

# **2008-2010 PUMS Accuracy of the Data**

## **1. INTRODUCTION**

This 3-year public use microdata sample (PUMS) for 2008-2010 is a subset of the 2008-2010 American Community Survey (ACS) and Puerto Rico Community Survey (PRCS) samples. It contains the same sample as the combined PUMS 1-year files for 2008, 2009 and 2010. Unless otherwise specified, the term “ACS” in this document will refer to both the ACS and PRCS. This 2008-2010 PUMS is the fourth 3-year file published by the ACS. It contains three years of data for housing units and the population from households and the group quarters (GQ) population. The GQ population, housing units and population from households are all weighted to agree with the ACS counts which are an average over the three year period (2008-2010). The ACS sample was selected from all counties across the nation, and all municipios in Puerto Rico. The 2008-2010 PUMS data contain 3,953,266 housing unit records and 8,947,308 person records from households and 246,484 person records from GQs.

Estimates from the PUMS file are expected to be different from the previously released ACS estimates because they are subject to additional sampling error and further data processing operations. The additional sampling error is a result of selecting the PUMS housing and person records through an additional stage of sampling. In the public use file, the basic unit is an individual housing unit, except for the sample from GQs. For the GQ sample, the basic unit is the person. The population sample is defined as all persons living in households selected in the housing unit sample, plus the persons selected from the GQ sample. Note that microdata records in this sample do not contain names, addresses, or any information that can identify a specific housing unit, GQ or person.

## Table of Contents

Confidentiality of the Data.....	3
Sample Design .....	4
Weighting and Estimation .....	7
Weighting .....	7
Estimation .....	10
Errors in the Data .....	10
Sampling Error.....	10
Nonsampling Error.....	11
Measuring Sampling Error .....	11
Approximating Standard Errors with Replicate Weights.....	13
Approximating a Generalized Standard Errors with Design Factors .....	14
Standard Errors for Total and Percentages .....	14
Standard Errors for Sums and Differences.....	16
Standard Errors for Ratios .....	16
Standard Errors for Medians .....	16
Standard Errors for Means.....	18
Examples of Standard Error Calculations using Generalized Standard Error Formulas .....	18
Working with Dollar Amounts .....	22
References .....	23
Design Factors for Calculating PUMS Standard Errors .....	24

## 2. CONFIDENTIALITY OF THE DATA

The Census Bureau has implemented a series of steps to protect the confidentiality of the data. Title 13 United States Code, Section 9, prohibits the Census Bureau from publishing results in which an individual's data can be identified.

The Census Bureau's internal Disclosure Review Board sets the confidentiality rules for all data releases. A checklist approach is used to ensure that all potential risks to the confidentiality of the data are considered and addressed.

- **Title 13, United States Code:** Title 13 of the United States Code authorizes the Census Bureau to conduct censuses and surveys. Section 9 of the same Title requires that any information collected from the public under the authority of Title 13 be maintained as confidential. Section 214 of Title 13 and Sections 3559 and 3571 of Title 18 of the United States Code provide for the imposition of penalties of up to five years in prison and up to \$250,000 in fines for wrongful disclosure of confidential census information.
- **Disclosure Avoidance:** Disclosure avoidance is the process for protecting the confidentiality of data. A disclosure of data occurs when someone can use published statistical information to identify an individual that has provided information under a pledge of confidentiality. For data tabulations the Census Bureau uses disclosure avoidance procedures to modify or remove the characteristics that put confidential information at risk for disclosure.
- **Data Swapping:** Data swapping is a method of disclosure avoidance designed to protect confidentiality in tables of frequency data (the number or percent of the population with certain characteristics). Data swapping is done by editing the source data or exchanging records for a sample of cases when creating a table. A sample of households is selected and matched on a set of selected key variables with households in neighboring geographic areas that have similar characteristics (such as the same number of adults and same number of children). Because the swap often occurs within a neighboring area, there is no effect on the marginal totals for the area or for totals that include data from multiple areas. Because of data swapping, users should not assume that tables with cells having a value of one or two reveal information about specific individuals. Data swapping procedures were first used in the 1990 Census, and were used again in Census 2000.
- **Synthetic Data:** The goals of using synthetic data are the same as the goals of data swapping, namely to protect the confidentiality in tables of frequency data. Persons are identified as being at risk for disclosure based on certain characteristics. The synthetic data technique then models the values for another collection of characteristics to protect the confidentiality of that individual.

The Census Bureau takes further steps to prevent the identification of specific individuals, households, or housing units. The main disclosure avoidance method used is to limit the geographic detail shown in the files. The smallest geographic unit that is identified is the Public

Use Microdata Area (PUMA). PUMAs were created for the 2000 Census 5% PUMS data files. Maps for PUMAs can be found on the Census Bureau's website at <http://www.census.gov/geo/www/maps/puma5pct.htm>. The PUMAs used in the 2008-2010 PUMS file will agree with these maps with the following exception: Due to the population displacement in the greater New Orleans area caused by Hurricane Katrina in 2005, three Louisiana PUMAs (01801, 01802, and 01905) had recent populations too low to release as separate PUMAs. For this 2008-2010 ACS PUMS file, they were combined to form a single pseudo PUMA. These include PUMAs 01801 and 01802 within Orleans Parish, and PUMA 01905 made up of Jefferson (part), Plaquemines, and St. Bernard Parishes. The pseudo PUMA is identified with a PUMA code of 77777.

Other disclosure avoidance measures used in the PUMS files includes top-coding, age perturbation, weight perturbation and collapsing of detail for categorical variables. The answers to open-ended questions, where an extreme value might identify an individual are top-coded (or bottom-coded). Top-coding (and bottom-coding) substitutes the value of extreme cases with the mean of the highest (or lowest) cases. Top-coded questions include age, income and housing unit value. Age perturbation disguises original data by randomly adjusting the reported ages for a subset of individuals. Weight perturbation disguises the probability of selection for some records.

### **3. SAMPLE DESIGN**

The 2008-2010 PUMS sample is the same sample found in each of the 1-year PUMS files for the years 2008, 2009 and 2010. It contains three percent of the housing units and three percent of the GQ persons in the United States, District of Columbia, and Puerto Rico weighted to represent the average population during three years. The full ACS sample design is not described here. Information about the sample design and accuracy of the full ACS sample is found in any of the ACS 1-Year Accuracy documents or in the 3-Year Accuracy document found at: [http://www.census.gov/acs/www/data\\_documentation/documentation\\_main/](http://www.census.gov/acs/www/data_documentation/documentation_main/).

Tables 1 and 2 show PUMS sample sizes next to the corresponding ACS estimates by state, the District of Columbia, and Puerto Rico. Table 1 shows housing units and Table 2 shows GQ persons.

**Table 1. 2008-2010 Estimates of the Housing Universe and PUMS Sample Sizes**

State	ACS Housing Unit Estimate	PUMS Sample Size	State	ACS Housing Unit Estimate	PUMS Sample Size
Alabama	2,164,127	65,154	Montana	478,507	13,626
Alaska	303,104	8,744	Nebraska	793,739	23,760
Arizona	2,825,789	83,224	Nevada	1,164,804	34,401
Arkansas	1,310,895	39,268	New Hampshire	612,228	18,123
California	13,645,899	405,099	New Jersey	3,546,249	105,987
Colorado	2,201,603	65,343	New Mexico	896,962	26,520
Connecticut	1,483,468	43,772	New York	8,089,555	241,032
Delaware	403,451	11,958	North Carolina	4,298,633	127,935
District of Columbia	295,515	8,675	North Dakota	315,369	9,482
Florida	8,958,078	266,469	Ohio	5,122,449	153,020
Georgia	4,074,620	121,811	Oklahoma	1,657,704	49,538
Hawaii	517,417	15,486	Oregon	1,668,814	49,449
Idaho	663,166	19,578	Pennsylvania	5,558,024	165,837
Illinois	5,292,813	158,659	Rhode Island	462,527	13,674
Indiana	2,791,426	84,018	South Carolina	2,122,568	62,808
Iowa	1,333,328	40,111	South Dakota	361,475	10,913
Kansas	1,229,662	36,953	Tennessee	2,799,641	83,540
Kentucky	1,923,245	57,842	Texas	9,888,117	293,187
Louisiana	1,952,350	58,146	Utah	970,478	28,792
Maine	719,278	21,273	Vermont	321,337	9,498
Maryland	2,370,687	70,548	Virginia	3,348,398	100,057
Massachusetts	2,800,305	82,927	Washington	2,868,314	84,943
Michigan	4,535,052	136,082	West Virginia	881,834	26,625
Minnesota	2,341,730	70,131	Wisconsin	2,612,299	77,825
Mississippi	1,269,249	38,258	Wyoming	259,344	7,581
Missouri	2,705,020	80,601	Puerto Rico	1,499,654	44,983

**Table 2. 2008-2010 Estimates of the GQ Person Universe and PUMS Sample Sizes**

State	ACS GQ Person Estimate	PUMS GQ Person Sample Size	State	ACS GQ Person Estimate	PUMS GQ Person Sample Size
Alabama	115,093	3,590	Montana	28,690	821
Alaska	25,955	694	Nebraska	51,287	1,580
Arizona	137,752	3,777	Nevada	35,927	1,030
Arkansas	79,155	2,424	New Hampshire	39,903	1,183
California	824,601	25,299	New Jersey	187,543	5,780
Colorado	115,075	3,379	New Mexico	42,543	1,274
Connecticut	117,987	3,459	New York	590,312	18,022
Delaware	24,516	727	North Carolina	259,167	8,290
District of Columbia	39,672	1,108	North Dakota	24,945	796
Florida	421,118	12,798	Ohio	306,893	9,375
Georgia	255,669	8,008	Oklahoma	112,118	3,454
Hawaii	42,373	1,121	Oregon	85,809	2,526
Idaho	28,930	981	Pennsylvania	427,628	13,664
Illinois	304,996	9,923	Rhode Island	43,410	1,194
Indiana	186,968	5,652	South Carolina	139,898	4,314
Iowa	98,680	3,094	South Dakota	33,668	967
Kansas	79,336	2,435	Tennessee	152,054	4,571
Kentucky	125,515	3,646	Texas	581,036	17,703
Louisiana	127,070	3,751	Utah	45,363	1,355
Maine	35,719	1,119	Vermont	25,011	686
Maryland	138,558	4,253	Virginia	240,784	7,444
Massachusetts	238,965	7,301	Washington	140,488	4,277
Michigan	232,491	7,441	West Virginia	48,888	1,408
Minnesota	135,535	4,227	Wisconsin	150,473	4,794
Mississippi	92,754	2,921	Wyoming	13,664	432
Missouri	173,717	5,119	Puerto Rico	38,468	1,297

