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Is Oil Revenue Propitious to Nigeria's Economy?

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Abstract
Oil revenue is determined by a change in oil quantity and the fluctuation in oil prices. It affects economies differently contingent on whether the economy is an oil-importing or oil-exporting economy. It also depends on the structure and the patterns of demand for and supply of energy. It is based on this that the study examines the effect of oil revenue on the growth of the Nigerian economy over the period 1986 to 2019. Using the annual time series data which was collected from the online database of World Bank Development Indicators (WDI), CBN statistical Bulletin, etc. and analyzed with the VECM model. The study revealed an average economic growth rate of 4% was gotten within the period with about 13% of the GDP gotten from oil. Government expenditure and the Exchange rate were observed to have an insignificant effect on GDPRATE in the short run while all other variables exhibited a significant and positive relationship with GDPRATE in the short run. Consequently, the result further reveals that inflation is necessary for the increase in Economic growth while revenue from oil serves as a positive spinner of Nigeria's GDP. Therefore, efforts should be geared towards rebuilding and renovating the nation's refineries as this will help at increasing the domestic production capacity and ultimately drive down the price of petrol while contributing to the nation's economic growth and guaranteeing energy security in the country.
Keyword: Crude Oil, Revenue, Economic Growth

1.0 Introduction

Nigeria's economic growth is driven chiefly by the rents from the petroleum industry. It is one of the developing countries that have benefited immensely from the petroleum industry in terms of its contribution to government revenue. For example, the petroleum sector contribution to GDP in 1970, 1980, 1990, 2000 and 2019 Q1 were 7.1%, 22.0%, 12.8%, 47.5% and 9.14% respectively (CBN, 2018; NBS, 2019). Nonetheless, unstable oil prices had made the economy to be battling with the problem of inflation, exchange rate volatility, and low economic growth potentials. For example, inflation increases from an average of 15.5 percent in 2015 to an average of 18.3 percent in the middle of 2017. This increase, among other factors, has been attributed to unstable oil prices, exchange rate volatility, and failure of monetary policy measures (Arinze, 2017). This simply suggests that whenever petroleum prices increase, the inflation rate also increases.

Following the discovery of crude oil in Nigeria in the late 1950s, there was an unprecedented rise in oil revenue in the 1970s due to a global boom in the demand for oil

(Madujibeya, 2014). This Oil income is generated from export and domestic sales of petroleum derivatives. They accrue to the government in the form of concession rents, royalties, profit taxes, participation interests, premiums, harbor dues, and other minor imposts.

However, the oil boom in the 1970s was seen to have led to the neglect of Nigeria's strong agricultural and light manufacturing bases in favor of an unhealthy dependence on crude oil (Odularu, 2013). For example, Agricultural sector contribution to GDP experienced rapid growth in 1964 (63%) and 54% in 1969 but declined substantially from 33% in 1970 to 15% in1986 (NBS, 2018). This new oil wealth coupled with the concurrent decline of other economic sectors fuelled massive migration to the cities and led to increasingly widespread poverty, especially in rural areas (Odularu, 2013). By 2000 Nigeria's per capita income had plunged to about one-quarter of its mid-1970s high, even below the level at independence, showing a drop in economic development (Madujibeya, 2014).

The volatility of petroleum prices ($13.53, $20.29, $61, $40.76, $69.78, $64s per barrel in 1986, 1996, 2006, 2018 and 2019 respectively) in the international market has made the petroleum revenue accruing to the government to fluctuate over the years; cycles of booms and busts. The GDP growth rate fluctuates as well (-5.86%, 4.20%, 6.06%, -1.62%, 1.13% in 1986, 1996, 2006, 2018 and 2019 respectively) because of dependence on the petroleum industry. The consistent rise in population over the decades (with a population growth rate of 2.64%, 2.52%, 2.65%, 2.66%, 2.62%, and 2.60% in 1986, 1996, 2006, 2018 and 2019 respectively) puts pressure on the economy (Odularu, 2013; Soludo, 2007; Chiejina, 2011).

