The views expressed are my own and do not necessarily reflect official positions of the Federal Reserve System.
Overview

• Texas economic activity is concentrated in the eight key metros:
  • Austin, Dallas, El Paso, Fort Worth, Houston, McAllen, Midland-Odessa and San Antonio
• Smaller metros are new to the second edition and are part of the larger Texas mosaic:
  • Amarillo, Beaumont-Port Arthur, Lubbock, Tyler and Longview
• Commercial make-up of each metro is unique and shaped in part by its history, geography, geology and demography
• Industrial composition drives economic expansion
It’s the Age of the City

• Cities have been centers of population, commerce, learning and economic opportunity over the long term
• Movement toward urbanization since the Industrial Revolution
• Cities enjoy higher productivity and wages than non-cities
• “Mankind’s greatest invention”--- Harvard economist Ed Glaeser
Texas Advantages

- Texas benefits from an outsized number of metros with 2 million or more residents
- Dallas–Fort Worth and Houston rank among the top six largest U.S. metro areas in population and economic output
- Other favorable economic factors
  - Central location, oil and gas deposits, land and seaports, proximity to Mexico, young and fast growing population, low cost of living and doing business
Employment Growth in Large Texas Metros Outpaces Small Ones

NOTES: Employment data are seasonally adjusted. Small and large metros are aggregated based on 2017 population above or below 800,000.
Unemployment in Most Metros Below Texas Rate


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Industry Clusters

- Cluster formation is driven by:
  - Geographical concentration, technology relationships
  - Markets
  - Goods and services produced
  - Labor skills
- Clusters comprise of multiple interdependent or interrelated industries
Measuring Cluster Concentration

• Location Quotient (LQ):

\[
\frac{\text{Share of metro area employment in industry } i}{\text{Share of U.S. employment in industry } i}
\]

• LQ > 1 → Clustering or specialization
• LQ < 1 → No specialization
• Period measured: 2010-2018
• Clusters increase productivity, stimulate innovation and facilitate new business formation
• Higher productivity leads to higher wages
Energy, IT and Business and Financial Services Help Set Texas Apart from Nation

8.6%
9.9%
3.7%
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8

-1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Location quotient in 2018

Percentage-point change in employment share, 2010–18

Energy and mining
Construction (6%)
Information technology and telecommunications
Energy and mining
Chemicals (1.7%)

Mature
Transitioning
Emerging

NOTE: Bubble size represents cluster share of metropolitan statistical area employment.

SOURCES: Texas Workforce Commission; Bureau of Labor Statistics.

Federal Reserve Bank of Dallas
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-1.5 -1.0 -0.5 0.0 0.5 1.0 1.5

Location quotient in 2018
Percentage-point change in employment share, 2010–18

NOTE: Bubble size represents cluster share of metropolitan statistical area employment.
SOURCES: Texas Workforce Commission; Bureau of Labor Statistics.

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Transportation, Defense and Business Services Among State's Fastest-Growing Clusters

NOTE: Each cluster's share of total jobs is shown in parentheses.

SOURCES: Texas Workforce Commission; authors' calculations.
<table>
<thead>
<tr>
<th>Cluster</th>
<th>Texas 2010</th>
<th>Texas 2014</th>
<th>Texas 2018</th>
<th>U.S. 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy and mining</td>
<td>94,829</td>
<td>99,133</td>
<td>96,846</td>
<td>82,731</td>
</tr>
<tr>
<td>Construction</td>
<td>56,698</td>
<td>62,167</td>
<td>63,752</td>
<td>60,742</td>
</tr>
<tr>
<td>Transportation and logistics</td>
<td>61,041</td>
<td>63,425</td>
<td>62,946</td>
<td>54,941</td>
</tr>
<tr>
<td>Education</td>
<td>44,951</td>
<td>44,567</td>
<td>45,925</td>
<td>50,880</td>
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<tr>
<td>Utilities</td>
<td>103,542</td>
<td>106,478</td>
<td>114,481</td>
<td>111,238</td>
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<tr>
<td>Food services</td>
<td>18,190</td>
<td>18,233</td>
<td>19,136</td>
<td>19,516</td>
</tr>
<tr>
<td>Chemicals</td>
<td>82,568</td>
<td>87,923</td>
<td>93,920</td>
<td>74,669</td>
</tr>
<tr>
<td>Information technology and telecommunications</td>
<td>95,768</td>
<td>98,055</td>
<td>104,069</td>
<td>110,768</td>
</tr>
<tr>
<td>Glass and ceramics</td>
<td>52,757</td>
<td>59,602</td>
<td>61,254</td>
<td>55,946</td>
</tr>
<tr>
<td>Fabricated metal manufacturing</td>
<td>60,024</td>
<td>62,803</td>
<td>62,488</td>
<td>56,077</td>
</tr>
<tr>
<td>Business and financial services</td>
<td>88,257</td>
<td>92,385</td>
<td>93,452</td>
<td>101,722</td>
</tr>
<tr>
<td>Computer manufacturing</td>
<td>114,084</td>
<td>117,186</td>
<td>132,138</td>
<td>121,829</td>
</tr>
<tr>
<td>Average earnings (total)</td>
<td>54,068</td>
<td>56,448</td>
<td>57,074</td>
<td>56,506</td>
</tr>
</tbody>
</table>

