

Southwest Economy



▶ Gone to Texas: Migration Vital to Growth in the Lone Star State

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▶ *Labor shortages are likely to constrain growth given that the state unemployment rate is now at a near-record low of 4.0 percent.*

The Federal Reserve Bank of Dallas expects the Texas economy to grow jobs in 2018 at a rate of approximately 3 percent. As Keith Phillips and Christopher Slijk explain in this issue of *Southwest Economy*, this strong performance is the result of broad-based expansion across industries and substantial growth in the energy sector. It is expected that both Texas and the U.S. will surpass crude oil production records achieved in the early 1970s.

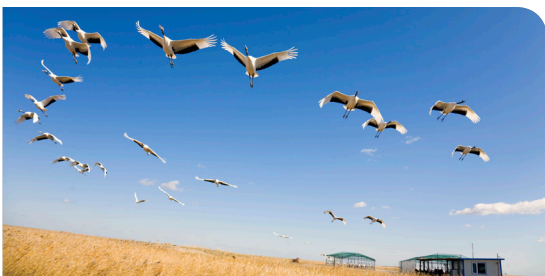
Since 1990, Texas employment has grown about 1 percentage point faster than the nation. This growth has been fueled by substantial domestic and international migration to the state. In their article, Pia Orrenius, Alexander Abraham and Stephanie Gullo take an in-depth look at the volume and composition of this migration. Since 2005, net migration to Texas has averaged 228,000 people per year, the highest number of any state. These new residents are far more likely to be college educated than Texans on average and are an important source of educated workers for the region. Jason Saving explains in the “On the Record” interview that due to limits on the deductibility of certain taxes, recent federal tax code changes may further boost migration to Texas. This legislation, while helping Texas, is likely to raise tax bills for certain households in jurisdictions with high state and local taxes.

While the outlook for Texas is positive, certain risks remain. Labor shortages are likely to constrain growth given that the state unemployment rate is now at a near-record low of 4.0 percent. Issues relating to the renegotiation of the North American Free Trade Agreement may also create challenges. Texas is the nation’s top exporter, and Mexico and Canada account for nearly half of the state’s exports.

To help analyze the economic landscape and address key policy questions, the Dallas Fed will continue to produce economic research that sheds light on key issues that are important to the region and the nation. Based on our research, I remain very optimistic about the future economic prospects for Texas and the Eleventh District.

A handwritten signature in black ink that reads "Robert S. Kaplan". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Robert S. Kaplan
President and Chief Executive Officer
Federal Reserve Bank of Dallas



Gone to Texas: Migration Vital to Growth in the Lone Star State

By Pia Orrenius, Alexander T. Abraham and Stephanie Gullo

ABSTRACT: Texas has relied on a large and sustained influx of workers from other states and other countries. These transplants—making up nearly half of the state’s workforce—account for an even larger share of Texas’ growth than their relative numbers. Significantly, this inflow brought the types of workers most in demand.

With nearly half of its workers born outside the state, Texas depends on—and is shaped by—migration. For most of its history, Texas has relied on migration to populate its expansive landmass and power its economy.

It wasn’t always easy to attract people. In the beginning, land grants and other enticements were used to lure settlers. Admittedly, the spirit of enticements has lived on; the state continues working hard to be welcoming—it can be argued that maintaining low taxes, less regulation and an accommodating business climate helps attract people and firms.

In addition to bringing in outsized numbers of migrants, the state also retains its existing residents. Texas is by far the “stickiest” state in the nation with over 82 percent of those born in the state remaining here.

Since 2000, natural increase and net migration have contributed roughly equal parts to the state’s population

growth—about 210,000 on average per year for natural increase, another 200,000 for net migration (*Chart 1*). The state’s 1.8 percent average annual population growth is about double the nation’s 0.9 percent.

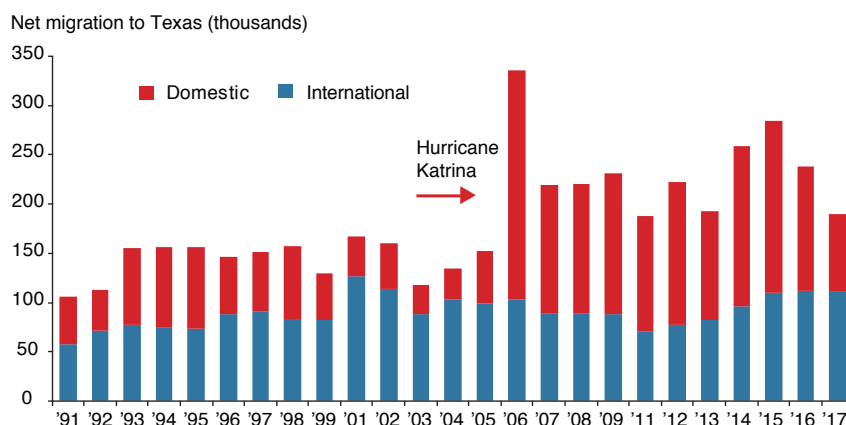
Although the state grows faster and is currently slightly younger than the rest of the nation, the trajectory of aging in Texas resembles that of the U.S. By 2050, about 20 percent of the population will be 65 or older, the highest share in the state’s history.¹

Population growth and aging are important because they largely determine the growth of the workforce, which helps set the speed limit of economic growth. An economy can grow by adding workers and/or by workers becoming more productive. Migration plays an important role in productivity; by channeling the right workers to the right jobs, migration makes labor markets more efficient.²

States typically don’t differ much from one another in terms of produc-

**CHART
1**

Migration to Texas Reaches Record Highs After 2005



NOTES: Census Bureau population estimates approximate the population on July 1 of the year indicated and, thus, capture changes from the previous year. Data are not available for decennial census years, 2000 and 2010.
SOURCE: Census Bureau.

tivity growth, but they tend to differ greatly with respect to population growth, especially migration. These patterns can also reverse themselves quickly. For most of the 20th century, international and domestic migrants streamed into California in a seemingly endless flow. International immigrants still do, but in every year since 1991, net domestic migration to California has been negative, with a significant share of Golden State residents leaving for Texas.

Rapid economic growth for most of the last four decades has been the key factor attracting people to Texas.³ Diversification of the state's economy in the 1990s, following the mid-1980s oil bust, provided a powerful and steady jobs magnet, creating sustained economic opportunity for millions. Employment in the state grew from 7.2 million jobs in 1990 to 12.4 million at year-end 2017. Gone are the drastic oil-led swings that used to throw the state economy alternately into booms and busts.⁴ The energy sector remains key, but consistent and robust service sector growth has muted its fluctuations.

Texas was the nation's ninth-fastest-growing economy in 2017, behind most western states. The state's diversified economic base and resurgent oil and gas sector portend a bright economic

outlook. That said, with the unemployment rate already at a historic low, the economic challenge may not be creating jobs, but filling jobs.

Domestic Migration

Migration between the 50 states (and the District of Columbia) is typically referred to as domestic migration.⁵ States can be net recipients or net senders of domestic migrants. In the postrecession period—2010 to 2017—Texas was the recipient of 920,000 net domestic migrants, equal to 3.6 percent of the state's 2010 population (*Map 1*).⁶

Texas was the second-largest net recipient of domestic migrants after Florida; North Carolina was third and Arizona fourth. Many of Florida's arrivals have historically been retirees. As a percentage of population, Texas was the 12th largest net recipient destination after North Dakota, South Carolina, Nevada, Florida, Colorado, District of Columbia and other less-populous states in the Mountain West and Northwest.

The patterns in the map reflect longstanding regional population growth trends, with little or no growth in the Midwest and Northeast states but substantial expansion in the South, Mountain West and Northwest.

Domestic migrants to Texas tend to come from two types of states—large and populous states, such as California and Florida, and neighboring states, principally Louisiana and Oklahoma.

In the postrecession period, 12 percent of domestic migrants to Texas came from California, followed by Florida (6 percent) and Oklahoma and Louisiana (both 5 percent) (*Chart 2*). Unlike the map's depiction, these are gross (not net) measures of migration. Migration from populous states in part reflects their larger populations; California is 12 percent of the U.S. population, so it's not surprising that 12 percent of migrants to Texas come from there.

Gross migration from neighboring states, meanwhile, is likely overstated because it captures significant cross-border activity.

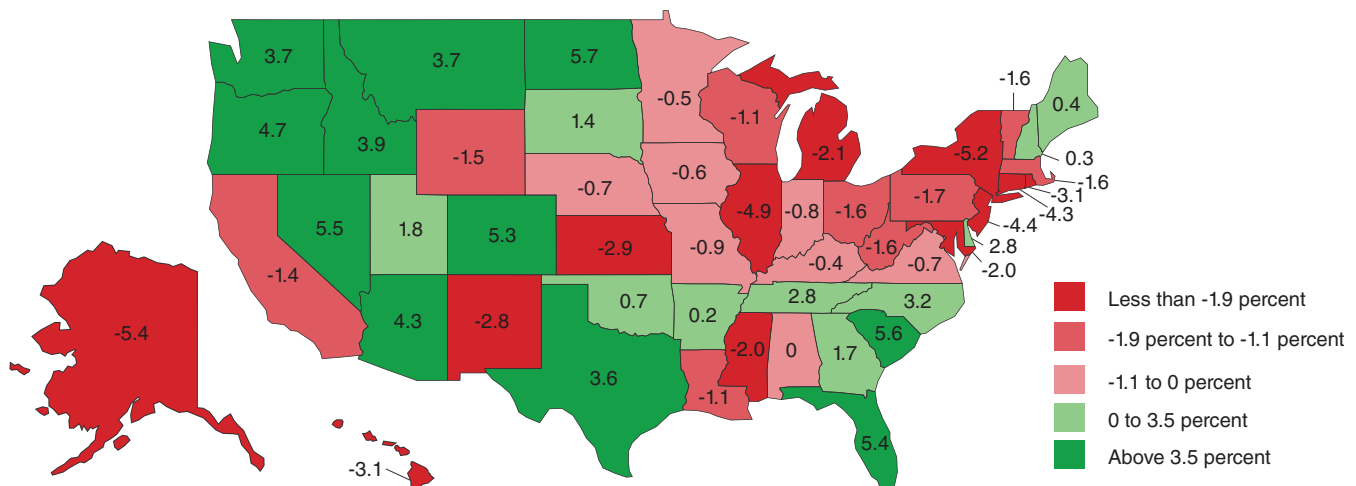
What motivates domestic migration? Surveys such as the Current Population Survey ask people who moved why they did so. Just over half of cross-state movers to Texas relocated for a job (53.1 percent), another 24 percent for family reasons and 20 percent for cheaper housing or other amenities such as a shorter commute.⁷

Among domestic migrants who chose a state other than Texas, 43 percent said

MAP 1

Among Most-Populous States, Domestic Migration Additive in Only Texas, Florida

Cumulative Net Domestic Migration by State as Percent of 2010 Population



NOTE: Chart labels show accumulated net domestic migration from July 2010 to July 2017 as a percent of population in 2010.
SOURCE: Census Bureau.

they moved for employment, 27 percent said for family reasons, and 24.5 percent said they relocated for cheaper housing or other amenities.

