Appendix C. Source and Reliability of Estimates

SOURCE OF DATA

Most of the estimates in this report are based on data collected in November 1984 from the Current Population Survey of the Bureau of the Census. Some data were obtained from published November reports from earlier years dating back to 1964. These reports are noted at the bottom of the text tables. Also included in table H are counts of official votes cast during the November elections of the election years.

The monthly CPS deals mainly with labor force data for the civilian noninstitutional population. Questions relating to labor force participation are asked about each member in every sample household. In addition, supplemental questions are asked about voting and voter registration during the month of November in election years. In November 1984, questions related to exposure to media projections of the winner in the Presidential election were asked of approximately one-quarter of the total sample (two of the eight CPS rotation groups). The present CPS sample was initially selected from the 1970 census files. The sample is continually updated to reflect new construction where possible. In this sample, approximately 60,500 households were eligible for interview. Of this number, about 2,500 occupied units were visited but interviews were not obtained because the occupants were not found at home after repeated calls or were unavailable for some other reason.

The following table provides a description of some aspects of the CPS sample designs in use during the referenced data collection periods.

Description of the Current Population Survey

Time period	Number of sample areas[1]	Housing units eligible	
		Interviewed	Not interviewed
November 1984	629	58,000	2,500
November 1982	629	59,000	2,500
November 1980	629	64,000	2,500
November 1972-76	461	45,000	2,000
November 1968-70	449	48,000	2,000
November 1964-66	357	33,500	1,500

[1]These sample areas were chosen to provide coverage in each State and the District of Columbia.

The estimation procedure used in this survey involves the inflation of the weighted sample results to independent estimates of the total civilian noninstitutional population of the United States by age, race, and sex. These independent estimates are based on statistics from decennial censuses; statistics on births, deaths, immigration, and emigration; and statistics on the strength of the Armed Forces. The independent population estimates used to obtain data for November 1982 and later years are based on the 1980 decennial census. Data for 1972 to 1980 were obtained using independent population estimates based on the 1970 decennial census; data for 1964 to 1970 were obtained using independent population estimates based on the 1960 decennial census.

CPS design phase-in. Since the inception of the CPS in 1940, the sample has been redesigned several times, most recently in the early 1970s, to upgrade the quality and reliability of the data and to meet changing data needs. Beginning in April 1984, the CPS design was being phased out through a series of changes that were completed in July 1985. The November 1984 CPS sample consisted of four rotation groups where sample segments in continuing and outgoing areas were obtained by sampling from 1970 census material; three rotation groups where sample segments in continuing areas were obtained by sampling from 1980 census materials and sample segments in outgoing areas based on 1970 census materials; and one rotation group where sample segments in continuing and new areas were obtained from 1980 census materials. A continuing area was one that stayed in sample with both the 1970 and 1980 designs and an outgoing area was one that was no longer in sample in the 1980 design. The November sample had four rotation groups located in 629 areas comprising 1,148 counties, independent cities, and minor civil divisions and four rotation groups located in 729 sample areas representing 1,973 counties and equivalent geographic areas. The coverage was in all 50 States and the District of Columbia.

RELIABILITY OF ESTIMATES

Since the CPS estimates were based on a sample, they may differ somewhat from the figures that would have been obtained if a complete census had been taken using the same questionnaires, instructions, and enumerators. There are two types of errors possible in an estimate based on a sample survey—sampling and nonsampling. The accuracy of a survey result depends on the sampling and nonsampling errors, but the full extent of the nonsampling error is unknown. Consequently, particular care should be exercised in the interpretation of figures based on a relatively small number of cases or on small differences between estimates. The standard errors provided for the CPS estimates primarily indicate the magnitude of the sampling error. They also partially measure the effect of some nonsampling errors in response and

enumeration, but do not measure any systematic biases in the data. (Bias is the difference, averaged over all possible samples, between the estimate and the desired value.)

Nonsampling variability. As in any survey work, the results are subject to errors of response and nonreporting in addition to sampling variability. Nonsampling errors can be attributed to many sources, e.g., inability to obtain information about all cases in the sample, definitional difficulties, differences in the interpretation of questions, inability or unwillingness on the part of respondents to provide correct information, inability to recall information, errors made in collection such as in recording or coding the data, errors made in processing the data, errors made in estimating values for missing data, and failure to represent all units with the sample (undercoverage).

