The Impact of Oil Price on Economic Growth: Empirical Evidence from Iraq

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Abstract:

 Iraq is one of the largest oil exporting countries in the world. Oil price changes determine government revenue earning and spending level, inflation rate, unemployment level which, in turn, determines the growth of the Iraqi economy. **Problem Statement:** a decrease in oil price is beneficial to oil-importing country rather than oil exporting country like Iraq. **Significance of the study:** The significance of the study comes from estimate how the changes (increase or decrease) in the price of this oil will have impacted on economic growth of Iraq. **Objective:** The purpose of this paper is to identify the impacts of oil price on economic growth of Iraq. **Methodology:** To achieve this objective (of fulfilling its full potential), the present paper adopts OLS approach, and the secondary data was used for the period of 2000-2015 and multiple regression with its assumption were used in order to analyse data. Findings, oil price and oil export are very important determinates of economic growth in Iraq because the p-value of those were less than the common alpha $\alpha = 0.05$. For instance, for each unit increasing of oil price, the economic growth will increase by 36.9% after holding all other variable constant. However, we find that exchange variable has no impact on the participations of increasing the economic growth because of having corruption in public banks in Iraq.

Keywords: Oil Price, Economic growth, Economic Analysis, OLS Approach, Iraq.

I. Introduction

Oil price is one of the most significant economic factors directing the world economy. (Toraman et al. 2011). The urbanization and modernization of the global economy has led to the increase in the demand for oil because oil is seen as the life blood of the economy (Eryigit, 2009). Iraq is one of the geographical locations which has immense political and economic significance in the international oil market both historically and at the present time (Jaffe, 2006). The crude oil market is the largest commodity market in the world. The energy sector in Iraq holds the key to the country's future prosperity and can make a major contribution to the stability and security of global oil markets. Iraq is already the third-largest oil exporter in the world and has the resources and plans to raise rapidly its oil production as it recovers from three decades punctuated by instability and conflict. The Iraqi economy is depended on the oil sector, which accounts for 50% of GDP. With oil production exceeding 3 million barrels a day and rising oil export revenues, the economy grew until 2015 (Ekns,2015) Moreover, Hamilton & Herrera (2003) explain that low-priced oil is vital for the world's demand for energy but its availability is scarce, hence volatility in supply will have significant economic impact. That volatility in supply can be translated into "Peak oil". With the ever increasing demand of oil OPEC´s production capacity in the 2000´s was not sufficient to satisfy the world demand, thus the price of oil skyrocketed from 11$ a barrel in 1999 to all time high in history 147$ a barrel in August 2008 and 35$ a barrel in 2015

According to Jiménez-Rodríguez and Sánchez (2004), the fluctuations of oil price have considerable consequences on economic activity. These results are expected to be different in oil exporting and importing countries, whereas an increase in the price of oil should be considered good news in oil exporting countries and bad news in oil importing countries, the converse should be expected when the price of oil decreases. The transmission mechanisms through which the prices of oil have an impact on real economic activity include both supply and demand channels. The supply side effects are related to the fact that crude oil is a basic input to production, and consequently an increase in the price of oil causes a rise in the costs of production that persuades firms to lower output. The changes of oil price have demand side effects through consumption and investment. "Consumption is affected indirectly through its positive relation with disposable income. The magnitude of this effect is, in turn, stronger the more the shock is perceived to be long-lasting (Jiménez-Rodríguez and Sánchez, 2004)." Moreover, oil prices have an opposing effect on investment level by increasing firms' costs. In addition, according to the Energy Information Administration (EIA) Global economic performance remains highly correlated with oil prices. Overall, an increase in the price of oil leads to a transfer of wealth from importing to exporting countries through a shift in the terms of trade. The magnitude of the direct influence of a given price increase relies on the share of oil cost in national income, the degree of dependence on imported oil and the ability of end-user to reduce their consumption and switch away from oil (IEA, 2006).

Some studies confirm that oil price has a significant effect on economic growth. In this regard, the current study analyses the impact of oil price on economic growth in Iraq, using time series data for the period of 2000-2015. This study assumes that increase in oil price has a positive impact on economic growth in Iraq. Here, it examines this assumption using econometric tools. To the best of our knowledge, there are only few studies that deal with the case for Iraq. Thus, the current study aims to fill up this gap by adding at least one more empirical study to the existing number of articles. The expected empirical results enable policy makers to find out how much the economic growth is influenced by the oil price.

The remaining of the paper is structured as follows: Section II deals with the contextual/ empirical literature review; Section III provides an outline about the data collection, methodology and examines the impact of oil price on economic growth in Iraq. Section IV is dedicated for summary and conclusion; finally, Section V states some recommendations.

