

ISSUE BRIEF

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Falling Oil Prices and US Economic Activity: Implications for the Future

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World oil prices have dropped by about \$50 per barrel since June, and the futures market shows the drop will be sustained but with gradual increases over the next five years (Figure 1). The drop in oil prices is the result of both weak demand and increased supply. World oil market participants have gradually realized that weak economic activity in China, Japan, India and Europe has weakened oil demand. At the same time, the world oil market has seen growing supply, particularly from US shale oil production.

As a result of lower crude oil prices, US gasoline prices are the lowest they have been in more than four years and falling. The reduction in oil and gasoline prices should prove a mild stimulus to US economic activity. The economic effects are likely to be uneven across the country. Energy security may be reduced, and oil-related pollution is expected to increase.

Key Points

- World oil prices have fallen dramatically.
- Gasoline prices are the lowest they have been in four years and have farther to fall.
- Lower oil and gasoline prices will be a mild stimulus to US economic activity.
- Energy security may be reduced.
- Oil-related pollution is expected to increase.

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Figure 1. Brent Crude Oil Prices Drop Sharply



Sources: US Energy Information Administration; CME Group.

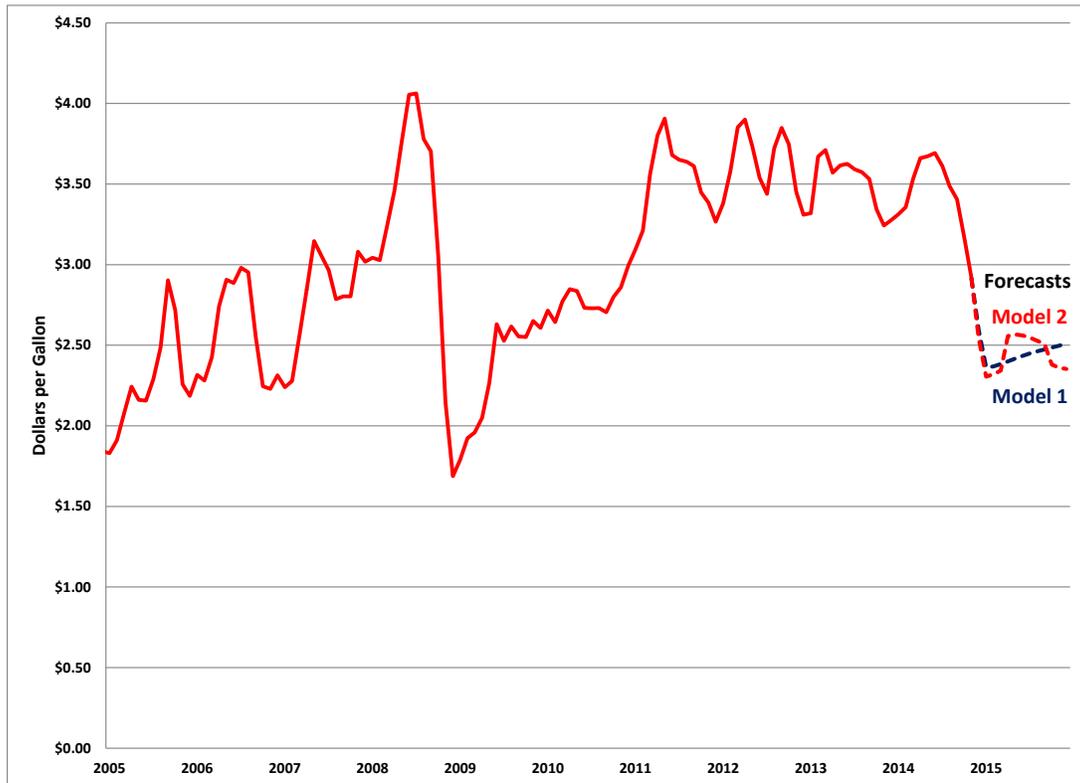
Effects on US Gasoline Prices

The reduction in crude oil prices should translate to about a \$1.25 per gallon reduction in US pump prices for gasoline (Figure 2). About \$0.85 of that reduction has already occurred. The result is gasoline prices that are the lowest they have been since November 2010. They should be much lower by January 2015.

The futures market for crude oil shows a slight upward trajectory. If that trajectory is sustained, a simple regression model based on the relationship between pump prices for gasoline and those for crude oil prices (Model 1) shows that US pump prices for regular gasoline can be expected to average about \$2.45 per gallon in 2015.

If we take into account the normal seasonal variation in gasoline prices in the regression model, we see a slightly different picture (Model 2). Gasoline prices are higher in the summer months than the winter months. We should expect to see a low of about \$2.30 per gallon in January, a seasonal high of about \$2.57 per gallon in May 2015, and a price of about \$2.35 per gallon in December 2015.

Figure 2. US Pump Prices for Regular Gasoline



Sources: US Energy Information Administration; Author's Estimates

Will Reduced Oil Prices be Sustained?