The sampling for HUs (and persons from HUs) was performed independently on the ACS samples of HUs for each of the years 2008, 2009 and 2010, as follows:

1. Records of HUs were sorted within each state by: PUMA, ACS weighting area, interview mode, type of vacant, tenure, building type, household type, householder demographics (race, Hispanic origin, sex and age), county, tract, and housing unit weight.
2. Systematic sampling was applied to ACS HUs as described below:
  - a. Within each state, a random number is chosen between zero and the sampling interval. A counter is initialized with the random number.
  - b. At each record, the value of the counter is incremented by one and compared to the sampling interval.
    - i. If the counter's new value is greater than the sampling interval, the HU record is selected for the PUMS and a flag is set to 1. The counter is decreased by the sampling interval with the new value passed to the next record.
    - ii. If the counter is less than the sampling interval, the HU record is not selected for the PUMS and the value of the counter is passed to the next record without altering its value.
3. All HUs selected for PUMS were placed in the PUMS HU sample file.
4. The PUMS HU sample file was matched to the ACS sample of persons. All persons in selected HUs were placed in the PUMS person sample.

The sampling for PUMS GQ persons was originally performed on the ACS sample of GQ persons for each of the years 2008, 2009 and 2010 as follows:

1. GQ persons were sorted within each state by the size of their GQ facility (large vs small), the type of GQ facility, PUMA, demographics (race, Hispanic origin, sex and age), county, tract, and GQ person weight.
2. Systematic sampling was applied as described above under HUs.
3. All selected GQ persons were added to the PUMS person sample. A placeholder record was also placed in the PUMS HU file for each PUMS GQ person.

## **4. WEIGHTING AND ESTIMATION**

### **4.1 Weighting**

Weights for PUMS records are a product of the final 3-year 2008-2010 ACS weight, the PUMS subsampling factor, and ratio-estimate factors. The PUMS subsampling factors are the sampling intervals used to sample the PUMS HU or GQ person records within a state. The ratio-estimate factors bring the PUMS estimates into closer agreement with the published ACS estimates for several characteristics explained below.

The PUMS ratio estimate process has been modified for 2008-2010 as follows: a) the addition of four age categories to the GQ person cells of state  $\times$  institutional/noninstitutional  $\times$  sex. b) The change from HU cells of simply vacant/occupied and person cells of male/female within PUMA to an iterative proportional fitting process within PUMA.

### Group Quarters Person Weighting

The procedure used to assign the weights to the GQ persons is performed independently within state. The steps are as follows:

1. Initial Weight - The PUMS initial weight is the product of the ACS unrounded weights for the record and the PUMS subsampling factor.
2. GQ Person Post-stratification Factor - This factor adjusts the GQ person weights so that the weighted sample counts equal published ACS estimates at the state level. Due to the ACS GQ sample design and noise added for disclosure avoidance reasons, **only state level PUMS GQ person estimates** will agree with published ACS 2010 estimates. This adjustment uses the following groups:

State  $\times$  Institutional/noninstitutional  $\times$  Sex  $\times$  Age Category

3. Rounding - The final GQ person weight is rounded to an integer. Rounding is performed so that the sum of the rounded weights is within one person of the sum of the ACS total GQ person estimate within state.

### Housing Unit and Household Person Weighting

The estimation procedure used to assign the HU and person weights is performed independently within each PUMA.

1. Initial Weight for persons and HUs - The PUMS initial weight is the product of the ACS final weight for the record and the PUMS subsampling factor.
2. Person Weighting Factors - The person weights are adjusted to agree better with ACS published estimates for householders, spouses, race, Hispanic origin, sex and age by a series of two steps which are repeated until a stopping criterion is met. This is an iterative proportional fitting or raking process. The person weights are individually adjusted at each step as described below.

The two steps are as follows:

- Spouse Equalization/Householder Equalization Raking Factor—This factor is applied to individuals based on the combination of their status of being in a married-couple or unmarried-partner household and whether they are the householder. All persons are assigned to one of four groups:

1. Householder in a married-couple or unmarried-partner household

2. Spouse or unmarried partner in a married-couple or unmarried-partner household (non-householder)
3. Other householder
4. Other non-householder

The weights of persons in the first two groups are adjusted so that their sums are each equal to the ACS estimate of married-couple or unmarried-partner households using the ACS housing unit weight. The weights of persons in the third group are adjusted so that the sum is equal to the ACS estimate of occupied housing units not having a partner using the housing unit weight. The weights of persons in the fourth group are adjusted to agree with the ACS total population minus the first three groups. The goal of this step is to produce more consistent estimates of spouses or unmarried partners and married-couple and unmarried-partner households while simultaneously producing more consistent estimates of householders, occupied housing units, and households.

- Demographic Raking Factor—This factor is applied to individuals based on their age, race, sex and Hispanic origin. It adjusts the person weights so that the weighted sample counts equal independent population estimates by age, race, sex, and Hispanic origin at the PUMA level. Because of collapsing of groups in applying this factor, only total population is assured of agreeing precisely with the published ACS 2008-2010 population estimates at the PUMA level.

This uses the following groups within each PUMA (note that there are 13 Age groupings):

Race / Ethnicity (non-Hispanic White, non-Hispanic Black, non-Hispanic American Indian or Alaskan Native, non-Hispanic Asian, non-Hispanic Native Hawaiian or Pacific Islander, and Hispanic (any race))  $\times$  Sex  $\times$  Age Groups.

These two steps are repeated several times until the estimates at the PUMA level achieve their optimal consistency with regard to the spouse and householder equalization. The final Person Weighting Factor is then equal to the product of the factors from all of the iterations of these two adjustments. The unrounded person weight is then equal to the product of Person Weighting Factor times the initial person weight.

3. Rounding of person weights - The person weight after the Person Weighting Factor has been applied is rounded to an integer. Rounding is performed so that the sum of the rounded weights is within one person of the sum of the ACS total person from HU's estimates within state and PUMA.
4. Householder adjustment Factor (HHRF) - This factor applied to occupied housing units is the same as the Person Weighting factor from the person weighting. After this stage the weight of the housing unit is identical to the unrounded person weight of the householder after the Person Weighting Factor is applied.

5. Housing Unit Control factor - This factor adjusts PUMS housing unit estimates to agree with the published ACS housing unit estimates for housing units with married couples (or partners), occupied housing units without partners and vacant housing units.
6. Rounding of Housing Unit weights - The Housing Unit weight after the Housing Unit Control Factor is applied is rounded to an integer. Rounding is performed so that the sum of the rounded weights is within one housing unit of the sum of the ACS total HU's estimates within state and PUMA.

For a detailed description of how the original ACS weights are computed see 2008-2010 & 2006-2010 Multiyear Accuracy found on [http://www.census.gov/acs/www/data\\_documentation/documentation\\_main/](http://www.census.gov/acs/www/data_documentation/documentation_main/)

## 4.2 Estimation

To produce estimates or tabulations of characteristics from the PUMS, simply add the weights of all persons or HUs that possess the characteristic of interest. For instance, if the characteristic of interest is “total number of black teachers”, simply determine the race and occupation of all persons and cumulate the weights of those who match the characteristics of interest. To get estimates of proportions simply divide the weighted estimate of persons or HUs with a given characteristic by the weighted estimate of the base. For example, the proportion of “black teachers” is obtained by dividing the weighted estimate of black teachers by the estimate of teachers.

PUMS estimates are expected to be different from published ACS estimates that are based on the full set of data because of the additional sampling. The exception will be characteristics controlled by the ratio-estimate factors.

Note that the housing unit file contains some records with blank weights. These are the GQ placeholder records<sup>1</sup>. The housing unit weights were set to zero for these records since they are not housing units, but persons. For confidentiality reasons, the GQ data are not provided at the level of an address but only at the person-level. All of the GQ person data are included in the PUMS person file except the food stamp reciprocity which are the only data included on the GQ placeholder records in the housing unit file. For food stamp reciprocity estimates of persons in GQs, you will need to match the placeholder records to the person file to get the person weights.

## 5. ERRORS IN THE DATA

Every sample survey is subject to two types of error: sampling error and nonsampling error.

### 5.1 Sampling Error

The data in the ACS products are estimates of the actual figures that would have been obtained by interviewing the entire population using the same methodology. The estimates from the

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<sup>1</sup> To identify HU and GQ placeholder records on the PUMS housing file, see the TYPE variable in the PUMS data dictionary: [http://www.census.gov/acs/www/data\\_documentation/pums\\_documentation/](http://www.census.gov/acs/www/data_documentation/pums_documentation/)

chosen sample also differ from other samples of HUs and persons within those HUs. Sampling error in data arises due to the use of probability sampling, which is necessary to ensure the integrity and representativeness of sample survey results. The implementation of statistical sampling procedures provides the basis for the statistical analysis of sample data.

Estimates made with PUMS data are subject to additional sampling error because the PUMS data consists of a subset of the full ACS sample. Thus standard errors of PUMS estimates can be larger than standard errors that would be obtained using all of the ACS data.

