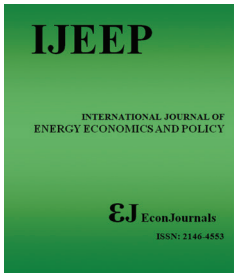

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Oil and Non-oil Export and its Impact on Economic Performance in Saudi Arabia

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ABSTRACT

Oil and non-oil export played essential role in economic activity in Saudi Arabia with amount average of 841816.0 and 162654.6 Saudi riyal respectively in the period 2005-2019. This study investigates from an empirical point of view the impact of oil and non-oil export on economic performance in Saudi Arabia during the period 2005-2019. Data were collected from General Authority for Statistics in Kingdom of Saudi Arabia. Ordinary least square method has been applied to estimate linear and non-linear form of the study models. The obtained results showed that oil export and non-oil export have positive impact on economic performance in Saudi Arabia during period of the study.

Keywords: Oil Export, Non-oil Export, Economic Performance
JEL Classifications: B22, E23, F13, F43, O11

1. INTRODUCTION

Development is not purely an economic phenomenon. In an ultimate sense, it must encompass more than the material and financial side of people's lives, to expand human freedom. Development shout therefore be perceived as a multidimensional process involving the reorganization and reorientation of entire economic and social system. In addition to improvements in incomes and output, it typically involves radical changes in institutional, social, and administrative structures as well as in popular attitudes and even customs and beliefs (Todaro and Smith 2011). They also argued that an important shortcoming of new growth theory is that it remains dependent on number of traditional neoclassical assumption that are often inappropriate for developing economies. For example, it assumes that there is but a single sector of production or that all sectors are symmetrical. This does not permit the crucial growth generating reallocation of labor and capital among the sectors that are transformed during the process of structural change. They went moreover and discussed that economic growth in developing countries is frequently impeded by inefficiencies arising from poor infrastructure, inadequate institutional structure, and imperfect capital and goods markets.

Exports represent the value of what is sold of goods and services between a country and the rest of the world to achieve an increase in national income. These exports play an important role in the process of development and economic growth for both developing and developed countries. Saudi economy ranks among the strongest economies in the world; Saudi Arabia is a member of the Group of Twenty and is one of the most important oil-exporting countries, and according to the Global Competitiveness Report 2019, the Kingdom ranked first in the world in partnership with other countries in the macroeconomic index. The Kingdom's exports vary between oil exports and non-oil exports.

The objective of this study is to investigate from an empirical point of view the impact of oil and non-oil export on economic performance in Saudi Arabia during the period 2005-2019. For that purpose the paper has been organized as follow: Section two reviews the literature. Section three presents data, model and

methodology. Section four provides results and discussion. The conclusion and policy implication put in the end of the paper.

2. LITERATURE REVIEW

The financial system needs to develop in order for natural resource exports to have a positive effect on economic growth. Yet, an advanced financial system is crucial for transferring the revenues from oil exports to productive investments. If the level of development of the financial system remains under a certain threshold, the effect of natural resource exports on economic growth is too low. In this vein, the determination of the level and the deepness of financial development that has a positive impact on the growth of natural resource exports should be clarified (Erdoğan et al., 2020).

Parvin and Tang (2014) attempted to re-investigate the role of oil and non-oil exports in economic growth in Iran; they used the multivariate co-integration and Granger causality methods for annual data from 1970 to 2008. The study found that the variables are co-integrated and the Granger causality test reveals evidence of uni-directional causality from oil and non-oil exports to economic growth. By employed the ARDL bound test for cointegration to analyze the direction among the variables Zoramawa et al. (2020) assessed the contribution of the non-oil sector to the economic growth in Nigeria between the periods 1981 and 2019. their study concluded that there is a negative and statistically significant relationship between non-oil exports (NOE) and economic growth (RGDP) in Nigeria during the period under investigation in the long-run for manufacturing (MANX) and solid mineral (SOLX) except for agricultural export (AGRX). There is also a bidirectional causal relationship between non-oil exports and economic growth in Nigeria during the same period.

Aydın and Acar (2011) analyzed the economic effects of oil price shocks for Turkey as a small, open oil- and gas-importing country. They analyzed the potential long-term effects of oil price shocks on macroeconomic variables of interest, including GDP, consumer price inflation, indirect tax revenues, trade balance, and carbon emissions, this study developed TurGEM-D, a dynamic multisectoral general equilibrium model for the Turkish economy. they obtained that these oil prices have very significant effects on macro indicators and carbon emissions in the Turkish economy.

