The large age differences might be due to the use of proxy in a personal visit interview⁶. Also, the enumerator may have obtained date of birth and not age. However, from date of birth you can compute age. The Census 2000 Evaluation B.1.a, Analysis of Imputation Rates for the 100 Percent Person and Housing Unit Data Items from Census 2000 reports the allocation rate, which is percentage of returns where age could not be determined based on information provided on the form about the same person for age as 9.03 percent, which is close to the 8.81 percent item nonresponse rate in this report. Therefore, proxy interviews seem to be the most likely explanation for the relatively large item nonresponse rates for age as compared to the other items. For this evaluation date of birth was not considered when doing the analysis. For relationship, sex, age, race and tenure, the rate of item nonresponse is lower for the self-responses than for the enumerator returns. For relationship, sex, Hispanic origin, and race, the absolute differences

⁶ An interview in which the respondent is not a member of the household being enumerated is a *proxy interview*. The respondent might be a neighbor or some other knowledgeable person.

ranged from 0.34 to 1.05. For tenure, the absolute difference between the self-responses and the enumerator returns is over six percentage points. The large tenure differences might be due to the use of proxy in a personal visit interview. The large differences for the tenure item could also indicate that interviewer training should spend more time on these questions.

Table 4: Item Nonresponse Rate by Response Mode for the 100 Percent Items

Item	Total	Response Mode		Difference
		Self	Enumerator	
Relationship	1.33	1.05	2.10	-1.05
Sex	1.13	0.92	1.70	-0.78
Age	3.74	1.90	8.81	-6.91
Hispanic Origin	3.11	3.24	2.74	0.50
Race	2.93	2.84	3.18	-0.34
Tenure	4.14	2.60	8.82	-6.22

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

4.4 Item Nonresponse Rates by Response Mode and Form Type

Tables 5 through 10 contain comparison of the item nonresponse by response mode (self-response vs. enumerator return) and form type (short vs. long) for the five 100 percent person items and tenure. The difference row is calculated by subtracting enumerator returns (total, short or long) from self-responses (total, short or long, respectively). The difference column is calculated by subtracting long forms (total, self-response or enumerator return) from short forms (total, self-response or enumerator return, respectively).

For the relationship item, there are no large differences when comparing item nonresponse by response mode and form type. For self-responses, the item nonresponse rates differ by less than 0.4 percentage points between long and short forms. For enumerator returns, the item nonresponse rates between the two form types differ by 0.13 percentage points. Similar to the results for Table 3, for both response modes, short forms had lower nonresponse rates than long forms. Similar to the results for Table 4 for both form types, self-responses did better than enumerator returns. The response mode/forms types with the largest and smallest item nonresponse rates, respectively, were enumerator return long forms at 2.20 percent and self-response short forms at 0.99 percent. See Appendix D for the distribution of persons and households by response mode and form type.

Table 5: Item Nonresponse Rate by Response Mode and Form Type for the Relationship Item

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	1.33	1.26	1.66	-0.40
Self	1.05	0.99	1.37	-0.38
Enumerator	2.10	2.07	2.20	-0.13
Difference	-1.05	-1.08	-0.83	

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

In Table 6 for the sex item, the differences when comparing item nonresponse rates by response mode and form type are relatively small. The absolute differences range from 0.20 to 1.43 percentage points. The largest difference in item nonresponse rates at 1.43 percentage points is between self-responses and enumerator returns for long forms. The response mode/form types with the largest and smallest item nonresponse rates, respectively, were enumerator return long forms at 1.90 percent and self-response long forms at 0.47 percent. See Appendix D for the distribution of persons and households by response mode and form type.

