

# Utah's Long-Term Projections

## Overview

Utah's population reached 2.2 million in 2000 and is expected to reach 5.4 million by the year 2050. The growth rate, which exceeds the rate of growth for the nation, will be sustained by a rapid rate of natural increase and a strong and diversified economy.

## State Level Results

The 2005 Baseline demographic and economic projections were produced by the Demographic and Economic Analysis section of the Governor's Office of Planning and Budget (GOPB), in association with numerous state and local representatives. The 2005 Baseline is unique because it is the first time GOPB has used its new econometric model to generate official demographic and economic projections.

**Population.** Utah's population, which was 1.7 million in 1990, reached 2.2 million in 2000, and is projected to achieve 2.8 million in 2010, 3.5 million in 2020, 4.1 million in 2030, 4.7 million in 2040, and 5.4 million in 2050. Although the projected average annual growth rate decelerates from 2.4% per year in the 1990s to 1.3% per year in the 2040s, these growth rates are more than twice the projected rates for the nation as a whole.

**Natural Increase.** Natural increase, which is the amount by which annual births exceed annual deaths, will fuel 86% of Utah's population growth over the next 50 years. The number of births per year is projected to average 50,900 in the 2000s, 60,500 in the 2010s, 69,000 in the 2020s, 78,800 in the 2030s, and 88,500 in the 2040s. This compares to projected annual average deaths of 13,400 in the 2000s, 16,200 in the 2010s, 19,700 in the 2020s, 24,600 in the 2030s, and 29,900 in the 2040s.

**Migration.** Net migration is gross in-migration less gross out-migration. Positive net in-migration occurs when more people move into an area than move out of an area for a given period of time. Net in-migration is projected to occur in the State of Utah over the next five decades. Approximately 399,500 of the 2.9 million population increase over the 45 year projection period can be attributed to net in-migration, meaning in-migration accounts for about 14% of the projected increase. Net in-migration occurs when 1) there is enough job creation to accommodate residents who are new entrants to the labor force, and 2) there is additional job creation, such that in-migration is necessary to satisfy labor demand within the state. The sustained net in-migration is projected because job creation is also projected to be relatively rapid over the next three decades.

**Age Structure and Fertility.** A significant amount of attention has been paid to the trends of the growing school-age population (ages 5 to 17) in Utah. The growth spurt in this age group is a consequence of the fact that the grandchildren of the baby boomers are now entering the school-age years. The State of Utah is projecting an increase of nearly 156,000 people in the school-age population over the next decade. It is important to note that this increase is not mainly fertility-driven or migration-driven. Rather, it is primarily due to the fact that a significantly large number of women are presently in their childbearing years. Utah's population is relatively young when compared to the nation. Consequently, a greater proportion of the state's females are in their childbearing years than the U.S. Therefore, even if Utah's fertility rate (children per woman) was equal to that of the nation, more children would be born in Utah relative to the size of the population.

In addition to the young population, Utah's women have higher fertility rates, ranking the state first among states nationwide. For the projection period, Utah's fertility rate is projected to remain constant at 2.5 children per woman of childbearing age. At the national level, the fertility rate is projected to increase from 2.01 in 2000 to 2.19 in 2050. Further contributing to the rapid rate of natural increase is the fact that Utahns tend to have longer life expectancies (mortality rates at any given age are lower) compared to the nation.

The median age is the age that divides the age distribution of a given population into two equal groups--one that is younger than the median and one that is older than the median. Utah's median age is projected to increase from 27 years in 2000 to 34 years by the year 2050. Over the same period, the U.S. median age is projected to increase from 35 to 39. The increasing median ages in both cases are largely the result of the aging of the baby boomers over time. The difference in median ages reflects the cumulative effect of Utah's higher fertility rate and the interaction of this high fertility rate with the younger population profile of the state. As Utah women in childbearing years continue to have more children on average than women nationally, the younger age groups continue to be relatively larger as a portion of the population than is the case for the U.S. as a whole.

