

Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025

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This file contains the State population projections descriptive text and methodology sections from the PPL-47 report. It excludes the detailed tables 1 to 7 and appendix table A-1. The complete PPL-47 report with detailed tables can be ordered from the Population Division Statistical Information Staff (phone 301-763-2422).

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Contents

| | Page |
|---|--------------------|
| Purpose of the Report..... | 1 |
| Highlights From Preferred Series..... | 1 |
| Size and Growth of Regions and States..... | 1 |
| Race and Hispanic Origin Distribution..... | 2 |
| Age Distribution..... | 3 |
| Introduction..... | 4 |
| Cohort-Component Methodology..... | 4 |
| Consistency with Various Estimates and Projections..... | 5 |
| Preferred and Alternative Series..... | 6 |
| Major Changes from the Last Report..... | 7 |
| Projected Population Trends..... | 7 |
| Comparison of Series..... | 7 |
| Size and Growth of the Total Population..... | 10 |
| Regional Population Growth..... | 10 |

| | |
|---|--------------------|
| State Population Growth..... | 11 |
| Components of Population Change..... | 12 |
| Regional Components of Change..... | 12 |
| State Components of Change..... | 12 |
| Race and Hispanic Origin | 15 |
| Regional Growth of Race and Hispanic Origin Groups..... | 15 |
| State Growth of Race and Hispanic Origin Groups..... | 18 |
| Age Distribution..... | 21 |
| Youth Population..... | 21 |
| Elderly Population..... | 22 |
| Dependency Ratio..... | 23 |
| Detailed Methodology..... | 25 |
| Overview..... | 25 |
| Base Population..... | 26 |
| Fertility..... | 27 |
| Assumptions..... | 27 |
| Projected Births, by Race/Hispanic Origin..... | 28 |
| Mortality..... | 28 |
| Assumptions..... | 28 |
| Projected Survival Rates..... | 29 |
| Puerto Rico Survival and Fertility Rates..... | 29 |
| International Migration..... | 30 |
| Assumptions..... | 30 |
| Emigration..... | 31 |
| Flows Between United States and Puerto Rico..... | 31 |
| Total Foreign Immigration..... | 32 |
| Domestic Migration..... | 33 |
| Overview..... | 33 |
| Development of Base Year Domestic Migration Rates..... | 34 |
| Projecting State-to-State Migration Rates..... | 37 |
| Demographic Times Series Projections..... | 38 |
| Projection Models for Internal Migration..... | 39 |
| Economic Based Projections Series..... | 40 |
| Military movement..... | 41 |
| Adjustment to 1995 State Estimates by Age and Sex..... | 41 |
| Adjustment to National Projections by Age, Sex, Race, and Hispanic Origin..... | 42 |
| Selection of Assumptions, Sensitivity Analysis, and Forecast Error..... | 42 |
| Selection of Assumptions..... | 43 |
| Forecast Error in Past Projections..... | 43 |
| Forecast Error in Current Projections..... | 46 |
| Summary and Limitations of Projections..... | 46 |
| Related Reports..... | 46 |
| Availability of More Detailed Data..... | 47 |
| State Agencies Projections..... | 48 |
| Additional Sources of State Projections..... | 48 |
| Rounding of Projections..... | 49 |
| Symbols..... | 49 |

TEXT TABLES

| | |
|--|--------------------|
| A. Comparison of Population Projections by Region and Series: 1995 to 2025 | 7 |
| B. Projections of the Top 10 States, Ranked by Population Size: 1995 and 2025..... | 8 |
| C. Projections of the 10 Fastest Growing States Ranked by Percent Growth for Each Series: 1995 to 2025..... | 9 |
| D. Top Five States with the Largest Components of Population Change: 1995 to 2025..... | 13 |
| E. Top 10 States with the Largest Net Population Gains: 1995 to 2025..... | 14 |
| F. Population Change of Regions by Race and Hispanic Origin: 1995 to 2025..... | 16 |
| G. Percent Distribution of Population Gains of Race and Hispanic Origin Groups by Region: 1995 to 2025..... | 16 |
| H. Percent Distribution of Population Gains of Regions by Race and Hispanic Origin Groups: 1995 to 2025.... | 17 |
| I. Top Five States With the Largest Population Gains, Ranked by Race and Hispanic Origin: 1995 to 2025.... | 19 |
| J. Top Five States with the Largest Population, Ranked by Race and Hispanic Origin: 1995 and 2025..... | 19 |
| K. Percent Distribution of the Population by Age and Region: 1995, 2010, and 2025..... | 21 |
| L. Ratio of Youth and Elderly Per 100 Adults, Five Highest and Five Lowest States: 1995 and 2025..... | 24 |

DETAILED TABLES Note: These Tables are not included in this copy.

| | |
|--|----|
| 1. Projections of the Total Population of Regions, Divisions, and States: 1995 to 2025 | |
| Series A (Preferred Series)..... | 52 |
| Series B..... | 53 |
| 2. Components of Population Change, for Regions, Divisions, and States: 1995 to 2025 | |
| Series A (Preferred Series)..... | 54 |
| Series B..... | 57 |
| 3. Projections of the Population, by Sex, Race, and Hispanic Origin, for Regions, Divisions, and States: 1995 to 2025 - Series A (Preferred Series)..... | 60 |
| 4. Projections of the Population, by Age and Sex, for Regions, Divisions, and States: 1995 to 2025 | |
| Series A (Preferred Series)..... | 74 |
| 5. Comparison of Projections of the Population, for Regions, Divisions, and States: 2000 to 2025..... | 88 |
| 6. Comparison of the Rate of Population Change for Regions, Divisions, and States, by Series: 1995 to 2025..... | 89 |
| 7. State Population Projections Developed by Individual State Agencies: 1995 to 2025..... | 90 |

APPENDICES

| | |
|---|--------------------------|
| A. 1990 Census Population..... | A-1 (Note: Not included) |
| B. State Agencies Preparing Population Projections..... | B-1 |
| C. Race and Ethnic Definitions and Concepts..... | C-1 |

APPENDIX TABLES

| | |
|---|--------------------------|
| A-1. 1990 Census (Modified Race) by Sex, Race, and Hispanic Origin, for Regions, Divisions, and States..... | A-2 (Note: Not included) |
|---|--------------------------|

Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025

Purpose of the Report

This report is intended to inform its users about evolving population trends which might affect the demographic landscape of the 50 States and the District of Columbia by age, sex, race, and Hispanic origin. It describes how States are projected to become more racially and ethnically diverse over the next 30 years. The factors which significantly contribute to such changes (fertility, mortality, immigration, and interstate migration) are discussed. This report describes how State age compositions shift as 'baby boomers' (persons born between 1946 and 1964) become eligible for retirement. These projections are used as the basic input to many federal, State, and local projection models that produce detailed education, economic, labor force, health care, voting, and other statistics. Thus the results are useful to planners in both the public and private sectors. Users are provided with a description of the results, methodology, assumptions, and an evaluation of past errors in the projections. Besides preferred and alternative series projections, official State agencies projections are presented for comparison.

[HIGHLIGHTS FROM PREFERRED SERIES](#)

[Size and Growth of Regions and States](#)

- Over the next 30 years the West is projected to grow nearly twice the national average, while the Northeast and Midwest grow at one-half the U.S. total rate.
- During the late 1990's international migration is expected to play a dominant role in the population growth of the West, while both international and domestic migration will be important contributors to growth of the South.
- The South will continue to be the most populous region of the Nation during the next 30 years. The Midwest, the second most populated region in the Nation in 1995, switches places with the third most populated region, the West, by 2005.
- California, the most populous State, contained 12 percent of the Nation's population in 1995. By 2025, California is expected to have 15 percent of the Nation's population.
- From 1995 to 2025 California adds 17.7 million people (equivalent to nearly the current population of

New York State).

- California is projected to add the largest number of international migrants (8 million). This would be more than one-third of the immigrants added to the Nation's population over the 30 year period.
- California is expected to be the fastest growing State from 1995 to 2025 (56 percent). The first eight of the fastest growing States are Western States.
- After 2015, Florida is projected to replace New York as the Nation's third most populous State, with Texas ranked second.

Race and Hispanic Origin Distribution[1]

- The White population, the largest of the five race/ethnic groups, is projected to be the slowest-growing among the groups during the 1995 to 2025 projection period. During this period, the White population is projected account for at least one-fifth of the absolute increase in the Nation's population in all regions except in the Northeast (where this group declines in size). Sixty-seven percent of the 16 million Whites added to the U.S. population will be located in the South.
- Over the 30 years, the Black population is projected to be the second slowest-growing in all regions, except the South where it will rank third. Sixty-four percent of the 12 million Blacks added to the United States during 1995 to 2025 will be in the South.
- The Asian population is the fastest-growing group in all regions. Asians are the fourth largest of the race and Hispanic origin groups in all regions except the West where they rank third. The Asian population is projected to have the greatest gains in the West with an increase of 7 million persons (56 percent of the total added to the U.S. Asian population during 1995 to 2025) and in the Northeast with an increase of 2 million.
- The American Indian population, the least populous group, is projected to be the third fastest-growing population in all regions but the South during 1995 to 2025 where it ranked fourth. Nearly half of the 0.8 million American Indians added to the Nation's American Indian population will be located in the West.
- The Hispanic origin population is projected to increase rapidly over the 1995 to 2025 projection period, accounting for 44 percent of the growth in the Nation's population (32 million Hispanics out of a total of 72 million persons added to the Nation's population). The Hispanic origin population is the second fastest-growing population, after Asians, in every region over the 30 year period.
- In 1995, States with the largest share of the Nation's Whites were California, New York, Texas, Pennsylvania, and Florida. Among these five States in 2025 only Texas and Florida are projected to have a larger share of the Nation's White population than in 1995 (compared to almost no change for California and decreases for New York and Pennsylvania).
- The State of New York, with nearly 3 million Blacks, had the largest share of the Nation's Black population (8 percent) in 1995. Other States with large shares of the Nation's Black population are Texas, California, Georgia, and Florida. Texas (after 2005), Georgia (after 2010), and Florida (after 2020) are expected to have the largest population gains among Blacks and to replace New York as the State with the largest share of the Nation's Black population.
- In 2025, California, with an expected 41 percent of the Nation's 21 million Asians, is expected to remain number one with the largest share, followed by New York, Hawaii, New Jersey, and Texas. Together these States will account for more than half of the Nation's Asian population in 2025.
- During 1995, Oklahoma had the largest share of the Nation's American Indians (257,000 or 13 percent). The other leading States with the largest proportion of the Nation's American Indian population in rank order are Arizona, California, New Mexico, and Alaska. By 2025, Oklahoma and Arizona still rank number one and two with the largest share of the Nation's American Indians. However, New Mexico moves ahead of California, and Washington moves up to be the fifth most

populous State among American Indians. About 45 percent of the American Indian population is projected to reside in these five States by 2025.

- In 1995, 74 percent of the Nation's Hispanics resided in five States. California with 9 million had the largest share of the Nation's Hispanic population followed by Texas, New York, Florida, and Illinois. California's Hispanic population will more than double over the projection period (21 million and represents 36 percent of the total Hispanic population in 2025).

Age Distribution

- In 2025, Alaska is the State with the highest proportion of its population under 20 years of age (34 percent), followed by California (33 percent). States projected to have the smallest proportion of population under age 20 are West Virginia and Florida (both with 21 percent).
- As the Baby Boom generation (those born between 1946 and 1964) reaches retirement age after 2010, the percentage of the population that is elderly will increase rapidly in the South and Midwest.
- In 1995, Florida had the largest proportion of elderly (19 percent) of any State, and Alaska had the smallest at 5 percent. By 2025, Florida (with 26 percent) would remain the leading State with more than a quarter of its population classified as elderly. Alaska would still rank as the youngest with 10 percent.
- Between 1995 and 2025 the number of elderly are projected to double in 21 States.

INTRODUCTION

This report presents population projections for the 50 States and the District of Columbia by age, sex, race, and Hispanic origin for 1995 through 2025.[2] Projections are discussed for the White (non-Hispanic); Black (non-Hispanic); American Indian, Eskimo, and Aleut (non-Hispanic); Asian and Pacific Islander (non-Hispanic); and Hispanic origin populations which sum to the State totals.[3]

Cohort-Component Methodology

The projections use the cohort-component method.[4] The cohort-component method requires separate assumptions for each component of population change: births, deaths, internal migration[5], and international migration. These components, by race and Hispanic origin, come from various sources. State differentials in fertility are based on 1989 to 1993 births, 1994 estimated population distributions of females in childbearing ages for States, and 1994 national fertility data. State differentials in survival rates are based on 1989 to 1993 deaths, 1994 estimated population for States, and 1994 national life tables. The projections use Internal Revenue Service (IRS) data on interstate migration flows from 1975 to 1976 through 1993 to 1994. International migration for States was further disaggregated by age, sex, race, and Hispanic origin using the foreign-born population immigrating during the five year period 1985 to 1990 as enumerated in the 1990 census.

