The oil price run-up in the 2000's: shock(s) to the system

(IEA long term oil market forecasts in retrospect)

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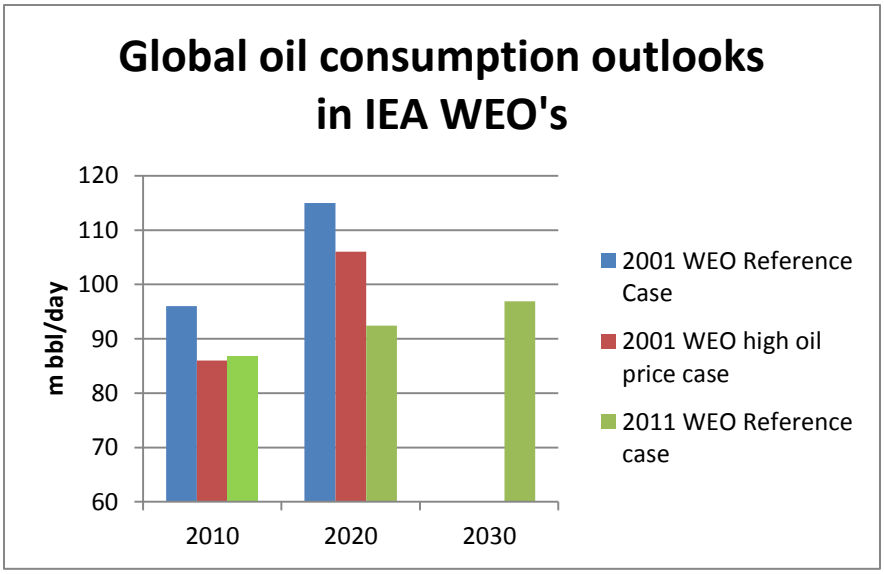
Oil prices have increased more than fivefold, from below 20 USD/bbl to around 100 USD/bbl in the past twelve years. I still keep hearing and reading from analysts that this was a result solely/mostly of runaway demand from China and other emerging countries (i.e. purely a demand shock).

In contrast, I think that even though demand growth has been a key factor, supply constraints have been equally important. There are of course many proponents of this view as well. In the following post I compare the International Energy Agency's (IEA) recently published World Energy Outlook 2011, with its Outlook from ten years ago to gain some insights at the issue. This comparison hints that the run-up is actually a mixture of both a demand as well as a supply shock.

Why is the whole debate of disentangling supply/demand shocks important? The economic impacts of a supply shock are generally negative, but those of demand shock are driven by economic growth and hence are not considered to be detrimental. Moreover, a price increase (of oil) driven only by demand does not necessitate an adjustment in behavior (like changing driving patterns, a push towards more efficient vehicles, substitution with other energy forms). On the other hand, a supply shock will sooner or later lead to behavioral adjustment.

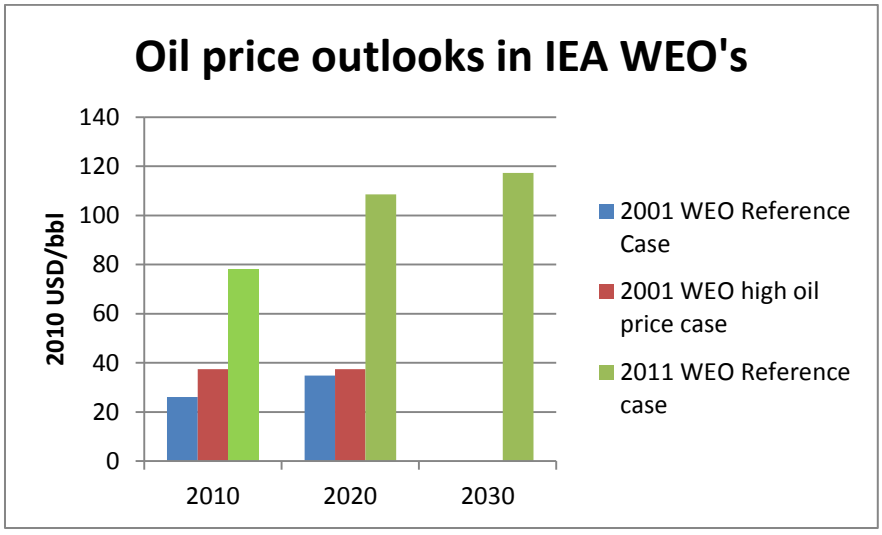
The IEA's World Energy outlook each year serves as a general guiding point for the whole industry as to where energy markets are heading in the next decades. It is also interesting to see how this 'consensus' outlook has been changing through the years. The following graph compares oil consumption projections in the 2001 baseline and high oil price scenarios with the current baseline outlook (the latter is labeled 'New Policies Scenario').



Source: IEA WEO 2011, 2001

The first striking finding is that the 2001 WEO was spot on! At least for the high oil price case, what the IEA predicted in 2001 matches actual 2010 consumption (around 87 m bbl/day) almost perfectly. And oil prices were indeed pretty high. On the other hand, projections for 2020 consumption have dropped dramatically in the past ten years. Even the high oil price/low demand/ case from 2001, is well above what the recent outlook envisages for 2020, or for that matter for what it predicts for 2030…

So let's take a look at the respective price projections.



Source: IEA WEO 2011, 2001

Here, the 2001 WEO was not 'spot on' for 2010… The high price case projected a 37 USD/bbl price, the actual was close to 80 USD/bbl. The same quantity was consumed, but at double price. This appears to be a massive demand shock, because even though prices jumped, consumers still demanded the amount the WEO thought would be sold at 30 USD/bbl.

Yet it is also a significant supply shock: the WEO suggested the same amount would be produced at way lower prices. Or put differently: the WEO assumed that the 80 USD/bbl would be a huge incentive for oil producers to pump out much more oil. Well, it appears that it was not. Looking at the details of projected and actual supply, all the supply shortfall is outside OPEC: non-OPEC countries have been producing much less oil than the industry had thought it could. The IEA was of course not alone: no one actually foresaw this huge change –after all that's why it was a 'shock'.

The fact that the price run-up was also due to a slow motion, but massive supply-shock leads to a number of conclusions. First, although it took quite some time, the detrimental effects of high oil prices on growth were probably one of the causes of the recent recession. Going forward, a massive further run-up in oil prices might again add to recessionary pressures.

Second, if the price disconnect between oil and other energy forms stays or even widens due to the supply shock, a substitution away from oil may gain momentum. Substitutes for oil may even take a foothold in the transportation sector, where the switch seems to be the most difficult. The 2011 WEO projects only a minor change in the share of natural gas and electricity in transportation, from the current 4% to 6% by 2035. If I had to guess, this is one of the things where the recent 2011 WEO will prove to be off the mark. We'll find out in 15-25 years…