Undercoverage in the CPS results from missed housing units and missed persons within sample households. Overall undercoverage, as compared to the level of the 1980 decennial census, is about 7 percent. It is known that CPS undercoverage varies with age, sex, and race. Generally, undercoverage is larger for males than for females and larger for Blacks and other races combined than for Whites. Ratio estimation to independent age-sex-race population controls, as described previously, partially corrects for the bias due to survey undercoverage. However, biases exist in the estimation to the extent that missed persons in missed households or missed persons in interviewed households have different characteristics than interviewed persons in the same age-sex-race group. Further, the independent population controls used have not been adjusted for undercoverage in the 1980 census.

For additional information on nonsampling error including the possible impact on CPS data when known, refer to Statistical Policy Working Paper No. 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 and Technical Paper No. 40, *The Current Population Survey: Design and Methodology,* Bureau of the Census, U.S. Department of Commerce.

Sampling variability. The standard error given in the following tables are primarily measures of sampling variability, that is, of the variations that occurred by chance because a sample rather than the entire population was surveyed. The sample estimate and its standard error enable one to construct confidence intervals, ranges that would include the average result of all possible samples with a known probability. For example, if all possible samples were selected, each of these being surveyed under essentially the same general conditions and using the same sample design, and if an estimate and its standard error were calculated from each sample, then:

1. Approximately 68 percent of the intervals from one standard error below the estimate to one standard error above the estimate would include the average result of all possible samples.
2. Approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average result of all possible samples.
3. Approximately 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average result of all possible samples.

The average estimate derived from all possible samples is or is not contained in any particular computed interval. However, for a particular sample, one can say with a specified confidence that the average estimate derived from all possible samples is included in the confidence interval.

Standard errors may also be used to perform hypothesis testing, a procedure for distinguishing between population parameters using sample estimates. The most common types of hypotheses appearing in this report are: 1) the population parameters are identical, and 2) the population parameters are different. Tests may be performed at various levels of significance, where a level of significance is the probability of concluding that the parameters are different when, in fact, they are identical.

To perform the most common test, let x and y be sample estimates for two characteristics of interest. Let the standard error on the difference x-y be σ_{DIFF}. If the ratio $R = (x-y)/\sigma_{DIFF}$ is between -2 and +2, no conclusion about the characteristics is justified at the 0.05 level of significance. If, however, this ratio is smaller than -2 or larger than +2, the observed difference is significant at the 0.05 level. In this event, it is commonly accepted practice to say that the characteristics are different. Of course, sometimes this conclusion will be wrong. When the characteristics are, in fact, the same, there is a 5-percent chance of concluding that they are different. All statements of comparison in the text have passed a hypothesis test at the 0.10 level of significance or better, and most have passed a hypothesis test at the 0.05 level of significance or better. This means that, for most differences cited in the text, the estimated difference between parameters is greater than twice the standard error of the difference. For the other differences mentioned, the estimated difference between parameters is between 1.6 and 2.0 times the standard error of the difference. When this is the case, the statement of comparison is qualified by the use of the phrase "some evidence."

Comparability of data. Caution should be used when comparing estimates for 1982 and later, which reflect 1980 census-based population controls, to those for 1972 through 1980, which reflect 1970 census-based population controls. This change in population controls had relatively little impact on summary measures such as means, medians, and percent distribution, but did have a significant impact on levels. For example, use of 1980-based population controls resulted in about a 2-percent increase in the civilian noninstitutional population and in the number of families and households. Thus, estimates of levels for 1982 and later will differ

from those for earlier years by more than what could be attributed to actual changes in the population and these differences could be disproportionately greater for certain subpopulation groups than for the total population.

Note when using small estimates. Summary measures (such as percent distributions) are shown in this report only when the base is 75,000 or greater. Because of the large standard errors involved, there is little chance that summary measures would reveal useful information when computed on a smaller base. Estimated numbers are shown, however, even though the relative standard errors of these numbers are larger than those for corresponding percentages. These smaller estimates are provided primarily to permit such combinations of the categories as serve each data user's needs.

