Plunging Crude Prices: Impact on U.S. and State Economies

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The views expressed here are those of the speakers and do not necessarily represent the views of the Federal Reserve Banks of St. Louis and Dallas or of the Federal Reserve System.
Oil and Gas Prices Plunge


Outline

• How did we get here?
  – World oil supply/demand balance
• Impact on U.S. economy
• Impact on state economies
• Where do we go from here?
World Oil Consumption Growth
(Year-over-year)

Million barrels per day

Source: Energy Information Administration.
World Oil Consumption Growth
(Year-over-year)

Source: Energy Information Administration.
World Consumption and Non-OPEC Production Growth
(Year-over-year)

Million barrels per day

Source: Energy Information Administration.
World Oil Consumption and Production Growth
(Year-over-year)

Million barrels per day

- World oil consumption growth
- Non-OPEC production growth
- OPEC production growth

Source: Energy Information Administration.
Iraq and Libya Production Up Since June

Million barrels per day
change since June

-0.2 0.0 0.2 0.4 0.6 0.8 1.0

Jul-14 Aug-14 Sep-14 Oct-14 Nov-14 Dec-14 Jan-15

Libya

Iraq

Source: Bloomberg.
Demand/Supply Balance and Oil Prices

Million barrels per day

World oil consumption growth
Non-OPEC production growth
OPEC production growth
Change in WTI price (right axis)


Source: Energy Information Administration.
Energy Prices Fall More Than Other Commodities

Sources: S&P; Bloomberg.
In Contrast to Falling Prices in 2008

GSCI Index, Sept. 2, 2008 = 100

- Red: All Non-energy
- Green: Industrial Metals
- Blue: Energy

SOURCES: S&P; Bloomberg.
Impact on U.S. Economy
U.S. Oil and Gas Production

Sources: Energy Information Administration. Jan 2015 Estimates
U.S. Crude Oil Production from Shale

Source: Energy Information Administration.
Gulf Coast Crude Oil by API Gravity

Million barrels per day

Source: Energy Information Administration.
U.S. Imports of Crude Oil by API

Million barrels per day

Source: Energy Information Administration.
U.S. Imports of Crude Oil Have Fallen below Production

Source: Energy Information Administration.

Million barrels per day

Production
Imports
Exports of Gasoline and Diesel

Million barrels per day, SA, 3 MMA

Source: Energy Information Administration.
Rig Counts

Source: Baker Hughes.
Despite Rig Count Declines, Oil Production Holding Up

- Million barrels per day

Source: Oil and Gas Journal.
New Rigs and Wells Very Productive
(New well oil production per rig)

Source: Energy Information Administration.
How Low Can Prices Go?

- Breakeven costs for different areas:
  - Bakken
    - $28 - $85 per barrel
  - Eagle Ford
    - $46 - $80 per barrel
  - Permian Basin
    - $52 - $75 per barrel
Importance of Oil and Gas to U.S. Economy

Sources: Bureau of Economic Analysis; Bureau of Labor Statistics.
Impact on U.S. Economy

• The U.S. benefits from lower oil prices
• Boosts consumer disposable income
  – The decline in gasoline prices adds $550 to household budgets in 2015
• Reduces the cost of energy to firms
• Reduces profitability of producing oil
  – Layoffs and capex declines in energy firms
• A 50% fall in oil prices may lead to a 0.3% to 1.0% increase in GDP (depending on the model)
• Headline inflation falls
Impact on State Economies
Regional Effects

• Increased energy activity brings oil and gas extraction and oil-field support jobs

• Local areas:
  – lease and royalty payments,
  – infrastructure construction and
  – increased spending on retail, leisure and hospitality, and health services.

• Local governments: greater sales taxes

• State governments: increased severance tax revenues
Permian Basin Employment

Index, 2001: Q1=100, SA

- Blue line: Permian Counties
- Red line: Rest of Texas

Permian Basin Retail Sales Growth

Index, 2004: Q1=100, SA

Permian Counties
Rest of Texas

Source: Texas Comptroller; Federal Reserve Bank of Dallas.
Low Oil Prices Benefit Most States
(Effect of a 50% decline in oil prices on employment)

Energy-Related Employment

Some States Rely Heavily on Oil and Gas Severance Taxes
(Share of state tax revenues)

Percent

<table>
<thead>
<tr>
<th>State</th>
<th>% Taxes Collected</th>
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<tbody>
<tr>
<td>AK</td>
<td>78.3</td>
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<td>OK</td>
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<tr>
<td>CO</td>
<td>1.3</td>
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<tr>
<td>CA</td>
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</tbody>
</table>

Sources: U.S. Census Bureau, 2013 annual survey of state government tax collections; EIA.
Oil and Gas Share of Total Revenue

(Texas)

Source: Texas Comptroller.
Where Do We Go from Here?
GDP Growth Forecast

Expected 2015 annual GDP growth rate (%)

<table>
<thead>
<tr>
<th>Month</th>
<th>Emerging</th>
<th>Advanced (ex. U.S.)</th>
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<tbody>
<tr>
<td>Sep-14</td>
<td>4.56</td>
<td>2.03</td>
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<tr>
<td>Oct-14</td>
<td>4.44</td>
<td>1.95</td>
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<tr>
<td>Nov-14</td>
<td>4.32</td>
<td>1.93</td>
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<tr>
<td>Dec-14</td>
<td>4.09</td>
<td>1.87</td>
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<tr>
<td>Jan-15</td>
<td>3.58</td>
<td>1.87</td>
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</tbody>
</table>

NOTES: Countries are weighted using oil-consumption shares calculated using 2013 consumption data from the Energy Information Administration.
SOURCES: DGEI; Consensus Forecasts; EIA; authors' calculations.
World Consumption Growth Forecast

Source: Energy Information Administration.
Crude Price Forecast

Historical Spot Price

STEO Price Forecast

NYMEX Futures Price

95% NYMEX Futures Confidence Interval

Source: Energy Information Administration.
Oil Price Outlook Very Uncertain

Source: Bloomberg.
Outlook

• Market will adjust
  – Lower prices will lead to a contraction of supply and increase in demand

• Global GDP growth is expected to rise over time

• Oil prices expected to rise

• U.S. supply response will be swifter than in the past

• Uncertainties abound
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