Appendix

DEFINITIONS AND EXPLANATIONS

Political jurisdictions. These consist of States and political subdivisions. Political subdivisions have been defined by the U.S. Department of Justice for the purposes of the Act as counties or independent cities, except for the following: cities and towns in New England; cities and townships in Michigan; and cities, towns, and villages in Wisconsin. A jurisdiction was determined to be covered if it met the following conditions under Title II of the 1975 amendments:

A. 1. More than 5 percent of the citizens of voting age in the jurisdiction were members of a single-language minority, and
   2. less than 50 percent of the citizens of voting age in the jurisdiction voted in the Presidential election of 1972, and
   3. the jurisdiction was certified for coverage by the U.S. Department of Justice.

B. The jurisdiction was previously covered under the 1965 Voting Rights Act or by the 1970 amendments.

Excluded from the survey were jurisdictions which met the conditions under Title II of the 1975 amendments but which had been dropped by a declaratory judgment of the U.S. District Court prior to November 1976, or jurisdictions in which there was not substantial language minority population according to the 1970 Census of Population.

Race. The initial classification of all respondents as White, Black (Negro), or other race was made by enumerator observation. Persons identified as White or as Black in the tables are those classified as such by the enumerator and who did not identify themselves in the ethnic origin question as American Indian, Chinese, Japanese, Filipino, Korean, or Aleut or Eskimo.

Ethnic origin. Respondents were asked to identify their ethnic origin from a list provided by the enumerator. Persons who identified their ethnic origin as American Indian, Chinese, Japanese, Filipino, Korean, or Aleut or Eskimo are shown in these categories for jurisdictions with a sufficiently large population to provide statistical reliability.

Spanish heritage. Persons of Spanish heritage were defined as in the 1970 census. In Florida, Hawaii, Maine, Massachusetts, Michigan, North Carolina, Oklahoma, and Wisconsin, persons of Spanish heritage are those who reported that Spanish was the language usually spoken in their homes when they were children, or are persons in families in which the husband or wife reported Spanish as his or her mother tongue. In addition to the above, Spanish heritage also includes persons with Spanish surnames in Arizona, California, and Colorado.[1] In New York State, persons of Spanish heritage are persons of Puerto Rican birth or parentage. Persons of Spanish heritage may be of any race. A separate category of "White, excluding Spanish heritage" is shown for all jurisdictions for which Spanish heritage is shown separately.

Spanish origin. Persons of Spanish origin are persons who reported themselves as Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish origin or descent in the ethnic origin question. Persons of Spanish origin may be of any race. A separate category of "White, excluding Spanish origin" is shown for all jurisdictions for which Spanish origin is shown separately.

Native Alaskan. In Alaska, Native Alaskans consist of American Indians, Aleuts, and Eskimos as a group.

Citizenship. Citizenship was determined for all persons 18 years old and over by a direct question. Noncitizens were not asked the voting and registration questions.

Voting. Citizens 18 years old and over were asked if they had voted in the November 1976 election. All persons who reported that they had voted were asked if they had voted in their jurisdiction of residence.

Registration. Citizens who reported that they had not voted in the November 1976 election were asked if they had been registered to vote in the election. Persons who reported that they were registered were asked if they were registered in their jurisdiction of residence. Registered persons include those who voted and those who had not voted but were registered to vote.

SOURCE AND RELIABILITY OF THE ESTIMATES

Survey Design

The estimates in this report were obtained from data collected by the Census Bureau for 87 jurisdictions in the 1976 Survey of Registration and Voting. These jurisdictions consisted of 7 towns, 3 townships, 68 counties, and 9 States. For each jurisdiction, the universe surveyed included all people residing in the jurisdiction, including both military

[1] Spanish surname is coded in five Southwestern States only, namely, Arizona, California, Colorado, New Mexico, and Texas, and is included as part of Spanish heritage for those States.

and institutionalized persons. A complete census was conducted in the 25 jurisdictions (all 10 of the towns or townships and 15 counties) for which the esimated cost for a complete census was less than or approximately equal to that of a sample survey that would meet the required reliability. Due to the same type of cost and reliability considerations, a census was conducted in portions of four other jurisdictions (the Arizona counties of Apache and Mohave, and the States of Arizona and Virginia), whereas a sample survey was conducted in the remainder of these four jurisdictions. A sample survey was also conducted in the remaining 58 jurisdictions. Enumeration occurred within 2 months of the November 1976 Presidential election in the census jurisdictions and within 2 to 6 months in both the mixed census/sample and sample jurisdictions. Table A lists the number of interviewed sample households in each of the 4 mixed census/sample jurisdictions and in each of the 58 sample jurisdictions.