Standard error tables and their use. In order to derive standard errors that would be applicable to a large number of estimates and could be prepared at a moderate cost, a number of approximations were required. Therefore, instead of providing an individual standard error for each estimate, generalized sets of standard errors are provided for various types of characteristics. As a result, the sets of standard errors provided give an indication of the order of magnitude of the standard error of an estimate rather than the precise standard error.

The figures presented in table C-1 provide approximations to standard errors of estimated numbers of persons, tables C-2 through C-4 provide approximations to standard errors of estimated percentages for total or White persons, Black persons, and persons of Spanish origin, respectively. Standard errors for intermediate values not shown in the generalized tables of standard errors may be approximated by linear interpolation. Estimated standard errors for specific characteristics cannot be obtained from tables C-1 through C-4 without the use of factors in table C-5. These factors must be applied to the generalized standard errors in order to adjust for the combined effect of sample design and estimation procedure on the value of the characteristic. The standard error tables with which each factor should be used are indicated in table C-5. In order to derive standard errors for state (or group of states) data, the factors in table C-6 must be applied to the standard error parameters provided in table C-5.

Two parameters (denoted "a" and "b") are used to calculate standard errors for each type of characteristic; they are presented in table C-5. These parameters were used to calculate the standard errors in tables C-1 through C-4 and to calculate the factors in table C-5. They also may be used to directly calculate the standard errors for estimated numbers and estimated percentages. Methods for direct computation are given in the following sections.

Standard errors of estimated numbers. The approximate standard error, σ_x, of an estimated number shown in this report can be obtained in two ways. It may be obtained by use of the formula

$$\sigma_x = f\sigma \qquad (1)$$

where f is the appropriate factor from table C-5 and σ is the standard error on the estimate obtained by interpolation from table C-1. Alternatively, standard errors may be approximated by formula (2) below, from which the standard errors were calculated in table C-1. Use of this formula will provide more accurate results than the use of formula (1) above.

$$\sigma_x = \sqrt{ax^2 + bx} \qquad (2)$$

Here x is the size of the estimate and a and b are the parameters in table C-5 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 of the computation of the standard error of an estimated number. Table E of this report shows that 1,572,000 Black persons 18 to 24 years old reported that they voted in the November 1984 election. Using formula (2) with a = -0.000206 and b = 4718 from table C-5, the approximate standard error is

$$(-0.000206)(1{,}572{,}000)^2 + (4718)(1{,}572{,}000) = 83{,}000^1$$

This means that a 68-percent confidence interval for the number of Black persons 18 to 24 years old who reported they voted in the November 1984 election is from 1,489,000 to 1,655,000. A 95-percent confidence interval is from 1,406,000 to 1,738,000.

Table C-1 Standard Errors of Estimated Numbers of Persons

(1980 to present; numbers in thousands)

Estimate	Total or White	Black	Spanish origin
25	9	11	15
50	13	15	22
75	16	19	27
100	18	22	31
250	28	34	49
500	40	48	69
750	49	59	84
1,000	57	67	97
2,500	89	103	153
5,000	125	136	215
7,500	152	154	262
10,000	174	163	300
15,000	210	156	362
20,000	238	109	(x)
25,000	262	(x)	(x)
50,000	337	(x)	(x)
75,000	367	(x)	(x)
100,000	364	(x)	(x)
110,000	353	(x)	(x)
150,000	237	(x)	(x)

X Not applicable.

NOTE: For a particular characteristic, see table C-5 for the appropriate factor to apply to the above standard errors; for standard errors of 1964 data, multiply the above figures by 1.1; for 1966-78 data, multiply the above figures by 0.88.

[1]Using formula (1) table C-1, and the appropriate factor, 1.0, from table C-5, the approximate standard error is 81,000.

