OFFICE OF THE STATE DEMOGRAPHER

Included in this Brief:

- Young adults ages 20-34 years are the most likely to move in a given year.
- Migration affects both the size and composition of the population.
- Future patterns of migration could have important implications for our ability to maintain adequate support systems for elderly Texans.

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Introduction to Migration in Texas

Beginning in 2005, Texas has experienced the largest annual population growth of any state. This momentous growth in Texas population is due to natural increase and net migration. This report presents a general background on the demographic process of migration and why it is important. Here we examine the contributions of recent migration to the size and composition of the Texas population.

Natural Increase and Migration

There are two basic ways that a population can grow: natural increase and net inmigration. Natural increase occurs when there are more births than deaths. Net inmigration (also called positive net migration) occurs when there are more people moving into an area (inmigrants) than there are people moving away from that area (outmigrants).

Though natural increase and migration both contribute to population change, each has its own dynamic. Death rates tend to be stable over long periods and birth rates are relatively steady in the near term. However, migration rates can be quite volatile. Extreme examples would be refugees displaced by wars, natural disasters, or political upheavals. A more typical example would be the migration of workers to areas with strong economic growth. In these examples, the impacts of migration would depend on the size and composition of the receiving community and the number of inmigrants in a specified time period. By contrast, changes from natural increase are more gradual because the impacts of births and deaths tend to unfold over time in a more predictable manner. A well-known example of natural increase is the post-World War II uptick in fertility rates known as the 'baby boom' which occurred 1946-1964. As it aged through its life cycle, the large 'baby boom' cohort affected everything from school enrollments to the solvency of retirement plans.

Population Growth and Decline

The interplay of natural increase and migration can have important consequences. If a country has a flat or negative rate of natural increase, population growth cannot occur without positive net migration. On the other hand, if a country has a zero or negative net migration rate, then population growth cannot occur without natural increase. When both natural increase and net migration are flat or negative, then the population size of a country will decline. For example, data from the Population Reference Bureau (2013) indicates that, in mid-2011, 15 countries including Hungary, Japan, and Russia experienced negative annual population growth. In each country, both natural increase and net migration were either negative or flat. Typically, the more developed nations experience declines in natural increase because life expectancy is increasing while birth rates are decreasing. Without sufficient net inmigration, such countries often experience rapid population aging.

Implications for the United States

Unlike many of the more developed nations, the United States is expected to have positive population growth beyond the middle of the 21st Century. Figure 1 is derived from Shrestha and Heisler (2011) and shows the 1950-2050 estimated and projected 10 year growth rates, natural increase rates, and immigration rates for the United States. Figure 1 has four key take-away points:

- Even though the future U.S. population will be older, positive rates of natural increase and immigration ensure that America's population will continue to grow beyond 2050.
- The strong total growth of the 1950-1960 decade reflects natural increase from the high fertility rates of the 'baby boomers' parents.
- Some demographic events have residual effects. The 1990 upswing in natural increase reflects the 'echo-boom' when female 'baby-boomers' were having children of their own.
- With a declining birth rate, immigration becomes a more crucial source of population growth. In Figure 1, the declining rate of natural increase occurs because birth rates drop while death rates remain relatively steady. By the year 2027, it is projected that immigration will account for more population growth in the United States than natural increase.

More About Migration

Fertility, mortality, and migration are the fundamental components of population change. Together, these three processes are closely associated with changes in the size, distribution, and composition of a population.

Geographic selectivity is an important aspect of migration. For example, the Census Bureau (2013) estimates that between 2011 and 2012, immigration added around 0.9 million persons to the U.S. population. However, 1 out of 4 of these immigrants settled in three U.S. metropolitan areas: New York, Los Angeles, and Miami. Collectively, these three areas represented about 12 percent of the total 2012 U.S. population but attracted around 25 percent of all immigrants in 2012. Thus, because of geographic selectivity, these cities attracted a disproportionate share of U.S. immigrants.