II. Literature Review:

This section provides an overview of the study of oil price; there are several empirical studies on the impact of oil price on economic growth in both developing and developed countries. It reviews previous studies in field of the impact of oil price on economic growth in general and on Iraqi economy in specific. For instance, Hamilton (1983) finds that all but once the U.S. recession is preceded by dramatic oil price increases after World War II.This does not mean that an increase in oil price causes recessions, but there is a statistically significant relationship between oil price shocks and economic recessions. This result is in line with the results of Mork, et al. (1994) which extends the investigation of the previous studies to include six other industrialized countries, namely, Germany (West), Japan, France, the United Kingdom, Canada, and Norway. These countries differ considerably in the degree to which their economies rely on oil as an input and to which they are dependent on foreign oil. They conclude that the negative relationship between oil price increases and GDP growth is present and significant for most of the countries examined for data extending through 1992. Besides, for most countries they illustrate evidence of asymmetric impacts.

Olaokun (2000) illustrated that increase in oil price has a negative impact on the economies of Ghana and Nigeria (although the latter is an oil-producing country), but has a positive impact on Russia, which like Nigeria is an oil producing country. And the same results are confirmed recently by Kim and Willett (2000) employed panel data to investigate the impact of oil price on economic growth in the case of the OECD countries. The results show that oil price has a negative impact on economic growth.

Hence, Farhani (2012) finds "Impact of Oil Price Increases on U.S. Economic Growth: Causality Analysis and Study of the Weakening Effects in Relationship." The outcome illustrates strong weaknesses on the relationship between these two factors in what way that the relationship has had a low significant effect caused by the existence of breakpoints and the asymmetric effects of the oil price variations. Moreover, Alley, et al. (2014) examines the relationship between oil price shocks and the Nigerian economy for the period (1981-2012). The result shows that the shock of oil prices insignificantly retards economic growth while oil price itself significantly increases it. The significant positive impact of oil price on economic growth confirms the conventional wisdom that an increase in oil price is useful to oil-exporting country like Nigeria. Shocks, however, create uncertainty and undermine effective fiscal management of crude oil revenue; therefore the negative impact of oil price shocks.

Emmanuel (2015) found the impact of crude oil price volatility on economic growth in Nigeria during 1970 to 2014. The result shows that oil price volatility (OPV) has negative effect on the economic growth while other variables such as crude oil price, oil reserves and oil revenue have positive effect on the Nigerian economy. Similarly, Guo and Kliesen (2005) found the relationship between oil price volatility and macroeconomic activity in U.S. They investigated a significant negative relationship between oil price volatility and GDP growth over the period 1984 to 2004. Moreover, the study shows asymmetric influence of oil price volatility on macroeconomic activities. Another study was conducted by Jiménez-Rodríguez and Sánchez (2004) which examined the effects of oil price shocks on the real economic activity of the main industrialised countries. Oil price increases are investigated to have an effect on GDP growth of a larger size than that of oil price declines, with the latter being statistically insignificant in most cases. Among oil importing countries, oil price increases are investigated to have a negative effect on economic activity in all cases but Japan. Furthermore, the impact of oil shocks on GDP growth varies between the two oil exporting countries in their sample, with oil price increases affecting the UK negatively and Norway positively.

Hence, the multivariate threshold model is used by Huang, et al. (2005) to examine the influences of an oil price change and its volatility on economic activity. Using monthly data of the US, Japan and, Canada over the period from 1970 to 2002 they illustrate that oil price changes and its volatility above a threshold level help explain output changes. A similar result was found by Cunado and de Gracia (2005) who discussed that how oil price shocks affect output growth rate of a number of developed countries over the period of 1975Q1–2002Q2. The results of their analysis show that positive oil price changes, oil price volatility and net oil price increases have an effect on the growth rate of output. Moreover, Zhang (2008) has found the relationship between the

shock of oil price and economic growth in Japan using a nonlinear approach developed. He has investigated evidence of nonlinearities in the relationship, and in particular he showed that negative impact of oil price shock on output growth is larger than positive impact.

Bouzid (2012) investigates the causal relationship between the prices of oil and economic growth in Tunisia over the period from 1960 to 2009. Tunisian is oil-importing country rather producing country. The outcomes illustrate that both series are integrated of order one (I(1)), the existence of a long-term association between the prices of energy and economic growth and Granger pairwise causality test revealed unidirectional causality from real GDP to the prices of oil.

Overall, majority of the studies came up with a conclusion that a higher level of oil prices is related to a higher of economic growth for exporting oil country like Iraq; with only few studies that did not find conclusive evidence supporting these hypotheses.

III. Methodology

The study was conducted using regression analysis with its assumptions in order to investigate the impact of same variable such as (oil price, exchange rate and export) on economic growth of Iraq. The respondent variable in this study was GDP (economic growth) and also the independent variables were (oil price, exchange rate and export). The data of Iraq was taken as an exporting oil country. Finally, computerized data analysis package such as SPSS 17.0 and Stata11 were used due to find the result.