Employment opportunities in Texas are a clear draw. Besides adding jobs at a rapid clip, employment growth in the state has been widespread across industries and has required a wide skill distribution. Since the end of the Great Recession, every major industry has added jobs, led by 35 percent gains in professional and business services, 22 percent in construction and 33 percent in leisure and hospitality.⁸

Dividing the economy into quarters based on wage rates during the 2010–15 economic expansion, Texas' lowest-paying jobs (with hourly wages below \$10) grew 10 percent, while the two highest-paying job quartiles expanded 12 and 18 percent (with hourly wages starting at \$16 and \$27, respectively).⁹ The rates of growth for the nation were lower across the board: 8 percent in the lowest-paying quartile, and 6 and 10 percent, respectively, in the two highest-paying quartiles.

Texas job growth was weakest among the lowest paid, in the first quartile. For the U.S., growth was weakest in the upper-middle wage quartile—jobs paying \$18 to \$29 per hour rose 6 percent over the five years.

In addition to robust labor markets, Texas has traditionally offered a lower cost of living than other large states, although that advantage has recently eroded as house prices and rents have surged in cities such as Dallas and Austin. Nevertheless, the cost of living in Texas is still about 9 percent below the U.S. average and 19 percent below that of the nation's other nine largest states.¹⁰

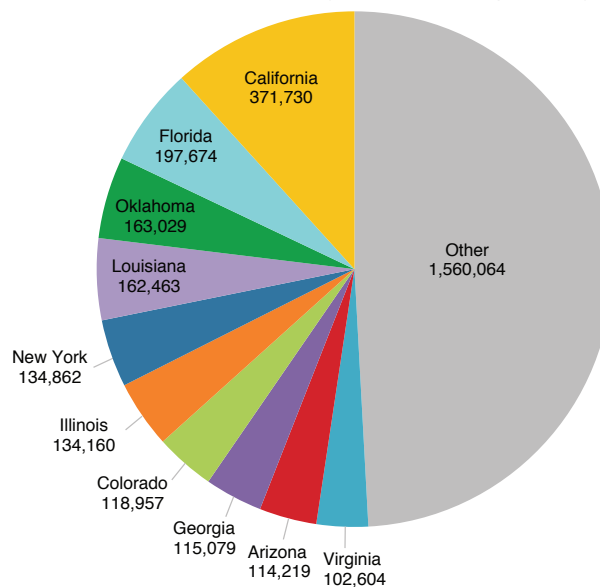
The tax burden is also lower in Texas than in other large states; though there is no state income tax, property taxes are relatively high.¹¹ With lower taxes come fewer services, a trade-off that migrants to Texas must consider before making the move.¹²

Workers may follow firms that move to the state, or firms may follow workers. Whichever the case, firms move

CHART 2

Domestic Migrants to Texas Come from Variety of States

Cumulative Gross Domestic Migration to Texas by Sending State



NOTE: Pie-slice labels show total number of movers from sending state to Texas from 2011 through 2016.
SOURCE: American Community Survey, 2011–16.

for many of the same reasons workers do—to maximize current and future earnings. Firms move for growth potential, including available high-skilled and low-skilled labor; cheaper real estate; and ease of doing business. The latter might include everything from proximity to airports and ground transportation to the ability to build new plants and hire and fire workers.

In 1996, there were 37 Fortune 500 companies headquartered in Texas; today there are 52. The most recent transplants include Jacobs Engineering and Toyota's North American headquarters—both relocating to the Dallas area from California.¹³ Firms also report moving for proximity to a supply chain or for a more central location.

International Migration

Migration into the 50 states from another country is typically referred to as international migration or immigration. While states could be net recipients or net senders of international migrants, each U.S. state receives more migrants from abroad annually than it does mi-

grants who leave. The U.S. remains the world's No. 1 immigrant destination.

Texas was the recipient of 660,000 net international migrants—about 2.6 percent of the state's 2010 population—from 2010 to 2017 (*Map 2*).¹⁴ In absolute terms, Texas was the fourth-largest recipient of net international migrants after California, Florida and New York. It bears noting that census and Bureau of Labor Statistics data include both legal and illegal immigration; population surveys make a point not to ask about legal status in order to obtain an accurate count.

The influx from abroad helps California and New York offset net domestic outmigration. Their populations would not grow were it not for immigrants. Florida also receives a large number of international migrants, about 127,000 (net) per year, but like Texas, it also attracts domestic migrants.

In percent terms, Texas was the 12th-largest net recipient of international migrants. Florida, District of Columbia, New York and Massachusetts were the top four net recipients.

There has been an interesting change in the relative magnitudes of domestic and international migration to Texas. From the 1990s through the mid-2000s, international migration to Texas typically exceeded domestic migration. Then, domestic migration rose sharply, from 55,000 annually before 2005, to nearly 135,000 in the years since then. Before 2005, international migrants numbered about 87,000 per year. Since 2005, they have averaged about 94,000 annually.

It's notable that international migration to the country and the state declined immediately after the Great Recession and only slowly picked up. The biggest change was a decline in illegal immigration; migrant apprehensions along the Southwest border have declined 75 percent from their peak of 1.6 million in 2000.

Arrivals from Mexico have historically dominated immigration to Texas. Willing workers have provided a steady stream of new hires for more than 100 years. Many individuals in recent decades came as undocumented immigrants.

This longstanding immigration pattern changed in the postrecession

period, with surging Central American immigration assuming a larger role. Still, about 52 percent of the foreign-born population in Texas is from Mexico. Other growing flows include high-skilled immigrants from India, China and South Asian nations. Nevertheless, Mexican inflows remain the largest, comprising one-quarter of total inflows after 2010 (*Chart 3*).

Besides those of Mexican origin, other large groups in Texas are Central American (8 percent of the state's foreign-born population), Indian (7 percent) and Chinese (3 percent). The total undocumented population in Texas is an estimated 1.65 million, about 6.1 percent of the state's population, with large shares from Mexico and Central America.¹⁵

Among the undocumented in the postrecession period, about 120,000 Texas immigrants came as children and obtained Deferred Action for Childhood Arrivals (DACA) status.¹⁶ Other immigrants targeted by recent policies include those with Temporary Protected Status (TPS), including 36,300 Salvadorans and 8,500 Hondurans in Texas.¹⁷ Amid federal moves to strip legal status from both DACA and TPS

groups, it is likely Texas' undocumented immigrant population will increase.

Education, Skills

Migrants are an important source of labor and skills. Migrants typically come "ready to work" with their education completed when they arrive. When the inflow of migrants is highly skilled, this relocation is sometimes referred to as "brain drain" for the origin state and "brain gain" for the destination state.

Migrants into Texas are much more likely than the general population to have a college degree or higher (*Chart 4*). This suggests the state is filling its need for high-skilled workers with migrants, relying on a brain gain.

International arrivals have a bimodal distribution; they are disproportionately concentrated at the low and high ends of the education distribution. Almost one-quarter of new international arrivals lack a high school diploma, while 43 percent have a college degree or higher.

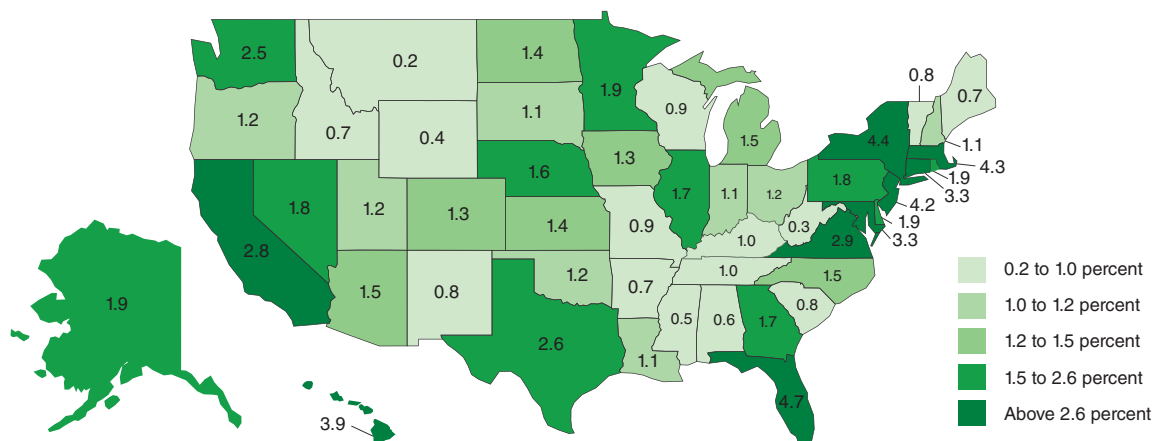
Domestic migrants are far less likely to be low-skilled and far more likely to be high-skilled individuals than the existing Texas population.

Which states are the sources of high-skilled domestic migrants? Domestic

MAP 2

International Migration Most Aids Populous Coastal States

Cumulative Net International Migration by State as Percent of 2010 Population



NOTE: Chart labels show accumulated net international migration from July 2010 through July 2017 as a percent of population in 2010.
SOURCE: Census Bureau.

transplants to Texas from New York, Illinois and Georgia are the most educated (*Chart 5*). Among migrants age 25 and older who moved from New York to Texas since 2010, 51 percent had a bachelor's degree or higher compared with the native Texan population in which 27 percent had at least a bachelor's degree.

The least-educated domestic migrants to Texas come from Louisiana, New Mexico and Oklahoma. Nearly three-quarters of recent arrivals from Louisiana and about two-thirds from Oklahoma have no bachelor's degree. Some of these workers are likely employed in the energy sector, and while they may lack college degrees, they often have technical certificates, vocational degrees and valuable work experience.

