Plunging Oil Prices: Impact on the U.S. and State Economies

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Oil and gas prices volatile

Nominal price, weekly

*Natural gas price is multiplied by ten. Oil is priced in $/barrel, while natural gas is priced in $/million British thermal units. Last data points are for the week ending November 11, 2016. SOURCES: Energy Information Administration; Wall Street Journal.
NOTE: Last monthly production data is 8.7 mb/d for August. Nov 11 data point is a weekly estimate.

SOURCES: Energy Information Administration; Baker Hughes.
U.S. shale oil production

Thousand barrels per day

Jan 2010, Mar 2015, Aug 2016

North Dakota

Kansas, Montana, Utah, Colorado, Wyoming, New Mexico, Oklahoma


Jan 2010, Mar 2015, Aug 2016

SOURCE: Energy Information Administration.
IMPACT ON U.S. ECONOMY
Oil investment plunges

Billions of chained 2009 dollars

U.S. rig count

Investment in mining/exploration

OPEC decision

Sources: Baker Hughes; Bureau of Economic Analysis.
Oil and gas bankruptcies rose in 2015...

<table>
<thead>
<tr>
<th></th>
<th>Producers</th>
<th>Services</th>
<th>All Firms</th>
<th>Total Debt (billions USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>4</td>
<td>5</td>
<td>9</td>
<td>2.87</td>
</tr>
<tr>
<td>Q2</td>
<td>6</td>
<td>7</td>
<td>13</td>
<td>1.02</td>
</tr>
<tr>
<td>Q3</td>
<td>14</td>
<td>9</td>
<td>23</td>
<td>9.95</td>
</tr>
<tr>
<td>Q4</td>
<td>12</td>
<td>12</td>
<td>24</td>
<td>8.33</td>
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<tr>
<td>Annual</td>
<td>36</td>
<td>33</td>
<td>69</td>
<td>22.18</td>
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SOURCE: Haynes and Boone, LLP.
...and continued in 2016

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<tr>
<td><strong>Q1</strong></td>
<td>15</td>
<td>14</td>
<td>29</td>
<td>4.73</td>
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<tr>
<td><strong>Q2</strong></td>
<td>27</td>
<td>26</td>
<td>53</td>
<td>45.79</td>
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<tr>
<td><strong>Q3</strong></td>
<td>9</td>
<td>21</td>
<td>30</td>
<td>8.11</td>
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<td><strong>October</strong></td>
<td>1</td>
<td>9</td>
<td>10</td>
<td>4.27</td>
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<tr>
<td><strong>Ytd</strong></td>
<td>52</td>
<td>70</td>
<td>122</td>
<td>62.89</td>
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</table>

NOTE: Bankruptcies for services firms are updated through October 25. Bankruptcies for producers are updated through October 19. SOURCE: Haynes and Boone, LLP.
### Most of 2016 bankruptcies are in Texas

#### Oil and Gas Bankruptcy Filings and Debt, May 16, 2016

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<thead>
<tr>
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<th>Texas</th>
<th>U.S.</th>
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<td></td>
<td>Bankruptcies</td>
<td>Total Debt (billions USD)</td>
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<tr>
<td><strong>Producers</strong></td>
<td>28</td>
<td>27.03</td>
</tr>
<tr>
<td><strong>Services</strong></td>
<td>40</td>
<td>4.09</td>
</tr>
<tr>
<td><strong>All Firms</strong></td>
<td>68</td>
<td>31.12</td>
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NOTE: Bankruptcies for services firms are updated through October 25. Bankruptcies for producers are updated through October 19. SOURCE: Haynes and Boone, LLP.
Low oil prices boosted growth in final demand

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<td>Residential investment</td>
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NOTE: Components do not sum exactly to final demand due to rounding.

SOURCE: Bureau of Economic Analysis.
Households benefit from low energy prices and a strong dollar

Components of final demand

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NOTE: Components do not sum exactly to final demand due to rounding.
SOURCE: Bureau of Economic Analysis.
Mining and manufacturing firms have scaled back cap ex plans, and investment growth has slowed

Contribution to real growth, percentage points, SAAR

Components of final demand

NOTE: Components do not sum exactly to final demand due to rounding.
SOURCE: Bureau of Economic Analysis.
Government purchases and the strong dollar have also affected final demand

NOTE: Components do not sum exactly to final demand due to rounding.
SOURCE: Bureau of Economic Analysis.
Why didn’t low oil prices have a larger positive effect on the economy?