Table C-2. Standard Errors of Estimated Percentages of Total or White Persons

(1980 to present)

Base of estimated percentages (in thousands)	Estimated percentage					
	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
25	5.0	7.8	10.8	14.3	15.5	18.0
50	3.6	5.5	7.6	10.2	11.0	12.7
75	2.9	4.5	6.2	8.3	9.0	10.4
100	2.5	3.9	5.4	7.2	7.8	9.0
250	1.6	2.5	3.4	4.5	4.9	5.7
500	1.1	1.7	2.4	3.2	3.5	4.0
750	0.9	1.4	2.0	2.6	2.8	3.3
1,000	0.8	1.2	1.7	2.3	2.5	2.8
2,500	0.5	0.8	1.1	1.4	1.6	1.8
5,000	0.4	0.6	0.8	1.0	1.1	1.3
7,500	0.3	0.5	0.6	0.8	0.9	1.0
10,000	0.3	0.4	0.5	0.7	0.8	0.9
15,000	0.2	0.3	0.4	0.6	0.6	0.7
20,000	0.2	0.3	0.4	0.5	0.5	0.6
25,000	0.15	0.2	0.3	0.5	0.5	0.6
50,000	0.11	0.2	0.2	0.3	0.3	0.4
75,000	0.09	0.14	0.2	0.3	0.3	0.3
100,000	0.08	0.12	0.2	0.2	0.2	0.3
110,000	0.08	0.12	0.2	0.2	0.2	0.3
150,000	0.06	0.10	0.14	0.2	0.2	0.2

NOTE: For a particular characteristic, see table C-5 for the appropriate factor to apply to the above standards errors; for standard errors of 1964 data, multiply the above figures by 1.1; for 1966-78 data, multiply the above figures by 0.88.

Standard errors of estimated percentages. The reliability of an estimated percentage, computed by using sample data for both numerator and denominator, depends on both the size of the percentage and the size of the total upon which this percentage is based. 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 factor or parameters indicated by the numerator. The approximate standard error, $\sigma_{(x,p)}$, of an estimated percentage can be obtained by use of the formula

$$\sigma_{(x,p)} = f\sigma \qquad (3)$$

In this formula f is the appropriate factor from table C-5 and σ is the standard error on the estimate from table C-2, C-3, or C-4. Alternatively, the standard error may be approximated by formula (4) below, from which the standard errors in tables C-2 through C-4 were calculated; direct computation will give more accurate results than use of the standard error tables and the factors.

$$\sigma_{(x,p)} = \sqrt{\frac{b}{x} \cdot p\,(100\text{-}p)} \qquad (4)$$

Here x is the size of the subclass of persons or families which is the base of the percentage, p is the percentage (0 p 100)

Table C-3. Standard Errors of Estimated Percentages of Black Persons

(1980 to present)

Base of estimated percentages (in thousands)	Estimated percentage					
	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
25	6.1	9.5	13.0	17.4	18.8	21.7
50	4.3	6.7	9.2	12.3	13.3	15.4
75	3.5	5.5	7.5	10.0	10.9	12.5
100	3.0	4.7	6.5	8.7	9.4	10.9
250	1.9	3.0	4.1	5.5	5.9	6.9
500	1.4	2.1	2.9	3.9	4.2	4.9
750	1.1	1.7	2.4	3.2	3.4	4.0
1,000	1.0	1.5	2.1	2.7	3.0	3.4
2,500	0.6	0.9	1.3	1.7	1.9	2.2
5,000	0.4	0.7	0.9	1.2	1.3	1.5
7,500	0.4	0.5	0.8	1.0	1.1	1.3
10,000	0.3	0.5	0.7	0.9	0.9	1.1
15,000	0.2	0.4	0.5	0.7	0.8	0.9
20,000	0.2	0.3	0.5	0.6	0.7	0.8

NOTE: For a particular characteristic, see table C-5 for the appropriate factor to apply to the above standards errors; for standard errors of 1964 data, multiply the above figures by 1.1; for 1966-78 data, multiply the above figures by 0.88.