Another important dimension of migration is its time period. Migration typically is measured by the number of people moving in a specified time period. For example, the Census Bureau considers people to be migrants if they lived at a different residence one year ago. Also, a move must indicate a change of residence and not just a temporary relocation. Short duration moves such as commuting, vacationing, or seasonal employment are not considered to be migration.

Migration and Demographic Selectivity

It is noted in the sidebar to the right, that the impacts of migration are affected by geographic selectivity. Migration also is selective with respect to migrant characteristics. Figure 2, derived from the 2013 American Community Survey (ACS) 1-Year PUMS data, shows the age and sex selectivity of recent movers in Texas and the United States. Four patterns are of interest here:

- Among all movers, young adults ages 20-34 years are the most likely to move in a given year.
- After age 24, the percent of movers declines for each age group until the 75-79 year old group when we see a slight uptick in the percentage of movers.
- In 31 of the 36 sex by age categories, Texas males and females were more likely to have moved in 2012 than males and females in the remaining 49 states.
- Among Texas movers, we find that females were more likely to move than males in the younger age groups (10-24 years old) and the oldest age groups (60 years and older). Texas males are more likely to move than Texas females in the 25-59 year old age range.

Because of demographic selectivity, migration affects not only the size of the population but also the composition of the population. For example, the age selectivity of migration can have a significant impact on the present and future age structures of a population. This is illustrated in the next section.

Figure 1: Estimated and Projected Total Population Growth, Natural Increase, and Immigration Rates for the United States, 1950-2050

