Robustness of Norway Economy and Energy Supply/Demand

Alireza Aslani, Faculty of New Sciences and Technologies, University of Tehran, Tehran, Iran
Maryam Hamlehdar, Faculty of New Sciences and Technologies, University of Tehran, Tehran, Iran
Reza Saeedi, Faculty of New Sciences and Technologies, University of Tehran, Tehran, Iran

ABSTRACT

Energy has a strategic role in the social and economic development of the countries all over the world. Due to the high dependency 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. Norway, as a fossil fuel export country, is a good choice for the analysis of the relationships between the economics robustness and fossil fuel economics fluctuations. While the country is one of the pioneers in the field of sustainable energy utilization, they have tried to provide a robust economic situation for the oil exports revenues. In this article, the effects of energy changes on the economy are investigated in Norway. In this regard, first, the impact of oil price on macro-economic parameters is discussed. Afterwards, the main issues related to the energy economics including resilience of the energy sector, energy policies, economics analysis of the energy sector, and the electricity markets are discussed.

KEYWORDS

Energy Economics, Macro-Economics, Norway, Robustness

1. INTRODUCTION

Norway is one of the Nordic countries with the population of 5.22 million and one of the richest in terms of the economics and social welfare in the world (Fløttum, Dahl, & Rivenes, 2016). While the country is one of the richest in fossil fuel reserves and production, more than 96% of electricity is generated by hydropower (International Energy Agency, n.d.). Although available hydropower resources in Norway can provide low-cost electricity, the costs of electricity usage have been kept more expensive than other countries like Sweden. Hence, the government has decided to reduce the dependence of budget on oil incomes. Norway as one of the energy exporting countries plays a key role in securing oil supplies to the European Union; thus, its economic stability is crucial, especially for European countries (International Energy Agency, 2014; Claes, 2010). Therefore, it can be stated that investigating the relationship between the energy and economics in Norway has a great importance (Yousefi, Hamlehdar, Tabasi, & Noorollahi, 2017).

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Energy as the main input of products/services has a significant effect in improving the living standards Socio-economic aspects. On the one hand, energy price and world energy demand have enhanced, on the other hand, fossil fuel replacement with renewable energies to meet energy demand has developed gradually. For these reasons, energy security has become a major concern for most societies (Mohammadi et al., 2018; Mehrpooya, Mohammadi, & Ahmadi, 2018; Yousefi, Roumi, Tabasi, & Hamlehdar, 2017; Noorollahi, Itoi, Yousefi, Mohammadi, & Farhadi, 2017; Yousefi, Tavakkoli-Moghaddam, Olaei, Mohammadi, & Mozaffari, 2017). Because Norway is a wealthy country regarding the energy resources, thus the policy of using indigenous recourses energy have helped to industrialization and economic growth in this country (Tonne & Tonne, 1983). In 2013, Norway was the first country in the world based on its ability of sustainability management and economic growth (Norway, n.d.). According to the causal relationship between energy and economic growth, the energy price plays a decisive role in economic activity (Stern, 2004).

Many experimental studies have investigated the relationship between oil price fluctuations and macroeconomic activity. Moreover, the importance of taking the two-way causality into account with regard to international shocks is strongly emphasized (Baumeister & Peersman, 2013; Kilian, 2009; Kilian & Murphy, 2012). Kilian (2009) and Kilian and Murphy (2012) demonstrated that oil demand volatility was the most significant factor in oil price fluctuations in the 1974–2009 period. Esfahani, Mohaddes, and Pesaran (2014) explained the direct effects of oil price shocks on the demand for 9 major oil exporters, without considering the variance effects of demand against oil price shocks.

According to the researches, the macroeconomic parameters can be affected by oil price shocks. In this context, similar results were obtained in several Asian countries and indicated that oil price fluctuations have become effective on the economic growth (Jayaraman & Choong, 2009; Hanabusa, 2009; Rafiq, Salim, & Bloch, 2009; Cunado & Perez de Gracia, 2005; Du, Yanan, & Wei, 2010). Also, the impact of an oil price shock on the exchange rates have been observed in both developed and developing countries (Aliyu, 2009; Narayan, Narayan, & Prasad, 2008; Ozturk, Feridun, & Kalyoncu, 2008; Rautava, 2004). Some current researches have modeled a system of demand and supply in global oil markets by using DSGE models. They have considered the macroeconomic variables fluctuations in response to the oil shocks with taking into account the oil importers mostly the U.S. economy (Peersman & Stevens, 2013; Nakov & Pescatori, 2010; Hadiguna, 2013). Lippi and Nobili (2012) analyzed the unstable correlation between oil prices and the US economic activities which revealed that the supply shocks created in the global economy have the largest effect on the oil price fluctuations more than canonical oil supply shocks.

Beckmann and Czudaj (2012) studied the relationship between oil prices and exchange rates based on the U.S. dollar as a base currency. They employed the Vector Error Correction method in 10 countries consists of main oil-exporting and oil-importing countries. In the exporting countries, the positive relationship between oil prices and exchange rates was very significant. However, the negative correlation was demonstrated for oil-importer. Kopytin (2014) reported the impact of oil prices on the Norwegian stock market by an autoregressive approach. They evaluated that the oil price shocks have not had a negative influence on the stock market, because of the significant role of USD exchange rate and S &P 500 stock index.

Mehrara (2007) investigated the causal relation between the gross domestic product (GDP) and the energy consumption in 11 oil exporting countries. Suggest that the energy protection by improving energy price policies has no damaging effect on economic growth. Yildirim, Sukruoglu, and Aslan (2014) analyzed the causal relationship between energy consumption and economic growth in the 11 countries. Energy saving policy findings may lead to a drop in the economic growth of Turkey. Another study examined the relationship between economic growth and energy consumption in Pakistan. The results verified the integration between economic growth, nonrenewable energy consumption and renewable energy consumption (Shahbaz, Zeshan, & Afza, 2012). In addition, the relationship between oil prices and economic growth for different panels of OECD countries was
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