The 1976 Survey of Registration and Voting was concerned with measuring the voting and registration rates for specified minorities of interest in each jurisdiction. These minorities, which varied by jurisdiction, included the Black, Spanish heritage, American Indian, Japanese, Chinese, Filipino, and Native Alaskan ethnic groups. The survey was designed so that the estimated minority of interest voting rate within each jurisdiction would have about a 10 percent relative standard error (standard error of the estimated minority of interest voting rate divided by the actual minority of interest voting rate). For each selected jurisdiction, each of the minorities listed above which consisted of 5 percent or more of the population 18 years old and over in the jurisdiction were, by definition, minorities of interest. In those jurisdictions with more than one minority of interest, the survey was so designed that the voting rate for each minority of interest would have a 10 percent relative standard error. In census areas, the relative standard error is zero for all estimates.

The sample was selected using essentially a single stage of sampling in the county jurisdictions and two stages of sampling in the statewide jurisdictions. In the county jurisdictions in which a sample survey was conducted, the sample was selected from three basic sampling frames which are normally used by the Census Bureau to select general population samples. These three sampling frames or strata are known as the old construction, the new construction, and the area sampling frames. The old construction frame consists of units in existence and enumerated in the 1970 census in the building permit-issuing portion of the jurisdiction. For sampling efficiency purposes, this frame was divided into essentially two strata, those 1970 housing units with and without a minority of interest head of household. An unclustered systematic sample of housing units was then selected from each of these two strata, except in the sample portion of Mohave County, Arizona, where clusters of approximately four units each were selected. The new construction frame consists of units, constructed since the 1970 census in permit-issuing portions of counties, for which building permits were issued between January 1970 and August 1976. Units within this frame were selected for each jurisdiction by chronologically ordering the building permits within the jurisdiction by month issued. Clusters of approximately four housing units each were then created and these clusters were systematically sampled. The area sample frame consists of all housing units in areas which do not issue building permits. The enumeration districts within this frame were divided into segments, i.e., small land areas with well-defined boundaries, having an expected size of four or a multiple of four housing units. These small land areas were then systematically sampled. Those sample segments with an expected size which was a multiple of four were further subsampled prior to enumeration so that an expected four housing units were chosen for interview.

The first of the two stages of sample selection in the nine State jurisdictions was the selection of primary sampling units (PSU's). Each PSU consisted of a single county, parish (Louisiana), or census division (Alaska) in each State except Virginia, where PSU's consisted of one or more counties or independent cities. PSU's were selected with certainty in two ways. First, nine counties in Arizona and one in Virginia became certainty sample PSU's since they were also county jurisdictions in the 1976 Voting Rights Survey. Second, the PSU's with the largest measures of size (usually total age 18 and over minority population) were selected for sample with certainty in each of the nine States. The remaining PSU's in each State were placed into strata and one PSU was selected to represent each stratum with probabilities of selection proportional to optimally determined measures of size. The total number of sample PSU's in each State varied between 9 and 16.

The second stage of sample selection for the nine statewide jurisdictions was the selection of a sample of housing units within the sample PSU's. With the exception of five PSU's in Alaska, this within-PSU selection was performed in a manner similar to the sample selection in the county jurisdictions. The only important difference was that clusters of four housing units each were selected from the old construction frame in the statewide PSU's (except for most of the Arizona PSU's which were county jurisdictions themselves) instead of an unclustered sample, as was done in the sampled county jurisdictions. In Alaska, a modification of the area sample frame, which consisted of prelisting and subsampling, was used exclusively for five PSU's due to cost and climatic considerations. Here, clusters of expected four housing units each were systematically selected.

Estimation

The procedure employed in estimating the voting and registration statistics in this report consisted of two parts for the census areas, three parts for noncensus county jurisdictions, and five parts for the statewide jurisdictions. In each of the three situations the first two stages were the same. The first step was the inflation of the sample data by the reciprocal of the probability of selecting a unit, which was one for census units. The second step, which was also applied to census jurisdictions and census portions of jurisdictions, was an adjustment to account for occupied living quarters that were eligible for the survey, but for which an interview was not

Table A. Effective Sample Sizes (Number of Interviewed Households) in the Sample Portions of the Surveyed Jurisdictions