Consistency with Various Estimates and Projections

The projection's starting date is July 1, 1994. The July 1, 1994 State population estimates by age, sex, race, and Hispanic origin were derived from the 1990 enumerated census figures and annual population estimates. The national population total is consistent with the middle series of the Census Bureau's national population projections for the years 1996 to 2025.[6]

The July 1, 1994 starting point estimates for State populations by single years of age and sex are consistent with previously released data from the U.S. Bureau of the Census. The 1995 State population projections were controlled first to the 1995 national population projections, by age, sex, race, and Hispanic origin, and second to the 1995 State population estimates, which were only available by age and sex.[7] Technically, the 1995 results are still projections since race and Hispanic origin estimates were not available. These results are more consistent with State estimates than the national population projections for the year 1995.

The July 1, 1994 estimates are consistent with the 1990 census count, but cannot be directly compared to the

published results by age and race because modifications were made to the data to correctly place each person in an appropriate age and race category. This was done to adjust for age misreporting and the reporting of an unspecified race in the 1990 census.[8]

Preferred and Alternative Series

This set of population projections provides a preferred series using a demographically based time series and an alternative series using an economically based set of assumptions. These series differ only in the internal migration assumptions. The two sets of projections available are as follows:

Description of the Projections Models

- 1) Series A, the Preferred Series, is a time-series model and uses State-to-State migration observed from 1975 to 1976 through 1993 to 1994, and
 - 2) Series B, the Economics Model, uses the Bureau of Economic Analysis (BEA) employment projections.[9]
-

Users are likely to choose the demographic series - the time series - due to the series stability, long-term inertia, and no need for economic assumptions. However, there is no definitive set of projections and the economic model is an alternative. Given the sensitivity of internal migration to changes in economic conditions, internal migration changes can be rapid and sizable. Identifying a preferred series along with an alternative series, reflects a process of evaluating State population projection models used in previous Census Bureau State population projections.

The "Domestic Migration" section gives a detailed description of the two series. In the projections, race is cross classified by Hispanic origin and not of Hispanic origin. The Hispanic origin migration is based on domestic migration data only available for the 1988 to 1989 through 1993 to 1994 period. Unless otherwise noted, the discussion in this report refers to the preferred series.

Major Changes from the Last Report

Many trends described here are substantially different from those shown in the previous projections.[10] These differences are primarily due to the complete implementation of the 1990 census base, the use of more race/ethnic detail, and the changes in national population projections used as controls for these projections (see Current Population Reports, P25-1111 and P25-1130, for further information).

PROJECTED POPULATION TRENDS

The projections of State population by age, sex, race, and Hispanic origin shown in this report result from the methodology and detailed assumptions about each component of population change presented in the methodology section of this report.

Comparison of Series

The summary of regional projections provided in table A shows the range of results when comparing the preferred with the alternative series.

Table A. Comparison of Population Projections by Region
and Series: 1995 to 2025

(As of July 1. Series A and B reflect different interstate migrations assumptions.)

| Series and region | Percent of total | | | Average annual percent change | |
|-------------------|------------------|------|------|-------------------------------|-----------|
| | 1995 | 2000 | 2025 | 1995-2000 | 1995-2025 |
| Series A | | | | | |

| | | | | | |
|---------------|-------|-------|-------|-----|-----|
| United States | 100.0 | 100.0 | 100.0 | 0.9 | 0.9 |
| Northeast | 19.6 | 19.0 | 17.1 | 0.2 | 0.4 |
| Midwest | 23.5 | 23.1 | 20.7 | 0.5 | 0.4 |
| South | 35.0 | 35.5 | 36.2 | 1.2 | 1.1 |
| West | 21.9 | 22.4 | 26.0 | 1.3 | 1.7 |
| Series B | | | | | |
| United States | 100.0 | 100.0 | 100.0 | 0.9 | 0.9 |
| Northeast | 19.6 | 19.0 | 16.8 | 0.3 | 0.3 |
| Midwest | 23.5 | 23.1 | 21.6 | 0.6 | 0.6 |
| South | 35.0 | 35.6 | 37.0 | 1.3 | 1.2 |
| West | 21.9 | 22.3 | 24.6 | 1.3 | 1.4 |

Source: U.S. Bureau of the Census, Population Division, PPL-47, table 1.

Under both series, the South would continue to be the most populous region. More than one-third of the total United States population is projected to reside in the South during the 1995 to 2025 period under both series. Both series show net population gains in every region over the 30 years. However, growth in the South and West are rapid and above the national average. The population of the Northeast and Midwest decline as a share of the Nation's total population.

A summary comparison of the relative ranking of the State population size in the years 1995 and 2025 under the two projection series are provided in table B.

Table B. Projections of the Top 10 States, Ranked by Population
Size: 1995 and 2025

(In million. As of July 1. Series A and B reflect different interstate migration assumptions.)

| 1995 Series A & B | | | 2025 Series A | | 2025 Series B | |
|----------------------|--------------|------|------------------|------|------------------|------|
| Rank | State | Pop. | State | Pop. | State | Pop. |
| 1 | California | 31.6 | California | 49.3 | California | 41.5 |
| 2 | Texas | 18.7 | Texas | 27.2 | Texas | 28.2 |
| 3 | New York | 18.1 | Florida | 20.7 | Florida | 20.1 |
| 4 | Florida | 14.2 | New York | 19.8 | New York | 19.4 |
| 5 | Pennsylvania | 12.1 | Illinois | 13.4 | Illinois | 13.7 |
| 6 | Illinois | 11.8 | Pennsylvania | 12.7 | Pennsylvania | 12.9 |
| 7 | Ohio | 11.2 | Ohio | 11.7 | Ohio | 12.3 |
| 8 | Michigan | 9.5 | Michigan | 10.1 | Georgia | 11.0 |
| 9 | New Jersey | 7.9 | Georgia | 9.9 | Michigan | 10.4 |
| 10 | Georgia | 7.2 | New Jersey | 9.6 | North Carolina | 9.9 |

Pop. refers to population (in millions).
Source: U.S. Bureau of the Census, Population Division, PPL-47, table 1.

The relative ranking of population size of States varies under the two projection series. The first seven of the top 10 most populous States follow the same rank order under both series in 2025. California would continue to be the most populous State, however, growth is much slower under Series B. Among the top 10 most populous States, the 2025 projection totals are higher for more States in Series B than Series A.

A summary of the State projections results in table C shows a comparison of the fastest growing States in the first and last quinquennials covered in the preferred and alternative projection series.

Table C. Projections of the 10 Fastest Growing States
Ranked by Percent Growth for Each Series:
1995 to 2025

(Series A and B reflect different interstate migration assumptions).

| Period and rank of percent popu- lation growth | Series A | Series B |
|--|----------|----------|
| 1995 to 2000 | | |

| | | |
|--------------|----------------------|----------------------|
| 1 | Nevada | Nevada |
| 2 | Idaho | Arizona |
| 3 | Arizona | Idaho |
| 4 | Utah | Utah |
| 5 | Colorado | Colorado |
| 6 | New Mexico | New Mexico |
| 7 | Wyoming | Georgia |
| 8 | Georgia | North Carolina |
| 9 | Oregon | Oregon |
| 10 | Montana | Wyoming |
| 2020 to 2025 | | |
| 1 | California | New Mexico |
| 2 | Hawaii | Arizona |
| 3 | New Mexico | Utah |
| 4 | Texas | District of Columbia |
| 5 | Alaska | Alaska |
| 6 | Florida | Texas |
| 7 | Arizona | Hawaii |
| 8 | Washington | California |
| 9 | District of Columbia | Idaho |
| 10 | Oregon | Georgia |
| 1995 to 2025 | | |
| 1 | California | Nevada |
| 2 | New Mexico | Arizona |
| 3 | Hawaii | Utah |
| 4 | Arizona | Idaho |
| 5 | Nevada | New Mexico |
| 6 | Idaho | Colorado |
| 7 | Utah | Georgia |
| 8 | Alaska | Texas |
| 9 | Florida | Wyoming |
| 10 | Texas | Florida |

States ranking include the District of Columbia.
Source: U.S. Bureau of the Census, Population Division, PPL-47, table 1.

The rankings of the fastest growing States by series vary by selected projection periods. In both Series A and B, and in both the 1995 to 2000 and 2020 to 2025 periods, Arizona and New Mexico are the only States consistently among the top 10 fastest growing States. Although the District of Columbia is projected to be among the 10 fastest growing on Series A and B for the 2020 to 2025 period, it ranked 51st during 1995 to 2000. A more detailed comparison of the rate of population change, for regions, divisions, and State is provided in table 6.

The domestic migration assumptions accepted in these projections account for much of the dramatic shifts in population growth. For a discussion on the migration assumptions see the methodology section.

[Size and Growth of the Total Population](#)

In the following sections, projection results are only presented for Series A (labelled preferred series). A brief discussion beginning with some short term results, those that cover 1995 to 2000, followed by long term results covering the 30 years ending in 2025. Results are shown for regions and States. The short term results are likely to be more accurate than the long term projections. For a discussion on the decline in accuracy over the projection horizon, see the section on "Forecast Error in Past Projections". A long term summary of trends is provided for users who need lengthier projections.

Regional Population Growth. The South and West regions combined are projected to account for 80 percent of the 12 million persons added to the Nation's population between 1995 and 2000. States in those two regions accounted for 84 percent of the growth during the 1980's. The average annual change of more than one percent for each of these regions is above the national average of 0.9 percent. During the late 1990's international migration is expected to play a dominant role in the population growth of the West, while both international and domestic migration will be important contributors to growth of the South. The South is the only region to show a net gain in the number of domestic migrants. The slow population growth of the Northeast and Midwest is attributed to net internal out-migration to other regions (see section on "Components of Population Change" below for details).

The fast growth projected for the initial five years in the South and West appears also for the long term. Over the next 30 years the West is projected to grow nearly twice the national average, while the Northeast and Midwest

grow at one-half the U.S. total rate (see table A). Growth in the South is expected to be slightly above the national average.

During the 1995 to 2025 period, the South and West are each expected to increase by more than 29 million persons. The South and West combined are projected to account for 82 percent of the 72 million persons added to the Nation's population over the next 30 years. This is essentially a continuation of trends began during the 1980's when the South and West accounted for 84 percent of the 22 million persons added to the Nation's population.[11] The Midwest is projected to add 7 million persons during the period 1995 to 2025, while the Northeast adds approximately 6 million persons.

The South will continue to be the most populous region of the Nation during the next 30 years. The Midwest, the second most populated region in the Nation in 1995, switches places with the third most populated region, the West, by 2005. Factors that contribute to the rapid growth or decline in regions are discussed below in the "Components of Population Change" section.

State Population Growth. California, the most populous State, contained 12 percent of the Nation's population in 1995. By 2025, California is expected to have 15 percent of the Nation's population, see table B. From 1995 to 2025 California adds 17.7 million people (equivalent to nearly the current population of New York State). Besides natural increase, international migration is expected to account for California's rapid growth, see table 2 and the "State Components of Change" section.

In the year 2025, eight percent of the Nation's population is projected to reside in Texas compared to six percent in New York. Florida is projected to replace New York as the third populous after 2015, while Illinois replaces Pennsylvania in fifth place by 2005. Wyoming, with the smallest share of the Nation's inhabitants now (0.2 percent), will be replaced by the District of Columbia shortly before the year 2000.

The rate of population change among the 50 States and the District of Columbia will vary during the late 1990's (see table 6). Nevada is expected to have the most rapid growth (22 percent from 1995 to 2000) with the District of Columbia at the other end of the continuum with population loss (-6 percent). The most rapid rate of change is projected for the Mountain States (with the rate of population change ranging from 9 to 22 percent during the 1995 to 2000 period, see table 6). Georgia is the only other State with a projected rate of population change of nine percent or greater during this period.

After 2000, the rate of population change for the States will decline substantially for each quinquennial period, see table 6. For example, during the 1995 to 2000 period, 25 States are projected to have their of population increase by 5 percent or more, compared with only six States during the 2020 to 2025 period.

The District of Columbia, with the least growth during the 1995 to 2000 period, is expected to show a reversal of trends (from a rate of population change at -6 percent during the 1995 to 2000 period to nearly 5 percent during 2020 to 2025). The District of Columbia's turn-around in growth is due to the projected decline of internal out-migration.

California is expected to be the fastest growing State from 1995 to 2025 (56 percent). The first eight of the fastest growing States are Western States (see table C).

