Source and Accuracy of the Data for the November 2002 CPS Microdata File for Voting and Registration in the United States

Source of Data

This is the revised statement on the source and accuracy statement of the data for the November 2002 CPS microdata file on voting and registration. The microdata file contains data reflecting both 2000 census-based weights and 1990 census-based weights. Because the 2000 census-based weights are likely to more accurate, it is preferable to use the data based on those weights. Therefore, all of the illustrations in this statement reflect 2000 census-based weights. Within the parameter tables, column headers indicate when 2000 census-based weights and 1990 census-based weights are used for the a-parameters. The b-parameters are the same for both sets of weights.

The data in this microdata file came from the November 2002 Current Population Survey (CPS). The November survey uses two sets of questions, the basic CPS and the supplement.

Basic CPS. The monthly CPS collects primarily labor force data about the civilian noninstitutional population. Interviewers ask questions concerning labor force participation about each member 15 years old and over in every sample household.

The monthly CPS sample is a multi-stage probability sample with coverage in all 50 states and the District of Columbia. The sample was selected from the 1990 Decennial Census files and is continually updated to account for new residential construction. To obtain the sample, the United States was divided into 2,007 geographic areas. In most states, a geographic area consisted of a county or several contiguous counties. In some areas of New England and Hawaii, minor civil divisions are used instead of counties. These 2,007 geographic areas were then grouped into 754 strata, and one geographic area was selected from each stratum.

About 60,000 occupied households are eligible for interview every month out of the 754 strata. Interviewers are unable to obtain interviews at about 4,500 of these units. This occurs when the occupants are not found at home after repeated calls or are unavailable for some other reason. The number of households that are eligible for interview in the basic CPS increased from 50,000

to 60,000 in July of 2001. With the increase in eligible households, the number of units where interviewers were unable to obtain an interview increased from 3,200 to 4,500.

November 2002 Supplement. In addition to the basic CPS questions, interviewers asked supplementary questions on voting and registration.

Sample Redesign. Since the introduction of the CPS, the Census Bureau has redesigned the CPS sample several times. These redesigns have improved the quality and accuracy of the data and have satisfied changing data needs. The most recent changes were phased in and implementation was completed in July 1995.

Estimation Procedure. This survey's estimation procedure adjusts weighted sample results to agree with independent estimates of the civilian noninstitutional population of the United States by age, sex, race, Hispanic/non-Hispanic ancestry, and state of residence. The adjusted estimate is called the post-stratification ratio estimate. The sample results weighted with 2000 census-based weights are adjusted to independent estimates calculated based on information from three primary sources:

- The 2000 Decennial Census of Population and Housing.
- Statistics on births, deaths, immigration, and emigration.
- Statistics on the size of the Armed Forces.

The sample results weighted with 1990 census-based weights are adjusted similarly, but they use the 1990 Decennial Census of Population and Housing and an adjustment for undercoverage in the 1990 Census.

The independent population estimates include some, but not all, unauthorized migrants.

Accuracy of the Estimates

A sample survey estimate has two types of error: sampling and nonsampling. The accuracy of an estimate depends on both types of error. The nature of the sampling error is known given the survey design. The full extent of the nonsampling error, however, is unknown.

Sampling Error. Since the CPS estimates come from a sample, they may differ from figures from a complete census using the same questionnaires, instructions, and enumerators. This possible variation in the estimates due to sampling error is known as "sampling variability." Standard errors, as calculated by methods described in "Standard Errors and Their Use," are primarily measures of sampling variability. However, they may include some nonsampling error.

Nonsampling Error. All other sources of error in the survey estimates are collectively called nonsampling error. Sources of nonsampling errors include the following:

- Inability to get information about all sample cases (nonresponse).
- Definitional difficulties.
- Differences in the interpretation of questions.
- Respondent inability or unwillingness to provide correct information.
- Respondent inability to recall information.
- Errors made in data collection, such as recording and coding data.
- Errors made in processing the data.
- Errors made in estimating values for missing data.
- Failure to represent all units with the sample (undercoverage).

Two types of nonsampling error that can be examined to a limited extent are nonresponse and undercoverage.