Table (1): Tests of normality

	Kolmogorov-Smirnor			Shapiro- Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Standardised residual for GDP	0.62	12	0.21	0.91	12	0.94

It can be seen in the table (1) that the p-values of both method of normality (Kolmogorov-Smirnor and Shapiro-Wilk) are less than the common alpha α =0.05. In addition, there is no evidence of any significance deviations from normality for the residuals this. As a result, the data are normal distribution.

Table (2): Descriptive of normalities' test

Descriptive	Statistic	Stand.error
Skewness	0.197	0.213
kurtosis	0.013	0.523

As it shown in the table (2) that both the skewness and Kurtosis values are less than the standard error which were shown there is not significance degrees of Skewness and Kurtosis in the data.

Table (3): Levene's Test of equality of error variances

F- test	Sig.
0.634	0.941

It is clear in the table (3) that there is not statistically significance because the p-value of levene statistics was less than the common alpha 0.05. As a result, the homogeneity of variance is not going to be met this means that the condition of homogeneity of variance is satisfied.

Multi- colleaniarity Detection

Multicolleaniarity among the independent variables can be checked as an importance thing to threaten the accuracy and reliability of the parameters which are obtained in the model.

Table (4): Check multicolleaniarity

Model	Collinearity Statistics	
	Tolerance	VIF
Oil price	.299	3.350
exchange	.276	3.622
export	.680	1.470

It is noticed in the table (4) that the value of tolerance for all independent variables, the range of it is between (0.299- 0.680), and also all values are greater than (0.1). As a result, indicating the absence of any multicolleaniarity between all independent variables, it is valid for entry in the model.

In addition, variance inflation factor is determined by (VIF) that equal to inverse Tolerance, it is ranging between (1.470- 3.622) and it was much less than the upper limit of the value (10). As a result, this means that it is supporting the non-existence of multicolleaniarity.

Table (5): Model summary

Model 1	Result of Model 1
R	0.983
R Square	0.966
Adjusted R	0.957
Std. error	115.79
F change	112.97
P-value	0.000

It can be seen in the table (5) that the result of determination of variation is (0.966) which means that 96.6% of the total response variable were explained by the explanatory variables. In addition, R means correlation coefficient between all variable in general. There are positively strong between all variables. Finally, the model is fit of the data because the p-value of F- test is less than the common alpha 0.05.

Table (6): coefficients of variables

Variables	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	**Std. Error**	**Beta**		
Constant	89.360	384.86	-	0.23	0.82
Oil price	3.69	1.73	0.208	3.127	0.045
Exchange	0.230	0.175	0.134	1.316	0.213
Export	0.911	0.062	0.946	14.601	0.000

It is mentioned in the table (6) that the parameter for α (89.360) indicates the predicted consumption when all explanatory variables are equal to zero. It should be noted that although the parameter α is required to make predictions of GDP consumption at any other independent variables. The parameter β indicates that for each unit increase in Oil price, GDP consumption increases by (3.69) units. The significance of the relationship between GDP and Oil price can be estimated by comparing t-test statistics and p-value, it is statistically significance relationship between GDP and Oil price because the p-value of it is less than the common alpha 0.05. Moreover, for each unit increase in export, GDP increases by 0.911 and also the relationship between export and GDP are statistically significance because the p-value is less than 0.05. On the other hand, other explanatory variable (exchange) is not statistically significance relationship with GDP because the p-value of it is greater than the common alpha 0.05.

Therefore, the regression model

$$GDP = 89.36 + 3.69 \text{ (oil price)} + 0.911 \text{ (export)}$$

IV. Summary and Conclusion

Iraq has a huge endowment of natural resources, specifically oil, because of its geographical location. Oil denotes one of the most significant macroeconomic factors in the world economy and the crude oil market is the largest commodity market in the world. What makes oil price changes even more interesting is not only their direct influence on economic activity, but also the changes in oil prices may reflect or even forecast changes in the intercontinental stability. This study has attempted to explain the determinants of economic growth in Iraq using econometric methods such as regression analysis. In this study, economic growth become a dependent variable while oil price, exchange rate and oil export become independent variables and also the data was collected from 2000 to 2015 in Iraq. Findings, oil price and oil export are very important determinates of economic growth in Iraq because the p-value of those were less than the common alpha α =0.05. For instance, for each unit increasing of oil price, the economic growth will increase by 36.9% after holding all other variable constant. However, we find that exchange variable has no impact on the participations of increasing the economic growth because of having corruption in public banks in Iraq.

V. Recommendations

The study makes some recommendations which contain that the country should diversify its export revenue base as a means of minimising reliance on crude oil and petroleum product, thereby diversifying its revenue and production sources to agriculture and other industries, fiscal prudence, corporate governance,

operations of budget, promote savings and proper accountability. This will further protect the economy from the effect of oil price decrease on the growth of economy.

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