

PUMS Accuracy of the Data (2009)

Introduction

The public use microdata samples (PUMS) are a subset of the 2009 American Community Survey (ACS) and Puerto Rico Community Survey (PRCS) samples. Unless otherwise specified, the term “ACS” in this document will refer to both the ACS and PRCS. Like the 2006 through 2008 PUMS, the 2009 PUMS contains a sample of the group quarters (GQ) population which were not included in the 2005 PUMS. For the 2005 through 2009 PUMS, the ACS selected sample in all counties across the nation, and all municipios in Puerto Rico. The 2009 PUMS data contains 1,314,006 housing unit records and 2,979,656 person records from households and 83,248 person records from GQs. Estimates from the PUMS 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.

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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 on the PUMS files. 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 2009 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. Beginning with the 2006 ACS PUMS files, 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. They are identified on the 2006 through 2009 ACS PUMS files with a PUMA code of 77777.

Other disclosure avoidance measures used in the PUMS files includes top-coding, age 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.

Sample Design

The 2009 PUMS was designed to sample one percent of the housing units and one percent of the GQ persons in the United States and Puerto Rico. The PUMS sample sizes were based on the Population Estimates Program estimates for housing units and GQ persons.

The PUMS sample was selected for Housing Units (HUs) and GQ persons separately. The PUMS sample of persons in households was selected by keeping all persons in PUMS HUs. The systematic sampling method used sampling intervals chosen to yield the sample sizes given in Table 1 and Table 2 by state, DC and PR. The sampling interval for each state and HU/GQ sample is the ratio of the number of records available for sampling and the required sample size (sampling intervals are not rounded to integers).

Table 1. 2009 ACS Housing Unit Estimates and PUMS Sample Sizes

State	2009 ACS Estimate	2009 PUMS Sample Size	State	2009 ACS Estimate	2009 PUMS Sample Size
Alabama	2,182,358	21,824	Montana	441,318	4,413
Alaska	283,895	2,839	Nebraska	789,397	7,919
Arizona	2,753,059	27,530	Nevada	1,138,045	11,380
Arkansas	1,309,843	13,107	New Hampshire	600,087	6,001
California	13,434,537	134,338	New Jersey	3,524,954	35,265
Colorado	2,167,902	21,679	New Mexico	878,066	8,781
Connecticut	1,445,840	14,459	New York	8,017,978	80,179
Delaware	396,270	3,963	North Carolina	4,258,573	42,587
District of Columbia	285,164	2,852	North Dakota	315,625	3,165
Florida	8,848,172	88,528	Ohio	5,094,314	50,942
Georgia	4,063,506	40,636	Oklahoma	1,650,184	16,504
Hawaii	515,663	5,157	Oregon	1,639,539	16,395
Idaho	647,537	6,476	Pennsylvania	5,518,579	55,186
Illinois	5,290,878	52,921	Rhode Island	452,180	4,522
Indiana	2,809,487	28,096	South Carolina	2,084,361	20,843
Iowa	1,342,052	13,441	South Dakota	364,691	3,656
Kansas	1,231,995	12,341	Tennessee	2,780,788	27,809
Kentucky	1,934,995	19,350	Texas	9,724,258	97,243
Louisiana	1,963,337	19,634	Utah	952,860	9,530
Maine	704,574	7,046	Vermont	314,259	3,143
Maryland	2,341,332	23,412	Virginia	3,330,481	33,305
Massachusetts	2,748,475	27,484	Washington	2,814,297	28,143
Michigan	4,541,470	45,417	West Virginia	893,766	8,938
Minnesota	2,331,243	23,330	Wisconsin	2,584,342	25,874
Mississippi	1,282,015	12,821	Wyoming	249,404	2,494
Missouri	2,682,015	26,821	Puerto Rico	1,428,627	14,287

Table 2. 2009 ACS GQ Universe Estimates and PUMS Sample Sizes

State	2009		State	2009	
	ACS GQ Person Estimate	PUMS GQ Person Sample Size		ACS GQ Person Estimate	PUMS GQ Person Sample Size
Alabama	122,739	1,228	Montana	26,587	266
Alaska	21,437	215	Nebraska	53,774	538
Arizona	119,010	1,191	Nevada	33,325	334
Arkansas	82,715	828	New Hampshire	39,369	394
California	843,751	8,438	New Jersey	194,605	1,947
Colorado	112,574	1,126	New Mexico	42,221	423
Connecticut	114,537	1,146	New York	607,649	6,077
Delaware	23,988	240	North Carolina	289,433	2,895
District of Columbia	35,358	354	North Dakota	27,164	272
Florida	432,162	4,322	Ohio	316,321	3,164
Georgia	277,274	2,773	Oklahoma	117,979	1,180
Hawaii	34,967	350	Oregon	84,117	842
Idaho	34,492	345	Pennsylvania	470,118	4,702
Illinois	345,100	3,451	Rhode Island	38,273	383
Indiana	189,335	1,894	South Carolina	146,167	1,462
Iowa	105,490	1,055	South Dakota	31,253	313
Kansas	82,132	822	Tennessee	151,099	1,511
Kentucky	123,509	1,236	Texas	591,772	5,918
Louisiana	124,459	1,245	Utah	44,814	449
Maine	38,368	384	Vermont	21,536	216
Maryland	143,907	1,440	Virginia	254,761	2,548
Massachusetts	247,549	2,476	Washington	144,533	1,446
Michigan	256,505	2,566	West Virginia	45,764	458
Minnesota	143,657	1,437	Wisconsin	165,887	1,659
Mississippi	100,128	1,002	Wyoming	14,685	147
Missouri	168,769	1,688	Puerto Rico	45,168	452

The sampling for PUMS HUs was performed on ACS sample of HUs as follows:

1. Records of ACS 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 HU 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 performed on the ACS sample of GQ persons 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.

Weighting and Estimation

Weighting

Weights for PUMS person records are a product of the final full 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 2009 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 final weight 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 using 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 2009 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 ACS Accuracy of the Data for 2009 found on

http://www.census.gov/acs/www/data_documentation/documentation_main/

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 weighted 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 zero weights. These are the GQ placeholder records¹. 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 variable which is 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.