Nonresponse. The effect of nonresponse cannot be measured directly, but one indication of its potential effect is the nonresponse rate. For the November 2002 basic CPS, the nonresponse rate was 6.62 percent. The nonresponse rate for the November supplement was an additional 6.30 percent. These two nonresponse rates lead to a combined supplement nonresponse rate of 12.50 percent.

Coverage. The concept of coverage in the survey sampling process is the extent to which the total population that could be selected for sample "covers" the survey's target population. CPS undercoverage results from missed housing units and missed people within sample households. Overall CPS undercoverage for November 2002 reflecting the 2000 Census is estimated to be

about 9 percent. Overall CPS undercoverage for November 2002 reflecting the 1990 Census is estimated to be about 8 percent. CPS undercoverage varies with age, sex, and race. Generally, undercoverage is larger for males than for females and larger for Blacks than for Non-Blacks.

The Current Population Survey weighting procedure uses ratio estimation whereby sample estimates are adjusted to independent estimates of the national population by age, race, sex and Hispanic ancestry. This weighting partially corrects for bias due to undercoverage, but biases may still be present when people who are missed by the survey differ from those interviewed in ways other than age, race, sex, and Hispanic ancestry. How this weighting procedure affects other variables in the survey is not precisely known. All of these considerations affect comparisons across surveys or data sources.

A common measure of survey coverage is the coverage ratio, calculated as the estimated population before post-stratification divided by the independent population control. Table 1 shows November 2002 coverage ratios reflecting the 2000 Census for certain age-sex-race groups. The CPS coverage ratios can exhibit some variability from month to month. Other Census Bureau household surveys experience similar coverage.

Table 1. CPS Coverage Ratios: November 2002 reflecting the 2000 Census

Age	Non-Black		Black		All Persons		
	M	F	M	F	M	F	Total
Source: U.S. Census Bureau							
0-14	0.924	0.913	0.848	0.868	0.912	0.906	0.909
15	0.944	0.967	0.760	0.753	0.914	0.931	0.922
16-19	0.877	0.894	0.823	0.705	0.869	0.864	0.866
20-29	0.818	0.868	0.684	0.745	0.801	0.849	0.825
30-39	0.906	0.948	0.720	0.851	0.883	0.934	0.909
40-49	0.900	0.940	0.815	0.926	0.891	0.938	0.915
50-59	0.971	0.953	0.994	0.928	0.973	0.950	0.961
60-64	0.916	0.953	0.974	0.875	0.922	0.944	0.933
65-69	0.957	0.943	0.908	0.976	0.952	0.947	0.949
70+	0.925	0.944	0.908	0.976	0.924	0.947	0.938
15+	0.903	0.931	0.807	0.856	0.892	0.921	0.907
0+	0.908	0.927	0.819	0.859	0.897	0.918	0.908

Comparability of Data. Data obtained from the CPS and other sources are not entirely comparable. This results from differences in interviewer training and experience and in differing survey processes. This is an example of nonsampling variability not reflected in the standard errors. Therefore, caution should be used when comparing results from different sources.

A number of changes were made in data collection and estimation procedures beginning with the January 1994 CPS. The major change was the use of a new questionnaire. The questionnaire was redesigned to measure the official labor force concepts more precisely, to expand the amount of data available, to implement several definitional changes, and to adapt to a computer-assisted interviewing environment. The ASEC income questions were also modified for adaptation to computer-assisted interviewing, although there were no changes in definitions and concepts. See Appendix C of Report P-60 No. 188 on "Conversion to a Computer Assisted Questionnaire" for a description of these changes and the effect they had on the data. Due to these and other changes, one should use caution when comparing estimates from data collected before 1994 with estimates from data collected in 1994 and later.

Caution should be used when comparing the data from this microdata file that reflect 2000 census-based population controls with microdata files from March 1994-December 2001, which reflect 1990 census-based population controls. Caution should also be used when comparing the data from this microdata file that reflect 1990 census-based population controls with microdata files from March 1993 and earlier years, which reflect 1980 census-based population controls. When comparing data within this microdata file, be sure to use estimates that reflect the same population controls. Microdata files from previous years reflect the latest available census-based population controls. Although this change in population controls had relatively little impact on summary measures such as averages, medians, and percentage distributions, it did have a significant impact on levels. For example, use of 2000 based population controls results in about a one percent increase from the 1990 based population controls in the civilian noninstitutional population and in the number of families and households. Thus, estimates of levels for data collected in 2002 and later years will differ from those for earlier years by more than what could be attributed to actual changes in the population. These differences could be disproportionately greater for certain subpopulation groups than for the total population.

