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# County Intercensal Estimates by Age, Sex, and Race: 1970-80

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U. S. Department of Commerce  
BUREAU OF THE CENSUS

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## INTRODUCTION

This report describes the methodology used to develop intercensal estimates of the population of U.S. counties by age, sex, and race for each year from 1970 to 1979 (July 1). An extrapolation to July 1, 1980, is included, along with the census data for April 1, 1970, and April 1, 1980. In addition, the limitations of the estimates are discussed, and comparisons with special censuses are presented. The estimates can be obtained on computer tape by writing the Data User Services Division, U.S. Bureau of the Census, Washington, D.C. 20233.

The estimates are for 5-year age groups to age 85 and over for the total, White, and Black populations by sex. The race classifications for the 1970 and 1980 census data were modified to be consistent with each other and with vital statistics, and the intercensal estimates are consistent by race and age with both the 1970 and 1980 censuses as modified. The age and sex detail in the 1980 census has not been changed, but nearly 6 million persons of Spanish origin were moved out of the category "Other" (race not specified), the vast majority being transferred to White. A similar but much smaller modification was made in 1970. The Black population was not affected by the 1970 procedures and was increased only slightly in 1980. A more detailed description of the modification procedures is given further on.

## METHODOLOGY

**Summary.** The intercensal county age estimates discussed in this report were prepared by an extension of the techniques used to produce postcensal estimates during the 1970's. A detailed description of the methodology used for the postcensal estimates was presented in a previous Census Bureau report.<sup>1</sup> The postcensal estimates were prepared for two race groups (White and Black and other races) by sex. The revision of these estimates to take the 1980 census results into account was carried out for these four race-sex groups first. In brief, the 1970-75 and 1975-80 series of computer programs used to prepare the postcensal estimates were rerun after the introduction of important revisions in the basic input data and methodology. These runs produced estimates

in 1975 and 1980 using controls by race for each county at the all-ages level which were consistent with both the 1970 and 1980 censuses. The age detail for each county was not controlled, and of course the 1980 estimates differed from the 1980 census results. The 1975 age detail was adjusted age by age by a proportion of this difference and was further adjusted to agree with previously prepared intercensal estimates of the total population for each county, as well as with national estimates by age, sex, and race. The purpose of these procedures was to produce the best possible estimate for July 1, 1975; separate sets of calculations were made for the special populations (military, college, and institutional), for the civilian non-college population under age 65, and for the population over 65 years of age.

Having developed the 1975 estimates, data for the intervening years between 1975 and the census years of 1970 and 1980 were obtained by interpolation of the civilian non-college population, to which were added special estimates each year for the military and college populations and for the group over age 65. The estimates for each intercensal year, as for the 1975 estimates, were adjusted to agree with intercensal estimates of the total population of each county, and generally agree with national intercensal estimates by age, sex, and race. As a final step, an extrapolation to July 1, 1980, was carried out.

Having obtained a complete set of intercensal estimates, the Black population was estimated as a proportion of the Black-and-other-races population. This was done by calculating the proportion of Blacks to Black and other races for each age-sex cell in the 1970 and 1980 censuses for each county, and obtaining by straight-line interpolation a set of proportions for each intercensal year. These proportions, multiplied by the appropriate Black-and-other-races estimates, produced the estimates for the Black population. The Black estimates were not controlled to estimates for higher level geography.

**1970 census modifications.** The census data for April 1, 1970, which served as the base for the intercensal estimates and indeed for all the postcensal estimates prepared by the Population Division in the 1970's, were modified for (1) errors in the census data discovered subsequent to publication, (2) an overstatement of the population of races other than White and Black, and (3) an overstatement of centenarians.

The first category reflects numerous changes, usually small, to the population of county and subcounty areas, which had

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<sup>1</sup>U.S. Bureau of the Census, Current Population Reports, Series P-23, No. 103, *Methodology for Estimates of the Population of Counties, by Age and Sex: July 1, 1975*, Washington, D.C., U.S. Government Printing Office, May 1980.

the net effect of increasing the U.S. resident population in the amount of 93,494 from 203,211,926 as originally published in the 1970 census reports to the figure 203,305,420, the sum of the data in the intercensal county age estimates computer file described here.

The second category relates to the transfer of about 327,000 persons of Spanish ancestry who reported themselves as "Other" (race not specified) to White; and the third category resulted in the reassignment of about 103,000 persons reported as being over 100 years of age to ages under 100 years.<sup>2</sup>

**1980 census modifications.** The 1980 census data by age and sex used in this project are essentially as published in the regular census volumes, the total population being 226,545,805. The age detail for centenarians was modified, but the redistribution was restricted to ages 85 and over, so the totals for this age group, the oldest given in the intercensal estimates file discussed here, are unchanged.

The modification of the race data was substantial. Many more persons of Spanish origin marked the category "Other" (race not specified) in 1980 than in 1970. These persons were transferred from the Other category to White or Black according to the distribution of persons of the same Spanish-origin subgroup (Mexican, Cuban, Puerto Rican, other Spanish) who originally did specify White or Black. The great majority were reassigned as White. The "Other" category (unspecified) included about 900,000 persons not of Spanish origin, and this group was also reassigned to specified races. All of the reassignments were carried out with aggregate data. The net effect of these procedures was to increase the White population by 6.3 million, increase the Black population by 188,000, and decrease the category Other (than White or Black) by 6.5 million. The Census Bureau has developed a computer tape of 1980 census modified race county data for general distribution which includes most of the data in the intercensal estimates file with additional detail by age and Spanish origin.<sup>3</sup> The census modified race data for both 1970 and 1980 are consistent with vital statistics as published by the National Center for Health Statistics.

**Geographic universe.** The intercensal county age estimates are for 3,141 counties and county equivalents as defined in the 1970 census. In Virginia, independent cities are treated as counties, as is the case for Columbus, Georgia; Baltimore, Maryland; St. Louis, Missouri; and Carson City, Nevada. During the 1970's, some changes in the legal boundaries of counties were recognized in preparing the postcensal estimates of total population. In Virginia, new cities of Manassas, Manassas Park, and Poquoson were formed, and Suffolk

City was combined with Nansemond County, producing a total of 3,143 counties. These changes could not be incorporated into the age estimates program. The reliability of the estimates for Nansemond County and Suffolk City may have been affected. (See the section, "Special Limitations.")

For Alaska, the intercensal age estimates file shows 29 census divisions as defined in 1970. However, boundary changes involving Kobuk, Barrow and Upper Yukon were incorporated into the postcensal estimates program in 1972. This created a problem for the intercensal age-sex-race estimates, and the estimates for these three areas cannot be used individually. Combined into one area, the estimates may be satisfactory. (See "Special Limitations.") The age estimates for the other 26 census divisions (as defined in 1970) are consistent with both censuses and with the population estimate series.