¹ 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/

Errors in the Data

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

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 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.

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 the ACS Accuracy of the Data for 2009 found on http://www.census.gov/acs/www/data_documentation/documentation_main/

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 such as undercoverage and item nonreponse 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 estimating 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 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).

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

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

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.

Approximating Standard Errors with Replicate Weights

Replicate weights can be used to approximate what we refer to as a direct standard errors. Standard errors for the published ACS tabulations are calculated using a replicate weights method. 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 PUMS replicate weights. These replicate weights are based on the ACS replicate weights adjusted for PUMS subsampling. 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 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 approximated 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.

As we mentioned earlier, 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 male or total female persons living in households in a state, there is no sampling variability in the estimate. It is expected that the replicate weight SE and MOE will often be zero for a controlled estimate.

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.

Approximating a Generalized Standard Errors with Design Factors

a. Standard Errors for Totals and Percentages

The design factors provided in Tables 3 through 3.52 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 use the following formulas:

$$\text{Total Formula: } SE(\hat{Y}) \doteq DF * \sqrt{99 * \hat{Y} \left(1 - \frac{\hat{Y}}{N}\right)}$$

Where:

DF = Design Factor

N = Size of Geographic Area

\hat{Y} = Estimate of Characteristic Total

$$\text{Percent Formula: } SE(\hat{p}) \doteq DF * \sqrt{\frac{99}{B} * \hat{p}(100 - \hat{p})}$$

Where:

DF = Design Factor

B = Base 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 estimate is of families or households then use the number of households; otherwise use the number of persons.
2. Select the appropriate table from Tables 3 through 3.52. Use the table for the United States (Table 3) when estimating characteristics for the United States or geographic areas that cover more than one state. Use the table for a specific state (Tables 3.1-3.52) 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 246 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 approximated as follows:

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

If the ratio is a proportion, that is, the numerator is a subset of the denominator, then follow the procedure outlined 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. Approximate the standard error of a 50 percent proportion using the formula in section 6.2, Standard Errors for Totals and Percentages.

$$SE(50\text{ percent}) = DF * \sqrt{\frac{99}{B} * 50^2}$$

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

$$p_lower = 50 - SE(50\text{ percent})$$

$$p_upper = 50 + SE(50\text{ percent})$$

4. Determine the categories in the distribution that contain p_lower and p_upper . If p_lower and p_upper fall in the same category, follow step 5. If p_lower and p_upper fall in different categories, go to step 6.
5. If p_lower and p_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 approximate the lower and upper bounds for a confidence interval about the median:

$$LowerBound = \left[\frac{p_lower - C1}{C2 - C1} \right] * (A2 - A1) + A1$$

$$UpperBound = \left[\frac{p_upper - C1}{C2 - C1} \right] * (A2 - A1) + A1$$

6. If p_lower and p_upper fall in different categories, do the following:

- For the category containing p_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_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 approximated in steps 5 or 6 to approximate the standard error of the median.

$$SE(median) = \frac{1}{2} * (UpperBound - LowerBound)$$

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.

$$SE(\bar{Y}) = DF * \sqrt{\frac{99}{B} * s^2}$$

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:

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

Where:

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

y_i is the value of the characteristic for the i^{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).

Examples of Standard Error Calculations using Generalized Standard Error Formulas

We will present some examples based on the 2009 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 1,972,445 from the PUMS data for the state of Virginia. To calculate the standard error, we use the total formula given in section 6.2, Standard Errors for Totals and Percentages. In this formula, Y is our estimate of 1,972,445 and N is the total PUMS population for the state of Virginia, which is 7,882,590. The design factor (from Table 3.47) for “Marital Status” is 1.3.

$$SE = 1.3 * \sqrt{99 * 1,972,445 * \left(1 - \frac{1,972,445}{7,882,590}\right)} = 15,729.97$$

To calculate the lower and upper bounds of the 90 percent confidence interval around 1,972,445 using the standard error, simply multiply 15,729.97 by 1.645, then add and subtract the product from 1,972,445. Thus the 90 percent confidence interval for this estimate is [1,972,445 - 1.645(15,729.97)] to [1,972,445 + 1.645(15,729.97)] or 1,946,569.19 to 1,998,320.81.

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 21.5465 from the PUMS data and the base of the estimated percentage is 2,898,639. To calculate the standard error, we use the percent formula given in section 6.2, Standard Errors for Totals and Percentages. The design factor (from Table 3.19) for “Educational Attainment” is 1.5.

$$SE = 1.5 * \sqrt{\frac{99}{2,898,639} * 21.5465 * (100 - 21.5465)} = 0.3604$$

To calculate the lower and upper bounds of the 90 percent confidence interval around 21.5465 percent using the standard error, simply multiply 0.3604 by 1.645, then add and subtract the product from 21.5465. Thus the 90 percent confidence interval for this estimated percentage is [21.5465 - 1.645(0.3604)] to [21.5465 + 1.645(0.3604)] or 20.9536 to 22.1394.

Example 3 – Calculating the Standard Error of a Median

The table below shows a weighted frequency distribution for adjusted household income in Massachusetts.