Among international migrants, the least educated are from Mexico and Central America (*Chart 6*). This should not be surprising; educational attainment is relatively low in these countries overall.

The most educated international immigrants to Texas are from India—76 percent have a college-or-higher degree—followed by China, Korea and Canada.

High-skilled immigrants tend to work in the science, technology, engineering and math (STEM) fields or in the health care sector. Low-skilled immigrants tend to work in construction, agriculture, domestic service, building janitorial services and food preparation. In Texas, 54 percent of construction laborers, 56 percent of gardeners, 63 percent of painters and 63 percent of housekeepers are foreign born.

Labor Market Outcomes

Texas attracts migrants largely because of its strong economy. As a result, migrants tend to do relatively well in the labor market. Texas immigrants have higher labor force participation rates and significantly lower unemployment rates than immigrants elsewhere in the country (*Table 1*).

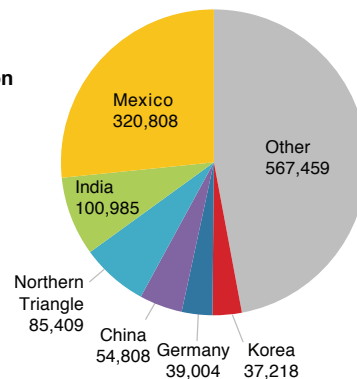
Texas natives also tend to outperform natives elsewhere in the country.

The relative strength of the Texas economy in the aftermath of the Great

CHART 3

Mexico Accounts for More than a Quarter of International Migration to Texas

Cumulative Gross International Migration to Texas by Country of Origin

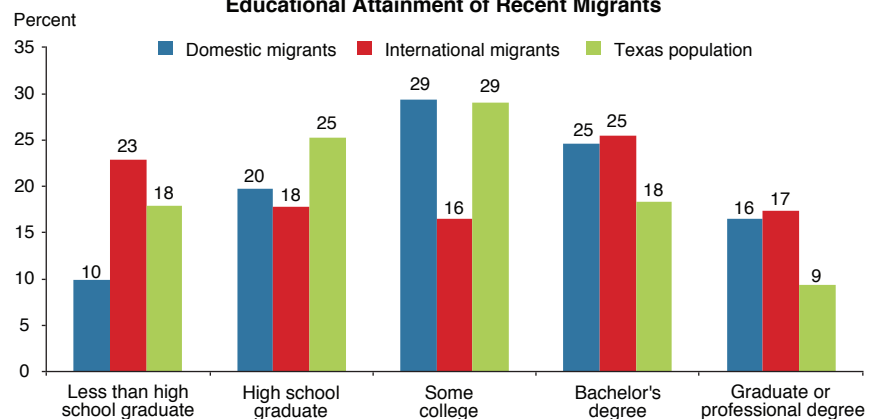


NOTES: Pie-slice labels show total number of movers from sending region to Texas from 2011 through 2016. Northern Triangle is El Salvador, Guatemala and Honduras.
SOURCE: American Community Survey, 2011–16.

CHART 4

New Arrivals a Key Source of Skilled Workers for Texas

Educational Attainment of Recent Migrants



NOTE: Calculations include individuals age 25 and over who moved to the state during the 12 months prior to being surveyed.
SOURCE: American Community Survey, 2011–16.

Recession accounts for much of the difference. From the onset of the U.S. recession in December 2007 through year-end 2017, employment grew about 17 percent in Texas versus about 7 percent in the U.S. overall.

Notwithstanding differences between Texas and the rest of the nation, immigrants also compare very favorably with U.S. natives within the state. As shown in Table 1, even among the lowest skilled, immigrants are nearly 50 percent more likely to be in the labor force and working and, conversely, are one-

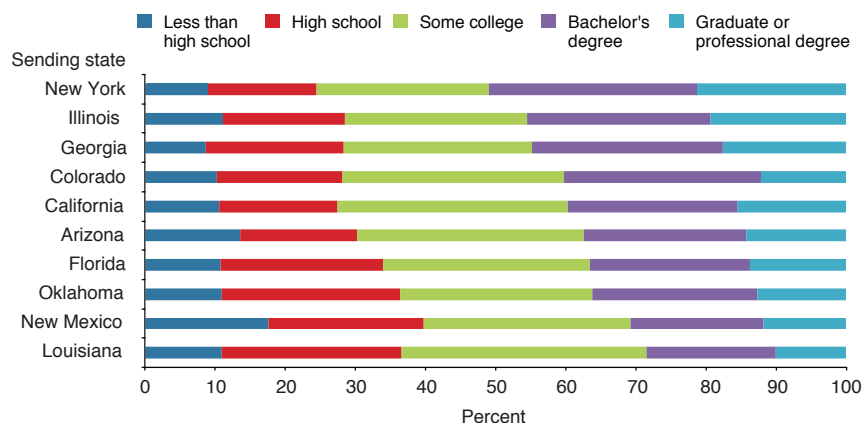
third as likely to be unemployed relative to similarly educated U.S. natives.

Lower Immigrant Earnings

Immigrants' overall earnings tend to fall short of those of natives, whether in Texas or not, since immigrants have less education, and English is typically not their native language. Median weekly earnings among Texas immigrants in 2017 were \$608, while immigrants elsewhere in the U.S. earned \$700, as shown in the next to last row in Table 1. U.S. natives' \$885 pay in Texas

**CHART
5**

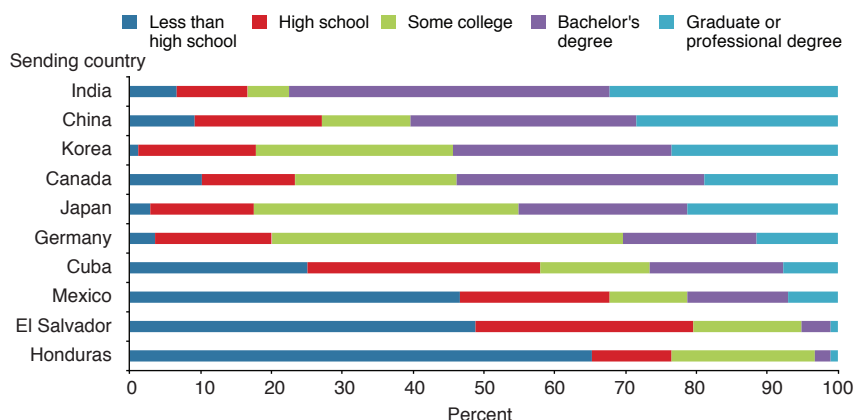
Domestic Migrants' Educational Attainment by Sending State



NOTES: Chart shows education levels of migrants age 25 or older who moved in the past year from each state to Texas. Included are the top 10 states by total population over age 25, whose residents moved to Texas in the past year.
SOURCE: American Community Survey, 2011–16.

**CHART
6**

International Migrants' Educational Attainment by Birth Country



NOTES: Chart shows education levels of immigrants age 25 or older who moved in the past year from each country to Texas. Included are the top 10 countries by total population over age 25, whose residents moved to Texas in the past year.

SOURCE: American Community Survey, 2011–16.

exceeded natives' earnings in the rest of the U.S.—\$865.

Since educational attainment is such a strong determinant of earnings, it is instructive to hold education constant and compare earnings for a given education group. Interesting patterns emerge.

Despite large-scale, low-skilled immigration to Texas, Texas immigrants who have not completed high school actually earn slightly more than their counterparts in the rest of the country and just as much as similarly educated U.S. natives in Texas. This is surprising because most of these low-skilled im-

migrants are likely undocumented.

In the education categories of high school and higher, Texas immigrants tend to earn slightly less than their counterparts elsewhere in the country and less than U.S. natives within the state. This may reflect a lack of English proficiency, less U.S. labor market experience or a form of occupational downgrading that sometimes happens when professionals move and their credentials transfer imperfectly. Discrimination could also play a role.

Comparing earnings or incomes across different parts of the country is

complicated by cost-of-living differences. Accounting for the lower cost of living would lift the relative earnings of Texans vis-à-vis workers in the rest of the U.S.

Economic Effects of Migration

Migration helps power and grease the regional economy's engines.¹⁸ First, migration increases the labor force, enlarging the local economy and increasing output as measured by the gross domestic product (GDP). In 2016, domestic migrants to Texas made up about 25 percent of the state labor force.¹⁹ International migrants constituted 23 percent of the state's workers. Taken together, nearly five out of 10 Texas workers today were not born in Texas (but got here as soon as they could).

It's not just the volume of migration that's important. The economic effect of migration also depends on who comes and the skills they bring. Texas benefits from the brain gain through migrants' disproportionate educational attainment—the large number with a college degree or more. Of course, with so much migration from Mexico and Central America, another concentration is at the other end of the spectrum—the lowest-skilled workers.

The bimodal education distribution of immigrants maps into similarly bimodal sets of occupations that immigrants fill. Because high-skilled immigrants are far more likely to have STEM degrees than college-educated natives, they tend to fill jobs in those sectors, as well as in the health professions—doctors and nurses.

About 46 percent of college-educated immigrants hold STEM degrees compared with 28 percent of college-educated U.S. natives.²⁰ Top occupations for high-skilled immigrants to Texas include medical scientists (59 percent are foreign born), computer software developers (45 percent) and engineers (33 percent). Many of these high-skilled individuals enter the U.S. on temporary, employment-based H-1B visas. Dallas has one of the heaviest concentrations of H-1B holders among major cities.²¹

Research has linked increases in

the science and engineering workforce to higher productivity growth. One study estimates over half of total factor productivity growth in the U.S. is attributable to greater numbers of scientists and engineers, a proxy for research and development intensity.²² Immigrants made up the majority of the increase in the STEM workforce in the past two decades, so it follows that high-skilled immigrants have accounted for a significant share of recent U.S. productivity growth.

This conclusion is bolstered by evidence of immigrants' direct contributions to patenting and other innovative activity, including entrepreneurship. One study finds that immigrants pat-

ent new products at double the rate of U.S. natives, a difference explained by immigrants' overrepresentation in STEM occupations.²³ There is also some evidence of positive spillovers in patenting among U.S. natives. Another study finds that increases in H-1B visas significantly raise patent activity by immigrants without reducing patenting among natives.²⁴

According to economic theory, as long as migrants differ from locals—which they do to varying degrees—specialization occurs. This is particularly apparent in the case of international immigration. For example, one recent study shows that less-educated U.S. natives have a comparative advantage

in communications-intensive jobs, whereas less-educated immigrants have a comparative advantage in manual-labor jobs.²⁵

Highly educated U.S. natives have a comparative advantage in interactive and communications-intensive jobs; highly educated immigrants have a comparative advantage in quantitative and analytical jobs.²⁶ Specialization increases efficiency, which allows more output to be produced with fewer resources. This boosts labor productivity, raising GDP.

