Population Division

Evaluation of Census Bureau's 1995-2025 State Population Projections

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Working Paper Series No. 67

U.S. Department of Commerce
Economic and Statistics Administration
U.S. Census Bureau

October, 2002

ABSTRACT

The Census Bureau's latest series of state population projections for 1995 - 2025 was prepared in 1995 and released in 1996. This paper examines the performance of this series of projections during their first five years. Using the census 2000 counts and estimated births, deaths, domestic migration, and international migration from administrative records, this paper examines the accuracy of projected total population and projected components of change for 50 states and the District of Columbia. The paper also examines the historical trend of projection accuracy and the geographic variation of projection accuracy by U.S. regions and subdivisions. A multiple regression analysis is used to analyze the relative impact of errors in the projected components of change, errors in state estimates, and 1990 census undercount on the accuracy of the latest state population projections. A discussion of the accuracy of national projections is also included.

We found that the latest series of state population projections are more accurate than previous projections series. The projections continue to perform poorly in the West. The percent errors in domestic migration continue to be the highest among all projected components of change, followed by international migration. The projected births had the lowest average percent errors.

The results from the multiple regression analysis show that the percent errors in the projected births had the largest impact on the accuracy of projections, followed by international migration and projected deaths. The percent errors in domestic migration cannot explain the variation of projection accuracy among the 50 states and District of Columbia. When the 1990 census undercount and the accuracy of state estimates were taken into account, the percent errors in state estimates explain most of the errors in state projections followed by the census undercount. All the direct impact of percent errors in the projected components of change were reduced. It is also found that the errors in state estimates are correlated with the 1990 census undercount rates. Thus, it is concluded that the 1990 census undercount is responsible for a large proportion of the errors in state estimates which, in turn, affects the accuracy of state projections. In addition, the national projections which were used to control the state projections were also affected by the census undercount and the accuracy of the national estimates.

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I. Introduction

The purpose of the paper is to evaluate the Census Bureau's latest series of state population projections for the years 1995-2025 (Campbell, 1996b, PPL47). Based on the census 2000 results, this paper examines the performance of the projections for only the first five years. Using the census 2000 counts and estimated births, deaths, domestic migration, and international migration from administrative records, this paper examines the accuracy of projected total population and projected components of change for 50 states and District of Columbia. This paper also examines the historical trend and regional differences of the projection accuracy. A multiple regression analysis is also used to analyze the relative impact of errors in the projected components of change, errors in state estimates, and 1990 census undercounts on the accuracy of the state population projections. This study will provide information about the accuracy of the projections and source of errors for use in improving current projection models and procedures.

The paper begins with an overview of the methodology of the state projections, followed by a discussion of potential factors affecting the accuracy of the projections. Then it presents a comparison of projected 2000 state population and the census 2000 count with and without adjustment for census undercount. The assessment of the accuracy of state estimates against the census 2000 is also made because the estimates were used for the starting base year population for the projections. The projected components of change - births, deaths, domestic migration, and international migration - between 1995 and 2000 are compared with the most recent estimates of component change in the same period based on the administrative records data compiled in the Census Bureau's population estimates program.

Then, the paper presents the relationships between the factors affecting the accuracy of projections in a multiple regression analysis to demonstrate the proportion of errors explained by these factors collectively and independently. The analysis provides information about the relative importance of each factor affecting the accuracy of state projections while holding other factors constant. In addition, the accuracy of the national projections is also discussed to demonstrate the dependency of state projections on the accuracy of the national projections.

II. State Population Projections: 1995 to 2025

The cohort survival component method is used by the Census Bureau to prepare the state population projections. The components of population change - births, deaths, and migration - are projected separately. It requires separate projection assumptions for each birth cohort by single year of age, sex, race and Hispanic Origin. The race and Hispanic origin groups were non-Hispanic White, non-Hispanic Black; non-Hispanic American Indian, Eskimo, and Aleut; non-Hispanic Asian and Pacific Islander; Hispanic White, Hispanic Black, Hispanic American Indian, Eskimo, and Aleut; and

Hispanic Asian and Pacific Islander. The detailed components for the projections and assumptions were derived from vital statistics, administrative records, 1990 census data, state population estimates, and the middle series of the national population projections (P25-1130, 1996).

The cohort component method used to produce the projections for every year from 1995 to 2025 is based on the following formula:

$$P_1 = P_0 + B - D + DIM - DOM + IIM - IOM$$

Where,

P_1 = population at the end of the period
P_0 = 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
IIM = international in-migration during the period
IOM = international out-migration during the period

The 1990 census base population estimates for 1994 were used as the starting base population to launch the projections. The first projected 1995 results were later adjusted to agree with the 1995 state population estimates when they became available. First, survival rates were used to survive each age-sex-race/Hispanic group forward one year. Then the state-to-state migration rates were applied 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. Then the immigrants from abroad were added to each group, while emigrants were subtracted. The population under one year of age was created by applying age-race/Hispanic specific birth rates to females of childbearing age. The number of births by sex and race/Hispanic origin were survived forward and exposed to the migration rates to derive the population under one year of age. The results of each age group were adjusted to agree with the national population projections by single year of age, sex, and race/Hispanic origin.

Two sets of state population projections were prepared based on different models used in projecting the domestic migration component. The migration trends data used in both projections were based on state-to-state migration flows data, extracted from annual matches of Internal Revenue Service(IRS) individual income tax returns. The data contain 19 observations from 1975-76 to 1993-94 on each of the 2,550 state migration flows (51 x 50 matrix). Two models were used to project these migration flows into the future:

(1) Series A used a time series model - regression of changes in the natural logarithms of the migration rates. The first five years of the projections used the time series projections exclusively. The next ten years of projections were interpolated from the time series projections toward the mean of the series. The final 15 years used the series mean exclusively.

(2) Series B is an economic model. Changes in state-to-state migration rates were derived from the relationship between changes in the migration rates and Bureau of Economic Analysis projected

changes in employment in the origin and the destination states. Detailed assumptions and procedures used in the projections are described in the Census Bureau's report, PPL-47 (Campbell, 1996b).

III. Factors Affecting the Accuracy of State Population Projections

Based on the methodology of the state population projections, several factors need to be considered in order to evaluate the accuracy of the projections.

1. Census undercount or overcount

To assess the accuracy of the projections, most studies compare the projections with the census count for the census year or with most recent population estimates available for the inter-censal or post-censal years (Smith and Sincich, 1990, 1992; Wetrogan and Campbell, 1990; Campbell, 1996a, 1997). Changes in net undercount between the two census affect the validity of measurement of accuracy of the projections. According to the Accuracy, Coverage, and Evaluation (ACE) survey and the Demographic Analysis (DA) by the Census Bureau, the net undercount rates in the census 2000 are significantly lower than in the 1990 census (Robinson, et al., 2001). Based on the Post Enumeration Survey, the 1990 census had a net national undercount of 1.6 percent, while the net undercount rate for the census 2000 was reduced to 0.06 percent, based on the similar quality-check survey (Census 2000 Initiative, 2001). Therefore, we would expect that the projected 2000 population based on the 1990 census would understate the 2000 population as compared with the census 2000 counts.

2. Accuracy of state population estimates (Accuracy of the starting point population)

The 1995-2025 state projections were based on July 1, 1994 state population estimates as the first base year population and then the first projection year was adjusted to agree with the 1995 state population estimates. The accuracy of the state population estimates definitely affects the base year population for projections. To assess the accuracy of the projections, we also need to examine the accuracy of the state estimates against the census 2000 population.

The state population estimates were derived from the Census Bureau's annual county estimates based on a component of change method. To derive natural increase, the Census Bureau uses vital statistics (births and deaths) collected from the National Center for Health Statistics and state agencies in the Federal-State Cooperative Program for Population Estimates (FSCPE). In terms of the migration component, the Census Bureau uses annual matches of extracts of IRS individual income tax returns to derive migration rates for the population under 65 in each state and county. The immigration data from the Immigration and Naturalization Services (INS) were used to derive the number of legal immigrants by state of intended residence. The Census Bureau also estimates the number of residual foreign born and emigrants for the states. In addition, the data for movement of federal civilian population were also used as another component of change for state estimates. The Medicare enrollments were used to estimate the population 65 and over. Finally, the county estimates were controlled to the national estimates and the state estimates were derived.

Since the state estimates are derived from the component method by adding the components of change to the base year population, the accuracy of state estimates depends on the accuracy of each component of change and the census population count as well. In other words, to assess accuracy of the estimates also faces the problem of different net undercount rates in the two censuses. Since the net undercount rates in the census 2000 are lower than the rates in the 1990 census, we should expect an overall under-estimate of the estimated population for 2000.

3. Accuracy of projected components of change

Since the state projections are derived from the demographic accounting of births, deaths, domestic migration, and international migration, the quality of input data and methodologies for deriving projection assumptions for each component will definitely affect the accuracy of the projections. To assess the accuracy of the projected components of change, we use the most recent available statistics compiled by the Census Bureau for the Population Estimates Program between 1995 and 2000.

The accuracy of the projected components of change is affected by the input data, selection of the starting point of various rates used in the projections, and the statistical models used in projecting each component. Instead of examining the procedures to derive these components, this paper is limited to the comparison of the projected total births, deaths, net domestic migration, and net international migration with current statistics.

4. Accuracy of national population projections

The results of state population projections were controlled to agree with the most recent national population projections as the final stage of procedures. The accuracy of the national projections will eventually affect the accuracy of the state projections. For example, the national projections, to which the current series state projections were controlled, showed 274.0 millions people in 2000 while the census 2000 showed 281.4 million. A difference of 7.4 million between projected national population and the census count will definitely affect the accuracy of the state projections when the state projections are controlled to agree with the national projections.

The projected 2000 population in the most recent series of national projections (working paper #38) also shows a significantly lower projected population than the census 2000 count. It is due primarily to a higher undercount rate in the 1990 census than in the census 2000. A brief note of evaluation of the national population projections is presented at the end of the paper.

To assess the impact of national population projections on the state projections, it is necessary to compare the projections with and without national controls. However, this paper will limit itself to discussion of the accuracy of the projected national population to infer its impact on the accuracy of the state projections.

5. Uncertainty of demographic changes

Most projections are based on the assumption that population change can be predicted if the current or historical demographic trends continue in the future. However, it is not always the case.

Therefore, we can anticipate that the projections for the areas which experience dramatic socioeconomic changes will not be as accurate as the areas with stable socioeconomic conditions. The population change between 1990 and 2000 can be used to measure where the states have experienced dramatic changes or not.

In addition, the previous studies also indicate that the population size affects the accuracy of population projections. It is mainly due to the relationship between so-call "true demographic rates" - (fertility, mortality, migration rates) and the population size. Since the detailed demographic rates - age, sex, and race for small states will be likely to have many small numbers in each cell or many empty cells, these rates for smaller population bases will be unstable.

IV. Methods of Measuring Accuracy and Bias

The paper uses two measures to evaluate the accuracy and bias of the projections. To measure accuracy and bias, we need a "true population" to compare for the same year. Normally, the decennial census count and inter-censal estimates are used as the "true population." Due to undercount and coverage issues, there may not actually be a "true population." Therefore, the measurement of accuracy should be considered as an approximation.

The most commonly used measurement of accuracy of the projections is Mean Absolute Percent Error (MAPE), which is the average error when the direction of error (positive or negative) is ignored. The measurement indicates the magnitude of the errors among a specific number of geographic units. The formula for the MAPE is:

$$MAPE = (Sum(|projection - census|/census*100))/n$$

Where, n is the number of states. MAPEs are calculated for the United States (the states and the District of Columbia), where n is 51, and for each census region or division, where n equals the number of states in each region or division. This is used as a measure of accuracy of forecast or projections (Smith and Sincich, 1990, 1992).

The second measure is Mean Algebraic Percent Error (MALPE), which takes into account the direction of error. It has been used as a measure of forecast bias, whether under-projected or over-projected (Smith and Sincich, 1990, 1992). The formula for the MALPE is:

$$MALPE = (Sum((projection - census)/census *100))/n$$

It has been argued that the MAPE overstates the error of projections or estimates because a few extreme outliers would make the average (arithmetic mean) higher than reality (Tayman and Swanson, 1999; Tayman, Swanson, and Barr 1999, Swanson, Tayman, and Barr, 2000). However, in order to compare the results with previous studies using the MAPEs, and cross-comparison of errors in different variables, this study used the MAPE to discuss the accuracy of the projections.

In addition, because the state projections were prepared as of July 1 for each year, it is necessary to

develop an April 1, 2000 projection to compare with the census 2000. The July 1, 2000 projections are converted to April 1, 2000 based on the following formula:

$$P2000(4/1) = P1999 * (P2000/P1999)^{(9/12)}$$

V. Results

1. Projected state population and census 2000 count

As shown in Table 1, the series A of the state projections produced a mean absolute percentage error (MAPE) of 2.6 and the series B had a slightly lower MAPE of 2.4. The Mean Algebraic Percent Error (MALPE) was -1.4 percent for Series A and -1.7 percent for Series B. This indicates a general tendency for the two series to under-project the state populations as expected due to higher undercount rates in the 1990 census. Only 10 states have the projected 2000 population more than the census 2000 count for Series A, and only 9 states for Series B. (See Appendix A)

(Table 1 about here)

The MAPEs for Series A show that the projections are more accurate in the Midwest (1.6%) and less accurate in the West (3.8%). Most of the states in the Midwest had the percent errors below 2.6 percent. Only Illinois had the percent error of over three percent (3.1%).

The MAPEs for the West vary dramatically from state to state. Generally, the projections are less accurate in Mountain states (MAPE of 4.4 percent) with a wide range of levels of accuracy -- from 7.0 percent for Arizona and 7.6 percent for Nevada to -1.8 percent for New Mexico and -1.7 percent for Utah. The percent errors in the Pacific states also vary significantly ranging from -4.2 percent for California to -1.0 percent for Washington. (See Series A in Appendix A)

The MAPE for the South is about the same level of accuracy as the average of 50 states and the District of Columbia (2.6%). However, the percent errors in the South also vary dramatically from state to state. The MAPE for the South Atlantic division is higher (3.5%) than other divisions in the South, while the MAPE for the East South Central division is significantly lower than other divisions with an MAPE of 0.9 percent.

The percent errors of the projections for states in the Northeast region also vary in a wide range from -4.9 percent for Rhode Island to -0.7 percent for Pennsylvania and 1.1 percent for Vermont. However, the variation of percent errors in the Northeast states is much less than in the West and South.

The MAPEs for Series B projections also show the similar pattern of variation among four regions and states as Series A. Generally, the percentage errors of Series B are very close to Series A (See Figure 1)

(Figure 1 about here)

2. Comparison with previous series of state projections

Despite the errors we just described, the current set of projections tends to be more accurate than in the earlier projections produced before the 1990s. According to Smith and Sincich (1992), the MAPEs for the Census Bureau's state projections after 5 years ranged from 3.1 to 5.0 percent for earlier versions of the projections (1955 through 1980). Wetrogan and Campbell (1990) analyzed the Census Bureau's previous series of state projections from 1965 (P25-375) to 1980 (P25-937) and found the MAPEs for the first five years of projections ranged from 3.0 to 5.2 percent.

To update the later series of projections after 1980, the MAPEs for the 1986 Series (P25-1017), 1988 Series (P25-1053) and 1992 Series (P25-1111) are calculated to compare with the current series. As shown in Table 2, the overall accuracy of the state population projections has improved since the 1986 Series (P25-1017) with an MAPE of 2.6. The first projections series after 1990 (P25-1111) was even more impressive with an MAPE of 1.6 for series A for the first 5 years. Then, the MAPE for the latest series PPL-47 returned to the same level of 2.6 as previous two series in the late 80s.

(Table 2 about here)

It seems that the performance of the current projections series is worse than the 1992 series (MAPE of 2.6 vs. 1.6). This is misleading. Since the MAPE for 1992 series was based on the 1997 estimates to evaluate the accuracy for the first five years, while the MAPE for the current series is based on the census 2000. The 1997 state population estimates were consistent with the 1990 census which had higher rates of undercount than did Census 2000. Comparisons based on a different census base are not valid.

If we use the same series of state estimates extrapolated from 1999 to 2000, instead of census 2000 counts, to calculate the MAPE for the current series, the results show that the MAPE for the current projections series was reduced to 1.5, slightly lower than the previous one (see last second column of Table 2). However, if we use the 1990 census based 2000 estimates (revised by the Census Bureau's estimates program), interpolated from 1999 estimates, the MAPE for the current series for series A increases to 1.7 (see last column of Table 2). Nevertheless, the MAPEs for series B based on revised estimates series are still lower than the previous series. Therefore, we can conclude that the projections series after 1990 are generally better than the earlier series.

Table 2 also shows that the state projections continue to do poorly in the West as compared with other regions, no matter what series of projections are examined. The projection errors for the Midwest states have been very stable within the range of 1.0 and 1.8 since the 1975 projections series. The projections for the Northeast has been improved over time, but the South has had the smallest MAPEs since the 1988 projections series if the estimates were used to measure the accuracy.

3. Undercount Adjusted Projections and census 2000 count

As mentioned above, the census 2000 had a higher coverage rate than the 1990 census. The projections based on the 1990 census will certainly tend to under-project the population. Thus, if we

used the 1990 census undercount adjusted population for projections, we should see a reduction in percentage errors. Instead of re-running the lengthy projections program in this study, the 2000 projections were adjusted with state specific undercount rates in 1990. The results show an improvement of the projections.