Jurisdiction	Interviews
Arizona	
Apache County	[1]1,390
Cochise County	737
Coconino County	1,026
Mohave County	[1]692
Navajo County	1,599
Pima County	774
Pinal County	2,470
Santa Cruz County	313
Yuma County	1,507
California	
Kings County	798
Merced County	899
Monterey County	1,040
Colorado	
El Paso County	2,166
Florida	
Collier County	1,975
Hillsborough County	1,855
Monroe County	1,856
Hawaii	
Honolulu County	2,291
New York	
Bronx County	706
Kings County	2,157
New York County	2,029
North Carolina	
Anson County	567
Beaufort County	476
Bertie County	528
Bladen County	723
Caswell County	535
Chowan County	312
Cleveland County	966
North Carolina--Con.	
Craven County	1,846
Cumberland County	2,040
Edgecombe County	565
Franklin County	689
Gaston County	1,813
Granville County	578
Guilford County	665
Halifax County	498
Harnett County	1,179
Hertford County	569
Lee County	1,273
Lenoir County	614
Martin County	593
Nash County	729
Northampton County	397
Onslow County	3,745
Pasquotank County	691
Person County	722
Pitt County	127
Robeson County	760
Rockingham County	1,166
Scotland County	1,153
Union County	990
Vance County	453
Wayne County	956
Wilson County	545
Statewide jurisdictions	**Interviews**
Alabama	1,156
Alaska	1,747
Arizona	[2]11,019
Georgia	1,316
Louisiana	954
Mississippi	1,000
South Carolina	1,265
Texas	2,228
Virginia	[3]1,137

[1] Excludes the census portion of the county.
[2] Excludes the census portion of Apache and Mohave Counties.
[3] Excludes the census county of Charles City.

obtained because no one was found at home or the respondents refused to participate. This noninterivew adjustment involved grouping the interviewed and noninterviewed living quarters according to similar characteristics and proportionally inflating the interviewed living quarters in the group. The noninterview rate for virtually all jurisdictions was trivial (always less than 5 percent and usually less than 1 percent). In addition, when data were missing or incomplete for interviewed persons, imputations and allocation procedures were to complete these cases.

For the noncensus county jurisdictions, the next and final step was a precision increasing ratio adjustment to an independently derived value of the total population in the county. The remaining three steps for the statewide jurisdictions were also ratio adjustments designed to improve the precision of the estimates. These ratios, which consisted of population controls from independent sources divided by unadjusted survey estimates, decreased both the within and between PSU variability of the estimates. The first of these three adjustments was performed at the PSU level (separately

for each PSU) and was identical to the final adjustment in the county jurisdictions. The second adjustment involved 1970 census totals for the State. The final adjustment applied to the statewide jurisdictions was an adjustment to an indepedent estimate, as of November 1976, of persons 18 years old and over for the entire State.

Adjusted voting rates. Since overreporting of voting is a common survey phenomenon,[2] an independent records check was conducted in 12 sample jurisdictions and 12 census jurisdictions to test for the existence and size of the overreporting bias in the 1976 Survey of Registration and Voting.[3] In the selected jurisdictions a subset of total repondents was checked against jurisdiction registration and voting records. Although there were some matching problems in the records check procedures as far as determining whether or not a person actually voted, the results from the records check provided little evidence of underreporting but showed overreporting rates of 5 to 10 percent and occasionally higher. In addition, these overreporting rates differ by ethnic subgroups in most of the 24 jurisdictions.

In an attempt to provide a correction for the effects of overreporting, two types of adjusted voting rates were computed for this report and are shown in table 4. The first type of adjusted rate is for all resident voters regardless of whether they voted inside or outside the jurisdiction in question, and the second type of adjusted rate applies only to resident voters who voted within the jurisdiction in question. Both types of adjusted rates were computed by subtracting the appropriate estimate of overreporting from the unadjusted rates. Since the calculation of overreporting estimators required independent counts of voters, which were available only for jurisdictions as a whole, overreporting estimators were calculated for entire jurisdictions and applied both to entire jurisdictions and to the racial and ethnic subgroups within the jurisdictions.

The overreporting estimator for the second type of adjusted rate (i.e., for citizens voting within the jurisdiction) is simply the within-jurisdiction voting rate derived from the survey minus the voting rate for the jurisdiction derived from an independent count of voters; this estimator is shown in column (h) of table 3. The overreporting estimator for the first type of adjusted rate (i.e., for all voters regardless of where they voted) is the survey rate for all voters in the jurisdiction minus an inflated voting rate derived from the independent voter count. The latter rate was inflated to compensate for the fact that the independent count did not include citizens who voted in other jurisdictions. Independent counts of voters were obtained either from the Election Research Center, Inc., Washington, D.C. or from a special questionnaire designed by the Census Bureau to obtain jurisdictional voting counts (see the footnotes to table 3 for specific source references).