Components of Population Change

Regional Components of Change. The South is projected to have more births (43 million) and deaths (32 million) in the population than any of the other three regions during the 1995 to 2025 period, see table 3. The West ranks second among the regions with the most births (36 million), and at the bottom with the smallest number of deaths (17 million).

Migration is projected to play a major role in regional differences in growth during the 30 year period. The South is projected to have the largest gains from net internal migration, while the Northeast and Midwest expect losses. Nevertheless, the losses through internal out-migration for these regions are projected to balance out due to gains from immigration, see table 2.

Over the 1995 to 2025 period, population growth in the South is projected to increase rapidly. The components

of this rapid change are high rates of natural increase (many births minus few deaths)[12], high net internal in-migration, and high immigration. Most of the growth in the West is projected to be due to natural increase and net immigration. Net internal migration is projected to be marginally negative in the West (-0.4 million).

State Components of Change. *Table D shows the top five States with the largest components of population change for the period 1995 to 2025.*

| | | | | | | |
|---|------------------------------------|--------|-----------------------------------|--------|--------------------|--------|
| Table D. Top Five States with the Largest Components of Population Change: 1995 to 2025 | | | | | | |
| (In thousands. As of July 1.) | | | | | | |
| Rank | -----Births----- | | -----Deaths----- | | -Natural increase- | |
| | State | Number | State | Number | State | Number |
| 1 | California | 22,035 | California | 8,248 | California | 13,787 |
| 2 | Texas | 11,403 | Florida | 5,829 | Texas | 5,727 |
| 3 | New York | 8,117 | Texas | 5,676 | New York | 2,519 |
| 4 | Florida | 6,169 | New York | 5,598 | Illinois | 2,090 |
| 5 | Illinois | 5,672 | Pennsylvania | 4,301 | Georgia | 1,231 |
| Rank | -----State-to-State migration----- | | -----International migration----- | | | |
| | ---Net gains----- | | ---Net losses----- | | | |
| | State | Number | State | Number | State | Number |
| 1 | Florida | 3,879 | New York | -5,038 | California | 8,725 |
| 2 | Texas | 1,730 | California | -4,429 | New York | 3,886 |
| 3 | North Carolina | 1,295 | Illinois | -1,699 | Florida | 1,856 |
| 4 | Georgia | 953 | Michigan | -1,122 | New Jersey | 1,201 |
| 5 | Washington | 931 | Massachusetts | -815 | Illinois | 1,037 |
| Rank | Net population change | | | | | |
| | State | Number | | | | |
| 1 | California | 17,696 | | | | |
| 2 | Texas | 8,459 | | | | |
| 3 | Florida | 6,544 | | | | |
| 4 | Georgia | 2,669 | | | | |
| 5 | Washington | 2,377 | | | | |

Note: These components do not include the adjustments to bring the sum of the State projections by age, sex, race and Hispanic origin population into agreement with the national population projections. Thus the net sum of the components will not equal the net change in population.

Source: U.S. Bureau of the Census, PPL-47, table 2.

During the 1995 to 2025 period, five States are projected to have 5 million or more births: California, Texas, New York, Florida, and Illinois. Four of these States will have 5 million or more deaths: California, Florida, Texas, and New York. Among the five States, California and Texas are expected to have twice as many births as deaths. Furthermore, California and Texas alone are projected to account for 46 percent of the Nation's growth from natural increase.

During 1995 to 2025, West Virginia (with 160,000 more deaths than births) is expected to be the only State to have a deficit of births, see table 2. However during 2020 to 2025, five other States are projected to have more deaths than births (Arkansas, Kentucky, Alabama, Maine, and Montana).

Three States will gain one million or more persons over the 30 year period through net internal migration: Florida with nearly 4 million; and both Texas and North Carolina with more than 1 million. Georgia and Washington had slightly less than 1 million. New York, California, Illinois, and Michigan will lose at least one million, see table D.

California is projected to add the largest number of international migrants (more than 8 million). This would be more than one-third of the immigrants added to the Nation's population over the 30 year period. Other States projected to have major gains of a million or more persons from immigration are New York, Florida, New Jersey,

Illinois, and Texas, see table D.

Table E summarizes the top 10 State with the largest net population gains and shows the few States where most of the growth will occur for the nation over the 30 year period.

| Table E. Top 10 States with the Largest Net Population Gains: 1995 to 2025 (In thousands.) | | | | |
|---|--|--|--|--|
| Rank | -----1995 to 2000----- State Population | -----1995 to 2025----- State Population | | |
| 1 | Texas 1,395 | California 17,696 | | |
| 2 | Florida 1,068 | Texas 8,459 | | |
| 3 | California 932 | Florida 6,544 | | |
| 4 | Georgia 674 | Georgia 2,699 | | |
| 5 | North Carolina 582 | Washington 2,377 | | |
| 6 | Arizona 580 | Arizona 2,195 | | |
| 7 | Washington 427 | North Carolina 2,154 | | |
| 8 | Colorado 422 | Virginia 1,848 | | |
| 9 | Tennessee 401 | New York 1,694 | | |
| 10 | Virginia 379 | New Jersey 1,613 | | |
| Source: U.S. Bureau of the Census, PPL-47, table 1. | | | | |

Over the next three decades, the net population change[13] will be most evident in 7 States gaining more than 2 million persons (California, Texas, Florida, Georgia, Washington, Arizona, and North Carolina). They will account for 58 percent of the net population change in the United States. The net population change for California, Texas, and Florida combined is expected to account for 45 percent of the Nation's total growth during this period.

Race and Hispanic Origin

This is the first State projection report to show separate race and Hispanic origin results that are additive or sum to the State totals. The descriptive analysis provided in this report covers the following five groups: White (refers to non-Hispanic White), Black (refers to non-Hispanics Black), American Indian (refers to non-Hispanic American Indian, Eskimo, and Aleut), Asian (refer to non-Hispanic Asian and Pacific Islander), and Hispanics origin.[14] The four non-Hispanic race groups plus the Hispanic origin group sum to the States totals.[15]

Regional Growth of Race and Hispanic Origin Groups. *Tables F, G, and H provides summaries of population growth by region and race/Hispanic origin over the 30 year period.*

| Table F. Population Change of Regions by Race and Hispanic Origin: 1995 to 2025 (In thousands.) | | | | | | |
|--|--------|---|--------|-----|--------|--------|
| Year and region | Total | -----Non-Hispanic----- White Black American Indian Asian Hispanic origin | | | | |
| U.S. | 72,295 | 15,594 | 11,920 | 812 | 11,970 | 31,999 |
| Northeast | 5,927 | -2,074 | 1,495 | 32 | 2,319 | 4,155 |
| Midwest | 7,306 | 1,825 | 1,857 | 194 | 1,132 | 2,298 |
| South | 29,558 | 10,407 | 7,642 | 199 | 1,792 | 9,518 |
| West | 29,504 | 5,436 | 926 | 387 | 6,727 | 16,028 |
| Source: U.S. Bureau of the Census, Population Division, PPL-47, Preferred Series, PPL-47, table 3. | | | | | | |

| Table G. Percent Distribution of Population Gains of Race and Hispanic Origin Groups by Region: 1995 to 2025 | |
|--|--|
|--|--|

(In thousands.)

| Year and region | Total | -----Non-Hispanic----- | | | | |
|-----------------------|-------|------------------------|-------|--------------------|-------|--------------------|
| | | White | Black | American Indian | Asian | Hispanic origin |
| U.S. | 100.0 | *X | 100.0 | 100.0 | 100.0 | 100.0 |
| Northeast | 8.2 | *X | 12.5 | 3.9 | 19.4 | 13.0 |
| Midwest | 10.1 | *11.7 | 15.6 | 23.9 | 9.4 | 7.2 |
| South | 40.9 | *66.7 | 64.1 | 24.5 | 15.0 | 29.7 |
| West | 40.8 | *34.9 | 7.8 | 47.7 | 56.2 | 50.1 |

*Percentages do not add to 100 because of the declining size of the White population in the Northeast.
X Not applicable.
Source: U.S. Bureau of the Census, Population Division, PPL-47, Preferred Series, table 3.

Table H. Percent Distribution of Population Gains of Regions by Race and Hispanic Origin Groups: 1995 to 2025

(In thousands.)

| Year and region | Total | -----Non-Hispanic----- | | | | |
|-----------------------|-------|------------------------|-------|--------------------|-------|--------------------|
| | | White | Black | American Indian | Asian | Hispanic origin |
| U.S. | 100.0 | 21.6 | 16.5 | 1.1 | 16.5 | 44.3 |
| Northeast | *X | *X | *25.2 | *0.5 | *39.1 | *70.1 |
| Midwest | 100.0 | 25.0 | 25.4 | 2.7 | 15.5 | 31.4 |
| South | 100.0 | 35.2 | 25.8 | 0.7 | 6.1 | 32.2 |
| West | 100.0 | 18.4 | 3.1 | 1.3 | 22.8 | 54.4 |

*Percentages do not add to 100 because of the declining size of the White population in the Northeast.
X Not applicable.
Source: U.S. Bureau of the Census, Population Division, PPL-47, Preferred Series, table 3.

The White population, the largest of the five race/ethnic groups, is projected to be the slowest-growing among the groups during the 1995 to 2025 projection period. During this period, the White population is projected to account for more than one- sixth of the absolute increase in the Nation's population in all regions except in the Northeast (where this group declines in size). Sixty-seven percent of the 16 million Whites added to the U.S. population will be located in the South. After the year 2005, the West will replace the Northeast as the third largest region for the White population. The South is expected to continue to have the largest share of the Nation's White population.

Over the 30 years, the Black population is projected to be the second slowest-growing in all regions, except the South where it will rank third. Sixty-four percent of the nearly 12 million Blacks added to the United States during 1995 to 2025 will be in the South.

In 1995, the Black population was the second most populous group in all regions but the West, where it ranks fourth. However due to the faster growth in the Hispanic origin population, by 2025, the proportion of Hispanics surpass the Black population share in the Northeast and the Nation.

The Asian population is the fastest-growing group in all regions. Asians are the fourth largest of the race and Hispanic origin groups in all regions except the West where they rank third. The Asian population is projected to have the greatest gains in the West with an increase of 7 million persons (56 percent of the total added to the U.S. Asian population during 1995 to 2025) and in the Northeast with an increase of 2 million.

The American Indian population, the least populous group, is projected to be the third fastest-growing population in all regions but the South during 1995 to 2025 where it ranked fourth. Nearly half of the 0.8 million American Indians added to the Nation's American Indian population will be located in the West.

The Hispanic origin population is projected to increase rapidly over the 1995 to 2025 projection period,

accounting for 44 percent of the growth in the Nation's population (32 million Hispanics out of a total of 72 million persons added to the Nation's population). The Hispanic origin population is the second fastest-growing population, after Asians, in every region over the 30 year period.

In 1995, the Hispanic origin population is the third most populous race/ethnic group in all regions except the West where it ranks second. The Hispanic population is expected to comprise a substantially larger share of the total population in 2025 than in 1995 -- up from 21 to 32 percent in the West, from 9 to 15 percent in the South and Northeast, and from 3 to 6 percent in the Midwest.

State Growth of Race and Hispanic Origin Groups. In 1995, States with the largest share of the Nation's Whites were California, New York, Texas, Pennsylvania, and Florida. Among these five States in 2025 only Texas and Florida are projected to have a larger share of the Nation's White population than in 1995 (compared to almost no change for California and decreases for New York and Pennsylvania).

Table I shows a summary comparison of the top five States with the largest population gains by race/Hispanic origin during the late 1990's and over the 30 year projection period. Table J identifies the five most populous States by race/Hispanic origin during 1995 and 2025.

Table I. Top Five States With the Largest Population Gains, Ranked by Race and Hispanic Origin: 1995 to 2025
(In thousands. As of July 1.)

| Period and rank | -----non-Hispanic----- | | | | | | | | Hispanic origin | |
|-----------------|------------------------|-------|-------|-------|-----------------|------|-------|-------|-----------------|--------|
| | White | | Black | | American Indian | | Asian | | | |
| | St. | Pop. | St. | Pop. | St. | Pop. | St. | Pop. | St. | Pop. |
| 1995 to 2000 | | | | | | | | | | |
| 1 | NC | 398 | GA | 258 | NM | 17 | CA | 626 | CA | 1,441 |
| 2 | FL | 395 | TX | 217 | OK | 16 | NY | 156 | TX | 702 |
| 3 | TX | 382 | FL | 195 | AZ | 15 | NJ | 99 | FL | 435 |
| 4 | GA | 344 | NC | 139 | MN | 8 | TX | 94 | NY | 264 |
| 5 | AZ | 318 | MD | 136 | MT | 8 | WA | 68 | AZ | 203 |
| 1995 to 2025 | | | | | | | | | | |
| 1 | FL | 2,186 | GA | 1,287 | NM | 116 | CA | 5,184 | CA | 12,025 |
| 2 | TX | 1,610 | TX | 1,277 | OK | 106 | NY | 982 | TX | 5,056 |
| 3 | WA | 1,323 | FL | 1,104 | AZ | 76 | NJ | 603 | FL | 2,990 |
| 4 | NC | 1,289 | MD | 695 | WA | 48 | TX | 498 | NY | 1,766 |
| 5 | GA | 1,052 | VA | 646 | MN | 46 | HI | 475 | AZ | 1,198 |

St. refers to State postal codes.
Pop. refers to population in thousands.
Persons of Hispanic origin may be of any race.
Source: U.S. Bureau of the Census, Population Division, PPL-47, table 3.