(Table 3 about here)

As table 3 shows, the MAPE for all states was reduced from 2.6 to 2.2 for Series A and from 2.4 to 2.0 for Series B. The number of states with the percentage error of less than 1.0 percent increases from 10 to 20 for Series A, and from 13 to 18 for Series B.(See Appendix B) Projections are improved except in 12 states for Series A and 15 states for Series B.(See Figures 2 and 3) These exceptions are those states with high projections originally or those with low percentage errors which turn to over-projected values after the undercount adjustment was made. The MAPEs for all regions were reduced after adjusting undercount except the West. The MAPEs for the West after adjustment are higher because many states in that region were over-projected initially. For example, the projections for both Series A and B for 2000 for Idaho, Montana, Wyoming, Hawaii, and Alaska were above the census 2000 count. Once their projected populations were inflated by the undercount rates, the Mean Absolute Percentage Error for the region becomes higher.

(Figure 2 and 3 about here)

4. State population estimates and census 2000 count

One crucial factor affecting the accuracy of the state projections is the use of state estimates as the base year population to launch the projections. If the estimates are not accurate, the projections will be automatically inaccurate. The evaluation of the estimates against the census 2000 count faces the same issue of census undercount as evaluating the projections. Therefore, a comparison of the 1990 census base estimates and the estimates adjusted for net census undercount is also made.

Table 4 shows the difference between the census 2000 count and the estimated 2000 population by region and division. The estimates based on the official 1990 census count under-estimated the U.S. population by 2.4 percent or a total of 6.8 million people. Almost all states had the estimated population lower than the census count except West Virginia (See Appendix C). The West had the highest MAPE of 3.2, followed by the South, and the Northeast region. The Midwest had the lowest MAPE (1.4%). However, in terms of divisions in the regions, the Mountain division had the highest MAPE, followed by South Atlantic states, the similar pattern of the geographic distribution of errors for the state population projections. (See Table 1)

(Table 4 about here)

If we use the net census undercount adjusted 1990 population as the base to derive the estimates, we can see a dramatic reduction of estimation errors. All the states have a reduction of errors except Alaska, Michigan, and West Virginia, where the errors remain low. (See Figure 4) The amount of under-estimation for the U.S. as a whole decreases from 6.8 million to 2.9 million, 57 percent reduction (Table 4). The negative percent difference for the entire U.S. decreases from 2.4 to 1.0

percent. The mean absolute percent error (MAPE) for all states dropped from 2.6 percent to 1.5 percent. The reduction of percent errors in state estimates based on the 1990 census adjusted for net undercount is so overwhelming that all regions have a reduction of estimation errors (See Table 4). Since the births and deaths are considered more accurate than other components, the 2.9 million discrepancy between the estimates adjusted for 1990 census net undercount and the census 2000 count could be attributed to the migration component, more likely the underestimation of net international migration for the nation.

(Figure 4 about here)

5. Errors of Projected Components of Change

Since the Cohort-Component Method was used to produce the state projections, the accuracy of every component will affect the accuracy of the projections. To evaluate the accuracy of each component - births, deaths, and migration, the most current vital statistics and migration data from the administrative records were used. The Census Bureau has routinely compiled the annual component data for its Population Estimates Program. Because the components of change produced in the state projections are from mid-year to mid-year as in the population estimates, we can compare the projected components of change for 7/1/1995 to 6/30/2000 with the estimated components for the same period.

As Table 5 and Figure 5 show, the projected births are more accurate than other components with lowest Mean Absolute Percentage Errors, followed by deaths. The net domestic migration is the worst component in the projection - the MAPE reached 193.3 for Series A, and 174.2 for Series B. The MAPE of net international migration was 31.5 for Series A and also 31.5 for Series B. The differences of MAPEs for births and deaths between Series A and Series B are also about the same. Only the MAPEs of domestic migration are different between Series A and Series B. This reflects the fact that the only primary difference between Series A and Series B is the use of different models in projecting domestic migration.

(Table 5 and Figure 5 about here)

Births

Although the MAPEs for the birth component are more accurate, they vary from region to region. The projected births for the West had the highest MAPE with 9.6 percent as compared with 2.6 in the Midwest. However, the MAPE for the New England (9.1) is comparable to that in the Pacific division. The Mountain states had the highest MAPE for projected births (9.9 for Series A).

The percent difference for births in Series A differs from state to state, ranging from 0.1 percent for South Carolina to 27.9 percent for District of Columbia.(See Appendix G) The projected numbers of births for South Carolina, New Jersey, Delaware, Illinois, Iowa, and Missouri are more accurate with the percent error of less than 1.0 percent. But, California, Maine, Hawaii, Vermont, Utah, Nevada, and D.C. are among the worst in projected births (11percent or higher error). The discrepancies for births in Series B are about the same as in Series A.

Deaths

Projected deaths are more accurate in the West, followed by the South. The MAPE for projected deaths is highest in the Northeast with the highest MAPE for the Middle Atlantic States (See table 5). The states with highest discrepancies in the death component (more than 10 percent) are District of Columbia, New York, Rhode Island, California, Hawaii, Massachusetts, Nevada, New Jersey and Illinois. (See Appendix G) In contrast, South Carolina, Utah, Wyoming, and Alaska have the smallest error rates (less than 1.0 percent).

Some states have the similar levels of accuracy for projected births and deaths, such as South Carolina (the best) and District of Columbia (the worst). However, some states have complete opposite trends in their projected births and deaths. For example, Utah has 15.5 percent error in projected births, among the worst, but has 0.9 percent error in projected deaths, among the best. (Appendix Table G). The percent errors of projected deaths in Series B are about the same as in Series A.

Domestic Migration

The net domestic migration had a wider range of percentage errors among states ranging from 2.3 percent for Georgia to 2,245 percent for Utah (Series A). The estimated net domestic migration for Utah between 1995 and 2000 was -5,247, but the projected net domestic migration was 112,548. States with the highest errors in projecting domestic migration are Montana, Indiana, New Mexico, Vermont, Wyoming, South Dakota, Alabama, Nebraska, California, Kansas, and Idaho with absolute percentage errors of 200 percent and higher. (Appendix G)

The MAPE for the net domestic migration for the West is the highest among the four regions, especially among the Mountain states. (Table 5) The South had the lowest mean absolute percent error. However, the variations in the MAPE among divisions are very substantial. For example, the East South Central states had MAPEs close to 150 percent, while the South Atlantic states had a MAPE of 17.6 percent.

The variation of average absolute percent errors in domestic migration projection seems to have no precise relationship with geographic location and size of population. For example, the Mountain region and New England region where many small states are located had a percent error of 606.6 percent and 139.7 percent respectively for Series A, 554.0 percent and 113.1 percent for Series B. Arizona and Nevada with low projected domestic migration error rates (19.3 percent and 20.0 percent respectively) are located in the Mountain region where projection errors are the highest. The percent error for projected domestic migration error for California, the largest state, is substantially higher (253.9 percent), while the error for New Hampshire, one of the smallest states, is only 3.6 percent of error. This suggests that there is no unique pattern in percent errors in projected domestic migration among the 50 states and District of Columbia.

The percent errors in projected domestic migration in Series B are generally lower than those in Series A except for the East North Central states (Table 5 and Appendix H). However, the overall

variation of the errors among regions and subdivisions is about the same. As in Series A, Utah and Montana have the highest percent errors of the projected domestic migration in Series B.

International Migration

The percent discrepancies between projected and estimated net international migration were higher in the West and the Northeast. Again, the Mountain and New England states have the highest percent errors. (See Table 5 and Appendix G). Generally, the Mid-Atlantic, East South Central and Pacific states have lower percent errors in projected international migration. However, there are no particular patterns in the errors for the location of specific states. For example, the states with the highest and lowest error in international migration, New Hampshire (2.8%) and Rhode Island (109.5%), are both located in the New England area.

Similar to domestic migration, the percent errors in international migration are not associated with the population size. For example, Texas (60.0%) is among the states with the highest percent error in projected international migration while New York (10.0%) and California (16.6%) are among the states with relatively lower errors in projected international migration.

VI. Multiple Regression Analysis of Factors Affecting the Accuracy of State Projections

The description of the errors (MAPEs and MALPEs) of the state projections, state estimates, and projected components of change as we presented above does not provide sufficient information to quantify the relationships among errors. It is only possible to say that the domestic migration has the highest percent errors among the four components. It cannot tell the extent to which the errors in projected domestic migration contributed to the variation of errors in state population projections among 50 states and the District of Columbia. A further question is, to what extent the potential factors of projections error, such as the undercount rates, errors in state estimates, and errors in projected components of change affect the accuracy of state projections collectively and independently. To answer this question, it is necessary to do a multiple regression analysis.

The dependent variable for the analysis is the absolute percent error of state projections. The independent variables include - 1990 census net undercount rates, absolute percent error of state estimates, absolute percent error of projected births, deaths, net domestic migration, and net international migration. In addition, the percent population change between 1990 and 2000 is used to measure the uncertainty of the projections in predicting future trends. Since the pattern of projections errors for Series B is very close to Series A, the following analysis will present Series A only.

(1). Correlation between Projection Error and Dependent Variables

Before presenting the results of the multiple regression analysis, we need to present the correlation between dependent and independent variables - the gross relationship between two variables without holding other variables constant. Table 6 shows the simple correlations among these variables. As

expected from the discussion above, the projection errors are highly correlated with percent error in state estimates (correlation coefficient of 0.72), and also related to the 1990 census undercount rates (0.47). The projection error is also associated with population change (0.42) -- a dramatic change in population would usually produce a larger error in projections.

(Table 6 about here)

The general perception is that the percent errors in the projected components should be the primary source of errors in the projections because the projections were based on the cohort component method. As expected, the error in projected births is significantly correlated with the projection errors (0.57). However, the percent errors in projected deaths and international migration only correlate moderately with errors in population projections. Surprisingly, the percent error in domestic migration has no correlation with percent projection errors. This indicates that a state with higher percent error in projected domestic migration may not necessarily have a higher percent error in projections. This can be seen from Figure 6. This may also reflect the problems of measurement of domestic migration based on IRS data. Changes in tax laws, problems in the geo-coding of tax returns addresses, and different levels of coverage rates of population may contribute to the uncertainty of this variable. The migration flows used in the projections may not reflect the true migration, but the estimated net domestic migration used to evaluate the projected domestic migration may not reflect the true migration either.

(Figure 6 about here)

(2). Multiple Regression of Factors Affecting Projection Accuracy

The simple correlation between two variables may include the impact of other variables on the specific variable. For example, the correlation between errors in projected births and errors in projected population may be due to the impact of state estimates and census undercount on the projected births because the census undercount and state population estimates affect the accuracy of population base to derive fertility rates for the projections. In other words, the impact of errors in births on projection errors is also due to the effects of errors in state estimates or census undercount on projections at the same time. The results of the multiple regression analysis in Table 7 show the importance of each variable contributing independently to the projection errors while holding other variables constant in three conditions and how much all the variables together can explain the projection errors.

Table 7 shows the standardized regression coefficients of the independent variables on percent projection error in 3 models. Model 1 includes only percent errors in births, deaths, domestic migration, and international migration. Model 2 includes census undercount rates and state estimates errors, in addition to the variables in model 1. Model 3 includes one more variable - population change between 1990 and 2000,

The errors in the projected components as shown in model 1 explain 40 percent of projection error (R-square of 0.40). The percent error in projected births accounts for most of the weight (coefficient of 0.52), followed by international migration (0.21). The errors in projected deaths and domestic

migration do not explain the variation in percent projection errors in the 50 states and District of Columbia. Surprisingly, when other components are held constant, the domestic migration tends to have a slight negative impact on projection accuracy. This further indicates that the problem of measuring the domestic migration in the state population estimates and population projections.

When the net census undercount rate and percent errors in state estimates are included in the regression, the combined set of variables explain over 60 percent of variation in projection errors. Most of the projection errors originally explained by the projected components of change are replaced by the percent errors in state population estimates and the net census undercount. The standardized coefficient of percent errors in births was reduced from 0.53 to 0.16. The percent error in state estimates stands out as the most important variable in explaining errors in the state population projection -- 0.46, followed by the net census undercount (0.23).

The reason for such dramatic shifts in explaining the errors in projections is that the state population estimates are not only used as the starting population base to launch projections, but also are used as the controls to develop population base for fertility, mortality, and migration rates. This can be seen from the correlation between percent errors in projected births and percent errors in state estimates (0.59), and the correlation between errors in projected deaths and state estimates (0.35).

In model 3, the percent population change is included in the regression to see whether difference in rates of population change can explain the variation of errors in projections due to uncertainty of predicting the turning point of population growth. The results show that although population change correlates significantly with projection error (0.42 in Table 6), its net impact on the projection errors becomes unnoticeable when other variables are taken into account.

VII. The Accuracy of National Population Projections

As mentioned before, the results of the state projections were controlled to the national population projections. The accuracy of the national projections would automatically affect the accuracy of the state projections. The national projections series used to control the state projections total show that the projected U.S. population in 2000 as of April 1 was 274,055,000, an under-projection of 7.4 million as compared with the census 2000 count of 281,422,000. The percent difference of 2.62 percent between the national projections and the census 2000 U.S. population is about the same as the MAPE of the state population projections. The latest national projections to year 2100 released in January, 2000 show a projected population of 274,659,000 in 2000, an under-projection of 6.8 million (see Table 8).

The accuracy of the national projections is also affected by the 1990 Census net undercount and the accuracy of national estimates. As Table 8 shows, if the 1990 census undercount rates were applied to the projected total population, the under-projection of the U.S. population would have been reduced dramatically -- from 6.8 million to 2.4 million if the 1990 PES (Post-Enumeration Survey) undercount rate were used, and to 2.2 million if the DA (Demographic Analysis) undercount rate were used. The percent errors for the projections would have been reduced from 2.4 percent to 0.9 percent with PES rate adjustment and to 0.8 percent with DA rate adjustment. This suggests that if

the projections had been based on the 1990 population adjusted for net census undercount, the Census Bureau's latest U.S. projections would have been more accurate.

(Table 8 about here)

Since the national population projections also use the most current population national estimates as the base, the accuracy of the national estimates would affect the accuracy of the national projections. As Table 8 shows, the national estimates also under-estimated the national population by 6.8 million and there is no significant difference between the projected U.S. population (274,649,908) and estimated population (274,608,346) as of 4/1/2000. Since the national estimates were also based on the 1990 census population as enumerated, the errors due to the net census undercount would also affect the accuracy of the national estimates. Therefore, when the estimates are adjusted by the 1990 net census undercount rates as the adjustment for the projections, the differences between estimates and census 2000 are about the same as difference for projections. It becomes obvious that the 1990 net census undercount has seriously affected the accuracy of both the population estimates and projections.

The national projections were based on the component method. The latest national projections were done in 1999 and released in 2000. In order to evaluate the accuracy of projected components of change for the first two years, we compare the projected 1999 and 2000 components with the most recent statistics. As Table 9 shows, the projections under-projected the number of births by 65,000 for 1999 and 148,000 for 2000 (1.65% and 3.66%) based on the provisional NCHS report. The projections under-projected the number of deaths by 19,000 for 1999 and 11,000 for 2000 (0.81% and 0.47%). If the projections had been based on the 1990 population adjusted for net census undercount, the projected births and deaths would have increased to some extent due to the larger population base. The percent errors of projected births and deaths should also be reduced. Therefore, we can conclude that the projected births and deaths for the first two years are quite accurate.

(Table 9 about here)

Table 9 also shows that the projections of net international migration in 1999 and 2000 are higher than the estimated figures by 10 to 11 percent. Since the projections of international migration were based on the estimates of international migration, the errors of the national projections for the first two years are largely due to the errors of the estimates of international migration. The errors of this component also affected the accuracy of the state population projections.

VIII. Conclusions and Implications

The accuracy of state projections depends upon many factors. It has been shown that the level of accuracy or magnitude of errors depends on the accuracy of census counts, national projections which are used to control the results of state projections, the accuracy of state estimates, and the components in the projections. The overall performance of the latest state projections series has been relatively more accurate than previous state projections series. The projections continue to perform poorly in the West. The state population estimates which were used as the population base to start the

projections have similar level of errors as the projections, largely due to the net undercount in the 1990 census.

The percent errors in domestic migration continue to be the highest among the projected components of change, followed by the international migration. The projected births had the lowest average percent errors. However, the states with lower percent errors in projected domestic migration do not necessarily have more accurate state projections.

The multiple regression analysis further confirms that errors in the state estimates are the most important variable contributing to the state projection errors. The errors in the projected components - births, deaths, domestic migration and international migration - should have contributed a significant amount of error to the projections. However, when the state estimates and the 1990 census net undercount are taken into account, the impact of errors from the components becomes less. Since the 1990 census net undercount affected a large portion of errors in the state estimates, the net census undercount also had a significant impact on the accuracy of the projections. The census undercount and the accuracy of the U.S. population estimates also affect the accuracy of the national projections, which in turn, affect the accuracy of the state projections. This further indicates the importance of the accuracy of base year population in producing accurate projections.

When the state estimates and 1990 census net undercount are not taken into account, the errors in projected births explain most of the error, followed by the error in international migration. The errors in projected deaths contributed less to the errors in the projections. However, the errors in domestic migration cannot explain the projection errors although the MAPE of the domestic migration is the highest among the components. This further indicates the difficulty of projecting the migration component in the population projections.

