Robustness of US Economy and Energy Supply/Demand Fluctuations

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ABSTRACT

Energy has a strategic role in social and economic development of the countries. Due to the high dependency of energy supply on fossil fuels, fluctuations in prices and supply have macro/micro-economics effects for both energy exporters and importers. Therefore, understanding economic stability based on energy market changes is an important subject for policy makers and researchers. The US, as the first energy consumer in the world, is an interesting country to analyze the relationships of economics robustness with fossil fuel economic-fluctuations. While the country has one of the pioneers in domestic energy utilization, the competitiveness of the country is highly dependent on energy prices. In this paper, the researchers investigate the effects of energy changes on the economics of the US. First, the impact of oil price on macro-economic parameters is discussed. After that, the main issues related to energy economics including resilience of the energy sector, energy policies, economics analysis of the energy sector, electricity markets are discussed.

KEYWORDS
Energy Economics, Macro-Economics, Robustness, US

INTRODUCTION

Energy plays a primary role in social and economic development. All goods and services are dependent on accessible and uninterrupted supply of energy. All the carbon rich substances that are used as sources of energy can be called fossil fuels but oil, coal and natural gas are major fossil fuels. In the 18th century fossil fuels were the ideal energy source. Participating nuclear and renewable has changed energy mix but still fossil fuels are nowadays mostly used, so their price levels and the amounts consumed influence the economy of countries. One of the countries that energy has strategic role in its economy is United States of America.

US is a developed country with over 9.8 million square kilometers of total area and more than 325 million people and the world’s fourth-largest country by total area third-most populous country (U.S. Census Bureau). Although its population is 4.34% of world total, US as the largest economy accounts for 24.41% of world GDP (World Bank, 2016). US is the third largest crude oil producer in the world but its energy consumption exceeds the production so oil import is vital. The amount of oil that is produced in US cannot cover the country energy demand, so the necessity of oil import from oil-exporting countries to supply the remaining oil demand is obvious. In the last few years, the price of imported oil has a major impact on US economy. Controlling the impact of oil price fluctuations on US economy in order to prevent harmful effects on the economy is very important.
for the country. Energy consumption elasticity shows us how US energy consumption is related to GDP. Between 2000 and 2015, energy consumption elasticity experienced varying amounts including zero, negative and positive amounts. In 2015 US total primary energy consumption was 97343.568 trillion BTU and 27599.777 trillion BTU of the total were consumed in Transportation (U. S. Energy Information Administration, 2015).

There are few studies on oil price effects on the US economy in the frame of US energy system. In this study, first we review US economic crises since 2000 and study its effects on US energy sector. Oil price fluctuations affect economic indicators such as inflation, interest rates, GDP growth, unemployment rate and etc. The importance of oil price control is considered in US energy security policy. In fact, oil is vital for energy security, welfare, technology development and industrial growth in the world. Oil-importing countries including US has set strong policies in the energy sector to prevent emergence of inflation, devaluation of dollar, unfavorable changes in GDP, employment opportunities and etc. The GDP growth in the coming years depends on the energy consumption. By having historical values of GDP and energy consumption in previous years, the amount of energy consumption in coming years can be found by the means of energy consumption elasticity. Energy consumption forecast gives an economic outlook and helps governments to control the economic crises. Then the correlation between oil price and economic indicators is evaluated by elasticity approach. Finally, we predict US energy consumption in 2020.

**OIL PRICE IMPORTANCE AND THE IMPACT OF US ECONOMIC CRISIS ON IT**

One of the effective factors on economies is oil price and its fluctuations. Rising oil prices benefit the oil exporting countries and price reduction is in favor of importing countries.

Oil price affects the macroeconomics and microeconomics factors such as inflation, GDP, interest rates, currency, unemployment, price levels, industrial growth and budget of oil exporter and importer countries. Undoubtedly US is one of the biggest oil-dependent economies that play an important role in oil supply and demand.

There are many factors causing oil price fluctuations, but the following are some of the factors we mentioned. Financial crisis in US can be mentioned as the first reason of oil price reduction. Poor infrastructure and vulnerability of other economies spread the crisis in other countries and imposed depression on the global economy. Global depression naturally decreases demand for goods and services like crude oil. Since US owns 25 percent of global oil production and is known as the largest consumer of crude oil in the world, US decline in oil demand as a result of depression, had a significant impact in reducing oil price.

One of the most important reasons for the sudden rise in oil prices was a huge amount of money entered into stock exchanges like petroleum. In 2003, 130 billion (10E9) $ entered into stock exchange and reached 260 billion $ in 2008. This amount of money led to increasing prices including oil price. People who were working in such environment, subjected to circumstances and perspectives of profit returns in a short-time frame, believing that prices will increase more, had a great desire to invest in oil stock, but financial crisis and sharp drop in stock caused many investors to bring their money out of this sector.

Economic crisis in United States, Europe and rest of world and increasing the supply of oil by oil-exporting countries led to imbalance in the oil market and increase the supply of oil in world markets, so increasing production and demand reduction caused a fall in prices. On the other hand, in consumer countries, oil companies that had attempted to store their commodity, owing to the reduced amount of tax that must be paid, launched their stored commodity. Strategic reserves decreased and accelerated the decline in oil prices. US economic indicators, affected by oil price, is mentioned and explain one by one in the following section.
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