The Effect of Oil Prices on the Global Competitiveness of National Economies

Nazia Iqbal Hashmi*

Department of Finance, College of Business Administration, Prince Sultan University, Riyadh, KSA. *Email: nhashmi@psu.edu.sa

ABSTRACT

The effect of various parameters on the competitiveness of the national economy has been studied in various articles, yet the effect of resource prices has been barely investigated. The aim of this article is to study the effect of oil prices on the international level competitiveness of oil manufacturers and declined nations. According to a regression analysis of sustainable panel data based on annual data of 50 countries from 2005 to 2020, the growth rate of GCI (global competitiveness index) is crude oil compared to GDP growth rate. It is noticed that prices fell far below the annual growth rate. Oil-exporting countries are twice as strong as non-oil-exporting countries. And the proportion of employees in average labour productivity, total factor productivity and total population increases GCI high-tech exports and total capital formation. Exports are less globally competitive than non-oil exporters due to rising global crude oil prices.

Keywords: Oil Prices, Global Competitiveness Index, Panel Data
JEL Classifications: Q41, C12, F63

1. INTRODUCTION

Energy is an essential pillar of a country's economic development. Strategically necessary ingredients and specialty oils are integrated into every aspect of production and everyday life. Price fluctuations, an essential part of modern economic life, affect all areas of the economy. Hence, we have studied the connection amid crude oil prices and financial expansion by various empirical and theoretical researches. Although these studies were carried out from different perspectives and methods, they focused primarily on developed countries and referred to only some Asian countries (Qianqian, 2011).

In globalization, increasing the competitiveness of the national economy in all countries integrated with the world's population is fundamental. There are several reasons here. First, only countries where the world market has no external economic barriers are highly competitive and can compete. Second, each year, more countries are competing globally and are more productive in production

and resources to maintain their position with enhanced nations that focus high-tech production. Efficient use is to continuously improve the economy's competitiveness by enhancing asset profitability and continuously increasing the total return on sales (Mukhamediyev and Temerbulatova, 2019). Factors that influence national competitiveness can be divided based on the approaches of the "World Economic Forum and Institute of Management Development. The global competitiveness index (GCI)" of the world economic forum is estimated ground on 98 parameters, 30% of which are estimated based on the statistical stats. Corporate managers and civil servants estimate the rest. These 98 indicators are in 12 competitive categories "(institutions, infrastructure, macroeconomic environment, healthcare, primary, top, food services, financial market development, technology readiness, market size, business sophistication, innovation), Derived the countries of the world (World Economic Forum, 2018)."

Over the last decade, countries have endeavoured to devise measures and policies that can use natural resources to endure

competitive in native and international operations (Alfaki and Ahmed, 2013). These impacts have resulted in considerable economic dependence and diversification on oil. Other countries in the region are increasing public spending on various perspectives of the economy to distribute oil winds and make sure of future sustainability (Davidson, 2009). Many EPA countries have adopted conservative monetary policy to respond to global and regional economies in order to endure competitive in the international market.

However, such practices have emphasized on the regionalism of the global economy (Hvidt, 2011), all EPA equities are heavily dependent on oil resources for financial expansion. The present international crisis has shown such EPAs, or member states, cannot rely entirely on processes for economic development (IMF, 2012). Therefore, building an economic structure based on competitive advantage is an essential issue in most countries. This requires a consistent and robust commitment to economic reform that can improve all Member States' competitiveness, regardless of present economic or political situations (Rasmussen and Roitman, 2011).

These reforms start with an understanding of the present competitive environment of each member state. Through competitive-level intelligence, national economic improvement measures and efforts to improve global market outcomes can be developed.

There are many studies to identify the impact of "natural resources, technological innovation, macroeconomic indicators, growth rates and interest rates on economic competitiveness. At the same time, many studies have shown beneficial effects of gross domestic product (GDP), economic growth, inflation, foreign exchange and poverty. The purpose of this article is to directly assess the impact of global oil prices on competitiveness."

2. LITERATURE REVIEW

Large-scale scientific and economic research aims at economic competitiveness. The aim of various studies is to find how competitiveness an economy is impacted through a variety of parameters.