Caution should also be used when comparing Hispanic estimates over time. No independent population control totals for people of Hispanic ancestry were used before 1985.

Based on the results of each decennial census, the Census Bureau gradually introduces a new sample design for the CPS1. During this phase-in period, CPS data are collected from sample designs based on different censuses. While most CPS estimates were unaffected by this mixed

sample, geographic estimates are subject to greater error and variability. Users should exercise caution when comparing estimates across years for metropolitan/ nonmetropolitan categories.

A Nonsampling Error Warning. Since the full extent of the nonsampling error is unknown, one should be particularly careful when interpreting results based on small differences between estimates. Even a small amount of nonsampling error can cause a borderline difference to appear significant or not, thus distorting a seemingly valid hypothesis test. Caution should also be used when interpreting results based on a relatively small number of cases. Summary measures probably do not reveal useful information when computed on a base2 smaller than 75,000.

For additional information on nonsampling error, including the possible impact on CPS data when known, refer to

- Statistical Policy Working Paper 3, *An Error Profile: Employment as Measured by the Current Population Survey*, Office of Federal Statistical Policy and Standards, U.S. Department of Commerce, 1978.
- Technical Paper 63RV, *Current Population Survey: Design and Methodology*, U.S. Census Bureau, U.S. Department of Commerce, 2002.

Standard Errors and Their Use. The sample estimate and its standard error enable one to construct a confidence interval. A confidence interval is a range that would include the average result of all possible samples with a known probability. For example, if all possible samples were surveyed under essentially the same general conditions and the same sample design, and if an estimate and its standard error were calculated from each sample, then approximately 90 percent of the intervals from 1.645 standard errors below the estimate to 1.645 standard errors above the estimate would include the average result of all possible samples.

A particular confidence interval may or may not contain the average estimate derived from all possible samples. However, one can say with specified confidence that the interval includes the average estimate calculated from all possible samples.

Standard errors may be used to perform hypothesis testing. This is a procedure for distinguishing between population parameters using sample estimates. The most common type of hypothesis is that the population parameters are different. An example of this would be comparing the

percentage of Whites with a college education to the percentage of Blacks with a college education.

Tests may be performed at various levels of significance. A significance level is the probability of concluding that the characteristics are different when, in fact, they are the same. For example, to conclude that two parameters are different at the 0.10 level of significance, the absolute value of the estimated difference between characteristics must be greater than or equal to 1.645 times the standard error of the difference.

The Census Bureau uses 90-percent confidence intervals and 0.10 levels of significance to determine statistical validity. Consult standard statistical texts for alternative criteria.

Estimating Standard Errors. To estimate the standard error of a CPS estimate, the Census Bureau uses replicated variance estimation methods. These methods primarily measure the magnitude of sampling error. However, they do measure some effects of nonsampling error as well. They do not measure systematic biases in the data due to nonsampling error. Bias is the average over all possible samples of the differences between the sample estimates and the true value.

Generalized Variance Parameters. It is possible to compute and present an estimate of the standard error based on the survey data for each estimate in a report, but there are a number of reasons why this is not done. A presentation of the individual standard errors would be of limited use, since one could not possibly predict all of the combinations of results that may be of interest to data users. Additionally, variance estimates are based on sample data and have variances of their own. Therefore, some method of stabilizing these estimates of variance, for example, by generalizing or averaging over time, may be used to improve their reliability.

Experience has shown that certain groups of estimates have a similar relationship between their variance and expected value. Modeling or generalization may provide more stable variance estimates by taking advantage of these similarities. The generalized variance function is a simple model that expresses the variance as a function of the expected value of the survey estimate. The parameters of the generalized variance function are estimated using direct replicate variances. These generalized variance parameters provide a relatively easy method to obtain approximate standard errors for numerous characteristics. In this source and accuracy statement, table 2 provides the generalized variance parameters for labor force estimates, tables 3 through 9

provide the parameters for November supplement data, and tables 10, 11, and 12 provide factors for use with the parameters.