Immigration also leads to lower prices for the goods and services immigrants produce, as well as higher returns on investors' capital and land.

**TABLE
1**

Labor Market Outcomes of Immigrants and Natives in Texas, U.S.

	Texas		Rest of U.S.	
	Immigrants	U.S. natives	Immigrants	U.S. natives
Labor force participation (%)				
Less than high school credential	61.3	42.2	58.1	35.4
High school credential	67.3	59.4	65.5	56.0
Some college	75.9	65.9	69.8	65.2
Bachelor's degree	70.9	74.3	70.2	74.0
Graduate/professional degree	77.5	79.3	77.6	74.0
All groups	67.9	65.5	67.1	63.5
Unemployment rate (%)				
Less than high school credential	2.4	7.4	5.1	8.5
High school credential	2.9	5.3	4.0	4.8
Some college	2.5	3.7	3.8	3.9
Bachelor's degree	2.0	2.6	3.5	2.3
Graduate/professional degree	2.5	1.9	2.7	1.9
All groups	2.5	3.8	3.9	3.6
Median real weekly earnings				
Less than high school credential	\$484	\$484	\$480	\$486
High school credential	\$576	\$701	\$582	\$677
Some college	\$641	\$725	\$679	\$742
Bachelor's degree	\$1,013	\$1,109	\$1,063	\$1,114
Graduate/professional degree	\$1,402	\$1,286	\$1,519	\$1,367
All groups	\$608	\$885	\$700	\$865
All groups (including ages 16–24)	\$605	\$775	\$675	\$770

NOTES: All data refer to January–October 2017. Median weekly earnings are deflated to October 2017 and are conditional on being employed, over age 24, with positive earnings.
SOURCE: Current Population Survey (CPS) Merged Outgoing Rotation Groups (MORG).

In cases where immigrants and U.S. natives are complements, lower prices can have far-reaching effects. For example, research shows the immigration-induced decrease in the cost of child care and housekeeping has significantly increased the labor supply of highly educated native women.²⁷

Have jobs for immigrants to Texas come at the expense of opportunities for Texas natives? It doesn't appear so. The aggregate data do not indicate any obvious effect on natives' employment or wages. Immigrants accounted for about 40 percent of state labor force growth between 2000 and 2017.²⁸

During that period, the number of employed U.S. natives living in Texas increased by 1.7 million. The number of employed immigrants living in the state increased by a slightly smaller number. In other words, immigrants and U.S. natives alike gained jobs in Texas. Meanwhile, the Texas unemployment rate fell below the national rate in 2007, remaining there and reaching a historic low at under 4 percent in 2017.

It also doesn't appear that the migrant influx depressed Texas wage growth, which was identical to the

nation's 26 percent increase in average hourly wages from 2010 to 2017.²⁹ Moreover, pay for the lowest-skilled workers, as shown in Table 1, is as high or higher in Texas than elsewhere among both immigrants and natives despite the disproportionately high volume of low-skilled migration to the state and a state minimum wage set at the \$7.25 per hour federal rate. Most other large states exceed the federal minimum standard.

Research on the labor market impacts of immigration tends to find a small but significant adverse wage effect on low-skilled natives who compete directly with foreign workers. However, if there are bottlenecks that constrain growth in a region—such as a lack of workers in rapidly growing industries—then worker inflows can actually accelerate growth, stimulate investment and mitigate any negative effects on natives. This appears to be more in line with the Texas experience.

Fueling Future Growth

Texas' economic prowess has relied on a large and sustained influx of workers from other states and other countries. These transplants account

for an even larger share of Texas' growth than their relative numbers. More importantly, because so much of this inflow was employment related, it naturally brought the types of workers most in demand, whether it was construction and oil field laborers, computer engineers, medical scientists or college professors.

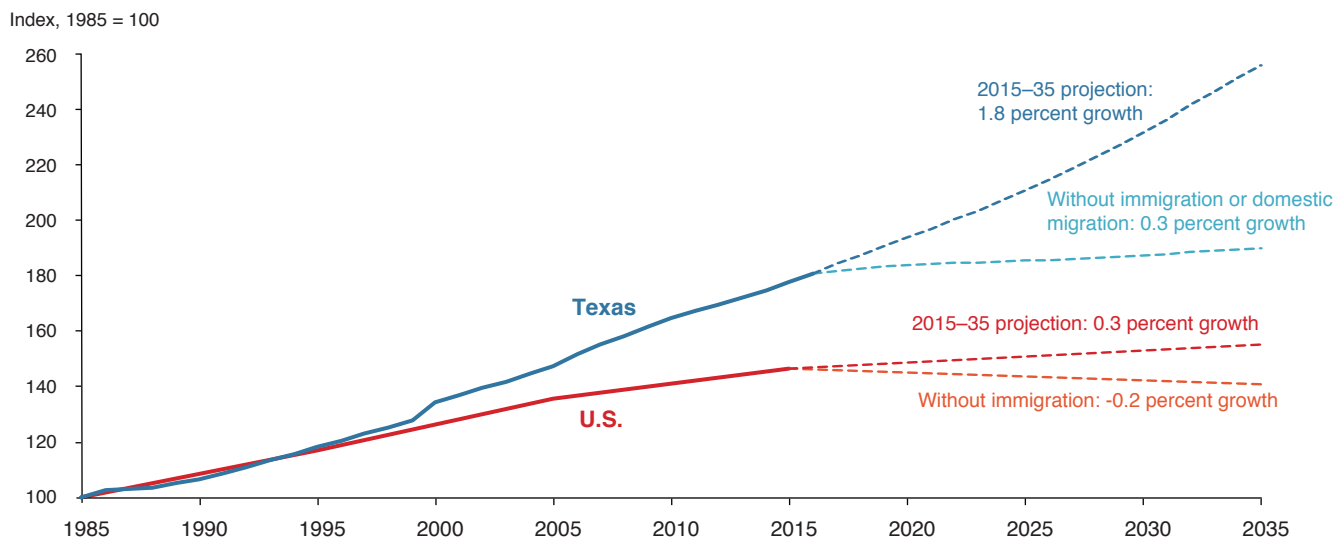
Two national trends will play an important future role. First, the nation has entered a period of rapid aging of its workforce due to the retirement of baby boomers that began around 2010 and is expected to wind down by 2030. Baby boomers, born in the years after World War II, are an unusually large birth cohort—about 76 million nationwide and 5.7 million in Texas.³⁰

Demographers have decomposed the likely change in the future workforce into the contributions of U.S. natives, immigrants and the children of immigrants for the nation as a whole. Among potential workers who are U.S.-born by U.S. parents, a net 8.1 million will have exited the working-age population between 2015 and 2035.³¹

As a result, all U.S. workforce growth over these two decades is expected to comprise immigrants and

CHART 7

Without Migration, Working-Age Population Projected to Stagnate



NOTES: Chart refers to growth in working-age (25–64) population. Growth rates are annualized.

SOURCES: Census Bureau; Texas Demographic Center; Pew Research; adjustments by Federal Reserve Bank of Dallas.

their children.³² Without immigration, the U.S. workforce will decline (*Chart 7*).

A second issue going forward is the future of domestic migration, which may not remain a reliable source of growth. Interstate mobility within the nation as a whole has fallen since the 1980s. Population aging may explain about half of this decline.³³

Texas and the U.S. will need migration to fuel labor force growth in coming decades. Without migration, Texas' working-age population would remain nearly flat at 0.3 percent yearly growth through 2035, while the U.S. working-age population would decline 0.2 percent.

The Texas Demographic Center's projections suggest that if migration into the state continues at the 2000–10 pace, the working-age population will increase 1.8 percent annually through 2035. Pew Research Center projections for the U.S., meanwhile, suggest that immigration at current levels will be enough to counteract the trend of retiring baby boomers and lead to a modest 0.3 annual growth rate percent of the working-age population.

Orrenius is a vice president, Abraham an economic programmer and Gullo a research analyst in the Research Department of the Federal Reserve Bank of Dallas.

Notes

¹ According to the state demographer, if there is no migration, 21.3 percent of the population will be 65 or older by 2050; if there is half the 2000–10 level of migration, this figure will be 19.5 percent, and if there is the same level of migration as in 2000–10, it will be 17.4 percent. Data from Texas Population Projections Program, Texas State Demographer, accessed Feb. 26, 2018, <http://txsdc.utsa.edu/Data/TPEPP/Projections/>.

² "What Caused the Decline in Interstate Migration in the United States?" by Fatih Karahan and Darius Li, *Liberty Street Economics* (Federal Reserve Bank of New York's blog), Oct. 17, 2016, accessed Feb. 27, 2018, <http://libertystreeteconomics.newyorkfed.org/2016/10/what-caused-the-decline-in-interstate-migration-in-the-united-states.html>.

³ See "Gone to Texas: Immigration and the Transformation of the Texas Economy," by Pia M. Orrenius, Madeline Zavodny and Melissa LoPalo, Federal Reserve Bank of Dallas special report,

November 2013.

⁴ See "Texas Job Growth Swings More with Services than Oil," by Navi Dhaliwal, Soojin Jo and Mine Yücel, Federal Reserve Bank of Dallas *Economic Letter*, vol. 13, no. 1, 2018.

⁵ Domestic migrants can be foreign born (immigrants); the only requirement in census data is that they move from one state to another.

⁶ From Census Bureau state population estimates, which measure annual migration from July to July.

⁷ Based on tabulations from the March Current Population Survey, 2011–16.

⁸ Based on employment growth from June 2009 to December 2017.

⁹ Based on tabulations of American Community Survey, 2011–16.

¹⁰ As of 2017, Texas was 8.8 percent cheaper than the national average cost of living, and Texas was 19.1 percent below the population-weighted index of the nine states with the highest populations other than Texas.

"Cost of Living Data Series 2017 Annual Average," Missouri Economic Research and Information Center, Missouri Department of Economic Development, accessed Feb. 27, 2018, www.missourieconomy.org/indicators/cost_of_living.

¹¹ Per capita state and local taxes in Texas were \$4,144 in 2015; this is lower than the national average of \$4,891, California's average of \$5,875 and New York's average of \$8,745, according to Census Bureau data.

