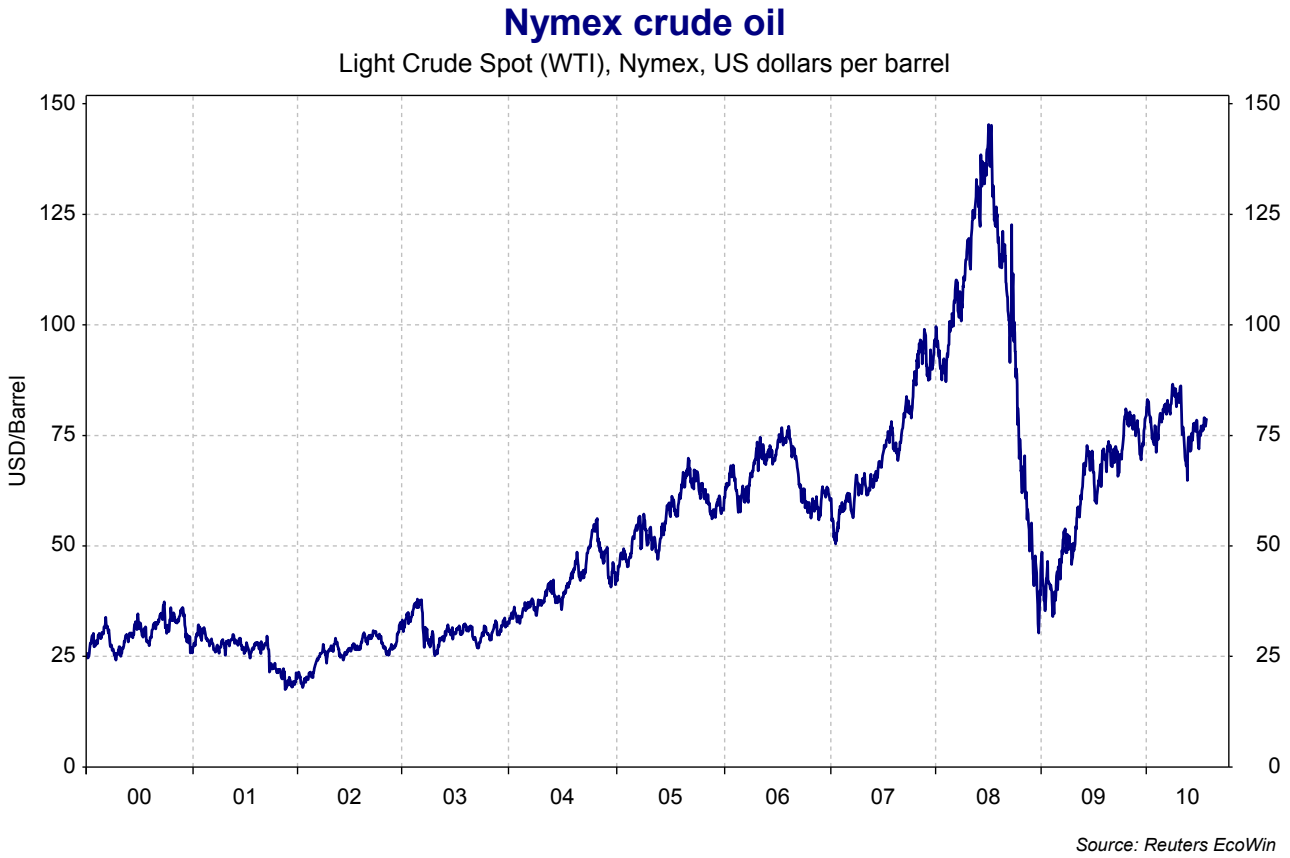
Markets in Action: The Market for Oil

The effects of changes in the price of oil can be far-reaching, not just for Britain but for the global economy too. A basic study of the oil market is a useful application of the principles of supply and demand analysis and a way of understanding the interconnections between the microeconomics of the oil market and their macroeconomic consequences.

What determines crude oil prices?



Source: Reuters EcoWin

Oil is one of the most heavily traded commodities in the world. Fluctuating prices have important effects for oil producers/exporters and the many countries that remain dependent on oil as a key input in their energy, manufacturing and service industries.

