Texas Economy and Outlook 2019

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2018 A Very Good Year - 2019 Definite Slowdown

- Real GDP growth 2018 2.9%+ 2019 ~2.5%
- Jobs expanded ~1.5% Unemployment rate ~4.0%+
- Interest rates up/down during the year;
- Inflation approached 2.5%
- Tax Cuts added positive impacts
- Industrial Production high but less labor
- Income and spending growing
  - Real Disposable Personal Income +2.9% thru 3Q18
  - Real PCE +2.6% thru 3Q18
- Housing improving, not fully recovered; recent stalling
- U.S. became #1 oil producer and net exporter
Consumer Confidence Index

Source: The Conference Board (1985=100; NSA); Haver Analytics
Fed Funds Rate, 10-Year Treasury, 30-Year FMR & Inflation

Source: Haver Analytics; FHLMC; St. Louis FED; Real Estate Center at Texas A&M University
Texas Economy

2015-2016 Oil Decline; Down Years

2017 Recovery – A Good Year

2018: Better than 2017

2019 Some Headwinds, but Not Bad
2018 a Very Good Year Economically For Texas

- Rebound from Harvey going strong but not over
- State GDP +6% \(^{(2Q18)}\) #1 in U.S. [estimate ~4.5% 2018 total]
- Personal Income +5.3% vs. 4.5% nationally
- Oil Prices >$70 until 4Q – dropped then rebounded
- Jobs increased 276,100 +2.3%
- Population increased 379,128 to 28,701,845
  - 190,951 natural increase (50.3%)
  - 104,976 foreign immigration (27.7%)
  - 82,569 domestic immigration (22%)
Texas Economic Outlook: 2019
Positive but Slower Growth Than 2018

- **U.S. Economy** stays relatively strong
- **Employment**: ~1.5% - 2.0% from 2.3% in 2018 (revised)
- **GDP**: 4% 2019 from ~5% 2018
- **Energy sector** neutral; oil prices $40-$60/bl.
- **Population** expansion continues but at slower pace
- **Exports** doing well and contributing to economy – trade agreements and value of dollar add uncertainty
- **Retail Sales** steady but not significantly higher
Texas’ Leading Economic Index

A composite of 8 leading indicators: 1) value of the dollar, 2) U.S. leading economic index, 3) real oil price, 4) well permits, 5) initial claims for unemployment insurance, 6) Texas stock index, 7) help-wanted index, and 8) average weekly hours worked in manufacturing.

Source: Federal Reserve Bank of Dallas, 1987=100
Weekly Active Texas Rig Count & Price of WTI

Rig Count up 318, +184% since May 2016

Source: Baker Hughes; EIA; RE Center at Texas A&M University
Current and Futures Monthly Average Price of WTI

Sources: EIA; Haver Analytics; Real Estate Center at Texas A&M University
Monthly Texas Oil Production & Price of WTI

Source: EIA; RE Center at Texas A&M University
Texas Annual Jobs

2014-2018 +1,262,200 jobs; average 252,440/year

Sources: Texas Workforce Commission, Real Estate Center at Texas A&M University
Monthly Change in Total Nonfarm Employment Texas

Average of ~21,900 jobs per month since January 2011

Sources: TWC; Haver Analytics; Real Estate Center at Texas A&M University
# Texas Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Jobs, NSA (Dec-Dec)</th>
<th>Population (July-July)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>216,200</td>
<td>439,887</td>
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<tr>
<td>2011</td>
<td>236,200</td>
<td>402,776</td>
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<tr>
<td>2012</td>
<td>373,300</td>
<td>433,903</td>
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<tr>
<td>2013</td>
<td>300,800</td>
<td>400,952</td>
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<tr>
<td>2014</td>
<td>420,900</td>
<td>475,157</td>
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<tr>
<td>2015</td>
<td>151,800</td>
<td>500,444</td>
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<tr>
<td>2016</td>
<td>150,000</td>
<td>449,982</td>
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<tr>
<td>2017</td>
<td>253,900</td>
<td>399,734</td>
</tr>
<tr>
<td>2018</td>
<td>276,100</td>
<td>379,128</td>
</tr>
</tbody>
</table>

Sources: US Census Bureau; Texas Workforce Commission; Real Estate Center at Texas A&M University

2010-2018
+3,881,963 people
+2,379,200 jobs
Major MSAs Economic Outlook
Business Cycle Indexes: Dallas, Houston, Fort Worth, San Antonio & Texas