Adjusted Household Income	Frequency	Cumulative Frequency	Cumulative Percent
Less than \$10,000	176,621	176,621	7.13%
\$10,000 to \$14,999	123,985	300,606	12.14%
\$15,000 to \$19,999	105,459	406,065	16.40%
\$20,000 to \$24,999	104,744	510,809	20.63%
\$25,000 to \$29,999	93,982	604,791	24.43%
\$30,000 to \$34,999	97,918	702,709	28.39%
\$35,000 to \$39,999	101,005	803,714	32.47%
\$40,000 to \$44,999	96,908	900,622	36.38%
\$45,000 to \$49,999	99,474	1,000,096	40.40%
\$50,000 to \$59,999	174,036	1,174,132	47.43%
\$60,000 to \$74,999	246,848	1,420,980	57.40%
\$75,000 to \$99,999	323,697	1,744,677	70.48%
\$100,000 to \$124,999	237,048	1,981,725	80.05%
\$125,000 to \$149,999	163,760	2,145,485	86.67%
\$150,000 to \$199,999	160,451	2,305,936	93.15%
\$200,000 or more	169,558	2,475,494	100.00%

- The base is the cumulative sum of the weighted frequencies, which is 2,475,494
- Determine the standard error of a 50 percent proportion. For this example, the design factor for household income is 1.5 from Table 3.22.

$$SE(50\text{ percent}) = 1.5 * \sqrt{\frac{99}{2,475,494} * 50^2} = .47$$

- Calculate p_lower and p_upper.

$$p_{\text{lower}} = 50 - SE(50\text{ percent}) = 49.53$$

$$p_{\text{upper}} = 50 + SE(50\text{ percent}) = 50.47$$

- Determine the categories that contain p_lower and p_upper. The first category with a cumulative percentage that is greater than 49.53 is \$60,000 to \$74,999. The first category with a cumulative percentage that is greater than 50.47 is \$60,000 to \$74,999. Since p_lower and p_upper fall in the same category, follow the instructions given in step 5 of the procedure for medians.

- Define A1, A2, C1, and C2: A1 = 60,000, A2 = 75,000, C1 = 46.03 and C2 = 56.17
Calculate the lower bound and upper bound using these values.

$$LowerBound = \left[\frac{49.53 - 46.03}{56.17 - 46.03} \right] * (75,000 - 60,000) + 60,000 = 65,177.5$$

$$UpperBound = \left[\frac{50.47 - 46.03}{56.17 - 46.03} \right] * (75,000 - 60,000) + 60,000 = 66,568.1$$

- Finally, calculate the standard error of the median:

$$SE(median) = \frac{1}{2} * (66,568.1 - 65,177.5) = 695.27$$

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. The table below summarizes the computation of the terms in the formula for s^2 . The PUMS data for Alabama has 2,692 records for females age 25 to 34 that have a non-missing value for person income.

Sample Record	y_i	w_i	$w_i y_i$	$w_i y_i^2$
1	300	52	15,592	4,675,134
2	14,193	100	1,419,262	20,143,034,892
3	30,184	226	6,821,651	205,906,729,854
4	22,788	110	2,506,696	57,122,945,766
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.				
2,692	21,989	319	7,014,351	154,235,469,909
Total		310,277	6,386,562,804	268,294,432,782,042

The mean adjusted income is $\bar{Y} = \frac{6,386,562,804}{310,277} = 20,583.42$

s^2 is computed as follows:

$$s^2 = \frac{268,294,432,782,042 - (6,386,562,804)^2 / 310,277}{310,277 - 1} = 441,017,377$$

The design factor for person income in Alabama, from Table 3.1, is 1.6. The standard error of the mean can now be calculated:

$$SE(\bar{Y}) = 1.6 * \sqrt{\frac{99}{310,277} * 441,017,377} = 600$$

Working with Dollar Amounts

Dollar variables must be adjusted before using them to form estimates. First, apply the adjustment factors supplied on the PUMS file. Second, when comparing the 2009 PUMS data to other PUMS years, the dollars must be converted into a common year.

Adjustment Factors on the PUMS File

The PUMS data dictionary for 2009 includes two adjustment factors for dollar values:

ADJINC – inflation adjustment factors 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.

See <http://www.census.gov/acs/www/Products/PUMS/pumsdict.html> for details.

For example, multiply the household income variable by ADJINC. 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 2009 dollars. Note that the value of ADJINC is the same for all sample cases (its value for 2009 is 0999480, which is read as 0.999480). This is for disclosure avoidance reasons, that is, so that the month of interview cannot be identified by the adjustment factor.

For example, multiply ADJHSG times the monthly rent to adjust rent into 2009 dollars. On this file ADJHSG is a factor of 1.000000.

Dollars From Different Years

When working with dollar amounts from different PUMS years, it is necessary to convert the amounts into dollars from a common year (after applying the adjustment factors described in the previous paragraph). We use the CPI-U-RS adjustment factors from the Bureau of Labor Statistics. These factors can be found in column AVG of the first table “All items” in the PDF file at: http://www.bls.gov/cpi/cpiurs1978_2009.pdf. [For example, to express year 2000 dollars in terms of 2009 dollars, multiply the 2000 dollars by $315.0/252.9 = 1.2456$].

References

- [1]. ACS Accuracy of the Data (2009) on
http://www.census.gov/acs/www/data_documentation/documentation_main/
- [2]. Design and Methodology of the American Community Survey: issued April 2009:
http://www.census.gov/acs/www/methodology/methodology_main/
- [3]. Updated CPI-U-RS, All Items and All items less food and energy, 1978-2009.
http://www.bls.gov/cpi/cpiurs1978_2009.pdf

Table 3. Design Factors for Calculating PUMS Standard Errors – United States

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	1.9
Population by Tenure	3.3
Age	1.1
Sex	1.1
Population of Two or More Races	2.2
White Alone	2.2
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	2.0
Hispanic or Latino	2.0
Marital Status	1.5
Marital History	1.3
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	1.5
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	1.4
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.4
Disability Status	1.2
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	1.6
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8
Age of Householder	1.7
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	2.9
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
Health Insurance	1.3
HOUSING	
Households/Occupied Housing Units	2.6
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.7
Vacant	2.1
Rooms and Bedrooms	1.6
Occupants per Room	1.6
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.5
Telephone Service Available	1.7
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.5
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.7
Inclusion of Utilities in Rent	1.7
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.5
Selected Physical and Financial Conditions	1.7

Table 3.1. Design Factors for Calculating PUMS Standard Errors – Alabama

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	1.7
Population by Tenure	2.7
Age	1.1
Sex	1.6
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
Marital History	1.1
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	1.1
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	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.5
Disability Status	1.2
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.6
Means of Transportation to Work	1.7
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	1.5
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	1.8
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
Health Insurance	1.7
HOUSING	
Households/Occupied Housing Units	2.1
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.7
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.0
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.2. Design Factors for Calculating PUMS Standard Errors – Alaska