Table J. Top Five States With the Largest Population, Ranked by Race and Hispanic Origin: 1995 and 2025
(In thousands. As of July 1)

| Year and rank | -----non-Hispanic----- | | | | | | | | Hispanic origin | |
|---------------|------------------------|--------|-------|-------|-----------------|------|-------|-------|-----------------|--------|
| | White | | Black | | American Indian | | Asian | | | |
| | St. | Pop. | St. | Pop. | St. | Pop. | St. | Pop. | St. | Pop. |
| 1995 | | | | | | | | | | |
| 1 | CA | 16,630 | NY | 2,635 | OK | 257 | CA | 3,380 | CA | 9,206 |
| 2 | NY | 12,082 | TX | 2,189 | AZ | 217 | NY | 825 | TX | 5,173 |
| 3 | TX | 10,891 | CA | 2,184 | CA | 189 | HI | 704 | NY | 2,541 |
| 4 | PA | 10,474 | GA | 2,004 | NM | 140 | TX | 412 | FL | 1,955 |
| 5 | FL | 10,010 | FL | 1,964 | AK | 90 | NJ | 357 | IL | 1,090 |
| 2025 | | | | | | | | | | |
| 1 | CA | 16,626 | TX | 3,466 | OK | 363 | CA | 8,564 | CA | 21,232 |
| 2 | TX | 12,501 | GA | 3,292 | AZ | 292 | NY | 1,807 | TX | 10,230 |
| 3 | FL | 12,196 | FL | 3,067 | NM | 257 | HI | 1,179 | FL | 4,944 |
| 4 | NY | 10,585 | NY | 3,065 | CA | 183 | NJ | 960 | NY | 4,309 |
| 5 | PA | 10,181 | CA | 2,680 | WA | 136 | TX | 911 | IL | 2,275 |

St. refers to State postal codes.
Pop. refers to population in thousands.
Persons of Hispanic origin may be of any race.
Source: U.S. Bureau of the Census, Population Division, PPL-47, table 3.

Texas is the only State projected to rank among both the top five most populous States for Whites and the top five States with the largest net gain for the White population during 1995 to 2025. State with the largest net gains in rank order were Florida, Texas, Washington, North Carolina, and Georgia. Furthermore, Whites will have net population losses in 12 States.[16]

In 1995, New Mexico and Hawaii were the only States, along with the District of Columbia, to have 50 percent or less Whites (50, 30, and 28 percent, respectively). By the year 2000 California's White population is projected to drop below half the State's total population (48 percent in 2000 down from 53 percent in 1995).

The State of New York, with nearly 3 million Blacks, had the largest share of the Nation's Black population (8 percent) in 1995. Other States with large shares of the Nation's Black population are Texas, California, Georgia, and Florida. Texas (after 2005), Georgia (after 2010), and Florida (after 2020) are expected to have the largest population gains among Blacks and to replace New York as the State with the largest share of the Nation's Black population. More than one-third of the Nation's Black population is projected to reside in these five States by 2025.

During 1995, Oklahoma had the largest share of the Nation's American Indians (257,000 or 13 percent). The other leading States with the largest proportion of the Nation's American Indian population in rank order are Arizona, California, New Mexico, and Alaska. Rankings of the most populous American Indians States will change among the latter three States. American Indians are projected to have the largest population gains in New Mexico and Oklahoma and the largest loss in California between 1995 and 2025. By 2025, Oklahoma and Arizona still rank number one and two with the largest share of the Nation's American Indians. However, New Mexico moves ahead of California, and Washington moves up to be the fifth most populous State among American Indians. About 45 percent of the American Indian population is projected to reside in these five States by 2025.

Among the States, the largest share of the Nation's Asians are projected to continue to reside in California. In 1995 39 percent of the Nation's nearly nine million Asians lived in California. Other States with high proportions of the Nation's Asian population in rank order are New York, Hawaii, Texas, and New Jersey. In 2025, California, with an expected 41 percent of the Nation's 21 million Asians, is expected to remain number one with the largest share, followed by New York, Hawaii, New Jersey, and Texas. Together these States will account for more than half of the Nation's Asian population in 2025.

In 1995, 74 percent of the Nation's Hispanics reside in five States. California with 9 million will have the largest share of the Nation's Hispanic population followed by Texas, New York, Florida, and Illinois. California's Hispanic population will more than double over the projection period (21 million and represents 36 percent of the total Hispanic population in 2025). While Texas will remain in second place with 17 percent of the Hispanics in 2025, New York is expected to decline from 9 to 6 percent and is expected to switch from third to fourth place with Florida. Illinois will remain in fifth place.

Age Distribution
Youth Population. *Table K summaries the regional changes in the proportion of youth, adult, and elderly over the 30 year period. Shifts in the age distributions will be fairly stable between 1995 and 2010, however, after 2010 there will a rapid increase in the percent elderly as the share of the adult population declines in all regions.*

Table K. Percent Distribution of the Population by Age and Region: 1995, 2010, and 2025

(As of July 1.)

| Year and region | Totals | Under 20 years | 20 to 64 years | 65 years and over |
|-----------------|--------|----------------|----------------|-------------------|
|-----------------|--------|----------------|----------------|-------------------|

| | | | | |
|---------------|-------|------|------|------|
| 1995 | | | | |
| United States | 100.0 | 28.8 | 58.4 | 12.8 |
| Northeast | 100.0 | 26.9 | 58.9 | 14.2 |
| Midwest | 100.0 | 29.0 | 57.9 | 13.1 |
| South | 100.0 | 28.8 | 58.5 | 12.7 |
| West | 100.0 | 30.4 | 58.3 | 11.3 |
| 2010 | | | | |
| United States | 100.0 | 27.4 | 59.4 | 13.2 |
| Northeast | 100.0 | 26.2 | 60.1 | 13.7 |
| Midwest | 100.0 | 26.9 | 59.5 | 13.6 |
| South | 100.0 | 26.6 | 59.6 | 13.8 |
| West | 100.0 | 29.8 | 58.5 | 11.7 |
| 2025 | | | | |
| United States | 100.0 | 26.8 | 54.7 | 18.5 |
| Northeast | 100.0 | 25.8 | 56.0 | 18.2 |
| Midwest | 100.0 | 26.1 | 54.8 | 19.1 |
| South | 100.0 | 25.3 | 54.7 | 20.0 |
| West | 100.0 | 29.9 | 54.0 | 16.1 |

Source: U.S. Bureau of the Census, Population Division, PPL-47, table 4.

Over the 30 year period, the Nation's youth population (ages 0 to 19 years) is projected to decline as a fraction of the total population. In 1995, the Nation's youth was 29 percent of the total population. A drop of two percentage points in the youth rate is expected over the three decades. During 1995 to 2025, all regions are expected to show a decline in the proportion of the population that is under 20 years of age. In 2025, the West (with a slight decline in the proportion of youth) will continue as the leader with the greatest proportion of population under 20 years of age, followed by the Midwest, and Northeast. The South will have the smallest proportion of youth.

All States follow the national and regional trends during the 1995 to 2025 period. Most States show a decline in the proportion of population that is under 20 years of age. The exceptions are projected to be California, Hawaii, New York, Rhode Island, and the District of Columbia. In 2025, Alaska is the State with the highest proportion of its population under 20 years of age (34 percent), followed by California (33 percent). States projected to have the smallest proportion of population under age 20 are West Virginia and Florida (both with 21 percent).

Elderly Population. As the Baby Boom generation (those born between 1946 and 1964) reaches retirement age after 2010, the percentage of the population that is elderly will increase rapidly in the South and Midwest. Between 1995 and 2010 the proportion of elderly is expected to increase slightly in all regions, but the Northeast which will show a decline. After 2010, the proportion of elderly will increase rapidly as the share of the adult population declines.

The size of the elderly population is projected to increase in all States over the 30 years. During this period California and Florida would continue to rank first and second, respectively, in having the largest number of elderly. While New York and Pennsylvania ranked third and fourth, respectively in 1995, they are expected to drop to fourth and fifth place, by the year 2025. Texas would move from fifth place in 1995 to third place by the year 2025.

Although Alaska is projected to have the least elderly among the States over most of the 30-year period, it will have a high annual average increase in the elderly population (3.8 percent). In Alaska, the number of elderly persons is expected to triple over the 30-year period. By the year 2025 it ties with the District of Columbia for the least elderly population.

The population 65 plus is expected to double in the top seven States with the fastest-growing elderly population. The States with the most rapid growth of the elderly population in rank order are: Alaska, Utah, Idaho, Colorado, Nevada, Wyoming, and Washington. These States are projected to have an average annual rate of change for the elderly that ranges from 5.1 to 6.9 percent between 1995 and 2025. About half the States are expected to have an average annual rate of change at 3 percent or greater during 1995 to 2025.

The aging of the Baby Boom population after 2010 will have a dramatic impact on the growth of the elderly population. By the year 2025, the survivors of the Baby Boom will be between the ages of 61 and 79. The average annual rate of change in the proportion of population 65 years and over for States shows only minor growth or loss during the periods 1995 to 2010. During the period 2010 to 2025 all States shows a rapid acceleration in the growth of the elderly population.

In 1995, Florida had the largest proportion of elderly (19 percent) of any State, and Alaska had the smallest at 5 percent. By 2025, Florida (with 26 percent) would remain the leading State with more than a quarter of its population classified as elderly. Alaska would still rank as the youngest with 10 percent. To further illustrate the rapid growth in elderly populations, only four States had at least 15 percent of their population in the elderly category in 1995. By 2025, that number would grow to 48 States. Only Alaska (10 percent), California (13 percent), and the District of Columbia (14 percent) would not meet this level. Between 1995 and 2025 the number of elderly are projected to double in 21 States.

Dependency Ratio. *Table L shows the range of variation between the five highest and lowest dependency ratios for States 1995 and 2025. Utah, Idaho and Arizona are the only States consistently among the top five with the highest ratios over the projection period, while Virginia and Maryland are consistently among the lowest five.*

Table L. Ratio of Youth and Elderly Per 100 Adults, Five Highest and Five Lowest States: 1995 and 2025

| Rank of top five States with highest and lowest ratio | -----1995----- | | -----2025----- | |
|---|----------------------|-------|----------------|-------|
| | State | Ratio | State | Ratio |
| 1 | Utah | 90.1 | Utah | 97.7 |
| 2 | South Dakota | 84.5 | North Dakota | 96.5 |
| 3 | Idaho | 80.9 | Montana | 95.3 |
| 4 | Florida | 80.6 | Arizona | 94.5 |
| 5 | Arizona | 79.3 | Idaho | 94.1 |
| ... | | | | |
| 47 | Alaska | 65.1 | Georgia | 76.0 |
| 48 | Colorado | 63.8 | New Hampshire | 75.8 |
| 49 | Maryland | 63.8 | New Jersey | 75.0 |
| 50 | Virginia | 61.7 | Virginia | 73.9 |
| 51 | District of Columbia | 57.6 | Maryland | 73.4 |

Ratio of youth (under age 20) and elderly (ages 65 and over) per 100 adults aged 20 to 64.
Source: U.S. Bureau of the Census, Population Division, PPL-47, table 4.

The dependency ratio indicates the number of youth (under age 20) and elderly (ages 65 and over) there would be for every 100 people of working ages (20 to 64 years). In 1995, the dependency ratio for regions ranged from 70 to 73 per 100. By 2025 all regions show an increase in the dependency ratio, while the range among the regions widens. The West would have the highest dependency ratio (85 per 100 adults). Both the South and Midwest, are projected to have the mid-range dependency ratios (83 per 100 adults), while the Northeast (79 per 100 adults) has the smallest.

During 1995, the dependency ratio varied greatly, ranging from 90 per 100 in Utah to 58 per 100 in the District of Columbia. By 2025, the majority of the Baby Boomers will have joined the elderly population the dependency ratios increase for all State and the range of variation narrows. Utah is projected to have the highest ratio, 98 per 100, while Maryland will have the lowest, 73 per 100. Generally, States with the highest dependency ratios have slightly more than half their population in the adult age group and the remaining proportion in the youth and elderly categories.