Standard Errors of Estimated Numbers. The approximate standard error, sx, of an estimated number from this microdata file can be obtained using this formula:

Here x is the size of the estimate and a and b are the parameters in Table 2 through 9 associated with the particular type of characteristic. When calculating standard errors for numbers from cross-tabulations involving different characteristics, use the factor or set of parameters for the characteristic which will give the largest standard error.

Illustration No. 1
In November 2002, there were 4,215,000 unemployed men in the civilian labor force. Use the appropriate parameters from Table 2 and formula (1) to get:

Number, x	4,215,000
a parameter	-0.000035
b parameter	2,927
Standard error	108,000
90% conf. int.	4,037,000 to 4,393,000

The standard error is calculated as follows:

The 90-percent confidence interval is calculated as 4,215,000 ± 1.645 × 108,000.

A conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 90 percent of all possible samples.

Standard Errors of Estimated Percentages. The reliability of an estimated percentage, computed using sample data from both numerator and denominator, depends on both the size of the percentage and its base. Estimated percentages are relatively more reliable than the corresponding estimates of the numerators of the percentages, particularly if the percentages are 50 percent or more. When the numerator and denominator of the percentage are in different categories, use the parameter from Table 2 through 9 indicated by the numerator.

The approximate standard error, sx,p, of an estimated percentage can be obtained by using the following formula:

Here x is the total number of people, families, households, or unrelated individuals in the base of the percentage, p is the percentage (0 = p = 100), and b is the parameter in Table 2 through 9 associated with the characteristic in the numerator of the percentage.

Illustration No. 2
In November 2002, out of 200,103,000 people with an elementary school education, 43.4 percent reported voting. Use the appropriate parameter from Table 3 and formula (2) to get:

Percentage, p	43.4
Base, x	200,103,000
b parameter	2,945
Standard error	0.2
90% conf. int.	43.1 to 43.7

The standard error is calculated as follows:

The 90-percent confidence interval of the percentage of people with an elementary school education who reported voting is calculated as $43.4 \pm 1.645 \times 0.2$.

Standard Error of a Difference. The standard error of the difference between two sample estimates is approximately equal to

where sx and sy are the standard errors of the estimates, x and y. The estimates can be numbers, percentages, ratios, etc. This will represent the actual standard error quite accurately for the difference between estimates of the same characteristic in two different areas, or for the difference between separate and uncorrelated characteristics in the same area. However, if there is a high positive (negative) correlation between the two characteristics, the formula will overestimate (underestimate) the true standard error.

Illustration No. 3
Out of 95,950,000 men who had an elementary school education, 40,990,000 or 42.7 percent had voted, and of the 104,200,000 women who had an elementary school education, 45,880,000 or 44.0 percent had voted. Use the appropriate parameters from Table 3 and formulas (2) and (3) to get:

	x	**y**	**difference**
Percentage, p	42.7	44.0	-1.3
Number, x	95,950,000	104,200,000	-
b parameter	2,945	2,945	-
Standard error	0.3	0.3	0.4
90% conf. int.	42.2 to 43.2	43.5 to 44.5	-2.0 to -0.6

The standard error of the difference is calculated as

The 90-percent confidence interval around the difference is calculated as $-1.3 \pm 1.645 \times 0.4$. Since this interval does not include zero, we can conclude, at the 10-percent significance level, that the percentage of women with an elementary school education who voted is different from the percentage of men with an elementary school education who voted.

Standard Errors for State, Census Division, and Region Estimates. Standard errors for state, census division, and region estimates may be obtained by using the state, census division, and region parameters. The state, census division, and region parameters for Total or White population voting and registration estimates are included in Tables 7, 8, and 9. The state, census division, and region parameters for other subpopulation groups are determined by multiplying the a and b parameters in Table 3, 4, 5, or 6 by the appropriate factor from Table 10, 11, or 12. The state factors are contained in Table 10, the census division factors in Table 11, and the region factors in Table 12. After determining the correct parameter, use the standard error formulas discussed earlier in the text to calculate standard error estimates.