NOTES: Clusters are listed in order of location quotient (LQ); clusters shown are those with LQs greater than 1. Earnings are in 2018 dollars.

SOURCES: Texas Workforce Commission; Bureau of Labor Statistics; authors’ calculations.
Migration and Natural Increase Contribute Almost Equally to Population Growth

NOTES: Census Bureau estimates approximate the population on July 1 of the year indicated and, thus, capture changes from the previous year.

SOURCE: Census Bureau.

Federal Reserve Bank of Dallas
# Reason for Migrating to Texas Versus Elsewhere

<table>
<thead>
<tr>
<th>Reason</th>
<th>Texas</th>
<th>Non-Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relocated for job</td>
<td>50.9</td>
<td>41.3</td>
</tr>
<tr>
<td>Family Reasons</td>
<td>26.4</td>
<td>27.0</td>
</tr>
<tr>
<td>Amenities</td>
<td>18.4</td>
<td>23.9</td>
</tr>
<tr>
<td>Other</td>
<td>4.3</td>
<td>7.8</td>
</tr>
</tbody>
</table>

*NOTE: Data refer to 2010-2018.*

*SOURCES: CPS-ASEC, author’s calculations.*
Beaumont—Port Arthur

The Golden Triangle Shines as Petrochemicals Boom
Beaumont-Port Arthur Metropolitan Division: At a Glance

• Population (2018): 409,526
• Population growth (2010–18): 1.4% (Texas: 13.7%)
• Median household income (2017): $49,875
  • Texas: $59,206; U.S. $60,336
• Median household income growth (2010-17): 7.5% (Texas: 8.3%)
Beaumont-Port Arthur: Overview

- Thriving oil and gas hub, with the nation’s largest concentrations of refineries, petrochemical plants and related businesses
- Rapid growth in chemicals, energy and energy-related manufacturing since 2010
- Other important industries such as transportation have grown in support of its outsized manufacturing and energy base
- Sizeable earnings premium in several dominant clusters
- A relatively less-well-educated workforce compared with the state and nation
Petrochemicals and Refineries Central to Beaumont's Economy

NOTE: Bubble size represents cluster share of metropolitan statistical area employment.

SOURCES: Texas Workforce Commission; Bureau of Labor Statistics.
Energy and Manufacturing Payrolls See Strong Growth

NOTE: Cluster's share of total jobs is shown in parentheses.

SOURCES: Texas Workforce Commission; authors' calculations.
Overall Job Growth Slower than Texas; Expansion in Select Top Sectors Outpaces State and U.S.

Percent change in employment, 2010–18

<table>
<thead>
<tr>
<th>Category</th>
<th>Beaumont-Port Arthur</th>
<th>Texas</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>3%</td>
<td>20%</td>
<td>14%</td>
</tr>
<tr>
<td>Machinery mfg (1.3%)</td>
<td>10%</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>Textiles (0.1%)</td>
<td>8%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Electric equip mfg (0.1%)</td>
<td>14%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>Chemicals (5%)</td>
<td>25%</td>
<td>20%</td>
<td>12%</td>
</tr>
<tr>
<td>Transportation &amp; logistics (2.8%)</td>
<td>37%</td>
<td>32%</td>
<td>20%</td>
</tr>
<tr>
<td>Transport equip mfg (0.6%)</td>
<td>19%</td>
<td>11%</td>
<td>19%</td>
</tr>
<tr>
<td>Defense &amp; security (1.6%)</td>
<td>36%</td>
<td>27%</td>
<td>24%</td>
</tr>
</tbody>
</table>

NOTE: Each cluster's share of total jobs in Beaumont is shown in parentheses.
SOURCES: Texas Workforce Commission; authors' calculations.
Earnings in Energy-Related Clusters Outpace U.S. Averages