For a country to experience economic development, according to Todaro and Smith, (2013), its unemployment rate, poverty level, and income inequality level must fall significantly. According to the economic report released by the Central Bank of Nigeria (CBN, 2019), in 2018, total oil revenue rose by 129 percent to N9. 4 Trillion in 2018 from N4. 1 Trillion in 2017. Hence, despite this increasing revenue accruing from oil, the economic growth of Nigeria is still below optimal this is because, between 2000 and 2014, Nigeria's gross domestic product (GDP) grew at an average rate of 7% per year. Since 2015, economic growth remains muted. Growth averaged 1.9% in 2018 and remained stable at 2% in the first half of 2019. This was further buttressed by the Odularu (2017), who stated that outside of the energy sector, Nigeria's economy is highly inefficient. Moreover, human capital is underdeveloped. Nigeria ranked 151 out of 177 countries in the United Nations Development Index in 2014 and non-energy-related infrastructure is inadequate. Nigeria's economy is struggling to leverage the country's vast wealth in fossil fuels to displace the devastating lack that affects about 57 percent of its population. In 2009, persistent inflation and environmental degradation led to the deprivation of means of livelihood and other socio-economic factors to the people of Niger Delta which is the major oil-producing state in Nigeria. Also, the economy is faced with a high rate of unemployment, widespread oil spillage, increasing poor standard of living as a result of decreasing gross domestic product, per capita income, and high rate of inflation that culminate into poor economic development (Nwezeaku, 2010). Quite worrisome is the assertion as enunciated by Bawa & Mohammed (2007) that "Nigeria with all its oil wealth has performed poorly, with GDP, per capita today not higher than at independence in 1960".This means that an average Nigerian was better off before independence in 1960.

The oil industry in Nigeria has been facing daunting challenges ranging from high scale corruption, the decline in investment, and some structural problems in the oil-producing region (including high rates of poverty, environmental damage, and human rights abuses). The outcomes of these factors are frequent oil theft, vandalism of oil installation, and kidnapping of oil workers. Arguably these challenges are affecting the general performance of the sector and are likely to shape the prospects of the industry in the short and mid-term.

Therefore, it becomes imperative to study the impact of Oil revenue on Nigeria's Economic growth while addressing the following research questions;

i. Is there a causal relationship between Oil Revenue and economic growth?
ii. What is the effect of oil revenue on economic growth in Nigeria?
iii. How does Economic Growth respond to shock from Oil Revenue?

2.0 Empirical Review

Berument and Ceylan (2005) study the effect of oil price shocks on economic growth in MENA region covering 1960-2003. They applied dynamic vector autoregressive (DVAR) model to investigate this relationship, the results show a positive effect on Iran, Iraq, Algeria, Jordan, Kuwait, Oman, Syria, Tunisia and United Arab Emirate, while on other case including Bahrain, Djibouti, Egypt, Morocco and Yemen, there was no significant relation statistically.

Mhamad and Saeed (2016) investigate the Impact of oil price on economic growth of Iraq. The study uses secondary data was for the period of 2000-2015 and the data were analyzed by employing the OLS technique of multiple regression. Findings show that oil price and oil export were very important determinants of economic growth in Iraq.

Akinlo (2012) assesses the importance of oil revenue in the development of the Nigerian economy using a multivariate vector auto-regressive (VAR) model over the period 1960-2009. It was observed that oil had adverse effect on the manufacturing sector. It also confirms unidirectional causality from manufacturing to agriculture and trade & services to oil. No causality was found between agriculture and oil, likewise between trade & services and building and construction.

Ayadi and Obi (2000) examine the effect of oil production shocks on the net-exporting country using a standard VAR on variables which includes oil production, output, real exchange rate and inflation over 1975-1995 periods. The impact response show that a positive oil shock (high oil price) is followed by rise in output, reduction in inflation and a depreciation of the domestic currency. These results tally with the findings of Olomola and Adejumo (2006).

Chikwe and Akaeze (2016) used ordinary least square (OLS) multiple regression technique to analyze the impact of oil price on the Nigerian macroeconomic variables from 1990 to 2015. Findings from the result of the study reveal that there is significant relationship between international oil price and macroeconomic all the variables. Oil price in itself has no direct impact on Economic growth but the revenue generated from it does has impact on economic growth.