DETAILED METHODOLOGY
Overview

The 1995 to 2025 State population projections were prepared using a cohort-component method. Each component of population change --- births, deaths, State-to-State migration flows, international in-migration, and international out-migration --- was projected separately for each birth cohort by sex, race, and Hispanic origin. The race/ethnic groups projected were non-Hispanic White; non-Hispanic Black; non-Hispanic American Indian[17]; non-Hispanic Asian[18]; Hispanic White; Hispanic Black; Hispanic American Indian; and Hispanic Asian (see Appendix C for

detailed definitions). The basic framework was the same as in past Census Bureau projections.[19] Detailed components necessary to create the projections were obtained from vital statistics, administrative records, census data, and national projections.

The cohort-component method is based on the traditional demographic accounting system:

$$P1 = P0 + B - D + DIM - DOM + IIM - IOM$$

where:

P1 = population at the end of the period
 P0 = population at the beginning of the period
 B = births during the period
 D = deaths during the period
 DIM = domestic in-migration during the period
 DOM = domestic out-migration during the period
 (Both DIM and DOM are aggregations of the State-to-State migration flows)
 IIM = international in-migration during the period
 IOM = international out-migration during the period

To generate population projections with this model, we first created separate data sets for each of these components. The assumptions and procedures by which these data were generated by single year of age, sex, race, and Hispanic origin are described in the following sections. In general, the assumptions concerning the future levels of fertility, mortality, and international migration are consistent with the assumptions developed for the national population projections released by the Census Bureau.[20]

Once the data for each component were developed, it was a relatively straightforward process to apply the cohort-component method and produce the projections. For each projection year the base population for each State was disaggregated into race and Hispanic origin categories, by sex, and single year of age (ages 0 to 85+). Classifying race by Hispanic origin results in eight race/ethnic groups: four Hispanic race groups and four non-Hispanic race groups. The components of change are individually applied to each group to project the next year's population. The next step was to survive each age-sex-race/ethnic group forward one year using the pertinent survival rate. The internal redistribution of the population was accomplished by applying the appropriate State-to-State migration rates to the survived population in each State. The projected out-migrants were subtracted from the State of origin and added to the State of destination (as in-migrants). Next, the appropriate number of immigrants from abroad were added to each group. The populations under one year of age were created by applying the appropriate age-race-specific birth rates to females of childbearing age. The number of births by sex and race/ethnicity were survived forward and exposed to the appropriate migration rate to yield the population under one year of age. The final results of the projection process were adjusted to be consistent with the national population projections by single years of age, sex, and race/ethnicity. The entire process was then repeated for each year of the projection. A complete discussion of each component follows.

Base Population

The base population of these projections is the estimate of the July 1, 1994 resident population of States by sex, single years of age, and race/ethnicity.[21] The race categorization from the 1990 census used in these projections was different from those used for census publications. The census counts were modified by age, race, and sex to correct for age misreporting and the reporting of an "Other" or unspecified race in the 1990 census.[22] A set of projections were prepared for each of the race/ethnic groups by single year of age and sex. The race/ethnic groups, by age and sex (non-Hispanic White, non-Hispanic Black, non-Hispanic American Indian, non-Hispanic Asian, Hispanic White, Hispanic Black, Hispanic American Indian, and Hispanic Asian) sum to the State totals. The initial estimates of State populations by race and Hispanic origin for July 1, 1994 are consistent with the resident population of the United States by sex, race, Hispanic origin, and single years of age.[23]

Fertility

Assumptions. Projections of births occurring in each State are based upon 1) the projected number of females of childbearing age in each State, and 2) an assumption on the rate at which these women will bear children. The first step for each projection year was to develop an approximation of the female population exposed to the possibility of childbearing. This involves averaging 1) the female population of each race/ethnic group by single years of age from

age 14 through 49 at the beginning of the year, and 2) the same population projected for the next year.[24]

The next step in the projection process was the development of the appropriate age-race/ethnic-specific fertility rates (ARSFR) for each State. Assumptions about future levels of fertility used in these projections were consistent with the middle series fertility assumption used in the national population projections.[25] In general, the national projections assume a slight increase in the levels of fertility from a total fertility rate of 2.055 in 1995 to an ultimate level of 2.163 children per woman in the year 2025.[26] The national projections provide a set of annual age-race/ethnic-specific fertility rates for each projection year. Levels of fertility are assumed to slightly increase for Whites (from 1.984 children per woman in 1995 to 2.116 in 2025), Blacks (2.427 to 2.449), American Indians (2.151 to 2.163), slightly decrease for Asians (1.953 to 1.948), and remain constant for Hispanics (2.977). Fertility rates for 1995 and 2025 were assumed constant for non-Hispanic White (1.826 children per woman); non-Hispanic Black (2.398); non-Hispanic American Indian, Eskimo, and Aleut (2.114); non-Hispanic Asian and Pacific Islander (1.919).

The 1994 starting point births (to mothers, single years of age 14 to 49) by State of residence were based on an annual average of 1989 to 1993 births summed to the 1994 national births for 4 non-Hispanic race groups (non-Hispanic Whites, non-Hispanic Blacks, non-Hispanic American Indians, and non-Hispanic Asians) and all Hispanics race groups. Separate rates for Hispanics by race were not created. The final State births and corresponding 1994 female populations yield 5 sets of age-race/ethnic-specific fertility rates for each State. Existing differentials in State ARSFR's are assumed to remain constant throughout the projection period.

Projected births, by race/Hispanic origin. To project the State birth rates by single year of age forward to each year through 2025, annual changes in the projected national birth rates were applied to the individual State rates calculated in 1994. The results were annual projections of the age-race/ethnic-specific birth rates through the year 2025 for each State. The total number of projected births were calculated as the product of the State age-race/ethnic-specific birth rates times the appropriate female population. Once the number of births were obtained for each projection year, the national race/ethnic-specific sex ratio at birth was used to divide the births into males and females. This yields births for each race/ethnic-sex group during the projection year. As a final step, the number of births, by sex and race/ethnic group, were survived to the end of the year, and "migrated" from State-to-State and moved between the United States and abroad using the procedures described below. The results were the projected population under one year of age on July 1 of each projection year for every race/ethnic-sex group in every State.

Mortality

Assumptions. In brief, the overall mortality assumptions were similar to those used in the previous set of State population projections.[27] First, the initial survival rates were created. Next, the middle series of the national population projections were used to derive future trends in mortality for the States.

Data used to estimate and project the State survival rates in the State population projections model were as follows: (1) annual 1989 to 1993 deaths by State of residence, single years of age, for non-Hispanic Whites, non-Hispanic Blacks, non-Hispanic American Indians, non-Hispanic Asians, and Hispanics from NCHS;[28] and (2) 1994 and 2050 unabridged National life tables by sex for the total, non-Hispanic White, non-Hispanic Black, non-Hispanic American Indian, non-Hispanic Asian, and Hispanic populations created for the national population projections at the U.S. Bureau of the Census.[29] In the absence of recent life tables proxy survival rates were obtained by subtracting the 1989-93 age-sex-race/ethnic-specific death rates from one.

Projected survival rates. The assumptions about future levels of mortality used in these projections are consistent with the middle series mortality assumptions used in the national population projections. Those projections assume an increase in overall life expectancy from 75.9 years in 1995 to 79.1 years in 2025. National level projections provide annual estimates of survival rates for 1994 and annual projections of the survival rates by single years of age, sex, and race/ethnicity for each year from 1995 through 2025.

The data sources cited were used to estimate the base year 1994 survival rates by single year of age and sex for not Hispanic Whites, not Hispanic Blacks, not Hispanic American Indians, not Hispanic Asians, and Hispanic origin populations. In terms of future trends, the final step involved projecting the initial sets of 1994 State survival rates by single years of age, sex, race, and Hispanic origin from 1995 to 2025. To project the rates

forward, the projected annual change in the national survival rates by single years of age, sex, race, and Hispanic origin for each year 1995 to 2025 was applied to each set of State rates. Throughout the projection period, we assumed that the existing patterns of State differentials in mortality remain unchanged.

Puerto Rico survival and fertility rates. The 1993 life tables survival rates and 1992 age-specific fertility rates (ASFR's) are the starting point estimates used for the Puerto Rico component of the State projections. Figures are based on projections prepared by the International Programs Center (IPC).[30] The IPC Puerto Rico projections were based on the most recent vital statistics (1987-1993 registered deaths and 1987-1992 registered births), 1980 and 1990 censuses, 1987 official population estimates, and arrival and departure statistics.

The IPC 1993 mortality rates (abridged life table q_x values) were graduated[31] and used to derive unabridged life table survival rates (s_x). The final 1993 rates for Puerto Rico correspond to a life expectancy at birth of 70.6 years for males and 79.1 years for females.

The 1992 ASFR's in five age groups were split into single years of age using Sprague interpolation.[32] After application of the Sprague coefficients, which yields a slightly lower total fertility rate (TFR of 2.08 children per woman), the results were inflated prorata to yield the original TFR of 2.09 children per woman in 1992.

Projected trends in the Puerto Rico survival and fertility rates are based on the rate of change in the U.S. Hispanic rates projected for the 1995 to 2025 period.

International Migration

Assumptions. For this set of State population projections, foreign and domestic migration components were projected separately. In general, assumptions on the overall levels and the age, sex, and race/ethnicity distribution of the international migration components were consistent with the levels and distributions used in the most recent set of national projections issued by the U.S. Bureau of the Census.[33] The national middle series projections assumed a constant level of net international migration at an annual level of 820,000 to the end of the projection cycle. The level of net immigration assumed in 1994 estimated at the national level by race/ethnicity comprised 491,000 Whites, 90,000 Blacks, 4,000 American Indians, 235,000 Asians, and 350,000 Hispanics. There were 186,000 non-Hispanic Whites, 57,000 non-Hispanic Blacks, 1,000 non-Hispanic American Indians, and 226,000 non-Hispanic Asians.

The foreign migration component was further disaggregated into the following components: total foreign immigration, total emigration, and the flows of migrants between the United States and Puerto Rico. This annual net international migration assumption at 820,000 persons was comprised of 1,040,000 immigrants (which includes 685,000 legal immigrants, 115,000 refugee immigrants, 225,000 undocumented immigrants, 5,000 Puerto Rico immigrants, and 10,000 civilian citizens) and 220,000 emigrants.

The age, sex, and race/ethnic distribution of the various international migration components were based on the most recent data available. The composition of the emigrant population was based on the foreign born population enumerated in the 1990 census. Similarly, Puerto Rican migrants were distributed according to their age-sex pattern of net movement from 1990 census data for the period 1985-90. Once the overall level and the age, sex, and race distribution of each international migration component was determined, the components were distributed to each State, as described below.

Emigration. Rates of emigration were applied to the base population of each State to develop the number of emigrants leaving each State. The emigration rates were based on the assumption used in the national-level projections of 220,000 emigrants leaving the United States each year. The foreign born population comprises the largest share of the emigrant population. To compute the rates for each State, the distribution of 220,000 emigrants by age, sex, and race was allocated to States based on the distribution of the foreign-born population in the 1990 Census. Using this distribution as the numerator and the total 1990 population of each State as the denominator, a rate of emigration was calculated for each State. Although the rates of emigration were assumed to remain constant throughout the projection period, the number of emigrants from each State and the total numbers from the United States changed throughout the projection period because of the projected changes in the base population of each State.

Flows between United States and Puerto Rico. The retrospective migration question from the United States and Puerto Rico 1990 censuses provides information on place of residence five-years earlier by sex and single years of age.[34] Since the 1990 census for Puerto Rico excludes race and Hispanic origin characteristics, all Puerto Ricans were accepted as Hispanic Whites for these projections.[35]

Generally, the same procedures used to calculate the State-to-State migration flows (indirect standardization and smoothing) were used to derive the base projection year migration rates between the States and Puerto Rico. Puerto Rico-to-States movement are based on persons enumerated in the United States 1990 census, who lived in Puerto Rico five years earlier. The numerators for the Puerto-to-States rates are the age and sex distributions of persons enumerated in the States in 1990 who lived in Puerto Rico five years earlier. The denominators for both the Puerto Rico-to-States and States-to-Puerto Rico flows consist of Puerto Rico residents (nonmover, i.e., those in Puerto Rico both in 1990 and five years earlier) as enumerated in the 1990 Puerto Rico Census in addition to persons in the United States census in 1990 who moved to the United States from Puerto Rico five years earlier. The numerators for States-to-Puerto Rico movement are based on persons enumerated in the 1990 Puerto Rico census who lived in the States (and the District of Columbia) five years earlier. To annualize the 1985-90 Puerto Rico migration flows, the final rates (after indirect standardization and smoothing) were divided by five. The final migration rates for ages 5 to 90 years and older were accepted for ages 0 to 85 years and older.

