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
NFIB Small Business Optimism Index
(Overall Index SA 1986 = 100)

Source: National Federation of Independent Businesses; based on ten survey indicators
Fed Funds Rate, 10-Year Treasury, 30-Year FMR

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

WTI $/bl. (right)

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>
</tr>
<tr>
<td>2011</td>
<td>236,200</td>
<td>402,776</td>
</tr>
<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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<td>2017</td>
<td>253,900</td>
<td>399,734</td>
</tr>
<tr>
<td>2018</td>
<td>276,100</td>
<td>379,128</td>
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</table>

2010-2018:

+3,881,963 people
+2,379,200 jobs

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

Sources: ACS, US Census Bureau, 2017; Real Estate Center at Texas A&M University
Texas Real Median HH Income

2008, $57,115
2017, $59,206

Sources: ACS, US Census Bureau, 2017; Real Estate Center at Texas A&M University
Major MSAs Economic Outlook
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>2.3</td>
<td>2.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Houston</td>
<td>2.2</td>
<td>2.2</td>
<td>2.0</td>
</tr>
<tr>
<td>San Antonio</td>
<td>2.3</td>
<td>1.6</td>
<td>1.4</td>
</tr>
<tr>
<td>Texas</td>
<td>2.0</td>
<td>2.3</td>
<td>1.8</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

2016 +3.8%
2017 +2.7%
2018 +2.3%
2019p +1.8%

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

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

-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

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

FW-A MD: Johnson, Parker, Tarrant & Wise Counties

2000-2010 +110%, ~2,359,000

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: TR 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%

Source: TR Data Relevance Program; Real Estate Center at Texas A&M University
• Refinance applications down 17% while Purchase applications are +11.5%

• Traditional ARM purchase loans +108% in February

• 15-Year loans 5.4% of purchase apps +16.2%;

• 30-Year loans 91% of purchase apps +12.6%

• FHA/VA loans 34% of purchase apps, +6.3% more than last year, with average loan $224,579
  • 28% apps with credit scores <640 1Q19 (FHA)
  • >28% apps DTI ratio >50% in January 2019 (FHA)

• Average conventional 30-year loan $267,077

• Average Traditional ARM loan $555,558

• Average Hybrid ARM loan $700,909

Source: MBA; Real Estate Center at Texas A&M University
Texas Mortgage Loans Seriously Delinquent

Source: MBA, National Delinquency Survey; Real Estate Center at Texas A&M University
## 2018 Key Housing Measures

<table>
<thead>
<tr>
<th>City</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>3.3</td>
<td>5.0%</td>
</tr>
<tr>
<td>Austin</td>
<td>1.4%</td>
<td>4.2%</td>
<td>3.9%</td>
<td>2.3</td>
<td>3.9%</td>
</tr>
<tr>
<td>DFW</td>
<td>-2.4%</td>
<td>4.1%</td>
<td>3.9%</td>
<td>2.5</td>
<td>5.7%</td>
</tr>
<tr>
<td>Houston</td>
<td>3.4%</td>
<td>2.7%</td>
<td>3.1%</td>
<td>3.5</td>
<td>4.2%</td>
</tr>
<tr>
<td>San Antonio</td>
<td>2.9%</td>
<td>4.2%</td>
<td>5.2%</td>
<td>3.1</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

Source: TAR Data Relevance Program; Real Estate Center at Texas A&M University
2019 Home Market Slowdown
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

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
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
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

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

Very Tight Inventory to $300k
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

Source: Real Estate Center at Texas A&M University
Texas Households by Highest Affordable Price