## 5.2 Nonsampling Error

In addition to sampling error, data users should realize that other types of errors may be introduced during any of the various complex operations used to collect and process survey data. For example, operations such as data entry from questionnaires and editing may introduce error into the estimates. These and other sources of error contribute to the nonsampling error component of the total error of survey estimates. Nonsampling errors may affect the data in two ways. Errors that are introduced randomly increase the variability of the data. Systematic errors, which are consistent in one direction, introduce bias into the results of a sample survey. The Census Bureau protects against the effect of systematic errors on survey estimates by conducting extensive research and evaluation programs on sampling techniques, questionnaire design, and data collection and processing procedures. In addition, an important goal of the ACS is to minimize the amount of nonsampling error introduced through nonresponse for sample HUs. One way of accomplishing this is by following up on mail nonrespondents during the CATI and CAPI phases.

More information about the control of nonsampling error can be found in 2008-2010 & 2006-2010 Multiyear Accuracy at [http://www.census.gov/acs/www/data\\_documentation/documentation\\_main/](http://www.census.gov/acs/www/data_documentation/documentation_main/).

## 6. MEASURING SAMPLING ERROR

**Standard error:** A measure of the deviation of a sample estimate from the average of all possible samples. Sampling error and some types of nonsampling error are estimated by the standard error. The sample estimate and its estimated standard error permit the construction of interval estimates with a prescribed confidence that the interval includes the average result of all possible samples.

Two methods are provided for calculating the standard errors of PUMS estimates: replicate weights and design factors. Replicate weights have been provided with the ACS PUMS files since the 2005 PUMS. Design factors (a type of generalized variance function) is a method used by the Census 2000 PUMS and also in use by the ACS PUMS since 2000. **It is important to keep in mind that there will be differences between the standard error approximations computed by the two methods.** Generally, using the replicate weights will produce a more accurate estimate of a standard error.

Confidence Intervals: A sample estimate and its estimated standard error may be used to construct confidence intervals about the estimate. These intervals are ranges that will contain the average value of the estimated characteristic that results over all possible samples, with a known probability.

For example, if all possible samples that could result under the PUMS sample design were independently selected and surveyed under the same conditions, and if the estimate and its estimated standard error were calculated for each of these samples, then:

1. Approximately 68 percent of the intervals from one estimated standard error below the estimate to one estimated standard error above the estimate would contain the average result from all possible samples;
2. Approximately 90 percent of the intervals from 1.645 times the estimated standard error below the estimate to 1.645 times the estimated standard error above the estimate would contain the average result from all possible samples.
3. Approximately 95 percent of the intervals from two estimated standard errors below the estimate to two estimated standard errors above the estimate would contain the average result from all possible samples.

These intervals are referred to as 68 percent, 90 percent, and 95 percent confidence intervals, respectively. An example of how to construct a 90 percent confidence interval follows:

Add and subtract 1.645 times the standard error to the estimate to yield the lower and upper bounds of a 90% confidence interval around the estimate (EST).

$$\text{LB} = \text{Lower bound} = \text{EST} - 1.645 * \text{SE}(\text{EST})$$

$$\text{UB} = \text{Upper bound} = \text{EST} + 1.645 * \text{SE}(\text{EST})$$

The 90% confidence interval is the interval (LB, UB).

Limitations: The user should be careful when computing and interpreting standard errors and confidence intervals.

1. The estimated standard errors included in this data product do not include all portions of the variability due to nonsampling error that may be present in the data. In particular, the standard errors do not reflect the effect of correlated errors introduced by interviewers, coders, or other field or processing personnel. Nor do they reflect the error from imputed values due to missing responses. Thus, the standard errors calculated represent a lower bound of the total error. As a result, confidence intervals formed using these estimated standard errors may not meet the stated levels of confidence (i.e., 68, 90, or 95 percent). Thus, some care must be exercised in the interpretation of the data in this data product based on the estimated standard errors.

2. Zero or small estimates; very large estimates — The value of almost all PUMS characteristics is greater than or equal to zero by definition. For zero or small estimates, use of the method given previously for calculating confidence intervals relies on large sample theory, and may result in negative values which for most characteristics are not admissible. In this case the lower limit of the confidence interval is set to zero by default. A similar caution holds for estimates of totals close to a control total or estimated proportions near one, where the upper limit of the confidence interval is set to its largest admissible value. In these situations the level of confidence of the adjusted range of values is less than the prescribed confidence level.

### 6.1 Approximating Standard Errors with Replicate Weights

Replicate weights can be used to calculate what we refer to as direct standard errors. Standard errors for the published ACS tabulations are calculated using replicate weights. Direct standard errors will often be more accurate than generalized standard errors, although they may be more inconvenient for some users to calculate. The advantage of using replicate weights is that a single formula is used to calculate the standard error of many types of estimates.

Each PUMS housing unit and person record contains 80 replicate weights. These replicate weights were formed from the ACS replicate weights adjusted for PUMS subsampling and ratio adjustments. For any estimate  $X$ , 80 replicate estimates are also computed using the replicate weights. For this discussion, we refer to  $X$  as the ‘full sample estimate.’ The first replicate estimate  $X_1$  is computed using the first replicate weight, the second replicate estimate  $X_2$  is computed using the second replicate weight, and so on. Each replicate estimate is computed using the replicate weights in the same way that the full sample estimate  $X$  is computed, as described in Section 4.2.

**NOTE:** When programming the replicate weight standard errors, users will find the eighty replicate weights can be positive, zero or negative. The negative replicate weights are partly due to the addition of the Group Quarters (GQ) population to the full ACS weighting process. Within a weighting cell, GQ estimates were subtracted from population totals, sometimes resulting in negative values for the cell. The cells were collapsed in such a way as to prevent a final cell from being zero or negative for the full sample weights. The full sample weights are never negative. This restriction was not placed on the replicate weights since their only purpose is to represent the variability of the sample. PUMS replicate weights are based on ACS replicate weights so negative values are carried along. Keep in mind that the replicate weights are only to be used to estimate standard errors with the formula provided in the PUMS accuracy document.

The standard error of  $X$  can be computed after the replicate estimates  $X_1$  through  $X_{80}$  are computed. The standard error is estimated using the sum of squared differences between each replicate estimate  $X_r$  and the full sample estimate  $X$ . The standard error formula is:

$$SE(X) = \sqrt{\frac{4}{80} \sum_{r=1}^{80} (X_r - X)^2}$$

If X is zero, then use the generalized variance method for zero estimates given in section 6.2, Standard Errors for Totals and Percentages, to approximate the standard error.

The standard error can be used to form a 90% confidence interval around the estimate (X) as follows:

$$LB = \text{Lower bound} = X - 1.645 * SE(X)$$

$$UB = \text{Upper bound} = X + 1.645 * SE(X)$$

The 90% confidence interval is the interval (LB, UB).

As mentioned we consider the replicate weight SEs to be more accurate than the design factor SEs. For exceptions, please note the following:

After using replicate weight SEs, some users may notice that occasionally the SE is zero for an estimate. The user may want to know if this is accurate. Except for controlled estimates, all PUMS estimates are based on a sample of the population and should not have a SE of zero. However, if your estimate is a median, the replicate weight method can be used, but don't accept the SE of zero. Often this occurs when the characteristic contains few records, such as a median based on less than five records in a PUMA. The true SE for a median should *never* be zero because medians are not controlled. So if the replicate weight method gives a SE of zero for a median or other estimate that is not controlled, switch to using the design factor method for that estimate. However, if the estimate is a controlled count (or total) such as total population or total GQ population in a state, there is no sampling variability in the estimate. It is expected that the replicate weight SE and MOE will be zero for some controlled estimates.

Examples of PUMS estimates with replicate weight standard errors are found at:

<http://www.census.gov/acs/www/Products/PUMS/pumscontrols.html>

Users can check national and state level estimates with associated replicate weight standard errors by comparing to values shown in these files.

## 6.2 Approximating Generalized Standard Errors with Design Factors

### a. Standard Errors for Totals and Percentages

The design factors provided in Tables 5 through 5.52 in the appendix can be used to approximate the standard errors of most sample estimates of *totals* and *proportions*. Design factors are given by subject for the United States, all 50 states, the District of Columbia, and Puerto Rico. The term "subject" refers to a characteristic, such as age for persons and tenure for HUs. The design factors reflect the effects of the actual sample design and estimation procedures used for the ACS. To approximate the standard error for most estimates, use the following formulas:

Total Formula:

$$SE(\hat{Y}) \doteq DF \times \sqrt{\left(\frac{97}{3}\right) \times \hat{Y} \left(1 - \frac{\hat{Y}}{N}\right)}$$

Where:

DF = Design Factor

N = Size of Population in the Geographic Area

$\hat{Y}$  = Estimate of Characteristic Total

Percent Formula:

$$SE(\hat{p}) \doteq DF \times \sqrt{\frac{97}{3B} \times \hat{p}(100 - \hat{p})}$$

Where:

DF = Design Factor

B = Denominator of Estimated Percentage

$\hat{p}$  = Estimated Percentage

The values of N and the design factor can be determined as follows:

1. For the value of N, obtain the number of persons, number of households or number of HUs, respectively for the geography (ies) you are interested in. If the estimate is of HUs then use the number of HUs; if the estimates are of families or households then use the number of households; otherwise use the number of persons.
2. Select the appropriate table from Tables 5 through 5.52. Use the table for the United States (Table 5) when estimating characteristics for the United States or geographic areas that cover more than one state. Use the table for a specific state (Tables 5.1-5.52) when estimating characteristics for that state or geographic areas that are contained entirely within that state.
3. Then use the selected table to obtain the appropriate design factor for the characteristic; for example, educational attainment or ancestry. If the estimate is a combination of two or more characteristics, we suggest the following guideline: Use the largest design factor for this combination of characteristics. **The only exception to this is for items crossed with race or Hispanic Origin. For an item(s) crossed with race or Hispanic Origin use the largest design factor not including the race or Hispanic Origin design factor.**

An inspection of the formulas used to calculate the simple random sampling standard errors suggests that when dealing with zero estimates or very small estimates of totals and percentages the standard error estimates approach zero. This is also the case for very large estimates of totals and percentages. Zero or small estimates, like any other sample estimates, are still subject to sampling variability and therefore an estimated standard error of zero or close to zero is not adequate. Use one of the following procedures for estimates of this type:

1. **An estimated total is less than 425 or within 425 of the total size of the tabulation area.** Use a basic standard error of 142 multiplied by the design factor for the type of estimate.
2. **For estimated percentages that are less than 2 or greater than 98.** Use a value of 2 for the estimated percentage in the percent formula.
3. **The denominator of a percentage is zero.** There are no sample observations available to compute an estimate of a proportion or an estimate of its standard error.