Table 6: Item Nonresponse Rate by Response Mode and Form Type for the Sex Item

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	1.13	1.16	0.96	0.20
Self	0.92	1.00	0.47	0.53
Enumerator	1.70	1.65	1.90	-0.25
Difference	-0.78	-0.65	-1.43	

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

In Table 7 for the age item, there are some large differences when comparing item nonresponse by response mode and form type. The absolute differences range from 0.03 to 7.03 percentage points. The largest difference in item nonresponse rates indicates that age was better reported on self-response than on enumerator return questionnaires regardless of form length. For self-responses, there is relatively no difference in the item nonresponse rates between long and short forms. The items with the largest and smallest item nonresponse rates, respectively, were

enumerator return short forms at 8.93 percent and self-response long forms at 1.87 percent. See Appendix D for the distribution of persons and households by response mode and form type.

Table 7: Item Nonresponse Rate by Response Mode and Form Type for the Age Item

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	3.74	3.67	4.12	-0.45
Self	1.90	1.90	1.87	0.03
Enumerator	8.81	8.93	8.36	0.57
Difference	-6.91	-7.03	-6.49	

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

In Table 8 for the Hispanic origin item, the differences when comparing item nonresponse rates by response mode and form type are relatively small because the four rates are all relatively the same. The absolute differences range from 0.08 to 0.65 percentage points. For self-responses, the item nonresponse rates differ by 0.13 percentage points between long and short forms. The largest difference in item nonresponse rates at 0.65 percentage points is between self-responses and enumerator returns for short forms. The items with the largest and smallest item nonresponse rates, respectively, were self-response short forms at 3.26 percent and enumerator return short forms at 2.61 percent. See Appendix D for the distribution of persons and households by response mode and form type.

Table 8: Item Nonresponse Rate by Response Mode and Form Type for the Hispanic Origin Item

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	3.11	3.10	3.16	-0.06
Self	3.24	3.26	3.13	0.13
Enumerator	2.74	2.61	3.21	-0.60
Difference	0.50	0.65	-0.08	

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

In Table 9 for the race item, the differences when comparing item nonresponse rates by response mode and form type are relatively small because the four rates are all relatively the same. The

absolute differences range from 0.19 to 1.10 percentage points. The largest difference in item nonresponse rates at 1.10 (absolute) percentage points is between self-responses and enumerator returns for long forms. All the other differences are less than one percentage point. The items with the largest and smallest item nonresponse rates, respectively, were enumerator return long forms at 3.35 percent and self-response long forms at 2.25 percent. See Appendix D for the distribution of persons and households by response mode and form type.

Table 9: Item Nonresponse Rate by Response Mode and Form Type for the Race Item

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	2.93	2.99	2.63	0.36
Self	2.84	2.95	2.25	0.70
Enumerator	3.18	3.14	3.35	-0.21
Difference	-0.34	-0.19	-1.10	

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

In Table 10 for the tenure item, the differences when comparing item nonresponse rates by response mode and form type are relatively large. The absolute differences range from 3.65 to 12.09 percentage points. The largest difference in item nonresponse rates at 12.09 percentage points is between self-responses and enumerator returns for long forms. For enumerator returns, the item nonresponse rates between the form types differ by 11.45 percentage points. The driving factor of these two results is the large rate for enumerator forms at 17.79 percent. For both response modes, similar to Table 2, short forms did better than long forms. For short forms, the item nonresponse rates differ by 4.29 percentage points between self-responses and enumerator returns. The items with the largest and smallest item nonresponse rates, respectively, were enumerator-response long forms at 17.79 and self-response short forms at 2.05. See Appendix D for the distribution of persons and households by response mode and form type.

Table 10: Item Nonresponse Rate by Response Mode and Form Type for the Tenure Item

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	4.14	3.05	9.60	-6.55
Self	2.60	2.05	5.70	-3.65
Enumerator	8.82	6.34	17.79	-11.45
Difference	-6.22	-4.29	-12.09	

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

4.5 Item Nonresponse Rates for the Internet Items

Table 11, contains the overall item nonresponse for the five 100 percent person items and tenure for all self-response short form respondents and Internet respondents. The difference is calculated by subtracting Internet rates from the rates for all self-response short form rates (which include Internet returns). Since only short forms could be submitted over the Internet, the analysis for this section is limited to all self-response short forms. Note, for any analysis involving self-response forms, Internet responses are included, however, they represent a relatively small percent of the self-response universe. Therefore, inclusion of Internet returns with the self-responses should not affect the comparison analysis.