¹² "Texas Taxes: Who Bears the Burden?" by Jason Saving, Federal Reserve Bank of Dallas *Southwest Economy*, Third Quarter, 2017.

¹³ See "Jacobs Engineering Plans to Move Jobs from Pasadena to Texas," by Natalie Kitroeff, *Los Angeles Times*, June 6, 2016, www.latimes.com/business/la-fi-jacobs-dallas-move-20160606-snap-story.html.

¹⁴ From Census Bureau state population estimates, which include annual migration from July to July.

¹⁵ See "U.S. Unauthorized Immigration Population Estimates," Pew Research Center, Nov. 3, 2016, accessed Feb. 27, 2018, www.pewhispanic.org/interactives/unauthorized-immigrants/.

¹⁶ According to Pew Research, there are 121,300 Deferred Action for Childhood Arrivals (DACA) recipients in Texas, measured as initial applications approved from August 2012 to March 31, 2017. See "DACA Has Shielded Nearly 790,000 Young Unauthorized Immigrants from Deportation," by Jens Manuel Krogstad, Pew Research Center, Sept. 1, 2017, accessed Feb. 27, 2018, www.pewresearch.org/fact-tank/2017/09/01/unauthorized-immigrants-covered-by-daca-face-uncertain-future/.

¹⁷ See "A Statistical and Demographic Profile of the U.S. Temporary Protected Status Populations from El Salvador, Honduras, and Haiti," by Robert Warren and Donald Kerwin, *Journal on Migration and Human Security*, vol. 5, no. 3, 2017, pp. 577–92.

¹⁸ See note 3.

¹⁹ Migrant share data are based on American Community

Survey 2017 data.

²⁰ See "How Highly Educated Immigrants Raise Native Wages," by Giovanni Peri, Kevin Shih and Chad Sparber, Centre for Economic Policy Research, May 29, 2014, accessed Feb. 27, 2018, <http://voxeu.org/article/how-highly-educated-immigrants-raise-native-wages>.

²¹ See "The H-1B Visa Race Continues: Which Regions Received the Most?" by Neil G. Ruiz and Jill H. Wilson, Brookings Institute, April 2015, accessed Feb. 27, 2018, www.brookings.edu/blog/the-avenue/2015/04/02/the-h-1b-visa-race-continues-which-regions-received-the-most/; "Key Facts About the U.S. H-1B Visa Program," by Neil G. Ruiz, Pew Research Center, April 27, 2017, accessed Feb. 27, 2018, www.pewresearch.org/fact-tank/2017/04/27/key-facts-about-the-u-s-h-1b-visa-program/.

²² See "Sources of U.S. Economic Growth in a World of Ideas," by Charles I. Jones, *American Economic Review*, vol. 92, no. 1, 2002, pp. 220–39.

²³ "How Much Does Immigration Boost Innovation?" by Jennifer Hunt and Marjolaine Gauthier-Loiselle, *American Economic Journal: Macroeconomics*, vol. 2, no. 2, 2010, pp. 31–56.

²⁴ See "The Supply Side of Innovation: H-1B Visa Reforms and U.S. Ethnic Invention," by William R. Kerr and William F. Lincoln, *Journal of Labor Economics*, vol. 28, no. 3, 2010, pp. 473–508.

²⁵ See "Task Specialization, Immigration, and Wages," by Giovanni Peri and Chad Sparber, *American Economic Journal: Applied Economics*, vol. 1, no. 3, 2009, pp. 135–69.

²⁶ See "Assessing Inherent Model Bias: An Application to Native Displacement in Response to Immigration," by Giovanni Peri and Chad Sparber, *Journal of Urban Economics*, vol. 69, no. 1, 2011, pp. 82–91.

²⁷ See "Low-Skilled Immigration and the Labor Supply of Highly Skilled Women," by Patricia Cortés and José Tessada, *American Economic Journal: Applied Economics*, vol. 3, no. 3, 2011, pp. 88–123.

²⁸ Calculations based on Current Population Survey Outgoing Rotations Group data for 2000 and 2017.

²⁹ Calculations based on Current Employment Statistics payroll survey.

³⁰ See "The Boomer Nation: A State-by-State Snapshot," AARP, 2014, accessed Feb. 27, 2018, www.aarp.org/politics-society/history/info-2014/map-where-boomers-live.html#/TX.

³¹ See "Immigration Projected to Drive Growth in U.S. Working-Age Population Through at Least 2035," by Jeffrey S. Passel and D'Vera Cohn, Pew Research Center, March 8, 2017, accessed Feb. 27, 2018, www.pewresearch.org/fact-tank/2017/03/08/immigration-projected-to-drive-growth-in-u-s-working-age-population-through-at-least-2035/.

³² Although most children of immigrants are also U.S. born, they are broken out into their own category in this exercise.

³³ See note 2.

A Conversation with Jason Saving

Federal Tax Law Provides Stimulus to Bustling U.S., Texas Economies

Jason L. Saving is a senior research economist and advisor at the Federal Reserve Bank of Dallas, where he conducts research on public policy issues. He is the author of articles that explore tax reform, regional migration and fiscal policy.

Q. What does the recently approved federal Tax Cuts and Jobs Act of 2017 do? Is it a large tax cut by historical standards?

The new law is intended to reduce individual and corporate tax liabilities, improve the U.S. business climate and enlarge the economy relative to what it would otherwise be. It would reduce government's tax take by about a percentage point of gross domestic product (GDP) in its first year, which is a relatively large tax reduction, though lower than the 1.6 percent reduction in President Kennedy's Revenue Act of 1964 and considerably lower than the almost 3 percent reduction in President Reagan's Economic Recovery Act of 1981.

Q. Is it unusual to cut taxes during an economic expansion?

Typically, we think of federal fiscal policy as countercyclical, with government running larger deficits during recessions and smaller deficits during expansions. When times are tough, government's tax take naturally falls as individuals lose their jobs and firms find themselves selling fewer products than they otherwise would.

And on the flip side, government spending naturally rises during those periods as more people avail themselves of safety-net programs such as food stamps. As the economy improves, more

people are able to find work, and firms find themselves selling more products—increasing government revenue while lowering expenditures.

Many models actually suggest this is optimal fiscal policy—and monetary policy, too, for that matter. What's interesting about the most recent tax legislation is that it cuts taxes at a time when most measures of overall economic activity are fairly strong. While this isn't unheard of, it's more common to cut taxes when the economy is in recession. The object is, in effect, to provide a tailwind when the wind is most needed.

Q. What are the law's main provisions? How will they affect individuals and businesses?

The new tax law has many provisions, but three in particular have macroeconomic implications of note. One is a reduction in the top statutory corporate tax rate from 35 percent to 21 percent, which should incentivize firms to place more business capital in the United States so that more taxable income can be generated here.

Another is a modest reduction in the individual income tax rate schedule, which will somewhat increase short-run take-home pay for many Americans and thereby increase both consumption and (possibly) hours worked. And the third is the ability of firms to more quickly deduct business investment, which should

increase such investment and thereby raise GDP.

Q. Will the U.S. economy grow faster as a result of the tax cuts? Does it matter that the cuts are deficit financed and will increase the national debt?

History, buttressed by economic modeling, suggests tax cuts of this type temporarily boost growth while the economy gradually transitions to a new, higher level of economic activity. Over the long run, the best available estimates peg this new higher level as 1.5–2.0 percent above where the economy would have been without the tax package, with about half the impact occurring in the first year.

However, it's also worth noting that the plan is expected to add \$1.5 trillion in federal debt over the next 10 years, possibly more if various provisions scheduled to expire end up being extended. Even before the tax change was passed, secular trends such as falling birth rates and rising life expectancies were likely to drive the nation's debt-to-GDP ratio to unsustainable levels over the long run. The primary reason is the nation's pay-as-you-go entitlement system, in which current workers provide benefits for existing retirees without accounting for a shrinking worker-to-retiree ratio. The unfunded nature of the tax law could somewhat exacerbate this situation.

Why does a high debt-to-GDP ratio matter? Well, as government indebtedness rises, the larger debt load (interest payments) begins to "crowd out" other types of discretionary spending such as national defense, food safety or environmental protection. Higher interest payments also decrease the federal government's ability to respond to a recession through fiscal expansion.

One might think states could simply pick up the slack in a situation like that, but they can't because nearly all of them have statutory or constitutional balanced-budget requirements, so constraining the federal government's "fiscal space" matters. Finally, when a country's debt-to-GDP ratio is high enough, its willingness or ability to repay debt may be called into question,



► *“The plan is expected to add \$1.5 trillion in federal debt over the next 10 years, possibly more if various provisions scheduled to expire end up being extended.”*

increasing borrowing costs at the precise moment it may most need to borrow. An example of this occurred during the Greek debt crisis.

Q. Some companies are raising pay and awarding bonuses to employees, citing the new law. Are workers likely to continue seeing more such payments in the future?

The expensing provisions in the new tax law will encourage investment. Over time, this investment should make workers more productive and one would expect employers to respond by raising wages. I’m unaware of any reasons why employers would respond now, before those productivity gains have materialized. That said, the best available estimates suggest we might see a 1.5 percent increase in wages over the long run.

Q. How will the tax law affect Texas? Will we see faster output growth? Will there be more migration?

In general, as firms choose where to locate their increased production and investment, states with a favorable business climate should attract a disproportionate share of this activity. However, Texas is also the state most affected by international trade and, to the extent this tax change places other countries’ economies at a competitive disadvantage, slower growth in Mexico and other large trading partners would be expected to disproportionately reduce Texas’ growth rate.

Thus, it is unclear whether the short-run impact of the tax law would be larger or smaller in Texas. What is clear, though, is that both the state and the nation can expect somewhat larger capital

expenditures and business profits over the short term, consistent with recent trends in the Federal Reserve Bank of Dallas’ business outlook surveys.

One provision of the new law that has substantial regional implications is the \$10,000 limit on state and local tax deductibility. While Texas’ property tax rates are among the highest in the nation, the overall state and local tax burden in Texas is about 15 percent lower than the national average, 29 percent lower than California and about half that of New York.

This means Texans’ itemized deductions will tend to be smaller than those in high-property-wealth parts of the country. This also suggests the possibility that the tax law could incentivize some middle-income Californians and New Yorkers to move to Texas, though tax-code differences are only one of many factors that impact migration decisions.