### b. Standard Errors for Sums and Differences

For the sum or difference between two estimates, the standard error is approximately the square root of the sum of the two individual standard errors squared:

$$SE(\hat{X} + \hat{Y}) = SE(\hat{X} - \hat{Y}) = \sqrt{[SE(\hat{X})]^2 + [SE(\hat{Y})]^2}$$

This method is, however, an approximation as the two estimates of interest in a sum or a difference are likely to be correlated. If the two quantities X and Y are positively correlated, this method underestimates the standard error of the sum of X and Y and overestimates the standard error of the difference between the two estimates. If the two estimates are negatively correlated, this method overestimates the standard error of the sum and underestimates the standard error of the difference.

### c. Standard Errors for Ratios

Frequently, the statistic of interest is the ratio of two variables, where the numerator is not a subset of the denominator. An example is the ratio of students to teachers in public elementary schools. The standard error of the ratio between two sample estimates is estimated as follows:

$$SE\left(\frac{\hat{X}}{\hat{Y}}\right) = \left(\frac{\hat{X}}{\hat{Y}}\right) \times \sqrt{\frac{[SE(\hat{X})]^2}{\hat{X}^2} + \frac{[SE(\hat{Y})]^2}{\hat{Y}^2}}$$

If the ratio is a proportion, that is, the numerator is a subset of the denominator, then follow the procedure outlined in the section Standard Errors for Totals and Percentages.

### d. Standard Errors for Medians

The sampling variability of an estimated median depends on the form of the distribution and the size of its base. The standard error of an estimated median is approximated by constructing a 68

percent confidence interval. Estimate the 68 percent confidence limits of a median based on sample data using the following procedure.

1. Obtain the weighted frequency distribution for the selected variable. Cumulate these frequencies to yield the base.
2. Determine the standard error of a 50 percent proportion using the formula in the section Standard Errors for Totals and Percentages.

$$SE(50 \text{ percent}) = DF \times \sqrt{\frac{97}{3B} \times 50^2}$$

3. Subtract from and add to 50 percent the standard error determined in step 2.

$$\begin{aligned} p_{\text{lower}} &= 50 - SE(50 \text{ percent}) \\ p_{\text{upper}} &= 50 + SE(50 \text{ percent}) \end{aligned}$$

4. Determine the categories in the distribution that contain  $p_{\text{lower}}$  and  $p_{\text{upper}}$ . If  $p_{\text{lower}}$  and  $p_{\text{upper}}$  fall in the same category, follow step 5. If  $p_{\text{lower}}$  and  $p_{\text{upper}}$  fall in different categories, go to step 6.
5. If  $p_{\text{lower}}$  and  $p_{\text{upper}}$  fall in the same category, do the following:
  - Define A1 as the smallest value in that category.
  - Define A2 as the smallest value in the next (higher) category.
  - Define C1 as the cumulative percent of units strictly less than A1.
  - Define C2 as the cumulative percent of units strictly less than A2.

Use the following formulas to determine the lower and upper bounds for a confidence interval about the median:

$$\text{Lower Bound} = \left[ \frac{p_{\text{lower}} - C1}{C2 - C1} \right] \times (A2 - A1) + A1$$

$$\text{Upper Bound} = \left[ \frac{p_{\text{upper}} - C1}{C2 - C1} \right] \times (A2 - A1) + A1$$

6. If  $p_{\text{lower}}$  and  $p_{\text{upper}}$  fall in different categories, do the following:
  - For the category containing  $p_{\text{lower}}$ : Define A1, A2, C1, and C2 as described in step 5. Use these values and the formula in step 5 to obtain the lower bound.
  - For the category containing  $p_{\text{upper}}$ : Define new values for A1, A2, C1, and C2 as described in step 5. Use these values and the formula in step 5 to obtain the upper bound.

7. Use the lower and upper bounds determined in steps 5 or 6 to calculate the standard error of the median.

$$SE(\text{median}) = \frac{1}{2} \times (\text{Upper Bound} - \text{Lower Bound})$$

### e. Standard Errors for Means

A mean is defined here as the average quantity of some characteristic (other than the number of people, HUs, households, or families) per person, housing unit, household, or family. For example, a mean could be the average annual income of females age 25 to 34. The standard error of a mean can be approximated by the formula below. Because of the approximation used in developing this formula, the estimated standard error of the mean obtained from this formula will generally underestimate the true standard error.

$$SE(\bar{Y}) = DF \times \sqrt{\frac{97}{3B} \times s^2}$$

Where: B is the base (denominator) of the mean, and  $s^2$  is the sample variance of the characteristic based on weighted data. The value of  $s^2$  can be computed using the formula:

$$s^2 = \frac{\sum_{i=1}^n w_i y_i^2 - (\sum_{i=1}^n w_i y_i)^2 / \sum_{i=1}^n w_i}{(\sum_{i=1}^n w_i) - 1}$$

Where:

$w_i$  is the weight of the  $i^{\text{th}}$  sample record

$y_i$  is the value of the characteristic for the  $i^{\text{th}}$  sample record

$n$  is the number of sample records

Note that  $\sum_{i=1}^n w_i$  is the weighted estimate of persons/HUs in the sample (ex. the number of females age 25 to 34, and  $\sum_{i=1}^n w_i y_i$  is the weighted aggregate estimate for the characteristic of interest (ex. the aggregate income of females age 25 to 34).

## 6.3 Examples of Standard Error Calculations using Generalized Standard Error Formulas

We will present some examples based on the 2008-2010 PUMS data to demonstrate the use of the generalized standard error formulas.

### Example 1 – Using Design Factors to Estimate a Total

The estimated number of people 15 years or over who were never married is 1,964,239 from the PUMS data for the state of Virginia. To calculate the standard error, we use the total formula given in the section Standard Errors for Totals and Percentages. In this formula, Y is our

estimate of 1,964,239 and N is the total PUMS population for the state of Virginia, which is 7,928,022. The design factor (from Table 5.47) for “Marital Status” is 1.3.

$$SE = 1.3 \times \sqrt{\frac{97}{3} \times 1,964,239 \times \left(1 - \frac{1,964,239}{7,928,022}\right)} = 8,985.54$$

To calculate the lower and upper bounds of the 90 percent confidence interval around 1,964,239 using the standard error, simply multiply 8,985.54 by 1.645, then add and subtract the product from 1,964,239. Thus the 90 percent confidence interval for this estimate is [1,964,239 - 1.645(8,985.54)] to [1,964,239 + 1.645(8,985.54)] or 1,949,458 to 1,979,020

### **Example 2 – Using Design Factors to Estimate a Proportion or Percentage**

The estimated percent of people 25 years or over with a bachelor’s degree or higher in Louisiana is 21.1434 (= 613,464 / 2,901,446) from the PUMS data. To calculate the standard error, we use the percent formula given in the section Standard Errors for Totals and Percentages. Use the denominator of the percentage, 2,901,446 in the formula. The design factor (from Table 5.19) for “Educational Attainment” is 1.5.

$$SE = 1.5 \times \sqrt{\frac{97}{3 \times 2,901,446} \times 21.1434 \times (100 - 21.1434)} = 0.2045$$

To calculate the lower and upper bounds of the 90 percent confidence interval around 21.1434 percent using the standard error, simply multiply 0.2045 by 1.645, then add and subtract the product from 21.1434. Thus the 90 percent confidence interval for this estimated percentage is [21.1434 - 1.645(0.2045)] to [21.1434 + 1.645(0.2045)] or 20.81 to 21.48.

### **Example 3 – Calculating the Standard Error of a Median**

Table 3 below shows a weighted frequency distribution for adjusted household income in Massachusetts.

**Table 3: PUMS Distribution of Adjusted Household Income in Massachusetts**

Adjusted Household Income	Frequency	Cumulative Frequency	Cumulative Percent
Less than \$10,000	174,385	174,385	6.91%
\$10,000 to \$14,999	128,858	303,243	12.02%
\$15,000 to \$19,999	109,601	412,844	16.37%
\$20,000 to \$24,999	109,694	522,538	20.72%
\$25,000 to \$29,999	93,137	615,675	24.41%
\$30,000 to \$34,999	104,386	720,061	28.55%
\$35,000 to \$39,999	93,407	813,468	32.26%
\$40,000 to \$44,999	101,664	915,132	36.29%
\$45,000 to \$49,999	93,135	1,008,267	39.98%
\$50,000 to \$59,999	178,009	1,186,276	47.04%
\$60,000 to \$74,999	248,986	1,435,262	56.91%
\$75,000 to \$99,999	330,659	1,765,921	70.02%
\$100,000 to \$124,999	251,578	2,017,499	80.00%
\$125,000 to \$149,999	160,337	2,177,836	86.35%
\$150,000 to \$199,999	165,964	2,343,800	92.93%
\$200,000 or more	178,186	2,521,986	100%

- Determine the standard error of a 50 percent proportion, using as the denominator the cumulative sum of the weighted frequencies, 2,521,986. For this example, the design factor for household income is 1.5 from Table 5.22.

$$SE(50 \text{ percent}) = 1.5 \times \sqrt{\frac{97}{3 \times 2,521,986} \times 50^2} = 0.27$$

- Calculate  $p_{\text{lower}}$  and  $p_{\text{upper}}$ .

$$\begin{aligned} p_{\text{lower}} &= 50 - SE(50 \text{ percent}) = 49.73 \\ p_{\text{upper}} &= 50 + SE(50 \text{ percent}) = 50.27 \end{aligned}$$

- Determine the categories that contain  $p_{\text{lower}}$  and  $p_{\text{upper}}$ . The first category with a cumulative percentage that is greater than 49.73 is \$60,000 to \$74,999. The first category with a cumulative percentage that is greater than 50.27 is \$60,000 to \$74,999. Since  $p_{\text{lower}}$  and  $p_{\text{upper}}$  fall in the same category, follow the instructions given in step 5 of the section Standard Errors for Medians.
- Define A1, A2, C1, and C2: A1 = 60,000, A2 = 75,000, C1 = 47.04 and C2 = 56.91  
Calculate the lower bound and upper bound using these values.

$$\text{Lower Bound} = \left[ \frac{49.73 - 47.04}{56.91 - 47.04} \right] \times (75,000 - 60,000) + 60,000 = 64,088.15$$

$$\text{Upper Bound} = \left[ \frac{50.27 - 47.04}{56.91 - 47.04} \right] \times (75,000 - 60,000) + 60,000 = 64,908.81$$

- Finally, calculate the standard error of the median:

$$SE(\text{median}) = \frac{1}{2} \times (64,908.81 - 64,088.15) = 410.3$$

#### Example 4 – Calculating the Standard Error of a Mean

Suppose we wish to estimate mean adjusted person income of females age 25 to 34 in Alabama. Table 4 below summarizes the computation of the terms in the formula for  $s^2$ . The PUMS data for Alabama has 8,063 records for females age 25 to 34 that have a non-missing value for person income.