Looking at Table 11, the overall Internet item nonresponse was generally low for the 100 percent items (relationship, sex, age, Hispanic origin, race and tenure). For all items, Internet response was better than for all self-response short form responses. The differences ranged from 0.55 percent to 1.41 percent. Since there was no advertising about the availability of the Internet as a response option, the low Internet nonresponse rates may be explained by the fact that people who responded by Internet were highly motivated to do so. See Appendix E for the distribution of persons and households by Internet response mode and form type. See Appendix F for the distribution of persons and households by the Internet response mode and self/short response mode.

Table 11: Item Nonresponse Rate by the Internet Response Mode

Item	All Self/ Short Form Respondents	Response Mode	
		Internet	Difference
Relationship	0.99	0.36	0.63
Sex	1.00	0.45	0.55
Age	1.90	0.87	1.03
Hispanic Origin	3.26	2.08	1.18
Race	2.95	1.88	1.07
Tenure	2.05	0.64	1.41

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

Note: Internet data were only collected for the short form and was reported by the respondent

5. CONCLUSIONS AND RECOMMENDATIONS

Item nonresponse is important in assessing data quality for Census 2000. It may reveal areas for improvement for items for the 2010 census. Major findings include:

- Item nonresponse for the Census 2000 100 percent items ranged from 1.13 percent for the sex item to 4.14 percent for the tenure item.
- Generally item nonresponse was higher for enumerator returns than for self-responses and higher for long forms versus short forms. For both short and long forms, item nonresponse for all questions except Hispanic origin was higher for enumerator returns. The tenure and age items had the largest absolute differences in item nonresponse rates between response modes. The absolute differences were 6.22 and 6.91 percentage points, respectively.
- Tenure had a relatively higher overall nonresponse rate compared to other items. Specifically, long form tenure nonresponse rates are high perhaps due to the placement of tenure after all long form items for Person 1.
- Age had differentially higher nonresponse for enumerator returns, which may be due to the use of proxy in personal visit interviews. It is also possible that enumerators may have obtained date of birth and not age. From date of birth you can compute age. For this evaluation, date of birth was not considered when doing the analysis.

- For the Hispanic origin item, nonresponse was higher for self-responses. The lowest nonresponse for Hispanic origin is associated with enumerator short forms. It appears that self respondents do not understand the difference between race and Hispanic origin, so they answer the race question and leave Hispanic origin blank.
- Item nonresponse for both the sex and race items was higher for enumerator long than enumerator short forms. When looking at form type by mode there is no consistent pattern for high and low item nonresponse. The low item nonresponse is mostly associated with self-response but jumps around short and long forms. The high item nonresponse is mostly associated with enumerator returns but jumps around short and long forms.

Recommendations include:

- Review the procedures and debriefings of field staff to see if they can provide useful information about problems that could have lead to item nonresponse.
- Review the results of previous testing and continue to test question wording and placement.
- Investigate ways to reduce item nonresponse such as looking at item nonresponse in conjunction with the National Content Survey (NCS) to shed some light on reasons for high item nonresponse.
- Review the results of the Analysis of the Imputation Process for 100 percent Household Population Items, Evaluation B.1.a, in conjunction with the results of this report, to obtain a more comprehensive view of data quality.
- Investigate census content followup for relatively high item nonresponse items.
- Future analysis should look at the age item in combination with the date of birth item.

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APPENDIX A: CENSUS 2000 SHORT FORM

United States Census 2000

U.S. Department of Commerce • Bureau of the Census



This is the official form for all the people at this address. It is quick and easy, and your answers are protected by law. Complete the Census and help your community get what it needs — today and in the future!