Q. Could the new law affect Texas home prices?

In general, a less-generous state and local tax deduction may cause housing demand to soften because taxpayers for whom the \$10,000 limit is binding will face a higher after-tax cost of home ownership. This particular provision has garnered most media attention, but other provisions including the newly raised standard deduction and newly lowered limits on mortgage interest deductibility will similarly impact home ownership costs at the margin.

This softening of housing demand would, with other things being equal, imply somewhat slower home-price appreciation over the near term, especially in areas where house prices are relatively high.

It’s important not to overstate this phenomenon, though. While there are certainly neighborhoods in Texas that would fall into this category, this effect will be most severe in areas such as New York City and San Francisco, where a relatively large share of residents itemize and own relatively expensive properties. As a result, the tax law’s impact on Dallas and Houston home prices should be comparatively small.

Q. Texas is the largest exporting state in the nation. How will the new law affect international trade and our trading partners?

For many years, the U.S. corporate tax rate has been among the highest in the industrialized world. The new tax law changed this, moving our corporate rate toward the lower end of the industrialized world and, in so doing, improving U.S. competitiveness.

International organizations such as the International Monetary Fund and the World Bank think global output will rise somewhat, but there’s no question individual countries—especially those who now find themselves with substantially higher corporate rates than the U.S.—could suddenly find themselves at a competitive disadvantage.

Meanwhile, a number of proposed changes that U.S. exporters and our trading partners had opposed, such as the “border adjustment” tax (a levy on the value added to imports) didn’t make it. For that reason, Texas exports will perhaps be more greatly affected by ongoing measures such as the renegotiation of the North American Free Trade Agreement and the decision to pull out of the Trans-Pacific Partnership trade agreement.

Texas Economy Starts 2018 Firing on All Cylinders

By Keith R. Phillips and Christopher Slijk

ABSTRACT: Aided by the oil and gas sector's recovery, the Texas economy rebounded in 2017 and is poised to expand at a faster pace in 2018. However, tight labor markets, disruptions to trade, and potential oil price declines pose risks to the outlook.

The Texas economy headed into 2018 firing on all cylinders for the first time since 2014, with broad-based economic growth across most regions and industries. Leading economic indicators and reports from Federal Reserve Bank of Dallas business contacts in fourth quarter 2017 and the beginning of 2018 suggest that the positive momentum will carry forward this year.

The Dallas Fed Texas forecasting model predicts that employment will grow between 2.9 and 3.9 percent in 2018 following a 2.1 percent expansion in 2017. The expectation for the jobs outlook is somewhat restrained relative to previous periods of strong expansion because labor markets are unusually tight in both Texas and the nation.

The Texas unemployment rate reached a historical low of 3.9 percent in October after declining most of the year. Respondents to Dallas Fed business outlook surveys in the fourth

quarter and beginning of 2018 noted difficulty in finding workers and reported increased wage pressures.

The Texas economy accelerated in 2017, primarily due to rebounding energy and manufacturing sectors, which overcame a powerful blow dealt by Hurricane Harvey in late August. Steadily rising oil prices propelled the energy sector and boosted related equipment manufacturing.

During much of 2017, the state benefited from a broad acceleration in the world economy and a weakening dollar. While the hurricane inflicted big property losses on homeowners and businesses along much of the Texas Gulf Coast, its impact on job and output growth was temporary.

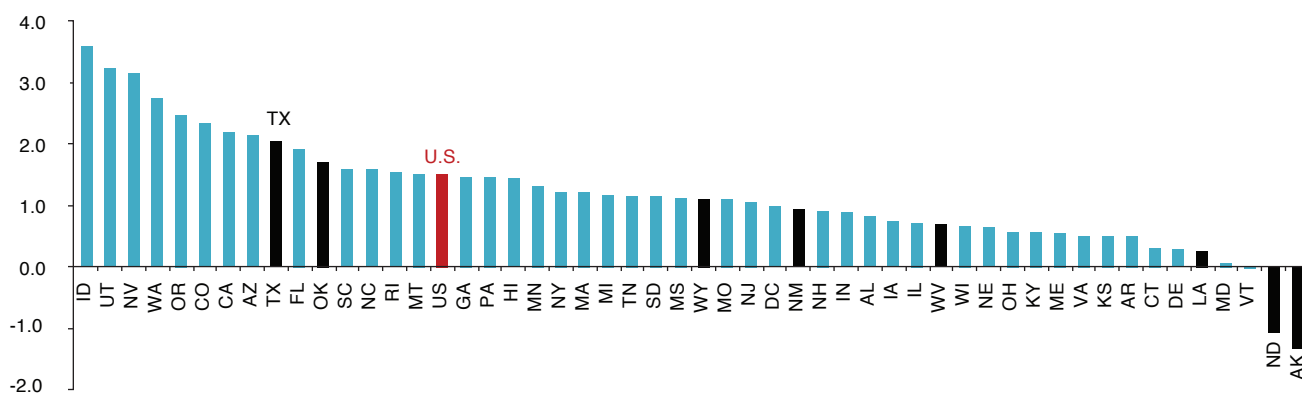
Texas Races Ahead

Texas' 2.1 percent employment growth was at the upper end of the 1.5-2.5 percent range forecast in *Southwest Economy* last year.¹ It was significantly

CHART 1

Texas Pulls Ahead of U.S., Other Energy States in Job Growth

Percent change, December 2017/December 2016



NOTE: Black bars represent significant energy-producing states.

SOURCES: Bureau of Labor Statistics; Texas Workforce Commission; adjustments by the Federal Reserve Bank of Dallas.

above the 1.2 percent rate in 2016 and above the state's long-term trend of 2.0 percent.

Renewed job growth exceeded the national average last year, ranking Texas as ninth-strongest among the states (*Chart 1*). The latest ranking is comparable to 2014, before energy prices tumbled. With the energy decline, Texas job growth slipped to 36th among the states in 2015 and 18th in 2016. Nevertheless, Texas fared (and continues to fare) much better than other energy-intensive states such as North Dakota and Louisiana, which fell to near the bottom of the state rankings.

The Texas Business-Cycle Index, a composite indicator of economic activity, rebounded last year to 4.3 percent, reflecting a pace of growth well above the index's historical average. It was propelled by the pickup in job activity, the decline in the unemployment rate and an acceleration in state gross domestic product growth in the first three quarters of 2017. For the year, the index turned in the strongest year-over-year performance since August 2015.

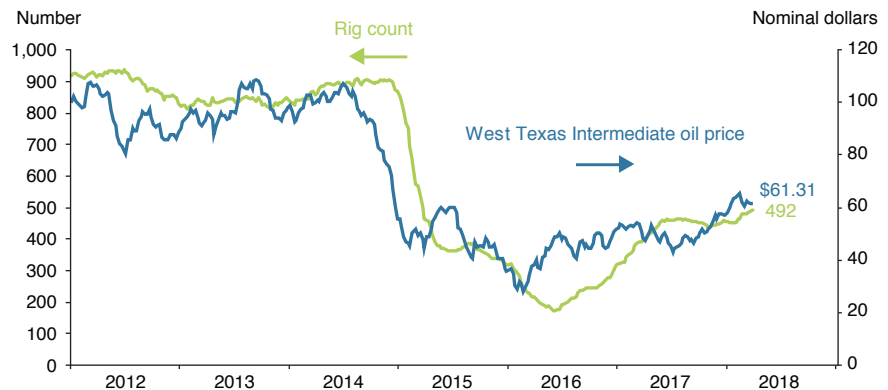
Leading the Rebound

Oil and gas activity picked up in mid-2016, after West Texas Intermediate prices steadied at around \$45 per barrel. Activity accelerated as prices climbed in mid-2017, reaching into the mid-\$60 range in February 2018 (*Chart 2*). The rig count rose through the first half of last year, attaining a two-year high of 466 in July. Employment followed about six months later, rising at an annualized 12.2 percent rate through December (25,500 jobs) after bottoming out in November 2016.

State manufacturing activity accelerated throughout the year, with the Dallas Fed's Texas Manufacturing Outlook Survey showing the fastest rise in production growth since the mid-2000s. Employment in sectors linked to oil and gas production, such as fabricated metals and mining machinery, grew 7.0 percent last year—more than three times the rate of overall job growth. Such work makes up approximately 17 percent of the state's manufacturing employment.

CHART 2

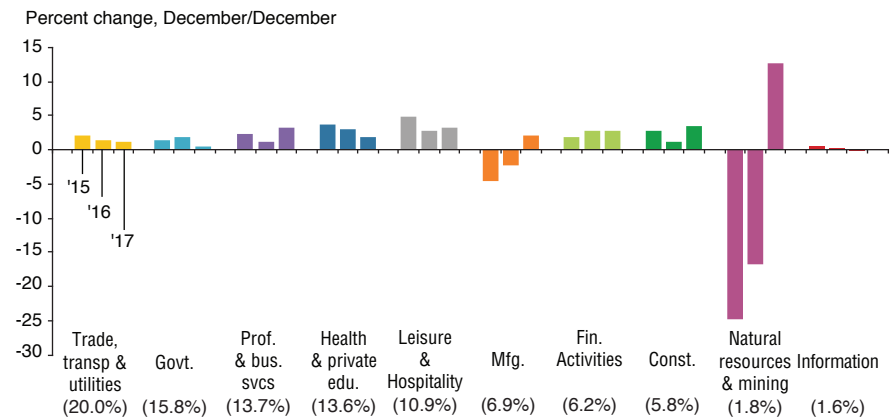
Oil Price and Texas Rig Count Pick Up Through 2017



NOTE: Data are weekly; last data point is the week of March 16.
SOURCES: *Oil and Gas Journal*; Baker Hughes.

CHART 3

Professional and Business Services Lifts Service Sector in 2017



NOTE: Figures in parentheses represent share of total nonfarm employment as of December 2017.
SOURCES: Bureau of Labor Statistics; adjustments by the Federal Reserve Bank of Dallas.

Resurgent state exports also provided a boost. Texas exported goods worth more than \$250 billion last year, far more than any other state. Much of the state's manufactured output, such as computer and electronic products, refined petroleum products and transportation equipment, is sent abroad.