The decline of petroleum resources is a real problem that needs to be addressed by the non-renewable energy policies applied by world governments. Renewable energies such as solar and wind sources, nuclear power, or hydrogen fuel cells may become viable alternatives to conventional fuel in the future (Al-Maamary et al., 2017).

Nelson et al. (2020) analyzed the impact of exports on the economic growth in the non-oil sector in the Republic of the Congo over the period of 1985 to 2015. Two approaches are used to achieve this study goal- the descriptive approach and the econometric approach. The results of Nelson's study showed that non-oil exports have a negative effect on economic growth.

Metwally and Tamaschke (1980) summarized oil exports and economic growth in the Middle East. This study represented an econometric investigation into the role played by export in the process of economic development of the major oil producers in North Africa and the Middle-East over the past two decades. Single, as well as simultaneous equation models, were tested using aggregate and disaggregate data. Aggregate real analysis suggested that there is little evidence of the spread effects of oil exports to the rest of the economy. Sectoral analysis indicated that the expansion in oil exports was not fully exploited in stimulating the manufacturing sector. Aggregate and disaggregate investment analysis clearly suggests that gross fixed capital formation, limited as may be, is extremely sensitive to growth in oil exports in all countries considered with the exception of Kuwait and Libya. The statistical results of the simultaneous relationships suggest the absence of feedback effects.

According to Merza (2007), Kuwait is an oil-based economy that adopts an export promotion policy as a fundamental strategy for economic growth. The country has experienced remarkable economic growth and high per capita GDP for the last four decades. The export-led growth (ELG) hypothesis has been commonly used to examine the impact of exports on economic growth. Numerous studies support this hypothesis and found evidence that exports have a significant positive relationship with economic growth. However, it is not yet known how effective the ELG hypothesis is in small oil-producing country like Kuwait. The central question addressed is whether the ELG hypothesis is valid in the case of Kuwait.

Al-Mawali et al. (2016) measured the impact of oil sector on the Oman economy for the last three decades and also provided some forecasting for the major macroeconomics indicators related to the Oman economy. Model simulations indicate that the oil sector has large and positive impact on Oman gross domestic product and its influence spills over to all other non-oil sectors of Oman economy. The study found that largest influence of oil was on the gas sector and the least economic sector influenced by oil was agricultural sector. The findings of the study suggested that Oman economy is far from being diversified and that the proposed model helps the policy makers in Oman to identify and forecast the impact of oil on other components of the Oman economy.

Oil is a useful source of economic growth, but may not be relied upon for long-term sustainable development. Diversification from oil is needed to achieve this (Alodadi and Benhin, 2015). They examined the most important non-oil determinants of growth in the Saudi economy between 1970 and 2011; they found that all variables are important in the growth of the Saudi economy except non-oil exports, which do not have a significant effect on economic growth.

Algahtani (2016) investigated the effect of oil price shocks on the Saudi's economic activity using annual data (1970-2015) the study used vector autoregressive (VAR) and vector error correction model (VECM). The study found a positive and significant relationship between oil prices and Saudi's GDP in the long run.

3. DATA, MODEL AND METHODOLOGY

This study discusses the Impact of Oil and Non-oil Export on Economic Performance in Saudi Arabia from the period 2005-

2019. Data were collected from General Authority for Statistics (GAS) in Kingdom of Saudi Arabia. We used ordinary least squares techniques for data covered this period.

The general form of the model is:

$$Y = f(OX, NX) \quad (1)$$

While the specific model takes the following form:

$$Y = \beta_0 + \beta_1 OX + \beta_2 NX + Ut \quad (2)$$

Where:

Y: Gross Domestic Product with current prices refers to economic performance (in millions Saudi Riyals).

OX: annual oil exports (in millions Saudi Riyals).

NX: annual non-oil export (in millions Saudi Riyals).

From equation (2) the study supposes a positive impact of oil and non-oil export on economic performance in Saudi Arabia.

Table 1 shows annual GDP with current prices, oil export and non-oil Export (in million Saudi riyals).

Figure 1 illustrates the GDP, oil export and non-oil export which reported in Table 1.