Fagerberg (1996) Explain the impact of five factors on competitiveness: direct investment for study, indirect investment for research, average salaries, physical capital investment, and demand in the national market. A study of 22 industries in 10 countries found that the size of the domestic market and wage levels did not affect competitiveness. The magnitude of the impact of other factors depends on the size of the country. Simultaneously, large national industries' competitiveness relies primarily on in-house research, while small enterprises rely on innovations found internationally. Although, investing in research has proven to be further effective than investing physical fund, regardless of the size of the nation.

National competitiveness is discovered through researching the competitive disadvantages and advantages of specific nation. The most common international practices utilized in the indicators

are GDP, a decrease in total final consumption as a percentage of final consumption expenditure, and exports to change total foreign trading countries. The rate of import balance is the average price or Index ratio. Import/export goods and services by land, national GDP structure, especially the manufacturing industries proportion (Golovachev, 2010).

Carayannis and Grigoroudis (2014) identify productivity and creation in critical areas. The method of determining and measuring the −200 period concepts is commonly used. During the period 1998-2008, we will confirm the interdependence of the results using database regression model Removed 19 metrics 25. It is advisable to consider the steps. The most important works include objects that explain technological innovation, productivity, and many overall indicators.

Many studies have confirmed that there is and enhances economic innovation activity. Therefore, financial innovation is an essential factor. Sadykhanova and Zhuparova (2013) point out that the capacity of human fund is the resource of creation in the national economy.

The part of human fund is found through the fact that it has an important effect on the enhancement of innovative systems and finds the speed of growth and the efficiency of economic expansion. Sadykhanova and Zhuparova (2013) define the knowledge economy as the internal engine for the growth of economic innovation activities and estimate institutional support systems for innovation activities grounded on a combination of self-regulatory and government regulatory systems.

In general, the commodity sector is a mechanism of influence on the competitiveness of the national economy, instead of a relatively huge amount of study; specifically for the competitiveness and the national development of the national economy from the commodity division which includes oil. The question is not developed correctly.

Mottaeva and Ćetković (2018) consider the capacity of national resources as an aim basis for the formation of competitiveness. The authors investigated the role of sustainable development of competitive fuels in the economy. They argued that without real competition, they would cause socio-economic problems in all areas.

Porter (2005) the total productivity of the elements has become the only criterion for accelerating national competitiveness and economic development.

Flachenecker (2018) from 2000 to 2014, we used panel data from 28 EU member states for their evaluation factor productivity's causal impact on six macroeconomic indicators and boosted factor productivity. We have found that it improves the macroeconomic competitiveness of the EU. (2019) Using time data from 1980 to 2017, build an autonomous vector model (VAR) study the impact of Indonesia's economic growth, inflation and poverty fuel oil prices. Studies show that rising oil prices have harmed the Indonesian economy. Saidi et al. conducted a similar task (2019)

used an arrogant scenario to determine the causal relationship amid GDP growth and oil prices, fund collection and, inflation.

Hajiyev and Rustamov (2019) built an integrated vector autonomy model in Azerbaijan to study inflation's reaction due to the effects of oil prices. This model showed that falling global oil prices led to the emergence of high-income inflation due to lower internal exchange values and higher import values. Saidi et al. (2019), grounded on crude oil prices and economic growth rates from 1987 to 2016, we applied an autonomous driving model with weak distribution and concluded that crude oil prices impact economic expansion only in the short term.

Kurihara (2015) Investigate the connection amid developing and developing countries' oil prices, exchange rates, and economic growth. The VAR test was attempted utilizing quarterly stats from 1990 to 2015. As a result of the experiment, the rise in crude oil prices had a productive effect on the economic growth of enhanced nations. It was also determined that exchange rates had an impact on economic growth.

Akhmad et al. (2019) using quarterly data of time series for the period 1980-2017 built a vector autoregression (VAR) model to study the effect of fuel oil prices on economic growth, inflation and poverty in Indonesia. The results of the study showed that the increase in the price of fuel oil had a negative impact on the economy of Indonesia.