In 73 of the 87 jurisdictions covered in this report, the Registration and Voting Survey produced estimated rates of voter participation that were higher than (or, in one jurisdiction, equal to) the rates derived from independent counts of voters. In eight census jurisdictions and five sample jurisdictions, however, the survey estimates of voter participation were lower than those derived from independent vote counts. Possible contributing factors for this unusual occurrence of a survey underestimate of voting rates are (1) failure of the survey to represent all absentee voters, (2) undercoverage of the population in the survey, (3) inaccuracies in the independent vote count, and (4) sampling error, in sample areas only. Except for sampling error, reliable independent data do not exist for each of these components; thus, it is impossible to establish how much each factor may have contributed to the survey underestimates of voting.

The adjusted rates, with some exceptions, generally reduce the overreporting bias in both the census and sample jurisdictions, and they decrease the variance to some extent in the sample areas. Moreover, the adjustment procedure preserves the original absolute difference between any two subgroup voting rates within a jurisdiction. Unadjusted voting rates are shown in table 2, and adjusted rates are shown in table 4. Table 2 also presents unadjusted registration rates, as reported in the survey. However, no estimates are available concerning the extent of overreporting of registration.

Assuming that the independent count of voters in each jurisdiction is generally a more accurate estimate of the true number of votes cast than is the survey estimate, it is likely that the adjusted rates in table 4 provide better reflections of levels of voter participation than do the unadjusted rates in table 2. Therefore, for some uses it may be preferable to employ the adjusted rates rather than the unadjusted rates. In any case, the absolute difference in voting rates between subgroups within a particular jurisdiction remains the same because of the method of adjustment.

Reliability of the Estimates

There are two types of possible errors assoicated with estimates based on data from sample surveys, sampling and nonsampling errors. In those jurisdictions in which a complete census was conducted, only nonsampling errors may be present. The following is a description of the sampling errors in the sample jurisdictions and of the nonsampling errors in all jurisdictions.

Sampling errors. The particular sample used for each of the sample survey jurisdictions is one of a large number of possible samples of the same size that could have been selected using the same sample design. Even if the same schedules, instructions, and enumerators were used, estimates from each of the different samples would differ from each other. The deviation of a sample estimate from the average of all possible samples is defined as the sampling error. The standard error of a survey estimate attempts to provide a measure of

[2] For a discussion of overreporting of voting in surveys, see the sources cited in the section "Comparison of Survey Results and Election Returns" in the introductory text of this report.

[3] See H. Woltman and C. Isaki, "Measurement Error and Sample Design Research for the 1976 Registration and Voting Survey," a paper presented at the 1978 American Association of Public Opinion Research Conference, Roanoke, Virginia.

this variation among the estimates from the possible samples and, thus, is an approximation of the precision with which a sample estimates the average results of all possible samples.

The sample estimate and its estimated standard error enable one to construct interval estimates such that the conclusion that the interval includes the average result of all possible samples would be correct with a known probability. For example, if all possible samples were selected, each surveyed under essentially the same general conditions, and an estimate and its estimated 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 result of all possible samples either is or is not contained in any particular computed interval. However, for a particular sample one can say with specified confidence that the average result of all possible samples is included in the constructed interval.

Each estimate in this report arising from a sample area is accompnied by its standard error. Several approximations have been used in estimating the sampling errors, or equivalently, in computing the standard errors. Standard errors were computed using the same basic technique for each individual item in this report. Hence, the standard errors presented in the tables provide a general order of magnitude rather than the exact sampling error for any specific item.

Illustration of the use of the standard errors in the tables for forming confidence intervals. Table 2 of this report shows that the estimated voting rate for Blacks in Bladen County, N.C. was 44.1 percent with a standard error of 2.9 percentage points. Consequently, the 68 percent confidence interval, as shown by these data, is from 41.2 to 47.0 percent. Therefore, a conclusion that the average estimate, derived from all possible samples, of the Black voting rate in Bladen County lies within an interval computed in this way would be correct for roughly 68 percent of all possible samples. Similarly, we could conclude that the average estimate derived from all possible samples lies within an interval from 39.5 to 48.7 with 90 percent confidence and that the average estimate lies within the interval from 38.3 to 49.9 with 95 percent confidence.