Table C-4. Standard Errors of Estimated Percentages of Spanish-Origin Persons

(1980 to present)

Base of estimated percentages (in thousands)	Estimated percentage					
	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
25	8.7	13.5	18.6	24.7	26.8	30.9
50	6.1	9.5	13.1	17.5	18.9	21.9
75	5.0	7.8	10.7	14.3	15.5	17.9
100	4.3	6.7	9.3	12.4	13.4	15.5
250	2.7	4.3	5.9	7.8	8.5	9.8
500	1.9	3.0	4.1	5.5	6.0	6.9
750	1.6	2.5	3.4	4.5	4.9	5.6
1,000	1.4	2.1	2.9	3.9	4.2	4.9
2,500	0.9	1.3	1.9	2.5	2.7	3.1
5,000	0.6	1.0	1.3	1.7	1.9	2.2
7,500	0.5	0.8	1.1	1.4	1.5	1.8
10,000	0.4	0.7	0.9	1.2	1.3	1.5
15,000	0.4	0.6	0.8	1.0	1.1	1.3

NOTE: For a particular characteristic, see table C-5 for the appropriate factor to apply to the above standards errors; for standard errors of 1964 data, multiply the above figures by 1.1; for 1966-78 data, multiply the above figures by 0.88.

and b is the parameter in table C-5 associated with the particular type of characteristics in the numerator of the percentage.

Illustration of the computation of the standard error of a percentage. Table E also shows that of the 23,227,000 White persons 18 to 24 years old, 9,667,000 or 41.6 percent

Table C-5. Factors to be Applied to Generalized Standard Errors in Table C-1 Through C-4 and "a" and "b" Parameters for Various Characteristics

(1980 to present)

Characteristic	Total or White			Black			Spanish origin		
	a	b	f[1]	a	b	f[2]	a	b	f[3]
Voting, registration, reasons for not voting or registering:									
CPS counts	-0.000019	3,223	1.0	-0.000206	4,718	1.0	-0.000056	9,560	1.0
Official counts	(x)	(x)	(x)	(x)	(x)	(x)	(x)	(x)	(x)
Citizenship, household relationship, family heads by presence of own children, marital status, duration of residence, tenure	-0.000019	3,223	1.0	-0.000206	4,718	1.0	-0.000056	9,560	1.0
Education level, employment status, family income of persons and occupation group	-0.000019	3,223	1.0	-0.000019	3,223	0.8	(x)	4,319	0.7
Characteristics of all persons:									
Marital status	-0.000025	4,480	1.2	-0.000265	6,426	1.2	-0.000056	9,560	1.0
Education of persons	-0.000028	2,312	0.8	-0.000129	2,600	0.7	(x)	4,319	0.7
Education of family head	-0.000010	1,778	0.7	-0.000066	1,606	0.6	-0.000018	3,068	0.6
Employment, not in labor force, occupation	-0.000016	2,327	0.8	-0.000144	2,327	0.7	+0.000930	2,120	(4)
Unemployment	-0.000015	2,206	0.8	-0.000150	2,536	0.7	+0.001711	1,837	(4)
Persons by family income	-0.000018	3,770	1.2	-0.000154	4,310	1.0	-0.000067	10,112	1.0
Duration of residence, tenure	-0.000025	4,480	1.2	-0.000265	6,426	1.2	-0.000056	9,560	1.0
Household relationships:									
Head, wife of head	-0.000010	1,778	0.7	-0.000066	1,606	0.6	-0.000018	3,068	0.6
Nonrelative or other relative of head	-0.000025	4,480	1.2	-0.000265	6,426	1.2	-0.000056	9,560	1.0

X Not applicable.
[1]Factors in this column are to be applied to tables C-1 and C-2, to obtain appropriate standard errors of a characteristic.
[2]Factors in this column are to be applied to tables C-1 and C-3, to obtain appropriate standard errors of a characteristic.
[3]Factors in this column are to be applied to tables C-1 and C-4, to obtain appropriate standard errors of a characteristic.
[4]To obtain standard errors for this characteristic, use formula (2) only.

NOTE: For standard errors of 1964 data, multiply parameters by 1.2 or factors by 1.1, for 1966-78 data, standard errors are obtained by multipling parameters by 0.78 or factors by 0.88; to obtain standard errors for media data, multiply parameters by 4.0, or factors by 2.0; to obtain standard errors for state (or group of states) data, parameters must be multiplied by the factors in table C-6.