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.4
Age	1.1
Sex	1.6
Population of Two or More Races	1.8
White Alone	1.4
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	1.5
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.3
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	1.4
Linguistic Isolation	1.4
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	1.3
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.5
Disability Status	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	1.7
Place of Work	1.4
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.7
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	1.8
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	1.5
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	1.2
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	1.5
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	1.8
Unmarried Partner Households	1.5
Tenure	1.4
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	1.4
Vehicles Available	1.4
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	1.6
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 3.3. Design Factors for Calculating PUMS Standard Errors – Arizona

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.3
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.5
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.4
Language Spoken at Home and Ability to Speak English	2.0
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	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	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	2.0
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	1.8
Age of Householder	1.4
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.6
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.7
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.4. Design Factors for Calculating PUMS Standard Errors – Arkansas

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	1.6
Population by Tenure	2.7
Age	1.1
Sex	1.6
Population of Two or More Races	1.9
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	2.0
Hispanic or Latino	1.8
Marital Status	1.3
Marital History	1.0
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	1.1
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	1.2
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	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	1.7
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	1.5
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	1.8
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
Health Insurance	1.5
HOUSING	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.7
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.6
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	1.8
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 3.5. Design Factors for Calculating PUMS Standard Errors – California

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.4
Language Spoken at Home and Ability to Speak English	2.1
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	1.4
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	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	2.2
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	1.8
Age of Householder	1.4
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
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
Health Insurance	1.9
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.7
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.6. Design Factors for Calculating PUMS Standard Errors – Colorado

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	1.6
Population of Two or More Races	2.0
White Alone	2.3
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.4
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	1.5
Disability Status	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	1.7
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
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	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.3
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.7. Design Factors for Calculating PUMS Standard Errors – Connecticut

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.5
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.5
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	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.2
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.6
Travel Time to Work	1.6
Means of Transportation to Work	1.7
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	1.3

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	1.5
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	1.7
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
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	1.9
Rooms and Bedrooms	1.5
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.8
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.7
Inclusion of Utilities in Rent	1.6
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.8. Design Factors for Calculating PUMS Standard Errors – Delaware

Characteristics	Design Factor
POPULATION	
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	1.6
Population of Two or More Races	1.6
White Alone	1.7
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	1.8
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.5
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	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.3
Disability Status	1.2
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	1.4
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	1.8
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
Health Insurance	1.8
HOUSING	
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	1.5
Telephone Service Available	1.5
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	1.5

Table 3.9. Design Factors for Calculating PUMS Standard Errors – District of Columbia

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	1.6
Population by Tenure	2.6
Age	1.1
Sex	1.6
Population of Two or More Races	1.8
White Alone	1.3
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	2.0
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.4
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	1.1
Period of Military Service	1.5
Disability Status	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	1.6

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	1.3
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	1.5
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.4
Tenure	1.5
Vacant	1.8
Rooms and Bedrooms	1.5
Occupants per Room	1.6
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.5
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
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	1.6
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.5

Table 3.10. Design Factors for Calculating PUMS Standard Errors – Florida

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.5
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.4
Language Spoken at Home and Ability to Speak English	1.6
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	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	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	2.0
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	1.8
Age of Householder	1.4
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.11. Design Factors for Calculating PUMS Standard Errors – Georgia

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	1.5
Population of Two or More Races	2.1
White Alone	2.1
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.4
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.4
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	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.2
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	1.8
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.7
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

Table 3.12. Design Factors for Calculating PUMS Standard Errors – Hawaii

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.9
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	1.3
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.0
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	1.4
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.5
Disability Status	1.2
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	1.7
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	1.8
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	1.5
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
Health Insurance	1.6
HOUSING	
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	1.6
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	1.6
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	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.5

Table 3.13. Design Factors for Calculating PUMS Standard Errors – Idaho

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.5
Age	1.0
Sex	1.6
Population of Two or More Races	1.8
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	1.5
Marital Status	1.3
Marital History	1.0
Relationship	1.4
Ancestry	1.9
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.1
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	2.6
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	1.5
Disability Status	1.2
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.6
Means of Transportation to Work	1.4
Place of Work	1.3
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.4
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	1.5
Age of Householder	1.3
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.5
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
Health Insurance	1.4
HOUSING	
Households/Occupied Housing Units	1.9
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	1.6
Rooms and Bedrooms	1.4
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	1.5
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	1.5
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 3.14. Design Factors for Calculating PUMS Standard Errors – Illinois

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.4
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	3.2
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	1.5
Disability Status	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	1.7
Place of Work	1.8
Time Leaving Home to go to Work	1.6
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
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	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.15. Design Factors for Calculating PUMS Standard Errors – Indiana

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.5
Age	1.1
Sex	1.6
Population of Two or More Races	1.9
White Alone	2.2
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	2.1
Hispanic or Latino	1.8
Marital Status	1.3
Marital History	1.0
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.1
Language Spoken at Home and Ability to Speak English	1.2
Linguistic Isolation	1.5
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	1.2
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.2
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	1.5
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	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8
Age of Householder	1.3
Race of Householder	1.8
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
Health Insurance	1.5
HOUSING	
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	1.9
Rooms and Bedrooms	1.5
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.4
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	1.5
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

Table 3.16. Design Factors for Calculating PUMS Standard Errors – Iowa

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.4
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.2
Age	1.0
Sex	1.6
Population of Two or More Races	1.7
White Alone	1.4
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	1.5
Hispanic or Latino	1.6
Marital Status	1.2
Marital History	1.0
Relationship	1.2
Ancestry	1.7
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.1
Language Spoken at Home and Ability to Speak English	1.0
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	1.2
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.1
Disability Status	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.3
Travel Time to Work	1.4
Means of Transportation to Work	1.7
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	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8
Age of Householder	1.1
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.4
Type of Household Income	2.0
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.4
Ratio of Income to Poverty Level	2.1
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
Health Insurance	1.3
HOUSING	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	1.6
Unmarried Partner Households	1.4
Tenure	1.3
Vacant	1.9
Rooms and Bedrooms	1.3
Occupants per Room	1.8
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	1.3
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	1.4

