Florida Population Studies
BEBR

Projections of Florida Population by County, 2005–2030

Stanley K. Smith, Director
Stefan Rayer, Research Demographer

Florida is a rapidly growing but highly diverse state. Although its population has grown by around three million residents in each of the last three decades, this growth has not been distributed evenly throughout the state. Some areas have grown very rapidly while others have grown very slowly or even declined. Will these growth patterns continue? If not, how will they change?

This is an important question because many decisions—affecting schools, roads, houses, shopping centers, hospitals, amusement parks, and countless other projects—require some assessment of future population trends. In fact, the success or failure of those plans may depend in large part on the degree to which projected growth is realized over time. Yet the future is essentially unknowable. No matter how accurate our data, how powerful our computers, and how sophisticated our techniques, we still cannot "see" into the future.

We are not completely lost, of course. We can observe population trends that have occurred in the past. We can collect data and build models showing what would happen if past trends continued or varied in some particular way. Since the future is intimately tied to the past, these projections will often provide reasonably accurate forecasts of future population change. If constructed and interpreted properly, population projections—although incapable of providing perfect predictions of the future—can be extremely useful tools for planning and analysis.

Since the future cannot be predicted with absolute certainty, we publish three series of population projections: high, medium, and low. We believe the medium projection is more likely to provide an accurate forecast of future population growth than either the high or low projections, but the high and low projections provide an indication of the range in which future populations might reasonably be expected to lie. It should also be noted that—although the projections published here provide useful benchmarks for planning and analysis—they should not be interpreted as the only possible scenarios for future population change. Other sources of information should also be considered when using projections for planning purposes (especially in small counties).

State projections

State-level projections were made using a cohort-component methodology in which births, deaths, and migration were projected separately for each age-sex cohort in Florida, by race (white, nonwhite) and ethnicity (Hispanic, non-Hispanic). The starting point was the population of Florida on April 1, 2000, as counted by the U.S. Census Bureau. Survival rates were applied to each age-sex-race/ethnicity cohort to project future deaths in the population. These rates were based on Florida Life Tables for 2000, published by the Florida Department of Health. The survival rates were adjusted upward in 2005, 2010, 2015, 2020, and 2025 to account for projected increases in life expectancy (U.S. Census Bureau,

Population Division Working Paper No. 38, Series NP-05, 2000).

Domestic migration rates by age, sex, race/ethnicity were based on data for 1995–2000 as reported in the 2000 Census. Domestic in-migration rates were calculated by dividing the number of persons moving to Florida from other states by the mid-decade population of the United States (minus Florida). Domestic out-migration rates were calculated by dividing the number of persons leaving Florida by Florida's mid-decade population. In both instances, rates were calculated separately for males and females by race and ethnicity for each five-year age group up to 85+.

The domestic in-migration rates were weighted to provide three different scenarios of future population growth. For the high series, the weights ranged between 1.3 and 1.4, for the medium series, between 1.0 and 1.25, and for the low series the weight was 0.95. The domestic out-migration rates were not weighted. For each of the three series, projections of domestic in-migration were made by applying weighted in-migration rates to the projected population of the United States (minus Florida), using the most recent set of national projections produced by the U.S. Census Bureau. Projections of out-migration were made by applying the 1995–2000 out-migration rates to the Florida population.

Projections of foreign immigration were also based on data from Census 2000. For the high projections, foreign immigration was projected to exceed the 1995–2000 level by 40% during each five-year interval. For the medium projections, foreign immigration was projected to exceed the 1995–2000 level by 20% during each five-year interval. For the low projections, foreign immigration was projected to remain the same as between 1995 and 2000 for each five-year interval. Foreign emigration was assumed to equal 22.5% of foreign immigration for each series of projections. The distribution of foreign immigrants by age, sex, race, and ethnicity was based on the patterns observed between 1995 and 2000.

Net migration is the difference between the number of in-migrants and the number of out-migrants during a particular time period. The medium projections produce net migration levels (including both domestic and foreign migration) of 339,000 per year between 2005 and 2010. The levels decline gradually over time, reaching 266,000 between 2025 and 2030. The low projections produce net migration levels that average between 200,000 and 220,000 per year between 2005 and 2030, while the high projections produce net migration levels that average between 357,000 and 427,000. To put these numbers into perspective, net migration averaged 260,000–280,000 per year during the 1970s, 1980s, and 1990s and has averaged 345,000 per year since 2000. Since 1990, annual net migration levels have ranged between 181,000 and 400,000.

Projections were made in five-year intervals, with each projected population serving as the base for the following projection. Projected in-migration for each five-year interval was added to the survived Florida population at the end of the interval and projected out-migration was subtracted, giving a projection of the population age five and older. Births were projected by applying age-specific birth rates (adjusted for child mortality) to the projected female population of each race/ethnicity group. These birth rates were based on Florida birth data for 1999–2001 and imply a total fertility rate of approximately 1.8 births per woman for non-Hispanic whites, 2.3 for non-Hispanic nonwhites, and 2.2 for Hispanics. In the medium series, birth rates for non-Hispanic whites were projected to remain at their 1999–2001 levels while birth rates for non-Hispanic nonwhites and Hispanics were projected to decline gradually over time; in the high series, birth rates for all race/ethnic groups were projected to remain at their 1999–2001 levels; and in the low series they were projected to decline gradually for all three groups.

