

Explaining the 2008 Crude Oil Price Rise

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Petroleum is the most misunderstood commodity in the world. For decades, policymaker ignorance regarding this “black gold” has had few consequences. Today, however, the world sits on the verge of recession because very few people in responsible positions comprehend the market. Furthermore, the advice of knowledgeable people who might counsel policymakers is dismissed out of hand. As a consequence, the world faces a likely rise in crude prices to \$200 per barrel or higher, the permanent closure of many airlines, and the potential bankruptcy and shutdown of the American icon General Motors. Billions across the globe will suffer.

Start from a very simple fact. The price of crude oil in the summer of 2008 should be \$70 per barrel, not \$140. The rise from \$70 to \$140 has not been caused by a shortage. Instead it has resulted from bad policies, bad luck, and incredible inattention to market details by certain officials.

The absence of a shortage can be seen clearly from satellite images of the Persian Gulf. There one can view some of the 20 or 30 tankers Iran has chartered to store oil it cannot sell. Even as crude oil surges toward \$200 per barrel, Iran cannot move a good portion of its output.

Iran’s dilemma frames the current situation. The country produces a very heavy crude oil with a high sulfur concentration. In today’s modern refineries, these crudes can be processed aggressively to make substantial gasoline volumes. In the best facility, a 42 gallon barrel of heavy sour crude can be cooked and split to produce as much as 21 gallons of gasoline.

Unfortunately, world consumers do not want gasoline today. Instead, they seek diesel fuel and jet fuel. Most modern refineries are not yet configured to produce jet fuel and diesel fuel from heavy sour crudes. By 2012, this constraint will be remedied. Today, though, refiners must choose other alternatives to satisfy consumer demand.

Demand growth for diesel and jet fuel has been particularly strong in Europe. There, government tax policies have encouraged consumers to buy diesel rather than gasoline-powered vehicles. The logic of the policy was compelling. Diesel-powered cars get better mileage. Thus substitution of diesel for gasoline would cut the continent’s use of oil. This policy today has run up against a supply constraint.

European consumers are also very insensitive to changes in the crude oil price. At retail, they pay around \$420 per barrel for diesel. Of course the pumps do not display this number; rather they show 1.7 euros per liter. The very high diesel price requires crude prices

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to increase by as much as \$40 per barrel to get a one percent cut in use, given the very low short-run price elasticities of demand for petroleum products in industrialized economies.

The simplest way to satisfy consumer demand for diesel and jet fuel is to process light sweet crude oils. Such oils are produced in Nigeria in large volumes, in the North Sea, in Libya and Algeria, and in the United States. When processed at technically advanced refineries, these crudes can produce as much as 30 gallons of diesel and jet fuel from a 42 gallon barrel. In contrast, the same facilities can extract perhaps 12 gallons of diesel and jet fuel from a barrel of heavy sour crude.

Total global production of these crudes totals roughly 12 to 15 million barrels per day out of a worldwide crude production of 85 million barrels per day. Nigeria is the leading producer of light crude with a capacity of 2.6 million barrels per day. However, recent civil strife has reduced output. The most recent peak in production was 2.3 million barrels per day in December 2006. This last April, it dropped to 1.766 million barrels per day as rebel attacks disrupted operations.

The loss of Nigerian output is the first and most significant contributor to the spectacular rise in crude prices. The difficulties there may account for a supply cut of as much as 400,000 barrels per day.

The effect of events in Nigeria has been made worse by EU and U.S. environmental policies. Over the last two years, the U.S. EPA and its European counterpart have required refiners to cut sulfur content in diesel fuel to 10 to 15 parts per million from much higher levels. The U.S. rules went into effect in 2006. EU rules are being phased in by the end of this year. Refiners are rushing to meet these standards. One way they do this is to make less diesel. Europe, for example, has become a large importer of the fuel, while the U.S. has become a significant exporter for the first time in years. Traders report that the United States will export perhaps 400,000 barrels per day to Europe in July. A year ago, no diesel exports were going from the U.S. to Europe.

(Advocates of free trade should worry that the United States may be forced to limit or prohibit such exports. A version of diesel is used for heating in the Northeast. Politicians may suspend exports if it appears that stocks will be insufficient to meet winter needs.)

Ironically, U.S. refiners are struggling to meet European demand thanks to renewable fuel legislation passed by Congress. In November 2007, Congress ordered refiners to blend an extra four billion gallons of ethanol into gasoline in 2008. Complying with the mandate forces refiners to produce less gasoline from crude. Since diesel, heating oil, and jet fuel are other products of refining, Congress, in effect, has ordered refiners to make less of these other products.

The European demand for diesel and Congressional ethanol rules have created a dilemma for refiners: how to make jet fuel and diesel fuel containing essentially no sulfur while cutting gasoline production. The solution is to aggressively pursue the shrinking supply

of light sweet crude. Thus over the last six months, one can observe an extraordinarily tight link between the price of Brent crude (a sweet crude produced in the North Sea that is a key benchmark) and the spot price of low-sulfur gasoil, an indicator of the spot price of diesel fuel in Europe. The linkage is tight and the econometrics are compelling. *The conclusion is clear: European demands for very-low-sulfur diesel are driving crude prices up.* Prices will continue to be pulled higher until the diesel constraint is broken by falling demand (induced by recession) or increased supply.

In these circumstances, policymakers have very limited alternatives. First, they can relax environmental standards. There are supplies of higher sulfur diesel that would address Europe's current needs. Second, governments can release strategic stocks. The U.S. and other IEA members hold significant sweet crude inventories. Release of these crudes (perhaps in a swap) would relieve pressure on prices while preserving environmental restrictions. Third, the U.S. can suspend the renewable fuel mandate. This action would allow refiners to boost runs and produce more diesel fuel. Suspension of the renewable fuel act would also take pressure off food prices.

Regretfully, none of these actions will likely be taken. The failure of policymakers to diagnose the causes of the crude price increase properly makes the adoption of rational policy improbable. Prices will continue to rise. A year ago I wrote this in these pages: "...looking forward, it appears that triple-digit oil prices may become a regular feature of the global economy within three or four years, and soon the first digit may be something other than a one." However, I did not expect incompetent energy policy to bring \$200 oil to the fore so quickly.