**Table 4: Computations for Mean Adjusted Person Income of Females Age 25 to 34 in Alabama**

Sample Record	$y_i$	$w_i$	$w_i y_i$	$w_i y_i^2$
1	51,564	40	2,062,544	106,352,193,798
2	2,063	19	39,188	80,827,667
3	0	83	0	0
4	0	9	0	0
.				
.				
8,063	21,865	26	568,501	12,430,535,036
Total		<b>305,239</b>	<b>6,221,906,699</b>	<b>266,966,446,799,720</b>

Note: Data from 2008-2010 PUMS

The mean adjusted income is

$$\bar{Y} = \frac{6,221,906,699}{305,239} = 20,383.72$$

See the section Standard Errors for Means for the formula for  $s^2$ , computed as follows:

$$s^2 = \frac{266,966,446,799,720 - (6,221,906,699)^2 / 305,239}{305,239 - 1} = 459,119,883$$

The design factor for person income in Alabama, from Table 5.1, is 1.6. The standard error of the mean can now be calculated:

$$SE(\bar{Y}) = 1.6 \times \sqrt{\frac{97}{3 \times 305,239} \times 459,119,883} = 353$$

## 7. WORKING WITH DOLLAR AMOUNTS

Dollar variables must be adjusted into a common year before using them to form estimates. Generally, the older years are adjusted to the most recent year covered by the analysis. Data in the 2008-2010 PUMS were collected over three years, so the adjustment will inflate 2008 and 2009 dollars into 2010 values. The PUMS data dictionary for 2008-2010 describes two adjustment factors on the 3-year file that put dollar values into 2010 dollars:

ADJINC – inflation adjustment factor for income variables, such as household income, self-employment income, retirement income and wages.

ADJHSG – inflation adjustment factor for most housing dollar variables, such as utility costs, rent, food stamps, and condominium fees.

For more details see the PUMS Data Dictionary at [http://www.census.gov/acs/www/data\\_documentation/pums\\_documentation/](http://www.census.gov/acs/www/data_documentation/pums_documentation/) for details.

For example, multiply the household income variable by ADJINC to adjust household income into 2010 dollars. The reason this adjustment is needed is because interviews in the ACS were conducted throughout the year for a reference period that included twelve previous months. Application of the adjustment factor will convert amounts to 2010 dollars.

For example, multiply ADJHSG times the monthly rent to adjust rent into 2010 dollars. All records get this adjustment, although the records interviewed in 2010 have a factor of 1.

Note that the values of ADJINC and ADJHSG are the same for all sample cases from the same year. This is for disclosure avoidance reasons, that is, so that the month of interview cannot be identified by the adjustment factor.

When comparing dollar estimates from the 2008-2010 PUMS file to estimates from other years, an additional adjustment is necessary to convert the amounts into dollars from a common year (after applying the adjustment factor described in the previous paragraphs). We use the CPI-U-RS adjustment factors from the Bureau of Labor Statistics. These factors can be found in the first table in the PDF file at: [http://www.bls.gov/cpi/cpiursai1978\\_2010.pdf](http://www.bls.gov/cpi/cpiursai1978_2010.pdf) [For example, to express year 2000 dollars in terms of 2010 dollars, multiply the 2000 dollars by  $320.2/252.9 = 1.2661$ ].

## 8. REFERENCES

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**Table 5. Design Factors for Calculating PUMS Standard Errors – United States**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.1
Age	1.1
Sex	1.1
Population of Two or More Races	2.5
White Alone	1.8
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	2.0
Hispanic or Latino	2.0
Marital Status	1.6
Relationship	1.7
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.4
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	3.0
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.6
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.6
Age of Own Children by Living Arrangements and Employment Status of Parents	2.1

Age of Householder	1.6
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.6
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	3.2
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	2.3
<b>HOUSING</b>	
Households/Occupied Housing Units	2.8
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.7
Tenure	1.9
Vacant	2.1
Rooms and Bedrooms	1.6
Occupants per Room	1.6
Units in Structure	1.7
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.5
Telephone Service Available	1.8
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.3
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.5
Selected Physical and Financial Conditions	1.7

**Table 5.1. Design Factors for Calculating PUMS Standard Errors – Alabama**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.6
Population by Tenure	2.7
Age	1.1
Sex	1.0
Population of Two or More Races	1.9
White Alone	1.0
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.5
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.1
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	1.9
Residence 1 Year Ago	2.7
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.6
Place of Work	1.5
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.3
Race of Householder	1.3
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.7
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.0
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	1.9
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.2. Design Factors for Calculating PUMS Standard Errors – Alaska**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.4
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.5
Age	1.0
Sex	1.0
Population of Two or More Races	1.9
White Alone	1.2
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.4
Hispanic or Latino	2.0
Marital Status	1.2
Relationship	1.2
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.5
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.6
Linguistic Isolation	1.3
Place of Birth, Year of Entry, and Citizenship Status	1.6
Residence 1 Year Ago	2.5
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.3
Industry, Occupation, and Class of Worker	1.4
Travel Time to Work	1.5
Means of Transportation to Work	1.6
Place of Work	1.3
Time Leaving Home to go to Work	1.5
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.3
Race of Householder	1.4
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.4
Type of Household Income	1.7
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.4
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.2
<b>HOUSING</b>	
Households/Occupied Housing Units	1.6
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	1.8
Unmarried Partner Households	1.5
Tenure	1.3
Vacant	1.1
Rooms and Bedrooms	1.4
Occupants per Room	1.3
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.2
Telephone Service Available	1.3
Vehicles Available	1.3
Plumbing Facilities and Kitchen Facilities	1.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.5
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.4
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.2
Selected Physical and Financial Conditions	1.4

**Table 5.3. Design Factors for Calculating PUMS Standard Errors – Arizona**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.2
Population of Two or More Races	2.2
White Alone	1.9
Black or African American Alone	1.2
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	2.0
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.3
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	2.0
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.1
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.4. Design Factors for Calculating PUMS Standard Errors – Arkansas**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.7
Population by Tenure	2.5
Age	1.1
Sex	1.0
Population of Two or More Races	1.9
White Alone	1.0
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.8
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	1.8
Residence 1 Year Ago	2.7
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.7
Means of Transportation to Work	1.6
Place of Work	1.4
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.3
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.6
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.5
<b>HOUSING</b>	
Households/Occupied Housing Units	2.0
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.5
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	1.9
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.5. Design Factors for Calculating PUMS Standard Errors – California**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.2
Population of Two or More Races	2.2
White Alone	1.9
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.6
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.9
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.6. Design Factors for Calculating PUMS Standard Errors – Colorado**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.9
Age	1.1
Sex	1.2
Population of Two or More Races	2.0
White Alone	1.9
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.6
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.8
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.1
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.3
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.7. Design Factors for Calculating PUMS Standard Errors – Connecticut**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.5
Age	1.1
Sex	1.1
Population of Two or More Races	2.1
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.2
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.6
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.6
Place of Work	1.4
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.5
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.3
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.4
Ratio of Income to Poverty Level	2.7
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	1.9
Unmarried Partner Households	1.6
Tenure	1.4
Vacant	1.8
Rooms and Bedrooms	1.5
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.4
Telephone Service Available	1.4
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.1
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.4
Inclusion of Utilities in Rent	1.5
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.5

**Table 5.8. Design Factors for Calculating PUMS Standard Errors – Delaware**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.7
Population by Tenure	2.8
Age	1.1
Sex	1.2
Population of Two or More Races	1.6
White Alone	1.6
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.8
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.5
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.6
Means of Transportation to Work	1.6
Place of Work	1.4
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.3
Race of Householder	1.3
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.6
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.4
<b>HOUSING</b>	
Households/Occupied Housing Units	1.8
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	1.9
Unmarried Partner Households	1.6
Tenure	1.4
Vacant	1.3
Rooms and Bedrooms	1.4
Occupants per Room	1.4
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.4
Telephone Service Available	1.4
Vehicles Available	1.4
Plumbing Facilities and Kitchen Facilities	1.5
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.5
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.4

**Table 5.9. Design Factors for Calculating PUMS Standard Errors – District of Columbia**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.6
Population by Tenure	2.6
Age	1.1
Sex	1.2
Population of Two or More Races	1.8
White Alone	1.3
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	1.8
Grandparents Responsible for Grandchildren	1.6
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.5
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	1.9
Residence 1 Year Ago	2.8
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.4
Period of Military Service	1.4
Employment/Work Status	1.3
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.4
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.1
Poverty Status (Persons)	1.8
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.7
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.5
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.5
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.5
Occupants per Room	1.5
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.5
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.4
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.5