These results suggest that if we want to improve the projection, we need to pay special attention to the accuracy of the base year population and the accuracy of the population estimates. Since the net undercount rates in the census 2000 are relatively low, we would expect that the new projections based on census 2000 or estimates based on census 2000 should not be influenced by the 2000 census net undercount to the extent as by the 1990 census net undercount. Therefore, it is necessary first to ensure the accuracy of projected births because it explains largest proportion of projection errors among the components. It will be more cost-effective to do so because any improvement in projecting births can have a noticeable effect on projection accuracy. On the contrary, it may take more effort to make improvement in the domestic migration component for projections because its direct impact is mixed - it can go in either direction depending on other errors. This does not mean we should not pay attention to this important component in projections. We should know that no matter what we do to improve this component we may not expect to get the expected results. In other words, we do not need a complicated model to project the migration. What we need is a simple, reasonable, and understandable model to explain to the user what we do. Demographers repeatedly indicate that complex techniques did not produce more accurate forecasts or projections (Smith and Sincich, 1992),

References

Campbell, Paul R. 1994, "Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1993 to 2020" Current Population Reports, P25-1111, U.S. Government Printing Office, Washington, D.C.

Campbell, Paul R. 1996a, "How Accurate were the Census Bureau's State Population Projections for the early 1990's?" Paper presented at the Federal Forecasters Conference, Washington, D.C. May 2.

Campbell, Paul R. 1996b, "Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025," PPL-47, U.S. Census Bureau, Population Division, October.

Campbell, Paul R. 1997, "An Evaluation of the Census Bureau's 1995 to 2025 State Population Projections - One Year Later." U. S. Census Bureau, Paper presented at the Population Association of America Meeting, Washington D.C. (March)

Census 2000 Initiative, 2001," Census Bureau Says No To Adjustment; Review Finds Duplicates Wipe Out Most of Net Undercount" News Alert - October 18, 2001

Day, Jennifer Cheeseman, 1996, "Population Projections of the United States by Age, Sex, Race and Hispanic Origin: 1995 to 2050." U.S. Census Bureau, Current Population Reports, Series P25-1120, Government Printing Office, Washington D.C.

Hollmann, Frederick, Tammany Mulder, and Jeffrey Kallan, 1999, "Methodology and Assumptions for the Population Projections of the United States: 1999 to 2100." U.S. Census Bureau, Population Division Working Paper, No. 38, December, 1999.

Robinson, J. Gregory, 2001a, "Accuracy and Coverage Evaluation: Demographic Analysis Results," U.S. Census Bureau, DSSD Census 2000 Procedure and Operations Memorandum Series B-4* (March 12, 2001)

Robinson J. Gregory, 2001b, "ESCAP II: Demographic Analysis Results," U.S. Census Bureau, Executive Steering Committee for ACE Policy II, Report No. 1 (October 13, 2001).

Smith, Stanley K. and Terry Sincich, 1990, " The Relationship Between the Length of the Base Period and Population Forecast Errors," Journal of the American Statistical Association, Vol 85, No. 410, 1367-1375.

Smith, Stanley K. and Terry Sincich,1992, "Evaluating the Forecast Accuracy and Bias of Alterative Population Projections for States." International Journal of Forecasting, 8, 495-508.

Smith Stanley K. and Scott Cody, 1994, "Evaluating the Housing Unit Method, A Case Study of 1990 Population Estimates in Florida," Journal of the American Planning Association, vol. 60, No. 2 (Spring)

Swanson A. David, Jeff Tayman, and Charles F. Barr, 2000, "A Note on the Measurement of Accuracy for Subnational Demographic Estimates." Demography, Vol.37, No. 2 May 2000:193-201.

Tayman, Jeff and David A. Swanson, 1999, "On the Validity of MAPE as a Measure of Population Forecast Accuracy," Population Research and Policy Review: 18: 299-322.

Tayman, Jeff , David A. Swanson, and Charles F Barr, 1999, "In Search of the Ideal Measure of Accuracy for Subnational Demographic Forecasts." Population Research and Policy Review, 18: 387-409.

U.S. Census Bureau, http://www.census.gov/population/www/projections/st_yr95to00.html

U.S. Census Bureau, http://www.census.gov/population/www/projections/st_comp-chg.html

U.S. Department of Commerce, Press Release, 2001, "Statement of Acting Census Bureau Director William Barron Regarding the Adjustment Decision." CB01-CS.08, October 17, 2001.

Wetrogan, Signe I. And Paul R. Campbell, 1990, "Evaluation of State Population Projections." Paper presented at the Population Association of America, Toronto, Canada, May 3-5.

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Table 1:

of State Population Projections for 2000 as Compared with the Census 2000: Regions and Divisions

Region and Division	Number of States	Series A		Series B	
		MAPE	MALPE	MAPE	MALPE
U.S. Total	51	2.64	-1.40	2.44	-1.65
Northeast	9	2.50	-2.26	2.57	-2.57
New England	6	2.42	-2.06	2.58	-2.58
Middle Atlantic	3	2.67	-2.67	2.55	-2.55
Midwest	12	1.58	-0.65	1.40	-0.74
East North Central	5	1.54	-1.54	1.36	-1.36
West North Central	7	1.60	-0.01	1.43	-0.30
South	17	2.60	-2.39	2.58	-2.42
South Atlantic	9	3.50	-3.11	3.50	-3.20
East South Central	4	0.89	-0.89	0.87	-0.87
West South Central	4	2.29	-2.29	2.22	-2.22
West	13	3.75	-0.18	3.13	-0.86
Mountain	8	4.41	-0.44	3.91	-0.86
Pacific	5	2.69	0.22	1.89	-0.86

Source: Campbell, Paul R. “Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025," PPL-47, U.S. Census Bureau, Population Division, October, 1996
Internet Release date: October 30, 2002

Table 2:
Mean Absolute Percent Errors of Various State Population Projections Series for 5 Years Ahead by Region

Projection Reports	P25-375	P25-477	P25-796	P25-937	P25-1017	P25-1053	P25-1111	Current PPL-47		
Jump off Year	1965	1970	1975	1980	1986	1988	1992	1995		
Evaluation Year	1970	1975	1980	1985	1991	1993	1997	2000	2000	Revised **
Evaluation Yr Data	Census	Estimates	Census	Estimates	Estimates	Estimates	Estimates	Census	Estimates*	Estimates
	Series I-D	Series I-E	Series II-A			Series A	Series A	Series A		
Total (N=51)	3.1	5.2	4.7	3.2	2.6	2.6	1.6	2.6	1.5	1.7
Northeast (N=9)	2.9	4.0	2.9	2.7	1.6	2.3	1.1	2.5	0.8	0.8
Midwest (N=12)	2.7	2.4	1.4	1.3	1.4	1.2	1.0	1.6	1.2	1.5
South (N=17)	2.9	6.0	5.2	2.4	1.5	1.0	0.6	2.6	0.5	0.9
West (N=13)	3.7	7.6	8.4	6.2	4.7	5.1	3.3	3.8	3.2	3.7
	Series II-D		series II-B			Series B	Series B	Series B		
Total (N=51)	3.0		3.8			2.5	2.5	2.4	1.3	1.5
Northeast (N=9)	2.7		2.3			1.4	3.0	2.6	0.7	0.7
Midwest (N=12)	2.7		1.1			1.8	1.0	1.4	1.0	1.3
South (N=17)	3.1		4.0			1.6	0.8	2.6	0.5	0.9
West (N=13)	3.5		7.0			3.9	4.9	3.1	2.6	2.9
						Series C	Series C			
Total (N=51)						2.4	1.7			
Northeast (N=9)						2.5	1.3			
Midwest (N=12)						1.0	0.9			
South (N=17)						0.9	0.8			
West (N=13)						4.8	3.4			

*The 2000 state population estimates as 4/1/2000 are obtained from the Population Estimates Program with extrapolation.
**The revised 2000 state estimates are obtained from the Population Estimates Program with interpolation to 4/1 from 7/1/2000.
Sources:

Wetrogan, Signe I., 1988, "Projections of the Population of States by Age, Sex, and Race: 1988 to 2010," U.S. Census Bureau, Current Population Reports, Series P25-1017, U.S. Government Printing Office, Washington, D.C.

Wetrogan, Signe I., 1990, "Projections of the Population of States by Age, Sex, and Race: 1989 to 2020," U.S. Census Bureau, Current Population Reports, Series P25-1053, U.S. Government Printing Office, Washington, D.C

Wetrogan, Signe I. And Paul R. Campbell, 1990, "Evaluation of State Population Projections," presented at the Population Association of America Annual Meetings, Toronto, Canada, May 3-5.

Campbell, Paul R.,1994, "Population Projections for States, by Age, Sex, Race, and Hispanic Origin: 1993 to 2020," U.S. Census Bureau, Current Population Reports, P-25-1111, U.S. government Printing Office, Washington, D.C.

Campbell, Paul R.,1996, "Population Projections for States, by Age, Sex, Race, and Hispanic Origin: 1995 to 2025," U.S. Census Bureau, Population Division Working Papers, PPL-47.

Internet Release date: October 30, 2002

Table 3:
Mean Absolute Percent Error (MAPE) and Mean Algebraic Percent Error (MALPE) of State Projections for 2000 Adjusted for 1990 Census Net Undercount

Region and Subdivision	Number of States	Series A		Series B	
		MAPE	MALPE	MAPE	MALPE
U.S. Total	51	2.21	0.13	1.99	-0.14
Northeast	9	2.06	-1.57	2.03	-1.88
New England	6	2.14	-1.40	2.15	-1.93
Middle Atlantic	3	1.90	-1.90	1.78	-1.78
Midwest	12	1.27	0.01	1.12	-0.08
East North Central	5	0.98	-0.85	0.91	-0.67
West North Central	7	1.47	0.63	1.27	0.35
South	17	1.58	-0.38	1.54	-0.40
South Atlantic	9	2.24	-1.05	2.09	-1.15
East South Central	4	0.95	0.95	0.97	0.97
West South Central	4	0.73	-0.17	0.87	-0.09
West	13	4.00	2.06	3.36	1.37
Mountain	8	4.68	1.90	4.27	1.47
Pacific	5	2.91	2.33	1.91	1.22

Source: Campbell, Paul R. “Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025," PPL-47, U.S. Census Bureau, Population Division, October,1996
Internet Release date: October 30, 2002

Table 4:
Difference between State Estimates for 2000 and Census 2000 Counts and Mean Absolute Percent Errors

Region and Division	Difference between Estimates and Census 2000				MAPE	
	1990 Census Base		Undercount Adjusted Base		1990 Census Base	Undercount Adjusted Base
	Number	Percent	Number	Percent		
All States	-6,813,550	-2.42	-2,874,106	-1.02	2.57	1.47
Northeast	-1,460,378	-2.72	-1,051,712	-1.96	2.61	1.98
New England	-350,186	-2.52	-273,885	-1.97	2.60	1.98
Middle Atlantic	-1,110,192	-2.80	-777,827	-1.96	2.65	1.97
Midwest	-797,850	-1.24	-384,335	-0.60	1.44	0.95
East North Central	-473,715	-1.05	-161,533	-0.36	1.13	0.79
West North Central	-324,135	-1.68	-222,802	-1.16	1.65	1.06
South	-3,013,859	-3.01	-1,178,952	-1.18	2.89	1.35
South Atlantic	-1,815,340	-3.51	-931,958	-1.80	3.47	1.95
East South Central	-339,067	-1.99	-65,363	-0.38	1.91	0.50
West South Central	-859,452	-2.73	-181,631	-0.58	2.56	0.83
West	-1,541,463	-2.44	-259,107	-0.41	3.16	1.76
Mountain	-884,818	-4.87	-566,573	-3.12	4.10	2.40
Pacific	-656,645	-1.46	307,466	0.68	1.66	0.73

Notes:
1. The estimates are derived by adding the components of change between 4/1/90 and 4/1/2000 to the 1990 Census count.
2. The 1990 census base estimates use the 1990 census count as enumerated as the base.
3. The estimates adjusted for net census undercount use the 1990 census counts adjusted for net census undercount as base.
4. The components of change include births, deaths, net domestic migration, net international migration, federal-civilian movement and residual adjustments.

Source: U.S. Census Bureau
Internet Release date: October 30, 2002

Table 5:
Mean Absolute Percent Errors of Projected Components of Change as Compared with Estimated Components of Change between July 1,1995 and July 1, 2000

Region and Division	Series A				Series B			
			Net migration				Net migration	
	Births	Deaths	Domestic	International	Births	Deaths	Domestic	International
All States	6.3	7.0	193.3	31.5	6.2	7.0	174.2	31.5
Northeast	7.5	10.5	104.5	35.9	7.4	10.5	87.8	35.9
New England	9.1	8.6	139.7	49.1	8.8	8.5	113.1	49.1
Middle Atlantic	4.4	14.3	34.0	9.6	4.5	14.3	37.1	9.6
Midwest	2.6	7.9	186.1	33.5	2.5	7.8	176.6	33.5
East North Central	2.4	7.4	213.6	29.8	2.5	7.4	222.5	29.8
West North Central	2.7	8.2	166.4	36.2	2.6	8.1	143.8	36.1
South	5.7	6.0	71.9	22.4	5.7	6.0	62.5	22.4
South Atlantic	6.5	7.1	44.1	22.6	6.5	7.1	27.5	22.7
East South Central	4.3	4.0	147.4	17.6	4.3	4.0	138.7	17.7
West South Central	5.3	5.5	58.7	26.5	5.3	5.5	65.1	26.5
West	9.6	5.1	420.1	38.5	9.4	5.0	377.7	38.5
Mountain	9.9	4.1	606.6	50.9	9.8	4.0	554.0	50.9
Pacific	9.2	6.7	121.8	18.6	8.9	6.5	95.7	18.6

Source: Campbell, Paul R. “Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025," PPL-47, U.S. Census Bureau, Population Division, October,1996
Estimated components of change are derivied from the Census Bureau's Population Estimates Program
Internet Release date: October 30, 2002

Table 6:
Correlation Matrix of Absolute Percent Projections Errors and Independent Variables

Series A

Variables Absolute % Error	Absolute Percent Projections Error	Undercount Rate	Estimates Error	Births Error	Deaths Error	Domestic Mig Error	International Mig Error	Pop Change 1990-2000
Projections	1							
Undercount	0.474*	1						
Estimates	0.724*	0.411*	1					
Births	0.565*	0.394*	0.591*	1				
Deaths	0.334*	-0.051	0.353*	0.332*	1			
Domestic	-0.057	0.068	-0.018	0.160	-0.205	1		
International	0.272*	-0.002	0.255*	0.182	0.147	0.272*	1	
Pop Change	0.419*	0.493*	0.595*	0.338*	-0.273*	0.092	0.124	1

* Significant at 0.05 level.

Source: U.S. Census Bureau
Internet Release date: October 30, 2002

Table 7:
Standardized Regression Coefficients of Independent Variables on Absolute Percent Error of State Projections

Independent Variables	Series A		
	Model 1	Model 2	Model 3
Absolute % error in projected births	0.525*	0.164	0.166
Absolute % error in projected deaths	0.092	0.084	0.068
Absolute % error in projected domestic migration	-0.180	-0.113	-0.114
Absolute % error in projected international migration	0.212*	0.143	0.144
1990 census undercount rate	--	0.231*	0.236*
Absolute % error in state estimates	--	0.464*	0.485*
Absoulte % population change 1990-2000	--	--	-0.031
R	0.629	0.782	0.782
R-Square	0.395	0.611	0.612
Adjusted R-Square	0.343	0.558	0.548
Residual	0.778	0.623	0.623
F	7.522	11.533	9.674
Significance	<0.001	<0.001	<0.001

* Significant at 0.05 level.

Source: U.S. Census Bureau
Internet Release date: October 30, 2002

Table 8:
U.S. Population Projections, Census 2000 Count, and Vintage 2000 Estimates: 4/1/2000

Official/Adjustment	2000 Projections*	Estimates Vintage 2000	Census 2000	Projections - Census		Projections-Estimates	
				Number	Percent	Number	Percent
Official Population	274,649,908	274,608,346	281,421,906	-6,771,998	-2.41	41,562	0.02
Adjustment based on:							
PES undercount rate**	278,989,377	278,947,158	--	-2,432,529	-0.86	42,219	0.02
DA undercount rate**	279,181,631	279,139,384	--	-2,240,275	-0.80	42,248	0.02

* Population Projections of the United States: 1999 to 2100 (Population Division Working Paper No. 38)
**The adjustment for 1990 census undercount is based on the following information.