Table 3.17. Design Factors for Calculating PUMS Standard Errors – Kansas

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.4
Age	1.1
Sex	1.6
Population of Two or More Races	1.8
White Alone	2.0
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.2
Language Spoken at Home and Ability to Speak English	1.3
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	1.8
Residence 1 Year Ago	2.8
School Enrollment, Level of School, Type of School, and Field of Degree	1.3
Educational Attainment	1.3
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.5
Disability Status	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	1.7
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	1.2

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	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8
Age of Householder	1.3
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.5
Type of Household Income	2.0
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	1.5
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.5
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.5
Tenure	1.4
Vacant	1.9
Rooms and Bedrooms	1.4
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	1.4
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	1.6

Table 3.18. Design Factors for Calculating PUMS Standard Errors – Kentucky

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.7
Age	1.1
Sex	1.6
Population of Two or More Races	1.9
White Alone	2.2
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	2.0
Hispanic or Latino	1.8
Marital Status	1.3
Marital History	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	1.3
Linguistic Isolation	1.7
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	3.1
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	1.5
Disability Status	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	1.7
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	1.3

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	1.8
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
Health Insurance	1.6
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.5
Occupants per Room	1.8
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	1.6
Plumbing Facilities and Kitchen Facilities	2.2
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.6
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

Table 3.19 Design Factors for Calculating PUMS Standard Errors – Louisiana

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	1.9
Population by Tenure	2.9
Age	1.1
Sex	1.6
Population of Two or More Races	1.9
White Alone	1.2
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	2.0
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.4
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.5
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	3.2
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	1.5
Disability Status	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	1.3

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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.7
HOUSING	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.7
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	1.8
Units in Structure	1.7
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.1
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.20. Design Factors for Calculating PUMS Standard Errors – Maine

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.4
Age	1.0
Sex	1.6
Population of Two or More Races	1.4
White Alone	2.2
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	1.5
Hispanic or Latino	1.5
Marital Status	1.2
Marital History	1.3
Relationship	1.3
Ancestry	1.8
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	1.5
Linguistic Isolation	1.3
Place of Birth, Year of Entry, and Citizenship Status	1.8
Residence 1 Year Ago	2.4
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	1.5
Disability Status	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	1.7
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	1.8
Age of Householder	1.2
Race of Householder	1.8
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
Health Insurance	1.8
HOUSING	
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	1.8
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.3
Telephone Service Available	1.5
Vehicles Available	1.3
Plumbing Facilities and Kitchen Facilities	1.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.5
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.5
Selected Physical and Financial Conditions	1.4

Table 3.21. Design Factors for Calculating PUMS Standard Errors – Maryland

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	2.0
Population of Two or More Races	2.1
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.4
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	1.5
Disability Status	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	1.8
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.5
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.5
Selected Physical and Financial Conditions	1.7

Table 3.22. Design Factors for Calculating PUMS Standard Errors – Massachusetts

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.9
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.3
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.0
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	1.5
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.5
Disability Status	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	1.6
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	1.8
Age of Householder	1.4
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.2
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	1.7
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.8
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.23. Design Factors for Calculating PUMS Standard Errors – Michigan

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.7
Age	1.1
Sex	1.6
Population of Two or More Races	1.9
White Alone	2.2
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	2.1
Hispanic or Latino	1.8
Marital Status	1.2
Marital History	1.1
Relationship	1.4
Ancestry	1.8
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	1.8
Residence 1 Year Ago	2.6
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	1.5
Disability Status	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	1.7
Place of Work	1.5
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	1.8
Age of Householder	1.2
Race of Householder	1.8
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)	1.5
Ratio of Income to Poverty Level	2.5
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
Health Insurance	1.3
HOUSING	
Households/Occupied Housing Units	2.1
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	1.4
Occupants per Room	1.8
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	1.4
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	1.5
Inclusion of Utilities in Rent	1.5
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.5

Table 3.24. Design Factors for Calculating PUMS Standard Errors – Minnesota

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.3
Age	1.1
Sex	1.6
Population of Two or More Races	1.8
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.1
Marital History	1.0
Relationship	1.4
Ancestry	1.7
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.1
Language Spoken at Home and Ability to Speak English	1.5
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.8
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	1.3
Period of Military Service	1.5
Disability Status	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.3
Travel Time to Work	1.5
Means of Transportation to Work	1.7
Place of Work	1.3
Time Leaving Home to go to Work	1.4
Private Vehicle Occupancy	1.3
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	1.1
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.3
Type of Household Income	2.0
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	1.6
Health Insurance	1.5
HOUSING	
Households/Occupied Housing Units	1.9
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	1.8
Unmarried Partner Households	1.4
Tenure	1.4
Vacant	1.6
Rooms and Bedrooms	1.3
Occupants per Room	1.8
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.3
House Heating Fuel	1.2
Telephone Service Available	1.4
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	1.5
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.2
Selected Physical and Financial Conditions	1.4

Table 3.25. Design Factors for Calculating PUMS Standard Errors – Mississippi

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	1.7
Population by Tenure	2.8
Age	1.1
Sex	1.1
Population of Two or More Races	2.1
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	1.8
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.3
Language Spoken at Home and Ability to Speak English	1.2
Linguistic Isolation	1.7
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	1.5
Disability Status	1.2
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.7
HOUSING	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.7
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.1
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.26. Design Factors for Calculating PUMS Standard Errors – Missouri

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.8
Age	1.1
Sex	1.6
Population of Two or More Races	1.9
White Alone	2.2
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	2.0
Hispanic or Latino	1.8
Marital Status	1.3
Marital History	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	1.5
Linguistic Isolation	1.7
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	1.3
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	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	1.7
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	1.3

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	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8
Age of Householder	1.3
Race of Householder	1.8
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	2.6
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
Health Insurance	1.6
HOUSING	
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	1.9
Rooms and Bedrooms	1.5
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.4
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	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.6
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