3. METHODS

3.1. Data
This research uses yearly stats from the world's top 50 countries from 2005 to 2020. We used the World Economic Forum GCI data for this Country. The data on real GDP, employment, capital stock, real price of cruide oil, High-technology exports (% of manufactured exports), Gross Capital Formation are obtained from the World Development indicators of World Bank (2019).

3.2. Methodology
For this data structure, the panel study is the most suitable research tool. Spatial panel data combines space type data for each object in a time series. Panel data can control economics and individual product heterogeneity, but not when using time-series or space type models. There is a risk of being ignored and getting a biased result. Individual differences between these can be analyzed, mainly to reflect the effects of non-serviceable factors. The characteristics of the panel's data model are described in this Baltagi (2013).

The GCI log is selected as the dependent variable, depending on the research goals. The detailed model of the panel is specified as follows.

$$\ln\left(GCI_{it}\right) = \beta_1 \ln\left(\frac{rGDP_{it}}{L_{it}}\right) + \beta_2 \ln\left(A_{it}\right) + \beta_3 \ln\left(\frac{L_{it}}{POP_{it}}\right)$$
$$+\beta_4 \ln\left(\frac{rPOIL_{it}}{rGDP_{it}}\right) \times OILexp_{it} + \beta_5 \ln\left(\frac{rPOIL_t}{rGDP_{it}}\right)$$
$$\times\left(1 - OILexp_{it}\right)\beta_6 HTexport_{it}\beta_7 \ln\left(GCF_{it}\right) + \alpha_I + \in_{it}$$

(1)

Where:
$rGDP_{it}$ – GDP at constant prices of 2010 (US \$);
L_{it} – The number of people employed in the country's economy (people);
A_{it} – Total factor productivity;
POP_{it} – Population of the country (people);
$rPOP_t$ – Crude oil, Brent, annual prices, real 2010 US dollars (\$/bbl);
$OIL exp_{it}$ – Dummy variable, equal to 1 if the country is an exporter of oil, and equal to 0 otherwise;
$HT export_{it}$ - High-technology exports (% of manufactured exports);
GCF_{it}- Gross capital formation (% of GDP);"

"β_1, β_2,…, β_7 are coefficients, α_i denotes unobservable individual-specific effect, and ε_{it} is remainder disturbance, i=1, 2,…, n index t takes values from 2005 to 2020."

The position of the overall productivity A_{it} by nation is calculated utilizing $rGDP_{it}$, Gross Domestic Product, and capital and Cobb-Douglas functional production capabilities.

In the first term to the right equation (1), the $rGDP/L_{it}$ ratio shows the average labour output at a constant price.

"In the third term, the L_{it}/POP_{it} ratio is the percentage of people employed in a country's population. The fourth and fifth terms include the rPOIL$_t$/rGDP$_{it}$ ratio, which reflects the actual gas bill associated with the country's rGDP$_{it}$." At that time, only the equation of the oil exporting country was the fourth member. The fifth member shared the impact on GCI and other oil exporters, including only the equations of other countries for crude oil prices. It provides an expiration multiplier for OIL exp$_{it}$ and (1−OILexp$_{it}$), respectively.

3.3. Research Results
Two specifications are selected in the method of estimating the model (1). One of the independent variables is the average labour production log, and the other is the entire production log of the factors. Each Wald test confirms that it has an individual effect. In general, it is recommended to use the fixed effects panel model, as the set of countries included in the study will be selected during the year unchanged. We also ran Hausman tests to compare fixed effects models with different effects. To delete the impacts of potential heterogeneity, Table 1 offers strong calculations for the significance of the coefficients. Ststistical analysis was attempted utilizing the "SPSS statistical software package."

The mean factor's productivity variable coefficient and the percentage variable of workers in the national population are positive at the 1% level, in the first equation. The ratio coefficient of accurate $rGDP_{it}$ crude oil price of oil-exporting countries and advanced technology exports differs statistically significantly at the 5% level. However, the ratio of the actual cost of crude oil to $rGDP_{it}$ in non-oil exporting countries is statistically high even at the 10% level.