We have seen two episodes of sharp oil price declines in the past 30 years. World oil prices took sharp declines in 1985-86 and again in 2008. Except for the Gulf War in 1990, the 1985-86 decline in oil prices was generally sustained until 2002, when a stronger global economy began driving strong increases in world oil demand. By contrast, the sharp oil price drop in 2008 followed a sharp increase earlier in the year. By mid-2009 oil prices were a little higher than they were in 2007.

The conditions associated with the 2014 drop in world oil prices appear to be similar to those associated with the 1985-86 drop. In both 1985-86 and 2014, the effects of higher oil prices encouraged oil conservation, which gradually eroded oil consumption. For the 1985-86 oil price drop, dramatic gains in North Sea oil production and new oil discoveries elsewhere finally led to a realization that oil supplies were much more abundant than was previously thought. In the 2014 oil price drop, dramatic gains in US shale oil production, gains in Canadian oil sands production

and oil discoveries elsewhere led to the realization that world oil supplies were much more abundant than was previously thought.

In short, technological change and new resource finds have led to a rebalancing of the world oil market with greater supply and a lower price trajectory than was previously expected. As the market finally realized these changes would lead to a sustained increase in oil supply that would outstrip the expected growth of world oil demand, the world price of oil plunged dramatically.

One difference that separates 2014 from 1985-86 is Saudi Arabia's behavior. In 1985-86, Saudi Arabia attempted to maintain higher oil prices by cutting its production. So far in 2014, Saudi Arabia has not cut its production.

Although world oil supply is greater than previously thought and the expected trajectory of world oil prices is lower, the increase in world oil resources does not change the fact that crude oil is a nonrenewable natural resource. As a nonrenewable resource is used, its price is expected to increase moderately over time. The crude oil futures market is consistent with such expectations, showing gradual increases through the end of 2020.

Effects on US Energy Industry

As the result of lower oil prices, the US energy industry will see reduced income. Because US natural gas and coal prices no longer seem to be closely linked to those for crude oil, the effects of falling oil prices will be mostly confined to oil producers. In addition to seeing reduced income, oil producers whose total costs of production are above \$60-70 per barrel will gradually reduce their production. Such high-cost producers are likely to be found among the companies operating in the newly developed shale oil areas in Texas and North Dakota.² As prices strengthen gradually over the next decade, however, these higher cost producers will gradually boost their production.

Effects on US Economic Activity

The reduction in oil prices provides US consumers with what amounts to an annual increase in disposable income of \$350 billion (about 2.0 percent of US GDP) through reduced prices for gasoline, diesel fuel, other petroleum products, and goods and services whose production uses petroleum products. The average US household will see a raw gain that amounts to \$2,790 per year.

Some of the increase in consumer spending power will be offset by reduced income for US oil producers. Because the United States now produces more than two-thirds of its oil consumption,

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² See Krupnick (2014).

only \$116 billion of the increased consumer spending power comes from foreign oil producers. The rest comes from domestic oil producers.

Taking into account the income losses for US oil companies, the net gain in US income will amount to \$920 per year for each household. The average propensity to consume is around 90 percent, so the average US household could spend around an additional \$825 per year. Because low-income households spend a greater percentage of their income on energy consumption, and are less likely to own stocks in oil companies, such households will see larger gains and spend more.³ High-income households will spend less. The overall effect should amount to a one-time increase in US GDP of about 0.7-1.0 percent.⁴

Economic Effects Uneven Across the United States

The economic effects of lower oil prices will be uneven across the United States (Figure 3). The economies of eight states—Alaska, Louisiana, New Mexico, North Dakota, Oklahoma Texas, Wyoming and West Virginia—will be hurt by lower oil prices. According to Brown and Yücel (2013), these eight states have economies that depend on energy production for export to other states. The extent of the effects depends the prominence of oil in the state’s energy mix and the lack of diversity in the state’s economy.