In addition, since there were no current data to update this beginning set of rates, we assumed they remain constant throughout the projection cycle. Even so, the total number of persons moving between the United States and Puerto Rico changes throughout the projection period because of projected changes in the base population of each State and Puerto Rico.

Total foreign immigration. The remaining components of international migration consist of legal aliens, undocumented aliens, and the net movement of U.S. citizens. For convenience, we refer to this component as total foreign immigration. However, unlike the total emigration and Puerto Rico components of international migration which were sums of the calculations at the State level, the total number of foreign immigrants entering the United States was calculated prior to the distribution to each State. For these projections, the net international migration by age, sex, and race was assumed to equal the numbers used in the national projections. Given the national total and the projected emigrants and net movement between the United States and Puerto Rico already calculated in the model, the total number of foreign immigrants entering the United States was calculated as a residual.

The immigrant age-sex-race/Hispanic origin distribution are based on the foreign-born data from the 1990 census sample results. The population 5 years of age and older consists of persons born abroad (including at sea and abroad not specified), not of American parents, not U.S. citizens, and not in the military in 1990. The foreign born population was cross classified by State of residence in 1990 (including the District of Columbia); single years of age (for ages 5 to 85 and over); race/Hispanic origin; and those entering the U.S. between 1985 and 1990.

The distribution under 5 years of age was based on the foreign born population (which excludes those born in the States, District of Columbia, or U.S. outlying areas) cross classified by single year of age (0 to 4 years of age), sex, and race/Hispanic origin.

Once the projected foreign immigration to the United States was calculated, it was distributed to each State. Decennial census data includes both legal and undocumented immigrants and provides an adequate basis for distributing foreign immigration to States, by age, sex, race, and Hispanic origin in the projections.

Domestic Migration

Overview. In the last three sets of State population projections issued by the Census Bureau, we used a modified multi-state projection system. Multi-state projection or demographic accounting systems overcome many of the limitations of a net migration approach.[36] State-to-State migration data were used to model migration flows between States explicitly. The rate of moving from one origin State to one destination State was calculated and applied to the base population of the origin State. Using this approach in a projection system, the potential number of

in-migrants to a State were linked to the geographic as well as the age, sex, and race/ethnic distribution of the population. The use of State-to-State migration rates also ensured that the total for the nation of all projected internal out- and in-migration was zero, a necessary ingredient of any multi-state model.

Development of base year domestic migration rates. The 1990 census sample results are used to develop a set of beginning migration matrices consisting of annual State-to-State migration rates by age, sex, and race/ethnicity. The following discussion identifies (I) census migration data, (II) preliminary data evaluation, (III) smoothing, and (IV) standardization techniques used to develop State destination-age-sex-race/ethnic specific migration rates.

(I) Census Migration Data. Two questions from the census long form used to develop the migration rates were (14a) "Did this person live in this house or apartment 5 years ago (on April 1, 1985)?" and (14b) "Where did this person live 5 years ago (on April 1, 1985)?"[37] Currently, retrospective questions on migration status along with other demographic data from the decennial census are the most detailed information available to develop the initial State-to-State migration rates. In the future, we may be able to develop post-census estimates using annual administrative records. This would resolve some of the problems identified in the decennial State-to-State migration model, i.e., related to the long reference period, demographic changes in migration composition, age at time the move occurred, inability to identify return or repeat migration during the reference period, and increased probability of sampling error when infinite demographic characteristics are required.[38] Currently we can not address the issues mentioned above -- at best we attempt to compensate for possible bias through the use of a model schedule.

Census data used to create the 1985-90 State destination age-sex-race/ethnic specific migration rates were as follows:

- (1) The reported State of residence in 1990 for each State, and the District of Columbia,
- (2) By State of residence in 1985 (for each State, District of Columbia, Puerto Rico, American Samoa, Guam, Northern Marianas, U.S. Virgin Islands, and all else),
- (3) By age (single year of age from 5 to 100+),
- (4) By sex (male and female),
- (5) By race/ethnicity (White, Black, American Indian, and Asian classified by Hispanic origin, i.e., Hispanic White, non-Hispanic White, etc.),
- (6) Military status in 1990 (yes or no).[39]

(II) Preliminary data evaluation. The current round of State population projections has been refined to include even more detailed racial/ethnic characteristics. This requirement resulted in larger migration matrices than the previous projections, with numerous empty data cells.[40] Because of the level of detail needed to produce migration matrices for these projections, the original data were examined to avoid unrealistic single year of age estimates.

Initially, a subset of the complete data file was examined for the most populous State, California. Matrices were created for the population by single year of age, sex, race/ethnicity that resided in California on April 1, 1985, and had migrated by April 1, 1990 to each of the other 49 States or DC. Next the destination age-sex-race/ethnic specific rates were created by dividing the results for each State over the sum of all migrants and non-migrants for California in 1985 by age, sex, and race/ethnicity. These reported rates by single years of age appear to be erratic and are probably influenced by the infrequency of events and sampling bias. Since the reported rates did not appear to be acceptable across all characteristics, we decided to use smoothing techniques and indirect standardization to derive a set of State destination age-sex-race/ethnicity specific migration rates.

Due to the insufficient data when race/ethnicity are included in the migration matrices, unrealistic results or extremely erratic pattern can be obtained. To illustrate, it was difficult to accept the race details for the California-to-Alabama flow where we found only seven Black, Hispanic females and all were 42 years old.[41] Since annual IRS State-to-State flows are used to scale up or down the initial age patterns, accepting the reported race/ethnicity data (or fitting a curve to these data) assumes that only Black Hispanic females 42 years of age (or those centered around this age) would migrate from California-to-Alabama over the 30 year projection period. Alternatively, we accepted smoothed State of destination age distributions and used indirect standardization to obtain each set of State-to-State migration rates by age, sex, and race/ethnicity.

(III) Smoothing technique. Prior to smoothing, the State of destination age-specific rates were derived by dividing migrants in five-year age groups (i.e., 5 to 9, 10 to 14, etc.) for each State by all Californians in corresponding ages in 1985. Next each rate was multiplied by five. Finally, Sprague multipliers[42] were applied to estimate single year rates from the total five-year age group rates (from 5 to 9 years through 85 to 89 years, with 90 years and over as the terminal age group).

(IV) Indirect standardization technique. The standard population consisted of the pool of potential migrants in California (the sum of both Californian migrants and non-migrants) in 1985 by age, sex, and race/ethnicity. Each State pattern of destination age-specific migration rates are then multiplied by the standard which results in the expected number of migrants by age, sex, and race/ethnicity. Ratios for each sex and race/ethnic group were obtained by summing the reported number of migrants for each State by sex and race/ethnicity and dividing by the corresponding expected number of migrants for each State by sex and race/ethnicity. In the last step of indirect standardization, each State's ratio (of reported to expected population) by sex and race/ethnicity was multiplied by the corresponding State of destination pattern of age-specific migration rates to obtain State destination-age-sex-race/ethnic specific migration rates.[43]

The final single year of age rates are assumed to apply to the respondents ages five years younger, i.e., persons 10 years old in 1990 were five years old in 1985, 11 years old in 1990 were 6 years old in 1985, etc.[44]

The same process of smoothing and indirect standardization described for California and each State of destination were carried out for each of the other States for a grand total of 2,550 State-to-State flows.

In summary, State destination-age-sex-race/ethnic specific migration rates were derived by first smoothing reported State of destination age-specific migration rates then using indirect standardization to obtain more detailed results. Expected number of State-to-State migrants by age, sex, and race/ethnicity were obtained by applying each State of destination age-specific migration rate pattern to corresponding State of origin, age, sex, race/ethnicity distributions. The ratio of the reported to expected levels were used to inflate/deflate the expected State age-sex-race/ethnicity specific migration rates back to the reported figures. The total State-to-State pattern appears to be acceptable given the spurious and erratic nature of the detailed race/ethnicity data.

To annualize and adjust for the Internal Revenue Service (IRS) flows, the California State destination age-sex-race/ethnic specific rates were multiplied by the corresponding California 1990 midyear population and adjusted to sum to the 1990-91 California IRS migration flow (California IRS 1990-91 migration rates times the 1990 California population). A more detailed discussion of projecting IRS State-to-State flows are given in the next section.

Projecting State-to-State migration rates. The projection methodology required projecting the number of people entering and leaving each State by age, sex, and race/ethnicity for each year of the projection period. This involved a three step process. First, we projected the total State-to-State migration rates using the administrative data on migration from matched tax returns. Next, the beginning migration matrices were used to disaggregate the total migration rates by age, sex, and race/ethnicity. Finally, the migration flows entering and leaving each State were summed to produce the total in- and out-migration by age, sex, and race/ethnicity for each State.

The matched IRS tax returns data set contains 19 annual observations on each of the 2,550 State-to-State migration flows. The size and detail of this data set offer so many different options for projection models as to create a special type of problem. Because reliable, comprehensive data on migration have been so scarce in the past, professional researchers in this area have not yet developed any consensus as to the best method for projecting migration. Consequently, we were confronted with an overwhelming array of possibilities and have little guidance from the professional literature on making a selection. In an earlier set of projections issued by the Census Bureau, we dealt with this problem by using several different migration projection models and presenting the results as equally-likely alternatives.[45] While this approach served to emphasize the tentative nature of the methodology and offered users the opportunity to select the approach best suited to their own needs, it presented a problem for those who wished to use these projections as a standard, since we effectively presented them with two different standards.

Demographic time series projections. In our most recent projections we have featured a preferred series

(labelled Series A), which is based on the migration model that our research indicated was the best available (see model definition below for a description of the preferred and alternative series). This migration model was developed in the late 1980's by a research program conducted by the Census Bureau that proceeded in two phases. In the first phase we tested general models suggested by a variety of methodologies to find out what basic type of approach seemed most promising. The results of this phase suggested that a time-series approach was best.[46] Consequently, in the second phase, with the assistance of Edward Frees, we determined the precise form of time series model best suited for projecting State-to-State migration rates.[47] The time series model we developed can be expressed as:

$$i,jY_t = b * i,jY_{t-1}$$

where i,jY_t and i,jY_{t-1} represent, respectively, the first differences of the natural logarithms of the migration rates from State i to State j in time periods t and $t-1$, and b is a constant which is estimated by regression.[48]

Projection Models for Internal Migration

Model Definitions

- | | |
|----------|--|
| Series A | (Preferred Series) Time Series model; the first five projection years use the time series projections exclusively, over the next ten years the projections are interpolated toward the mean of the series, and the last 15 years use the mean exclusively; |
| Series B | Economics model; State-to-State migration flows are derived from the Bureau of Economic Analysis projected changes in employment in the origin and the destination. |
-

We evaluated the performance of models in earlier reports by withholding the most recent data and using the models to predict the withheld data. Since withholding too much data can adversely affect model performance and thus invalidate the comparison, the models of necessity were compared on their short-term performance (i.e., their ability to predict from one to five years out). While the time-series model we selected offers the best short-term projections, the predictive abilities of time-series models are known to deteriorate rapidly as the projection horizon lengthens. By contrast, the mean of the time-series does relatively poorly in the short-term but suffers little loss of accuracy as the projection horizon lengthens. Our research indicates that for projections ten or more years out the mean predicts more accurately than our time-series model. Consequently, we varied our migration projection model according to the length of the projection horizon. For the first five years we used the time-series model exclusively, for the next ten years we gradually phased in the mean so that by fifteen years out we use the mean exclusively. The projected rates were held constant at the mean values for the rest of the projection period. Simulations suggest that this approach produces reasonably accurate long term projections.

Economic based projections series. As in the last set of State projections, Series B is based on an economic model derived from work done for the Census Bureau by Michael Greenwood which treats migration as a function of employment conditions in the origin and the destination.[49] However, a new specification of the model has been developed for this set of projections which greatly improves its short-term accuracy. A crucial feature of the original specification was the indexing of each migration flow with indicator variables to account for intrinsic characteristics. This approach required us to treat migration at the division-to-division level, since employing this specification at the State-to-State level would require the use of more indicator variables than the data would support. The projected division-to-division flows were disaggregated into State-to-State flows based on the historic composition of the division-to-division flows. The specification used in the current set of projections relates the rate of change of migration to the rates of change of employment conditions. Because the specification deals with rates of change, there is no need to index factors which are constant; and since there is thus no need for indicator variables, the model may be specified in terms of State-to-State flows. This specification differs from the previous one in two other respects. A log-linear equation is used this time because research done on the time series model indicates that this approach lessens the impact of errors in the data. Also, the national employment variable which was used in the previous specification has been deleted from this one because it was shown to make no significant contribution in this specification. The new specification can be expressed as:

$$i,jY_t = b1*iE_t + b2*jE_t$$

where i,jY_t represents the first difference of the natural logarithm of the migration rate from State i to State j in time t and the b 's are constants estimated by regression as before, and iE_t and jE_t represent the first differences of the natural logarithms of the employment rates in State i and State j , respectively. As in the previous set of projections, we use projections of employment rates produced by the Bureau of Economic Analysis.[50]

In the previous set of projections, Series B showed an average error nearly twice that of Series A for short-term projections. In this set of projections, the short-term projection of Series B are very nearly as accurate as those of Series A. The long-term projections of Series B show migration patterns consistent with the economic projections of the Bureau of Economic Analysis.