Differences. Standard errors can be computed for estimated differences. Within a given jurisdiction, and considering a specific absolute number or a particular type of voting or registration rate, the standard error for the estimated difference between the particular absolute number or rate for any two nonoverlapping subgroups is approximately equal to the square root of the sum of the squares of the standard errors of each estimate considered separately. For differences between absolute numbers, this will give an underestimate of the standard error for subgroups that do not overlap, such as White and Black, or Spanish origin and White non-Spanish origin. Conversely, if the subgroups overlap, the above computing technique produces an overestimate of the standard error for the estimated difference for both absolute numbers and rates. Thus, for differences in rates, it is recommended that nonoverlapping subgroups be used whenever possible.

Illustration of the Computation of the Standard Error of a Difference. Table 2 of this report shows that the estimated voting rate for the Whites in Bladen County, N.C. was 48.2 percent and the standard error of this estimate was 2.4 percentage points. Thus, the apparent difference between the voting rate for the Whites and the Blacks in Bladen County was 4.1 percent and its standard error is about

$$\sqrt{(2.9)^2 + (2.4)^2} = 3.8$$

percentage points. Consequently, the 68 percent confidence interval for the difference is from .3 to 7.9 percent. Therefore, a conclusion that the average estimate of this difference, derived from all possible samples, lies within an interval computed in this way would be correct for roughly 68 percent of all possible samples. Since the 90 percent confidence interval is from -2.0 to 10.2 percent, which includes 0, we cannot conclude with 90 percent confidence that the White voting rate was different from the Black voting rate.

Nonsampling Errors. The estimates for both the census and the sample portions of the surveyed jurisdictions in this report are subject to nonsampling error. Some types of nonsampling error are peculiar to both sample surveys and censuses while others are peculiar to only one or the other survey methods. In general, nonsampling errors can be attributed to many sources: inability to obtain information about all cases, definitional difficulties, differences in the interpretation of questions, inability or unwillingness to provide correct information on the part of respondents, mistakes in recording or coding the data, and other errors of collection, response, processing, coverage, and estimation for missing data.

With respect to errors of coverage and estimation for missing data in the sample portions of the surveyed jurisdictions, the new construction sample had deficiencies with regard to the representation of new construction in permit-issuing areas. During the sampling of building permits, only those issued between January 1, 1970 and August 1, 1976 were eligible to be sampled to represent new construction in permit-issuing areas. It had been assumed that units with permits issued prior to 1970 would have been completed by the time of the 1970 census, and therefore would have been repre-

sented in the sample selected from the 1970 census units. However, it has been estimated that nationally, about five percent of the new construction built after the 1970 census was missed because the permits for these units were issued before 1970. Since this is a national estimate, the actual percent missed for a given jurisdiction may be quite different. In addition, new construction units with permits issued after August 1, 1976, that were built before the time of enumeration, would have no change of selection.

Unlike the procedure for conventional new construction, there is no sampling procedure specificially designed for obtaining new construction mobile homes in the sample portions of the jurisdictions. However, new mobile homes in segments where area sampling methods were used do come into the sample. In addition, new mobile homes in segments sampled from the 1970 census list also come into sample if the mobile homes are located in mobile home parks, identified as such in the 1970 census. However, new mobile homes in permit-issuing areas that are located in mobile home parks not in existence at the time of the 1970 census have no chance of coming into the sample.

The old construction sample in permit-issuing areas also had deficiencies. These deficiencies, believed to be minor, are caused by the failure to enumerate all units that existed at the time of the 1970 census. The undercoverage caused by the failure to enumerate all units may also exist in the census portions of the surveyed jurisdictions.

Deficiencies also exist where area sampling or prelisting and subsampling methods are used. It is always possible that a samll percentage of units were not listed during either the canvassing for the area sampling or during the prelisting operation for the five prelisted PSU's in Alaska.

The surveys (both census and sample portions) also have deficiencies with respect to within household undercoverage of persons. This occurs whenever the household respondent fails to account for all persons residing in the household at the time of interview. The household respondent may also provide inaccurate information about other persons residing in the household.

The ratio estimation procedures used in deriving the estimates have tended to correct for the deficiency in undercoverage of the total population. However, errors still remain in the estimates of characteristics, if the characteristics of the undercovered persons differ from those of the covered persons in the surveys.

Finally, there is evidence, as discussed earlier, that people tend to overreport voting participation. This problem exists in both the census and the sample portions of the surveyed jurisdictions. Use of a difference adjustment has been applied to the voting rates in an attempt to compensate for this overreporting phenomenon and these results are given in table 4.

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