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IN FOCUS

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Effects of Lower Oil Prices

Oil production, refining, and trade are important parts of the U.S. and the world economies. Crude oil is an important indirect component of gross domestic product in the United States. Oil is a key input in petroleum refining, petrochemical, and plastics industries, in addition to many others. The oil industry provides relatively high paying jobs, is a leading source, and implementer, of new technologies, as well as being an important component of world trade. The price of oil, important in its own right, is also a key component in the costs of a wide variety of consumer and industrial products, perhaps the most visible, and important, being gasoline and other transportation fuels.

However, the price of oil has proven to be unstable and volatile, both in the short- and long-term. Oil prices respond to both real, fundamental changes in demand and supply, as well as changing expectations based on world events. Spot, futures, and other derivative markets, are readily available to oil traders who wish to trade oil based on these expectations, which, when trading occurs, are then incorporated in the real price of oil.

Although, in reality, there are many prices of oil, determined by the quality of the oil, reflecting its viscosity (light to heavy) and its sulfur content (sweet to sour), and its location and contract timing, the most commonly discussed grades of oil are the reference crudes. These are West Texas Intermediate (WTI) for the United States, and Brent for the rest of the world. The market price of any particular crude oil on the world market is the price of Brent plus a premium, or minus a discount, based on the particular characteristics of the crude oil to be traded.

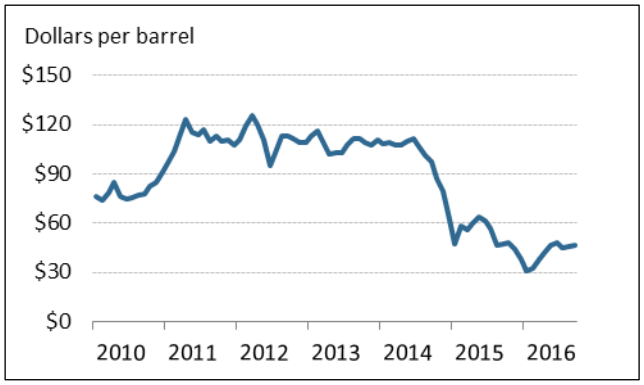
No country's oil market is isolated from the world market. Price movements on the world market affect domestic prices. Oil is likely to be exported if it can bring a higher price on the world market. Similarly, imported oil will bring the world market price into the domestic market and domestic crude oil will adjust to meet the price of imported oil.

Declining Prices

According to the Energy Information Administration (EIA) monthly spot price data, the price of a barrel of Brent crude oil peaked at $111.80 per barrel in June of 2014. Declining prices began in July of 2014 and by December 2014 the price of a barrel of Brent averaged $62.34, a decline of over 40%. The price of Brent continued its decline into 2015, averaging $38.01 per barrel in December 2015, a decline of an additional 40%. Lower prices continued into 2016 with the price of Brent averaging about $40 per barrel over the first seven months of the year.

Figure 1. Spot Price of Brent Crude Oil, 2010-2016

(Dollars per Barrel)



Source: EIA. Graphic created by CRS.

The price of a barrel of WTI tended to track movements in the price of Brent over the period, although the price spread between the two reference crude oils did vary.

When it began to become more apparent that oil prices were not likely to quickly return to June 2014 levels, industry analysts and others began to speculate as to when the oil market might attain "balance" at a new long-run price. Could producers, notably the Organization of the Petroleum Producing Countries (OPEC) broker an agreement among its members to cut production to support prices, and, if not, what might be the effects of lower oil prices on the U.S. economy?

Benefits and Costs

In the U.S. context, the most apparent benefit of low crude oil prices is lower prices for gasoline. The cost of crude oil accounts for about one half to two thirds of the retail price of a gallon of gasoline, depending on the level of crude oil prices. The EIA has developed a rough rule of thumb which estimates that for each $1 change in the price of crude oil, the price of gasoline changes by $0.024 per gallon. EIA data show that regular retail gasoline prices were $3.692 per gallon in June 2014. Prices fell to $2.543 per gallon by December 2014 and averaged $2.038 per gallon in December 2015. Regular gasoline prices averaged $2.155 per gallon over the first eight months of 2016.

If consumers maintain the same driving habits, a fall in gasoline prices frees disposable income that can be spent on other goods and services, potentially stimulating the economy. Alternatively, households might use reduced gasoline expenditures to reduce their debt, again possibly benefiting the economy. Some macroeconomists believe that secondary rounds of increased spending might also result from the initial consumer spending increase, due to

reduced fuel costs, further enhancing potential economic growth.