Demand for Oil

1. **Cyclical demand:** When global economic growth is strong, the demand for crude oil increases. There is a positive relationship between world GDP and total demand for crude. Fast-growing emerging market countries have provided the bulk of the extra demand for crude in recent years although the world's biggest economy – the United States – has also added to total demand. More recently the global economic recession has caused a fall in demand for crude oil – a key factor behind the drop in prices in the second half of 2008.
2. **Rising living standards:** Undoubtedly the sustained rise in living standards in many countries that accompanied a decade or more of globalisation has contributed to increasing demand for energy and other oil-related products. China overtook Japan as the world's second-largest consumer of oil five years ago and is closing in on the USA, with demand for oil growing by more than ten per cent a year. Transport provides an important clue to

unparalleled demand for crude oil. In July 2008, OPEC forecast that demand for oil would grow by 50% between now and 2030 as people in developing countries drive more cars.

3. **Prices of substitutes:** Demand for crude oil is affected by the relative prices of and availability of economically viable oil substitutes such as bio fuel.
4. **Changes in climate** – e.g. affecting the demand for heating oil. It is often said that if the winter in North America is fierce, then the price of crude rises as the USA and Canadian economies raise their demand to fuel household heating systems and workplaces
5. **Market speculation:** There is always a **speculative demand** for oil. Indeed one of the features of the most recent spike in oil prices has been the high level of demand by hedge funds and other investors pouring into the **international petroleum exchanges** to buy up surplus oil futures contracts. They hope that by the time the contracts are ready to be fulfilled, they will have made a large profit. Speculation involves risk, prices can do down as well as up. The scale of speculative activity has been open to question – some of it has been encouraged by the depreciation in the value of the US dollar. This is because oil is priced in dollars – so overseas investors holding other currencies can buy more barrels of oil as the dollar declines.

Nearly two thirds of global crude oil production is consumed by leading industrialised nations – i.e. the nations that make up the **Organisation of Economic Cooperation and Development** (OECD). But a rising share of demand comes from emerging economies including China, Brazil, Russia and India.

Derived demand for oil

Crude oil is bought not for its own sake but for its uses including:

1. Gasoline: used in motor spirit/petrol
2. Middle Distillates e.g. diesel – used in vehicles and other motors/engines and jet fuel
3. Kerosene – cooking/heating
4. Heating Oil
5. Fuel Oil: boiler fuel for industry, power and shipping
6. Other: lubricants, bitumen etc

The supply of oil

Supply is a flow concept – what matters for the oil market is how many barrels of oil per day are being extracted from reserves and how much of that is able to be refined for different uses.

In short, the short-run supply of crude oil is affected by a series of different factors

1. **Profit motive:** The production decisions of OPEC and Non-OPEC countries.
2. **Spare capacity:** The level of spare production capacity in the oil sector.
3. **Stocks:** The level of crude oil stocks available for immediate supply from the refineries
4. **External shocks:** The effects of production shocks e.g. loss of output from rig closures or disruption of oil supplies due to war and terrorist attacks.

Taking a **longer-term perspective**, the long run world oil supply is linked to

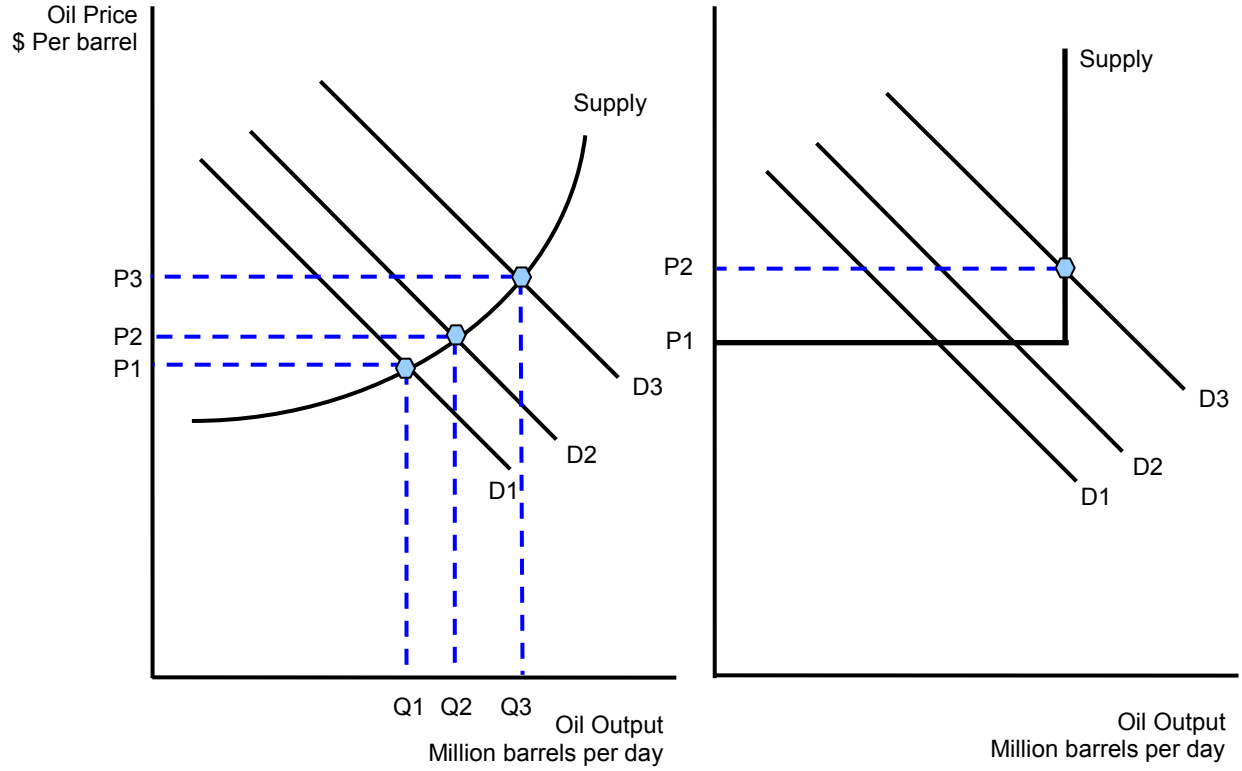
1. **Reserves:** Depletion of proven oil reserves – the faster that demand grows, the quicker the expected rate of depletion. **Peak oil theory** claims that the world has long since past the peak of new discoveries of oil and that most oil producing nations will see a long-term decline in crude oil output in the years ahead.