Illustration No. 4
About 3,801,700 (27.7 percent) people have completed at least a bachelor's degree when there are about 13,710,000 people aged 18 and over living in New York. Following the method mentioned above, obtain the needed state parameter by multiplying the parameter in Table 3 by the state factor in Table 10 for the state of interest. In this example, the educational attainment parameter for Total or White in New York is calculated as $b = 2{,}131 \times 1.00 = 2{,}131$.

Use formula (2) with the new b parameter, 2,131, to get the following:

Percentage, p	27.7
Base, x	13,710,000
b parameter x State Factor	2,131 x 1.00 = 2,131
Standard error	0.56

Technical Assistance. If you require assistance or additional information, please contact the Demographic Statistical Methods Division via e-mail at dsmd.source.and.accuracy@census.gov.

Table 2. Parameters for Computation of Standard Errors for Labor Force Characteristics: November 2002

Characteristic	a	b
Civilian Labor Force, Employed, and Not in Labor Force		
Total or White	-0.000008	1,586
Men	-0.000035	2,927
Women	-0.000033	2,693
Both sexes, 16 to 19 years	-0.000244	3,005
Black	-0.000154	3,296
Men	-0.000336	3,332
Women	-0.000282	2,944
Both sexes, 16 to 19 years	-0.001531	3,296
Hispanic ancestry	-0.000187	3,296
Men	-0.000363	3,332
Women	-0.000380	2,944
Both sexes, 16 to 19 years	-0.001822	3,296

Unemployment		
Total or White	-0.000017	3,005
Men	-0.000035	2,927
Women	-0.000033	2,693
Both sexes, 16 to 19 years	-0.000244	3,005
Black	-0.000154	3,296
Men	-0.000336	3,332
Women	-0.000282	2,944
Both sexes, 16 to 19 years	-0.001531	3,296
Hispanic ancestry	-0.000187	3,296
Men	-0.000363	3,332
Women	-0.000380	2,944
Both sexes, 16 to 19 years	-0.001822	3,296
Agricultural Employment	0.001345	2,989

Notes: These parameters are to be applied to basic CPS monthly labor force estimates and can be used with both 1990 and 2000 census-based weights. For foreign-born and noncitizen characteristics for Total and White, the a and b parameters should be multiplied by 1.3. No adjustment is necessary for foreign-born and noncitizen characteristics for Blacks and Hispanics.

Table 3. Parameters for Computation of Standard Errors for Voting and Registration in November 2002: Total or White Persons[1]

Characteristic	2000 a	1990 a	b
Voting, registration, reasons for not voting or registering (includes breakdowns by: Citizenship, Household relationship, Family heads by presence of children, Marital status, Duration of residence, Tenure, Education level, Family income of persons, Occupation group)	-0.000014	-0.000014	2,945
Characteristics of all persons, Voting and nonvoting:			
Marital status	-0.000017	-0.000017	4,687
Education of persons	-0.000010	-0.000010	2,131
Education of family head	-0.000008	-0.000008	1,860
Persons by family income	-0.000020	-0.000020	4,408
Duration of residence tenure	-0.000017	-0.000017	4,687
Household relationships, Voting and nonvoting:			
Head, spouse of head	-0.000008	-0.000008	1,860

Nonrelative or other relative of head	-0.000017	-0.000017	4,687

1 For Foreign Born parameters, multiply the appropriate parameter by 1.3.

Table 4. Parameters for Computation of Standard Errors for Voting and Registration in November 2002: Black Persons

Characteristic	2000 a	1990 a	b
Voting, registration, reasons for not voting or registering (includes breakdowns by: Citizenship, Household relationship, Family heads by presence of children, Marital status, Duration of residence, Tenure, Education level, Family income of persons, Occupation group)	-0.000176	-0.000174	4,316
Characteristics of all persons, Voting and nonvoting:			
Marital status	-0.000186	-0.000184	6,733
Education of persons	-0.000091	-0.000090	2,410
Education of family head	-0.000064	-0.000063	1,683
Persons by family income	-0.000191	-0.000188	5,047
Duration of residence tenure	-0.000186	-0.000184	6,733
Household relationships, Voting and nonvoting:			

Head, spouse of head	-0.000064	-0.000063	1,683
Nonrelative or other relative of head	-0.000186	-0.000184	6,733