**Dependency Ratio.** One summary measure of a population's age structure is the dependency ratio. This ratio is defined as the number of non-working age persons (younger than 18, and 65 years and over) divided by the number of working age persons (ages 18 through 64). Historically, Utah's dependency ratio has been significantly higher than that of the nation. This has occurred because the preschool and school-age portions of Utah's population have been substantial, relative to its total population. In 1970, Utah's dependency ratio was 90 while the nation's was 79. In 2000, the dependency ratio for the state fell to 68 while the nation's fell to 62. In both cases, this decline occurred primarily because the baby boomers reached working age.

Utah's age structure is projected to continue to be characterized by a relatively high dependency ratio. However, the state's dependency ratio is projected to drop below that of the nation beginning in 2028, and continue for about ten years. By 2050, Utah's dependency ratio will once again be securely above the nation's ratio. The projected dependency ratio for Utah in 2050 is 88, while that of the nation is 79. The trend of converging, then crossing, dependency ratios is primarily because the working age proportion of Utah's population is projected to increase while that of the nation is projected to decline. The aging of the baby boomers affects the age structure of both Utah and the U.S. However, the aging and retirement of the baby boomers will have a larger effect on the national dependency ratio because the younger age groups in Utah's population will increase more rapidly than those of the nation throughout the entire period.

**Employment.** Utah's total employment is projected to increase from 1.4 million in 2000 to 3.5 million in 2050. This is an increase of over two million jobs over the projections period. The State of Utah's average annual growth rate for the projections period is 1.8%, while the corresponding growth rates for the U.S. are projected to be about half that of Utah.

Over the next five decades, employment growth is projected for every major industry except mining in Utah. Further, average annual growth in

every industry is projected to be higher than for those same industries at the national level. National projections indicate that four of the 11 major industries will experience net declines in employment levels. The four industries are mining; manufacturing; trade, transportation, and utilities; and information. In Utah, of the ten major industries, education and health services is projected to have the highest average annual growth rate over the next five decades. The projected average annual rate of change for 2001 through 2050 for Utah's education and health services sector is 3.6%. Other major industries in Utah that are projected to have strong employment growth (around 2.0% per year on average) for the 2001 to 2050 period are professional and business services (2.3%), and other services (1.8%). Slower growing industries include construction (1.5%), manufacturing (1.5%), financial activity (1.5%), leisure and hospitality (1.5%), government (1.3%), trade, transportation, and utilities (1.1%), and information (0.7%).

Currently, the three largest industries (in terms of employment) in Utah are: trade, transportation, and utilities; government; and professional and business services. Looking forward, the number of jobs in these industries is expected to more than double, increasing from 647,400 in 2000 to 1.4 million in 2050, an increase of nearly 760,000 jobs.

**Diversification.** The State of Utah is becoming more economically diverse, and hence more like the economic structure of the United States, as measured by the Hachman Index. There are specific counties that are very different from the U.S., and this is not necessarily bad. For example, if the mining industry moved out of Duchesne County, the economic structure of the county would score higher on the Hachman Index, meaning it would now be more representative of the economic base of the nation. However, the county's economy would not be better off. Although the direction of shifts in composition of employment by industry are projected to be similar for Utah and the U.S., the projected 2000 and 2050 distributions of employment by industry are different for Utah and the U.S. In 2001, the most significant differences between the industrial composition of Utah and the U.S. were the large concentration of employment in the construction and the financial activity sectors, as well as the somewhat large employment concentration in the information and government sectors. The concentration of employment in the trade, transportation, and utilities sector was slightly higher in Utah when compared to the nation. The Utah industries with smaller proportions of the overall employment than their national counterparts included professional and business services, leisure and hospitality, other services, manufacturing, education and health services, and mining.

The most significant differences between the employment shares for the projected industrial composition in 2050 of Utah and the U.S. are the relatively larger concentration of Utah's employment in the manufacturing, financial activity, and construction sectors, and the relatively smaller share of Utah's employment in mining. When compared to the nation, Utah is also projected to have a slightly larger share of employment in: professional and business services; other services; and leisure and hospitality. It is projected to have a slightly smaller share of employment in: trade, transportation, and utilities; government; information; and education and health services. This is the combined result of the differential shifts in industrial composition between Utah and the U.S. in the projections period, and the initial differences in the composition of employment between the two.