It may be that some of the macroeconomic benefits of lower prices were not realized in 2014-2016. U.S. average GDP growth was 2.4% in 2014 and 1.8% in 2015 and continues to be relatively weak in 2016. This may be because consumers chose, in the face of lower gasoline prices, to buy larger, less fuel-efficient vehicles, which increases spending on gasoline, or to increase the average miles traveled per household, again increasing gasoline consumption. Some might claim that, in addition, increased automobile use, spurred on by lower gasoline prices, had deleterious environmental effects resulting from increasing emissions per vehicle.

Because gasoline and petroleum products are important consumer commodities, as well as being production inputs, in the form of petrochemicals, for example, in a wide variety of other industries, they help determine the over-all rate of price inflation. The recent decline in oil prices has contributed to relatively low inflation rates. However, as the Federal Reserve tries to craft policies to avoid deflation, rather than inflation, some see this as a mixed benefit for the macro economy.

Low oil prices have created financial stress in the U.S. oil industry, especially among independent firms involved in new oil production. The newest U.S. oil production of the past five years, in the Bakken and Eagle Ford fields, as well as output expansion from the Permian Basin, and deep water production, has been high-cost oil. As the price of oil fell in 2014-2015 some producers, operating with high leverage, found it difficult to continue operating. On the one hand, low prices have stimulated the search for production cost saving, but they also have resulted in increased numbers of firms filing for bankruptcy protection. It was reported that 102 North American oil and gas producers filed for bankruptcy between January 1, 2015, and August 31, 2016. This total represented about $66.5 billion of aggregate debt.

Low oil prices have affected U.S. oil production. Total U.S. crude oil production reached a peak of 9.63 million barrels per day in April 2014. By July 2016 U.S. production had declined to 8.68 million barrels per day, a decline of almost 1 million barrels per day. Decreased oil production has resulted in fewer jobs. It was reported that nationwide over 100,000 jobs in the oil sector disappeared in 2014-2015. In North Dakota's Bakken field in August 2016 there were about 27 drilling rigs operating, down from 190 rigs two years earlier. Each rig that is taken out of operation results in about 120 lost jobs.

As jobs in the oil industry are lost, workers tend to leave the oil producing region, taking income and purchasing power with them. Jobs in the businesses that support oil workers—restaurants, food stores, apartment complexes and motels, and a wide variety of other retail service and goods—all suffer reduced incomes and job opportunities which can result in a downward regional economic spiral.

Declining oil prices have also put pressure on state tax revenues. It has been reported that Texas has lost $6 billion in oil tax revenue since oil prices began to fall; North Dakota has lost $3.3 billion; Alaska has lost $2.5 billion, New Mexico has lost $1.1 billion; Louisiana and Wyoming $900 million each; and Oklahoma has lost $700 million. Alaska, Louisiana, and other states have experienced budgetary problems as a result of lost oil revenues.

As jobs and workers were reduced, localities in oil producing regions also saw reductions in local sales and property taxes, putting a strain on local government service provision.

One of the most important effects of lower oil prices has been that oil companies reduced capital budgets for exploration and development of new oil supplies. Capital budgets were reported to be cut by $250 billion in 2015 and a further $70 billion in 2016. These spending cuts are likely to have both short and long-run effects on the oil market.

Capital budget cuts are a result of oil companies attempting to maintain net income in the face of declining revenues. However, the failure to maintain oil reserves, generally the highest value asset on oil company balance sheets, will reduce the value of these firms over time. In addition, the cutback in oil exploration and development has ripple effects through the industry affecting oil service companies and a wide variety of contractors that support oil exploration.

From a national and world market perspective, the failure of oil companies to maintain capital spending is likely to set the stage for future rounds of higher oil prices. World oil demand, nearly 100 million barrels per day in 2016, is likely to continue to increase. Eventually, if demand growth is larger than oil supply growth, the current supply glut will transform itself first into a balanced market, then into a market shortage, creating conditions ripe for sharply increasing prices. As a result of the estimated three to five year lag between the launch of a period of intensifying exploration and the development and availability of new oil supplies, higher prices could be likely to prevail for a significant period of time.

While lower oil prices have benefited many sectors of the U.S. economy, the benefits have not been costless. The most important cost might be the damage to the U.S. oil industry now, which might affect oil prices and production in the future.

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