

CRUDE OIL PRICES AND ECONOMIC GROWTH: ARE THEY TRULY INTERDEPENDENT?

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One of the mostly discussed topics among academics, economists and politicians is the issue of impact of energy price volatility to economies of countries. The topic has become much more serious since financial crises of 2008 as rising pricing of crude oil and its derived commodities has been putting pressure on different sides of national economies. This paper shall be reviewing energy market development for the last decades underlining its impact on economies of developed and developing countries. There shall be highlighted several important factors in price formation in crude oil market highlighting the consideration of supply sources of oil since it has tremendous effect on economic growth. At the end, it would be underlined that existing link between energy prices and economic performance is not true reflection of existing supply and demand in the market. Taking into account present rules of trading in world market with oil and its derivatives, it should be presumed that actual suppliers and receivers of goods refer to prices formed at trading floors by speculators.

Field of Research: Impact of oil prices on economic growth of countries

METHODOLOGY

The broad view of the problem of energy market and economic development provides opportunity to apply different methodologies to understand the problem. It has been widely used the methodology of quantitative analysis referring to the figures of energy price on the one hand and gross domestic product figures on the other. This paper shall be based on qualitative analysis to underline that quantitative arguments are not right indicators studying impact of energy prices on economic growth of the countries. Although, it shall be argued that qualitative consideration must be made in the beginning, it shall be further applied quantitative method so that to demonstrate that the connection of energy prices and economic development indicators must be reviewed from new angle.

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OIL BUSINESS HISTORY

In the beginning, it is necessary to review oil industry overall so that to build picture of how this sector of economy operates. While it is commonly known that process begins with exploration and production, the basic point of evaluation of the performance is the actual price of the commodity in the market. This is leading factor which covers cost of production, delivery of physical oil into the market, refining, distribution of petroleum products and finally the price is mirroring market perception of real supply and demand as well as future direction leading at the end to the price formation on trading floors.

In this regard, it is worth underlining those major characteristics that are well described by Shah (2004). It is mentioned that oil prices and its increase has impact on infrastructure building, road building as well as the development of all related industries in energy sector. It is however, quite interesting fact that the biggest oil exporter Saudi Arabia was falling behind Romania and Thailand in such vital spheres as life expectancy, education and income in the beginning of last decade oppose to common view that oil exporting countries do not need investments. On the other hand, there are some small countries exporting crude oil into world oil market which managed to establish strong economic growth. It is observed that UAE and Brunei are among countries that made quite significant achievement in major areas of economies. Moreover, lavish flow of petrodollars to Gabon till 90s in fact the country one of the largest per capita importer of champagne whereas inability of authorities to direct oil money into the future end badly and now Gabonese are struggling for basic needs as food, house, education, etc. (Shah, 2004).

The importance of price settlement mechanism is also described by Smil (2008). It is pointed out that one of the fundamental and important characteristics of oil business is the price of this commodity as well as petroleum products which impacts at the end cost of production. It must be underlined that there were such events which disrupted supply of oil into the market as Saudi Arabia embargo in 1973 or Iranian revolution of 1979. Nevertheless, the diversity of the market has turned out to be so big that recent development created very complicated system of price arrangement. It has been established paper market where opportunities exist to hedge risks of physical buy and sell via paper trading such as options, swaps and futures. The financial crises of 2008 allowed open debates concerning validity of the crude oil price in the market. Thus, there are different opinions and arguments regarding recent price movements when it skyrocketed till 140 US dollars per barrel in mid 2008 (Smil, 2008).

Moreover, Parra (2010) also underlines that the main element of oil industry is price settlement mechanism. This issue was researched highlighting several interesting facts. First of all, it is pointed out that there were several cases in the past when oil exporting countries took advantage of unique position in the market as single suppliers and fixed sale prices. This opportunity has led to founding of oil cartel OPEC (Organization for Petroleum Exporting Countries) in 1960 in Baghdad whereas unexpected events in Iran in 1979 demonstrated that the price might be hitting high even without agreement among exporting countries. Iranian revolution of 1979 drastically cut supply of oil to the market. Thus, it became necessary for developed oil importing countries to ensure that there is no price fixing by exporting countries whereas there should also be built oil reserved capacity to avoid situation occurred during late 70s. According to latest estimations, the US today possesses strategic oil reserve of 727 million barrels (The Economist [4], 2011). Although, the price oil and its derivatives is reflection of supply and demand in the market, the mechanism of hedging risks opened the way for much more

open trading opportunities where the process of buys and sells are occurring with no actual consideration of supply in the market (Parra, 2010).

There is very interesting tendency reviewing price movement and crude oil production rate. Despite the fact of constantly rising production rate since the beginning of 1970s from 50 million to 85 million barrels in 2010, price has been very volatile during the same period. It is observed that during two oil crises between 1970 and 1980 the price hiked astronomically from 10 US dollars per barrel to 90 US dollars per barrel in 1980. Nevertheless, further price evolution did actually prove the theory that increase in supply impact on prices. In the next twenty years till the beginning of 2000 the price fell from peak of 90 US dollars to 20 US dollars per barrel. However, sharp rise of price to all time peak of 140 US dollars in 2008 might be interpreted in different ways. First of all, it might be claimed that economies were growing at much higher rate than oil production might cover. Secondly, trading opportunities to buy and sell oil commodities openly with no actual supply gave ground for speculators to create market bubble where price uncontrollably moves to the sky high or to down bottom (Downey 2009 p 17).