Ebele (2015) investigates the impact of crude oil price volatility on economic growth in Nigeria from 1970 to 2014. The study uses the Engel-Granger co-integration test and Granger Representation theorem in testing the long run and short run relationships between crude oil volatility and economic growth in Nigeria. The study found that oil price

volatility (OPV) has negative impact on the economic growth while other variables such as crude oil price, oil revenue and oil reserves have positive impact on the Nigerian economy.

Ifeayi and Ayenajeh (2016) examine the impact of crude oil price volatility on economic growth in Nigeria over the period 1980 -2014. Multiple regressions were used as a tool for data analysis and the findings reveal that there is a positive and significant relationship between oil price and economic growth. Based on the findings the researchers conclude that oil price volatility does not have a positive impact on the economy (contrary to the findings of some earlier studies) but oil price itself does.

Offiong, Atsu, Ajaude, and Ibor (2016) carry out a study on the Impact of Oil Price Shocks on the Economic Growth and Development of Cross River State, Nigeria. The study found that international oil price shocks affected the State's economy inversely, while a positive but insignificant relationship existed between the other model variables and the economic growth of the State.

Olusegun (2008) investigates the impact of oil price shocks on the macroeconomic performance in Nigeria using seven key Nigeria's macroeconomic variables. The study also reveals that the variability in the price level apart from its own shock is explained substantially by output and money supply shocks.

Oluwatoyin (2014) assesses the impact of oil price shock and real exchange rate instability on real economic growth in Nigeria by using time series annual data from 1986 to 2012. Analyzed with Vector Error Correction Model (VECM), the results revealed a unidirectional causality from oil prices to real GDP. The findings further showed that oil price shock and appreciation in the level of exchange rate exert positive impact on real economic growth in Nigeria.

Umar and Ahmad (2016) study the relationship between oil price and economic growth in Nigeria using annual time series data for the period 1974-2014. The study uses co-integration and Granger causality test to examine the relationship among the variables of the study. The findings indicate that there is no long-run relationship among the variables of the study. Babajide and Soile (2015); Ifeayi and Ayenajeh (2016); Offiong Atsu, Ajaude and Ibor (2016) Olusegun (2008); Oluwatoyin (2014); Oriakhi and Osazel (2013) emphasis on Oil price volatility and shock on economic growth in Nigeria. This is more suitable in market devoid of imperfect information. However, the fact that affects oil price shock are heterogeneous in which when all its variables are captured in the model will make the model unmanageable provides a major constraint to the study of oil price shock.

2.1 Theoretical Framework

2.1.1 The Linear/Symmetric Relationship Theory of Growth

According to this theory, an oil price increase has a negative effect on future GDP growth while the effect of an oil price decrease is ambiguous. The linear/symmetric relationship theory of growth contends that there is a negative and significant relation between oil price changes and GDP growth. The mainstream theory considers the price of crude oil to be proportional to its marginal product which is an important input in determining economic growth. But proponents of the Renaissance growth model opine that both oil price changes and its volatility have negative effects on economic growth, though in different ways (Oriakhi and Iyoha, 2013). In the same way, both the exporting and importing countries experience the impact of changes in oil prices in diverse ways, depending on the internal mechanism for stabilization.

$$GDP = B0 - B1Pt + 1 \quad (1)$$

At any lower price, it could get more revenue by selling the same amount at the market price, while at any higher price no one would buy any quantity.

$$P = \frac{Kt}{Qdt} \cdots \quad \ldots\ldots(2)$$

Total revenue equals the market price times the quantity the firm chooses to produce and sell. Hence at constant quantity demanded Price has an inverse relationship with revenue. Therefore we can posit that as the Oil Price is increasing, the revenue from oil is increasing along with the economic growth at constant quantity demand/supplied. This shows that a direct relationship exists between Oil revenue and Oil Price at constant capacity production.

Intuitively, this can be expressed as

$$GDP = B0 - B1OilREVt + 1 \quad (3)$$

This study will be anchored on the linear/symmetric relationship theory of economic growth. The choice of this theory is informed by the close relationship it bears with the subject matter of this study. For it specifies a link between changes in crude oil prices, revenue, and their impacts on economic growth which this study seeks to investigate.