Table 5. Parameters for Computation of Standard Errors for Voting and Registration in November 2002: Hispanic Persons

Characteristic	2000 a	1990 a	b
Voting, registration, reasons for not voting or registering (includes breakdowns by: Citizenship, Household relationship, Family heads by presence of children, Marital status, Duration of residence, Tenure, Education level, Family income of persons, Occupation group)	-0.000276	-0.000301	7,274
Characteristics of all persons, Voting and nonvoting:			
Marital status	-0.000296	-0.000318	11,347
Education of persons	-0.000102	-0.000111	2,745
Education of family head	-0.000105	-0.000114	2,836
Persons by family income	-0.000315	-0.000343	8,505
Duration of residence tenure	-0.000296	-0.000318	11,347
Household relationships, Voting and nonvoting:			

Head, spouse of head	-0.000105	-0.000114	2,836
Nonrelative or other relative of head	-0.000296	-0.000318	11,347

Table 6. Parameters for Computation of Standard Errors for Voting and Registration in November 2002: Asians or Pacific Islanders

Characteristic	2000 a	1990 a	b
Voting, registration, reasons for not voting or registering (includes breakdowns by: Citizenship, Household relationship, Family heads by presence of children, Marital status, Duration of residence, Tenure, Education level, Family income of persons, Occupation group)	-0.000381	-0.000435	4,705
Characteristics of all persons, Voting and nonvoting:			
Marital status	-0.000414	-0.000459	6,733
Education of persons	-0.000155	-0.000176	1,946
Education of family head	-0.000134	-0.000152	1,683
Persons by family income	-0.000401	-0.000457	5,047
Duration of residence tenure	-0.000414	-0.000459	6,733
Household relationships, Voting and nonvoting:			

Head, spouse of head	-0.000134	-0.000152	1,683
Nonrelative or other relative of head	-0.000414	-0.000459	6,733

Table 7. State Voting and Registration Parameters

State	2000 a	1990 a	b
Alabama	-0.000818	-0.000804	2,768
Alaska	-0.000776	-0.000788	353
Arizona	-0.000854	-0.000897	3,387
Arkansas	-0.000926	-0.000929	1,885
California	-0.000172	-0.000165	4,388
Colorado	-0.000583	-0.000600	1,973
Connecticut	-0.000600	-0.000634	1,620
Delaware	-0.000863	-0.000876	530
District of Columbia	-0.000926	-0.001007	412
Florida	-0.000259	-0.000271	3,357
Georgia	-0.000796	-0.000804	5,007
Hawaii	-0.000843	-0.000852	766
Idaho	-0.000894	-0.000889	884
Illinois	-0.000328	-0.000342	3,181
Indiana	-0.000562	-0.000590	2,709
Iowa	-0.000671	-0.000680	1,502
Kansas	-0.000666	-0.000696	1,414

Kentucky	-0.000786	-0.000777	2,444
Louisiana	-0.000952	-0.000933	3,092
Maine	-0.000573	-0.000602	618
Maryland	-0.000674	-0.000666	2,739
Massachusetts	-0.000533	-0.000563	2,739
Michigan	-0.000392	-0.000404	3,092
Minnesota	-0.000594	-0.000634	2,385
Mississippi	-0.001020	-0.001014	2,150
Missouri	-0.000684	-0.000694	2,945
Montana	-0.000959	-0.000958	677
Nebraska	-0.000765	-0.000787	1,001
Nevada	-0.000630	-0.000680	1,031
New Hampshire	-0.000631	-0.000665	648
New Jersey	-0.000392	-0.000426	2,709
New Mexico	-0.000985	-0.001005	1,355
New York	-0.000199	-0.000206	2,945
North Carolina	-0.000521	-0.000541	3,210
North Dakota	-0.000750	-0.000805	383
Ohio	-0.000370	-0.000384	3,328
Oklahoma	-0.000810	-0.000815	2,120
Oregon	-0.000738	-0.000751	2,003
Pennsylvania	-0.000315	-0.000329	3,063
Rhode Island	-0.000567	-0.000618	471
South Carolina	-0.000789	-0.000782	2,444

South Dakota	-0.000640	-0.000678	383
Tennessee	-0.000896	-0.000910	3,976
Texas	-0.000258	-0.000255	4,035
Utah	-0.000832	-0.000854	1,355
Vermont	-0.000638	-0.000669	324
Virginia	-0.000721	-0.000710	3,887
Washington	-0.000707	-0.000717	3,269
West Virginia	-0.000702	-0.000694	1,001
Wisconsin	-0.000563	-0.000586	2,415
Wyoming	-0.000764	-0.000776	295

NOTE: These parameters are for use with state level voting and registration estimates for the Total or White population. For state level estimates of subpopulation groups, please use the factors provided in Table 10.