Military movement. The current projections are for the resident population of each State. The 1994 population in the Armed Forces are included as residents at their duty station. Excluded are Armed Forces overseas (309,853 members). The national distribution of 1,409,443 members of the Armed Forces by age (single years of age 17 to 64 years), sex, race, and Hispanic origin was accepted as the pattern for each State, in the absence of detail subnational data. In other words, the total Armed Forces in each State was distributed prorata using the Armed Forces composition for the nation.

Similar to past projections, the military population in each State are held constant in size and age-sex-race-Hispanic origin composition throughout the projection period. Before starting each projection cycle, the military population in each State by single years of age, sex, race, and Hispanic origin is subtracted from the resident population. After the application of the mortality, fertility, international immigration and State-to-State migration rates, the military population is added back to the State population.

Adjustment to 1995 State Estimates by Age and Sex

Traditionally, State projections have always been totally consistent with or sum to the National projections. However, due to the publication lag between the National and State projections reports, new State estimates are usually available before the State projections are released. Assuming that the accuracy of most projections decline over the horizon, the overall accuracy of the current set of State projections were improved by controlling to the 1995 State estimates by age and sex. The 1995 results are still technically projections, since race and Hispanic origin estimates were not available. In other words, the States were first projected to 1995 by age, sex, race and Hispanic origin then the preliminary results were controlled to the less detailed State estimates age and sex distributions. Additionally, preliminary 1995 State projections, when compared with the State estimates, provides a gauge to evaluate the initial accuracy of the current projections.

Adjustment to National Projections by Age, Sex, Race, and Hispanic Origin

The final step in the projection model involves adjusting the sum of the State populations by age, sex, race and Hispanic origin to the middle series of the national population projections.[51] Although the State projections system was consistent with the projected national trends in fertility and mortality, the State population projections model incorporates State differentials in mortality and fertility. Thus, the total number of births and deaths calculated in the State projections system does not necessarily equal the numbers developed in the national projections system. The State populations by age, sex, and race/ethnic group in each projection series were adjusted to be consistent with the middle series national projections of the resident population which were census-level projections using the inflation-deflation procedure.[52] Therefore, the sum of the annual components of change shown in Table 2 may not agree with the annual changes in the total population. The difference between the figures represents the adjustment necessary to bring the sum of States into agreement with the projected U.S. total and is generally small.

SELECTION OF ASSUMPTIONS, SENSITIVITY ANALYSIS, AND FORECAST ERROR

While population projections depend on the mathematical (or judgmental) extrapolation of historical events, i.e., births, deaths, and movement of migrants, in reality these natural and manmade events always deviate from the past patterns and result in forecasting errors. In this section, an attempt is made to identify information the users should take into account when judging the validity of these projections. The user is not limited to using the preferred or

alternative series. There are other public and private agencies active in the creation of State projections with more or less detailed State results, i.e., some State agencies produce projections using economic or labor force models at the county level. Furthermore, once the 1996 State population estimates are available, there will be an additional source to evaluate the projections in this report.

Selection of Assumptions

The preferred projection series was chosen based on evaluation of selected projections models with different approaches to projecting internal migration.[53] By withholding the more recent data points in the projections of the internal migration component, the subsequent data points were used to evaluate the projected data points. The accepted time series model appeared to be the most promising. The alternative series were created to show "reasonably different or likely" projection scenarios. This approach was necessary to maximize variation between the series.

Forecast Error in Past Projections

The evaluation of past State population projections in Current Population Reports P25-1017, P25-1053, and P25-1111 may provide some indication of the accuracy of the projections.[54] To evaluate the projections, we compared the projections of total State populations for midyear 1987, 1988, 1989, 1993, 1994, and 1995 [55] with the independent estimates developed for those dates at the Census Bureau. To summarize the results of the comparisons for each series, we used the mean absolute percentage error (or MAPE); where

$$\text{MAPE} = (100/n) * [|\text{projection-estimate}|/\text{estimate}]$$

We developed the overall MAPE's for the United States where n equals 51 and for each census region where n equals the number of States in each region.

In general, projections for Series A in reports P25-1111, P25-1053, and P25-1017 [56] appear to track close to the actual data. For all these series, the mean absolute percent errors were close to 0.5 percent one year ahead of the base population. In reports P25-1111 and P25-1017 Series A appears to be the most accurate series among the alternative projections scenarios.

As expected, some regional differences were found for Series A, B, and C in report P25-1111. The MAPE's calculated for the West are larger than any other region, while MAPE's for the Midwest and South are consistently the smallest. The errors in our projections increase slowly over the projection horizon. For the 1995 (3 years ahead) projections in report P25-1111, the MAPE's ranged from 0.9 percent (in Series A) to 1.6 percent (in Series B).

Earlier sets of State projections also track reasonably well. For example, for State projections prepared in 1965, the MAPE's are 9 percent for the 15 years ahead projection and about 11 percent for the 20 years ahead projection.[57]

The 1990 age distribution of State population projections in report P25-1053 has been evaluated using the 1990 census.[58] This evaluation was limited to identifying dissimilarities between the overall age structure in the projections and census using the Index of Dissimilarity (D). The results suggest that age distributions in the State population projections are not markedly dissimilar for Whites from the 1990 census (mean D values for the States equal less than 2.0 percent for either sex). In comparison, the results were twice as high for Blacks and 3 times higher for Other races.

No attempt was made in the age study to evaluate methodological sources of error affecting this comparison. For instance, the starting points of the P25-1017 projections (1988 population estimates) are grounded in the 1980 census results. Consequently, coverage differences in the 1980 and 1990 census results complicate the comparison of the projections with the 1990 census. Besides enumeration errors, any comparison may be further complicated by the quality of administrative records, as well as variation in procedures used to up-date the 1980 census to the 1988 starting point.

Evaluation of the internal migration components of past projections have been undertaken using the 1975-85

Internal Revenue Service (IRS) data.[59] The six models tested were the Time-Series model; Straight Regression model; Last Period (constant) model; and Series A, B, and C from report No. 1053. MAPE's were computed for these models as follows: 1) the one year ahead uses 1975-85 data to forecast 1986; 2) the two years ahead uses 1975-85 data to forecast 1987; and 3) the five year ahead uses 1975-82 data to forecast 1987. Comparison of the one-, two-, and five- year ahead MAPE's shows that while predictive power decreases over time as expected, the decrease is fairly gradual. Among the six models the Time-Series appears to be the best, performing slightly better than the Last Period model. Series B appeared to be the worst. Among the three models used in reports P25-1111 and P25-1053, Series A appears to be more accurate.

"In report P25-1111 (the 1993 to 2020 projections) resulting MAPE's suggest that the projections are very accurate for all regions but the West. The slow increase in error over time (between 1993 and 1995) were expected. Rapid decline of accuracy in reported Census Bureau State population projections for several States in the West point to the inability of the migration models to predict the reversal in migration streams. Clearly, in P25-1111, States like Alaska, Arizona, Nebraska, Hawaii, and California were outliers (with the least accurate projections)."[60]

Forecast Error in Current Projections

In Series A of the current projections (1995 to 2025), when the preliminary 1995 State projections were compared to 1995 State estimates, the outliers[61] were Alaska (2.2 percent difference), Wyoming (1.0), the District of Columbia (0.9), Rhode Island, South Carolina, and Idaho (0.8 for the latter three States). All other States had a small net percent difference that ranges from plus or minus 0.5 percent. As the final projections were adjusted to the 1995 estimates, no attempt was made to modify or realign the projection assumptions.

SUMMARY AND LIMITATIONS OF PROJECTIONS

The State population projections in this report represent what the future population by age, sex and race/ethnic group would be, given the stated assumptions about fertility, mortality, international migration and internal migration trends. They are updates to the projections published in March 1994 and represent a continuation of our research efforts to use an enhanced methodology that incorporates the annual State-to-State flows of migrants from matched IRS tax returns together with the demographic detail from the Decennial Census. Since some of the census information are derived from sample data, they are subject to sample variability. We plan to continue evaluating the methods, assumptions, and results of these projections.

RELATED REPORTS

The table below lists Current Population Reports, Population Paper Listings (PPLs) reports, and Population Electronic (PE) products (data files on diskettes) containing estimates and projections related to those in this report and specifies the years for which consistent data are provided.

| Subject | Date | Number |
|--|--------------|----------|
| States by --- | | |
| Current Projections: | | |
| Age, sex, race, and Hispanic origin. | 1995 to 2025 | PE-45 |
| Historical Estimates: | | |
| Age and sex..... | 1990 to 1995 | PE-38 |
| Age, sex, race, and Hispanic origin. | 1990 to 1994 | PE-47 |
| Age and sex, and component..... | 1990 to 1994 | P25-1127 |
| Age and sex, and component..... | 1980 to 1989 | P25-1106 |
| Age and component..... | 1970 to 1979 | P25-998 |
| United States by --- | | |
| Current Projections: | | |
| Age, sex, race, Hispanic origin, and component..... | 1995 to 2050 | P25-1130 |
| Age, sex, race, Hispanic origin, | | |

| | | |
|--|--------------|----------|
| and component..... | 1995 to 2050 | PE-37 |
| Historical Estimates: | | |
| Age, sex, race, Hispanic origin, and component..... | 1990 to 1995 | PPL-41 |
| Age, sex, race, Hispanic origin, and component..... | 1980 to 1989 | P25-1095 |

Sources: Various reports from the U.S Bureau of the Census,
Population Division.

AVAILABILITY OF MORE DETAILED DATA

The basic product of our methodology was a set of unrounded population data by single years of age, sex, and race for each year, 1995 to 2025, for each state. Due to limited publication space, only a limited amount of age data were included in this publication. However, more detailed age, sex, and race/origin data are available from the Bureau of the Census on a single high density IBM-compatible 3.5" diskettes for each State (from our Statistical Information Staff in the Population Division, phone 301-763-2422). The data on diskettes in PE-45 requires programming, the use of data base programs or spreadsheets programs, to manipulate or reduce the data to a desired format.

These data are also available in files found on the Population Projections section of the World Wide Web's Census Bureau Home Page (<http://www.census.gov>). Further information may be obtained by writing to the Chief, Population Division, U.S. Bureau of the Census, Washington, DC, 20233.

STATE AGENCIES PROJECTIONS

If one's interest is in projections for a single State rather than a consistent set of projections for all States, it may be useful to examine population projections prepared by State agencies. Most States have at least one public agency that prepares population projections at the State and county level. These agencies are members of the Federal State Cooperative Program for Population Projections. The State-produced projections represent an alternative to the projections developed by the Census Bureau. Because each State is not required to produce a set of projections consistent with projections for other States, the individual State projections can be based on an assortment of models that incorporate a wider range of variables and data.

Table 7 in this report presents the State population projections that were prepared by each of the participating agencies listed in Appendix B. Each of these projections were prepared using the State's own methodological approach and set of assumptions. Some State agencies contract with private forecasting agencies to produce State and local projections. Therefore, the results presented for one State may not be comparable to the projections presented for another State. In addition, the sum of the State agency produced State population projections are not consistent with the national projections published by the Bureau of the Census. Before using or evaluating the projections shown in Table 7, users should contact the individual State agencies to obtain a complete explanation of their methods and assumptions.

ADDITIONAL SOURCES OF STATE PROJECTIONS

Education Projections. The Department of Education produces projected school enrollment statistics for States; see Gerald, Debra, 1996, Projections of Education Statistics to 2006, 25th ed., National Center for Education Statistics, Department of Education, Government Printing Office, Washington, DC. For additional information, contact Debra Gerald (phone 202-219-1581).

Employment Projections. The Bureau of Economic Analysis produces projections of economic activity, such as personal income, employment, and earnings for States; see U.S. Department of Commerce, Bureau of Economic Analysis, 1995, BEA Regional Projections to 2045, Vol. 1: States, U.S. Government Printing Office, Washington, DC. For more information, contact the Bureau of Economic Analysis (Phone 202-606-5341).