Although Washabaugh County was combined with Jackson County in South Dakota before the 1980 census, the two areas are shown separately in the intercensal estimates file. Finally, the independent city of Columbus, Georgia, is listed in the file as Muscogee County, as it was identified in the 1970 census published reports.

**Special populations.** The age distributions of large military installations, colleges, and institutions were estimated by a separate procedure, as described in a previous report.<sup>4</sup> The counties for which special adjustments were made are listed in the report.<sup>5</sup> In general the adjustments produced satisfactory estimates of age detail, but in a few cases fell wide of the mark. Some of these cases were identified by a comparison of the estimates with 1980 census data, and for these the intercensal series of special population estimates was adjusted. The most extreme overestimates of special population were identified and improved by this procedure. (See "Special Limitations.")

**Population aged 65 years and over.** For the age groups above age 65, the original postcensal estimates were based on change in enrollment in the Medicare program, as shown by annual tabulations of persons eligible for Medicare benefits. The special characteristics of the Medicare file and the estimating procedures used are described in the report just cited.<sup>6</sup> Some of the problems mentioned there are still reflected in the intercensal estimates, as discussed further on under Special Limitations.

A set of postcensal age-sex-race estimates for the group over age 65 was available for each year of the decade, and for April 1, 1980. To develop the intercensal estimates, the April 1, 1980, postcensal estimate for each age-sex-race cell was compared to the 1980 census figure. If the estimate was greater than the census, the amount of difference was prorated to each annual estimate on a straight-line. If the estimate was less than the census, a ratio was calculated, and the

<sup>2</sup>U.S. Bureau of the Census, 1970 Census of Population, *Evaluation and Research Program*, PHE-2, "Estimates of Coverage of Population by Sex, Race, and Age: Demographic Analysis," Washington, D.C., U.S. Government Printing Office, 1973, p.4.

<sup>3</sup>U.S. Bureau of the Census, 1980 Census of Population, *County Population by Age, Sex, Race and Spanish Origin* (Preliminary OMB-Consistent Modified Race), Tape Technical Documentation, Data User Services Division, Customer Services(Tapes), Washington, D.C., June 1983.

<sup>4</sup>U.S. Bureau of the Census, Current Population Reports, Series P-23, No. 103, op. cit., p.4.

<sup>5</sup>Ibid., pp.19-23.

<sup>6</sup>Ibid., pp.8-13.

deviation of the ratio from 1 was prorated on a straight-line to each intercensal year. The use of a ratio guarded against negative estimates of population resulting from the adjustment procedure.

**Adjustment to special census results.** It would have been desirable to adjust the intercensal age estimates to be consistent with the age-sex-race detail of special censuses. However, this adjustment would have required a great deal of personnel time, both for analytical development and computer processing, and the needed resources were not available. Many separate adjustments would have been required because the detail of the special censuses varied a great deal. In most cases, no race detail was available, and even when it was, the race detail sometimes required extensive adjustment to be consistent with the 1970 and 1980 censuses. Finally, the county intercensal total population estimates used as controls for the age estimates were not adjusted to be consistent with special census results either, so it would have been necessary to redo these estimates as well. Since the original postcensal estimates of total county population were systematically adjusted to be consistent with special census results, the intercensal total population estimate is usually not far removed, it being an adjustment of the postcensal estimate. The age detail can vary a good deal from the special census data, however.

## EVALUATION AND LIMITATIONS OF ESTIMATES

**Comparison with special censuses by age and sex.** Special census counts by age and sex are available for 26 counties which had special censuses during the 1970-80 decade, and a summary of the average percent deviations of the estimates from the censuses is given in table A.<sup>7</sup> The average absolute deviation of the 5-year age groups for all 26 counties is 5.2 percent for males and 5.6 percent for females. Since two of the counties are very small, the average deviations for the 24 largest were calculated and are 4.5 percent for both males and females. For the set of 24 counties, 42 of the 5-year groups for males had errors of 10 percent or more, leaving 386 groups (90 percent of total) with errors of less than 10 percent. For females, 49 groups have the larger errors and 379 are under 10 percent. The table gives values for each of the 26 counties.

The counties are arranged by population size, beginning with the largest, Santa Clara, California. In general, the smaller counties have larger deviations, but there are a number of exceptions. Henrico County, Virginia, and Wayne County, New York, are of medium size, but have the lowest average deviations, considering both males and females. However, almost all of the counties over 100,000 population have errors of less than 5 percent, with an average error (both sexes) of 3.8 percent. Pasco County, Florida, at 108,865 popula-

tion has one of the larger errors, 6.5 percent for males, in spite of the fact that its census was only 3 years after the 1970 census. This county grew very rapidly from 1970 to 1973, and rapid growth tends to increase average percentage deviations. The two smallest counties have large average deviations, ranging from 12.0 percent for males in Logan County, Nebraska, to 23.7 percent for females in Arthur County, Nebraska.

Ten of the 26 counties had an adjustment for special population (military, college). They are marked with an asterisk in the table, and the average deviations for these counties are 4.2 percent for males and 4.1 percent for females. This is below the average for all counties and suggests that the special adjustment helped to allow for the migration associated with military and college population.

Although there are not enough special census comparisons to permit definitive statements, the average deviations are quite low, and some general tendencies can be discerned. The smaller counties tend to have larger deviations. Very small counties have very large deviations. This agrees with a priori expectations based on two elements: (1) the census migrant data are a 1 in 6 sample, and are too thin to represent accurately the migration behavior of the population in small counties, and (2) in a small county, a small event can alter the age distribution substantially. For example, a few large families moving into and out of a county of 3,000 people can have a large relative impact on the age distribution if the immigrants are by chance in a different age range than the out-migrants. Also, 50 new jobs in such a county can result in a significant change in the age structure.

Although the data in table A do not support it very decisively, one would expect the estimates close to 1970 and 1980 to have smaller deviations than estimates at middecade. Only the comparison in 1978 for Henrico County, Virginia, is definitely in line with this theory, although neighboring Richmond City and Chesterfield County also have somewhat low deviations. Pasco County, Florida, with a census in 1973, has a larger than average error, presumably because of rapid growth, as mentioned above. Cowlitz County, Washington, with a census late in 1973, had deviations somewhat below the overall average, with 3.7 and 3.6 percent for males and females respectively.

It is usually assumed that the error rate decreases when estimates for adjacent small areas are combined into one area total. If some errors are compensating, then combining adjacent counties would tend to lower the error rate. The special census for the Richmond, Virginia, area included three adjacent counties, and the basic migration data were known to have compensating errors because of an annexation to Richmond City of part of Chesterfield County just before the 1970 census.