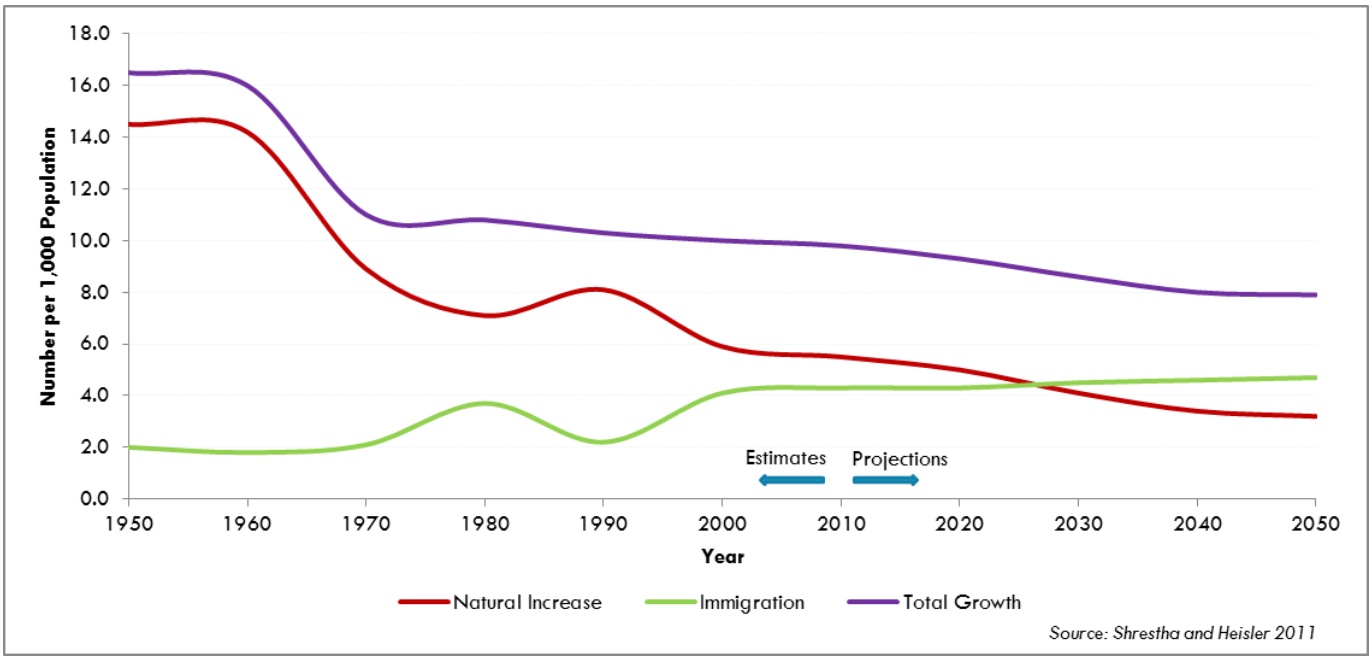
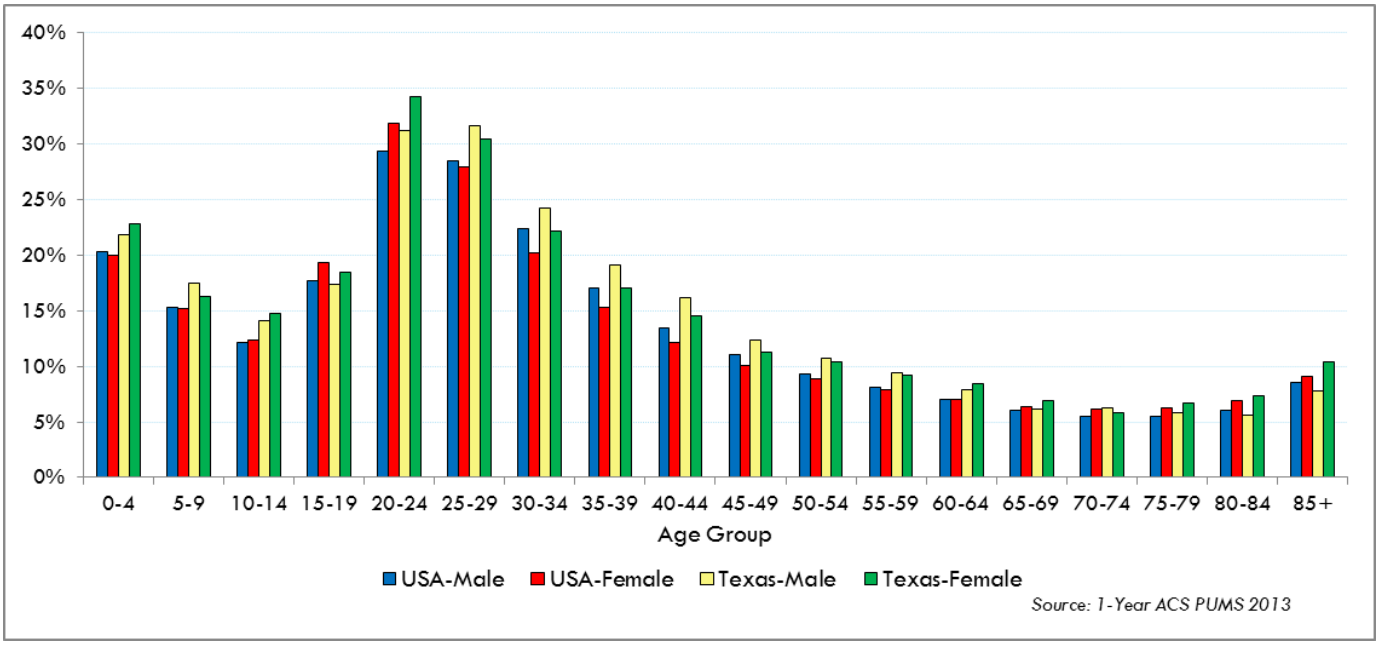


Figure 2: Percentage of Movers* by Sex and Age Group for the United States and Texas, 2013



*Movers are persons 1 year of age and older that did not live in their current residence 1 year ago.