Table 3.27. Design Factors for Calculating PUMS Standard Errors – Montana

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.4
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.5
Age	1.0
Sex	1.6
Population of Two or More Races	1.7
White Alone	1.0
Black or African American Alone	1.6
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	1.4
Marital Status	1.4
Marital History	1.0
Relationship	1.4
Ancestry	1.8
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	1.3
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	1.1
Educational Attainment	1.3
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.5
Disability Status	1.1
Employment/Work Status	1.3
Industry, Occupation, and Class of Worker	1.4
Travel Time to Work	1.5
Means of Transportation to Work	1.7
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	1.2
Race of Householder	1.8
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	2.3
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
Health Insurance	1.3
HOUSING	
Households/Occupied Housing Units	1.6
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	1.8
Units in Structure	1.4
Year Structure Built and Year Householder Moved Into Unit	1.3
House Heating Fuel	1.3
Telephone Service Available	1.5
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	1.4
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.4

Table 3.28. Design Factors for Calculating PUMS Standard Errors – Nebraska

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.3
Age	1.1
Sex	1.6
Population of Two or More Races	1.8
White Alone	2.3
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	2.0
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.3
Relationship	1.4
Ancestry	1.8
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	1.3
Linguistic Isolation	1.3
Place of Birth, Year of Entry, and Citizenship Status	1.7
Residence 1 Year Ago	3.0
School Enrollment, Level of School, Type of School, and Field of Degree	1.2
Educational Attainment	1.3
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.5
Disability Status	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.3
Travel Time to Work	1.4
Means of Transportation to Work	1.7
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	1.3
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8
Age of Householder	1.2
Race of Householder	1.8
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	1.9
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	1.9
Unmarried Partner Households	1.4
Tenure	1.3
Vacant	1.6
Rooms and Bedrooms	1.3
Occupants per Room	1.8
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	1.3
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	1.4

Table 3.29. Design Factors for Calculating PUMS Standard Errors – Nevada

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.3
Black or African American Alone	1.9
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.4
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.0
Language Spoken at Home and Ability to Speak English	1.7
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	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.2
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	1.8
Age of Householder	1.4
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.6
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
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	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.30. Design Factors for Calculating PUMS Standard Errors – New Hampshire

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.6
Age	1.1
Sex	1.6
Population of Two or More Races	1.6
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.5
Linguistic Isolation	1.7
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	1.2
Educational Attainment	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.2
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	1.5
Private Vehicle Occupancy	1.6
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	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.5
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	1.6
Health Insurance	1.5
HOUSING	
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	1.6
Tenure	1.4
Vacant	1.5
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	1.7
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	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.5

Table 3.31. Design Factors for Calculating PUMS Standard Errors – New Jersey

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.9
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.4
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	1.5
Armed Forces Status and Veteran Status	1.0
Period of Military Service	1.5
Disability Status	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	1.6
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
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	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.8
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.32. Design Factors for Calculating PUMS Standard Errors – New Mexico

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.9
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.4
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	1.5
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.5
Disability Status	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	1.7
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.7
HOUSING	
Households/Occupied Housing Units	1.9
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.4
Vacant	1.8
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	1.6
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	1.8
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

Table 3.33. Design Factors for Calculating PUMS Standard Errors – New York

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.5
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.4
Language Spoken at Home and Ability to Speak English	1.7
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	1.0
Period of Military Service	1.5
Disability Status	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	1.9
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	1.8
Age of Householder	1.4
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.34. Design Factors for Calculating PUMS Standard Errors – North Carolina

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.9
Age	1.1
Sex	1.1
Population of Two or More Races	2.1
White Alone	1.4
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.3
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	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.2
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	1.7
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.7
HOUSING	
Households/Occupied Housing Units	2.2
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.7
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
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	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.35. Design Factors for Calculating PUMS Standard Errors – North Dakota

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.3
Population in Households by Race/Hispanic Origin of Householder	1.6
Population by Tenure	1.9
Age	1.0
Sex	1.6
Population of Two or More Races	1.6
White Alone	1.0
Black or African American Alone	2.0
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	1.4
Marital Status	1.0
Marital History	1.3
Relationship	1.4
Ancestry	1.6
Grandparents Responsible for Grandchildren	1.4
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	1.2
Place of Birth, Year of Entry, and Citizenship Status	1.5
Residence 1 Year Ago	2.2
School Enrollment, Level of School, Type of School, and Field of Degree	1.1
Educational Attainment	1.1
Armed Forces Status and Veteran Status	1.3
Period of Military Service	1.5
Disability Status	1.1
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	1.1
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	1.8
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.3
Type of Household Income	2.0
Poverty Status (Persons)	1.6
Poverty Status (Families/Households)	1.3
Ratio of Income to Poverty Level	2.0
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.3
Health Insurance	1.3
HOUSING	
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	1.3
Rooms and Bedrooms	1.3
Occupants per Room	1.8
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	1.2
Mortgage Status and Selected Monthly Owner Costs	1.1
Selected Physical and Financial Conditions	1.3

Table 3.36. Design Factors for Calculating PUMS Standard Errors – Ohio

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.7
Age	1.1
Sex	1.6
Population of Two or More Races	1.8
White Alone	2.2
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	2.0
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.3
Language Spoken at Home and Ability to Speak English	1.4
Linguistic Isolation	1.7
Place of Birth, Year of Entry, and Citizenship Status	1.9
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	1.3
Period of Military Service	1.5
Disability Status	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	1.5
Time Leaving Home to go to Work	1.6
Private Vehicle Occupancy	1.7
Work Experience, Hours Worked per Week, and Weeks Worked	1.3

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	1.5
Age of Own Children by Living Arrangements and Employment Status of Parents	1.8
Age of Householder	1.3
Race of Householder	1.8
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
Health Insurance	1.6
HOUSING	
Households/Occupied Housing Units	2.3
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	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.4
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	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