Start Here

Please use a black or blue pen.

1. How many people were living or staying in this house, apartment, or mobile home on April 1, 2000?

Number of people

INCLUDE in this number:

- foster children, roomers, or housemates
- people staying here on April 1, 2000 who have no other permanent place to stay
- people living here most of the time while working, even if they have another place to live

DO NOT INCLUDE in this number:

- college students living away while attending college
- people in a correctional facility, nursing home, or mental hospital on April 1, 2000
- Armed Forces personnel living somewhere else
- people who live or stay at another place most of the time

2. Is this house, apartment, or mobile home — Mark ONE box.

- Owned by you or someone in this household with a mortgage or loan?
- Owned by you or someone in this household free and clear (without a mortgage or loan)?
- Rented for cash rent?
- Occupied without payment of cash rent?

3. Please answer the following questions for each person living in this house, apartment, or mobile home. Start with the name of one of the people living here who owns, is buying, or rents this house, apartment, or mobile home. If there is no such person, start with any adult living or staying here. We will refer to this person as Person 1.

What is this person's name? *Print name below.*

Last Name

First Name

MI

4. What is Person 1's telephone number? We may call this person if we don't understand an answer.

Area Code + Number

5. What is Person 1's sex? Mark ONE box.

- Male Female

6. What is Person 1's age and what is Person 1's date of birth?

Age on April 1, 2000

Print numbers in boxes.

Month Day Year of birth

→ **NOTE: Please answer BOTH Questions 7 and 8.**

7. Is Person 1 Spanish/Hispanic/Latino? Mark the "No" box if **not** Spanish/Hispanic/Latino.

- No, not Spanish/Hispanic/Latino Yes, Puerto Rican
- Yes, Mexican, Mexican Am., Chicano Yes, Cuban
- Yes, other Spanish/Hispanic/Latino — *Print group.* ⌘

8. What is Person 1's race? Mark one or more races to indicate what this person considers himself/herself to be.

- White
- Black, African Am., or Negro
- American Indian or Alaska Native — *Print name of enrolled or principal tribe.* ⌘

- Asian Indian Japanese Native Hawaiian
- Chinese Korean Guamanian or Chamorro
- Filipino Vietnamese Samoan
- Other Asian — *Print race.* ⌘ Other Pacific Islander — *Print race.* ⌘

- Some other race — *Print race.* ⌘

→ **If more people live here, continue with Person 2.**

OMB No. 0607-0856: Approval Expires 12/31/2000

Form **D-61A**

APPENDIX B: HUNDRED PERCENT CENSUS UNEDITED FILE (HCUF)

BLOCK RECORD (Record Type 1)

RT RECORD TYPE

1 = Block 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

LCO LOCAL CENSUS OFFICE CODE

2111-3289

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 COU.

HOUSING UNIT RECORD (Record Type 2)

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

INP NO. OF PERSONS AT THIS HU OR GQ

(Number of Persons at the HU or GQ for the HCEF)

00000= None

00001-99999= Persons at this unit (00001-00097 if a housing
unit)

RFT FORM TYPE

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)

**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) (Individual Census Questionnaire (ICQ))
- 27 = Paper questionnaire for UHE from Group Quarters (GQ) enumeration (Individual Census Report (ICR))
- 28 = Paper questionnaire for UHE from Military GQ enumeration (Military Census Report (MCR))
- 29 = Paper questionnaire for UHE from Shipboard GQ enumeration (Shipboard Census Report (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”

***RTENURE* “IS THIS HOUSE, APARTMENT, OR MOBILE HOME --”**

blank = No response

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

PERSON RECORD (Record Types 3 & 5)

***RT* RECORD TYPE**

- 3 = Housing unit person record
- 5 = Group quarters person record

***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

***PRT* PERSON RECORD (FORM) TYPE**

- 4 = Short form person record
- 5 = Long form person record

***PFT* FORM TYPE**

- 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)

PNE ENUMERATED PERSON NUMBER (FROM PERSON AREA ON HU FORM, FOUO ITEM B: PN ON GQ FORM) [For housing units, this field comes from the DCS2000 Capture System.]
blank= Blank
00001-99999= Person number within this return (00001-00097 for Hus)

PREL Relationship (relationship from check box on form)

blank = No response (For HUs, if PNE=1 and PPRELSUP=blank, then this is the reference person.)