Official U.S. Population	248,709,873
Undercount Adjusted (PES)	252,730,369
Net Undercount Rates	
Post Enumeration Survey(PES	1.58
Demographic Analysis(DA)	1.65

Source: U.S. Census Bureau, ESCAP II: Demographic Analysis Results, October 13, 2001.
and http://www.census.gov/dmd/www/pdf/understate.pdf.
Internet Release date: October 30, 2002

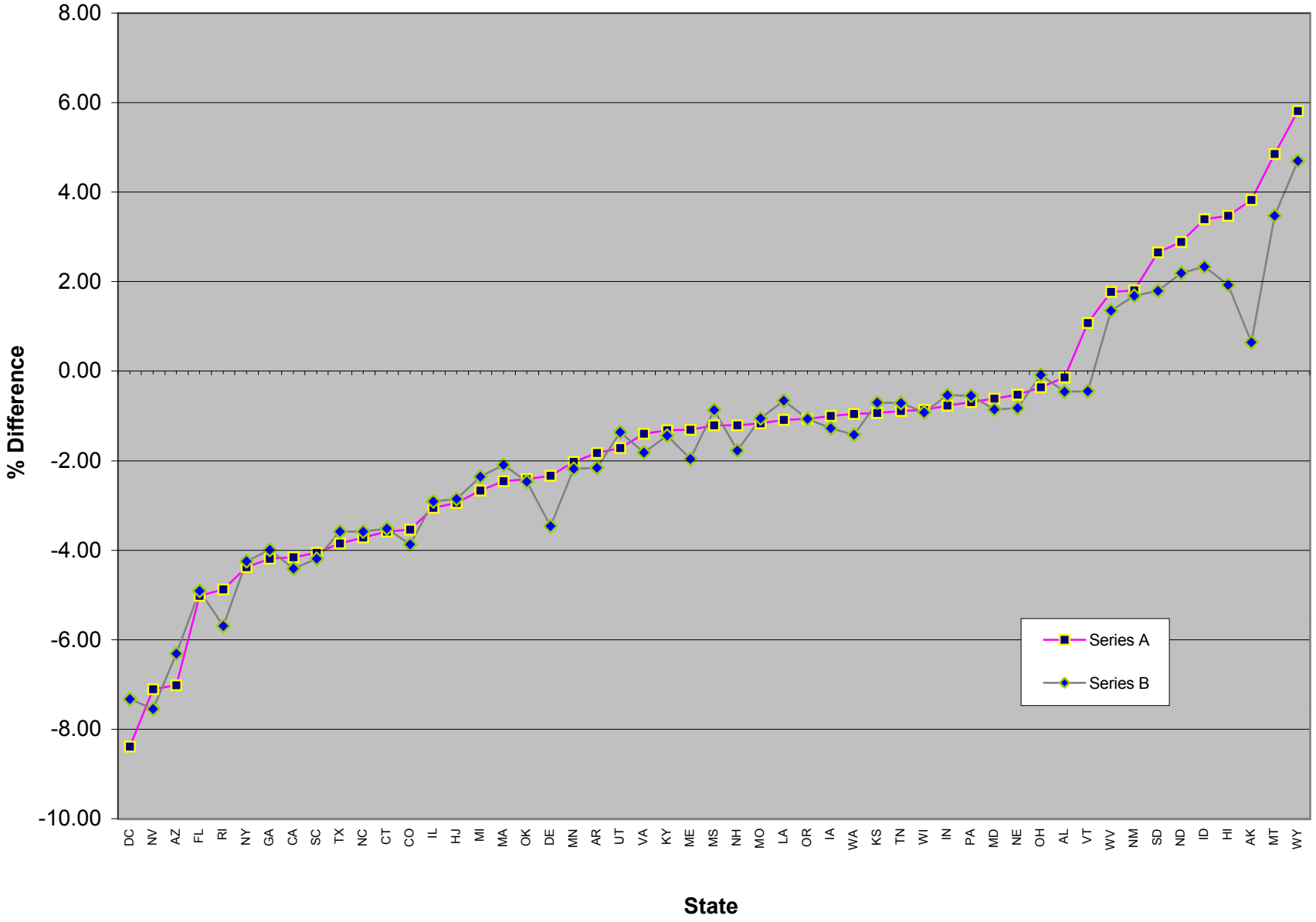
Table 9:
Projected and Estimated Components of Change of the U.S. Population, 1999 and 2000

Components	Projections		Reported/Estimated ** Calendar Year		Projections - Estimates			
					Number		Percent	
	1999	2000	1999	2000	1999	2000	1999	2000
Births	3,899,691	3,914,173	3,965,000	4,063,000	-65,309	-148,827	-1.65	-3.66
Deaths	2,376,563	2,392,804	2,396,000	2,404,000	-19,437	-11,196	-0.81	-0.47
Net International Migration	960,215	970,368	864,844	880,119	95,371	90,249	11.03	10.25

** NCHS, National Vital Statistics Report, Vol. 49, No.6, August 22, 2001.
**Net International migration is derived from the annual estimates in the Census Bureau's Population Estimates Program

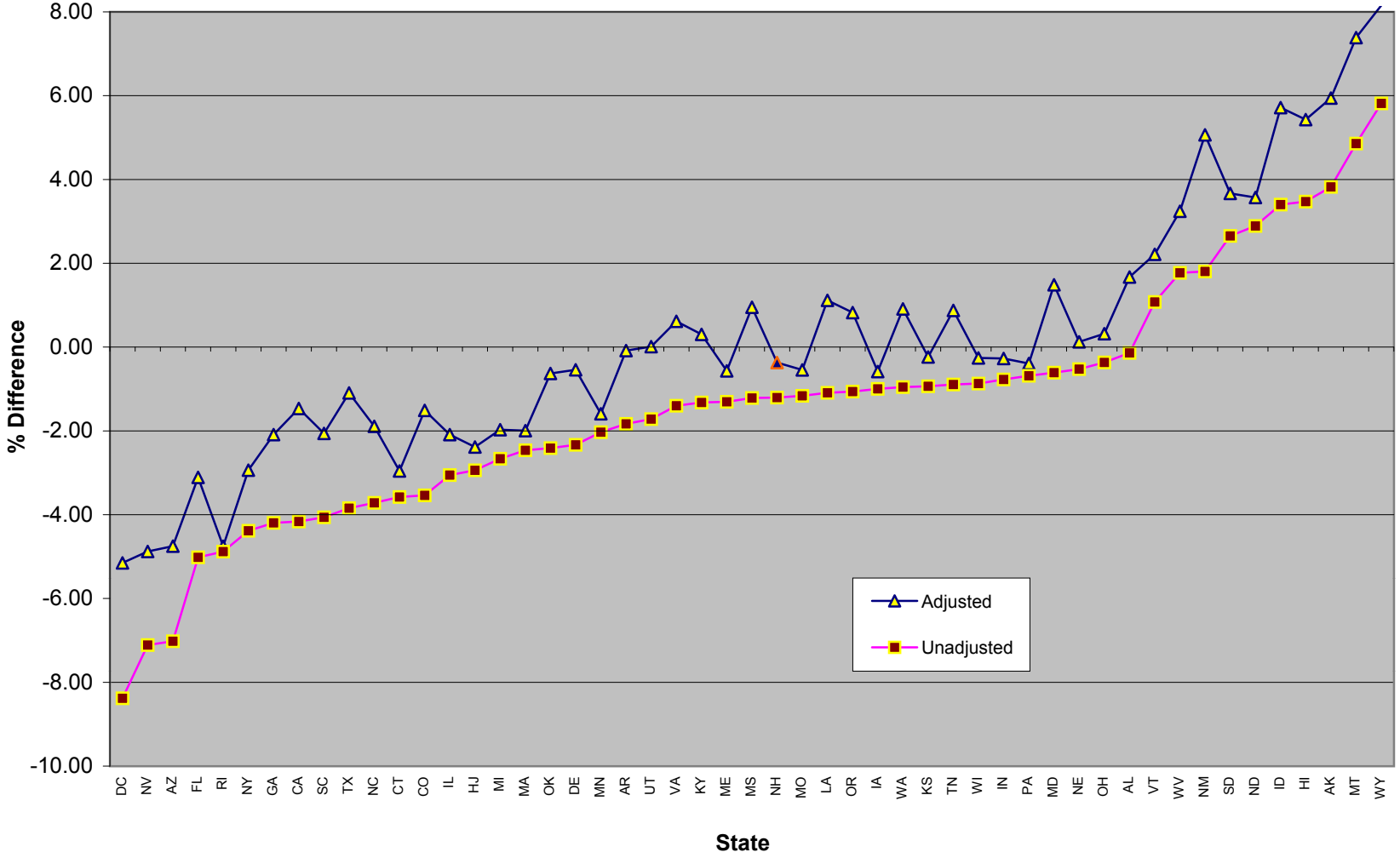
Source: U.S. Census Bureau, U.S. Population Projections 1999 - 2100;
Internet Release date: October 30, 2002

Figure 1
Percent Difference Between State Projections for 2000 and Census 2000 Counts
Series A and B, Ranked by Series A (Projections-Census)



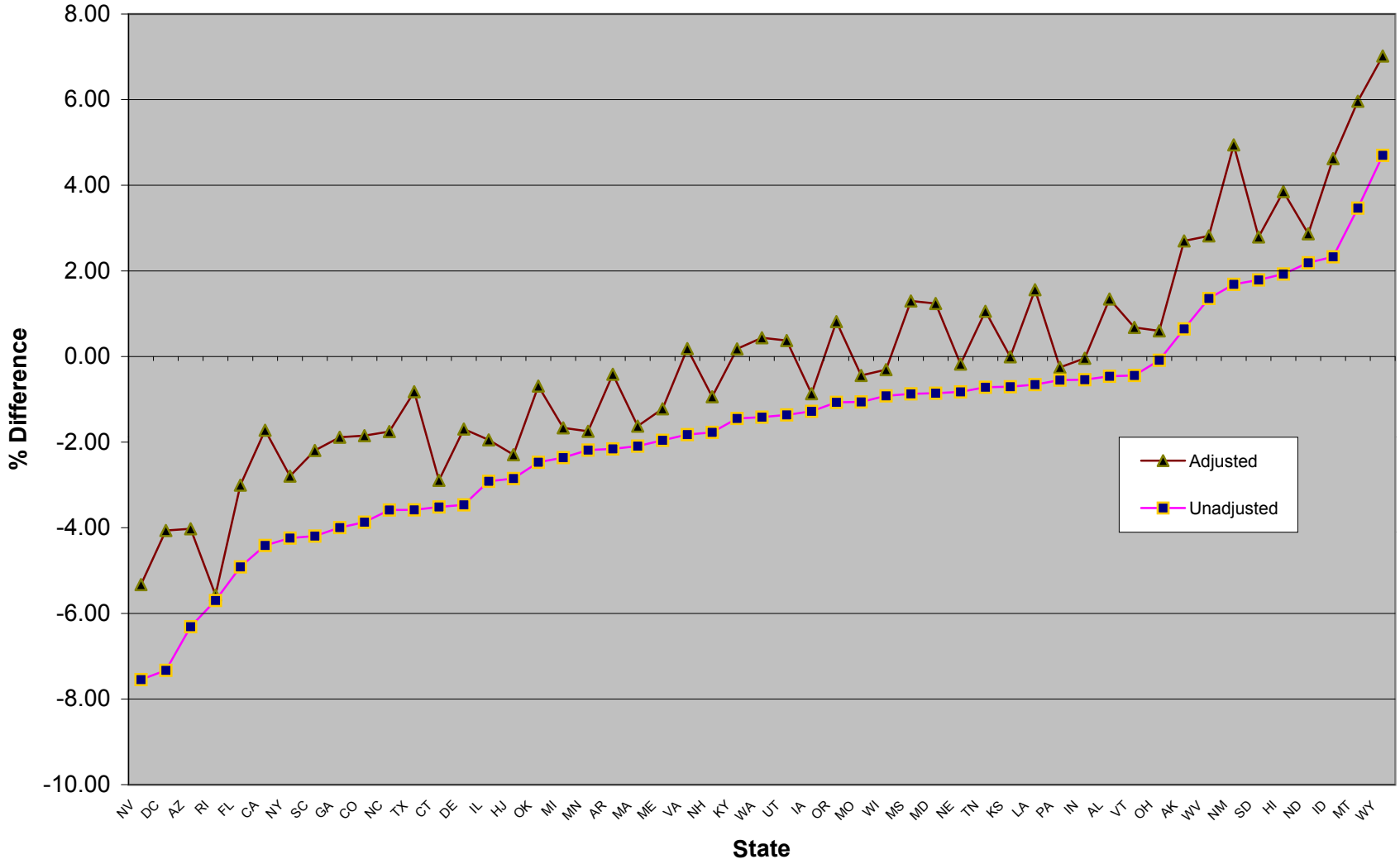
Source: U.S. Census Bureau
Internet Release date: October 30, 2002

Figure 2
Percent Difference between State Projections for 2000 and Census 2000 Counts with and without 1990 Census Undercount Adjustment - Series A



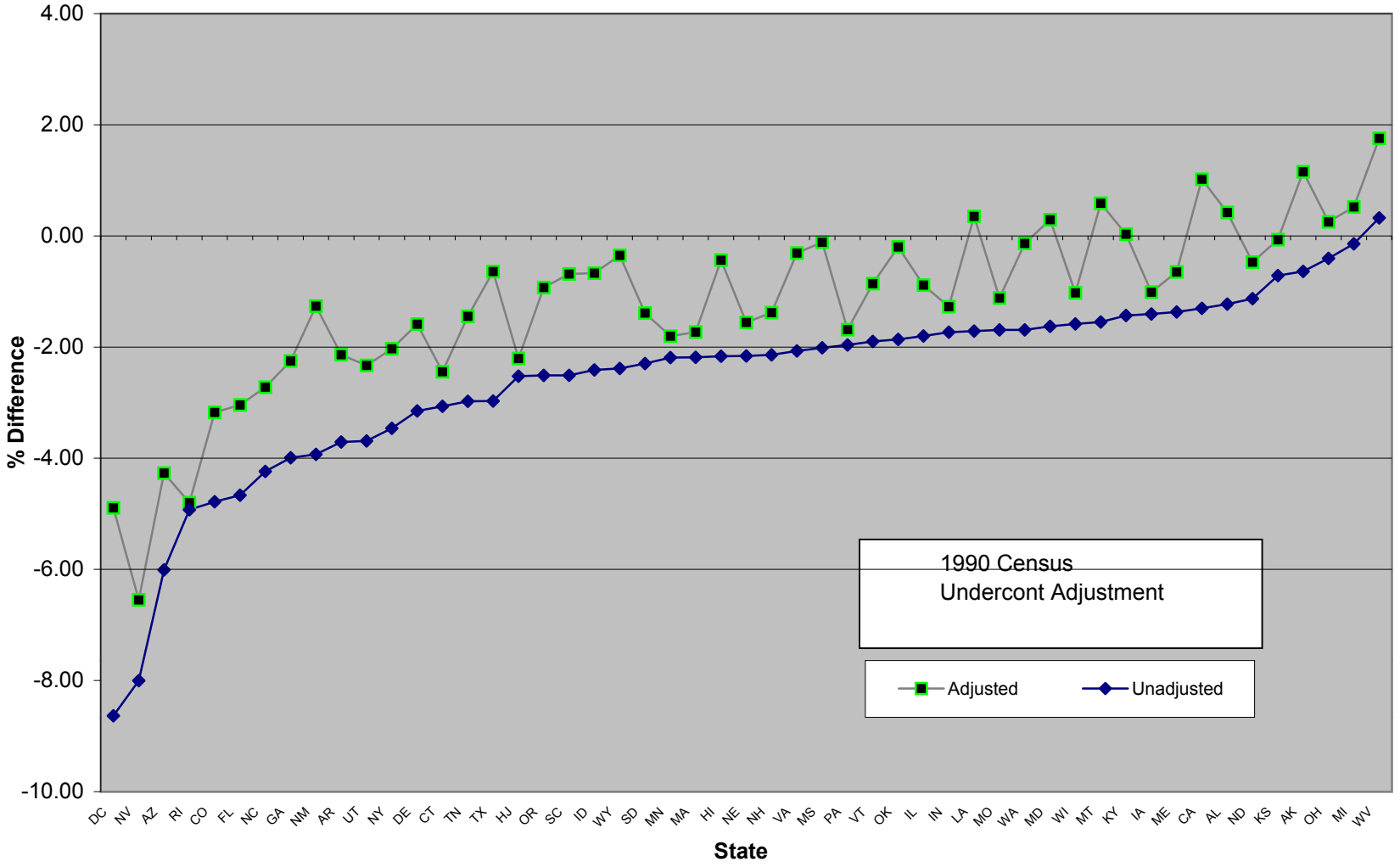
Source: U.S. Census Bureau
Internet Release date: October 30, 2002

Figure 3
Percent Difference between State Projections for 2000 and Census 2000 Counts with and without 1990 Census Undercount Adjustment - Series B