Before last year, export activity faced challenges. The Texas value of the dollar—the dollar's value weighted by exchange rates with the state's largest trading partners—appreciated over 27 percent from mid-2014 lows to early 2017. This made Texas exports more

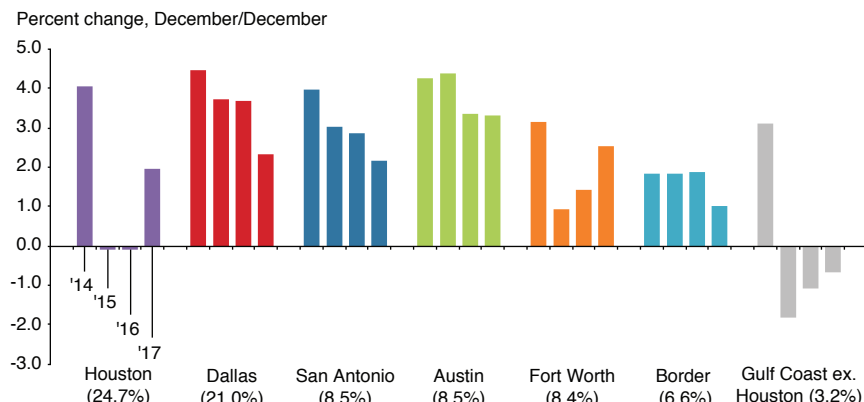
expensive and, thus, less competitive internationally, pressuring manufacturers.

The trend reversed with a notable dollar weakening from January to September 2017. Although the dollar rose in the final quarter, overall it was down 8.6 percent for the year. A general strengthening of the world economy also led to greater demand for U.S. goods abroad. As a result, state exports rose sharply. The real value of goods shipped internationally from Texas increased 10.8 percent from 2016 to 2017.

Meanwhile, the state's service sector grew steadily, largely unaffected in

CHART 4

Major Texas Metros See Job Growth in 2017



NOTES: Figures in parentheses represent share of total state employment as of December 2017. Border includes the El Paso, Laredo, McAllen and Brownsville metropolitan statistical areas (MSAs). Gulf Coast includes the Beaumont-Port Arthur, Victoria and Corpus Christi MSAs.

SOURCES: Bureau of Labor Statistics; Texas Workforce Commission; Federal Reserve Bank of Dallas.

2015 and 2016 by declines in oil and gas and manufacturing. Professional and business services experienced a strong uptick in hiring, particularly in scientific and technical services (*Chart 3*). Leisure and hospitality growth picked up slightly by year-end following the post-hurricane collapse as evacuees sought temporary shelter in hotels.

Job growth in trade, transportation and utilities decelerated slightly. This was largely attributable to retail employment, which makes up more than half of jobs in the sector and which grew just 0.6 percent last year.² Health care also slowed, driven by less-robust growth in residential care and social assistance.

Energy Regions Resurgent

Employment grew in all major metros in 2017, largely following the lead set by the state's industries (*Chart 4*). While Hurricane Harvey disrupted middle and upper Gulf Coast metros, it did little to stall energy sector-led momentum.

Houston, the state's largest metro area, added jobs at a 1.9 percent annual rate during 2017. Professional and business services employment and financial activities—particularly real estate and rental and leasing services following the hurricane—significantly boosted total employment. Houston saw only a slight increase in mining

jobs in 2017, though they made up just 3 percent of area employment. Most oil and gas job growth was concentrated in West Texas.

Meanwhile, the Interstate 35 corridor—the Dallas-Fort Worth, Austin and San Antonio metros—remained the primary engine of job creation in the state, although less so than in the previous two years. Combined, the metros added more than half of the 256,000 net new jobs created in Texas in 2017. Labor market tightness in the three areas constrained expansion as unemployment rates slid to prerecession averages or lower.

The growth rate in Dallas, the financial services center of Texas, slowed last year to 2.3 percent after a four-year run that exceeded 3 percent. Dallas reflects the U.S. economy to a greater degree than most other regions in Texas and benefited less from the state rebound in oil and gas. The region's leisure and hospitality and health care industries were the largest contributors to growth, though less than in prior years. Employment in Fort Worth, with its large manufacturing base, moderately expanded as that sector recovered statewide.

Austin, the state's high-tech hub, led growth among Texas' large metros. Hiring in scientific and technical services accelerated to 6.1 percent from 4.7

percent in 2016; the area's low average unemployment rate of 3.1 percent likely constrained growth in these high-skill positions. Leisure and hospitality employment sharply rose in the second half, likely reflecting hurricane-related temporary relocations.

San Antonio, with its significant industry concentration of tourism, health care and military, expanded at a fast rate in 2017. Here, too, post-hurricane activity supported hiring in the construction and accommodation sectors. The leisure and hospitality industry added jobs well above its long-term average of 3.3 percent. However, hiring in government and health care slowed compared with the past several years.

Accelerating Growth in 2018

Texas began 2018 with strong momentum. Various forward-looking indicators in the Texas Manufacturing Outlook Survey reached levels not seen in more than a decade. February's three-month-moving-average measure of how companies viewed their outlook was the strongest since March 2006. The unfilled orders index, which peaked in December 2017, attained its second-strongest reading since November 2005. Firms also reported increased capital expenditures, with that index's three-month average the highest since March 2006.

Respondents to February's Texas Service Sector Outlook Survey were also optimistic, with the outlook and expected hiring indexes near their highest levels since late 2014, just before the energy slump. The Dallas Fed Beige Book, an anecdotal summary of Eleventh District economic activity, indicated robust expansion in January, with an improving business outlook following passage of revisions to federal tax law. "Numerous contacts were optimistic that tax reform would provide a tailwind to business growth," the Beige Book noted.

The first quarter 2018 Dallas Fed Energy Survey also reflected strength, with 51 percent of firms reporting an improved outlook versus 8 percent indicating deteriorating prospects. The

capital expenditures index remained strong and has been positive for the past seven quarters, indicating expansion. Labor market indexes continue to point to rising employment and employee hours. Firms reported an expectation for year-end oil prices of \$63 per barrel, up from \$59 in the previous survey.

The Texas Leading Index, a statistic that summarizes eight economic indicators, suggests an upbeat outlook, with most components supportive over the three months ended in February. The national economy, as seen in the U.S. leading index, will likely buttress the Texas economy.

The energy components—real (inflation-adjusted) oil prices and well permits—both rose. Stock prices of Texas-based companies increased, suggesting continued corporate earnings growth. Labor market indicators were mixed, with average weekly hours worked in manufacturing up, but help-wanted advertising down slightly. Initial claims for unemployment insurance decreased from December to February. The Texas value of the dollar fell during the period.

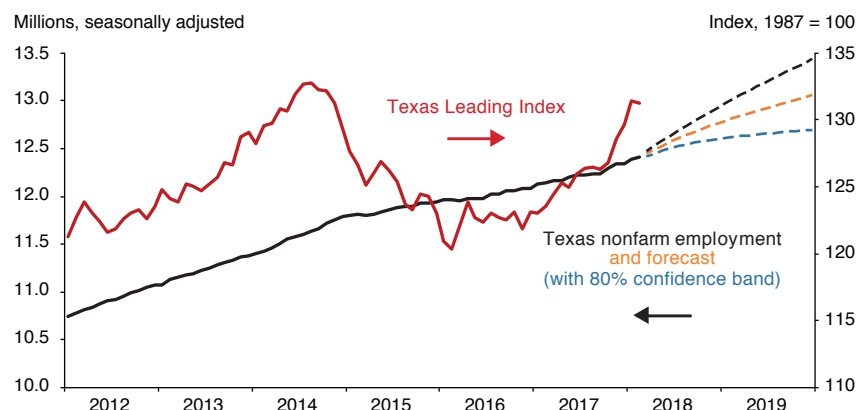
Despite soft job growth in December, the annualized rate of expansion from August (just before Hurricane Harvey) to December was a healthy 2.8 percent. Because the storm's effects on job growth were significant but temporary, the four-month period provides a balanced view. January's 4.0 percent pace of growth further supports a return to above-trend growth.

While international and national demand for Texas products and services will likely strengthen this year, tight labor markets in the state and nation will suppress job growth.

The Texas unemployment rate fell to 3.9 percent in October and November—the lowest level since at least 1976, when the data series began—before rising to 4.0 percent in December. With the U.S. unemployment rate likely below its natural rate, it will be more difficult to entice workers to migrate to the state (see “Gone to Texas: Migration Vital to Growth in the Lone Star State” on page 3).

CHART 5

Texas Expected to See Job Growth of 3.4 Percent in 2018

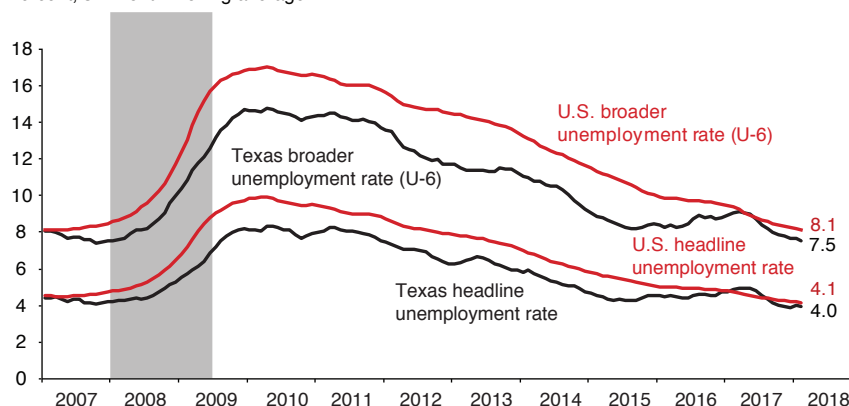


SOURCES: Bureau of Labor Statistics; Texas Workforce Commission; Federal Reserve Bank of Dallas.

CHART 6

Broad Unemployment Rate Drops to Near Prerecession Low

Percent, six-month moving average



NOTES: The shaded area indicates U.S. recession. Data are through February 2018.

SOURCES: Census Bureau, Current Population Survey; seasonal and other adjustments by the Federal Reserve Bank of Dallas.

The recent pattern of job growth, along with robust gains in the Texas Leading Index, suggests that employment will grow between 2.9 and 3.9 percent in 2018 (Chart 5).

Risks to the Outlook

While there is much reason for optimism for Texas in 2018, several issues threaten to temper the state's strong momentum.

First, Texas' dependence on international trade creates vulnerability to a significant disruption. Almost 1 million jobs—8 percent of total Texas employment—are tied to global exports.

Furthermore, nearly half of the state's exports are to Mexico and Canada, a great deal of those involving production sharing.³ Thus, significant changes to the North American Free Trade Agreement, which is undergoing renegotiation, or other trade pacts could significantly pressure Texas manufacturers and companies that service exporters and importers. Various tariff regimes create additional uncertainty.