3.0 Methodology

This study used annual time series secondary data. The model of the study is structured based on the Linear/Symmetric Relationship Theory of Growth while explanatory variables are extrapolated from the factors affecting African's economic growth captured by Issing et al. (2001). The variables on which data will be collected are oil revenue (OILREV), Government Expenditure (GEXP), inflation (INFL), the exchange rate (EXRATE), and real gross domestic product (RGDP). RGDP will be used as a proxy for economic growth which was analyzed with the structural VECM model. The VECM is used because the variables are co-integrated, that is, there exists a long-run relationship between the non-stationary variables in Yt. The model modifies Behmiri and Manso (2013) who examined the nexus that exist between oil consumption, oil price, and economic growth.

$$RGDPCit = \propto i + \vartheta it + \beta 1iROPit + \beta 2iOCit + + \beta 3iGFCit + \beta 4iLFit + \beta 5iREERit + \beta 6iINFit + \beta 7iTOPit + \mu it \quad (4)$$

Based on this, the functional relationship for the model of the study will be presented thus;

$$RGDPt = OILREVt, GEXPt, INFLt, EXRATEt, CPI \quad (5)$$

The Vector Error Correction Model is hereby specified thus;

$$\Delta RGDPt = \alpha 0 + \alpha 1 \sum_{t=1}^{n} \Delta \, oilrevt - i + \alpha 2 \sum_{t=1}^{n} \Delta \, Gexpt - I + \alpha 3 \sum_{t=1}^{n} \Delta \, Inflt - i + \alpha 4 \sum_{t=1}^{n} \Delta \, Exratet - I + \alpha 5 \sum_{t=1}^{n} \Delta \, Cpi\, t - I + \sigma iECM\,(-1) + \varepsilon t \quad (6)$$

$$\Delta \text{Oilrevt} = \alpha 0 + \alpha 1 \sum_{t=1}^{n} \Delta \text{Rgdpt} - \text{i} + \alpha 2 \sum_{t=1}^{n} \Delta \text{Gexpt} - \text{I} + \alpha 3 \sum_{t=1}^{n} \Delta \text{Inflt} - \text{i} + \alpha 4 \sum_{t=1}^{n} \Delta \text{Exratet} - \text{I} + \alpha 5 \sum_{t=1}^{n} \Delta \text{Cpi t} - \text{I} + \sigma \text{iECM}(-1) + \varepsilon t \quad (7)$$

$$\Delta \text{Gexpt} = \alpha 0 + \alpha 1 \sum_{t=1}^{n} \Delta \text{oilrevt} - \text{i} + \alpha 2 \sum_{t=1}^{n} \Delta \text{Rgdpt} - \text{I} + \alpha 3 \sum_{t=1}^{n} \Delta \text{Inflt} - \text{i} + \alpha 4 \sum_{t=1}^{n} \Delta \text{Exratet} - \text{I} + \alpha 5 \sum_{t=1}^{n} \Delta \text{Cpi t} - \text{I} + \sigma \text{iECM}(-1) + \varepsilon t \quad (8)$$

$$\Delta \text{Inflt} = \alpha 0 + \alpha 1 \sum_{t=1}^{n} \Delta \text{oilrevt} - \text{i} + \alpha 2 \sum_{t=1}^{n} \Delta \text{Rgdpt} - \text{I} + \alpha 3 \sum_{t=1}^{n} \Delta \text{Gexpt} - \text{I} - \text{i} + \alpha 4 \sum_{t=1}^{n} \Delta \text{Exratet} - \text{I} + \alpha 5 \sum_{t=1}^{n} \Delta \text{Cpi t} - \text{I} + \sigma \text{iECM}(-1) + \varepsilon t \quad (9)$$

$$\Delta \text{Expt} = \alpha 0 + \alpha 1 \sum_{t=1}^{n} \Delta \text{oilrevt} - \text{i} + \alpha 2 \sum_{t=1}^{n} \Delta \text{Rgdpt} - \text{I} + \alpha 3 \sum_{t=1}^{n} \Delta \text{Inflt} - \text{i} + \alpha 4 \sum_{t=1}^{n} \Delta \text{expt} - 1 + \alpha 5 \sum_{t=1}^{n} \Delta \text{Cpi t} - \text{I} + \sigma \text{iECM}(-1) + \varepsilon t \quad (10)$$