- 01 = Not used
- 02 = Husband/wife
- 03 = Natural-born son/daughter
- 04 = Adopted son/daughter
- 05 = Stepson/stepdaughter
- 06 = Brother/sister
- 07 = Father/mother
- 08 = Grandchild
- 09 = Parent-in-law
- 10 = Son-in-law/daughter-in-law
- 11 = Other relative
- 12 = Roomer, boarder
- 13 = Housemate/roommate
- 14 = Unmarried partner
- 15 = Foster child
- 16 = Other nonrelative
- 20 = Person is on a GQ form or Person is in a GQ

**PPRELSUP SUPPLEMENTAL RELATIONSHIP (RELATIONSHIP FROM
PSA AND DRF2 PROCESSING)**

- blank = No response or this is a GQ ID (For HUs, if PNE=1 and PPRELSUP=blank, then this is the reference person.)
- 01 = Not used
- 02 = Husband/wife
- 03 = Natural-born son/daughter
- 04 = Adopted son/daughter
- 05 = Stepson/stepdaughter
- 06 = Brother/sister
- 07 = Father/mother
- 08 = Grandchild
- 09 = Parent-in-law
- 10 = Son-in-law/daughter-in-law
- 11 = Other relative
- 12 = Roomer, boarder
- 13 = Housemate/roommate
- 14 = Unmarried partner
- 15 = Foster child
- 16 = Other nonrelative
- 17 = Person comes from another form during linking
- 18 = Person comes from another return during PSA
- 20 = Person is on a GQ form or Person is in a GQ