Table 3.37. Design Factors for Calculating PUMS Standard Errors – Oklahoma

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.5
Age	1.1
Sex	1.6
Population of Two or More Races	1.7
White Alone	1.5
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	1.8
Hispanic or Latino	1.5
Marital Status	1.3
Marital History	1.1
Relationship	1.4
Ancestry	1.9
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.2
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.8
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	1.3
Period of Military Service	1.5
Disability Status	1.2
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	1.5
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	2.5
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.7
Health Insurance	1.3
HOUSING	
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	1.5
Tenure	1.5
Vacant	1.9
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	1.5
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	1.7
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.5
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.5

Table 3.38. Design Factors for Calculating PUMS Standard Errors – Oregon

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.9
Age	1.1
Sex	1.6
Population of Two or More Races	2.0
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.4
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	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.2
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	1.7
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.9
Rooms and Bedrooms	1.5
Occupants per Room	1.8
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	1.8
Meals Included in Rent	1.6
Inclusion of Utilities in Rent	1.6
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

Table 3.39. Design Factors for Calculating PUMS Standard Errors – Pennsylvania

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.8
Age	1.1
Sex	1.6
Population of Two or More Races	1.9
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.5
Linguistic Isolation	1.7
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	1.3
Period of Military Service	1.5
Disability Status	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.5
Travel Time to Work	1.5
Means of Transportation to Work	1.7
Place of Work	1.5
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	1.8
Age of Householder	1.3
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.4
Type of Household Income	2.0
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
Health Insurance	1.7
HOUSING	
Households/Occupied Housing Units	2.3
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	1.9
Rooms and Bedrooms	1.4
Occupants per Room	1.8
Units in Structure	1.5
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.4
Telephone Service Available	1.6
Vehicles Available	1.4
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.6
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.6
Value	1.3
Mortgage Status and Selected Monthly Owner Costs	1.3
Selected Physical and Financial Conditions	1.6

Table 3.40. Design Factors for Calculating PUMS Standard Errors – Rhode Island

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	1.9
Population by Tenure	2.5
Age	1.1
Sex	1.1
Population of Two or More Races	2.1
White Alone	2.1
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.1
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	1.4
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	1.3
Educational Attainment	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.2
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	1.6
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	1.4
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
Health Insurance	1.6
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.6
Households by Presence of Nonrelatives	2.0
Unmarried Partner Households	1.6
Tenure	1.5
Vacant	1.6
Rooms and Bedrooms	1.5
Occupants per Room	1.8
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	1.5
Inclusion of Utilities in Rent	1.6
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

Table 3.41. Design Factors for Calculating PUMS Standard Errors – South Carolina

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	1.6
Population by Tenure	2.8
Age	1.1
Sex	1.1
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	2.0
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.3
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	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.2
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	1.6
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.6
HOUSING	
Households/Occupied Housing Units	1.9
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.7
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	1.9
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.6
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.42. Design Factors for Calculating PUMS Standard Errors – South Dakota

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.4
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.1
Age	1.0
Sex	1.6
Population of Two or More Races	1.9
White Alone	1.5
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	2.1
Hispanic or Latino	1.3
Marital Status	1.3
Marital History	1.0
Relationship	1.4
Ancestry	1.7
Grandparents Responsible for Grandchildren	1.5
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	1.7
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	1.5
Disability Status	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	1.7
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	1.2

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	1.2
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.3
Type of Household Income	2.0
Poverty Status (Persons)	1.7
Poverty Status (Families/Households)	1.4
Ratio of Income to Poverty Level	2.2
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.4
Health Insurance	1.3
HOUSING	
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	1.4
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	1.3
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	1.3
Selected Physical and Financial Conditions	1.3

Table 3.43. Design Factors for Calculating PUMS Standard Errors – Tennessee

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.9
Age	1.1
Sex	1.1
Population of Two or More Races	2.0
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.4
Language Spoken at Home and Ability to Speak English	1.3
Linguistic Isolation	1.7
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	3.2
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	1.5
Disability Status	1.2
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	1.7
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.7
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.7
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.5
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.6
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.44. Design Factors for Calculating PUMS Standard Errors – Texas

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.5
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.4
Language Spoken at Home and Ability to Speak English	1.6
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	2.0
Residence 1 Year Ago	3.1
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	1.5
Disability Status	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	1.9
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	1.8
Age of Householder	1.4
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.3
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.6
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.8
Meals Included in Rent	1.8
Inclusion of Utilities in Rent	1.7
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.45. Design Factors for Calculating PUMS Standard Errors – Utah

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	3.0
Age	1.1
Sex	1.6
Population of Two or More Races	1.9
White Alone	2.2
Black or African American Alone	1.6
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.1
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	1.5
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	1.1
Period of Military Service	1.5
Disability Status	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	1.5
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	1.8
Age of Householder	1.3
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.6
Type of Household Income	1.1
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
Health Insurance	1.8
HOUSING	
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	1.5
Vacant	1.7
Rooms and Bedrooms	1.5
Occupants per Room	1.6
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.4
House Heating Fuel	1.6
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	1.7
Meals Included in Rent	1.5
Inclusion of Utilities in Rent	1.6
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.5

Table 3.46. Design Factors for Calculating PUMS Standard Errors – Vermont

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.3
Population in Households by Race/Hispanic Origin of Householder	1.6
Population by Tenure	2.1
Age	1.0
Sex	1.6
Population of Two or More Races	1.3
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	1.3
Hispanic or Latino	1.3
Marital Status	1.1
Marital History	1.3
Relationship	1.2
Ancestry	1.6
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.0
Language Spoken at Home and Ability to Speak English	1.5
Linguistic Isolation	1.7
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	1.2
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.2
Travel Time to Work	1.4
Means of Transportation to Work	1.7
Place of Work	1.1
Time Leaving Home to go to Work	1.3
Private Vehicle Occupancy	1.8
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	1.8
Household, Family, or Nonfamily Income	1.3
Person Earnings/Income	1.3
Type of Household Income	1.3
Poverty Status (Persons)	1.6
Poverty Status (Families/Households)	1.3
Ratio of Income to Poverty Level	2.0
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.4
Health Insurance	1.8
HOUSING	
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	1.0
Rooms and Bedrooms	1.3
Occupants per Room	1.8
Units in Structure	1.3
Year Structure Built and Year Householder Moved Into Unit	1.2
House Heating Fuel	1.2
Telephone Service Available	1.2
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	1.2
Inclusion of Utilities in Rent	1.3
Value	1.2
Mortgage Status and Selected Monthly Owner Costs	1.2
Selected Physical and Financial Conditions	1.3

