

# An explanation of the volatility of oil prices

According to microeconomic theory, supply (the production of a good) and demand (the quantity purchased) meet an equilibrium condition. If prices rise, producers produce more and scarcity is alleviated, and consumers consume less, likewise alleviating scarcity, and prices return to equilibrium. If prices fall, producers produce less and consumers buy more, both of which eliminate the surplus, and prices return to equilibrium. This model works well if production is readily modulated, so that it can be increased or decreased at short time scales, and if consumption is discretionary, so that consumers

can choose how much they purchase as prices change. The model works nicely for jelly beans and luxury cars.

Petroleum doesn't fit that model well. If prices rise and selling oil becomes more profitable, oil companies need months to years to make discoveries or to upgrade production from old fields. Meanwhile, consumers can cut back a little, but most still need to commute or to heat their homes. A little more carpooling will happen, and thermostats will go down a little bit, but the change in consumption will not be great. In the long term, consumers can shift to less petroleum-

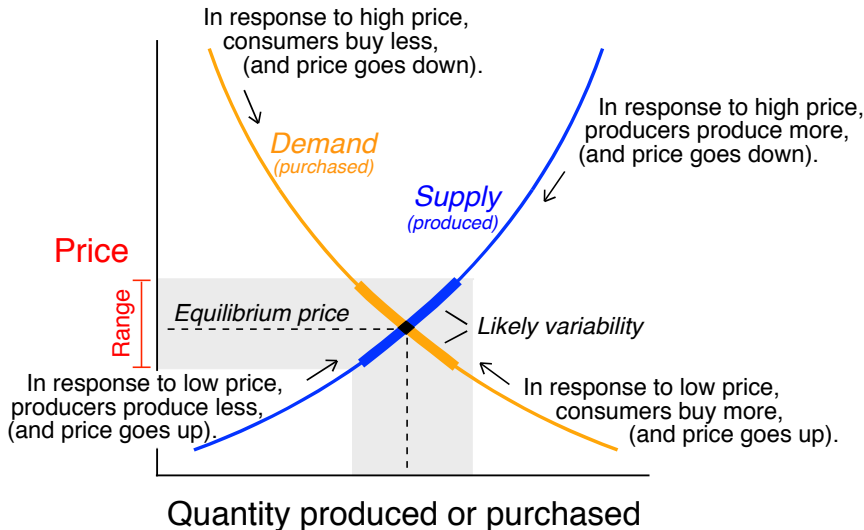
intense means of transportation and heating, but there is no significant short-term mechanism to alleviate scarcity.

The same is true if petroleum prices fall. Consumption will rise a little with a few more trips to the beach, but the increase in demand won't be great. Producers can cut production by shutting in wells, and they would be wise to do so as a group, but in fact the opposite often happens: faced with lower per-barrel profit, some producers increase production to maintain their income, only adding to the glut.

The result of the nature of production and consumption of oil is that prices are exceptionally volatile. Finally, one common response of the producers (oil companies) to a major drop in price is to cut costs by reducing the size of their exploration divisions. That leaves them less prepared to respond when prices finally increase, further enhancing the volatility of the market.

The ideas presented here are largely from an article titled "How low can oil go?" by economist James Surowiecki in the issue of *The New Yorker* for December 22 and 29, 2014.

## Classical model



## Petroleum model