<table>
<thead>
<tr>
<th>Price Range</th>
<th>Thousands of Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>$750,000-$749,999</td>
<td>612</td>
</tr>
<tr>
<td>$500,000-$749,999</td>
<td>580</td>
</tr>
<tr>
<td>$400,000-$499,999</td>
<td>570</td>
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<td>$300,000-$399,999</td>
<td>1,261</td>
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<tr>
<td>$250,000-$299,999</td>
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<tr>
<td>$200,000-$249,999</td>
<td>964</td>
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<tr>
<td>$175,000-$199,999</td>
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<tr>
<td>$150,000-$174,999</td>
<td>582</td>
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<tr>
<td>$125,000-$149,999</td>
<td>651</td>
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<tr>
<td>$100,000-$124,999</td>
<td>686</td>
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<tr>
<td>$70,000-$99,999</td>
<td>836</td>
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<tr>
<td>&lt;$70,000</td>
<td>1,598</td>
</tr>
</tbody>
</table>

~40% of Texas HHs cannot afford home priced > $150,000; ~51% not >$200,000

Median Income of $59,295 can afford home priced at $194,563; effective 3.28x

20% down; 4.15% interest; 35% qualifying ratio; and 6% taxes, insurance & utilities

Source: US Census Bureau 2017 American Community Survey; Real Estate Center at Texas A&M University
Texas Households by Highest Affordable Price

- >$750,000: 6.0% of households, 571 thousand
- $500,000-$749,999: 4.3% of households, 413 thousand
- $400,000-$499,999: 5.5% of households, 520 thousand
- $300,000-$399,999: 10.6% of households, 1,013 thousand
- $250,000-$299,999: 7.9% of households, 749 thousand
- $200,000-$249,999: 9.6% of households, 913 thousand
- $175,000-$199,999: 5.8% of households, 553 thousand
- $150,000-$174,999: 6.6% of households, 632 thousand
- $125,000-$149,999: 7.2% of households, 682 thousand
- $100,000-$124,999: 7.7% of households, 735 thousand
- $70,000-$99,999: 9.9% of households, 945 thousand
- <$70,000: 19.0% of households, 1,810 thousand

5% down; 4.15% interest; 35% qualifying ratio; and 6% taxes, insurance & utilities

Median Income of $56,565 can afford home priced at $172,470; effective 2.91x

~37% of Texas HHs cannot afford home priced > $150,000;
~50% not > $200,000

Source: US Census Bureau 2017 American Community Survey; Real Estate Center at Texas A&M University
Texas Single-Family Housing Markets Expected to Slow Down in 2019

<table>
<thead>
<tr>
<th>Texas</th>
<th>(2018 (%))</th>
<th>2019 (%)</th>
<th>1991-2018 (%)</th>
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</thead>
<tbody>
<tr>
<td>Housing Permits</td>
<td>5.7</td>
<td>2.1</td>
<td>5.4</td>
</tr>
<tr>
<td>Sales</td>
<td>1.8</td>
<td>0.9</td>
<td>4.6</td>
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<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>Austin</td>
<td></td>
<td></td>
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<tr>
<td>Housing Permits</td>
<td>9.6</td>
<td>0.2</td>
<td>11.4</td>
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<tr>
<td>Sales</td>
<td>2.3</td>
<td>2.8</td>
<td>6.1</td>
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<tr>
<td>Price per square foot</td>
<td>4.5</td>
<td>4.0</td>
<td>6.3</td>
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<td>DFW</td>
<td></td>
<td></td>
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<tr>
<td>Housing Permits</td>
<td>5.3</td>
<td>3.3</td>
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<tr>
<td>Sales</td>
<td>-2.2</td>
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<tr>
<td>Price per square foot</td>
<td>5.3</td>
<td>4.4</td>
<td>4.6</td>
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<td>Houston</td>
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<td>Housing Permits</td>
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<td>7.9</td>
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<tr>
<td>Sales</td>
<td>2.3</td>
<td>-1.0</td>
<td>6.8</td>
</tr>
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<td>5.2</td>
<td>3.9</td>
<td>4.6</td>
</tr>
</tbody>
</table>

Source: 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 more challenging

• **Money & Credit** volatile interest 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
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