Table C-6. Factors to be Applied to "a" and "b" Parameters in Table C-5 to Obtain Standard Errors for Voting and Registration Characteristics for States, Census Divisions, Regions, and Time Zones

Type of residence	Factors	Type of residence	Factors
States		**States—Continued**	
Alabama	0.87	Oregon	0.80
Alaska	0.09	Pennsylvania	1.02
Arizona	0.79	Rhode Island	0.32
Arkansas	0.63	South Carolina	0.82
California	1.01	South Dakota	0.19
Colorado	0.77	Tennessee	1.08
Connecticut	0.91	Texas	1.16
Delaware	0.20	Utah	0.39
District of Columbia	0.22	Vermont	0.17
Florida	1.09	Virginia	1.39
		Washington	1.14
Georgia	1.08	West Virginia	0.49
Hawaii	0.29	Wisconsin	1.29
Idaho	0.27	Wyoming	0.16
Illinois	1.08		
Indiana	0.97	**Census Divisions**	
Iowa	0.79		
Kansas	0.73	New England	0.68
Kentucky	1.07	Middle Atlantic	0.99
Louisiana	0.87	East North Central	1.06
Maine	0.33	West North Central	0.83
		South Atlantic	1.04
		West South Central	1.01
Maryland	0.96	East South Central	0.94
Massachusetts	0.80	Mountain	0.54
Michigan	1.02	Pacific	0.98
Minnesota	1.03		
Mississippi	0.61	**Regions**	
Missouri	1.02		
Montana	0.23	Northeast	0.88
Nebraska	0.46	Midwest	0.91
Nevada	0.30	South	0.89
New Hampshire	0.32	West	0.81
New Jersey	0.98		
New Mexico	0.37	**Time Zones**	
New York	0.98		
North Carolina	1.11	Eastern	0.90
North Dakota	0.19	Central	0.87
Ohio	1.03	Mountain	0.51
Oklahoma	0.77	Pacific	0.93

reported they voted in November 1984. Using formula (4) and b = 3223 from table C-5, the approximate standard error on an estimate of 41.6 percent is

$$\sqrt{\frac{3223}{23{,}227{,}000}(41.6)(100-41.6)} = 0.6 \text{ percent}^2$$

This means that a 68-percent confidence interval for the percentage of White persons 18 to 24 years old who reported voted in November 1984 is from 41.0 to 42.2 percent. A 95-percent confidence interval is from 40.4 to 42.8 percent.

Standard error of a difference. The formula for the approximate standard error of the difference between two estimates, x and y, is given by

$$\sigma_{(x-y)} = \sqrt{\sigma_x^2 + \sigma_y^2} \qquad (5)$$

where σ_x and σ_y are the standard errors of the estimates x and y, respectively; the estimates can be of numbers, percents, ratios, etc. This will represent the actual standard errors quite accurately for the diffference between two estimates of the same characteristic in two different areas, or for the difference between two separate and uncorrelated characteristics in the same area. If, however, there is a high positive (negative) correlation between the two characteristics, the formula will overestimate (underestimate) the true standard error.

Illustration of the computation of the standard error of a difference. Table D of this report shows that 61.4 percent of the 146,761,000 White persons and 55.8 percent of the 18,432,000 Black persons of voting age reported that they voted in the November 1984 election. Thus, the apparent difference between the percent of White and of Black voters is 5.6 percent. Using formula (4) and the appropriate b-parameters[3] from table C-5, the standard errors on 61.4 and

[2]Using formuula (3), table C-2, and the appropriate factor from table C-5, the approximate standard error is 0.6 percent.

[3]b = 3223 and 4718 for White and Black persons, respectively.

55.8 percent are approximately 0.2 and 0.8 percent, respectively.

Therefore, using formula (5), the standard error of the estimated difference of 5.6 percent is about

$$\sqrt{(0.2)^2 + (0.8)^2} = 0.8 \text{ percent}$$

This means that a 68-percent confidence interval for the difference between the percent of White and Black persons who reported that they voted in November 1984 is from 4.8 to 6.4 percent. A 95-percent confidence interval is from 4.0 to 7.2 percent. Since zero is not contained in the confidence interval, we may conclude with 95 percent confidence that in the November 1984 elections more White persons voted than Black persons.