$$\Delta \text{Cpit} = \alpha 0 + \alpha 1 \sum_{t=1}^{n} \Delta \text{oilrevt} - \text{i} + \alpha 2 \sum_{t=1}^{n} \Delta \text{Rgdpt} - \text{I} + \alpha 3 \sum_{t=1}^{n} \Delta \text{Inflt} - \text{i} + \alpha 4 \sum_{t=1}^{n} \Delta \text{Exratet} - \text{I} + \alpha 5 \sum_{t=1}^{n} \Delta \text{Gexpt} - \text{I} + \sigma \text{iECM}(-1) + \varepsilon t \quad (11)$$

Where $\boldsymbol{ECMt-1}$ is the error correction term and $\boldsymbol{\varepsilon t}$ is the mutually uncorrelated white noise residual.

4.0 Presentation and Discussion of Findings

4.1 Descriptive Statistics

Table 1 Descriptive Statistics

	CPI	EXRATE	GDPRATE	GEXP	OILREV	INFRATE
Mean	16.03125	95.46656	4.524688	3.904375	13.05313	20.16250
Median	15.00000	114.8900	4.825000	2.085000	13.87000	12.55000
Maximum	28.00000	305.7900	15.33000	9.450000	26.43000	72.80000
Minimum	2.000000	1.750000	-2.040000	0.910000	2.800000	5.400000
Std. Dev.	8.675083	79.01138	3.956398	3.037933	5.700365	18.53189
Skewness	-0.144062	0.561954	0.397417	0.651303	0.068826	1.562037
Kurtosis	1.683046	2.863152	3.258446	1.851030	2.586152	4.044884
Jarque-Bera	2.423179	1.709198	0.931409	4.022553	0.253624	14.46884
Probability	0.297724	0.425454	0.627693	0.133818	0.880899	0.000721
Sum	513.0000	3054.930	144.7900	124.9400	417.7000	645.2000
Sum Sq. Dev.	2332.969	193526.8	485.2456	286.1002	1007.319	10646.36
Observations	32	32	32	32	32	32

Source: Authors Computation from E-Views

The table shows that an average economic growth rate of 4% is achieved with an average of 20% inflation rate within the period when government mean expenditure is 3.9% of GDPRATE where revenue gotten from Oil is 13% of GDPRATE at an average exchange rate of $95 to 1N. The result further shows that the distribution of CPI, EXRATE, GEXP AND OILREV is platykurtic which implies that the distribution produces fewer and less extreme outliers than does the normal distribution while the distribution of GDPRATE and INFRATE are mesokurtic.

4.2 Correlation Relationship

Table 2 Correlation Matrix

	CPI	EXRATE	GDPRATE	GEXP	OILREV	INFRATE
CPI	1.000000	0.511866	-0.287286	-0.223141	0.094304	-0.217704
EXRATE	0.511866	1.000000	-0.385738	-0.382201	-0.342441	-0.163617
GDPRATE	-0.287286	-0.385738	1.000000	0.127021	0.100317	-0.489228
GEXP	-0.223141	-0.382201	0.127021	1.000000	0.452720	0.039695
OILREV	0.094304	-0.342441	0.100317	0.452720	1.000000	-0.118909
INFRATE	-0.217704	-0.163617	-0.489228	0.039695	-0.118909	1.000000

Source: Authors Computation from E-Views

The correlation matrix among the explanatory variables shows that there exists a negative correlation between GDPRATE, EXRATE, INFRATE and CPI but GEXP and OILREV have a positive correlation with GDPRATE. This implies that effort channels toward improving government expenditure and oil revenue will boost the Economic

growth rate of the economy. This is further affirmed by Oriakhi and Osazel (2013) that oil price changes determine government expenditure level, which in turn determines the growth of the Nigerian economy.