**Table 5.10. Design Factors for Calculating PUMS Standard Errors – Florida**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.2
Population of Two or More Races	2.2
White Alone	1.9
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.6
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.9
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.11. Design Factors for Calculating PUMS Standard Errors – Georgia**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.0
Population of Two or More Races	2.2
White Alone	1.5
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	1.9
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.12. Design Factors for Calculating PUMS Standard Errors – Hawaii**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.2
Population of Two or More Races	2.2
White Alone	1.3
Black or African American Alone	2.2
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.8
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.4
Employment/Work Status	1.3
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	2.0
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.1
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.6
Rooms and Bedrooms	1.5
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.5
Telephone Service Available	1.5
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	1.9
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.5

**Table 5.13. Design Factors for Calculating PUMS Standard Errors – Idaho**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.5
Age	1.0
Sex	1.0
Population of Two or More Races	1.7
White Alone	1.7
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	1.5
Marital Status	1.2
Relationship	1.3
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.2
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.9
Residence 1 Year Ago	2.6
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.1
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.5
Place of Work	1.3
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.5
Work Experience, Hours Worked per Week, and Weeks Worked	1.2
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.5

Age of Householder	1.2
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.5
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	1.7
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	1.9
Unmarried Partner Households	1.5
Tenure	1.4
Vacant	1.6
Rooms and Bedrooms	1.5
Occupants per Room	1.4
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.4
Telephone Service Available	1.4
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	1.7
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.4
Inclusion of Utilities in Rent	1.5
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.4

**Table 5.14. Design Factors for Calculating PUMS Standard Errors – Illinois**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.2
Population of Two or More Races	2.2
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.7
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.5
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.15. Design Factors for Calculating PUMS Standard Errors – Indiana**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.7
Age	1.1
Sex	1.0
Population of Two or More Races	2.0
White Alone	1.5
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	1.8
Marital Status	1.2
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.1
Language Spoken at Home and Ability to Speak English	1.2
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.8
Residence 1 Year Ago	2.7
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.1
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.5
Place of Work	1.4
Time Leaving Home to go to Work	1.5
Private Vehicle Occupancy	1.5
Work Experience, Hours Worked per Week, and Weeks Worked	1.2
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.2
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.5
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.1
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	2.1
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.5
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.4
Telephone Service Available	1.5
Vehicles Available	1.4
Plumbing Facilities and Kitchen Facilities	2.0
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.5
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.5

**Table 5.16. Design Factors for Calculating PUMS Standard Errors – Iowa**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.4
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.2
Age	1.0
Sex	1.0
Population of Two or More Races	1.8
White Alone	1.2
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.5
Hispanic or Latino	1.2
Marital Status	1.1
Relationship	1.1
Ancestry	1.8
Grandparents Responsible for Grandchildren	1.6
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.3
Place of Birth, Year of Entry, and Citizenship Status	1.7
Residence 1 Year Ago	2.3
School Enrollment, Level of School, Type of School, and Field of Degree	1.0
Educational Attainment	1.2
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.1
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.3
Travel Time to Work	1.5
Means of Transportation to Work	1.4
Place of Work	1.2
Time Leaving Home to go to Work	1.4
Private Vehicle Occupancy	1.4
Work Experience, Hours Worked per Week, and Weeks Worked	1.0
Number of Workers in Family	1.2
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.2
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.1
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.4
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.3
Ratio of Income to Poverty Level	2.2
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.3
Households by Presence of Nonrelatives	1.6
Unmarried Partner Households	1.4
Tenure	1.3
Vacant	1.7
Rooms and Bedrooms	1.3
Occupants per Room	1.4
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.3
House Heating Fuel	1.3
Telephone Service Available	1.3
Vehicles Available	1.3
Plumbing Facilities and Kitchen Facilities	1.9
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.5
Meals Included in Rent	1.3
Inclusion of Utilities in Rent	1.4
Value	1.2
Mortgage Status and Selected Monthly Owner Costs	1.2
Selected Physical and Financial Conditions	1.3

**Table 5.17. Design Factors for Calculating PUMS Standard Errors – Kansas**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.5
Age	1.1
Sex	1.0
Population of Two or More Races	1.8
White Alone	1.7
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.2
Relationship	1.3
Ancestry	1.9
Grandparents Responsible for Grandchildren	1.8
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.7
Residence 1 Year Ago	2.5
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.3
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.4
Travel Time to Work	1.6
Means of Transportation to Work	1.5
Place of Work	1.3
Time Leaving Home to go to Work	1.5
Private Vehicle Occupancy	1.5
Work Experience, Hours Worked per Week, and Weeks Worked	1.2
Number of Workers in Family	1.3
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.5

Age of Householder	1.2
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.5
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.4
Ratio of Income to Poverty Level	2.4
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.5
<b>HOUSING</b>	
Households/Occupied Housing Units	2.1
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	2.1
Unmarried Partner Households	1.5
Tenure	1.4
Vacant	1.7
Rooms and Bedrooms	1.4
Occupants per Room	1.4
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.4
Telephone Service Available	1.4
Vehicles Available	1.4
Plumbing Facilities and Kitchen Facilities	2.0
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.4
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.5

**Table 5.18. Design Factors for Calculating PUMS Standard Errors – Kentucky**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.9
Age	1.1
Sex	1.0
Population of Two or More Races	1.9
White Alone	1.4
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	1.8
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.8
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.8
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.6
Place of Work	1.4
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7

Age of Householder	1.3
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.6
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.0
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.5
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.0
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.19 Design Factors for Calculating PUMS Standard Errors – Louisiana**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.0
Population of Two or More Races	1.9
White Alone	1.0
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	2.0
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.4
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.1
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.20. Design Factors for Calculating PUMS Standard Errors – Maine**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.4
Age	1.0
Sex	1.0
Population of Two or More Races	1.3
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.2
Hispanic or Latino	1.5
Marital Status	1.2
Relationship	1.3
Ancestry	1.8
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.3
Place of Birth, Year of Entry, and Citizenship Status	1.7
Residence 1 Year Ago	2.3
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.3
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.4
Travel Time to Work	1.5
Means of Transportation to Work	1.4
Place of Work	1.3
Time Leaving Home to go to Work	1.5
Private Vehicle Occupancy	1.4
Work Experience, Hours Worked per Week, and Weeks Worked	1.2
Number of Workers in Family	1.3
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.1
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.4
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.4
Ratio of Income to Poverty Level	2.3
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.5
<b>HOUSING</b>	
Households/Occupied Housing Units	1.4
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	1.9
Unmarried Partner Households	1.5
Tenure	1.3
Vacant	1.3
Rooms and Bedrooms	1.4
Occupants per Room	1.4
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.3
House Heating Fuel	1.3
Telephone Service Available	1.4
Vehicles Available	1.4
Plumbing Facilities and Kitchen Facilities	1.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.5
Meals Included in Rent	1.4
Inclusion of Utilities in Rent	1.5
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.4

**Table 5.21. Design Factors for Calculating PUMS Standard Errors – Maryland**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.2
Population of Two or More Races	2.2
White Alone	1.8
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.6
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.6
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.1
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.22. Design Factors for Calculating PUMS Standard Errors – Massachusetts**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.6
Age	1.1
Sex	1.2
Population of Two or More Races	2.2
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.7
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.1
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.1
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.5

**Table 5.23. Design Factors for Calculating PUMS Standard Errors – Michigan**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.7
Age	1.1
Sex	1.2
Population of Two or More Races	1.9
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.8
Hispanic or Latino	1.8
Marital Status	1.2
Relationship	1.4
Ancestry	1.8
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.9
Residence 1 Year Ago	2.6
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.3
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.2
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.4
Travel Time to Work	1.5
Means of Transportation to Work	1.5
Place of Work	1.4
Time Leaving Home to go to Work	1.5
Private Vehicle Occupancy	1.5
Work Experience, Hours Worked per Week, and Weeks Worked	1.2
Number of Workers in Family	1.3
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.2
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.4
Ratio of Income to Poverty Level	2.5
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	1.8
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	2.1
Unmarried Partner Households	1.5
Tenure	1.4
Vacant	1.6
Rooms and Bedrooms	1.4
Occupants per Room	1.4
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.4
Telephone Service Available	1.4
Vehicles Available	1.4
Plumbing Facilities and Kitchen Facilities	1.9
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.4
Inclusion of Utilities in Rent	1.5
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.4

**Table 5.24. Design Factors for Calculating PUMS Standard Errors – Minnesota**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.4
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.4
Age	1.0
Sex	1.0
Population of Two or More Races	1.8
White Alone	1.5
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.1
Relationship	1.1
Ancestry	1.7
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.7
Residence 1 Year Ago	2.4
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.2
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.1
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.3
Travel Time to Work	1.4
Means of Transportation to Work	1.4
Place of Work	1.2
Time Leaving Home to go to Work	1.4
Private Vehicle Occupancy	1.4
Work Experience, Hours Worked per Week, and Weeks Worked	1.1
Number of Workers in Family	1.2
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.2
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.1
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.3
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.3
Ratio of Income to Poverty Level	2.3
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	1.7
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	1.8
Unmarried Partner Households	1.4
Tenure	1.3
Vacant	1.5
Rooms and Bedrooms	1.3
Occupants per Room	1.3
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.2
House Heating Fuel	1.2
Telephone Service Available	1.3
Vehicles Available	1.3
Plumbing Facilities and Kitchen Facilities	1.7
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.5
Meals Included in Rent	1.4
Inclusion of Utilities in Rent	1.4
Value	1.2
Mortgage Status and Selected Monthly Owner Costs	1.2
Selected Physical and Financial Conditions	1.3

**Table 5.25. Design Factors for Calculating PUMS Standard Errors – Mississippi**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.3
Population by Tenure	2.9
Age	1.1
Sex	1.0
Population of Two or More Races	2.2
White Alone	1.0
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.7
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.8
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.2
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.8
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.6
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7