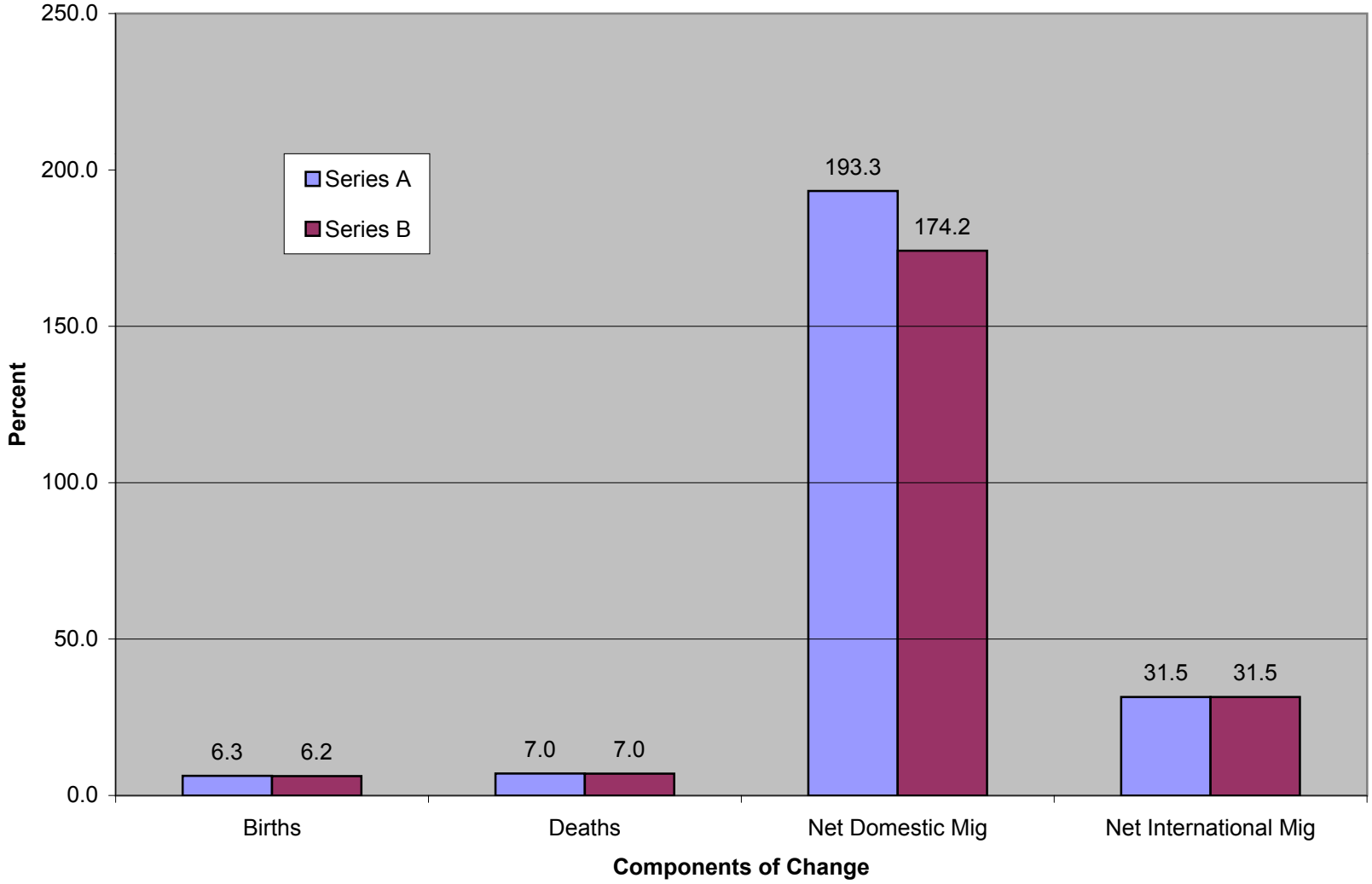
Source: U.S. Census Bureau
Internet Release date: October 30, 2002

Figure 4
Percent Difference between State Estimates for 2000 and Census 2000 Counts with 1990 Census as Enumerated and with Undercount Adjusted Base (Estimates - Census)



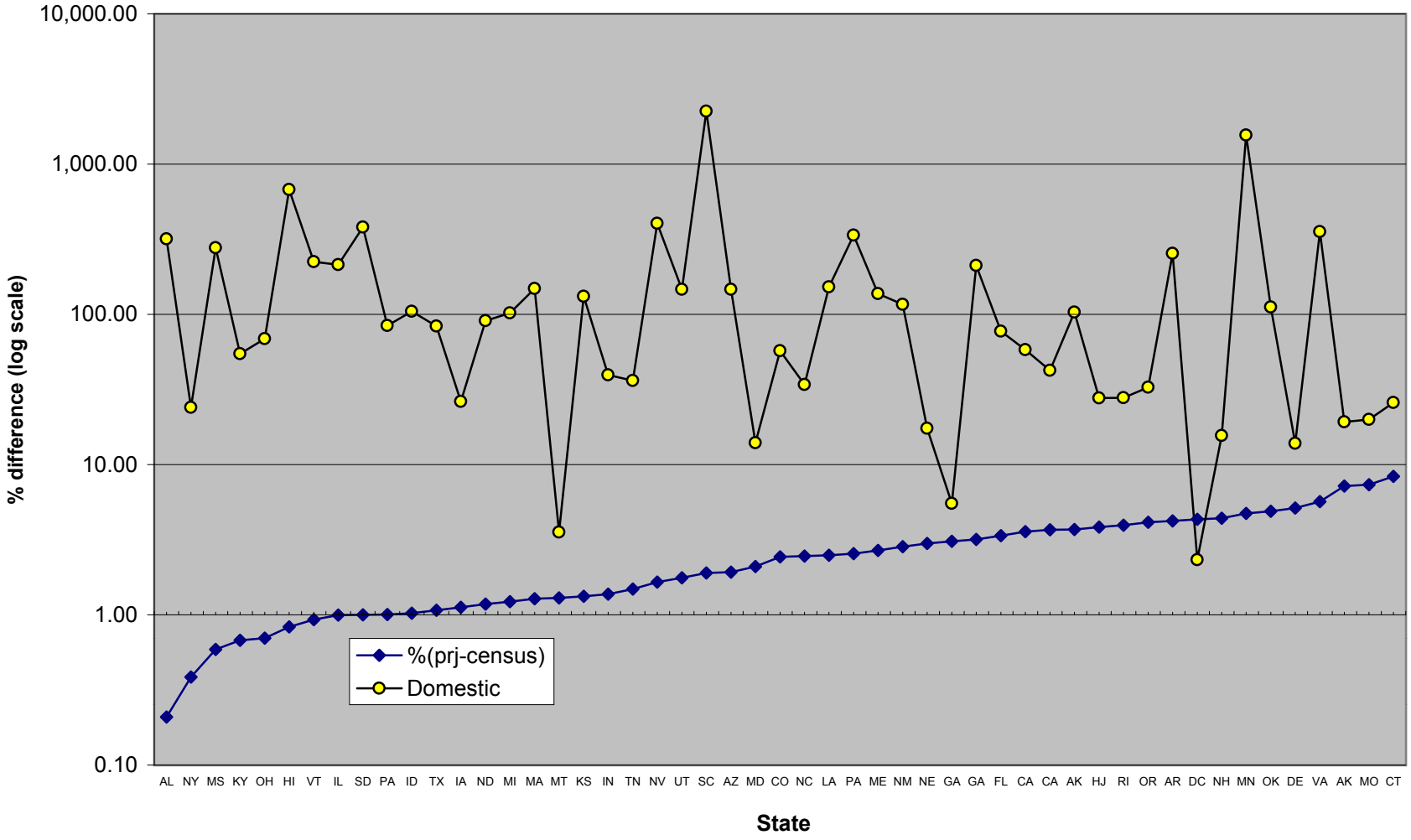
Source: U.S. Census Bureau
Internet Release date: October 30, 2002

Figure 5
Mean Absolute Percent Difference between Projected and Estimated Components of Change between 1995 and 2000 in 50 States and D.C.



Source: U.S. Census Bureau
Internet Release date: October 30, 2002

Figure 6
Absolute Percent Errors of Projected Domestic Migration Between 1995 and 2000 and Absolute Percent Errors of Projected State Projections for 2000 (Series A)



Source: U.S. Census Bureau
Internet Release date: October 30, 2002

Appendix A
Comparison between State Population Projections for 2000 and Census 2000 Population - Regions, Divisions, and States

Region, Division, and State	2000 Census	2000 Projections*		Difference from Census 2000		% Difference		Absolute % Errors	
		Series A	Series B	Series A	Series B	Series A	Series B	Series A	Series B
U.S. Total	281,421,906	274,055,235	274,055,214	-7,366,671	-7,366,692	-2.62	-2.62	2.62	2.62
Northeast	53,594,378	52,076,453	52,120,430	-1,517,925	-1,473,948	-2.83	-2.75	2.83	2.75
New England	13,922,517	13,568,193	13,560,712	-354,324	-361,805	-2.54	-2.60	2.54	2.60
Connecticut	3,405,565	3,283,681	3,285,885	-121,884	-119,680	-3.58	-3.51	3.58	3.51
Maine	1,274,923	1,258,270	1,249,993	-16,653	-24,930	-1.31	-1.96	1.31	1.96
Massachusetts	6,349,097	6,192,833	6,216,210	-156,264	-132,887	-2.46	-2.09	2.46	2.09
New Hampshire	1,235,786	1,220,880	1,213,900	-14,906	-21,886	-1.21	-1.77	1.21	1.77
Rhode Island	1,048,319	997,145	988,592	-51,174	-59,727	-4.88	-5.70	4.88	5.70
Vermont	608,827	615,384	606,132	6,557	-2,695	1.08	-0.44	1.08	0.44
Middle Atlantic	39,671,861	38,508,260	38,559,718	-1,163,601	-1,112,143	-2.93	-2.80	2.93	2.80
New Jersey	8,414,350	8,166,968	8,174,506	-247,382	-239,844	-2.94	-2.85	2.94	2.85
New York	18,976,457	18,144,477	18,171,570	-831,980	-804,887	-4.38	-4.24	4.38	4.24
Pennsylvania	12,281,054	12,196,815	12,213,642	-84,239	-67,412	-0.69	-0.55	0.69	0.55
Midwest	64,392,776	63,424,441	63,494,539	-968,335	-898,237	-1.50	-1.39	1.50	1.39
East North Central	45,155,037	44,376,225	44,466,529	-778,812	-688,508	-1.72	-1.52	1.72	1.52
Illinois	12,419,293	12,040,161	12,057,389	-379,132	-361,904	-3.05	-2.91	3.05	2.91
Indiana	6,080,485	6,033,613	6,047,623	-46,872	-32,862	-0.77	-0.54	0.77	0.54
Michigan	9,938,444	9,673,666	9,703,903	-264,778	-234,541	-2.66	-2.36	2.66	2.36
Ohio	11,353,140	11,311,746	11,343,145	-41,394	-9,995	-0.36	-0.09	0.36	0.09
Wisconsin	5,363,675	5,317,039	5,314,469	-46,636	-49,206	-0.87	-0.92	0.87	0.92
West North Central	19,237,739	19,048,216	19,028,010	-189,523	-209,729	-0.99	-1.09	0.99	1.09
Iowa	2,926,324	2,897,187	2,888,900	-29,137	-37,424	-1.00	-1.28	1.00	1.28
Kansas	2,688,418	2,663,323	2,669,433	-25,095	-18,985	-0.93	-0.71	0.93	0.71
Minnesota	4,919,479	4,819,623	4,812,042	-99,856	-107,437	-2.03	-2.18	2.03	2.18
Missouri	5,595,211	5,530,194	5,535,890	-65,017	-59,321	-1.16	-1.06	1.16	1.06
Nebraska	1,711,263	1,702,248	1,697,122	-9,015	-14,141	-0.53	-0.83	0.53	0.83
North Dakota	642,200	660,757	656,266	18,557	14,066	2.89	2.19	2.89	2.19
South Dakota	754,844	774,884	768,357	20,040	13,513	2.65	1.79	2.65	1.79
South	100,236,820	97,336,073	97,385,339	-2,900,747	-2,851,481	-2.89	-2.84	2.89	2.84
South Atlantic	51,769,160	49,995,862	49,981,000	-1,773,298	-1,788,160	-3.43	-3.45	3.43	3.45
Delaware	783,600	765,314	756,464	-18,286	-27,136	-2.33	-3.46	2.33	3.46
District of Columbia	572,059	524,106	530,118	-47,953	-41,941	-8.38	-7.33	8.38	7.33
Florida	15,982,378	15,180,438	15,197,100	-801,940	-785,278	-5.02	-4.91	5.02	4.91
Georgia	8,186,453	7,843,112	7,859,307	-343,341	-327,146	-4.19	-4.00	4.19	4.00
Maryland	5,296,486	5,264,121	5,251,178	-32,365	-45,308	-0.61	-0.86	0.61	0.86
North Carolina	8,049,313	7,750,020	7,760,759	-299,293	-288,554	-3.72	-3.58	3.72	3.58
South Carolina	4,012,012	3,849,025	3,843,724	-162,987	-168,288	-4.06	-4.19	4.06	4.19
Virginia	7,078,515	6,979,323	6,949,497	-99,192	-129,018	-1.40	-1.82	1.40	1.82
West Virginia	1,808,344	1,840,403	1,832,853	32,059	24,509	1.77	1.36	1.77	1.36
East South Central	17,022,810	16,877,949	16,878,280	-144,861	-144,530	-0.85	-0.85	0.85	0.85
Alabama	4,447,100	4,440,992	4,426,649	-6,108	-20,451	-0.14	-0.46	0.14	0.46
Kentucky	4,041,769	3,988,348	3,983,336	-53,421	-58,433	-1.32	-1.45	1.32	1.45
Mississippi	2,844,658	2,810,149	2,819,826	-34,509	-24,832	-1.21	-0.87	1.21	0.87
Tennessee	5,689,283	5,638,460	5,648,469	-50,823	-40,814	-0.89	-0.72	0.89	0.72
West South Central	31,444,850	30,462,262	30,526,059	-982,588	-918,791	-3.12	-2.92	3.12	2.92
Arkansas	2,673,400	2,624,416	2,615,737	-48,984	-57,663	-1.83	-2.16	1.83	2.16
Louisiana	4,468,976	4,420,260	4,439,628	-48,716	-29,348	-1.09	-0.66	1.09	0.66
Oklahoma	3,450,654	3,367,509	3,365,441	-83,145	-85,213	-2.41	-2.47	2.41	2.47
Texas	20,851,820	20,050,077	20,105,253	-801,743	-746,567	-3.84	-3.58	3.84	3.58
West	63,197,932	61,218,268	61,054,906	-1,979,664	-2,143,026	-3.13	-3.39	3.13	3.39
Mountain	18,172,295	17,628,766	17,616,233	-543,529	-556,062	-2.99	-3.06	2.99	3.06
Arizona	5,130,632	4,770,448	4,806,924	-360,184	-323,708	-7.02	-6.31	7.02	6.31
Colorado	4,301,261	4,149,025	4,134,808	-152,236	-166,453	-3.54	-3.87	3.54	3.87
Idaho	1,293,953	1,337,940	1,324,114	43,987	30,161	3.40	2.33	3.40	2.33
Montana	902,195	946,013	933,479	43,818	31,284	4.86	3.47	4.86	3.47
Nevada	1,998,257	1,856,175	1,847,432	-142,082	-150,825	-7.11	-7.55	7.11	7.55
New Mexico	1,819,046	1,851,902	1,849,747	32,856	30,701	1.81	1.69	1.81	1.69
Utah	2,233,169	2,194,770	2,202,733	-38,399	-30,436	-1.72	-1.36	1.72	1.36
Wyoming	493,782	522,493	516,996	28,711	23,214	5.81	4.70	5.81	4.70
Pacific	45,025,637	43,589,502	43,438,673	-1,436,135	-1,586,964	-3.19	-3.52	3.19	3.52
Alaska	626,932	650,896	630,974	23,964	4,042	3.82	0.64	3.82	0.64
California	33,871,648	32,462,045	32,377,381	-1,409,603	-1,494,267	-4.16	-4.41	4.16	4.41
Hawaii	1,211,537	1,253,623	1,234,902	42,086	23,365	3.47	1.93	3.47	1.93
Oregon	3,421,399	3,385,094	3,384,821	-36,305	-36,578	-1.06	-1.07	1.06	1.07
Washington	5,894,121	5,837,844	5,810,595	-56,277	-83,526	-0.95	-1.42	0.95	1.42

* Projected 2000 was as of July 1, 2000. In order to make appropriate comparison, the July 1 figures are converted to April 1, 2000 based on the following procedure: Geometric Interpolation
P(4/1) = P(1999)*(P2000/P1999)^(9/12)

Source: Campbell, Paul R. "Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025," PPL-47, U.S. Census Bureau, Population Division, October, 1996

Internet Release date: October 30, 2002

Appendix B

1990 Census Undercount Rates and State Population Projections for 2000 with and without Undercount Adjustment - Regions, Divisions, and States