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemicals</td>
<td>107,307</td>
<td>121,526</td>
<td>135,740</td>
<td>74,669</td>
</tr>
<tr>
<td>Energy and mining</td>
<td>90,915</td>
<td>93,168</td>
<td>100,811</td>
<td>82,731</td>
</tr>
<tr>
<td>Construction</td>
<td>62,892</td>
<td>66,807</td>
<td>71,632</td>
<td>60,741</td>
</tr>
<tr>
<td>Fabricated metal manufacturing</td>
<td>64,952</td>
<td>68,229</td>
<td>63,132</td>
<td>56,077</td>
</tr>
<tr>
<td>Utilities</td>
<td>127,936</td>
<td>119,551</td>
<td>126,586</td>
<td>111,238</td>
</tr>
<tr>
<td>Advanced materials</td>
<td>92,908</td>
<td>107,908</td>
<td>123,322</td>
<td>88,294</td>
</tr>
<tr>
<td>Machinery manufacturing</td>
<td>62,238</td>
<td>64,415</td>
<td>70,480</td>
<td>71,072</td>
</tr>
<tr>
<td>Primary metal manufacturing</td>
<td>71,483</td>
<td>73,801</td>
<td>76,013</td>
<td>69,706</td>
</tr>
<tr>
<td>Retail</td>
<td>30,083</td>
<td>30,491</td>
<td>32,159</td>
<td>32,066</td>
</tr>
<tr>
<td>Food services</td>
<td>17,928</td>
<td>16548</td>
<td>17,558</td>
<td>19,517</td>
</tr>
<tr>
<td>Industry Cluster with LQ &gt;1</td>
<td>57,306</td>
<td>67,990</td>
<td>68,791</td>
<td></td>
</tr>
<tr>
<td>Industry Cluster with LQ &lt;1</td>
<td>57,579</td>
<td>52,693</td>
<td>55,630</td>
<td></td>
</tr>
<tr>
<td>Average earnings (total)</td>
<td>50,689</td>
<td>53,556</td>
<td>55,523</td>
<td>56,506</td>
</tr>
</tbody>
</table>

NOTES: Clusters are listed in order of location quotient (LQ); clusters shown are those with LQs greater than 1. Earnings are in 2018 dollars.

SOURCES: Texas Workforce Commission; Bureau of Labor Statistics; authors’ calculations.
Sizeable Earnings Premium Prevails in Many Leading Sectors

Thousands of 2018 dollars

NOTE: Data refer to 2018 average annual earnings.
Adjusted Median-Household Income Below U.S.

Median household income, thousands $2017

- Median household income (cost of living adjusted)
- Real income growth 2010-17 (right axis)

Median household income below U.S.:
- Midland: 78%
- Austin: 76%
- Dallas: 67%
- Fort Worth: 66%
- Houston: 65%
- San Antonio: 64%
- Amarillo: 63%
- U.S.: 60%
- Tyler: 59%
- Odessa: 58%
- Longview: 53%
- Lubbock: 52%
- Beaumont: 51%

Percent

NOTE: Cost of living index for 2017 used to adjust for metros to regional price parity with U.S.
SOURCE: Council for Community and Economic Research; Bureau of Labor Statistics; Texas Workforce Commission; Federal Reserve Bank of Dallas

Federal Reserve Bank of Dallas
Median Household Income Growth Exceeds U.S.

Percent growth, 2010-17

- Austin ($73,800)
- Midland-Odessa ($64,210)
- Tyler ($54,339)
- Texas ($59,206)
- Beaumont-Port Arthur ($49,875)
- U.S. ($60,336)
- Houston ($63,802)
- Amarillo ($53,922)
- Longview ($48,259)
- San Antonio ($56,774)
- Lubbock ($47,276)

NOTES: Bars show real median household income growth 2010-17. Median 2017 incomes are displayed in parentheses.
SOURCE: Census Bureau, 2010 and 2017 American Community Survey 1-year estimates.
Education Levels in Beaumont-Port Arthur Trail State and U.S.

NOTE: Share of population age 25 or over.
SOURCE: Census Bureau, 2017 American Community Survey 1-year estimates.
Beaumont-Port Arthur is Slightly Younger than the Nation

The diagram shows the age distribution of different cities in Texas and the U.S. compared to Beaumont-Port Arthur. Beaumont-Port Arthur is slightly younger than the nation overall, with a median age of 34.7 compared to 38.1 for the U.S.

SOURCE: Census Bureau, 2017 American Community Survey 1-year estimates.
Key Takeaways

• Each metro has a unique fingerprint but together they make up the Texas commercial mosaic
• Cities over time tend to grow when they can exploit their natural and economic advantages
• Size and industrial composition plays a role in pace of growth
• Smaller metro areas play an important role in the state’s economy
• Small metros in Texas have grown or maintained their standing even as smaller cities across the U.S. have shrunk
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Thank you!