The percent deviations of the intercensal age-sex estimates for the three separate areas and for the Richmond area total are compared in table B. As expected, the average errors for the area total, 1.9 percent for males and 1.8 percent for females, are below the same values for any of the three areas. The most striking improvements in the rates for the total area

<sup>7</sup>The city of Richmond, Virginia, is one of the areas. In Virginia, independent cities are treated as equivalent to counties for statistical purposes.

**Table A. Summary of Average Percent Deviations of County Intercensal Estimates from Special Censuses, by Age and Sex: 1973 to 1978**

(Data relate to 18 5-year age groups to 85 years and over)

| County                                | Special census |            | Males                                   |   |                        |                             | Females                                 |   |                        |                             |
|---------------------------------------|----------------|------------|---|---|------------------------|-----------------------------|---|---|------------------------|-----------------------------|
|                                       | Date           | Population | Average error <sup>1</sup><br>(percent) | Number of errors<br>by percent deviation <sup>1</sup> |                        |                             | Average error <sup>1</sup><br>(percent) | Number of errors<br>by percent deviation <sup>1</sup> |                        |                             |
|                                       |                |            |   | Under 5<br>percent                                    | 5 to<br>9.9<br>percent | 10 per-<br>cent and<br>over |   | Under 5<br>percent                                    | 5 to<br>9.9<br>percent | 10 per-<br>cent and<br>over |
| Santa Clara, Calif <sup>2</sup> ..... | 4/1/75         | 1,169,006  | 4.4                                     | 11  | 2                      | 1                           | 4.4                                     | 9   | 5                      | -                           |
| San Bernardino, CA*.....              | 4/1/75         | 696,094    | 2.2                                     | 16  | 2                      | -                           | 3.2                                     | 15  | 2                      | 1                           |
| Contra Costa, CA.....                 | 4/7/75         | 582,722    | 4.6                                     | 13  | 3                      | 2                           | 5.1                                     | 11  | 5                      | 2                           |
| Pima, AZ*.....                        | 10/20/75       | 449,544    | 3.3                                     | 13  | 5                      | -                           | 3.8                                     | 14  | 3                      | 1                           |
| Fresno, CA.....                       | 9/1/74         | 440,467    | 4.6                                     | 11  | 6                      | 1                           | 4.6                                     | 10  | 6                      | 2                           |
| Travis, TX*.....                      | 4/20/76        | 373,275    | 2.3                                     | 17  | 1                      | -                           | 2.7                                     | 15  | 3                      | -                           |
| San Joaquin, CA.....                  | 10/6/75        | 299,831    | 3.6                                     | 16  | 1                      | 1                           | 3.4                                     | 15  | 2                      | 1                           |
| Richmond City, VA*.....               | 4/4/78         | 219,883    | 3.5                                     | 12  | 5                      | 1                           | 2.7                                     | 17  | 1                      | -                           |
| Henrico, VA.....                      | 4/4/78         | 172,922    | 2.0                                     | 18  | -                      | -                           | 2.5                                     | 17  | 1                      | -                           |
| Chesterfield, VA*.....                | 4/4/78         | 126,134    | 3.5                                     | 14  | 3                      | 1                           | 3.2                                     | 15  | 1                      | 2                           |
| Pasco, FL.....                        | 3/21/73        | 108,865    | 6.5                                     | 5   | 7                      | 6                           | 4.9                                     | 10  | 5                      | 3                           |
| Yolo, CA*.....                        | 4/7/75         | 100,778    | 4.6                                     | 12  | 5                      | 1                           | 4.8                                     | 12  | 2                      | 4                           |
| Placer, CA.....                       | 7/10/75        | 90,975     | 5.4                                     | 9   | 7                      | 2                           | 4.6                                     | 11  | 7                      | -                           |
| Wayne, NY.....                        | 4/22/75        | 82,194     | 2.4                                     | 16  | 2                      | -                           | 2.1                                     | 16  | 1                      | 1                           |
| Sarpy, NE*.....                       | 7/15/74        | 73,479     | 8.0                                     | 8   | 4                      | 6                           | 7.8                                     | 7   | 5                      | 6                           |
| Eau Claire, WI*.....                  | 3/31/75        | 72,237     | 2.4                                     | 16  | 2                      | -                           | 3.5                                     | 15  | 3                      | -                           |
| Cowlitz, WA.....                      | 9/13/73        | 70,384     | 3.7                                     | 13  | 4                      | 1                           | 3.6                                     | 15  | 1                      | 2                           |
| Putnam, NY.....                       | 4/14/75        | 68,765     | 4.2                                     | 11  | 6                      | 1                           | 6.0                                     | 9   | 6                      | 3                           |
| Kings, CA*.....                       | 10/4/74        | 67,993     | 8.0                                     | 10  | 5                      | 3                           | 5.8                                     | 11  | 4                      | 3                           |
| El Dorado, CA.....                    | 7/10/75        | 59,219     | 7.3                                     | 7   | 6                      | 5                           | 9.5                                     | 5   | 7                      | 6                           |
| Bonneville, ID*.....                  | 11/5/75        | 58,499     | 4.2                                     | 12  | 4                      | 2                           | 3.0                                     | 14  | 3                      | 1                           |
| Sutter, CA.....                       | 6/10/75        | 46,003     | 6.0                                     | 10  | 5                      | 3                           | 5.9                                     | 10  | 6                      | 2                           |
| Nevada, CA.....                       | 7/10/75        | 33,949     | 6.2                                     | 7   | 8                      | 3                           | 6.5                                     | 8   | 4                      | 6                           |
| Dakota, NE.....                       | 5/13/76        | 16,282     | 4.9                                     | 11  | 5                      | 2                           | 5.5                                     | 10  | 5                      | 3                           |
| Logan, NE <sup>3</sup> .....          | 8/14/75        | 1,031      | 12.0                                    | 4   | 4                      | 8                           | 16.1                                    | 1   | 4                      | 11                          |
| Arthur, NE <sup>3</sup> .....         | 8/21/75        | 565        | 16.6                                    | 3   | 2                      | 11                          | 23.7                                    | 3   | -                      | 13                          |
| Total (26 counties).....              | (X)            | (X)        | 5.2                                     | 295   | 104                    | 61                          | 5.6                                     | 295   | 92                     | 73                          |
| Total (24 largest counties)....       | (X)            | (X)        | 4.5                                     | 288   | 98                     | 42                          | 4.5                                     | 291   | 88                     | 49                          |

- Represents zero. \*County with special population adjustment. X Not applicable.

<sup>1</sup>Without regard to sign.

<sup>2</sup>Data relate to 14 5-year age groups to 65 years and over.