Table 1: Annual GDP, oil export and non-oil export- at million Saudi Riyals

Year	(GDP)	Oil export (OX)	Non-oil export (NX)
2005	1230771.342	605880.717	71263.533
2006	1411491.008	705810.618	85528.756
2007	1558827.275	769935.081	104467.908
2008	1980777.497	1053860.281	121621.624
2009	1609117.122	611490.472	109618.863
2010	1949237.770	807175.511	134609.562
2011	2973625.643	1191052.099	176567.732
2012	2949456.868	1265550.610	190951.554
2013	2582198.416	1207080.084	202443.213
2014	2418508.280	1066590.000	217029.852
2015	2453512.136	573411.985	189901.078
2016	2836313.802	510729.487	177693.532
2017	2799926.728	638402.283	193479.004
2018	2759905.663	868442.402	235458.084
2019	2517145.650	751828.129	229184.235

Source: General Authority for Statistics (GAS)

4. RESULTS AND DISCUSSION

By applying ordinary least squares (OLS) technique to the study data covered the period (2005-2019) on the variables mentioned above, we estimated equations (2). The regression results are given in equations (3) and (4) below, where the figures inside the brackets are the t- ratio of the parameters:

$$GDP = C(1) + C(2)*OX + C(3)*NX \quad (3)$$

$$GDP = 509375.580308 + 0.303330337382*OX + 9.24657155316*NX \quad (4)$$

(1.6) (0.89) (5.8)

$R^2 = 0.77$ $F = 21.11$ DW = 1.3

The equation (4) is statistically significant at five percent level as indicated by F statistics. The value of R^2 suggests that 77% of the variation in economic performance explain by oil export and non-oil export. So that economic performance increases due to increasing of oil export and non-oil export. The values of t-statistics show that two explanatory variables have impact but these variables are insignificant as reported in Figures 2 and 3 below:

Hence the study uses non-linear form (logarithm) for above equation. The results are shown in equation (5) and (6).

$$LGDP = C(1) + C(2)*LOX + C(3)*LNX \quad (5)$$

$$LGDP = 5.37714460437 + 0.0595351821111*LOX + 0.704485506409*LNX \quad (6)$$

(3.6) (0.54) (8.3)

$R^2 = 0.87$ $F = 40.03$ DW = 1.3

Figure 1: GDP, oil export and Non-Oil export (2005-2019)