Migration and the Future Texas Population

Figures 3 and 4 compare the projected 20 year outcomes for natural increase and migration in Texas. Figure 3 shows the Texas State Data Center's (2014) population projections based on the 0.0 Natural Increase Scenario (i.e., assumes there is no migration). Figure 4 presents the same projections using the 1.0 migration scenario (i.e., assumes that the 2000-2010 migration rates continue). In both figures, the State's 2010 baseline population is compared to the projected 2030 population. Three important relationships occur in this 20 year time frame:

- The Natural Increase Scenario in Figure 3 shows moderate growth – a total increase of 3,848,649 in the Texas population between 2010 and 2030.

- The 1.0 migration scenario in Figure 4 shows much larger growth – a gain of 12,009,523 persons in the same 20 year projection span.

- While both population pyramids show roughly equivalent increases in the older age groups (65 years and older), the 1.0 Scenario in Figure 4 depicts a substantial part of the growth in the younger age groups (under 30 years old). Thus, even with continuing inmigration, the Texas population would continue to age but would also contain a larger group of children and young adults.

Figure 5 compares the natural increase (0.0) and continuing migration (1.0) scenarios in 2050 which is the end of the Texas State Data Center's 40 year projection period. As with the 2030 projections, the 2050 projections indicate that migration strongly impacts both the size and composition of the population. Here are three examples of these impacts:

- By 2050, the continuation of the 2000-2010 migration rates (1.0 Scenario) would produce a Texas population of 54,369,297 which is 1.74 times larger than the 31,246,355 projected under the Natural Increase Scenario (0.0 Scenario).

- Under the 1.0 Scenario, the age distribution is younger and this is especially apparent in the middle ranges of the population pyramid in Figure 5. In the 1.0 Scenario, the 25 to 49 year old age group is about twice as large as it would be under the Natural Increase Scenario.

- Migration also can affect the sex ratio (i.e., the ratio of males-to-females). Under the Natural Increase Scenario, the sex ratio would be 0.996 in 2050. For the 1.0 Scenario, the sex ratio would be 1.019 in 2050.

Future Population Implications

Migration's contribution to changes in the population age structure can have important consequences for the future. One measure that gauges the effects of population aging is the Potential Support Ratio (PSR). The PSR is the ratio of the working age population (15-64 years old) to the elderly population (65 years and older). It is a simple approximation of how many workers there are for

Figure 3: Comparison of Texas Population Pyramids for the 2010 Baseline and the 2030 Projected 0.0 (Natural Increase) Scenario