PSEX SEX

blank = No response
1 = Male
2 = Female

PAGE AGE

blank = No response
000-999 = Age

**PSPAN01 HISPANIC ORIGIN - NO, NOT SPANISH/HISPANIC/LATINO
CHECK BOX**

blank = Box not marked
1 = Box marked

**PSPAN02 HISPANIC ORIGIN - YES, MEXICAN, MEXICAN-AM,
CHICANO CHECK BOX**

blank = Box not marked
1 = Box marked

PSPAN03 HISPANIC ORIGIN - YES, PUERTO RICAN CHECK BOX

blank = Box not marked
1 = Box marked

PSPAN04 HISPANIC ORIGIN - YES, CUBAN CHECK BOX

blank = Box not marked
1 = Box marked

**PSPAN05 HISPANIC ORIGIN - YES, OTHER SPANISH/HISPANIC/LATINO
CHECK BOX**

blank = Box not marked
1 = Box marked

PSPANWI SPANISH ORIGIN WRITE-IN

PRACE01 RACE - WHITE CHECK BOX

blank = Box not marked
1 = Box marked

PRACE02 RACE - BLACK, AFRICAN AM., OR NEGRO CHECK BOX

blank = Box not marked
1 = Box marked

PRACE03 RACE - AMERICAN INDIAN OR ALASKA NATIVE CHECK BOX

blank = Box not marked

1 = Box marked

PRACE04 RACE - ASIAN INDIAN CHECK BOX

blank = Box not marked

1 = Box marked

PRACE05 RACE - CHINESE CHECK BOX

blank = Box not marked

1 = Box marked

PRACE06 RACE - FILIPINO CHECK BOX

blank = Box not marked

1 = Box marked

PRACE07 RACE - JAPANESE CHECK BOX

blank = Box not marked

1 = Box marked

PRACE08 RACE - KOREAN CHECK BOX

blank = Box not marked

1 = Box marked

PRACE09 RACE - VIETNAMESE CHECK BOX

blank = Box not marked

1 = Box marked

PRACE10 RACE - OTHER ASIAN CHECK BOX

blank = Box not marked

1 = Box marked

PRACE11 RACE - NATIVE HAWAIIAN CHECK BOX

blank = Box not marked

1 = Box marked

PRACE12 RACE - GUAMANIAN OR CHAMORRO CHECK BOX

blank = Box not marked

1 = Box marked

PRACE13 RACE - SAMOAN CHECK BOX

blank = Box not marked

1 = Box marked

PRACE14 RACE - OTHER PACIFIC ISLANDER CHECK BOX

blank = Box not marked

1 = Box marked

PRACE15 RACE - SOME OTHER RACE CHECK BOX

blank = Box not marked

1 = Box marked

PRACEWI1 RACE WRITE-IN 1

If WIIND=1 then this is the General Race write-in (field PRACEWIGEN from the DRF2); the codes for this write-in appear in fields PRACEWI1CODE1 and PRACEWI1CODE2. If

WIIND=2 then this is the American Indian or Alaska Native Tribe write-in (field PRACEWI1 from the DRF2).

PRACEWI2 RACE WRITE-IN 2 – ASIAN OR PACIFIC ISLANDER

[form MR, BCF, ICQ, ICR, MCR, or SCR]

PRACEWI3 Race Write-in 3 – Other race

APPENDIX C: HUNDRED PERCENT CENSUS UNEDITED FILE (HCUF) VARIABLE RECODES

Item	Variable (Variable Number)		
Housing Unit Record Type	RT, (2001) Possible Values 2 (2001)	RT=2	Housing Unit Record
Person Record Type	RT, (3001) Possible Values 3, 5	RT=3	Housing Unit Person record
Form Type	RFT, (2080) Possible Values 01-20	RFT=01,03,05,07,09, 11,17,19	Short Form
		RFT=02,04,06,10,12, 18,20	Long Form
Response Mode	RSOURCE, (2082) Possible Values 01-37	RSOURCE=01, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 30	Self- Response
		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	Enumerator- Response
Internet	RSOURCE, (2082) Possible Values 01-37	RSOURCE=30	Self- Response
		RSOURCE=36	Enumerator- Response
Relationship	PREL, (3023) Possible Values 02-16, 20 PPRELSUP, (3024) Possible Values 02-18, 20 PNE, (3013) Possible Values 00001-99999 Person 1 when PNE="00001" and pprelsup=blank	Blank	Nonresponse
		Not Blank	Response

Item	Variable (Variable Number)		
Sex	PSEX, (3027) 1,2	Blank	Nonresponse
		Not Blank	Response
Age	PAGE, (3028) 000-999	Blank	Nonresponse
		Not Blank	Response
Hispanic Origin	PSPAN01-PSPAN05, (3033-3037) Possible values 1 PSPANWI, (3038) Possible values write-in	Blank	Nonresponse
		Not Blank	Response
Race	PRACE01-PRACE15, (3041-3055) Possible Values, 1 PRACEWI1-PRACEWI3, (3057, 3060, 3063) Possible Values write-in	Blank	Nonresponse
		Not Blank	Response
Tenure	RTENURE (2118) Possible Values: 1, 2, 3, 4	Blank	Nonresponse
		Not Blank	Response

APPENDIX D: DISTRIBUTION OF RESPONSE MODE BY FORM TYPE

Table D-1. Distribution of Response Mode by Form Type for All Items Except Tenure

Response Mode	Total	Form Type	
		Short	Long
Total	267,869,007	223,744,580	44,124,427
Self	196,386,285	167,585,088	28,801,197
Enumerator	71,482,722	56,159,492	15,323,230

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

Table D-2. Distribution of Response Mode by Form Type for the Tenure Item

Response Mode	Total	Form Type	
		Short	Long
Total	104,015,308	86,699,157	17,316,151
Self	78,220,756	66,487,315	11,733,441
Enumerator	25,794,552	20,211,842	5,582,710

Data source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

APPENDIX E: DISTRIBUTION OF INTERNET RESPONSE MODE AND FORM TYPE

Table E-1. Distribution of Internet Response Mode and Form Type for All Item's Except Tenure

Response Mode	Response Mode and Form Type
	Self/Short
Total	167,585,088
Internet	178,256
Non-Internet	167,406,832

Data Source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

Note: Internet data were only collected for the short form and were reported by the respondent.