ROUNDING OF PROJECTIONS

The population projections in the tables have been rounded to the nearest thousand without being adjusted to group totals, which are independently rounded.

SYMBOLS

In this report, a dash (-) means zero or rounds to zero. A minus sign preceding a figure denotes decrease. Figures in parentheses also indicate negative values/decreases. NA refers to not available. X refers to not applicable.

FOOTNOTES

1. Projections are discussed for five groups that sum to the State totals: 1) White refers to non-Hispanic White; 2) Black refers to non-Hispanic Black; 3) American Indian refers to non-Hispanic American Indian, Eskimo, and Aleut; 4) Asian refers to non-Hispanic Asian and Pacific Islander; and 5) Hispanic origin may be any race. More detailed results for four race groups crossed by Hispanic and non-Hispanic origin are provided in table 3.

2. Does not include the residents of Puerto Rico.

3. Eight race and Hispanic origin groups were projected and are presented in the detailed tables. These groups were non-Hispanic White; non-Hispanic Black; non-Hispanic American Indians, Eskimo, and Aleut; non-Hispanic Asian and Pacific Islander; Hispanic White; Hispanic Black; Hispanic American Indians, Eskimo, and Aleut; and Hispanic Asian and Pacific Islander.

4. For a definition of the cohort-component method see Shryock, Henry S. and Jacob S. Siegel, et al., The Methods and Materials of Demography, Vol. 2, U.S. Government Printing Office, Washington, DC, 1971, p. 778.

5. Internal migration refers to State-to-State migration, domestic migration, or interstate migration.

6. Day, Jennifer Cheeseman, 1996, Population Projections of the United States by Age, Sex, Race, and Hispanic Origin: 1995 to 2050, U.S. Bureau of the Census, Current Population Reports, Series P25-1130, Government Printing Office, Washington, DC.

7. U.S. Bureau of the Census, 1996a, PE-47, "Estimates of the Population of States by Age, Sex, Race, and Hispanic Origin: 1990 to 1994," Diskettes (3); and U.S. Bureau of the Census, 1996b, PE-38 "Population of States by Single Years of Age and Sex: 1990 to 1995."

8. U.S. Bureau of the Census, 1991, Age, Sex, Race and Hispanic Origin Information from the 1990 Census: A Comparison of Census Results with Results where Age and Race have been Modified, 1990 CPH-L-74, August.

9. U.S. Bureau of Economic Analysis, 1995, BEA Regional Projections to 2045, Volume 1: States, U.S. Government Printing Office, Washington, DC, .

10. Campbell, Paul, 1994, Population Projections for States, by Age, Sex, Race, and Hispanic Origin: 1995 to 2025, U.S. Bureau of the Census, Current Population Reports, Series P25-1111, U.S. Government Printing Office, Washington, DC.

11. Based on 1980 and 1990 census figures reported in U.S. Bureau of the Census, Statistical Abstract of the United States: 1992, (112th edition), Washington, DC, 1992, table 23, p. 21. Also see Sink, Larry D., "Trends in Internal Migration in the United States," U.S. Bureau of the Census, Current Population Reports, Series P23, No. 175, Population Trends in the 1980's, U.S. Government Printing Office, Washington, DC, 1992.

12. The surplus of births over deaths in a population for a given time period is referred to as "natural increase".

13. Net population change refers to the number of persons added to (subtracted from) the base population (in this instance the July 1, 1995 State population and the ending point July 1, 2025) due to births, deaths, and net internal and international migration.

14. Hispanic origin is considered an ethnic group, not a race group. Therefore, persons of Hispanic origin may be of any race (see Appendix C for a detailed definition).

15. More detailed projections are available since race and Hispanic origin was classified into eight race and Hispanic origin groups (White, Black, American Indian, and Asian cross classified by Hispanic origin and not of Hispanic origin), see table 3.

16. During 1995 to 2025, States with losses for the White population in rank order were New York, New Jersey, Pennsylvania, Massachusetts, Illinois, Michigan, Connecticut, Ohio, Rhode Island, West Virginia, and California.
17. American Indian represent American Indian, Eskimo, and Aleut.
18. Asian represent Asian and Pacific Islander.
19. Campbell, 1994, op.cit., p. xx.
20. See Day, 1996, op. cit.
21. U.S. Bureau of the Census, 1996a, PE-47, op. cit.
22. U.S. Bureau of the Census, 1991, 1990 CPH-L-74, "Age, Sex, Race, and Hispanic Origin Information from the 1990 Census: A Comparison of Census Results with Results where Age and Race have been Modified," August 7.
23. U.S. Bureau of the Census, 1996a, PE-47, op. cit.
24. The estimates were modified using the $0.125 \times (\text{population age } X-1) + 0.75 \times (\text{population age } X) + 0.125 \times (\text{population age } X+1)$ formulation to approximate the female population age X in each year which was able to experience a birth at age X.
25. See Day, 1996, op. cit., for a complete discussion of the method used to develop these assumptions.
26. Fertility rates are for the twelve months ending July 1.
27. Campbell, 1994, op. cit., pp. xxiv to xxvi.
28. National Center for Health Statistics (NCHS), 1995, unpublished data.
29. Day, 1996, op. cit., pp 27 and 28.
30. Reed, John M., 1994, "Puerto Rico Technical Notes: World Population 1994 Revisions", U.S. Bureau of the Census, unpublished.
31. The qx values were obtained from UNABR program, see United Nations, 1987, MORTPAK-LITE: The United Nations Software Package for Mortality Measurement, New York.
32. For a discussion on Sprague interpolation, see Shryock, Henry S. and Jacob S. Siegel, et al., 1971, The Methods and Materials of Demography, Vol. 2, U.S. Government Printing Office, Washington, DC, pp. 687-688.
33. Day, 1996, op. cit., pp. 2 and 28.
34. Detailed Puerto Rico census data were available for the population ages 5 to 85 years and older. The single years of age distributions by sex (and residence five-years earlier, for each State) were extended from ages 85 to 90 years and older by prorating to more detailed single years of age data for the total population of Puerto Rico as reported in U.S. Bureau of the Census, 1992, 1990 Census of Population, General Population, General Population Characteristics, Puerto Rico, 1990 CP-1-53, Government Printing Office, Washington, DC, p. 31.
35. Based on the 1990 U.S. census race/Hispanic origin data 85.6 percent of the persons residing in Puerto Rico 5-years earlier were identified as Hispanic Whites. The actual numbers were 177,776 Hispanic Whites; 17,004 Hispanic Blacks; 452 Hispanic American Indian; 1,595 Hispanic Asian; 9,119 non-Hispanic Whites; 1,111 non-Hispanic Blacks; 44 non-Hispanic American Indians; and 505 non-Hispanic Asians.
36. Rogers, Andrei and Frans J. Willekens, 1986, Migration and Settlement, Dordrecht, Netherlands: D. Reidel Publishing Co.
37. Question 14a responses were -- 0 Born after April 1, 1985 -- Go to questions for the next person, 0 Yes -- Skip to 15a, 0 No -- with an arrow directing the respondent to the second part of the question; while question 14b required self report responses to the following -- (1) Name of U.S. State or foreign country _____, if outside U.S. print answer above and skip to 15a, (2) Name of county in the U.S. _____, (3) Name of city or town in the U.S. _____, (4) Did this person live inside the city or town limits? 0 Yes, 0 No, lived outside the city/town limits (from page 6 of the 1990 census sample questionnaire).

38. Nevertheless, administrative records face similar problems. Internal Revenue Service data (on changes in the address of income files) do not cover the entire population and do not have substantive details comparable to the census results. Similarly postal data (on change of address) does not provide sufficient information on the characteristics of migrants.
39. Persons in the military were excluded.
40. The current State projections requires eight separate race/ethnic groups, by single year of age and sex, which is nearly three times more data than the 1975-80 migration matrices. In this data set for States the weighted sample results are aggregated into four million data cells.
41. Clearly a larger sample is needed to create the detailed State-to-State migration rates required in these projections.
42. Shryock, 1971, op. cit.
43. The State of destination rates for California plus the rates for Californians not migrating would sum to 1.0 for each single year of age cell by sex and race/ethnicity if there were no adjustments or corrections. However, the smoothing and indirect standardization procedures for each State-to-State flow resulted in race/ethnicity and sex distributions (summed and average across all ages) that were off by 2 percent or less in California. The final matrix was adjusted prorata so that the results summed to 1.0.
44. Besides erratic data patterns in the 1985-90 migration rates smoothing compensates for the fact that each single year of age cohort passed through younger ages over the five year reference period.
45. Wetrogan, Signe I, 1990, Projections of the Population of States by Age, Sex, and Race: 1989 to 2010, P-25, No. 1053, U.S. Government Printing Office, Washington, DC.
46. Sink, Larry D., 1989, "The Efficacy of Economic and Demographic Models in Predicting Interstate Migration Rates." Paper presented at the Western Regional Science Association Meeting, April.
47. Frees, Edward, 1992, "Forecasting State-to-State Migration Rates," Journal of Business and Economic Statistics, Vol. 10, No. 2, pp. 153 to 167.
48. Differencing and logarithms are standard time-series techniques for reducing the impact of errors in the data. A full description of the derivation of this model can be found in Frees, 1992, *ibid*.
49. Greenwood, Michael J., and Gary L. Hunt, 1992, University of Colorado, "Forecasting Interdivisional Migration Flows Using Temporal Data from the Internal Revenue Service," Unpublished preliminary report prepared for the U.S. Bureau of the Census.
50. U.S. Department of Commerce, Bureau of Economic Analysis, 1995, BEA Regional Projections to 2045, Vol. 1: States, U.S. Government Printing Office, Washington, DC.
51. Day, 1996, op. cit.
52. For a discussion of the inflation-deflation methodology, see Hollmann, Frederick W., 1990, United States Population Estimates, by Age, Sex, Race, and Hispanic Origin: 1980 to 1988, U.S. Bureau of the Census, Current Population Reports, Series P-25, No. 1045, Government Printing Office, Washington, DC, January.
53. Sink, 1989, op. cit.; and Frees, 1992, op. cit.
54. Wetrogan, Signe I., 1988, Projections of the Population of States, by Age, Sex, and Race: 1988 to 2010, U.S. Bureau of the Census, Current Population Reports, Series P-25, No. 1017, U.S. Government Printing Office, Washington, DC; Wetrogan, 1990, op. cit.; and Campbell, 1994, op. cit.
55. Wetrogan, Signe I. and Paul R. Campbell, 1990, "Evaluation of State Populations Projections," Presented at the Population Association of America, Toronto, Canada, May 3-5; and Campbell, Paul R., 1996, "How accurate were the Census Bureau's State population projections for the early 1990's?" Paper presented at Federal Forecasters Conference, Washington, DC, May 2.
56. Report P25-1017 has only one projection series.

57. U.S. Bureau of the Census, 1967, *Revised Projections of the Population of States: 1970 to 1985*, Current Population Reports, Series P-25, No. 375; and Wetrogan and Campbell, 1990, op. cit.

58. Campbell, Paul R., 1991, "Evaluating the Age Distribution in State Populations," *Federal Forecasters Conference/1991, Papers and Proceedings of the Conference*, Washington, DC.

59. Sink, Larry D., 1990, "Evaluating Migration Projections," Paper Presented at Federal-State Cooperative Programs for Population Projections Conference, May.

60. Campbell, 1996, op. cit.

61. Outliers are States with a high net percent difference. Net percent differences were calculated as follows:
(projections - estimates) * 100 / estimates.

Appendix B. State Agencies Preparing Population Projections

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APPENDIX C. Race and Ethnic Definitions and Concepts

The racial classification used by the Census Bureau generally adheres to the guidelines in Federal Statistical Directive No. 15, issued by the Office of Management and Budget, which provides standards on race and Hispanic-origin categories for statistical reporting to be used by all Federal agencies. The race and Hispanic origin categories are defined as follows:

American Indian, Eskimo, and Aleut. A person having origins in any of the original peoples of North America, who maintains cultural identifications through tribal affiliation or community recognition. The term "American Indian" or abbreviation "AIEA" refers to the race group American Indian, Eskimo, and Aleut.

Asian and Pacific Islander. A person having origins in any of the original peoples of the Far East, Southeast Asian, the Indian subcontinent, or the Pacific Islands. This area includes, for example, China, India, Japan, Korea, the Philippine Islands, and Samoa. The term "Asian" or abbreviation "API" refers the race group Asian and Pacific Islander.

Black. A person having origins in any of the Black racial groups of Africa.

Hispanic. A person of Mexican, Puerto Rican, Cuban, Central or South American other Spanish culture or origin, regardless of race.

White. A person having origins in any of the original peoples of Europe, North Africa, or the Middle East.