<sup>3</sup>Data relate to 16 5-year age groups to 75 years and over.

over the Chesterfield County rates are for males 15 to 19 and 70 to 74 years of age, but the area rate is lower for most groups. This three-county area only provides an isolated example, but it is encouraging that the results support the widely held notion that combining adjacent areas improves the reliability of the estimates.

**Comparison by race.** Only 7 of the 26 special censuses provided race detail in counties having 5,000 or more population of races other than White. Three of these compose the Richmond group. The deviations of the estimates from the census by race, age, and sex for the Richmond group as a whole and for the other four counties are shown in table C.

For the White population, the average deviations for 18 age groups by sex range from 1.7 to 3.7 percent and are very similar to those given for these counties in table A. This is to be expected, since the majority of the population in all these counties is White. Under age 75 there are no deviations over 10 percent in any age-sex cell for any of the areas. Over that age, there are five such deviations. The large deviations in

Pima, San Bernardino, and San Joaquin counties above age 75 may be due to variation in the reporting of race for persons of Spanish origin. Aggregate statistics suggest that some Medicare enrollees who were enumerated as White in the 1970 census may be classified as "Other" in the Medicare statistics. The deviations for age 65 and over as a group are quite low for all areas, however.

The deviations for Black and other races in table C are considerably larger than those for the White population, especially for males in Pima, San Bernardino, and San Joaquin counties. The average deviations (for 18 age groups) for these three data sets are close to 10 percent, with large errors in many of the age groups over age 65. Even the deviations for age 65 and over as a group are high at 14.2, 15.6, and 7.4 percent, respectively. Looking at both sexes under age 65 for these three counties, there are 10 deviations of over 10 percent including one of 31.9 percent, and three others over 15 percent. There is no apparent pattern for the large deviations; one can only attribute them to random error in the estimates, variation in the reporting of race and age in the

censuses as compared with the Medicare statistics, and variation in net census undercount. The presence of migratory agricultural workers in these counties may be a contributing factor as well.

For Travis County, Texas, and the Richmond area, the average deviations for Black and other races are much smaller, with no deviations over 15 percent. Travis has four deviations over 10 percent, but the Richmond area has none. Both of these special censuses were pretests of the 1980 census, employing the mailout/mailback technique used in the decennial censuses. Imputation for missing characteristics, including age, sex, and race, was done by a sophisticated "hot-deck" procedure. For all of the other special censuses, an enumerator in the field visited each house and marked the questionnaire according to the responses of the person interviewed. These responses may vary from those that would be marked on a mail-out questionnaire by the same respondent. This may explain in part the larger deviations in Pima, San Bernardino, and San Joaquin counties for Black and other races.

The simple methodology used to derive the Black estimates was described above; data for Blacks are also given in table C. The deviations for Blacks are about the same as for Black and other races in Pima, San Bernardino, and San Joaquin counties except for females in San Joaquin, for whom there is a much larger deviation for the Black population. The population figures given in the tables show that all three of these counties have about 20,000 or more Other races

population (other than White or Black). Thus there is room for a difference between the Black deviations and those for Black-and-other-races population in these three counties.

In view of the problems in defining the other-races population, it is encouraging that the average deviations for the Black estimates are reasonably similar to those for Black and other races. Some of the larger differences are in the age detail over age 65. For example, the deviation for males aged 80 to 84 years in San Bernardino County, California, is 47.6 percent for Black and other races and 8.7 percent for Black. In all three counties, the average deviation for 14 age groups (to maximum age 65 and over) is significantly less than the average for 18 age groups (to maximum age 85 and over). The difference is most striking in San Bernardino County.

For Travis County and the Richmond area, the Other population is small, and one would expect the deviations for Blacks to be about the same as for Black and other races. For Travis, the Black average deviations are actually smaller. This suggests that the Spanish population may have influenced the Other category, although the intention was to classify them as White unless otherwise specified. In Richmond, the average deviations for the Black population are identical with those for Black and other races.

The results of the comparisons by race suggest that the errors of the intercensal age estimates for Blacks and for Black and other races are larger than those for the White population, but that the magnitude of the real difference is not at all clear.

**Table B. Comparison of Percent Deviations of Intercensal Estimates from Special Census for Richmond, VA Area, by Age and Sex: April 1978**

| Age                          | Males      |               |                      |                | Females    |               |                      |                |
|------------------------------|------------|---------------|----------------------|----------------|------------|---------------|----------------------|----------------|
|                              | Total area | Richmond city | Chester-field county | Henrico county | Total area | Richmond city | Chester-field county | Henrico county |
| Under 5 years.....           | 2.3        | 7.6           | -1.9                 | -0.2           | 2.3        | 7.1           | -0.7                 | -0.8           |
| 5 to 9 years.....            | -2.6       | -0.4          | -4.8                 | -2.9           | -3.0       | -2.4          | -3.8                 | -2.8           |
| 10 to 14 years.....          | 2.1        | 4.3           | -                    | 1.6            | 2.2        | 4.0           | -2.1                 | 4.1            |
| 15 to 19 years.....          | 2.4        | 1.3           | 4.2                  | 2.4            | 1.2        | 1.2           | 1.1                  | 1.3            |
| 20 to 24 years.....          | -2.7       | -6.3          | 0.5                  | 1.2            | -0.2       | -2.7          | 3.6                  | 1.7            |
| 25 to 29 years.....          | -1.0       | -6.2          | 3.7                  | 3.4            | 0.2        | 1.2           | 1.3                  | -2.0           |
| 30 to 34 years.....          | 0.4        | 2.3           | -1.3                 | (Z)            | 1.3        | 4.0           | -2.9                 | 2.5            |
| 35 to 39 years.....          | 1.0        | 5.1           | -1.4                 | -0.3           | -1.1       | -0.2          | -0.8                 | -2.2           |
| 40 to 44 years.....          | 2.3        | 3.5           | -0.2                 | 3.3            | 2.6        | 3.3           | 1.1                  | 3.2            |
| 45 to 49 years.....          | -0.1       | 4.7           | -2.0                 | -3.5           | -1.3       | -0.5          | 0.3                  | -3.2           |
| 50 to 54 years.....          | -0.5       | 0.1           | 1.9                  | -2.7           | -2.0       | -1.5          | -1.3                 | -3.1           |
| 55 to 59 years.....          | -2.0       | -0.9          | -1.4                 | -3.8           | -1.9       | -2.6          | 1.5                  | -2.5           |
| 60 to 64 years.....          | 1.6        | 3.0           | 6.4                  | -2.3           | 2.1        | 1.6           | 5.3                  | 1.5            |
| 65 to 69 years.....          | -1.3       | -1.3          | -3.9                 | -0.2           | -1.7       | -4.4          | 1.5                  | 2.2            |
| 70 to 74 years.....          | 0.4        | -3.7          | 13.5                 | 2.6            | -0.7       | -3.2          | 10.7                 | 0.6            |
| 75 to 79 years.....          | -4.8       | -5.2          | -5.7                 | -3.8           | -4.0       | -4.6          | -1.6                 | -3.6           |
| 80 to 84 years.....          | 0.5        | -0.3          | 7.0                  | -0.2           | 2.8        | -0.8          | 16.3                 | 6.3            |
| 85 years and over.....       | -7.0       | -10.5         | -3.8                 | -0.9           | -1.6       | -3.3          | 2.0                  | 0.7            |
| 65 years and over.....       | -1.6       | -3.1          | 1.3                  | -0.1           | -1.3       | -3.6          | 4.7                  | 1.0            |
| Average: <sup>1</sup>        |            |               |                      |                |            |               |                      |                |
| 18 groups <sup>2</sup> ..... | 1.9        | 3.7           | 3.5                  | 2.0            | 1.8        | 2.7           | 3.2                  | 2.5            |
| 14 groups <sup>3</sup> ..... | 1.6        | 3.5           | 2.2                  | 2.0            | 1.6        | 2.6           | 2.2                  | 2.3            |