Table 3.47. Design Factors for Calculating PUMS Standard Errors – Virginia

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.8
Age	1.1
Sex	1.1
Population of Two or More Races	2.1
White Alone	1.4
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	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	1.5
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	1.5
Disability Status	1.2
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	1.7
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.6
HOUSING	
Households/Occupied Housing Units	2.3
Family Type, Household Type, and Household Size	1.7
Households by Presence of Nonrelatives	2.2
Unmarried Partner Households	1.6
Tenure	1.6
Vacant	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.6
House Heating Fuel	1.6
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	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

Table 3.48. Design Factors for Calculating PUMS Standard Errors – Washington

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.7
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.8
Age	1.1
Sex	1.9
Population of Two or More Races	2.0
White Alone	2.2
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	2.1
Hispanic or Latino	2.0
Marital Status	1.3
Marital History	1.4
Relationship	1.4
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.4
Language Spoken at Home and Ability to Speak English	1.6
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	1.5
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	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	1.7
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	1.8
Age of Householder	1.4
Race of Householder	1.8
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
Health Insurance	1.8
HOUSING	
Households/Occupied Housing Units	2.3
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	1.9
Rooms and Bedrooms	1.6
Occupants per Room	1.8
Units in Structure	1.6
Year Structure Built and Year Householder Moved Into Unit	1.5
House Heating Fuel	1.6
Telephone Service Available	1.6
Vehicles Available	1.5
Plumbing Facilities and Kitchen Facilities	2.4
Gross Rent, Gross Rent as a Percentage Of Household Income, and Contract Rent	1.7
Meals Included in Rent	1.7
Inclusion of Utilities in Rent	1.6
Value	1.6
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.7

Table 3.49. Design Factors for Calculating PUMS Standard Errors – West Virginia

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.5
Age	1.0
Sex	1.6
Population of Two or More Races	1.8
White Alone	1.2
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	1.5
Hispanic or Latino	1.4
Marital Status	1.2
Marital History	1.0
Relationship	1.3
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.1
Language Spoken at Home and Ability to Speak English	1.5
Linguistic Isolation	1.4
Place of Birth, Year of Entry, and Citizenship Status	1.8
Residence 1 Year Ago	2.6
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	1.5
Disability Status	1.2
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	1.5
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	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.6
Age of Householder	1.3
Race of Householder	1.8
Household, Family, or Nonfamily Income	1.5
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.6
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
Health Insurance	1.4
HOUSING	
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	1.5
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	1.5
Telephone Service Available	1.5
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	1.5
Inclusion of Utilities in Rent	1.5
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.6

Table 3.50. Design Factors for Calculating PUMS Standard Errors – Wisconsin

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.4
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.3
Age	1.0
Sex	1.6
Population of Two or More Races	1.7
White Alone	1.4
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	2.0
Hispanic or Latino	2.0
Marital Status	1.2
Marital History	1.3
Relationship	1.3
Ancestry	1.7
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	1.3
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	1.1
Educational Attainment	1.2
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	1.3
Employment/Work Status	1.2
Industry, Occupation, and Class of Worker	1.3
Travel Time to Work	1.4
Means of Transportation to Work	1.7
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	1.1
Race of Householder	1.8
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)	1.4
Ratio of Income to Poverty Level	2.2
Receipt of Food Stamps and Participation in Free or Reduced Price Meals	1.6
Health Insurance	1.3
HOUSING	
Households/Occupied Housing Units	1.8
Family Type, Household Type, and Household Size	1.4
Households by Presence of Nonrelatives	1.7
Unmarried Partner Households	1.4
Tenure	1.3
Vacant	1.3
Rooms and Bedrooms	1.3
Occupants per Room	1.8
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	1.8
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	1.4

Table 3.51. Design Factors for Calculating PUMS Standard Errors – Wyoming

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.5
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.4
Age	1.0
Sex	1.6
Population of Two or More Races	1.7
White Alone	1.3
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	1.5
Hispanic or Latino	1.5
Marital Status	1.3
Marital History	1.0
Relationship	1.2
Ancestry	1.8
Grandparents Responsible for Grandchildren	1.6
Number of Women Who Had a Birth in the Past 12 Months	1.2
Language Spoken at Home and Ability to Speak English	1.0
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	1.5
Disability Status	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	1.5
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	1.8
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.5
Type of Household Income	1.3
Poverty Status (Persons)	1.6
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
Health Insurance	1.3
HOUSING	
Households/Occupied Housing Units	1.7
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	1.8
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	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 3.52. Design Factors for Calculating PUMS Standard Errors – Puerto Rico

Characteristics	Design Factor
POPULATION	
Families and Nonfamilies	1.6
Population in Households by Race/Hispanic Origin of Householder	2.0
Population by Tenure	2.6
Age	1.1
Sex	1.6
Population of Two or More Races	2.1
White Alone	2.2
Black or African American Alone	2.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	2.1
Hispanic or Latino	2.2
Marital Status	1.2
Marital History	1.3
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	1.5
Linguistic Isolation	1.4
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	1.4
Armed Forces Status and Veteran Status	1.2
Period of Military Service	1.5
Disability Status	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	1.5
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	1.4
Household, Family, or Nonfamily Income	1.4
Person Earnings/Income	1.5
Type of Household Income	1.1
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
Health Insurance	1.8
HOUSING	
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	1.4
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	1.4
House Heating Fuel	1.5
Telephone Service Available	1.3
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	1.4
Value	1.4
Mortgage Status and Selected Monthly Owner Costs	1.4
Selected Physical and Financial Conditions	1.4