The second equation introduces the total productivity variable of the element ln (A_{it}), with no mean fluctuation in labor income,

Table 1: Panel regression with fixed effect, log dependent variable is Global Competitiveness Index in GCIit

$n\left(\dfrac{rGDP_{it}}{L_{it}}\right)$	0.065**(0.014)	-
$\ln(A_{it})$	-	0.114**(0.035)
$\ln\left(\dfrac{L_{it}}{POP_{it}}\right)$	0.234**(0.034)	0.221***(0.056)
$\ln\left(\dfrac{rPOIL_{it}}{rGDP_{it}}\right)$ * OILexp$_{it}$	−0.013**(0.0076)	−0.021**(0.0065)
$\ln\left(\dfrac{rPOIL_{t}}{rGDP_{it}}\right)$ *(1-OILexp$_{it}$)	−0.0056 (0.0043)	−0.087**(0.031)
HTexport$_{it}$	0.00068**	0.00069**(0.0002)
$\ln(GCF_{it})$	-	0.036*(0.021)
Constant	−0.612**	−0.711**(0.298)
Number of groups	60	60
R^2	0.276	0.243
Fisher test for significance	19.23	16.13

and adds entire capital formation. "All coefficients of this equation are statistically significant at least 5%." The most exciting factor, especially at the 5% level, is the percentage of actual crude oil prices in *rGDPit* in two oil-exporting and non-oil-exporting countries.

The coefficient of determination of the two equations is not high. However, this study aims not only to understand all aspects of global competitiveness, but also to assess its beneficial impact.

4. DISCUSSION

According to the calculations in Table 1, the estimate for factor 4 in the two formulas for oil-exporting countries is about −0.02. This means that rGDPit will increase by 0.02% due to the 1% surplus expansion rate of accurate GDP of oil-exporting nations than the yearly expansion rate pf accurate valuable POILt. For oil exporting countries, the estimates of the β5 in equation are not statistically significant, and inn equation 2 they are important at the 5% level, about −0.01. As a result, GCI$_{it}$ increased by 0.01% due to the surplus of 1% of the annual GDP rGDPit of the accurate GDP growth rate of non-oil exporting countries compared to the biennial growth rate rPILt accurate crude oil price, the countries which exports oil is twice better than this. The most volatile value of all estimated indicators is the oil price. In 2015, it fell by 41.1% on a factual basis compared to 2014. For Kazakhstan, the *rGDPit* growth ratio is 1.1%. GDP growth is estimated at 42.2%, which is higher than the actual value growth rate. Multiplying this surplus by 0.02 and multiplying by Thailand (2) will increase GCI growth by 0.84% due to price fluctuations in crude oil price *rGDPit* in 2015. This is due to a 1.6% increase for all factors. As in 2015, we can see that GCI growth rates provided Russia 1.6%, US 1.26%, 0.89%, and 0.88% for fluctuations in crude oil prices and accurate prices.

5. CONCLUSION

The aim of this study is to assess the effect of changes in the international oil prices on GCI. The research data is annual data from 50 countries from 2005 to 2020. "The dependent variable is the GCI log and the independent variables are national average labor productivity, total factor productivity and population ratio." World crude oil prices, rGDPit share of countries with actual capital formation and advanced technology exports.

According to a regression analysis of panel data with a sound effect, the rate of increase in crude oil prices is 0.02% of the average GCI growth rate of crude oil-exporting countries and a 0.01% decrease non-oil exporting countries. Since crude oil prices are variable variables, concrete examples show that annual fluctuations in GCI due to changes are similar to actual volatility. The raise in the left independent variables has a productive effect on the nation's GCI. Therefore, rising crude oil prices will contribute to the reduction of the Country's GCI. In particular, the correlation coefficient between crude oil prices and the average GCI of 60 nations is −0.44. Besides, oil-exporting countries have GCI more than non-oil exporting countries. This means that oil exporters will suffer more losses in the index due to rising oil prices. They transfer to a lower position in the international competitiveness ranking. Except for large oil-producing countries, most countries affect prices, improving the productivity of all of the higher-ranking factors in this ranking and diversifying your economy and advanced technology. It offers various competitive advantages in the Economic sector.

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