4.3 Stationary Test

Table 3 Unit Root Test

Variable	T-Statistics	1% Signifcance	5% Significance	10% significance	Probability	Decision
GDPRATE	-10.00043	-3.661661	-2.960411	-2.619160	0.0000	1(1)
CPI	-6.171644	-3.670170	-2.963972	-2.621007	0.0000	1(1)
EXRATE	-3.981058	-3.661661	-2.960411	-2.619160	0.0045	1(1)
GEXP	-5.025424	-3.670170	-2.963972	-2.621007	0.0003	1(1)
OILREV	-6.687540	-3.679322	-2.967767	-2.622989	0.0000	1(1)
INFRATE	-2.661071	-3.737853	-2.991878	-2.635542	0.00954	1(1)

Source: Authors Computation from E-Views

The unit root test above shows that all the variables are stationary at first difference hence there exist a unit root among the variables hence we can proceed to test for co integration among the variables. The implication of this is that the statistical properties of a the variable in the model do not change over time

4.4 Long-run Relationship Test

Table 4 Johansen Cointegration Test

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.779911	112.2031	95.75366	0.0023
At most 1	0.609964	66.79144	69.81889	0.0851
At most 2	0.419493	38.54598	47.85613	0.2787
At most 3	0.385476	22.23040	29.79707	0.2859
At most 4	0.181777	7.623159	15.49471	0.5065
At most 5	0.052080	1.604547	3.841466	0.2053
Trace test indicates 1 cointegratingeqn(s) at the 0.05 level				

Source: Authors Computation from E-Views

The result of the Johansson cointegration test above indicates the existence of at least one co-integrating equation among the variables at 0.05 level of significance. This implies that Oil revenue has a significant long-run relationship with economic growth. Hence any attempt at tinkering with the explanatory variables will have a significant effect on Economic growth in the Long run. This result runs contrary to the non-existence of long-run relationship as posited (Umar, Aliyu, & Ahmad, 2016).

4.5 Impact of Oil Revenue on GDP

Table 5: Error Correction Model

Variable	T statistics	SE	T	Decision
$GEXP_{(-1)}$	-0.170954	0.39113	-0.43707	Not Significant
$OILREV_{(-1)}$	0.532487	0.19769	2.69354	Significant
$INFRATE_{(-1)}$	0.556739	0.05902	9.43238	Significant
$CPI_{(-1)}$	0.843731	0.20984	4.02080	Significant
$EXRATE_{(-1)}$	0.035116	0.02081	1.68736	Insignificant
$ECM_{(-1)}$	-0.39016	0.104897	-3.71946	Significant
R^2	0.591002			
R^2_{Adj}	0.236536			
Fstat	1.667305			

Source: Authors Computation from E-Views

The ECM in the model is negative and statistically significant at 5%. The coefficient of -0.39016 indicates feedback of approximately 39 percent of the previous year's disequilibrium and that Oil revenue has a positive significant effect on Economic growth. Hence oil revenue is a money-spinner for the economy. These findings were further enunciated upon by Babajide and Soile (2015) but Chikwe, Ujah, and Akaeze (2016) showed contrary findings. Hence, if the boost in Oil Revenue is sustained and enhanced, the country will witness sustainable economic growth development which in turn improves the standard of living of people that reside in the country. Nonetheless, the short-run dynamics are captured by the individual parameters except that of the ECM term. The result above shows that Government Expenditure and Exchange rate (Lagged by one) and Exchange Rate (Lagged by one) has no significant effect on the Economic growth rate in the short run. This could be a result of factors that are inimical to government expenditure and the exchange rate which further worsening the economic growth of Nigeria. Some of the factors are Nigerian foreign currency is majorly derived from crude oil which streamlines the income line to the economy.

Consequently, leakages in government expenditure in the form of corruption, misappropriation, and malappropriation to economic propelling sectors can equally be an inimical factor that can undermine its potency to rejuvenate economic growth. CPI was observed to exhibit a positive significant effect on the economic growth rate. This implies that as the CPI increases it will increase economic growth (GDPRATE). Intuitively, as the corruption perception of the country reduces it will increase Economic growth. Hence corruption is a vice to economic growth. This conforms to the finding of Babatunde and Adefabi (2005) but Ebben, and Vaal (2009) had a conflicting view by nothing that corruption facilitates growth. Inflation as denoted by INFL was observed to exhibit a positive and significant effect on Economic growth. The implication of this is that inflation is a necessary condition for an increase in economic growth. Consequently, Oil revenue has a significant effect on economic growth in Nigeria. This implies that Oil revenue is a positive spinner for GDPRATE in Nigeria. The result also show that there is a unidirectional causality running Oil Revenue and Economic growth in Nigeria.