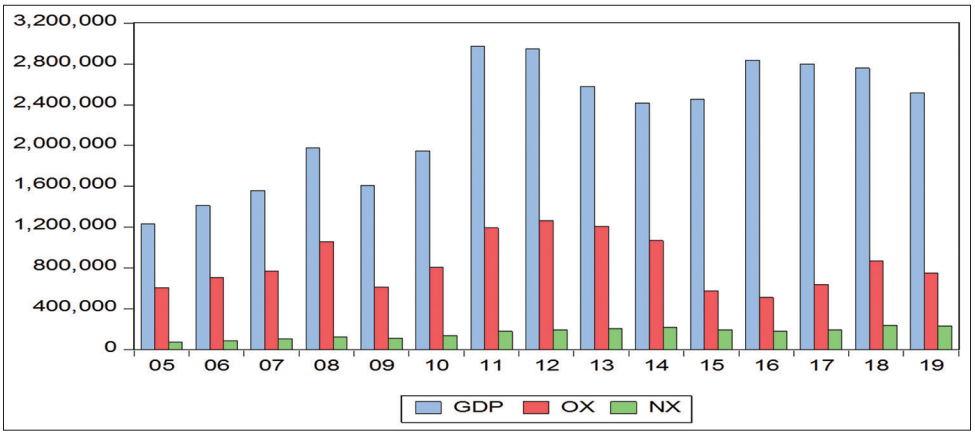

Figure 2: GDP and oil export in Saudi Arabia, 2005-2019

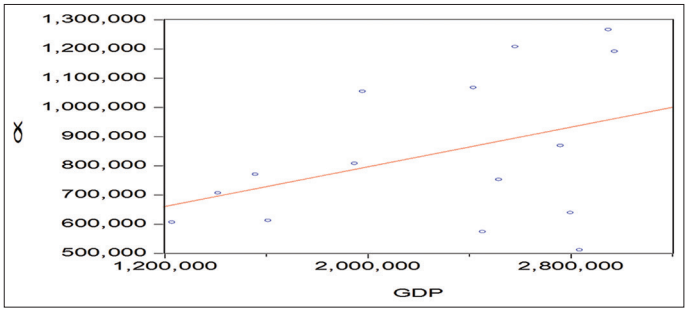

Figure 3: GDP and Non-oil export in Saudi Arabia, 2005-2019

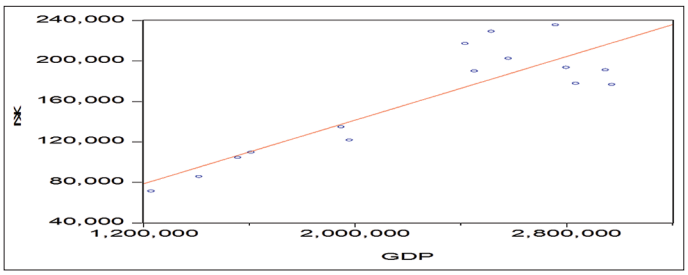

Table 2: Descriptive statistics of variables

Variables	LOX	LNX	LGDP
Mean	13.60187	11.93898	14.59778
Median	13.55406	12.08782	14.71303
Maximum	14.05102	12.36929	14.90529
Minimum	13.14360	11.17414	14.02315
Std. Dev.	0.297101	0.377151	0.291722
Skewness	0.161385	−0.693660	−0.691848
Kurtosis	1.715742	2.209785	2.088029
Jarque-Bera	1.095937	1.593184	1.716440
Probability	0.578123	0.450863	0.423916
Sum	204.0280	179.0848	218.9666
Sum Sq. Dev.	1.235769	1.991404	1.191422
Observations	15	15	15

Source: Own calculation based on data from Table 1

Equation (6) is statistically significant at five percent level as indicated by F statistics. The 87% of variation in economic performance is explained by oil export and non-oil export as indicated by the value of R^2. Thus as oil export and non-oil export increase, economic performance will increase as well. The values of t-statistics show that two explanatory variables have impact but these variables are insignificant as reported in Figure 1. So the descriptive of these variables represent in following Table 2:

The obtained results in equation (4) and equation (6) are like what reported by economic theory and similar to most empirical results of recent studies which discussed the relationship between export and economic growth.

5. CONCLUSION

The research evaluated the contribution of the oil export and non-oil exports on the economic performance of Saudi Arabia for the period 2005 to 2019. To achieve the specific objectives of the study, the ordinary least squares technique was applied to investigate the impact of explanatory variables on economic performance. Based on our methodology the study findings showed that oil and non-oil exports have positive effects on economic performance in Saudi Arabia during the period under consideration.

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APPENDICES

Appendix 1: Estimation Results - Linear Model

Dependent variable: GDP				
Method: Least squares				
Sample: 2005 2019				
Included observations: 15				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	509375.6	326097.5	1.562035	0.1443
OX	0.303330	0.337888	0.897725	0.3870
NX	9.246572	1.596072	5.793331	0.0001
R-squared	0.778699	Mean dependent var		2268721.
Adjusted R-squared	0.741816	S.D. dependent var		595138.2
S.E. of regression	302400.7	Akaike info criterion		28.25375
Sum squared resid	1.10E+12	Schwarz criterion		28.39536
Log likelihood	208.9031	Hannan-Quinn criter.		28.25224
F-statistic	21.11240	Durbin-Watson stat		1.277677
Prob (F-statistic)	0.000117			

Appendix 2: Estimation Results – Non-Linear Model

Dependent Variable: LGDP				
Method: Least squares				
Sample: 2005 2019				
Included observations: 15				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	5.377145	1.490827	3.606820	0.0036
LOX	0.059535	0.108403	0.549201	0.5929
LNX	0.704486	0.085395	8.249753	0.0000
R-squared	0.869654	Mean dependent var		14.59778
Adjusted R-squared	0.847929	S.D. dependent var		0.291722
S.E. of regression	0.113760	Akaike info criterion		−1.332587
Sum squared resid	0.155297	Schwarz criterion		−1.190977
Log likelihood	12.99440	Hannan-Quinn criter.		−1.334096
F-statistic	40.03126	Durbin-Watson stat		1.394455
Prob (F-statistic)	0.000005			