2. **Exploration:** Investment spending on exploring, finding and exploiting new oil reserves. When oil prices are high and are expected to stay strong, it makes financial sense to invest in exploring for new reserves, even though these may not come on stream for some years.
3. **Technology:** Technological change in oil extraction which affects the costs of extraction and the profitability of extracting and then refining the oil.

The interaction between oil demand and supply in the short run

Higher oil demand matched against an inelastic short run supply invariably drives prices higher – this is shown in the diagram below. An increase in demand causes a fall in stocks at refineries and pushes prices higher. This acts as a **signal** to suppliers to expand production. However there are **time lags** between a change in price and extra supplies coming on stream.

The demand for oil is also **price inelastic** at least in the short term. This combination of an inelastic demand and supply helps to explain some of the volatility in world oil prices.

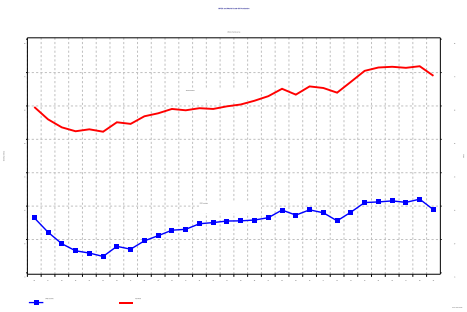


OPEC

- A producer cartel founded in 1960 – now has twelve member nations
- Controls around 40% of world crude oil output and just over half of world oil exports
- Has a larger share of world crude oil reserves
- Controls it's own supply through a system of output quotas
- Many OPEC nations have accumulated huge currency reserves as the world price of oil has soared – contributing to the growing power of sovereign welfare funds
- The UK is a net importer of oil, and along with Norway and the USA, it is not part of OPEC

OPEC's mission is to coordinate the policies of Member Countries and ensure the **stabilization of oil markets** in order to secure an **efficient, economic and regular supply of petroleum to consumers**, a **steady income to producers** and a **fair return on capital** to those investing in the petroleum industry.

The producer cartel needs to tread a fine line – too low a price for oil and their balance of payments and fiscal balances suffer especially for those countries highly dependent on oil exports. But if world crude prices stay high for too long, demand will fall away because the economic incentives for finding oil substitutes become increasingly strong.



Microeconomic effects of higher oil prices

After a long period of low oil prices, in the last few years, the world economy has had to come to terms with the prospect that the era of cheap oil is now over. This affects many industries and has direct and indirect effects on consumers.

For those industries that use oil as an input into their production process, then a rising price acts as a **supply-side shock** – leading to a rise in their **variable costs** of production. The increase in costs causes a profit maximising firm to increase price and reduce the equilibrium level of output. The extent to which a business is able to pass on an increase in costs depends on the price elasticity of demand for their products. If demand

is price inelastic, then the supplier may choose to pass on some or all of any rise in variable costs to the consumer of the final product. For example, a controversial issue has been the decision by many (although not all) of the airlines to increase their fuel surcharges to customers. For consumers, higher oil prices led directly to more expensive fuel at the pumps, higher gas and electricity bills and a reduction in their real incomes. This contributed to the recession of 2008-09.