Second, the nascent energy sector recovery could quickly reverse course if oil prices precipitously drop.

(Continued on back page)

Mexico Sees Stronger 2018, NAFTA Challenges

By Jesus Cañas

Mexico's economy expanded in 2017 at its slowest pace in four years—growing 1.5 percent in real (inflation-adjusted) terms following a 3.3 percent gain in 2016.¹

Trade policy uncertainty following the U.S. presidential election weakened the peso, which led to higher prices for imported goods and boosted inflation. A reduction of gasoline price subsidies in January 2017—part of an energy reform agenda in place since 2014—also contributed to higher inflation. Overall price increases peaked at a 6.8 percent annual rate in December.

Banco de México responded with five interest rate increases, taking the policy rate from 5.75 percent to 7.25 percent by year-end. Higher interest rates not only increased borrowing costs, but also likely slowed economic activity.

Meanwhile, the U.S., Mexico and Canada entered North American Free Trade Agreement (NAFTA) renegotiations which, after a year, have made little apparent progress.

Amid these challenges, there is hope that a strong, expanding U.S. economy and a bright global outlook will support brisk Mexican growth in 2018. Additionally, domestic consumption is expected to increase as inflation decelerates and wages catch up to prices.

Fiscal Discipline

Slowing economic activity during the year also reflected less government spending, declining investment and imports growing faster than exports—all helping curtail gross domestic product (GDP) growth. In particular, government expenditures, including public investment, fell mainly due to ongoing fiscal consolidation aimed at bringing spending in line with government revenue.

Declining oil production has provided urgency to the government's fiscal discipline attempts. Private investment

also declined, perhaps reflecting the trade talks.

Finally, despite a rebound in export growth in 2017—aided by the depreciated peso—the expansion was insufficient to move the trade balance into positive territory. Mexico's trade deficit totaled \$11 billion in 2017, about 1 percent of GDP. By comparison, the U.S. ran a \$796 billion trade deficit, about 4 percent of GDP.²

Labor Market Strength

The consumer provided support to Mexico's economy last year. Consumption, backed by a strong labor market, expanded at a steady pace despite elevated interest expense, lower real wages and a higher cost of credit.

Employment in the formal sector—where people work “on the books” (unlike the informal economy)—grew 4.3 percent in 2017 (*Chart 1*). The overall unemployment rate, covering all workers, dropped to 3.4 percent in December, the lowest since 2007.

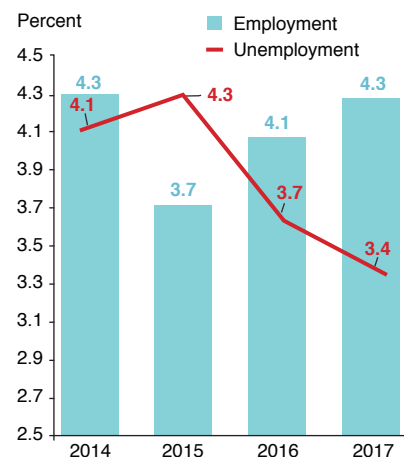
Some of the growth in formal-sector jobs is likely due to the labor market and tax reforms that have made the informal sector less attractive for firms and workers. The large and inherently inefficient informal sector, which employs 57 percent of Mexico's workers, has been a longstanding obstacle to economic development. Nevertheless, there are mounting signs that the labor market as a whole has tightened.

Continuing Uncertainty

The Mexican economy faces several sources of continued uncertainty—notably the NAFTA renegotiation and the presidential election in July. While political headwinds abound, there is reason for optimism.

Inflation is expected to drop to 3.6 percent by year-end, according to a Banco de México consensus forecast.³ Labor markets are likely to remain tight. Unfortunately, investment is

CHART 1 Jobs Grow in 2017; Unemployment Falls



NOTES: Unemployment rate captures entire labor force, including informal sector. Chart shows rates as of December of each year. Annual employment growth rate shown over each bar is the December-over-December change.

SOURCES: For unemployment, INEGI's Encuesta Nacional de Ocupación y Empleo (National Institute of Statistics and Geography's National Employment Survey). For formal employment, Instituto Mexicano del Seguro Social (Mexican Social Security Institute).

unlikely to recover absent clarity on NAFTA and the election. Public investment may contract further as fiscal consolidation continues.⁴

The Banco de México consensus GDP growth forecast for 2018 calls for a slight acceleration in activity to 2.3 percent annual average growth.

Notes

¹ Growth is based on the percentage change in gross domestic product (GDP) in fourth quarter 2017 relative to fourth quarter 2016. Mexico typically reports growth as the change in the annual average GDP. Annual 2017 average GDP growth was 2.1 percent, down from 2.9 percent in 2016.

² Trade balance for both countries excludes services.

³ Source of consensus forecast: Banco de México's Encuesta sobre las Expectativas de los Especialistas en Economía del Sector Privado: Febrero de 2018 (Survey of Private Sector Specialists' Expectations, February 2018).

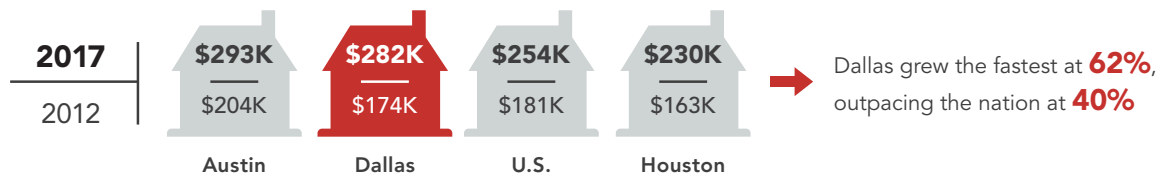
⁴ Mexico started a five-year fiscal consolidation plan in 2013 aimed at bringing spending in line with government revenue and reducing public debt.

Texas Home Prices Head Through the Roof

Design: Emily Rogers, Darcy Taj; Content: Enrique Martínez-García, Valerie Grossman

Median Home Prices Surge \$88K Since 2012

(On average, state's least-affordable large metros)



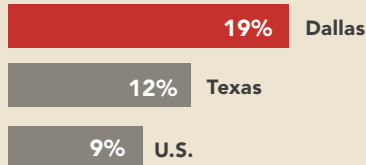
What's Driving the INCREASE?

Mortgage rates also have been historically low: the 30-year mortgage rate was **4%** for 2017.



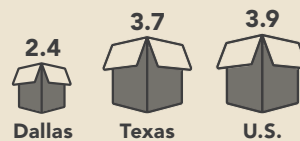
There are MORE people...

Increase in payroll employment, 2012-17



...and not enough homes.

Months of inventory in 2017*

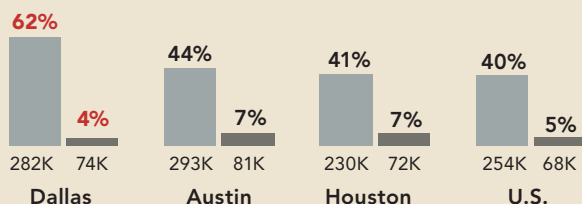


*6 months is considered a balanced market

What Does This Mean for Texas?

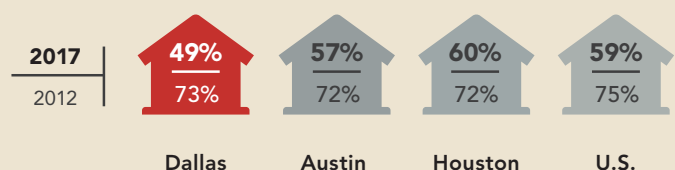
Median house prices are **rising faster** than median income...

■ Median house price increase, 2012-17 ■ Median income increase, 2012-17



...so Texas metros' **competitive edge** in housing affordability is **eroding**.

Share of affordable homes



NOTES: Large metros are those with more than 1 million residents in 2016 according to the census (Houston–The Woodlands–Sugar Land, Dallas–Plano–Irving, Fort Worth–Arlington, San Antonio–New Braunfels and Austin–Round Rock). References to Houston, Dallas and Austin—the three least-affordable markets—cover those metro areas. The share of affordable homes comes from the NAHB/Wells Fargo Housing Opportunity Index for a given metro area, which is defined as the share of homes sold in that area that would have been affordable to a family earning the metro's median income under standard mortgage underwriting criteria. Payroll employment represents total nonfarm payroll employment, which is used as a proxy for population growth in 2012–17. The 30-year U.S. mortgage rate is the fixed rate. Months of inventory are for existing homes. Averages of the top three least-affordable metro areas (Dallas, Houston and Austin) are simple arithmetic means.

SOURCES: National Association of Home Builders (NAHB)/Wells Fargo; Real Estate Center at Texas A&M University; Multiple Listing Service; Federal Home Loan Mortgage Corp.; Bureau of Labor Statistics; Census Bureau; authors' calculations.

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Texas Economy Starts 2018 Firing on All Cylinders

(Continued from page 17)

A substantive increase in the oil rig count requires oil prices above \$60 per barrel, industry officials have suggested. Conversely, a sudden, sustained decline in prices below this could slow activity, and oil at less than \$52 per barrel—roughly the average breakeven price for drilling new wells in most shale plays—could bring an industry decline.

Finally, tightening labor markets could serve as a significant restraint on further growth. Besides the state's

very low headline jobless rate, the state's U-6 rate, which includes discouraged workers and those who are working part-time but looking for full-time positions, is near a 10-year low (*Chart 6*). Businesses will increasingly struggle to fill job vacancies, slowing the rate at which they can expand.

Phillips is an assistant vice president and senior economist and Slijk is a senior research analyst in the San Antonio Branch at the Federal Reserve Bank of Dallas.

Notes

¹"Texas Economy Shifting into Second Gear," by Keith R. Phillips and Christopher Slijk, Federal Reserve Bank of Dallas *Southwest Economy*, First Quarter, 2017.

²"Texas Retail in the Doldrums; Brick-and-Mortar Stores Take the Brunt," by Amy Jordan, Federal Reserve Bank of Dallas *Southwest Economy*, Third Quarter, 2017.

³"Intra-Industry Trade with Mexico May Aid U.S. Global Competitiveness," by Jesus Cañas, Aldo Heffner and Jorge Herrera Hernández, Federal Reserve Bank of Dallas *Southwest Economy*, Second Quarter, 2017.

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