



# FALLING OIL PRICES

---

## Implications in the United States

**Stephen P.A. Brown** tells us what the steep decline in world oil prices means for the US economy, energy security, and the environment.

**A**lthough they have increased since hitting bottom in January, world oil prices are nearly \$50 per barrel lower than in June 2014 as of this writing in March. The futures market shows the drop will be sustained but with gradual increases over the next five years. The decline in oil prices is the result of both weak demand and increased supply. World oil market participants gradually realized that weak economic activity in China, Japan, India, and Europe lessened oil demand. At the same time, the world oil market saw growing supply, particularly from US shale oil production.

prices are likely to be only about \$1.15 lower in 2015 than in mid-2014.

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 for crude oil prices shows that US pump prices for regular gasoline should be expected to average about \$2.41 per gallon in 2015. They were \$3.69 per gallon in June 2014.

If we take into account the normal seasonal variation in gasoline prices and the recent disruption of refinery operations

## The reduction in crude oil prices should translate to an average of nearly \$1.30 per gallon reduction in US pump prices for gasoline in 2015.

As a result of lower crude oil prices, US gasoline prices were lower in January 2015 than they had been in more than six years. With crude oil prices rising and recent disruptions in US refinery operations, however, gasoline prices have risen by about 50 cents per gallon since January, with seasonal gains of about another 20 cents per gallon expected by Memorial Day. Despite the recent gains, oil and gasoline prices remain well below their mid-2014 values, and those lower prices should prove a mild stimulus to US economic activity, although the economic effects are likely to be uneven across the country. Energy security may be reduced, and oil-related pollution is expected to increase.

### Effects on US Gasoline Prices

The reduction in crude oil prices should translate to an average of nearly \$1.30 per gallon reduction in US pump prices for gasoline in 2015. Taking into account the effect that disruptions of US refinery operations have had on prices, average pump

in the regression model, we see a slightly different picture. Gasoline prices are higher in the summer months than the winter months. We should expect to see a high of about \$2.72 per gallon in April 2015, and a price of about \$2.43 per gallon in December 2015. The average price for 2015 should be about \$2.56 per gallon.

### 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 dives in 1985–1986 and again in 2008. Except during the Gulf War in 1990, the 1985–1986 decline in oil prices was generally sustained until 2002, when a stronger global economy began driving solid 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 1985–1986

drop. In both 1985–1986 and 2014, the effects of higher oil prices encouraged oil conservation, which gradually eroded oil consumption. For the 1985–1986 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 similar fashion, for the 2014 oil price drop, dramatic gains in US shale oil production, gains in Canadi-

### **Effects on the 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 \$75 to \$80 per barrel will gradually reduce their production. Within the United States,

## **The economies of eight states—Alaska, Louisiana, New Mexico, North Dakota, Oklahoma, Texas, Wyoming, and West Virginia—will be hurt by lower oil prices.**

an oil sands production, and oil discoveries elsewhere led to the realization that world oil supplies, once again, were much more substantial than previously thought. 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 1985–1986 is Saudi Arabia's behavior. In 1985–1986, Saudi Arabia attempted to maintain higher oil prices by cutting its production. So far, 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 these global resources does not change the fact that crude oil is a nonrenewable natural resource. As such a 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.

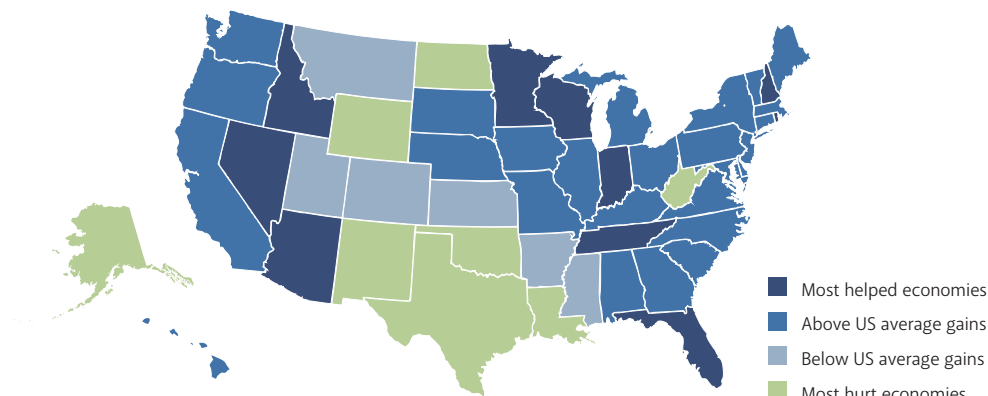
such high-cost producers are likely to be found among the companies operating in the newly developed shale oil areas in Texas, North Dakota, and Wyoming. As prices strengthen gradually over the next decade, however, these higher-cost producers will gradually boost their production.