The development of oil production from the very beginning of industrial revolution is well described by Smil (2008) underlining the major aspects of the business. Constantly rising demand for oil and development of refining process pushed forward automotive industry. According to statistics there was sharp rise in car ownership in the US and Europe from the beginning of the last century. It is also quite noticeable that in Japan this growing tendency was observed from the end of Second World War whereas straight growing line from almost zero to seven hundred million cars is illustration of this fact. Indeed, these figures are proving the reality that the expansion of oil business in general from upstream to downstream projects became huge accelerator of economic growth by establishing factories, opening new work places, increasing employment, etc. It must be further noticed that approximately two-thirds of refined products are used in transportation. It should be underlined at this stage that rising transport costs are putting great burden on poor crude oil exporting and importing countries (The Economist, 2009).

So, the short overview of oil industry from the moment of its industrial production demonstrated that there has been constantly rising demand for crude oil. Although, supply and demand are believed to be in the core of price fixing, the history of price movement showed that in the beginning supply cut provoked huge price rise. The increase in supply later pushed the price down whereas this scenario might be considered under classic economic case of supply and demand. Furthermore, the price of hike beginning from early 2000 also became evidence of economic growth and undersupply of oil into the market. However, the financial crises of 2008 and subsequent sharp downfall of prices raised question regarding truthful reflection of prices of crude oil and its derivative commodities. Thus, it became necessary to research in depth the link of between price of crude oil in the market and economic growth both developed and developing countries.

OIL PRICES AND ECONOMIC GROWTH

It is the common conception that rises of price of oil by 10 per cent cut quarter to percentage point of economic growth (The Economist [1], 2011). The study of crude oil marketing should begin with reference to estimation of oil share in energy generation around the globe. According to Downey (2009) crude oil is in the first position with 38 per cent from total pie of global energy production whereas the coal in the second place

with 26 per cent shares. It is also interesting to notice that crude oil has only 7 per cent share in global electricity generation whilst lion part belongs to coal with 40 per cent whereas 19 and 16 per cents fall onto natural gas, hydro and nuclear reactors. Nevertheless, there is absolutely immense volume of crude oil is used for transportation keeping this market totally dependant on gasoline, diesel, jet fuel and fuel oil. It is calculated that 64 per cent of oil produced globally are directed to transportation industry. Since transportation is considered to be vital part of economic development, there are several theories studying interdependence between costs of transportation and economic growth. As per one theory studying rising oil prices the higher the price, there are more stimulus for economic growth. However, there should be pointed out that there was increase of import bill of oil into the major developed regions of the world. According to Pfeifer (2011) there was rise by 70 billion US dollars in EU, 72 billion the US and 27 billion in Japan in 2010 at the time when oil cost around 100 US dollars per barrel. Shah (2004) argues that massive investments into oil exploration and production business stimulate economic growth. One of the areas which need heavy investments is upstream projects. According to the information of 2003 there was invested more than 136 billion USD in Saudi Arabia into exploration and production phase which also included the usage of the newest technological innovations such as three-dimensional seismic survey. Following this notion, there is another theory which underlines that oil exporting countries are returning their petrodollars back to developed countries to receive from them finished products (Blas, 2011).

It has been studied the case of rising crude oil prices and supply of crude in the market and Noreng (2007) who found out that once the price is falling, it does not mean that there is excess of supply. In the same way, observing rising price of crude in the market, does not necessarily mean that there is shortage of supply. Nevertheless, it is said that the correlation of the price in accordance with supply and demand in the market might be observed only in the short term. It is argued that one of the main reasons of such misbalance in price of crude oil and its commodities is the fact of diversified delivery into the market and different price formation at different points. Moreover, the fact that many suppliers and refiners are mostly hiding information due to number of reasons and therefore there is lack of true data about supplies misleading market participants. Taking into account that there are 148 refiners in the US alone, it is vital to gain correct information regarding refining otherwise misbalance of supply and demand occurs already in simple calculations (The Economist [2], 2011).

It must be underlined that price of actual oil which physically available and supplied varying since there are different points where it might be sold. It is demonstrated by Downey (2009) that crude might be sold on wellhead, at refinery gate, at pipeline end, on rail tank cars, on vessels and certainly delivery provision agreed between buyer and seller based on Incoterms conditions would be primary source of price settlement. It would be quite right to mention at this stage that demand for petroleum products depends not only on cost of production of oil or its price, there is very serious player as governments which impose taxes on petroleum sale. There is very interesting statistic comparing price of petrol in the US and in the UK subject to condition that crude oil price and refining cost is the same in both countries. According to the information of January 2009 distribution and marketing cost of petrol in the US was 0.27 US whilst in the UK it is slightly higher standing at 0.40 US dollars. However, the most noteworthy point that government tax in the UK is almost ten times higher than in the US where the tax is 0.39 US dollar oppose to 3.40 US dollars government tax in the UK.