#### County Level Population and Employment Projections

**Population.** About 1.9 million (or 61%) of the 3.1 million population

increase projected for the state between 2000 and 2050 will be concentrated in the counties of Salt Lake, Utah, Davis, and Weber. This is somewhat less than the 76% share of the state's population in these counties in 2000. Therefore, the projected share of the state's population in these four counties in 2050 will decline slightly to 67%.

The counties with the highest projected average annual rates of growth over the 2000 to 2050 period are Washington (3.9%), Morgan (3.8%), Summit (3.0%), Wasatch (2.9%), Tooele (2.6%), Utah (2.3%), Iron (2.3%), Cache (2.2%), and Beaver (2.1%). These growth rates are all in excess of the state's average annual rate of growth of 1.8% for the 2000 to 2050 period. Thus, these counties will gain in terms of their shares of the state's total population.

**Employment.** Of the 2.1 million net nonagricultural employment creation projected for the state from 2001 to 2050, 1.4 million jobs (67%) are expected to be within Salt Lake, Utah, Davis, and Weber counties. Among these, Utah is the only county projected to have average annual growth rates of employment in excess of that of the state as a whole.

The counties with the most rapid rates of projected employment growth are also those counties with rapid rates of projected population growth. Rapid employment growth makes it possible for a region to support more people. Population growth reinforces economic expansion as well. The counties with the most rapid rates of projected employment growth from 2001 to 2050 are Morgan (4.2%), Washington (4.0%), Wasatch (2.8%), Utah (2.6%), Cache (2.6%), Summit (2.5%), Iron (2.4%), and Beaver (2.0%).

#### Methods and Assumptions

**Models.** The 2005 Baseline represents the first time the state's new economic model has been used to produce an official projection baseline. The State of Utah has now officially switched from using the Utah Process Economic and Demographic (UPED) model to using a model from Regional Economic Models Incorporated (REMI) to produce the official long-term baseline projections. The REMI model is very similar to the UPED model, in that it combines economic and demographic components in order to produce a complete picture of the complex relationships that exist in a society. Its ability to capture these complex relationships makes REMI fairly unique among models of economic and demographic growth.

The REMI model is a structural model, which means that it includes cause-and-effect relationships among the different parts. The basic assumptions underlying the model are that households maximize utility and that producers maximize profits. The five major model blocks are: (1) output and demand, (2) labor and capital demand, (3) population and labor force, (4) wages, prices and costs, and (5) market shares. These blocks provide the foundation upon which the model linkages are built.

The models GOPB uses to produce the official baseline long-term projections for the State of Utah and its counties were custom designed by REMI. Not only do they incorporate regional data from national sources such as the U.S. Bureau of Economic Analysis, the U.S. Bureau of Labor Statistics, and the U.S. Census Bureau, the models also specifically include locally produced data.

**Fertility.** State level birth probabilities by age of mother are assumed to remain constant at their estimated 2004 levels to 2050. The resulting total fertility rates (central birth rates) is 2.5 for the state.

**Survival.** State-level survival rates by age and sex are assumed for the state. Survival rates are assumed to increase along with projected U.S. survival rates to 2050. This assumption yields an increase in life expectancy of 4.1 years, from 74.9 years in 1990 to 79.0 years in 2030, for males. For females the similar increase is 3.1 years, from 80.4 in 1990 to 83.5 in 2030.

**Employment Growth Assumptions.** The underlying assumption in the production of employment projections is that industry shares of growth will remain constant over time. Therefore, the process of creating long-term employment projections involved extrapolating employment by industry based on a trend analysis of that industry's share of national employment. For instance, if a Utah industry constituted 1% of national industry employment in 1980, 2% in 1990, and 3% in 2000, that industry would be projected to constitute 4% in 2010, 5% in 2020, and 6% in 2030. This procedure was performed for all major industries and for all counties in Utah.

**Additional Information.** For additional information on historical as well as projected economic and demographic data, including methods, procedures, and assumptions, visit the web site: [www.governor.utah.gov/dea/people.html](http://www.governor.utah.gov/dea/people.html).