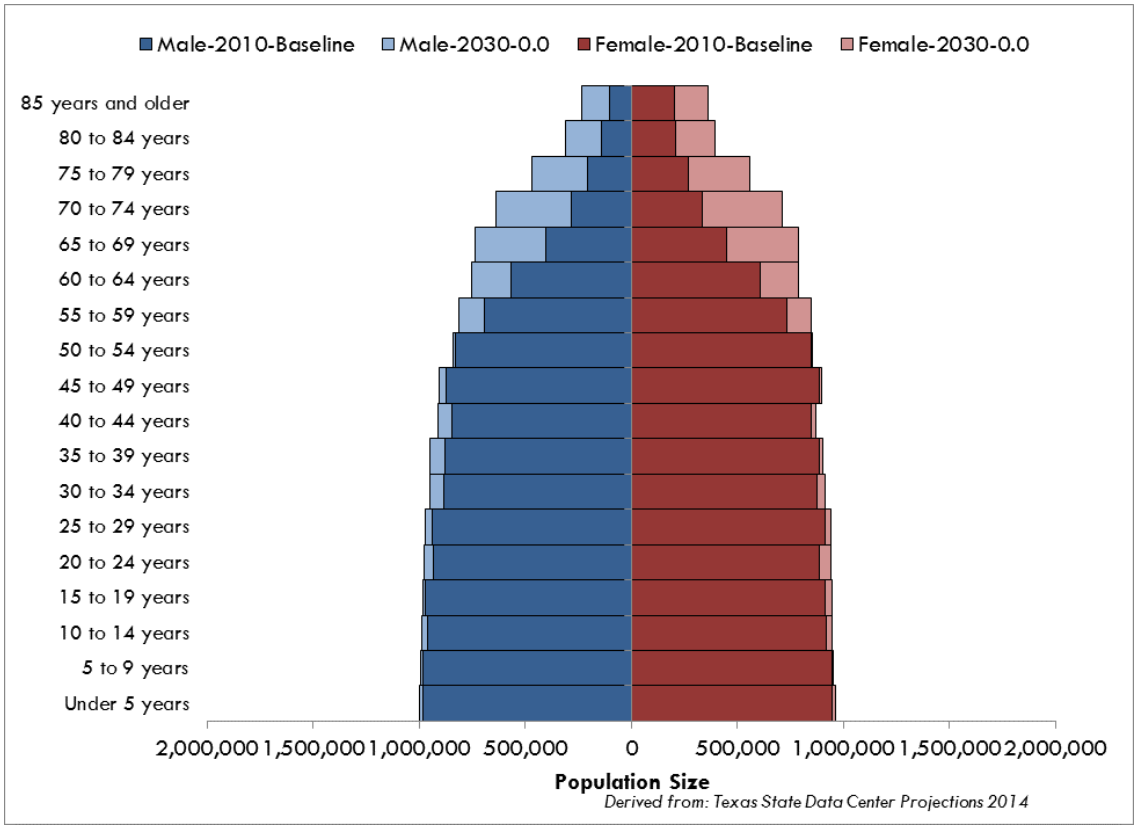


Figure 4: Comparison of Texas Population Pyramids for the 2010 Baseline and the 2030 Projected 1.0 (2000-2010 Migration Rates) Scenario

