Oil Price Shocks and Macroeconomic Performance

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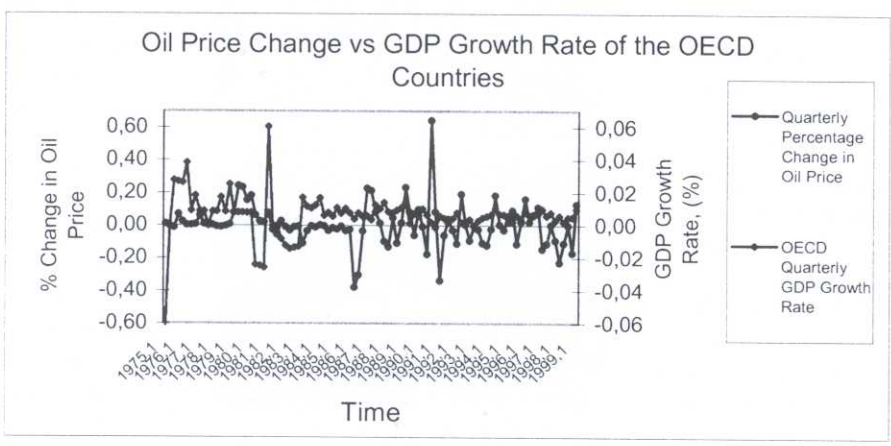
Since OPEC, together with some non-OPEC oil producers, agreed to curb oil supply in early March this year, the oil price has surged strongly from about $10 at the end of last year to recently $26, the highest level since the 1991 Gulf war. The increase in oil price was aggravated by speculations on rising oil prices by large investment funds, mainly US pension funds. Nonetheless, the impact of oil price increase on the world economy seems to be modest compared to those of previous shocks, like in 1973 and 1979–80. This may be due to the fact that since the 1970s many developed countries have shifted to less energy intensive activities. At the same time energy efficiencies in many areas have been greatly improved. Even if the impact seems less harmful today, at least for many of the highly developed countries, we may still expect certain adverse effects on the economies, say, in terms of inflationary pressure and output reductions, and these effects may often significantly vary across different economies.

The question of how real output of an economy is affected by crude oil price shocks has attracted much research in the past. The observation of a negative correlation between oil price and GDP is widely accepted. For example, in the US, virtually every recession during the post-war period was preceded by an oil price shock. However, the causal relationship between the oil price and the national output is still the subject of much debate. In general, the oil price can be expected to have an influence on the economy through three channels: demand, supply, and investment.

Oil price increases will decrease the real balance of an economy and induce counter-inflationary monetary policy. Through this channel, oil price increases may have negative impacts on demand. Besides, oil price increases also cause income transfers from oil importing to oil exporting countries. This in turn leads to consumption reduction in the importing countries and thereby tends to reduce gross output.

The impacts of oil price shock on supply can be represented in three different aspects. First, if oil is a complement to other inputs (like capital) in production, oil price increases will possibly lead to a reduction in the utilization of other inputs and thus suppress the output. Secondly, even if oil is not a significant input for every industry, it may still be costly to shift labor and capital between sectors. Therefore, oil price increases may decrease total factor utilization in an economy. Thirdly, oil is also an important input in generating other forms of energy, like electricity or biofuels. Oil price increases could raise the price of those energies and thereby affect the total production in ways similar to those mentioned for the first and second aspect. The investment channel asserts that in the face of high uncertainty about input prices it might be optimal for firms to postpone investment expenditures, especially when the investment is irreversible. Oil price volatility generates some degree of uncertainty about the future movement of prices and could reduce or defer potential investments, hence depress the growth of output. Moreover, if the delayed investment has technological content, e.g., machines with new know-how, oil price uncertainty could further reduce the level of future innovations and productions. One important observation about the impact of oil price shocks on the economy is that it affects the economy asymmetrically. That is, output responds negatively to oil price increases, but does not respond positively in a proportional manner to price decreases. This phenomenon appears to be more related to the negative effects of oil price shocks on supply and investment discussed above than impacts of oil price shocks on the demand side. The negative impacts of oil price increase and volatility on output growth and technical progress have aroused significant attention in both academic and industrial circles. To effectively deal with these negative effects, effective energy policies at the macroeconomic level and efficient energy risk management at the firm level are required.

Energy economics is one of the new fields of research at the IHS undertaken at its recently established regional branch *IHS Carinthia* in Klagenfurt, capital city of Austria's most southern province Carinthia. ❐



Data source: *Quarterly National Account* (OECD) and *International Petroleum Monthly*. OPEC's F.O.B. price is used here as an indicator for the world oil price.