Months Seasonally Adjusted, 10/1980=100

Sources: Federal Reserve Bank of Dallas; Real Estate Center at Texas A&M University
Austin & Texas Business-Cycle Indexes
Monthly, Seasonally Adjusted, 10/1980=100

Source: Federal Reserve Bank of Dallas
Texas Major MSAs Employment Growth 2017, 2018 & 2019

Percent Growth in Annual Employment

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austin</td>
<td>3.3</td>
<td>3.2</td>
<td>2.5</td>
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<tr>
<td>Dallas</td>
<td>2.8</td>
<td>2.3</td>
<td>1.8</td>
</tr>
<tr>
<td>Fort Worth</td>
<td>2.6</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Houston</td>
<td>2.2</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>San Antonio</td>
<td>2.3</td>
<td>2.0</td>
<td>1.6</td>
</tr>
<tr>
<td>Texas</td>
<td>2.3</td>
<td>2.3</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Sources: TWC; Real Estate Center at Texas A&M University
Austin Annual Jobs

Sources: Haver Analytics; Real Estate Center at Texas A&M University
Dallas-Plano-Irving Annual Jobs

Dallas-Plano-Irving MD: Collin, Dallas, Denton, Ellis, Hunt, Kaufman & Rockwall Counties

Sources: Haver Analytics; Real Estate Center at Texas A&M University
Fort Worth-Arlington Annual Jobs

Sources: Haver Analytics; Real Estate Center at Texas A&M University
Houston Annual Jobs

![Bar chart showing annual jobs growth from 1990 to 2018 with the following data points highlighted: 2016 +0%, 2017 +1.0%, 2018 +2.2%, 2019p +2.0%]

Sources: Haver Analytics; Real Estate Center at Texas A&M University
San Antonio Annual Jobs

2016 +3.0%
2017 +2.2%
2018 +1.7%
2019p +1.4%

Sources: Haver Analytics; Real Estate Center at Texas A&M University
Texas Demographics
Estimated Population Change, Texas Counties, 2010 to 2017

-2,139 - 0
1 - 1,000
1,001 - 20,000
20,001 - 100,000
100,001 - 560,521

91 counties lost population over the 7 year period.

87% E of I-35

67% in Urban Triangle

Source: U.S. Census Bureau, 2017 Vintage Population Estimates; Texas State Demographer’s Office
From 1970 to 2010 (40 years), Texas added 13.9 million people

From 2010 to 2050 (40 years), Texas will probably add ~17-30 million people

Sources: U.S. Census Bureau; Texas State Demographer’s Office 2018 Projection & 2000-2010 Scenario; Real Estate Center at Texas A&M University
Projected Population Change, Texas Counties, 2010-2050

Source: Texas State Data Center 2012
Population Projections - 2000-2010 Migration Scenario

Legend:
-6,200 - 0
1 - 2,000
2,001 - 10,000
10,001 - 100,000
100,001 - 1,000,000
1,000,001 - 3,480,000

90%+ in the Urban Triangle
Austin MSA Population
Bastrop, Caldwell, Hays, Travis & Williamson Counties

2010-2050 2,826,538; 165% increase
70,663/year average

Source: U.S. Census Bureau; Texas State Demographer’s Office 2018 Projection & 2000-2010 Projection; Real Estate Center at Texas A&M University
D-FW MSA Population
Collin, Dallas, Denton, Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, Somervell, Tarrant & Wise Counties

Sources: U.S. Census Bureau; Texas State Demographer’s Office 2018 Projection & 2000-2010 Scenario; Real Estate Center at Texas A&M University
Dallas-Plano-Irving Population

Dallas-Plano-Irving MD: Collin, Dallas, Denton, Ellis, Hunt, Kaufman & Rockwall Counties

178% increase 2010-2050 ~7,540,000 people

Sources: U.S. Census Bureau; Texas State Demographer’s Office 2018 Projection; 2000-2010 Scenario; Real Estate Center Texas A&M University
Houston MSA Population
Brazoria, Chambers, Fort Bend, Galveston, Liberty & Montgomery Counties

2000-2010 +8,300,851, 140%
2018 Projection +7,235,577, 122%

Sources: U.S. Census Bureau; Texas State Demographer’s Office 2018 Projection & 2000-2010 Scenario; Real Estate Center at Texas A&M University
San Antonio MSA Population
Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall, Medina, & Wilson Counties