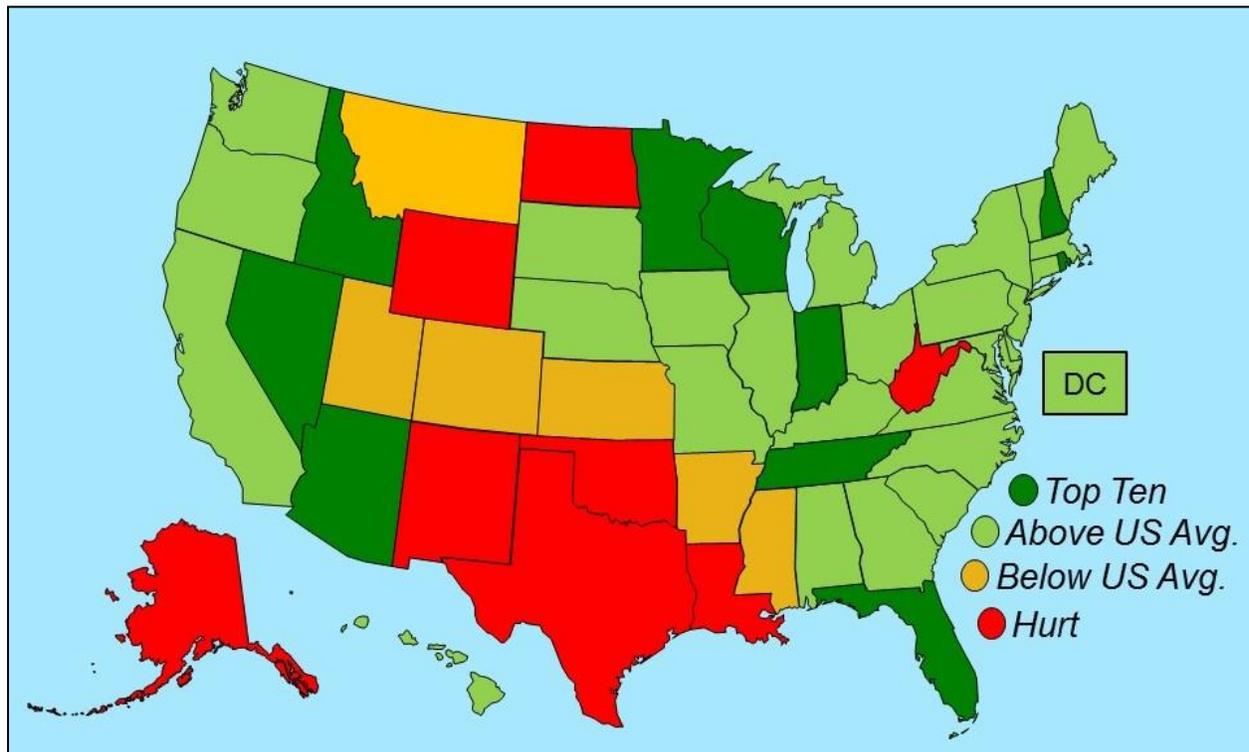
Brown and Yücel also find the economies of 42 states and the District of Columbia are helped by lower oil prices. The extent of the help in each state owes to primarily to the lack of energy extraction industries, and to lesser extent the size of the state’s multiplier effects. Oil and gas extraction, oil field machinery and coal mining are well below the national average in the states most helped by lower oil prices. Consequently, there is less of a negative offsetting effect from these energy-extraction industries, and these states see a greater benefit from falling energy prices than the average US state.

If we look back to the 1980s, the states that benefitted the most from falling energy prices were Delaware, South Carolina and New Jersey (Brown and Yücel, 1995). Those states had energy-intensive refining and petrochemicals industries but relatively little energy extraction. Those states diversified away from energy intensive refining and petrochemicals, and the sensitivity of refining and petrochemicals to energy price shocks has diminished since the 1980s. Consequently, these states are much less sensitive to oil price movements, and states with a well below average presence of energy-extraction industries and strong multipliers now stand out as the most sensitive to oil price movements.

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³ See Morris and Mathur (2014).

⁴ These estimates are based on elasticities of GDP with respect to oil prices adapted from Brown and Huntington (2013).

Figure 3. Lower Oil Prices Will Boost Economic Activity in 42 States



Source: Based on Brown Yücel (2013).

Effects on US Oil Security

The reduction in oil prices will have a disproportionate effect in temporarily discouraging oil production in the higher cost oil-producing regions of the world—which many analysts see as some US shale oil plays, Canadian tar sands, and new Brazilian offshore production. Because these oil producers are in politically stable countries, a reduction in their output reduces the share of oil coming from stable countries and may serve to reduce the security of supply.⁵ At the same time, Russia, Iran and Venezuela will see reduced oil income, which could weaken their ability to oppose US interests.⁶

Effects on the Environment

The environmental effects of lower oil prices depend on oil consumption. Technological change and new resource finds have led to a rebalancing of the world oil market with greater supply and a lower oil price trajectory. Such a trajectory is consistent with higher world oil consumption and a concomitant increase in local pollution and CO₂ emissions. The news media reports that US

⁵ See Brown and Huntington (2013).

⁶ See Council on Foreign Relations (2006).

consumers have already responded to lower gasoline prices by increasing their purchases of larger, less fuel-efficient vehicles, which will boost US fuel consumption and emissions for the life of the vehicles.

Conclusions

In short, recent changes to world oil prices will help consumers by giving them more disposable income. In contrast, lower oil prices will hurt US energy producers and the states that rely heavily on the energy industry. Although the effects of the oil price declines are uneven across the United States, the increase in disposable income will be a mild stimulus to US economic activity. A potential shift away from US oil production may slightly lessen the nation's energy security, and more plentiful oil could lead to increased environmental degradation.

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