Region, Division, and State	1990 Census			1990 Official Based 2000 Projections		Undercount Adjusted 2000 Projections		% difference between Adjusted and Census	
	Official Counts	Net Under-count Rate	Under-count Adjusted	Series A	Series B	Series A	Series B	Series A	Series B
U.S. Total	248,709,873	1.62	252,730,369	274,055,235	274,055,214	278,572,861	278,571,537	-1.01	-1.01
Northeast	50,809,229	0.84	51,236,979	52,076,453	52,120,430	52,512,544	52,556,913	-2.02	-1.94
New England	13,206,943	0.58	13,283,244	13,568,193	13,560,712	13,647,072	13,639,480	-1.98	-2.03
Connecticut	3,287,116	0.65	3,308,343	3,283,681	3,285,885	3,304,886	3,307,104	-2.96	-2.89
Maine	1,227,928	0.75	1,237,130	1,258,270	1,249,993	1,267,699	1,259,360	-0.57	-1.22
Massachusetts	6,016,425	0.48	6,045,224	6,192,833	6,216,210	6,222,476	6,245,965	-1.99	-1.62
New Hampshire	1,109,252	0.85	1,118,632	1,220,880	1,213,900	1,231,204	1,224,165	-0.37	-0.94
Rhode Island	1,003,464	0.13	1,004,815	997,145	988,592	998,487	989,923	-4.75	-5.57
Vermont	562,758	1.13	569,100	615,384	606,132	622,319	612,963	2.22	0.68
Middle Atlantic	37,602,286	0.93	37,953,735	38,508,260	38,559,718	38,865,472	38,917,432	-2.03	-1.90
New Jersey	7,730,188	0.57	7,774,461	8,166,968	8,174,506	8,213,743	8,221,324	-2.38	-2.29
New York	17,990,455	1.51	18,262,491	18,144,477	18,171,570	18,418,842	18,446,345	-2.94	-2.79
Pennsylvania	11,881,643	0.30	11,916,783	12,196,815	12,213,642	12,232,887	12,249,764	-0.39	-0.25
Midwest	59,668,632	0.69	60,082,835	63,424,441	63,494,539	63,863,772	63,934,410	-0.82	-0.71
East North Central	42,008,942	0.74	42,321,296	44,376,225	44,466,529	44,705,607	44,796,567	-1.00	-0.79
Illinois	11,430,602	0.99	11,544,319	12,040,161	12,057,389	12,159,942	12,177,342	-2.09	-1.95
Indiana	5,544,159	0.50	5,572,057	6,033,613	6,047,623	6,063,974	6,078,054	-0.27	-0.04
Michigan	9,295,297	0.71	9,361,308	9,673,666	9,703,903	9,742,364	9,772,816	-1.97	-1.67
Ohio	10,847,115	0.69	10,921,741	11,311,746	11,343,145	11,389,569	11,421,184	0.32	0.60
Wisconsin	4,891,769	0.62	4,921,871	5,317,039	5,314,469	5,349,758	5,347,172	-0.26	-0.31
West North Central	17,659,690	0.58	17,761,539	19,048,216	19,028,010	19,158,166	19,137,842	-0.41	-0.52
Iowa	2,776,755	0.42	2,788,332	2,897,187	2,888,900	2,909,266	2,900,945	-0.58	-0.87
Kansas	2,477,574	0.70	2,495,014	2,663,323	2,669,433	2,682,071	2,688,224	-0.24	-0.01
Minnesota	4,375,099	0.45	4,394,610	4,819,623	4,812,042	4,841,116	4,833,502	-1.59	-1.75
Missouri	5,117,073	0.62	5,148,974	5,530,194	5,535,890	5,564,670	5,570,402	-0.55	-0.44
Nebraska	1,578,385	0.65	1,588,712	1,702,248	1,697,122	1,713,385	1,708,226	0.12	-0.18
North Dakota	638,800	0.66	643,033	660,757	656,266	665,135	660,615	3.57	2.87
South Dakota	696,004	0.99	702,864	774,884	768,357	782,521	775,930	3.67	2.79
South	85,445,930	2.16	87,290,700	97,336,073	97,385,339	99,442,794	99,493,768	-0.79	-0.74
South Atlantic	43,566,853	2.04	44,454,855	49,995,862	49,981,000	51,013,738	50,998,718	-1.46	-1.49
Delaware	666,168	1.83	678,385	765,314	756,464	779,349	770,337	-0.54	-1.69
District of Columbia	606,900	3.53	628,309	524,106	530,118	542,594	548,818	-5.15	-4.06
Florida	12,937,926	2.01	13,197,755	15,180,438	15,197,100	15,485,303	15,502,299	-3.11	-3.00
Georgia	6,478,216	2.20	6,620,641	7,843,112	7,859,307	8,015,545	8,032,096	-2.09	-1.89
Maryland	4,781,468	2.11	4,882,452	5,264,121	5,251,178	5,375,299	5,362,082	1.49	1.24
North Carolina	6,628,637	1.90	6,754,567	7,750,020	7,760,759	7,897,254	7,908,197	-1.89	-1.75
South Carolina	3,486,703	2.09	3,559,547	3,849,025	3,843,724	3,929,439	3,924,027	-2.06	-2.19
Virginia	6,187,358	2.04	6,313,836	6,979,323	6,949,497	7,121,990	7,091,554	0.61	0.18
West Virginia	1,793,477	1.44	1,819,363	1,840,403	1,832,853	1,866,966	1,859,307	3.24	2.82
East South Central	15,176,284	1.83	15,453,663	16,877,949	16,878,280	17,186,358	17,186,737	0.96	0.96
Alabama	4,040,587	1.81	4,113,810	4,440,992	4,426,649	4,521,471	4,506,868	1.67	1.34
Kentucky	3,685,296	1.65	3,746,044	3,988,348	3,983,336	4,054,091	4,048,997	0.30	0.18
Mississippi	2,573,216	2.19	2,629,548	2,810,149	2,819,826	2,871,668	2,881,557	0.95	1.30
Tennessee	4,877,185	1.79	4,964,261	5,638,460	5,648,469	5,739,128	5,749,315	0.88	1.06
West South Central	26,702,793	2.54	27,382,182	30,462,262	30,526,059	31,242,697	31,308,313	-0.64	-0.43
Arkansas	2,350,725	1.78	2,392,596	2,624,416	2,615,737	2,671,162	2,662,328	-0.08	-0.41
Louisiana	4,219,973	2.23	4,314,085	4,420,260	4,439,628	4,518,839	4,538,639	1.12	1.56
Oklahoma	3,145,585	1.82	3,202,963	3,367,509	3,365,441	3,428,935	3,426,829	-0.63	-0.69
Texas	16,986,510	2.86	17,472,538	20,050,077	20,105,253	20,623,762	20,680,516	-1.09	-0.82
West	52,786,082	2.53	54,119,855	61,218,268	61,054,906	62,753,752	62,586,447	-0.70	-0.97
Mountain	13,658,776	2.33	13,977,039	17,628,766	17,616,233	18,039,262	18,026,448	-0.73	-0.80
Arizona	3,665,228	2.44	3,754,666	4,770,448	4,806,924	4,886,855	4,924,221	-4.75	-4.02
Colorado	3,294,394	2.10	3,363,637	4,149,025	4,134,808	4,236,231	4,221,715	-1.51	-1.85
Idaho	1,006,749	2.24	1,029,283	1,337,940	1,324,114	1,367,887	1,353,752	5.71	4.62
Montana	799,065	2.41	818,348	946,013	933,479	968,842	956,006	7.39	5.96
Nevada	1,201,833	2.40	1,230,709	1,856,175	1,847,432	1,900,773	1,891,820	-4.88	-5.33
New Mexico	1,515,069	3.20	1,563,579	1,851,902	1,849,747	1,911,197	1,908,973	5.07	4.94
Utah	1,722,850	1.76	1,753,188	2,194,770	2,202,733	2,233,418	2,241,521	0.01	0.37
Wyoming	453,588	2.21	463,629	522,493	516,996	534,059	528,441	8.16	7.02
Pacific	39,127,306	2.60	40,142,816	43,589,502	43,438,673	44,714,489	44,559,999	-0.69	-1.03
Alaska	550,043	2.04	561,276	650,896	630,974	664,189	643,860	5.94	2.70
California	29,760,021	2.81	30,597,578	32,462,045	32,377,381	33,375,647	33,288,600	-1.46	-1.72
Hawaii	1,108,229	1.89	1,129,170	1,253,623	1,234,902	1,277,311	1,258,237	5.43	3.85
Oregon	2,842,321	1.91	2,896,472	3,385,094	3,384,821	3,449,586	3,449,308	0.82	0.82
Washington	4,866,692	1.88	4,958,320	5,837,844	5,810,595	5,947,756	5,919,994	0.91	0.44

The undercount adjusted 2000 projections are calculated from the formula:

1990 census based projections * (1+undercount rate)

Source:http://www.census.gov/dmd/www/pdf/understate.pdf

The official counts are slightly different from the base for estimates due to adjustment after the census counts were released.

Internet Release date: October 30, 2002

Appendix C
Comparison between Estimated State Population for 2000 and Census 2000 Population - Regions, Divisions, and States

Region, Division, and State	2000 Census	1990 Census Base 2000 Estimates	Difference between Estimates and Census		Absolute percent Difference
			Number	Percent	
U.S. Total	281,421,906	274,608,356	-6,813,550	-2.42	2.42
Northeast	53,594,378	52,134,000	-1,460,378	-2.72	2.72
New England	13,922,517	13,572,331	-350,186	-2.52	2.52
Connecticut	3,405,565	3,301,171	-104,394	-3.07	3.07
Maine	1,274,923	1,257,471	-17,452	-1.37	1.37
Massachusetts	6,349,097	6,210,437	-138,660	-2.18	2.18
New Hampshire	1,235,786	1,209,330	-26,456	-2.14	2.14
Rhode Island	1,048,319	996,660	-51,659	-4.93	4.93
Vermont	608,827	597,262	-11,565	-1.90	1.90
Middle Atlantic	39,671,861	38,561,669	-1,110,192	-2.80	2.80
New Jersey	8,414,350	8,201,975	-212,375	-2.52	2.52
New York	18,976,457	18,319,570	-656,887	-3.46	3.46
Pennsylvania	12,281,054	12,040,124	-240,930	-1.96	1.96
Midwest	64,392,776	63,594,926	-797,850	-1.24	1.24
East North Central	45,155,037	44,681,322	-473,715	-1.05	1.05
Illinois	12,419,293	12,195,719	-223,574	-1.80	1.80
Indiana	6,080,485	5,975,111	-105,374	-1.73	1.73
Michigan	9,938,444	9,924,362	-14,082	-0.14	0.14
Ohio	11,353,140	11,307,334	-45,806	-0.40	0.40
Wisconsin	5,363,675	5,278,796	-84,879	-1.58	1.58
West North Central	19,237,739	18,913,604	-324,135	-1.68	1.68
Iowa	2,926,324	2,885,193	-41,131	-1.41	1.41
Kansas	2,688,418	2,669,205	-19,213	-0.71	0.71
Minnesota	4,919,479	4,811,819	-107,660	-2.19	2.19
Missouri	5,595,211	5,500,607	-94,604	-1.69	1.69
Nebraska	1,711,263	1,674,322	-36,941	-2.16	2.16
North Dakota	642,200	634,942	-7,258	-1.13	1.13
South Dakota	754,844	737,516	-17,328	-2.30	2.30
South	100,236,820	97,222,961	-3,013,859	-3.01	3.01
South Atlantic	51,769,160	49,953,820	-1,815,340	-3.51	3.51
Delaware	783,600	758,928	-24,672	-3.15	3.15
District of Columbia	572,059	522,660	-49,399	-8.64	8.64
Florida	15,982,378	15,236,554	-745,824	-4.67	4.67
Georgia	8,186,453	7,859,660	-326,793	-3.99	3.99
Maryland	5,296,486	5,210,265	-86,221	-1.63	1.63
North Carolina	8,049,313	7,708,225	-341,088	-4.24	4.24
South Carolina	4,012,012	3,911,324	-100,688	-2.51	2.51
Virginia	7,078,515	6,931,998	-146,517	-2.07	2.07
West Virginia	1,808,344	1,814,206	5,862	0.32	0.32
East South Central	17,022,810	16,683,743	-339,067	-1.99	1.99
Alabama	4,447,100	4,392,493	-54,607	-1.23	1.23
Kentucky	4,041,769	3,983,897	-57,872	-1.43	1.43
Mississippi	2,844,658	2,787,366	-57,292	-2.01	2.01
Tennessee	5,689,283	5,519,987	-169,296	-2.98	2.98
West South Central	31,444,850	30,585,398	-859,452	-2.73	2.73
Arkansas	2,673,400	2,574,274	-99,126	-3.71	3.71
Louisiana	4,468,976	4,392,425	-76,551	-1.71	1.71
Oklahoma	3,450,654	3,386,422	-64,232	-1.86	1.86
Texas	20,851,820	20,232,277	-619,543	-2.97	2.97
West	63,197,932	61,656,469	-1,541,463	-2.44	2.44
Mountain	18,172,295	17,287,477	-884,818	-4.87	4.87
Arizona	5,130,632	4,822,321	-308,311	-6.01	6.01
Colorado	4,301,261	4,095,485	-205,776	-4.78	4.78
Idaho	1,293,953	1,262,736	-31,217	-2.41	2.41
Montana	902,195	888,220	-13,975	-1.55	1.55
Nevada	1,998,257	1,838,372	-159,885	-8.00	8.00
New Mexico	1,819,046	1,747,535	-71,511	-3.93	3.93
Utah	2,233,169	2,150,800	-82,369	-3.69	3.69
Wyoming	493,782	482,008	-11,774	-2.38	2.38
Pacific	45,025,637	44,368,992	-656,645	-1.46	1.46
Alaska	626,932	622,931	-4,001	-0.64	0.64
California	33,871,648	33,430,763	-440,885	-1.30	1.30
Hawaii	1,211,537	1,185,309	-26,228	-2.16	2.16
Oregon	3,421,399	3,335,521	-85,878	-2.51	2.51
Washington	5,894,121	5,794,468	-99,653	-1.69	1.69

The 1990 undercount adjusted 2000 estimates = Undercount adjusted 1990census + estimated (births-deaths +net domestic migration + net international migration + federal movement)+residuals

Source: U.S. Census Bureau, special tabulation (components of change from Population Estimates Branch - Chuck Coleman)
Internet Release date: October 30, 2002

Appendix D

1990 Census Undercount Adjusted Population, Estimated Components of Change between 1990 and 2000, and Difference between the Estimates for 2000 and Census 2000 Population - Regions, Divisions, and States