2010-2050 100% increase
2018 Projection 108%

Sources: U.S. Census Bureau; Texas State Demographer’s Office 2018 Projection & 2000-2010 Scenario; Real Estate Center at Texas A&M University
Texas Housing Market
2018 A Solid Year For Housing Around the State

• Total Housing Activity: 2018 vs. 2017
  • Sales +1.7%  343,833 vs. 336,502  $97.7B vs. $92.4B
  • Listings +1.4%  101,603 vs. 100,664
  • DoM 58 vs. 57
  • MOI 3.4 vs. 3.1
  • Average Price +3.7%  $284,173 vs. $274,580
  • Median Price +4.5%  $233,000 vs. $223,990
  • Md. Price/sq. ft. +5%  $116.37 vs. $110.55
  • Avg. Price/sq. ft. +4.3%  $128 vs. $122

Source: TAR Data Relevance Program; Real Estate Center at Texas A&M University
2018 A Solid Year For New Housing Around the State

- **New Home Construction** lead the nation
  - State 168,500 total starts, ~122k SF ~47k MF
  - DFW 57.9K (35.1k SF, 22.8k MF); Houston 50.8k (41.3k SF, 9.5k MF)

- **New Home Sales** stayed strong
  - New home sales +8.1%
  - DoM 93
  - MOI 5.1
  - Average price -0.4%
  - Median price +0.2%
  - Price/sq. ft. +2.9%
### 2018 Percent Changes in Key Housing Measures

<table>
<thead>
<tr>
<th></th>
<th>Sales</th>
<th>Average Price</th>
<th>Median Price</th>
<th>Months Inventory</th>
<th>Median Price/sf</th>
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</thead>
<tbody>
<tr>
<td>Texas</td>
<td>1.7%</td>
<td>3.7%</td>
<td>4.5%</td>
<td>9.8%</td>
<td>5.0%</td>
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<tr>
<td>Austin</td>
<td>1.4%</td>
<td>4.2%</td>
<td>3.9%</td>
<td>9.7%</td>
<td>3.9%</td>
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<tr>
<td>DFW</td>
<td>-2.4%</td>
<td>4.1%</td>
<td>3.9%</td>
<td>19.7%</td>
<td>5.7%</td>
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<tr>
<td>Houston</td>
<td>3.4%</td>
<td>2.7%</td>
<td>3.1%</td>
<td>13.5%</td>
<td>4.2%</td>
</tr>
<tr>
<td>San Antonio</td>
<td>2.9%</td>
<td>4.2%</td>
<td>5.2%</td>
<td>8.0%</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

Source: TAR Data Relevance Program; Real Estate Center at Texas A&M University
Factors that may create a drag on home-buying demand

- Limited inventory availability
- Higher prices - affordability
- Increasing interest rates
- Concerns about general economy – fear of recession or jobs
- Stock market volatility
- Negative press coming off record year(s)
March 2019 Residential Sales Slowed Down; Price/Sq. Ft. Still Up

Sales 0.7% YTD

Price +3.4% YTD

Source: TR Data Relevance Program; Real Estate Center at Texas A&M University
Annual Texas Home Sales & Prices

2018
Sales 1.7% Prices ~4%
2019p
Sales ~1%, Prices ~3.5%

2010-2018
Sales +64%,
Average Price +49%,
Median Price +59%

Source: TAR Data Relevance Program; Real Estate Center at Texas A&M University
Texas Home Sales per 1,000 Households

Source: TAR Data Relevance Program; US Census Bureau; Real Estate Center at Texas A&M University

1990-2000 Average 20.8

2001-2017 Average 30.6
Texas Median Home Prices Continue to Climb

2017 +6.2%;  
2018 +4.5%  
2019p +3.5%  

2012-2018p +49%

Source: TAR Data Relevance Program; Real Estate Center at Texas A&M University
Texas Median HH Income & Median Home Price Indexed to 1989

1989 Median Price = 2.65 x Median HH Income
2017 Median Price = 3.76 x Median HH Income

Median Home Price +226%
Nominal HH Income +129%
2017 Adjusted HH Income +20%

Sources: U.S. Census Bureau; Haver Analytics; Real Estate Center at Texas A&M University
Texas Months' Inventory Still Quite Low

Mo. Inventory = Current month’s total listings / 12 mo. moving avg. of monthly sales

Source: Real Estate Center at Texas A&M University (New & Used Homes Sold thru MLS’s)
Texas 2018 Sales and Months Inventory by Price