Z Less than 0.05 percent. - Represents zero.

<sup>1</sup>Without regard to sign.

<sup>2</sup>Data relate to 18 5-year age groups to 85 years and over.

<sup>3</sup>Data relate to 14 5-year

age groups to 65 years and over.

**Table C. Percent Deviation of County Intercensal Population Estimates from Special Censuses for Counties with 5,000 or More Black Population, by Age, Sex, and Race**

(A minus sign (-) indicates that the estimate was smaller than the census)

| Race and age                  | Pima, AZ<br>(10/20/75) |         | San Bernardino, CA<br>(4/1/75) |         | San Joaquin, CA<br>(10/6/75) |         | Travis, TX<br>(4/20/76) |         | Richmond, VA area <sup>1</sup><br>(4/4/78) |         |
|-------------------------------|------------------------|---------|--------------------------------|---------|------------------------------|---------|-------------------------|---------|--|---------|
|                               | Male                   | Female  | Male                           | Female  | Male                         | Female  | Male                    | Female  | Male                                       | Female  |
| <b>WHITE</b>                  |                        |         |                                |         |                              |         |                         |         |  |         |
| Under 5 years.....            | 8.1                    | 7.8     | -0.2                           | 0.1     | 3.9                          | 1.7     | 5.1                     | 4.0     | 1.8  | 1.6     |
| 5 to 9 years.....             | -1.8                   | -3.4    | 0.2                            | 1.6     | (Z)                          | -1.2    | -0.9                    | -1.2    | -3.1                                       | -2.5    |
| 10 to 14 years.....           | 3.0                    | 3.1     | 0.7                            | 0.6     | -1.1                         | -1.2    | (Z)                     | 0.1     | 2.5  | 2.4     |
| 15 to 19 years.....           | -1.3                   | -5.2    | -1.4                           | -1.4    | 2.2                          | 0.5     | 0.5                     | -0.9    | 1.6  | 1.1     |
| 20 to 24 years.....           | -3.0                   | -4.5    | 4.9                            | -4.0    | -2.7                         | -1.9    | -2.8                    | -6.5    | -1.5                                       | -0.2    |
| 25 to 29 years.....           | -5.1                   | -0.9    | -3.2                           | 2.1     | -1.9                         | -1.7    | -2.8                    | 3.3     | 0.8  | 0.5     |
| 30 to 34 years.....           | 2.4                    | 0.9     | 2.3                            | (Z)     | 2.3                          | -2.2    | 7.9                     | 8.1     | 0.3  | 1.1     |
| 35 to 39 years.....           | 0.5                    | -2.9    | -2.1                           | -3.7    | -4.7                         | -2.4    | 2.1                     | -0.2    | 1.4  | 0.7     |
| 40 to 44 years.....           | -5.3                   | -3.3    | -4.2                           | -2.3    | 0.8                          | -5.1    | -2.9                    | -1.1    | 3.2  | 3.3     |
| 45 to 49 years.....           | 3.4                    | -0.1    | 0.1                            | -2.3    | 2.0                          | 0.6     | 1.4                     | 2.9     | 0.7  | -1.4    |
| 50 to 54 years.....           | -1.9                   | 2.1     | -0.2                           | -0.1    | -1.0                         | -2.2    | (Z)                     | -3.4    | -0.9                                       | -2.5    |
| 55 to 59 years.....           | 3.4                    | 3.7     | 0.8                            | 3.9     | 2.9                          | 3.7     | -3.8                    | 1.7     | -2.1                                       | -1.9    |
| 60 to 64 years.....           | 5.8                    | 7.0     | -2.9                           | -3.5    | -5.2                         | 2.8     | 1.6                     | -2.3    | -0.4                                       | 0.9     |
| 65 to 69 years.....           | -1.8                   | -1.5    | 2.4                            | 2.9     | -3.5                         | 3.6     | -1.2                    | 3.1     | -2.3                                       | -2.3    |
| 70 to 74 years.....           | -4.0                   | -0.2    | -1.7                           | 0.6     | -0.9                         | 1.6     | -3.5                    | 0.2     | -0.8                                       | -0.4    |
| 75 to 79 years.....           | -0.3                   | 3.1     | 3.2                            | 7.3     | 2.8                          | 7.9     | 0.4                     | -2.4    | -5.9                                       | -3.8    |
| 80 to 84 years.....           | 5.1                    | 14.7    | 7.3                            | 12.6    | 15.2                         | 19.4    | 3.5                     | 4.4     | -0.8                                       | 1.7     |
| 85 years and over.....        | 2.0                    | 1.4     | 1.3                            | 6.7     | 10.0                         | 3.1     | -7.1                    | 1.9     | -6.4                                       | -2.0    |
| 65 years and over.....        | -1.3                   | 1.5     | 1.8                            | 4.7     | 1.0                          | 5.8     | -1.5                    | 1.3     | -2.6                                       | 1.6     |
| <b>Absolute average:</b>      |                        |         |                                |         |                              |         |                         |         |  |         |