Table E-2. Distribution of Internet Response Mode and Form Type for the Tenure Item

Response Mode	Response Mode and Form Type
	Self/Short
Total	66,487,315
Internet	64,583
Non-Internet	66,422,732

Data Source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

Note: Internet data were only collected for the short form and were reported by the respondent.

APPENDIX F: DISTRIBUTION OF ITEM NONRESPONSE BY THE INTERNET AND SELF/SHORT RESPONSE MODE

Table F-1. Distribution of Item Nonresponse by the Internet and Short/ Self-Response Mode

Item	All Self/Short Respondents	Self/Short Response Mode	
		Internet	Non-Internet
Relationship	1,661,847	639	1,661,208
Sex	1,677,773	810	1,676,963
Age	3,192,363	1,551	3,190,812
Hispanic Origin	5,468,854	3,713	5,465,141
Race	4,936,889	3,349	4,933,540
Tenure	1,364,301	413	1,363,888

Data Source: HCUF

Table excludes data for Puerto Rico

Table includes only data-defined persons

Note: Internet data were only collected for the short form and were reported by the respondent.

Appendix G: Puerto Rico Data

Table G-1: Overall Item Nonresponse Rates for the 100 Percent Items for Puerto Rico

Item	Percent Item Nonresponse
Relationship	1.32
Sex	2.12
Age	3.86
Hispanic Origin	1.01
Race	3.79
Tenure	6.15

Data source: HCUF Table includes only data-defined persons

Table G-2: Item Nonresponse Rate by Form Type for the 100 Percent Items for Puerto Rico

Item	Total	Form Type		Difference
		Short	Long	
Relationship	1.32	1.21	1.92	-0.71
Sex	2.12	2.24	1.49	0.75
Age	3.86	3.91	3.61	0.30
Hispanic Origin	1.01	0.95	1.33	-0.38
Race	3.79	3.85	3.44	0.41
Tenure	6.15	5.35	10.26	-4.91

Data source: HCUF Table includes only data-defined persons

Table G-3: Item Nonresponse Rate by Response Mode for the 100 Percent Items for Puerto Rico

Item	Total	Response Mode		Difference
		Self	Enumerator	
Relationship	1.32	1.24	1.43	-0.19
Sex	2.12	1.93	2.39	-0.46
Age	3.86	3.35	4.59	-1.24
Hispanic Origin	1.01	0.97	1.06	-0.09
Race	3.79	5.25	1.69	3.56
Tenure	6.15	4.85	8.00	-3.15

Data source: HCUF

Table includes only data-defined persons

Table G-4 : Item Nonresponse Rate by Response Mode and Form Type for the Relationship Item for Puerto Rico

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	1.32	1.21	1.92	-0.71
Self	1.24	1.09	2.27	-1.18
Enumerator	1.43	1.39	1.59	-0.20
Difference	-0.19	-0.30	0.68	

Data source: HCUF

Table includes only data-defined persons

Table G-5: Item Nonresponse Rate by Response Mode and Form Type for the Sex Item for Puerto Rico

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	2.12	2.24	1.49	0.75
Self	1.93	2.13	0.65	1.48
Enumerator	2.39	2.42	2.29	0.13
Difference	-0.46	-0.29	-1.64	

Data source: HCUF

Table includes only data-defined persons

Table G-6: Item Nonresponse Rate by Response Mode and Form Type for the Age Item for Puerto Rico