About 61% of sales in $100k to $300k range

$0 - $69,999: 3.6%
$70,000 - $99,999: 3.2%
$100,000 - $149,999: 2.4%
$150,000 - $199,999: 2.2%
$200,000 - $249,999: 2.7%
$250,000 - $299,999: 3.4%
$300,000 - $399,999: 3.9%
$400,000 - $499,999: 4.5%
$500,000 - $749,999: 5.3%
$750,000 - $999,999: 7.5%
$1,000,000+: 10.3%

Very Tight Inventory to $300k

Source: TAR Data Relevance Program; Real Estate Center at Texas A&M University
Texas SF Building Permits

1995-2017 average 104,854/year

Source: US Census Bureau; NAHB; Real Estate Center at Texas A&M
Texas SF Building Permits per 1,000 New Households

1995-2015 average 820/year

Source: US Census Bureau, Real Estate Center at Texas A&M
Texas MF Building Permits

1995-2016 average 45,444/year
2017 -1.7%; 2018p -3%

Source: US Census Bureau, Real Estate Center at Texas A&M
Texas Residential Construction Leading and Coincident Indexes

Jan 2000=100

Coincident Index

Total Housing Permits (12-MMA)

Leading Index

Source: Real Estate Center at Texas A&M University
# Texas Single-Family Housing Markets Expected to Slow Down in 2019

<table>
<thead>
<tr>
<th></th>
<th>(2018 (%))</th>
<th>2019 (%)</th>
<th>1991-2018 (%)</th>
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<tbody>
<tr>
<td><strong>Texas</strong></td>
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<tr>
<td>Housing Permits</td>
<td>5.7</td>
<td>2.1</td>
<td>5.4</td>
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<tr>
<td>Sales</td>
<td>1.8</td>
<td>0.9</td>
<td>4.6</td>
</tr>
<tr>
<td>Price per square foot</td>
<td>4.4</td>
<td>4.0</td>
<td>4.8</td>
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<tr>
<td><strong>Austin</strong></td>
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<tr>
<td>Housing Permits</td>
<td>9.6</td>
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<td>Sales</td>
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<td>6.1</td>
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<tr>
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<td>4.5</td>
<td>4.0</td>
<td>6.3</td>
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<td>Housing Permits</td>
<td>5.3</td>
<td>3.3</td>
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<td>Sales</td>
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<td>Price per square foot</td>
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<td>4.4</td>
<td>4.6</td>
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<tr>
<td><strong>Houston</strong></td>
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<td>Housing Permits</td>
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<td>Price per square foot</td>
<td>3.1</td>
<td>4.6</td>
<td>5.3</td>
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<tr>
<td>Sales</td>
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<td>5.2</td>
<td>3.9</td>
<td>4.6</td>
</tr>
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Source: Real Estate Center at Texas A&M University
Housing Markets Around the State
2018 sales +1.4%, prices +4%
2019p sales ~2.0%, Prices ~4%
Austin SF Permits

Source: US Census Bureau; Real Estate Center at Texas A&M University
Dallas-Plano-Irving MD: Collin, Dallas, Denton, Ellis, Hunt, Kaufman & Rockwall Counties

2017 +21%; 2018e +12%; 2019p +10%
Annual D-FW Home Sales

Source: TR Data Relevance Program; Real Estate Center at Texas A&M University
D-FW SF Permits

Source: US Census Bureau; Real Estate Center at Texas A&M University
Annual Houston Home Sales, Average & Median Prices

2018 Sales +3.4%; Md. Price +3.1%
2019p Sales +1.1%; Prices +4.5%

Source: HAR, Texas Realtor® Data Relevance Project; Real Estate Center at Texas A&M University
Houston SF Building Permits

Average since 1996 = 33,000
2018e +12%
2019p +8%

Source: US Census Bureau; Real Estate Center at Texas A&M University
San Antonio Annual Home Sales, Average & Median Price

Source: SABOR; Real Estate Center at Texas A&M University
San Antonio SF Building Permits

2018e +7%  
2019p +5%

Source: Census Bureau; Real Estate Center at Texas A&M University
Longer-Term Outlook

• Population Growth Continues to Outpace U.S.; Concentrated in Urban Triangle

• Infrastructure Trying to Keep Up with Growth: roads, water/sewer, utilities, schools
  • Water West of I-35 Major Limiting Factor for Growth

• Infrastructure Financing higher rates; bond market competition for capital; private vs. public financing; taxes

• Land and land resources & government regulatory actions

• Money Capital & Money Markets: debt, inflation and interest rates