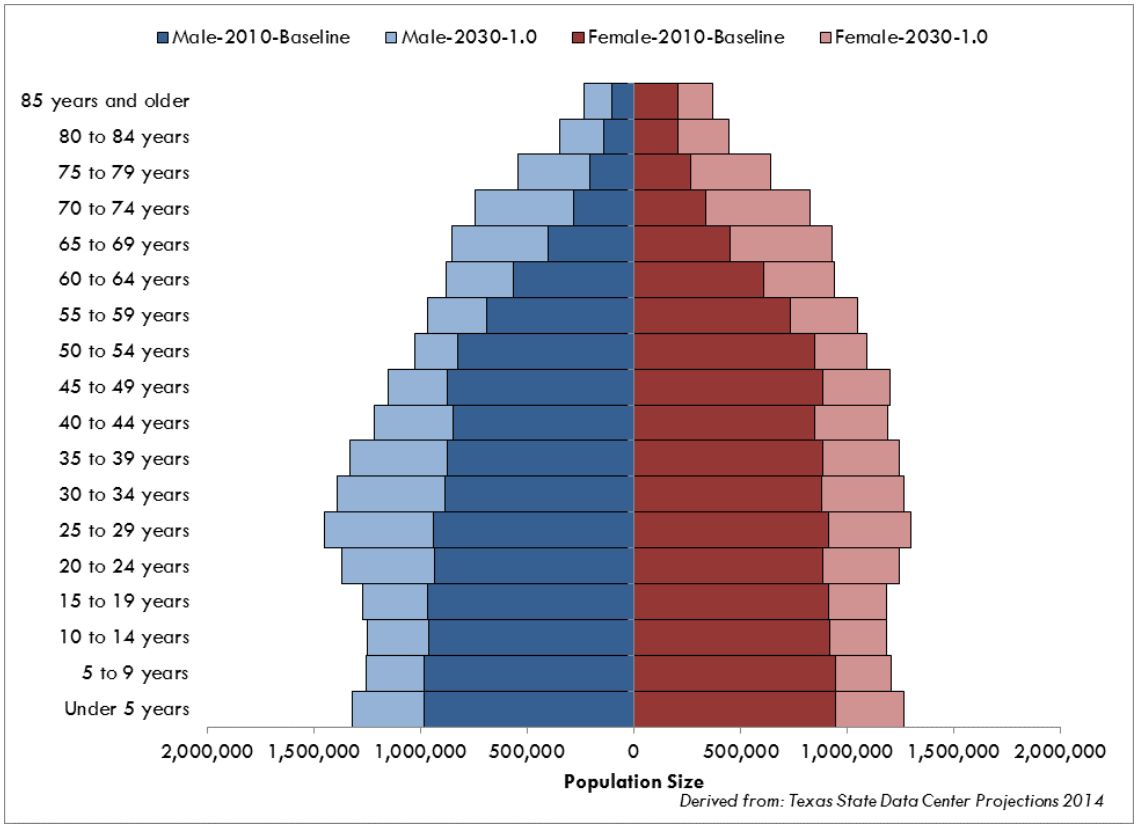
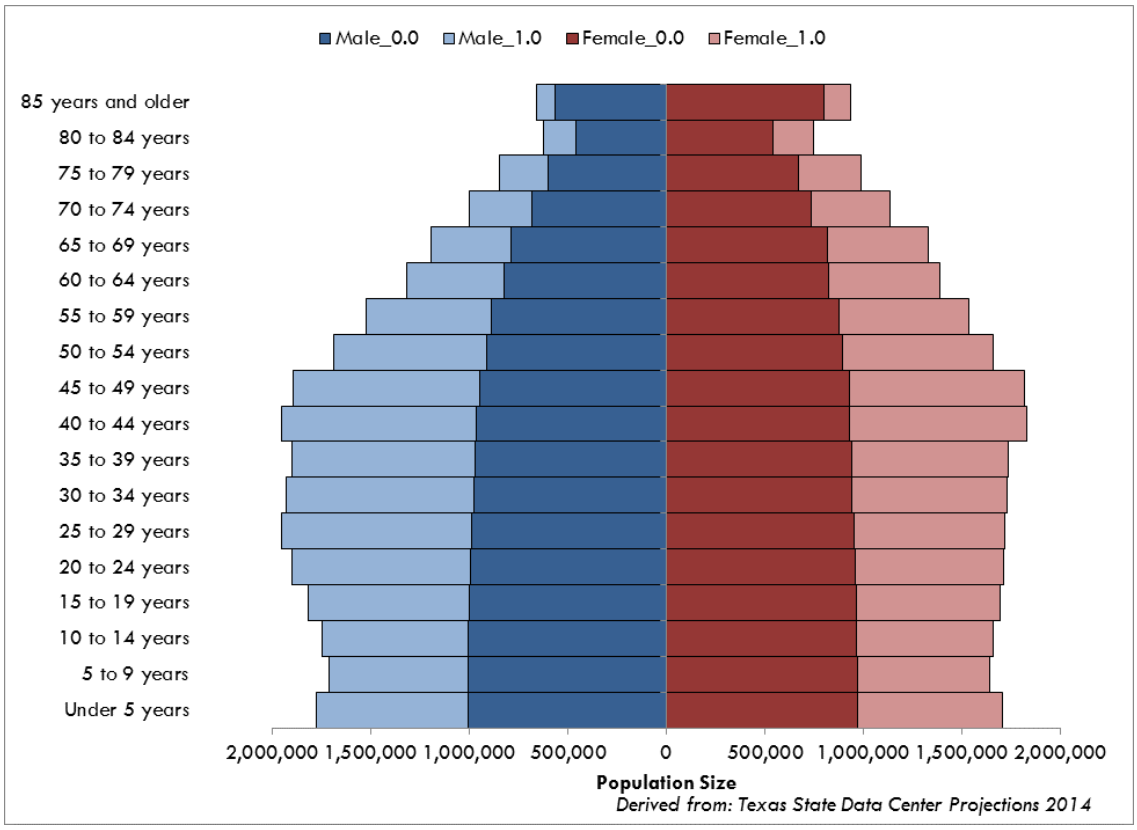


Figure 5: Comparison of Population Pyramids for Texas in 2050 Under the Projected 0.0 (Natural Increase) and the Projected 1.0 (2000-2010 Migration Rates) Scenarios



each retiree. Populations with a greater number of workers per retiree are more likely to have an economic structure to provide support for the aging population.