| 18 groups <sup>2</sup> .....  | 3.2                    | 3.7     | 2.2                            | 3.1     | 3.5                          | 3.5     | 2.6                     | 2.7     | 2.0  | 1.7     |
| 14 groups <sup>3</sup> .....  | 3.3                    | 3.3     | 1.8                            | 2.2     | 2.3                          | 2.4     | 2.4                     | 2.6     | 1.6  | 1.6     |
| Special census population.... | 207,122                | 212,062 | 317,794                        | 324,347 | 135,663                      | 135,621 | 162,996                 | 164,531 | 175,445                                    | 194,062 |
| <b>BLACK AND OTHER RACES</b>  |                        |         |                                |         |                              |         |                         |         |  |         |
| Under 5 years.....            | -2.8                   | 05.3    | -3.0                           | -1.8    | 12.3                         | 4.6     | -2.5                    | -1.7    | 3.4  | 3.7     |
| 5 to 9 years.....             | -8.3                   | -3.7    | -6.0                           | (Z)     | -3.5                         | -3.6    | -3.9                    | 0.9     | -1.7                                       | -4.0    |
| 10 to 14 years.....           | 4.9                    | 2.7     | -5.8                           | -1.2    | -3.8                         | -3.5    | 0.9                     | -2.4    | 1.3  | 1.8     |
| 15 to 19 years.....           | -2.6                   | -2.8    | -1.8                           | -1.3    | 5.7                          | 3.8     | -0.7                    | 1.6     | 4.0  | 1.4     |
| 20 to 24 years.....           | -3.7                   | 4.1     | 8.9                            | -11.5   | -5.9                         | 6.5     | -2.8                    | -4.9    | -5.3                                       | -0.1    |
| 25 to 29 years.....           | -4.1                   | -11.7   | -4.8                           | 6.8     | -18.2                        | -1.1    | -2.6                    | -3.7    | -5.8                                       | -0.6    |
| 30 to 34 years.....           | 24.2                   | 8.8     | 0.4                            | 7.1     | 14.3                         | 3.0     | 4.2                     | 5.0     | 0.9  | 2.0     |
| 35 to 39 years.....           | -2.3                   | -0.9    | 7.3                            | -1.5    | 2.9                          | -6.5    | 0.3                     | -5.1    | -0.1                                       | -5.6    |
| 40 to 44 years.....           | -9.1                   | -8.8    | 1.1                            | 2.8     | -6.4                         | -7.4    | 4.6                     | -4.5    | -0.5                                       | 1.0     |
| 45 to 49 years.....           | -0.5                   | 3.3     | 7.4                            | -6.0    | -2.4                         | -2.3    | 1.1                     | 14.6    | 1.7  | -1.2    |
| 50 to 54 years.....           | -11.3                  | 6.0     | 1.7                            | 7.9     | -13.4                        | -0.5    | 0.5                     | -3.9    | 0.8  | -0.7    |
| 55 to 59 years.....           | 31.9                   | 19.8    | 1.2                            | 1.1     | 6.3                          | 5.4     | 13.2                    | 8.7     | -2.0                                       | -1.9    |
| 60 to 64 years.....           | -6.8                   | -5.5    | -5.4                           | -2.1    | 5.9                          | 0.4     | 3.4                     | 4.7     | 8.1  | 5.7     |
| 65 to 69 years.....           | 26.4                   | 3.3     | 20.3                           | 13.0    | 7.0                          | -7.9    | 6.2                     | 13.5    | 1.8  | 0.4     |
| 70 to 74 years.....           | -0.4                   | 12.6    | 8.1                            | 3.5     | 3.2                          | -2.4    | 2.0                     | 2.4     | 4.1  | -1.6    |
| 75 to 79 years.....           | 30.3                   | 23.5    | 15.1                           | 12.4    | 19.9                         | 8.1     | 3.6                     | -3.4    | -1.4                                       | -4.9    |
| 80 to 84 years.....           | 1.2                    | 22.4    | 47.6                           | 41.1    | 14.7                         | 15.6    | 10.1                    | 9.2     | 5.1  | 7.8     |
| 85 years and over.....        | (Z)                    | 13.2    | -17.4                          | -4.0    | -5.3                         | 4.8     | 6.2                     | -7.2    | -8.5                                       | 0.5     |
| 65 years and over.....        | 14.2                   | 11.8    | 15.6                           | 10.9    | 7.4                          | -0.5    | 5.0                     | 4.6     | 1.5  | -0.4    |
| <b>Absolute average:</b>      |                        |         |                                |         |                              |         |                         |         |  |         |
| 18 groups <sup>2</sup> .....  | 9.5                    | 8.8     | 9.1                            | 7.0     | 8.4                          | 4.9     | 3.8                     | 5.4     | 3.1  | 2.5     |
| 14 groups <sup>3</sup> .....  | 9.1                    | 6.8     | 5.0                            | 4.4     | 7.7                          | 3.5     | 3.3                     | 4.7     | 2.6  | 2.2     |
| Special census population.... | 15,159                 | 15,201  | 27,161                         | 26,762  | 14,827                       | 13,720  | 21,956                  | 23,792  | 68,882                                     | 80,540  |