Age of Householder	1.4
Race of Householder	1.2
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.1
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.26. Design Factors for Calculating PUMS Standard Errors – Missouri**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.7
Age	1.1
Sex	1.0
Population of Two or More Races	1.9
White Alone	1.8
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	1.8
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.8
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.7
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.6
Place of Work	1.5
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.3
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.6
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	2.0
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.5
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.4
Telephone Service Available	1.5
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.0
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.5

**Table 5.27. Design Factors for Calculating PUMS Standard Errors – Montana**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.3
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.4
Age	1.0
Sex	1.0
Population of Two or More Races	1.8
White Alone	1.0
Black or African American Alone	1.7
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.1
Hispanic or Latino	1.5
Marital Status	1.2
Relationship	1.3
Ancestry	1.8
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.4
Language Spoken at Home and Ability to Speak English	1.5
Linguistic Isolation	1.3
Place of Birth, Year of Entry, and Citizenship Status	1.7
Residence 1 Year Ago	2.3
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.3
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.4
Travel Time to Work	1.5
Means of Transportation to Work	1.4
Place of Work	1.2
Time Leaving Home to go to Work	1.5
Private Vehicle Occupancy	1.4
Work Experience, Hours Worked per Week, and Weeks Worked	1.2
Number of Workers in Family	1.3
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.2
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.2
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.3
Ratio of Income to Poverty Level	2.3
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	1.5
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	1.7
Unmarried Partner Households	1.4
Tenure	1.4
Vacant	1.3
Rooms and Bedrooms	1.4
Occupants per Room	1.3
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.3
House Heating Fuel	1.3
Telephone Service Available	1.4
Vehicles Available	1.3
Plumbing Facilities and Kitchen Facilities	1.3
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.5
Meals Included in Rent	1.4
Inclusion of Utilities in Rent	1.5
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.4

**Table 5.28. Design Factors for Calculating PUMS Standard Errors – Nebraska**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.4
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.3
Age	1.0
Sex	1.0
Population of Two or More Races	1.8
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.1
Relationship	1.2
Ancestry	1.8
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.3
Place of Birth, Year of Entry, and Citizenship Status	1.7
Residence 1 Year Ago	2.5
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.3
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.2
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.3
Travel Time to Work	1.4
Means of Transportation to Work	1.4
Place of Work	1.3
Time Leaving Home to go to Work	1.4
Private Vehicle Occupancy	1.4
Work Experience, Hours Worked per Week, and Weeks Worked	1.1
Number of Workers in Family	1.2
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.2
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.4
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.3
Ratio of Income to Poverty Level	2.2
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.3
<b>HOUSING</b>	
Households/Occupied Housing Units	2.0
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.4
Tenure	1.3
Vacant	1.6
Rooms and Bedrooms	1.3
Occupants per Room	1.4
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.3
House Heating Fuel	1.3
Telephone Service Available	1.4
Vehicles Available	1.3
Plumbing Facilities and Kitchen Facilities	1.9
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.4
Meals Included in Rent	1.3
Inclusion of Utilities in Rent	1.4
Value	1.2
Mortgage Status and Selected Monthly Owner Costs	1.2
Selected Physical and Financial Conditions	1.3

**Table 5.29. Design Factors for Calculating PUMS Standard Errors – Nevada**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.2
Population of Two or More Races	2.2
White Alone	1.9
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.9
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.3
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.1
Poverty Status (Persons)	1.8
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.1
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.1
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.1
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.30. Design Factors for Calculating PUMS Standard Errors – New Hampshire**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.5
Age	1.1
Sex	1.0
Population of Two or More Races	1.6
White Alone	1.7
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.2
Relationship	1.3
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.8
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	1.9
Residence 1 Year Ago	2.7
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.1
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.5
Place of Work	1.4
Time Leaving Home to go to Work	1.5
Private Vehicle Occupancy	1.5
Work Experience, Hours Worked per Week, and Weeks Worked	1.2
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.2
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.6
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	1.5
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	1.9
Unmarried Partner Households	1.5
Tenure	1.4
Vacant	1.4
Rooms and Bedrooms	1.5
Occupants per Room	1.4
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.4
Telephone Service Available	1.4
Vehicles Available	1.4
Plumbing Facilities and Kitchen Facilities	1.5
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.4

**Table 5.31. Design Factors for Calculating PUMS Standard Errors – New Jersey**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.8
Age	1.1
Sex	1.2
Population of Two or More Races	2.2
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.5
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.8
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.7
Rooms and Bedrooms	1.5
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.5
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.1
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.5
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.5

**Table 5.32. Design Factors for Calculating PUMS Standard Errors – New Mexico**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.9
Age	1.1
Sex	1.0
Population of Two or More Races	2.2
White Alone	1.8
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.8
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	1.8
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.6
Tenure	1.4
Vacant	1.6
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	1.8
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.33. Design Factors for Calculating PUMS Standard Errors – New York**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.2
Population of Two or More Races	2.2
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.6
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.8
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.6
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.34. Design Factors for Calculating PUMS Standard Errors – North Carolina**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.0
Population of Two or More Races	2.2
White Alone	1.3
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.3
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.1
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.35. Design Factors for Calculating PUMS Standard Errors – North Dakota**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.2
Population in Households by Race/Hispanic Origin of Householder	1.5
Population by Tenure	1.8
Age	1.0
Sex	1.0
Population of Two or More Races	1.6
White Alone	1.0
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.0
Hispanic or Latino	1.5
Marital Status	1.1
Relationship	1.1
Ancestry	1.6
Grandparents Responsible for Grandchildren	1.4
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.2
Place of Birth, Year of Entry, and Citizenship Status	1.5
Residence 1 Year Ago	2.0
School Enrollment, Level of School, Type of School, and Field of Degree	1.0
Educational Attainment	1.2
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.0
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.2
Travel Time to Work	1.4
Means of Transportation to Work	1.2
Place of Work	1.0
Time Leaving Home to go to Work	1.3
Private Vehicle Occupancy	1.2
Work Experience, Hours Worked per Week, and Weeks Worked	1.0
Number of Workers in Family	1.2
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.2
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.0
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.2
Person Earnings/Income	1.3
Type of Household Income	1.7
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.2
Ratio of Income to Poverty Level	1.9
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.3
<b>HOUSING</b>	
Households/Occupied Housing Units	1.6
Family Type, Household Type, and Household Size	1.3
Households by Presence of Nonrelatives	1.5
Unmarried Partner Households	1.4
Tenure	1.2
Vacant	1.4
Rooms and Bedrooms	1.3
Occupants per Room	1.3
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.2
House Heating Fuel	1.1
Telephone Service Available	1.3
Vehicles Available	1.2
Plumbing Facilities and Kitchen Facilities	1.3
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.4
Meals Included in Rent	1.3
Inclusion of Utilities in Rent	1.4
Value	1.1
Mortgage Status and Selected Monthly Owner Costs	1.1
Selected Physical and Financial Conditions	1.3

**Table 5.36. Design Factors for Calculating PUMS Standard Errors – Ohio**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.8
Age	1.1
Sex	1.2
Population of Two or More Races	1.8
White Alone	1.8
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	1.9
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.8
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.9
Residence 1 Year Ago	2.7
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.6
Place of Work	1.4
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7

Age of Householder	1.3
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.4
Ratio of Income to Poverty Level	2.6
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.5
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.5
Telephone Service Available	1.5
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.6
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.5

**Table 5.37. Design Factors for Calculating PUMS Standard Errors – Oklahoma**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.5
Age	1.1
Sex	1.0
Population of Two or More Races	1.9
White Alone	1.1
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.6
Hispanic or Latino	1.5
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.3
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.8
Residence 1 Year Ago	2.5
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.5
Place of Work	1.3
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.5
Work Experience, Hours Worked per Week, and Weeks Worked	1.2
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.3
Race of Householder	1.4
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.5
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	1.9
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.5
Tenure	1.5
Vacant	1.6
Rooms and Bedrooms	1.5
Occupants per Room	1.4
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.4
Telephone Service Available	1.4
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	1.9
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.5
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.4

**Table 5.38. Design Factors for Calculating PUMS Standard Errors – Oregon**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.9
Age	1.1
Sex	1.2
Population of Two or More Races	2.0
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.8
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.5
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.7
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.0
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.5
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.0
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.5
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.39. Design Factors for Calculating PUMS Standard Errors – Pennsylvania**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.8
Age	1.1
Sex	1.2
Population of Two or More Races	1.9
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.2
Relationship	1.4
Ancestry	1.9
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.8
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.4
Travel Time to Work	1.5
Means of Transportation to Work	1.6
Place of Work	1.4
Time Leaving Home to go to Work	1.5
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.3
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7

Age of Householder	1.3
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.4
Ratio of Income to Poverty Level	2.5
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.5
Tenure	1.5
Vacant	1.7
Rooms and Bedrooms	1.5
Occupants per Room	1.4
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.4
Telephone Service Available	1.5
Vehicles Available	1.4
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.5
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.4

**Table 5.40. Design Factors for Calculating PUMS Standard Errors – Rhode Island**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.6
Age	1.1
Sex	1.0
Population of Two or More Races	2.1
White Alone	1.6
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.8
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.5
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7

Age of Householder	1.3
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	1.9
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.6
Tenure	1.4
Vacant	1.6
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.4
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	1.9
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.5

**Table 5.41. Design Factors for Calculating PUMS Standard Errors – South Carolina**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.6
Population by Tenure	2.7
Age	1.1
Sex	1.0
Population of Two or More Races	2.1
White Alone	1.0
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.8
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.2
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.8
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7