For the United States, the PSR was 7.8 in 1950 and this declined to 5.1 in 2010. In Japan, the PSR declined from 12.1 in 1950 to 2.8 in 2010 (United Nations, 2013). Thus, for Japan, in a 60 year time span, the number of workers per retiree declined by more than 75 percent. By comparison, the U.S. decline was around 33 percent.

Figure 6 examines the PSR for Texas using the Texas State Data Center's 2030 and 2050 population projections for the 0.0 and 1.0 Scenarios. Here the PSR comparisons illustrate six important impacts of migration on the future age composition of Texas:

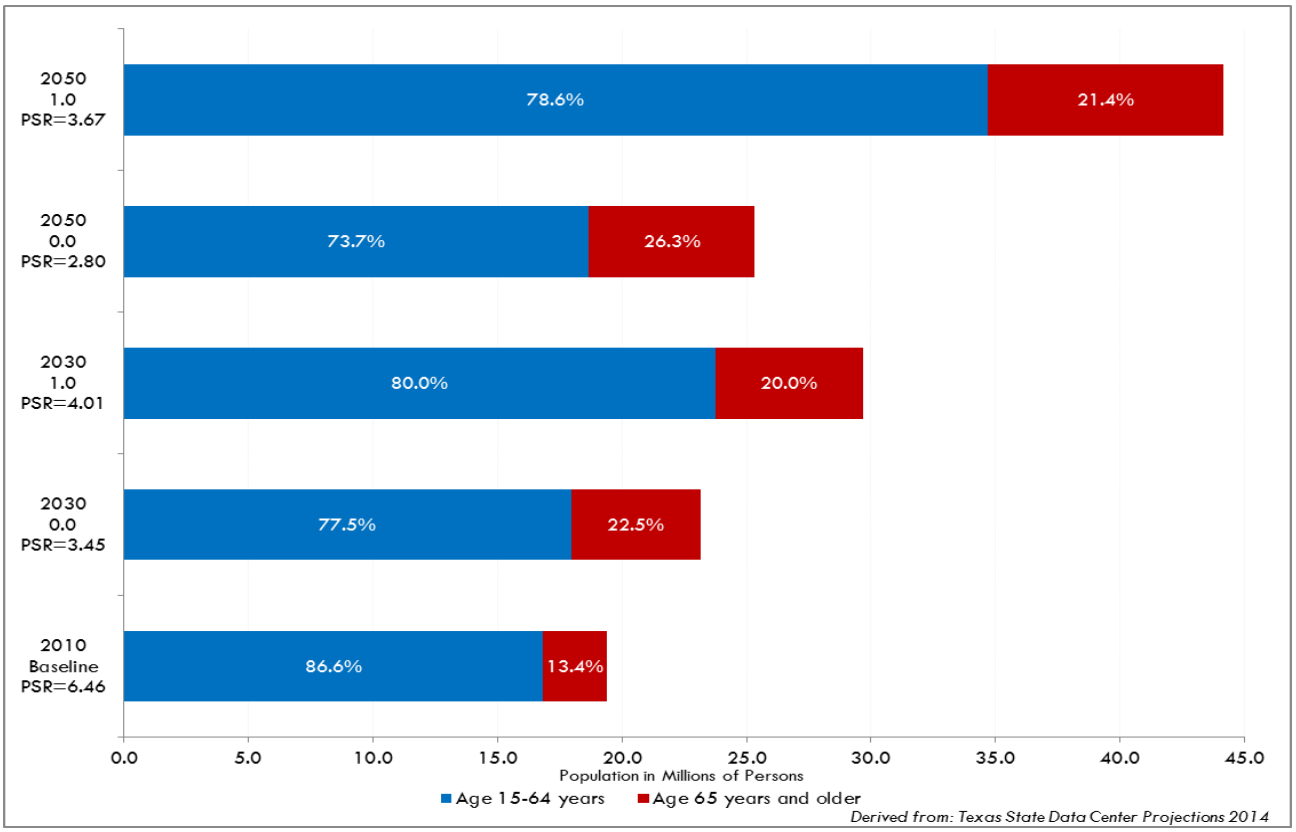
- Viewing Figure 6, the 2010 Baseline PSR for Texas was 6.46. This means there were about 6.5 workers for each elderly person. This is less than the 7.8 PSR the U.S. had in 1950, but much higher than Japan in 2010 where there were only 2.8 workers per elderly person.