• Oil price changes have asymmetric effects on the economy

• Increases in oil prices impact the economy more than oil price declines
  – Oil price increase: $\Sigma$ (negative reallocation effects + negative price effects)
  – Oil price decline: $\Sigma$ (negative reallocation effects + positive price effects)

• Increased saving
Savings rates up slightly with low gasoline prices

NOTES: 2016 gasoline price is a forecast. 2016 savings rate is the monthly average through September.
SOURCES: Bureau of Economic Analysis; Bureau of Labor Statistics; Energy Information Administration; calculations by the Dallas Fed.
Energy consumption to GDP ratio continues to fall

Index, 1982=100

Total energy consumption (thousand Btu)
Real GDP (chained 2009 $)

NOTE: Dashed line is the reference case forecast from the EIA’s Annual Energy Outlook (2016).
SOURCE: Energy Information Administration.
IMPACT ON STATE ECONOMIES
Low oil prices benefit most states
(Effect of a 50% decline in oil prices on employment)

Energy states did well in 2014

Percent Change (Dec/Dec)

Energy states lost jobs in 2015

In 2016, Texas 21st in job growth

YTD percent change, SAAR

Unemployment rates are up in oil-producing states

NOTE: Shaded bar indicates a U.S. recession.
SOURCES: Department of Labor; calculations by the Dallas Fed.
Layoffs have spiked in oil-producing states

Index, 4-week moving average, Jan. 2013 = 100

Major oil-producing states' initial claims (ND, NM, OK, TX, WY, AK, LA)

U.S. initial claims, less major oil-producing states

Sources: Department of Labor; calculations by the Dallas Fed.
Texas job growth outpaces the U.S., especially during energy booms

Texas nonfarm payroll employment

mid-1970s to early 1980s oil boom

2006- recent energy boom

TX average = 2.6%

NOTE: Shaded bars indicate U.S. recessions.
SOURCES: Bureau of Labor Statistics; Texas Workforce Commission; authors' calculations.
Texas job growth outpaces the U.S., especially during energy booms

Year-over-year rate (%)

Texas nonfarm payroll employment
U.S. nonfarm payroll employment

mid-1970s to early 1980s oil boom
1980s
2006- recent energy boom

NOTE: Shaded bars indicate U.S. recessions.
SOURCES: Bureau of Labor Statistics; Texas Workforce Commission; authors' calculations.
Metro employment growth rates diverge

Sources: Bureau of Labor Statistics; Texas Workforce Commission; seasonal adjustments by FRB Dallas.
Low oil price impacts office market

Vacancy rate (percent)


NOTE: Data through Q2 2016 for DFW, Houston and Austin; Q1 2016 for San Antonio. SOURCES: CBRE.
Texas rig count ticks up but oil production continues to decline

Rig count

Texas oil production

Texas rig count

Million barrels per day

NOTE: Last weekly rig count data point is 268 for the week ending November 11.
Last monthly production data point is 3.156 mb/d for August 2016.
SOURCES: Energy Information Administration; Baker Hughes.
Permian rig count has ticked up since April

NOTE: Plot shows the rig count as of November 11 minus the count as of April 1.
SOURCES: Energy Information Administration; Baker Hughes.
Drilling productivity continues to increase

New-well oil production per rig, barrels per day

- Eagle Ford
- Bakken
- Permian Basin

SOURCE: Energy Information Administration.
Eagle Ford declines have more than offset steady Permian in Texas

NOTES: Eagle Ford and Permian series are from the EIA’s Drilling Productivity Report. Dashed lines are forecasts through December 2016. Actual data are through August 2016. SOURCE: Energy Information Administration.
Existing wells won’t be shut in at current prices...

NOTES: Line depicts the mean and bars depict the range of responses. 69 E&P firms answered this question from March 16-24, 2016. Other U.S. includes Bakken, Kansas, Gulf of Mexico and others. SOURCE: Federal Reserve Bank of Dallas.
...but prices are still below breakeven for new wells

NOTES: Line depicts the mean and bars depict the range of responses. 63 E&P firms answered this question from March 16-24, 2016. Other U.S. includes Bakken, Kansas, Gulf of Mexico and others. 

SOURCE: Federal Reserve Bank of Dallas.
In the current quarter vs. the prior quarter: has your firm’s business activity increased, not changed or decreased?

**NOTES:** Percent reporting decrease is plotted as a negative value. Percent reporting no change is plotted symmetrically around zero. Responses were collected Mar 16-24, Jun 15-23 and Sep 14-22.

SOURCE: Federal Reserve Bank of Dallas.
Outlook

• Plunge in oil prices helped consumers and the overall economy but slowed growth in energy states.
  – Small energy states still in recession.
  – Large, diversified states such as Texas skirted recession.

• Effect of low oil prices on economy not as strong as expected
  – The decline in oil prices coincident with a strong dollar and slower global growth
  – Hurt U.S. manufacturing and exports

• The U.S. and energy importers should continue to benefit from low oil prices

• Rough patch for energy-producing states.
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