Region, Division, and State	1990 Census Adjusted for Undercount*	Components of Change: 4/1990-4/2000						2000 Estimates Based on Adjusted counts	Difference between Estimates and Census	
		Births	Deaths	Domestic Migration	International Migration	Federal Movement	Residual		Number	Percent
U.S. Total	252,730,369	39,815,103	22,781,223	0	8,232,004	551,541	0	278,547,800	-2,874,106	-1.02
Northeast	51,236,979	7,255,955	4,823,492	-3,179,005	2,022,385	30,571	-727	52,542,666	-1,051,712	-1.96
New England	13,283,244	1,801,684	1,193,852	-513,674	283,162	11,357	-23,289	13,648,632	-273,885	-1.97
Connecticut	3,308,343	456,768	291,146	-232,297	81,328	3,763	-4,361	3,322,398	-83,167	-2.44
Maine	1,237,130	147,902	117,225	-4,868	4,499	2,158	-2,923	1,266,673	-8,250	-0.65
Massachusetts	6,045,224	839,120	549,599	-257,580	165,455	3,254	-6,638	6,239,236	-109,861	-1.73
New Hampshire	1,118,632	152,075	90,899	36,034	8,442	324	-5,898	1,218,710	-17,076	-1.38
Rhode Island	1,004,815	133,823	96,252	-62,014	17,661	1,832	-1,854	998,011	-50,308	-4.80
Vermont	569,100	71,996	48,731	7,051	5,777	26	-1,615	603,604	-5,223	-0.86
Middle Atlantic	37,953,735	5,454,271	3,629,640	-2,665,331	1,739,223	19,214	22,562	38,894,034	-777,827	-1.96
New Jersey	7,774,461	1,168,668	727,637	-401,047	419,354	4,917	-10,030	8,228,686	-185,664	-2.21
New York	18,262,491	2,738,346	1,640,227	-1,980,378	1,188,722	11,119	11,210	18,591,283	-385,174	-2.03
Pennsylvania	11,916,783	1,547,257	1,261,776	-283,906	131,147	3,178	21,382	12,074,065	-206,989	-1.69
Midwest	60,082,835	8,948,909	5,597,301	-732,196	863,184	42,830	400,180	64,008,441	-384,335	-0.60
East North Central	42,321,296	6,360,652	3,902,629	-842,331	669,876	18,756	367,884	44,993,504	-161,533	-0.36
Illinois	11,544,319	1,872,485	1,056,111	-616,307	427,352	10,697	127,001	12,309,436	-109,857	-0.88
Indiana	5,572,057	844,509	525,940	79,987	34,434	1,432	-3,467	6,003,012	-77,473	-1.27
Michigan	9,361,308	1,387,497	830,505	-208,462	118,955	2,236	159,354	9,990,383	51,939	0.52
Ohio	10,921,741	1,566,745	1,041,705	-191,788	61,369	4,020	61,578	11,381,960	28,820	0.25
Wisconsin	4,921,871	689,416	448,368	94,239	27,766	371	23,418	5,308,713	-54,962	-1.02
West North Central	17,761,539	2,588,257	1,694,672	110,135	193,308	24,074	32,296	19,014,937	-222,802	-1.16
Iowa	2,788,332	377,519	278,335	-19,157	24,653	139	3,543	2,896,694	-29,630	-1.01
Kansas	2,495,014	377,528	234,423	-21,981	32,216	8,519	29,758	2,686,631	-1,787	-0.07
Minnesota	4,394,610	653,245	367,912	99,036	62,530	974	-11,719	4,830,764	-88,715	-1.80
Missouri	5,148,974	753,823	535,208	106,533	44,669	5,459	8,430	5,532,680	-62,531	-1.12
Nebraska	1,588,712	235,647	151,859	-8,398	17,240	3,921	-646	1,684,617	-26,646	-1.56
North Dakota	643,033	84,439	58,856	-42,634	6,171	3,059	3,963	639,175	-3,025	-0.47
South Dakota	702,864	106,056	68,079	-3,264	5,829	2,003	-1,033	744,376	-10,468	-1.39
South	87,290,700	13,899,365	8,220,273	3,815,215	2,217,343	299,332	-243,814	99,057,868	-1,178,952	-1.18
South Atlantic	44,454,855	6,776,273	4,301,516	2,569,611	1,277,108	201,560	-140,689	50,837,202	-931,958	-1.80
Delaware	678,385	105,850	63,305	37,119	10,733	1,717	646	771,145	-12,455	-1.59
District of Columbia	628,309	92,808	64,530	-150,056	32,080	2,782	2,676	544,069	-27,990	-4.89
Florida	13,197,755	1,930,880	1,496,675	1,156,463	713,396	34,296	-39,877	15,496,238	-486,140	-3.04
Georgia	6,620,641	1,151,419	574,562	717,169	117,521	26,159	-56,195	8,002,152	-184,301	-2.25
Maryland	4,882,452	741,659	408,715	-53,986	149,764	15,619	-14,829	5,311,964	15,478	0.29
North Carolina	6,754,567	1,054,274	640,285	583,381	66,468	39,622	-27,683	7,830,344	-218,969	-2.72
South Carolina	3,559,547	539,784	329,703	156,111	20,307	17,835	20,680	3,984,561	-27,451	-0.68
Virginia	6,313,836	945,084	519,983	121,998	162,739	63,352	-30,389	7,056,637	-21,878	-0.31
West Virginia	1,819,363	214,515	203,758	1,412	4,100	178	4,282	1,840,092	31,748	1.76
East South Central	15,453,663	2,319,643	1,566,071	631,470	77,748	30,040	10,954	16,957,447	-65,363	-0.38
Alabama	4,113,810	615,889	422,044	109,548	16,225	7,095	25,391	4,465,914	18,814	0.42
Kentucky	3,746,044	535,421	371,086	102,441	18,668	10,212	1,349	4,043,049	1,280	0.03
Mississippi	2,629,548	421,590	267,835	46,967	7,992	6,070	-2,893	2,841,439	-3,219	-0.11
Tennessee	4,964,261	746,743	505,106	372,514	34,863	6,663	-12,893	5,607,045	-82,238	-1.45
West South Central	27,382,182	4,803,449	2,352,686	614,134	862,487	67,732	-114,079	31,263,219	-181,631	-0.58
Arkansas	2,392,596	357,667	265,871	120,276	11,726	2,203	-2,351	2,616,246	-57,154	-2.14
Louisiana	4,314,085	680,191	393,684	-159,652	28,677	9,179	5,888	4,484,684	15,708	0.35
Oklahoma	3,202,963	474,038	325,388	49,248	31,433	10,733	782	3,443,809	-6,845	-0.20
Texas	17,472,538	3,291,553	1,367,743	604,262	790,651	45,617	-118,398	20,718,480	-133,340	-0.64
West	54,119,855	9,710,874	4,140,157	95,984	3,129,092	178,808	-155,631	62,938,825	-259,107	-0.41
Mountain	13,977,039	2,580,321	1,141,084	1,789,816	361,952	38,962	-1,284	17,605,722	-566,573	-3.12
Arizona	3,754,666	732,440	347,811	608,762	118,881	8,513	36,197	4,911,648	-218,984	-4.27
Colorado	3,363,637	561,829	246,503	427,066	74,088	14,419	-29,887	4,164,649	-136,612	-3.18
Idaho	1,029,283	181,450	85,362	142,038	20,744	1,743	-4,611	1,285,285	-8,668	-0.67
Montana	818,348	111,455	75,573	49,832	2,984	1,643	-1,186	907,503	5,308	0.59
Nevada	1,230,709	249,082	121,129	465,317	65,101	3,311	-24,985	1,867,406	-130,851	-6.55
New Mexico	1,563,579	274,915	121,503	32,592	42,423	5,777	-1,738	1,796,045	-23,001	-1.26
Utah	1,753,188	404,520	107,293	68,625	35,312	2,142	24,644	2,181,138	-52,031	-2.33
Wyoming	463,629	64,630	35,910	-4,416	2,419	1,414	282	492,048	-1,734	-0.35
Pacific	40,142,816	7,130,553	2,999,073	-1,693,832	2,767,140	139,846	-154,347	45,333,103	307,466	0.68
Alaska	561,276	106,528	24,439	-28,319	9,636	8,776	706	634,164	7,232	1.15
California	30,597,578	5,615,770	2,215,421	-2,206,565	2,469,815	89,830	-134,093	34,216,914	345,266	1.02
Hawaii	1,129,170	186,115	74,489	-113,371	55,672	19,731	3,422	1,206,250	-5,287	-0.44
Oregon	2,896,472	433,323	277,675	271,599	72,575	676	-7,314	3,389,656	-31,743	-0.93
Washington	4,958,320	788,817	407,049	382,824	159,442	20,833	-17,068	5,886,119	-8,002	-0.14

* See Appendix B

** The expected 2000 population (estimates) = Undercount adjusted 1990 census + (births-deaths+net domestic migration + net international migration + federal movement)+residuals

Source: U.S.Census Bureau, special tabulation (components of change from Population Estimates Branch)

Internet Release date: October 30, 2002

Appendix E
Projected and Estimated Components of Change between July1, 1995 and July 1, 2000 - Regions, Divisoins, and States
Series A

Region, Division, and State	Projections (Series A)				Intercensal Estimates				% difference (projections - estimates)			
	Births	Deaths	Net Domestic	Net International	Births	Deaths	Net Domestic	Net International	Births	Deaths	Net Domestic	Net International
U.S. Total	19,673,034	12,618,224	-	4,112,850	19,598,973	11,716,693	-	4,418,851	0.49	6.39	5.91	-9.87
Northeast	3,637,357	2,745,535	-1,549,879	1,102,887	3,457,636	2,410,155	-1,417,887	1,000,100	7.54	10.49	55.16	17.88
New England	910,572	666,560	-250,228	219,983	858,048	606,803	-92,167	144,123	9.11	8.59	94.53	28.29
Connecticut	226,377	162,304	-123,205	54,977	218,608	148,248	-77,973	42,600	3.55	9.48	58.01	29.05
Maine	76,909	63,677	-4,688	3,386	68,551	60,268	14,664	2,752	12.19	5.66	-131.97	23.04
Massachusetts	421,920	309,982	-149,740	136,483	403,730	277,714	-59,386	80,900	4.51	11.62	152.15	68.71
New Hampshire	78,511	49,327	39,827	5,454	71,752	47,349	41,292	5,308	9.42	4.18	-3.55	2.75
Rhode Island	69,034	54,352	-30,999	18,247	62,250	48,342	-14,629	8,752	10.90	12.43	111.90	108.49
Vermont	37,821	26,918	18,577	1,436	33,157	24,882	3,865	3,811	14.07	8.18	380.65	-62.32
Middle Atlantic	2,726,785	2,078,975	-1,299,651	882,904	2,599,588	1,803,352	-1,325,720	855,977	4.41	14.27	-23.58	-2.93
New Jersey	572,491	410,085	-149,065	197,366	569,004	367,739	-180,563	221,333	0.61	11.52	-17.44	-10.83
New York	1,372,388	964,858	-1,086,860	620,035	1,300,471	796,914	-940,318	563,448	5.53	21.07	15.58	10.04
Pennsylvania	781,906	704,032	-63,726	65,503	730,113	638,699	-204,839	71,196	7.09	10.23	-68.89	-8.00
Midwest	4,387,008	3,078,431	-215,218	395,377	4,377,252	2,859,698	-514,708	502,377	0.07	7.87	6.36	-21.18
East North Central	3,123,631	2,144,855	-452,499	307,482	3,095,229	1,991,414	-524,046	382,695	0.53	7.41	201.83	-0.20
Illinois	919,695	590,628	-312,739	174,835	912,197	531,409	-330,952	234,263	0.82	11.14	-5.50	-25.37
Indiana	402,727	285,773	90,281	19,079	422,871	270,184	11,609	22,634	-4.76	5.77	677.68	-15.71
Michigan	691,585	453,767	-186,790	50,710	666,148	425,739	-78,823	76,673	3.82	6.58	136.97	-33.86
Ohio	769,383	567,711	-111,689	40,668	758,022	533,664	-147,001	35,083	1.50	6.38	-24.02	15.92
Wisconsin	340,241	246,976	68,438	22,190	335,991	230,418	21,121	14,042	1.26	7.19	224.03	58.03
West North Central	1,263,377	933,576	237,281	87,895	1,282,023	868,284	9,338	119,682	-0.25	8.19	-133.26	-36.17
Iowa	184,299	155,045	951	13,344	185,995	141,445	-21,264	16,007	-0.91	9.62	-104.47	-16.64
Kansas	182,977	128,392	19,341	17,431	188,966	120,611	-16,967	20,029	-3.17	6.45	-213.99	-12.97
Minnesota	316,294	203,903	58,670	31,191	324,069	189,078	51,479	37,659	-2.40	7.84	13.97	-17.18
Missouri	369,368	291,075	99,594	17,472	372,930	274,987	49,270	27,521	-0.96	5.85	102.14	-36.51
Nebraska	114,539	84,399	25,765	5,312	117,831	77,469	-14,508	10,543	-2.79	8.95	-277.59	-49.62
North Dakota	42,818	32,632	4,344	2,140	40,301	30,140	-26,573	3,914	6.25	8.27	-116.35	-45.32
South Dakota	53,082	38,130	28,616	1,005	51,931	34,554	-12,099	4,009	2.22	10.35	-336.52	-74.93
South	6,712,045	4,484,908	2,366,811	895,930	7,015,095	4,288,069	1,758,851	1,281,294	-1.59	6.00	37.24	-7.73
South Atlantic	3,266,015	2,345,425	1,473,349	616,141	3,398,061	2,251,955	1,276,523	759,935	0.79	7.09	-7.86	-5.65
Delaware	51,712	34,828	28,598	3,999	52,061	33,022	18,201	6,441	-0.67	5.47	57.12	-37.91
District of Columbia	50,578	39,564	-73,383	21,728	39,558	30,563	-58,311	15,294	27.86	29.45	25.85	42.07
Florida	934,995	816,972	587,036	295,924	969,192	788,529	515,787	426,841	-3.53	3.61	13.81	-30.67
Georgia	539,257	309,564	385,529	52,024	600,868	303,137	376,771	69,815	-10.25	2.12	2.32	-25.48
Maryland	367,454	225,522	-16,937	96,806	356,487	211,808	-37,356	92,203	3.08	6.47	-54.66	4.99
North Carolina	489,595	346,352	390,769	33,209	544,587	337,110	305,962	39,765	-10.10	2.74	27.72	-16.49
South Carolina	265,383	175,404	72,938	10,106	265,177	174,035	108,449	12,142	0.08	0.79	-32.74	-16.77
Virginia	461,366	285,710	89,967	100,009	466,240	269,775	66,035	95,561	-1.05	5.91	36.24	4.65
West Virginia	105,675	111,509	8,832	2,336	103,891	103,976	-19,015	1,873	1.72	7.24	-146.45	24.72
East South Central	1,111,891	841,751	492,299	43,875	1,164,434	811,825	239,346	46,227	-4.27	4.01	147.39	1.59
Alabama	296,328	227,583	102,886	11,889	306,753	218,705	24,655	8,588	-3.40	4.06	317.30	38.44
Kentucky	255,077	200,611	56,790	11,080	268,293	190,611	40,708	11,498	-4.93	5.25	39.51	-3.64
Mississippi	204,928	145,312	47,008	4,461	210,249	137,910	18,911	4,704	-2.53	5.37	148.57	-5.17
Tennessee	355,558	268,245	285,615	16,445	379,139	264,599	155,072	21,437	-6.22	1.38	84.18	-23.29
West South Central	2,334,139	1,297,732	401,163	235,914	2,452,600	1,224,289	242,982	475,132	-4.28	5.53	28.59	-21.71
Arkansas	169,968	143,378	107,513	5,186	182,794	137,568	43,555	6,968	-7.02	4.22	146.84	-25.57
Louisiana	338,048	216,893	-70,975	14,738	331,513	201,253	-96,302	13,454	1.97	7.77	-26.30	9.54
Oklahoma	224,647	175,786	14,319	14,978	239,934	169,424	21,697	18,014	-6.37	3.76	-34.00	-16.85
Texas	1,601,476	761,675	350,306	201,012	1,698,359	716,044	274,032	436,696	-5.70	6.37	27.83	-53.97
West	4,936,624	2,309,350	-601,702	1,718,656	4,748,990	2,158,771	173,744	1,635,080	-1.29	2.70	-69.58	-21.46
Mountain	1,235,490	613,310	1,348,982	123,567	1,355,202	617,984	730,979	218,523	-5.42	0.22	-143.96	-33.98
Arizona	348,292	182,845	367,377	51,143	388,268	190,842	308,037	64,672	-10.30	-4.19	19.26	-20.92
Colorado	269,873	135,448	267,775	24,457	292,731	131,369	188,159	45,738	-7.81	3.10	42.31	-46.53
Idaho	86,903	46,505	136,899	6,486	95,617	45,604	43,994	13,128	-9.11	1.98	211.18	-50.59
Montana	56,860	41,456	59,157	2,315	54,241	39,568	3,568	1,381	4.83	4.77	1557.99	67.63
Nevada	112,187	61,073	281,868	19,768	137,536	69,032	234,953	45,935	-18.43	-11.53	19.97	-56.97
New Mexico	142,156	68,242	95,705	4,717	136,288	64,509	-31,636	23,543	4.31	5.79	-402.52	-79.96
Utah	185,294	58,317	112,548	13,927	219,307	57,822	-5,247	22,735	-15.51	0.86	-2245.00	-38.74
Wyoming	33,925	19,424	27,653	754	31,214	19,238	-10,849	1,391	8.69	0.97	-354.89	-45.79
Pacific	3,701,134	1,696,040	-1,950,684	1,595,089	3,393,788	1,540,787	-557,235	1,416,557	5.32	6.67	49.44	-1.42
Alaska	55,286	13,242	802	4,987	49,833	13,113	-22,589	5,173	10.94	0.98	-103.55	-3.60
California	2,956,850	1,263,719	-2,284,097	1,458,005	2,640,619	1,128,583	-645,385	1,250,063	11.98	11.97	253.91	16.63
Hawaii	99,360	43,764	-17,468	30,794	87,607	39,096	-76,769	24,368	13.42	11.94	-77.25	26.37
Oregon	206,374	152,001	161,496	34,037	222,129	146,081	84,709	40,699	-7.09	4.05	90.65	-16.37
Washington	383,264	223,314	188,583	67,266	393,600	213,914	102,799	96,254	-2.63	4.39	83.45	-30.12

Source: Campbell, Paul R. "Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025," PPL-47, U.S. Census Bureau, Population Division, October, 1996
Internet Release date: October 30, 2002

Appendix F
Projected and Estimated Components of Change between July 1,1995 and July 1, 2000 - Regions, Divisions, and States
Series B