- When we compare the 2010 Baseline to the 1.0 and 0.0 Projection Scenarios for 2030, we find that the PSR declines for both. The 1.0 Scenario's PSR is 4.01 in 2030 compared to 3.45 for the 0.0 Scenario.

- Compared to the Natural Increase Scenario (0.0 Scenario) in 2030, the 1.0 Scenario shows an absolute increase in the number of elderly (5.9 million compared to 5.2 million). Even so, there would be an additional one-half working person per each additional elderly person under the 1.0 Scenario (i.e., 4.01 – 3.45 = 0.56).

- At the end of the projection period in 2050, we again see that the PSR declines with the passage of time – dropping to 2.80 for the Natural Increase Scenario and 3.67 for the 1.0 Scenario.

Figure 6: Number and Percentage of Working Age and Elderly Populations and Potential Support Ratio (PSR)* for Texas in 2010 and Projections for 2030 and 2050 Under the 0.0 (Natural Increase) and 1.0 (2000-2010 Migration Rates) Scenarios



*PSR is the ratio of the working age population (15 to 64) to the elderly population (65 years and older)

Estimated and Projected Texas Population by Age Groups (in millions of persons)

Natural Increase

Age Group	2010 Baseline	2030 0.0	2050 0.0
0-14	5.7	5.8	5.9
15-64	16.8	18.0	18.7
65 & Over	2.6	5.2	6.7
Total	25.1	29.0	31.2

1.0 Migration Scenario

Age Group	2010 Baseline	2030 1.0	2050 1.0
0-14	5.7	7.5	10.2
15-64	16.8	23.8	34.7
65 & Over	2.6	5.9	9.4
Total	25.1	37.2	54.4

Note: Numbers may not sum to total due to rounding.

Source: Texas State Data Center Projections 2014

- Under the 2050 1.0 Scenario, the absolute number of the elderly is greater than it would be under natural increase alone. However, this migration also increases both the absolute and relative sizes of the working age population.

- Compared to the 2050 Natural Increase Scenario, the 2050 1.0 Migration Scenario would lead to an additional 0.87 working persons for each additional elderly person by 2050 in Texas.

Conclusions

In the past 60 years, Texas has attracted significant numbers of migrants to the state. Migration is an important component of population change. Migration's most immediate impact is on the size of the population. But, migration also has more subtle effects. We have shown that, over time, continuing net inmigration would substantially alter the future age structure of Texas.

Even in the absence of net inmigration, the Texas population is expected to continue growing through natural increase. However, if historical migration patterns were to continue, this would lead to much greater population growth. Also, continuing inmigration would change the future population composition. This is especially true for the population age structure. Migrants tend to be young adults in their 20s and 30s and a continuation of historical migration patterns would give Texas a younger population than it would have otherwise.

The Texas population projections show that continuing inmigration will lead to larger elderly populations. Larger elderly populations will likely place heavier demands on social security, health care, and other services. However, we also see that continuing inmigration should lead to more workers per retiree. In this circumstance, migration would reduce the relative size of the aged population. Consequently, the future patterns of Texas migration could have important implications for our ability to maintain an adequate support system for our elderly population.

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