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	3.86	3.91	3.61	0.30
Self	3.35	3.38	3.13	0.25
Enumerator	4.59	4.72	4.07	0.65
Difference	-1.24	-1.34	-0.94	

Data source: HCUF

Table includes only data-defined persons

Table G-7: Item Nonresponse Rate by Response Mode and Form Type for the Hispanic Origin Item for Puerto Rico

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	1.01	0.95	1.33	-0.38
Self	0.97	0.91	1.40	-0.49
Enumerator	1.06	1.01	1.26	-0.25
Difference	-0.09	-0.10	0.14	

Data source: HCUF Table includes only data-defined persons

Table G-8: Item Nonresponse Rate by Response Mode and Form Type for the Race Item for Puerto Rico

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	3.79	3.85	3.44	0.41
Self	5.25	5.26	5.15	0.11
Enumerator	1.69	1.67	1.78	-0.11
Difference	3.56	3.59	3.37	

Data source: HCUF Table includes only data-defined persons

Table G-9: Item Nonresponse Rate by Response Mode and Form Type for the Tenure Item for Puerto Rico

Response Mode	Total	Form Type		Difference
		Short	Long	
Total	6.15	5.35	10.26	-4.91
Self	4.85	4.08	9.82	-5.74
Enumerator	8.00	7.34	10.70	-3.36
Difference	-3.15	-3.26	-0.88	

Data source: HCUF

Table includes only data-defined persons

Table G-10: Item Nonresponse Rate by the Internet Response Mode for Puerto Rico

Item	All Self/ Short Form Respondents	Response Mode	
		Internet	Difference
Relationship	1.09	0.00	1.09
Sex	2.13	0.34	1.79
Age	3.38	0.34	3.04
Hispanic Origin	0.91	0.69	0.22
Race	5.26	1.72	3.54
Tenure	4.08	0.00	4.08

Data source: HCUF

Table includes only data-defined persons

Note: Internet data were only collected for the short form and were reported by the respondent

Table G-11. Distribution of Response Mode by Form Type for All Items Except Tenure for Puerto Rico

Response Mode	Total	Form Type	
		Short	Long
Total	3,743,493	3,150,343	593,150
Self	2,204,871	1,913,231	291,640
Enumerator	1,538,622	1,237,112	301,510

Data source: HCUF

Table includes only data-defined persons

Table G-12. Distribution of Response Mode by Form Type for the Tenure Item for Puerto Rico

Response Mode	Total	Form Type	
		Short	Long
Total	1,276,669	1,070,625	206,044
Self	753,067	650,958	102,109
Enumerator	523,602	419,667	103,935

Data source: HCUF

Table includes only data-defined persons

Table G-13. Distribution of Internet Response Mode and Form Type for All Item's Except Tenure for Puerto Rico

Response Mode	Response Mode and Form Type
	Self/Short
Total	1,913,231
Internet	290
Non-Internet	191,112,941

Data source: HCUF

Table includes only data-defined persons

Note: Internet data were only collected for the short form and were reported by the respondent.

Table G-14. Distribution of Internet Response Mode and Form Type for the Tenure Item for Puerto Rico

Response Mode	Response Mode and Form Type
	Self/Short
Total	650,958
Internet	104
Non-Internet	650,854

Data source: HCUF

Table includes only data-defined persons

Note: Internet data were only collected for the short form and were reported by the respondent.

Table G-15. Distribution of Item Nonresponse by the Internet and Short/ Self-Response Mode for Puerto Rico

Item	All Self/Short Respondents	Self/Short Response Mode	
		Internet	Non-Internet
Relationship	20,799	0	20,799
Sex	40,723	1	40,722
Age	64,719	1	64,718
Hispanic Origin	17,356	2	17,354
Race	100,715	5	100,710
Tenure	26,532	0	26,532

Data source: HCUF

Table includes only data-defined persons

Note: Internet data were only collected for the short form and were reported by the respondent.