Table 8. Census Division Voting and Registration Parameters

Division	2000 a	1990 a	b
New England	-0.000159	-0.000168	1,796
Middle Atlantic	-0.000094	-0.000098	2,945
East North Central	-0.000085	-0.000088	3,033
West North Central	-0.000133	-0.000138	2,003
South Atlantic	-0.000083	-0.000084	3,357
East South Central	-0.000228	-0.000227	2,974
West South Central	-0.000149	-0.000148	3,505
Mountain	-0.000138	-0.000143	1,944

Pacific	-0.000115	-0.000111	3,917

NOTE: These parameters are for use with census division level voting and registration estimates for the Total or White population. For census division level estimates of subpopulation groups, please use the factors provided in Table 11.

Table 9. Census Region Voting and Registration Parameters

Region	2000 a	1990 a	b
Midwest	-0.000064	-0.000067	2,739
Northeast	-0.000052	-0.000054	2,651
South	-0.000044	-0.000044	3,357
West	-0.000070	-0.000069	3,357
All Except South	-0.000021	-0.000021	2,916

NOTE: These parameters are for use with region level voting and registration estimates for the Total or White population. For region level estimates of subpopulation groups, please use the factors provided in Table 12.

Table 10. State Factors

State	Factor
Alabama	0.94
Alaska	0.12
Arizona	1.15
Arkansas	0.64
California	1.49

Colorado	0.67
Connecticut	0.55
Delaware	0.18
District of Columbia	0.14
Florida	1.14
Georgia	1.70
Hawaii	0.26
Idaho	0.30
Illinois	1.08
Indiana	0.92
Iowa	0.51
Kansas	0.48
Kentucky	0.83
Louisiana	1.05
Maine	0.21
Maryland	0.93
Massachusetts	0.93
Michigan	1.05
Minnesota	0.81
Mississippi	0.73
Missouri	1.00
Montana	0.23
Nebraska	0.34
Nevada	0.35

New Hampshire	0.22
New Jersey	0.92
New Mexico	0.46
New York	1.00
North Carolina	1.09
North Dakota	0.13
Ohio	1.13
Oklahoma	0.72
Oregon	0.68
Pennsylvania	1.04
Rhode Island	0.16
South Carolina	0.83
South Dakota	0.13
Tennessee	1.35
Texas	1.37
Utah	0.46
Vermont	0.11
Virginia	1.32
Washington	1.11
West Virginia	0.34
Wisconsin	0.82
Wyoming	0.10

NOTE: These factors are for use with state level estimates for subpopulation groups. To calculate the parameters, multiply the appropriate state factor by the a and b parameters for the characteristic of interest.

Table 11. Census Division Factors	
Census Division	**Factor**
New England	0.61
Middle Atlantic	1.00
East North Central	1.03
West North Central	0.68
South Atlantic	1.14
East South Central	1.01
West South Central	1.19
Mountain	0.66
Pacific	1.33

NOTE: These factors are for use with census division level estimates for subpopulation groups. To calculate the parameters, multiply the appropriate census division factor by the a and b parameters for the characteristic of interest.

Table 12. Census Region Factors	
Region	**Factor**
Midwest	0.93
Northeast	0.90
South	1.14
West	1.14

All Except South	0.99

NOTE: These factors are for use with region level estimates for subpopulation groups. To calculate the parameters, multiply the appropriate region factor by the a and b parameters for the characteristic of interest.

[1]For detailed information on the 1990 sample redesign, see the Department of Labor, Bureau of Labor Statistics report, *Employment and Earnings*, Volume1 Number, May 1994.

[2]subpopulation