As a final step, projections for non-Hispanic whites, non-Hispanic nonwhites, and Hispanics were added together to provide projections of the total population. The medium projection of total population for 2010 was adjusted to be consistent with the state population forecast produced by the State of Florida's Consensus Estimating Conference. None of the projections after 2010 had any additional adjustments.

County projections

The cohort-component method is a good way to make population projections at the state level, but is not necessarily the best way to make long-range projections at the county level. Many counties in Florida are so small that the number of persons in each age-sex-race/ethnicity category are inadequate for making reliable cohort-component projections. Even more important, county growth patterns are so volatile that a single technique based on migration data from only one or two time periods may provide misleading results. We believe more useful projections of total population can be made if several different techniques and historical base periods are used.

For counties, we made eight projections using four simple extrapolation techniques and three different historical base periods. The four techniques were:

1. Linear – the population will change by the same number of persons in each future year as the average annual change during the base period.

2. Exponential – the population will change at the same percentage rate in each future year as the average annual rate during the base period.

3. Share of growth – each county's share of state population growth in the future will be the same as its share during the base period.

4. Shift share – each county's share of the state population will change by the same annual amount in the future as the average annual change during the base period.

For the linear and share-of-growth techniques we used base periods of five, ten, and fifteen years, yielding three sets of projections for each technique. For the exponential and shift-share techniques we used a single base period of ten years, yielding one set of projections for each technique.

The starting point for each county's projection was the population estimate produced by the Bureau of Economic and Business Research for April 1, 2005. These estimates were based on 2000 census counts and a variety of data and techniques showing population changes since 2000 (Bureau of Economic and Business Research, *Florida Estimates of Population: April 1, 2005*, Gainesville: University of Florida). The techniques described above provided eight projections for each county for each projection year (2010, 2015, 2020, 2025, 2030). In order to moderate the effects of extreme projections, the highest and lowest projections for each county were excluded. The medium projection was then calculated by taking an average of the six remaining projections and adjusting the sum of the county projections to be consistent with the total population change implied by the state projections for each projection interval.

We made adjustments to the underlying population data in a number of counties before applying the techniques described above. This was done to account for special events and institutional populations such as university students and prison inmates. Adjustments were made for counties in which institutional populations account for a large proportion of total population and where changes in those populations have been substantially different from changes in the rest of the population. In the present set of projections, adjustments for institutional populations were made for Alachua, Baker, Bradford, Calhoun, Columbia, DeSoto, Dixie, Franklin, Gadsden, Gilchrist, Glades, Gulf, Hamilton, Hardee, Hendry, Holmes, Jackson, Jefferson, Lafayette, Leon, Liberty, Madison, Okeechobee, Santa Rosa, Sumter, Taylor, Union, Wakulla, Walton, and Washington counties. We also made adjustments in Charlotte, DeSoto, Escambia, and Hardee counties to account for the impact of the 2004 hurricanes on population growth in those four counties.

Range of projections

The techniques described above were used to make the medium series of county projections. This is the series we believe will generally provide the most accurate forecasts of future population growth. We have also made a series of low and high projections to provide an indication of the uncertainty surrounding the medium projections. The low and high projections were based on analyses of past population forecast errors for counties in Florida and the United States.

The low and high projections indicate the range into which two-thirds of actual future county populations will fall, if the future distribution of forecast errors is similar to the past distribution. That is, if future errors are similar to past errors, the populations of about two-thirds of Florida's 67 counties will fall somewhere between the low and high projections. The high and low projections themselves, however, do not have equal probabilities of occurring. Given Florida's population growth history, the probability that a county's future population will be above the high projection is greater than the probability that it will be below the low projection.

The range between the low and high projections varies according to county population size in 2005 (less than 25,000; 25,000–249,999; and 250,000+) and the length of the projection horizon (forecast errors generally grow with the length of the projection horizon). Our studies have found that the distribution of absolute percent errors tends to remain fairly stable over time, leading us to believe that the low and high projections provide a realistic indication of the potential degree of uncertainty surrounding the medium projections.

For the medium series of projections, the sum of the county projections equals the state projection for each year (except for slight differences due to rounding). For the high and low series, however, the sum of the county projections does not equal the state projection. This occurs because potential variation around the medium projection is much greater for counties (especially small counties) than for the state as a whole. Thus, the sum of the low projections for counties is lower than the state's low projection and the sum of the high projections for counties is higher than the state's high projection.

Note: The projections published in this bulletin refer solely to permanent residents of Florida; they do not include tourists or seasonal residents.