See footnotes at end of table.

**Special census comparisons: general considerations.** The number of special censuses is obviously too small to support definitive statements regarding the quality of the intercensal estimates. The postcensal estimates for all counties are being compared to the 1980 census counts, and a full evaluation will be presented in a subsequent report. That evaluation will provide an overall guide to the kinds of errors to be expected by size of county and by region. The comparisons for the 26 special censuses are presented in this report to

give some idea of the limits of accuracy for specific counties in middecade. On the positive side, none of the special census comparisons have uncovered any systematic error, not previously identified while preparing the estimates, which might affect a large category of counties. A number of special situations resulting in estimates of less-than-average quality have manifested themselves at varying stages in the project, and they are discussed in the next section.

**Table C. Percent Deviation of County Intercensal Population Estimates from Special Censuses<sup>1</sup> for Counties with 5,000 or More Black Population, by Age, Sex, and Race—Continued**

(A minus sign (-) indicates that the estimate was smaller than the census)

| Race and age                  | Pima, AZ<br>(10/20/75) |        | San Bernardino, CA<br>(4/1/75) |        | San Joaquin, CA<br>(10/6/75) |        | Travis, TX<br>(4/20/76) |        | Richmond, VA area <sup>1</sup><br>(4/4/78) |        |
|-------------------------------|------------------------|--------|--------------------------------|--------|------------------------------|--------|-------------------------|--------|--|--------|
|                               | Male                   | Female | Male                           | Female | Male                         | Female | Male                    | Female | Male                                       | Female |
| <b>BLACK</b>                  |                        |        |                                |        |                              |        |                         |        |  |        |
| Under 5 years.....            | 0.2                    | -5.1   | 5.3                            | 3.7    | 7.4                          | 4.3    | -2.4                    | 0.2    | 4.2  | 4.7    |
| 5 to 9 years.....             | -0.5                   | 5.2    | -0.4                           | 4.5    | -0.9                         | -5.4   | -3.8                    | 0.4    | -1.5                                       | -4.0   |
| 10 to 14 years.....           | 4.0                    | 4.7    | -3.2                           | 1.0    | -2.9                         | -3.2   | 1.1                     | -4.1   | 0.7  | 1.8    |
| 15 to 19 years.....           | -11.1                  | -9.0   | -5.8                           | -4.4   | 19.5                         | 1.2    | -1.9                    | 1.0    | 3.6  | 1.3    |
| 20 to 24 years.....           | -4.1                   | -2.4   | 3.6                            | -14.7  | -5.7                         | -2.2   | 0.9                     | (Z)    | -5.5                                       | -0.3   |
| 25 to 29 years.....           | -7.4                   | -7.5   | -6.6                           | 15.0   | -28.1                        | -8.8   | 1.0                     | -0.8   | -5.5                                       | 0.1    |
| 30 to 34 years.....           | 24.2                   | 8.5    | -0.2                           | 5.6    | 4.7                          | -2.6   | 5.0                     | 8.8    | 1.9  | 2.4    |
| 35 to 39 years.....           | -1.7                   | -4.9   | 3.8                            | -10.3  | -2.1                         | -6.0   | 2.4                     | -4.8   | 0.8  | -5.3   |
| 40 to 44 years.....           | -12.6                  | -12.4  | 1.6                            | 1.9    | -3.0                         | -7.7   | 0.1                     | -7.8   | -1.1                                       | 0.5    |
| 45 to 49 years.....           | 1.5                    | 9.1    | 13.0                           | -4.9   | 11.0                         | -5.4   | -2.2                    | 11.4   | 1.6  | -1.6   |
| 50 to 54 years.....           | -5.9                   | 2.3    | 6.3                            | 4.9    | -6.8                         | 17.5   | -3.1                    | -8.6   | 0.4  | -1.6   |
| 55 to 59 years.....           | 38.7                   | 19.3   | 0.2                            | 1.1    | -7.6                         | 11.2   | 9.4                     | 4.3    | -2.4                                       | -2.3   |
| 60 to 64 years.....           | 8.2                    | 11.0   | -2.8                           | -2.2   | 0.6                          | 9.5    | 1.3                     | 1.6    | 7.3  | 5.2    |
| 65 to 69 years.....           | 22.7                   | -2.5   | 13.4                           | 6.9    | 16.4                         | 0.4    | 3.7                     | 9.7    | 1.8  | (Z)    |
| 70 to 74 years.....           | -5.5                   | 13.0   | -8.1                           | (Z)    | 4.3                          | 9.9    | -2.1                    | -2.5   | 3.2  | -1.4   |
| 75 to 79 years.....           | 28.6                   | 30.4   | 15.2                           | 12.9   | 11.1                         | 16.2   | (Z)                     | -4.2   | -1.7                                       | -5.4   |
| 80 to 84 years.....           | -2.3                   | (Z)    | 8.7                            | 37.1   | 6.7                          | 46.8   | 4.6                     | 6.0    | 2.8  | 6.4    |
| 85 years and over.....        | 3.8                    | -12.2  | -36.1                          | -20.6  | 31.0                         | 28.1   | 1.9                     | -10.0  | -9.4                                       | 0.5    |
| 65 years and over.....        | 10.6                   | 6.6    | 2.4                            | 5.1    | 11.7                         | 10.8   | 1.3                     | 1.2    | 0.9  | -0.7   |
| <b>Absolute average:</b>      |                        |        |                                |        |                              |        |                         |        |  |        |
| 18 groups <sup>2</sup> .....  | 10.2                   | 8.9    | 7.5                            | 8.4    | 9.4                          | 10.4   | 2.6                     | 4.8    | 3.1  | 2.5    |
| 14 groups <sup>3</sup> .....  | 9.3                    | 7.7    | 3.9                            | 5.7    | 8.0                          | 6.8    | 2.6                     | 3.9    | 2.7  | 2.3    |
| Special census population.... | 6,883                  | 6,494  | 17,849                         | 16,480 | 8,196                        | 8,074  | 18,948                  | 20,852 | 66,482                                     | 78,124 |

Z Less than 0.05 percent.

<sup>1</sup>Chesterfield and Henrico counties and Richmond city.

<sup>2</sup>Data relate to 18 5-year age groups to 85 years and over.

<sup>3</sup>Data relate to 14 5-year age groups to 65 years and over.

A limiting factor to the special census comparisons is that the counties are not at all a random selection of counties. The censuses were usually conducted at the request and expense of the county in the belief that the population had grown, and in most cases, the census indicated a better-than-average growth. However, seven of the counties grew at less than the national average. In some cases, a special census is requested because local officials believe that an estimate being used for official purposes is too low, and for various other reasons.

The 26 county censuses are not very well distributed geographically. The State of California encouraged local areas to authorize special censuses, and 11 of the 26 areas are in that State. However, there is some geographic variation; 10 different States are represented in table A, and there are at least two counties in each of the four census regions. In addition, there is considerable range in population size, with over a million in Santa Clara, California, and less than 1,000 in Arthur, Nebraska. Although the 26 counties are not representative of a cross section of U.S. counties, they cover a rather broad spectrum of county types.

A final word of caution concerns the basic assumption that a comparison of an estimate to a special census result does in fact provide a guide to the accuracy of the estimates. Such comparisons implicitly assume that both the 1970 and 1980 censuses and the special census are complete and accurate, or at least that errors for a particular county in all three cen-

suses are of similar pattern and magnitude. Since it cannot be assumed that either of these conditions will hold in each and every case, the comparison of intercensal estimates to special censuses does not provide a precise measure of accuracy. This should not be forgotten in drawing conclusions as to the accuracy or inaccuracy of the intercensal estimates based on statements and tables in this section.

The age estimates are surely less accurate than the census, but how much less is difficult to determine. Deviations of 10 percent or more are mostly error in the estimates. But, the "noise" in census data may cause some of the deviation of the estimates from a special census. Deviations of 3 or 4 percent, therefore, may be significantly affected by census variation, but to an unknown degree in any specified county.

**Special limitations.** Some idea about the deviations of the intercensal estimates from actual population counts is given by the comparisons with special censuses above. In addition to the deviation to be expected in any and all counties, certain special situations have surfaced during the preparation and review of the estimates. They are listed below.

1. *Military bases.* Although the special adjustment for military and college population functioned very well in general, it did not adequately reflect change in the age structure of the Armed Forces. During the 1970's, the proportion of males

aged 20 to 24 years decreased, and the proportion 25 to 29 increased. The model did not take this into account, so the estimates in the counties which had a special military adjustment tend to be too high in the 20 to 24 group and too low for 25 to 29.