### **Effects on US Economic Activity**

The reduction in oil prices provides US consumers with what amounts to an annual increase in disposable income of \$320 billion (about 1.8 percent of US GDP) through reduced prices for gasoline, diesel fuel, other petroleum products, and goods and services produced using petroleum products. The average US household will see a raw gain that amounts to \$2,480 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, only \$103 billion of the increased consumer spending power comes from foreign oil producers. The rest comes from domestic oil producers.

Figure 1. Effects of Lower Oil Prices on Economic Activity in the United States



Source: Based on Brown and Yücel 2013.

Taking into account the income losses for US oil companies, the net gain in US income will amount to \$816 per year for each household. The average propensity to consume is around 90 percent, so the average US household could spend around an additional \$734 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. High-income households will spend less. The overall effect should amount to a onetime increase in US GDP of about 0.6 to 0.9 percent.

### Uneven Economic Effects across the United States

The economic effects of lower oil prices will be uneven across the United States (Figure 1). According to research I conducted with Mine Yücel of the Federal Reserve Bank of Dallas, the economies of eight states—Alaska, Louisiana, New Mexico, North Dakota, Oklahoma, Texas, Wyoming, and West Virginia—will be hurt by lower oil prices. These eight states have economies that depend on energy production for export to other states. The extent of the effects

depends on the prominence of oil in the state’s energy mix and the lack of diversity in the state’s economy.

We also found that 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 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 benefited the most from falling energy prices were Delaware, South Carolina, and New Jersey. Those three states had energy-intensive refining and petrochemicals industries but relatively little energy extraction. Because they diversified away from energy-intensive refining and petrochemicals, 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.

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

### 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 consider to include some US shale oil plays, Canadian tar sands, and new Brazilian offshore wells. A reduction in output from these producers reduces the share of oil coming from politically stable countries and may serve to reduce the security of global supply. The Council on Foreign Relations predicts that, at the same time, Russia, Iran, and Venezuela will see reduced oil income, which could weaken their ability to oppose US interests.

### 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—one consistent with higher world oil consumption and a concomitant increase in local pollution and carbon dioxide emissions. The news media reports that US consumers have already responded to lower gasoline prices by increasing their purchases of larger, less fuel-efficient vehicles, which will raise US fuel consumption and emissions for the life of the vehicles.

### Conclusions

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. ●

This article is an updated version of Brown, Stephen P.A. 2014. Falling Oil Prices and US Economic Activity: Implications for the Future. Issue brief 14-06. Washington, DC: RFF.

### FURTHER READING

- Brown, Stephen P.A., and Hillard G. Huntington. 2013. Assessing the US Oil Security Premium. *Energy Economics* 38: 118–127.
- Brown, Stephen P.A., and Mine K. Yücel. 1995. Energy Prices and State Economic Performance. *Economic Review*. Dallas, TX: Federal Reserve Bank of Dallas.
- Brown, Stephen P.A., and Mine K. Yücel. 2013. *The Shale Gas and Tight Oil Boom: US States' Economic Gains and Vulnerabilities*. Washington, DC: Council on Foreign Relations.
- Council on Foreign Relations. 2006. *National Security Consequences of US Oil Dependency*. Independent Task Force Report No. 58. Washington, DC: Council on Foreign Relations Press.
- Krupnick, Alan J. 2014. Where Falling Oil Prices May Take Us Next. Common Resources, December 3. <http://common-resources.org/2014/where-falling-oil-prices-may-take-us-next/>.
- Morris, Adele, and Aparna Mathur. 2014. *A Carbon Tax in the Context of Broader Fiscal Reform: Design and Distributional Issues*. Arlington, VA: Center for Climate and Energy Solutions.