In addition to taxes that are imposed by different government on petrol sale prices, there are also other additional taxes that are implemented by crude oil exporting countries. This tax is levied by host countries to companies producing hydrocarbon resources under the frame of production sharing agreements. It has been broadly analyzed by Noreng (2007) who pointed out that the mechanism of taxation began in early years of production from Saudi Arabia and North Sea. It was practiced that taxes on oil production was between 10 and 20 per cents during 50s. However, the system of taxation later changed at the time when dependency on oil was rising and exporters gained much more advantageous position in the market. Therefore, in the next decade when oil cartel was already established, tax mechanism changed and producer must had share 50/50 per cent with land owner which in most of the cases is the government. There were even some circumstances when governments managed to agree on 60/40 per cent share between company and government. It is clearly defined by Noreng (2007) that taxation mechanism is different for oil exporting and importing countries. Considering rapid development of Asian market especially China and India, it is stressed that the taxation principles in these countries are very difficult. There are two doctrines that are applied in these circumstances whilst welfare argument presumes that the burden of price shall fall on shoulders of final consumers. However, under this scenario there is fear for developing countries as economic activity might fall. As it was pointed out oil is primarily used for transportation and disruption in this sphere of economy might have very disastrous consequences. On the other side, there might be applied the principle of subsidies by the government covering partially cost of petroleum products. However, the major negative effect of this mechanism is that general economy would be misleading as untruthful prices might disrupt entire economies, the balance of export/import and finally energy consumption under this case shall lose its entire relevance.

Thus, referring to the studies and arguments it might be concluded that there is only partial connection between energy prices and economic growth. In addition to identification of cost of transportation in one or another country, the availability of resources, refining capacities and finally supply chain management are among major factors that impact on energy prices. It is quite rightly stressed: "The oil industry is extremely complex: getting the right sort of oil to the right place at the right time is crucial" (The Economist [1], 2011). In contrast to general perception that economic growth depends on oil and its derivative prices, this estimation must take into account number of factors since not all pre-conditions are the same to make correct evaluation of the link between energy prices and economic performance.

ALTERNATIVE ENERGY GENERATION INDUSTRY

Considering the specific characteristics of energy industry as well as cost of production and price, it is not surprising that the development of renewable energy generation sources came to an agenda. It should be highlighted that oppose to perspective of economic growth in the frame of oil industry, on the other side of the coin there is also negative side of oil exploration. There have been number of incidents which has had devastating effects on environment. Whilst BP oil spill in Mexican Gulf in the beginning of 2010 is considered to be one of greatest disasters in recent history, during first gulf war at the territory of Kuwait, there were more than 700 oil and gas wells which were extinguished in nine months (Smil 2008).

The development of alternative energy sources aimed to reduce oil dependency and establish much more environmentally friendly energy generation industry and it has

been under focused attention of different developed countries' governments. While George W Bush was president and at the time when Californian Governor was Schwarzenegger, they planned to develop alternative energy generation in 2003 via application of research and development in hydrogen fuel cells while investing into this project around 2 billion US dollars. Moreover, the same policy was implemented and the same amount of investment was approved by European Commission to adopt in EU. It might also be underlined another fact, considering opportunities existing in Iceland, the country put forward very ambitious plan to become country with 'hydrogen economy' (Shah, 2004).

The discussions around reducing carbon emissions and working in much more friendly environmental conditions are top priority now. It was estimated that during 1980s there were released more than 5.5 billion tons of carbon dioxide which means that on average there was dropped into atmosphere 5 pound pack of carbon from every car after every 20 miles drive. One of direction of energy industries is that oil importing countries are searching alternative sources of energy. In this regard, it must be pointed out the fact that as per evaluations of ExxonMobil there must be spent between 100-200 US dollars to generate energy from sunlight worth energy of 25 US barrel of oil (Shah, 2004). These figures imply that current market circumstances are favoring more crude oil production rather than development of alternative energy generation.

CONCLUSION

The review of economies of different countries and their reliance over crude oil and its derivatives showed that there must be made separate analysis before evaluating the dependence of different economies on oil industry. The separate study of oil industry showed that the price of oil commodities were rising and falling in line with supply and demand in the market. Once the economies began growth at higher rate than crude was supplied to the market, the price started to grow sharply. However, the spread of paper trading provided opportunity for speculators to earn on difference between buy and sell prices. In the result, the price of oil bubbled leading to further financial and economic crises. It has been demonstrated that final price of oil commodities depend on number of factors including exploration and production, delivery, refining and finally distribution of oil products. Furthermore, the policies of governments by application of taxes on sales of oil products are one of the major factors leading market players. At the end, the over reliance on costly oil raised concern among consuming countries and pushed them to consider other energy generation resources. However, existing market prices are dictating that it is much more sensible to supply crude oil into the market rather than continue research work on alternative energy sources.

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