Region, Division, and State	Projections (Series B)				Intercensal Estimates				% difference (projections - estimates)			
	Births	Deaths	Net Domestic	Net International	Births	Deaths	Net Domestic	Net International	Births	Deaths	Net Domestic	Net International
U.S. Total	19,672,920	12,618,273	-	4,112,842	19,598,973	11,716,693	-	4,418,851	0.37	6.34	-5.97	-9.82
Northeast	3,638,088	2,746,014	-1,503,823	1,102,823	3,457,636	2,410,155	-1,417,887	1,000,100	7.37	10.45	18.62	17.97
New England	910,126	666,543	-260,073	220,001	858,048	606,803	-92,167	144,123	8.83	8.53	42.38	28.42
Connecticut	226,336	162,331	-120,731	54,980	218,608	148,248	-77,973	42,600	3.54	9.50	54.84	29.06
Maine	76,706	63,626	-13,375	3,392	68,551	60,268	14,664	2,752	11.90	5.57	-191.21	23.26
Massachusetts	422,432	310,111	-127,297	136,456	403,730	277,714	-59,386	80,900	4.63	11.67	114.36	68.67
New Hampshire	78,309	49,290	32,594	5,461	71,752	47,349	41,292	5,308	9.14	4.10	-21.06	2.88
Rhode Island	68,759	54,317	-39,936	18,266	62,250	48,342	-14,629	8,752	10.46	12.36	172.99	108.71
Vermont	37,584	26,868	8,672	1,446	33,157	24,882	3,865	3,811	13.35	7.98	124.37	-62.06
Middle Atlantic	2,727,962	2,079,471	-1,243,750	882,822	2,599,588	1,803,352	-1,325,720	855,977	4.45	14.30	-28.90	-2.94
New Jersey	572,540	410,199	-139,867	197,365	569,004	367,739	-180,563	221,333	0.62	11.55	-22.54	-10.83
New York	1,373,169	965,156	-1,055,589	619,962	1,300,471	796,914	-940,318	563,448	5.59	21.11	12.26	10.03
Pennsylvania	782,253	704,116	-48,294	65,495	730,113	638,699	-204,839	71,196	7.14	10.24	-76.42	-8.01
Midwest	4,387,885	3,078,502	-167,265	395,346	4,377,252	2,859,698	-514,708	502,377	0.00	7.82	18.52	-21.16
East North Central	3,125,359	2,145,252	-374,647	307,428	3,095,229	1,991,414	-524,046	382,695	0.58	7.43	201.40	-0.21
Illinois	920,032	590,740	-295,975	174,810	912,197	531,409	-330,952	234,263	0.86	11.16	-10.57	-25.38
Indiana	402,950	285,808	99,359	19,077	422,871	270,184	11,609	22,634	-4.71	5.78	755.88	-15.72
Michigan	692,264	453,951	-157,433	50,689	666,148	425,739	-78,823	76,673	3.92	6.63	99.73	-33.89
Ohio	769,995	567,841	-84,852	40,659	758,022	533,664	-147,001	35,083	1.58	6.40	-42.28	15.89
Wisconsin	340,118	246,912	64,254	22,193	335,991	230,418	21,121	14,042	1.23	7.16	204.22	58.05
West North Central	1,262,526	933,250	207,382	87,918	1,282,023	868,284	9,338	119,682	-0.41	8.11	-112.10	-36.12
Iowa	184,086	154,954	-8,467	13,350	185,995	141,445	-21,264	16,007	-1.03	9.55	-60.18	-16.60
Kansas	183,055	128,406	23,114	17,429	188,966	120,611	-16,967	20,029	-3.13	6.46	-236.23	-12.98
Minnesota	316,021	203,818	50,392	31,198	324,069	189,078	51,479	37,659	-2.48	7.80	-2.11	-17.16
Missouri	369,468	291,101	104,014	17,471	372,930	274,987	49,270	27,521	-0.93	5.86	111.11	-36.52
Nebraska	114,362	84,333	19,272	5,316	117,831	77,469	-14,508	10,543	-2.94	8.86	-232.84	-49.58
North Dakota	42,667	32,572	-1,538	2,145	40,301	30,140	-26,573	3,914	5.87	8.07	-94.21	-45.20
South Dakota	52,867	38,066	20,595	1,009	51,931	34,554	-12,099	4,009	1.80	10.16	-270.22	-74.83
South	6,714,005	4,484,990	2,408,828	895,825	7,015,095	4,288,069	1,758,851	1,281,294	-1.60	5.99	32.21	-7.70
South Atlantic	3,266,056	2,345,507	1,461,466	616,144	3,398,061	2,251,955	1,276,523	759,935	0.76	7.08	-9.67	-5.59
Delaware	51,474	34,755	19,008	4,012	52,061	33,022	18,201	6,441	-1.13	5.25	4.43	-37.71
District of Columbia	50,720	39,640	-70,667	21,737	39,558	30,563	-58,311	15,294	28.22	29.70	21.19	42.13
Florida	935,577	817,284	608,336	295,886	969,192	788,529	515,787	426,841	-3.47	3.65	17.94	-30.68
Georgia	539,557	309,621	398,217	52,015	600,868	303,137	376,771	69,815	-10.20	2.14	5.69	-25.50
Maryland	367,126	225,466	-26,390	96,812	356,487	211,808	-37,356	92,203	2.98	6.45	-29.36	5.00
North Carolina	489,904	346,376	400,167	33,205	544,587	337,110	305,962	39,765	-10.04	2.75	30.79	-16.50
South Carolina	265,355	175,363	67,589	10,109	265,177	174,035	108,449	12,142	0.07	0.76	-37.68	-16.74
Virginia	460,807	285,568	65,382	100,027	466,240	269,775	66,035	95,561	-1.17	5.85	-0.99	4.67
West Virginia	105,536	111,434	-176	2,341	103,891	103,976	-19,015	1,873	1.58	7.17	-99.07	24.99
East South Central	1,112,043	841,660	485,869	43,872	1,164,434	811,825	239,346	46,227	-4.25	4.00	138.72	1.58
Alabama	296,100	227,483	87,855	11,891	306,753	218,705	24,655	8,588	-3.47	4.01	256.34	38.46
Kentucky	255,017	200,552	50,829	11,081	268,293	190,611	40,708	11,498	-4.95	5.22	24.86	-3.63
Mississippi	205,160	145,349	53,799	4,458	210,249	137,910	18,911	4,704	-2.42	5.39	184.49	-5.23
Tennessee	355,766	268,276	293,386	16,442	379,139	264,599	155,072	21,437	-6.16	1.39	89.19	-23.30
West South Central	2,335,906	1,297,823	461,493	235,809	2,452,600	1,224,289	242,982	475,132	-4.24	5.52	19.94	-21.73
Arkansas	169,821	143,282	96,949	5,187	182,794	137,568	43,555	6,968	-7.10	4.15	122.59	-25.56
Louisiana	338,584	216,944	-51,579	14,729	331,513	201,253	-96,302	13,454	2.13	7.80	-46.44	9.48
Oklahoma	224,636	175,730	12,194	14,978	239,934	169,424	21,697	18,014	-6.38	3.72	-43.80	-16.85
Texas	1,602,865	761,867	403,929	200,915	1,698,359	716,044	274,032	436,696	-5.62	6.40	47.40	-53.99
West	4,932,942	2,308,767	-737,759	1,718,848	4,748,990	2,158,771	173,744	1,635,080	-1.57	2.60	-95.55	-21.38
Mountain	1,234,694	613,124	1,319,361	123,570	1,355,202	617,984	730,979	218,523	-5.62	0.13	-196.50	-33.90
Arizona	348,881	183,077	397,461	51,117	388,268	190,842	308,037	64,672	-10.14	-4.07	29.03	-20.96
Colorado	269,470	135,327	251,097	24,468	292,731	131,369	188,159	45,738	-7.95	3.01	33.45	-46.50
Idaho	86,546	46,414	121,832	6,495	95,617	45,604	43,994	13,128	-9.49	1.78	176.93	-50.53
Montana	56,556	41,359	45,456	2,322	54,241	39,568	3,568	1,381	4.27	4.53	1,173.99	68.14
Nevada	112,014	61,034	274,043	19,771	137,536	69,032	234,953	45,935	-18.56	-11.59	16.64	-56.96
New Mexico	142,074	68,216	92,005	4,718	136,288	64,509	-31,636	23,543	4.25	5.75	-390.82	-79.96
Utah	185,408	58,315	116,262	13,923	219,307	57,822	-5,247	22,735	-15.46	0.85	-2,315.78	-38.76
Wyoming	33,745	19,382	21,205	756	31,214	19,238	-10,849	1,391	8.11	0.75	-295.46	-45.65
Pacific	3,698,248	1,695,643	-2,057,120	1,595,278	3,393,788	1,540,787	-557,235	1,416,557	4.92	6.55	65.98	-1.35
Alaska	54,686	13,196	-18,094	4,999	49,833	13,113	-22,589	5,173	9.74	0.63	-19.90	-3.36
California	2,955,850	1,263,640	-2,324,036	1,458,138	2,640,619	1,128,583	-645,385	1,250,063	11.94	11.97	260.10	16.65
Hawaii	98,857	43,708	-34,954	30,810	87,607	39,096	-76,769	24,368	12.84	11.80	-54.47	26.44
Oregon	206,271	151,942	158,433	34,042	222,129	146,081	84,709	40,699	-7.14	4.01	87.03	-16.36
Washington	382,584	223,157	161,531	67,289	393,600	213,914	102,799	96,254	-2.80	4.32	57.13	-30.09

Source: Campbell, Paul R. "Population Projections for States by Age, Sex, Race, and Hispanic Origin: 1995 to 2025," PPL-47, U.S. Census Bureau, Population Division, October, 1996
Internet Release date: October 30, 2002

Appendix G
Ranking of Absolute Percent Errors of Projected Components of Change between July 1, 1995 and July 1, 2000 by State - Series A

Ranking	Births		Deaths		Domestic Migration		International Migration	
	State	Absolute % Error	State	Absolute % Error	State	Absolute % Error	State	Absolute % Error
1	South Carolina	0.08	South Carolina	0.79	Georgia	2.32	New Hampshire	2.75
2	New Jersey	0.61	Utah	0.86	New Hampshire	3.55	Alaska	3.60
3	Delaware	0.67	Wyoming	0.97	Illinois	5.50	Kentucky	3.64
4	Illinois	0.82	Alaska	0.98	Florida	13.81	Virginia	4.65
5	Iowa	0.91	Tennessee	1.38	Minnesota	13.97	Maryland	4.99
6	Missouri	0.96	Idaho	1.98	New York	15.58	Mississippi	5.17
7	Virginia	1.05	Georgia	2.12	New Jersey	17.44	Pennsylvania	8.00
8	Wisconsin	1.26	North Carolina	2.74	Arizona	19.26	Louisiana	9.54
9	Ohio	1.50	Colorado	3.10	Nevada	19.97	New York	10.04
10	West Virginia	1.72	Florida	3.61	Ohio	24.02	New Jersey	10.83
11	Louisiana	1.97	Oklahoma	3.76	District of Columbia	25.85	Kansas	12.97
12	South Dakota	2.22	Oregon	4.05	Louisiana	26.30	Indiana	15.71
13	Minnesota	2.40	Alabama	4.06	North Carolina	27.72	Ohio	15.92
14	Mississippi	2.53	New Hampshire	4.18	Texas	27.83	Oregon	16.37
15	Washington	2.63	Arizona	4.19	South Carolina	32.74	North Carolina	16.49
16	Nebraska	2.79	Arkansas	4.22	Oklahoma	34.00	California	16.63
17	Maryland	3.08	Washington	4.39	Virginia	36.24	Iowa	16.64
18	Kansas	3.17	Montana	4.77	Kentucky	39.51	South Carolina	16.77
19	Alabama	3.40	Kentucky	5.25	Colorado	42.31	Oklahoma	16.85
20	Florida	3.53	Mississippi	5.37	Maryland	54.66	Minnesota	17.18
21	Connecticut	3.55	Delaware	5.47	Delaware	57.12	Arizona	20.92
22	Michigan	3.82	Maine	5.66	Connecticut	58.01	Maine	23.04
23	New Mexico	4.31	Indiana	5.77	Pennsylvania	68.89	Tennessee	23.29
24	Massachusetts	4.51	New Mexico	5.79	Hawaii	77.25	West Virginia	24.72
25	Indiana	4.76	Missouri	5.85	Washington	83.45	Illinois	25.37
26	Montana	4.83	Virginia	5.91	Tennessee	84.18	Georgia	25.48
27	Kentucky	4.93	Texas	6.37	Oregon	90.65	Arkansas	25.57
28	New York	5.53	Ohio	6.38	Missouri	102.14	Hawaii	26.37
29	Texas	5.70	Kansas	6.45	Alaska	103.55	Connecticut	29.05
30	Tennessee	6.22	Maryland	6.47	Iowa	104.47	Washington	30.12
31	North Dakota	6.25	Michigan	6.58	Rhode Island	111.90	Florida	30.67
32	Oklahoma	6.37	Wisconsin	7.19	North Dakota	116.35	Michigan	33.86
33	Arkansas	7.02	West Virginia	7.24	Maine	131.97	Missouri	36.51
34	Oregon	7.09	Louisiana	7.77	Michigan	136.97	Delaware	37.91
35	Pennsylvania	7.09	Minnesota	7.84	West Virginia	146.45	Alabama	38.44
36	Colorado	7.81	Vermont	8.18	Arkansas	146.84	Utah	38.74
37	Wyoming	8.69	North Dakota	8.27	Mississippi	148.57	District of Columbia	42.07
38	Idaho	9.11	Nebraska	8.95	Massachusetts	152.15	North Dakota	45.32
39	New Hampshire	9.42	Connecticut	9.48	Idaho	211.18	Wyoming	45.79
40	North Carolina	10.10	Iowa	9.62	Kansas	213.99	Colorado	46.53
41	Georgia	10.25	Pennsylvania	10.23	Wisconsin	224.03	Nebraska	49.62
42	Arizona	10.30	South Dakota	10.35	California	253.91	Idaho	50.59
43	Rhode Island	10.90	Illinois	11.14	Nebraska	277.59	Texas	53.97
44	Alaska	10.94	New Jersey	11.52	Alabama	317.30	Nevada	56.97
45	California	11.98	Nevada	11.53	South Dakota	336.52	Wisconsin	58.03
46	Maine	12.19	Massachusetts	11.62	Wyoming	354.89	Vermont	62.32
47	Hawaii	13.42	Hawaii	11.94	Vermont	380.65	Montana	67.63
48	Vermont	14.07	California	11.97	New Mexico	402.52	Massachusetts	68.71
49	Utah	15.51	Rhode Island	12.43	Indiana	677.68	South Dakota	74.93
50	Nevada	18.43	New York	21.07	Montana	1557.99	New Mexico	79.96
51	District of Columbia	27.86	District of Columbia	29.45	Utah	2245.00	Rhode Island	108.49

Source: U.S. Census Bureau
Internet Release date: October 30, 2002

Appendix H

Ranking of Absolute Percentage Error of Projected Components of Change between July 1, 1995 and July 1, 2000 by State - Series B

Ranking	Births		Deaths		Domestic Migration		International Migration	
	State	Absolute % Error	State	Absolute % Error	State	Absolute % Error	State	Absolute % Error
1	South Carolina	0.07	Alaska	0.63	Virginia	0.99	New Hampshire	2.88
2	New Jersey	0.62	Wyoming	0.75	Minnesota	2.11	Alaska	3.36
3	Illinois	0.86	South Carolina	0.76	Delaware	4.43	Kentucky	3.63
4	Missouri	0.93	Utah	0.85	Georgia	5.69	Virginia	4.67
5	Iowa	1.03	Tennessee	1.39	Illinois	10.57	Maryland	5.00
6	Delaware	1.13	Idaho	1.78	New York	12.26	Mississippi	5.23
7	Virginia	1.17	Georgia	2.14	Nevada	16.64	Pennsylvania	8.01
8	Wisconsin	1.23	North Carolina	2.75	Florida	17.94	Louisiana	9.48
9	Ohio	1.58	Colorado	3.01	Alaska	19.90	New York	10.03
10	West Virginia	1.58	Florida	3.65	New Hampshire	21.06	New Jersey	10.83
11	South Dakota	1.80	Oklahoma	3.72	District of Columbia	21.19	Kansas	12.98
12	Louisiana	2.13	Oregon	4.01	New Jersey	22.54	Indiana	15.72
13	Mississippi	2.42	Alabama	4.01	Kentucky	24.86	Ohio	15.89
14	Minnesota	2.48	Arizona	4.07	Arizona	29.03	Oregon	16.36
15	Washington	2.80	New Hampshire	4.10	Maryland	29.36	North Carolina	16.50
16	Nebraska	2.94	Arkansas	4.15	North Carolina	30.79	Iowa	16.60
17	Maryland	2.98	Washington	4.32	Colorado	33.45	California	16.65
18	Kansas	3.13	Montana	4.53	South Carolina	37.68	South Carolina	16.74
19	Florida	3.47	Kentucky	5.22	Ohio	42.28	Oklahoma	16.85
20	Alabama	3.47	Delaware	5.25	Oklahoma	43.80	Minnesota	17.16
21	Connecticut	3.54	Mississippi	5.39	Louisiana	46.44	Arizona	20.96
22	Michigan	3.92	Maine	5.57	Texas	47.40	Maine	23.26
23	New Mexico	4.25	New Mexico	5.75	Hawaii	54.47	Tennessee	23.30
24	Montana	4.27	Indiana	5.78	Connecticut	54.84	West Virginia	24.99
25	Massachusetts	4.63	Virginia	5.85	Washington	57.13	Illinois	25.38
26	Indiana	4.71	Missouri	5.86	Iowa	60.18	Georgia	25.50
27	Kentucky	4.95	Texas	6.40	Pennsylvania	76.42	Arkansas	25.56
28	New York	5.59	Ohio	6.40	Oregon	87.03	Hawaii	26.44
29	Texas	5.62	Maryland	6.45	Tennessee	89.19	Connecticut	29.06
30	North Dakota	5.87	Kansas	6.46	North Dakota	94.21	Washington	30.09
31	Tennessee	6.16	Michigan	6.63	West Virginia	99.07	Florida	30.68
32	Oklahoma	6.38	Wisconsin	7.16	Michigan	99.73	Michigan	33.89
33	Arkansas	7.10	West Virginia	7.17	Missouri	111.11	Missouri	36.52
34	Oregon	7.14	Minnesota	7.80	Massachusetts	114.36	Delaware	37.71
35	Pennsylvania	7.14	Louisiana	7.80	Arkansas	122.59	Alabama	38.46
36	Colorado	7.95	Vermont	7.98	Vermont	124.37	Utah	38.76
37	Wyoming	8.11	North Dakota	8.07	Rhode Island	172.99	District of Columbia	42.13
38	New Hampshire	9.14	Nebraska	8.86	Idaho	176.93	North Dakota	45.20
39	Idaho	9.49	Connecticut	9.50	Mississippi	184.49	Wyoming	45.65
40	Alaska	9.74	Iowa	9.55	Maine	191.21	Colorado	46.50
41	North Carolina	10.04	South Dakota	10.16	Wisconsin	204.22	Nebraska	49.58
42	Arizona	10.14	Pennsylvania	10.24	Nebraska	232.84	Idaho	50.53
43	Georgia	10.20	Illinois	11.16	Kansas	236.23	Texas	53.99
44	Rhode Island	10.46	New Jersey	11.55	Alabama	256.34	Nevada	56.96
45	Maine	11.90	Nevada	11.59	California	260.10	Wisconsin	58.05
46	California	11.94	Massachusetts	11.67	South Dakota	270.22	Vermont	62.06
47	Hawaii	12.84	Hawaii	11.80	Wyoming	295.46	Montana	68.14
48	Vermont	13.35	California	11.97	New Mexico	390.82	Massachusetts	68.67
49	Utah	15.46	Rhode Island	12.36	Indiana	755.88	South Dakota	74.83
50	Nevada	18.56	New York	21.11	Montana	1173.99	New Mexico	79.96
51	District of Columbia	28.22	District of Columbia	29.70	Utah	2315.78	Rhode Island	108.71

Source: U.S. Census Bureau
Internet Release date: October 30, 2002