In some military bases, there were violent shifts in age structure which resulted in gross errors in the postcensal estimates, especially for males in the age groups 20 to 24 and 25 to 29. The worst error is probably in Liberty County, Georgia, which contains Ft. Stewart. In 1970, a very large proportion of the males at this Army base were 20 to 24 years of age. During the 1970's, the function of the base changed fundamentally, resulting in a much more even distribution within the military age range, and the number of personnel at the base increased four-fold. As a result, the 1980 postcensal estimate for White males in Liberty County was 7,757, but the 1980 census figure (adjusted race) was 3,365. Similar but less severe errors were found for the counties of Chatahoochee, Georgia; Pulaski, Missouri; and Vernon, Louisiana. For the intercensal age estimates described in this report, a procedure was developed to adjust the military and college population for intermediate years, but only in those cases where the military and college population estimate in 1980 exceeded the total population of the county for that age cell. Although the adjustment helped, the estimates for Liberty County are still not satisfactory. In the other counties mentioned, the estimates are also visibly irregular; the estimates for any county with a military base or college which constitutes a large proportion of the population should be reviewed before indiscriminate use of the data.

**2. Medicare-based estimates.** A problem in the Medicare file was discovered in 1976 concerning the tabulation of data by county. The first county (alphabetically) of each State was erroneously credited with some of the records with county code missing, whereas they should have been tabulated as "county unknown." The relative impact was greatest for a small county in a large State, and the error accumulated with the passage of time. The estimates for 1971 through 1975 were affected by this, but could not be changed. For 1976 and subsequent years, a cohort-component estimate of the population aged 65 years and over was substituted in the counties most severely affected. These counties are as follows:

| FIPS Code | County      | FIPS Code | County       |
|-----------|-------------|-----------|--------------|
| 13001     | Appling, GA | 42001     | Adams, PA    |
| 18001     | Adams, IN   | 48001     | Anderson, TX |
| 20001     | Allen, KS   | 49001     | Beaver, UT   |
| 21001     | Adair, KY   | 53001     | Adams, WA    |
| 29001     | Adair, MO   | 54001     | Barbour, WV  |
| 39001     | Adams, OH   | 55001     | Adams, WI    |

A break at year 1976 in the annual progression of the estimates for 65 and over can be seen in these counties. A

better estimate for the years 1971 through 1975 can be obtained using straight-line interpolation between 1970 and 1976.

The Medicare-based estimates also encountered a problem involving the assignment of county of residence for counties containing a large central city. Such counties tended to be overcoded at the expense of an adjacent suburban county. The impact can be relatively large on a small or medium-sized suburban county. A special project identified 16 counties where this was a serious problem, along with 9 independent cities in Virginia. The areas are:

| FIPS Code | County         | FIPS Code | County                           |
|-----------|----------------|-----------|----------------------------------|
| 13007     | Baker, GA      | 51177     | Spotsylvania, VA                 |
| 13079     | Crawford, GA   | 51179     | Stafford, VA                     |
| 13169     | Jones, GA      |           |                                  |
| 13221     | Oglethorpe, GA |           | (Independent cities in Virginia) |
| 28121     | Rankin, MS     |           |                                  |
| 37065     | Edgecombe, NC  | 51515     | Bedford, VA                      |
| 37127     | Nash, NC       | 51580     | Covington, VA                    |
| 39075     | Holmes, OH     | 51600     | Fairfax, VA                      |
| 51005     | Alleghany, VA  | 51610     | Falls Church, VA                 |
| 51019     | Bedford, VA    | 51630     | Fredericksburg, VA               |
| 51059     | Fairfax, VA    | 51640     | Galax, VA                        |
| 51089     | Henry, VA      | 51660     | Harrisonburg, VA                 |
| 51161     | Roanoke, VA    | 51690     | Martinsville, VA                 |
| 51165     | Rockingham, VA | 51770     | Roanoke, VA                      |

For these areas, the cohort-component estimate was also substituted for the Medicare-based estimate after 1976.

**3. Miscellaneous.** In 1973, the city of Suffolk, Virginia, merged with Nansemond County to form a single area, Suffolk City. It was not possible to combine these areas in the age estimates program because all of the 1970 census detail needed for age-sex-race estimates did not exist, and the two areas are shown separately in the intercensal age estimates file. The estimates for these two areas should be summed, because the control data needed for each area were not independently reliable.

A problem of a different type affects the estimates for the counties of Sebastian, Arkansas; San Diego, California; Okaloosa, Florida; and Lebanon, Pennsylvania. In 1975, these counties contained sizable relocation centers for Vietnamese refugees, who were included in the estimate of total population to which the age data were controlled. The data needed to make a special adjustment were not available, and the counties were handled with standard procedures. As a result, the race distribution of the 1975 estimates does not correctly reflect the race of the Vietnamese refugees, and the age distribution may also be in error. The errors in the 1975 estimates for these counties also affected the interpolations for the 1971-74 and 1976-79 periods.

The estimates for census divisions in Alaska tend to be less reliable than for the other states. There have been changes in Alaska census division boundaries from time to time which affect the quality of the basic migration data. In addition,

boundary changes in 1972 involving Kobuk, Barrow, and Upper Yukon invalidate the intercensal age estimates for these three areas. A special tabulation of 1980 census population in the 29 divisions as defined in the 1970 census did not recognize these boundary changes, but the intercensal estimates of total population used as controls do reflect them. As a result, the age estimates for the three areas cannot be used individually.

There are undoubtedly many undetected special situations which have resulted in unreasonable age and/or race estimates in the file. There is one unusual case which was identified and investigated. The estimates for Maverick County, Texas, show a steady increase in Black-and-other-races population beginning with 47 in 1970 and reaching 789 in 1980. In fact, almost all the increase occurred in the last few months of the decade, when a group of several hundred American Indians moved into the county in one large contingent. Because the 1975 county population control by race was in part an interpolation and because the minority race population was a very small part of total population, the estimating model spread the growth rather evenly through the entire decade.

Although the special censuses give some indication of the quality of the estimates, the exact degree of overall error is

unknown. As the Maverick County experience indicates, not too much reliance should be placed on a few specific small categories, or on individual age-sex-race cells, even though the general level of error may be acceptable for most uses.

## RELATED REPORTS

For a more detailed description of the methodology used to develop the 1975 postcensal estimates upon which the intercensal estimates are based, see U.S. Bureau of the Census, Current Population Reports, Series P-23, No. 103, *Methodology for Experimental Estimates of the Population of Counties, by Age and Sex: July 1, 1975*. A detailed description of the methods used to modify the 1980 census race data is given in U.S. Bureau of the Census, 1980 Census of Population, *County Population by Age, Sex, Race, and Spanish Origin (Preliminary OMB-Consistent Modified Race)*, Tape Technical Documentation, Data User Services Division, Customer Services (Tapes): Washington, D.C., June 1983.

The intercensal age estimates were adjusted to agree with unpublished intercensal estimates of the total population of counties developed by the Bureau of the Census.

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