Age of Householder	1.3
Race of Householder	1.3
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.7
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	1.8
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.5
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	1.8
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.42. Design Factors for Calculating PUMS Standard Errors – South Dakota**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.4
Population in Households by Race/Hispanic Origin of Householder	1.5
Population by Tenure	2.1
Age	1.0
Sex	1.0
Population of Two or More Races	1.9
White Alone	1.0
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.2
Hispanic or Latino	1.3
Marital Status	1.2
Relationship	1.2
Ancestry	1.7
Grandparents Responsible for Grandchildren	1.5
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	1.8
Residence 1 Year Ago	2.3
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.3
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.2
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.4
Travel Time to Work	1.5
Means of Transportation to Work	1.4
Place of Work	1.2
Time Leaving Home to go to Work	1.4
Private Vehicle Occupancy	1.4
Work Experience, Hours Worked per Week, and Weeks Worked	1.1
Number of Workers in Family	1.2
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.2
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.1
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.3
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.3
Ratio of Income to Poverty Level	2.2
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.4
<b>HOUSING</b>	
Households/Occupied Housing Units	1.9
Family Type, Household Type, and Household Size	1.3
Households by Presence of Nonrelatives	1.7
Unmarried Partner Households	1.4
Tenure	1.2
Vacant	1.5
Rooms and Bedrooms	1.3
Occupants per Room	1.3
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.3
House Heating Fuel	1.1
Telephone Service Available	1.3
Vehicles Available	1.3
Plumbing Facilities and Kitchen Facilities	1.5
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.5
Meals Included in Rent	1.3
Inclusion of Utilities in Rent	1.4
Value	1.2
Mortgage Status and Selected Monthly Owner Costs	1.2
Selected Physical and Financial Conditions	1.3

**Table 5.43. Design Factors for Calculating PUMS Standard Errors – Tennessee**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.0
Population of Two or More Races	1.9
White Alone	1.8
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.1
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.2
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.3
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.7
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.1
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.44. Design Factors for Calculating PUMS Standard Errors – Texas**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	3.0
Age	1.1
Sex	1.2
Population of Two or More Races	2.1
White Alone	1.8
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.1
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.8
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.45. Design Factors for Calculating PUMS Standard Errors – Utah**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.9
Age	1.1
Sex	1.0
Population of Two or More Races	1.9
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.2
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.5
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.7
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.7
Place of Work	1.4
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.3
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	1.8
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.7
Rooms and Bedrooms	1.5
Occupants per Room	1.4
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.5
Telephone Service Available	1.5
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	1.8
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.6
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.5

**Table 5.46. Design Factors for Calculating PUMS Standard Errors – Vermont**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.3
Population in Households by Race/Hispanic Origin of Householder	1.5
Population by Tenure	2.1
Age	1.0
Sex	1.0
Population of Two or More Races	1.1
White Alone	1.0
Black or African American Alone	1.2
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.1
Hispanic or Latino	1.2
Marital Status	1.0
Relationship	1.2
Ancestry	1.7
Grandparents Responsible for Grandchildren	1.5
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.2
Place of Birth, Year of Entry, and Citizenship Status	1.4
Residence 1 Year Ago	1.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.0
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.1
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.3
Travel Time to Work	1.4
Means of Transportation to Work	1.3
Place of Work	1.2
Time Leaving Home to go to Work	1.3
Private Vehicle Occupancy	1.3
Work Experience, Hours Worked per Week, and Weeks Worked	1.0
Number of Workers in Family	1.2
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.1
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.0
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.3
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.3
Ratio of Income to Poverty Level	2.1
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.4
<b>HOUSING</b>	
Households/Occupied Housing Units	1.2
Family Type, Household Type, and Household Size	1.3
Households by Presence of Nonrelatives	1.5
Unmarried Partner Households	1.3
Tenure	1.1
Vacant	1.3
Rooms and Bedrooms	1.3
Occupants per Room	1.2
Units in Structure	1.3
Year Structure Built and Year Householder Moved Into Unit	1.2
House Heating Fuel	1.2
Telephone Service Available	1.3
Vehicles Available	1.2
Plumbing Facilities and Kitchen Facilities	1.0
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.4
Meals Included in Rent	1.4
Inclusion of Utilities in Rent	1.4
Value	1.2
Mortgage Status and Selected Monthly Owner Costs	1.1
Selected Physical and Financial Conditions	1.3

**Table 5.47. Design Factors for Calculating PUMS Standard Errors – Virginia**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.8
Age	1.1
Sex	1.0
Population of Two or More Races	2.1
White Alone	1.2
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.3
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.7
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.3
Race of Householder	1.4
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.8
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.48. Design Factors for Calculating PUMS Standard Errors – Washington**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.8
Age	1.1
Sex	1.2
Population of Two or More Races	2.0
White Alone	1.8
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.3
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.6
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.9
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.7
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.7
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.4
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.4
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.7
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.1
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.8
Rooms and Bedrooms	1.6
Occupants per Room	1.5
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

**Table 5.49. Design Factors for Calculating PUMS Standard Errors – West Virginia**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.4
Age	1.0
Sex	1.0
Population of Two or More Races	1.6
White Alone	1.0
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.4
Hispanic or Latino	1.4
Marital Status	1.2
Relationship	1.3
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	1.8
Residence 1 Year Ago	2.3
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.1
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.5
Place of Work	1.4
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.5
Work Experience, Hours Worked per Week, and Weeks Worked	1.2
Number of Workers in Family	1.4
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6

Age of Householder	1.2
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.2
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.5
Ratio of Income to Poverty Level	2.5
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
<b>HOUSING</b>	
Households/Occupied Housing Units	1.7
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.5
Tenure	1.4
Vacant	1.6
Rooms and Bedrooms	1.5
Occupants per Room	1.4
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.4
Telephone Service Available	1.4
Vehicles Available	1.4
Plumbing Facilities and Kitchen Facilities	1.7
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.4
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.4

**Table 5.50. Design Factors for Calculating PUMS Standard Errors – Wisconsin**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.3
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.3
Age	1.0
Sex	1.0
Population of Two or More Races	1.8
White Alone	1.4
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	2.0
Hispanic or Latino	2.0
Marital Status	1.2
Relationship	1.1
Ancestry	1.7
Grandparents Responsible for Grandchildren	1.6
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.3
Place of Birth, Year of Entry, and Citizenship Status	1.7
Residence 1 Year Ago	2.3
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.2
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.2
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.3
Travel Time to Work	1.4
Means of Transportation to Work	1.4
Place of Work	1.2
Time Leaving Home to go to Work	1.4
Private Vehicle Occupancy	1.4
Work Experience, Hours Worked per Week, and Weeks Worked	1.1
Number of Workers in Family	1.2
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.2
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8

Age of Householder	1.1
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.4
Type of Household Income	1.3
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.3
Ratio of Income to Poverty Level	2.2
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
<b>HOUSING</b>	
Households/Occupied Housing Units	1.8
Family Type, Household Type, and Household Size	1.3
Households by Presence of Nonrelatives	1.7
Unmarried Partner Households	1.4
Tenure	1.3
Vacant	1.5
Rooms and Bedrooms	1.3
Occupants per Room	1.3
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.3
House Heating Fuel	1.2
Telephone Service Available	1.3
Vehicles Available	1.3
Plumbing Facilities and Kitchen Facilities	1.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.5
Meals Included in Rent	1.3
Inclusion of Utilities in Rent	1.4
Value	1.2
Mortgage Status and Selected Monthly Owner Costs	1.2
Selected Physical and Financial Conditions	1.3

**Table 5.51. Design Factors for Calculating PUMS Standard Errors – Wyoming**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.4
Age	1.0
Sex	1.0
Population of Two or More Races	1.7
White Alone	1.1
Black or African American Alone	1.1
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.6
Hispanic or Latino	1.5
Marital Status	1.3
Relationship	1.2
Ancestry	1.8
Grandparents Responsible for Grandchildren	1.6
Number of Women Who Had a Birth in the Past 12 Months	1.1
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.7
Residence 1 Year Ago	2.3
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.3
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Employment/Work Status	1.0
Industry, Occupation, and Class of Worker	1.4
Travel Time to Work	1.5
Means of Transportation to Work	1.5
Place of Work	1.2
Time Leaving Home to go to Work	1.5
Private Vehicle Occupancy	1.4
Work Experience, Hours Worked per Week, and Weeks Worked	1.1
Number of Workers in Family	1.3
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.5

Age of Householder	1.2
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.5
Type of Household Income	1.7
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.4
Ratio of Income to Poverty Level	2.4
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.5
<b>HOUSING</b>	
Households/Occupied Housing Units	1.8
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	1.7
Unmarried Partner Households	1.5
Tenure	1.4
Vacant	1.6
Rooms and Bedrooms	1.5
Occupants per Room	1.4
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.3
Telephone Service Available	1.4
Vehicles Available	1.4
Plumbing Facilities and Kitchen Facilities	1.5
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.5
Meals Included in Rent	1.4
Inclusion of Utilities in Rent	1.5
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.4

**Table 5.52. Design Factors for Calculating PUMS Standard Errors – Puerto Rico**

Characteristics	Design Factor
<b>POPULATION</b>	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	1.8
Population by Tenure	2.7
Age	1.1
Sex	1.0
Population of Two or More Races	2.2
White Alone	1.9
Black or African American Alone	2.2
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.9
Hispanic or Latino	2.0
Marital Status	1.2
Relationship	1.3
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.7
Number of Women Who Had a Birth in the Past 12 Months	1.1
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	2.6
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.7
Place of Work	1.5
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.6
Work Experience, Hours Worked per Week, and Weeks Worked	1.3
Number of Workers in Family	1.3
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7

Age of Householder	1.2
Race of Householder	1.5
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.5
Type of Household Income	1.0
Poverty Status (Persons)	1.5
Poverty Status (Families/Households)	1.4
Ratio of Income to Poverty Level	2.7
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.5
<b>HOUSING</b>	
Households/Occupied Housing Units	1.7
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.4
Tenure	1.4
Vacant	1.4
Rooms and Bedrooms	1.4
Occupants per Room	1.4
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.3
House Heating Fuel	1.3
Telephone Service Available	1.4
Vehicles Available	1.3
Plumbing Facilities and Kitchen Facilities	1.5
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.4
Meals Included in Rent	1.4
Inclusion of Utilities in Rent	1.4
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.4