4.6 Causality Test

Table 6 Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
GDPRATE does not Granger Cause CPI	31	1.90551	0.1689
CPI does not Granger Cause GDPRATE		0.58892	0.5622
GDPRATE does not Granger Cause EXRATE	31	0.31812	0.7303
EXRATE does not Granger Cause GDPRATE		0.02720	0.9732
GEXP does not Granger Cause GDPRATE	30	0.03096	0.9696
GDPRATE does not Granger Cause GEXP		4.78380	0.0174
OILREV does not Granger Cause GDPRATE	30	0.10960	0.8966
GDPRATE does not Granger Cause OILREV		0.03819	0.9626
INFRATE does not Granger Cause GDPRATE	31	0.01634	0.9838
GDPRATE does not Granger Cause INFRATE		0.87143	0.4302

Source: Authors Computation from E-Views

The result of the granger causality test shows that all the variables exhibit no granger causality with any of the explanatory variables except GEXP. This implies that only one way causal relationship exists between government expenditure and GDPRATE.

4.7 Impulse Response Function

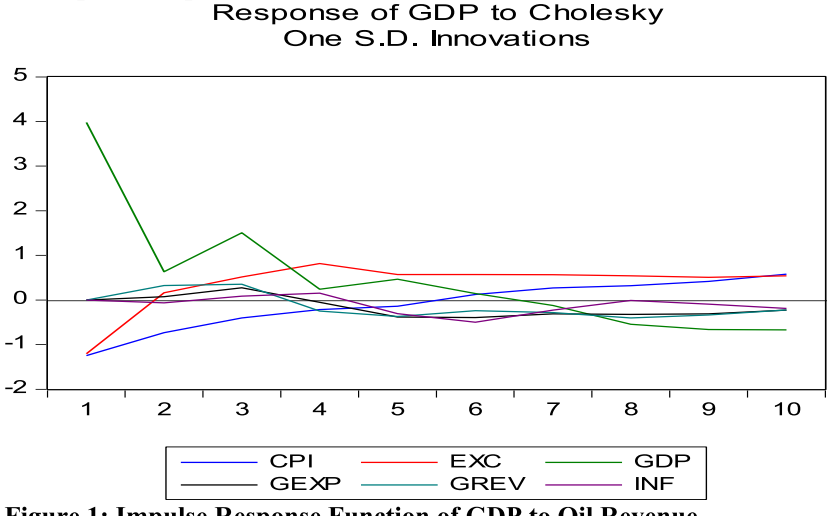

Figure 1: Impulse Response Function of GDP to Oil Revenue

The result of the impulse response function shows GDPRATE responds negatively to CPI up to the 5TH period where after its response becomes positive afterward whereas GDPRATE responds negatively to change in exchange rate up to the 2nd period and its response becomes positive afterward. Consequently, the response of GDPRATE to GEXP was positive up to the 3rd period and suddenly exhibits a sharp decline response to

the 5th period. Also, the response of GDPRATE to OILREV is positively peaked at the 2nd period and becomes negative from the 5thperiod. Conclusively, GDPRATE response positively to shock from CPI and EXRATE from the 5th period to the 10th period

Table 7 Diagnostic Test

Test	F Statistics	Probability
Breusch-Godfrey serial correlation LM test	3.158545	0.00000
Heteroscedasticity(ARCH)	16.44143	F91,29) 0.0003
Heteroscedasticity(BreuschPagan-Godfrey	20.84385	0.0468
Normality Test (Jarque- Bera)	1.376734	0.502396

Source: Authors Computation from E-Views

The fallout of the diagnostic test specifies that the short-run VECM growth model scaled through the diagnostic tests. The results discovered that the null hypotheses of no serial correlation, normal distribution, no heteroscedasticity and no structural break are accepted based on the Breusch-Godfrey serial correlation LM result, Jarque-Bera normality test result, ARCH and Breusch-Pagan-Godfrey hence affirm the stability of the long-run and short-run coefficients of the independent variables.

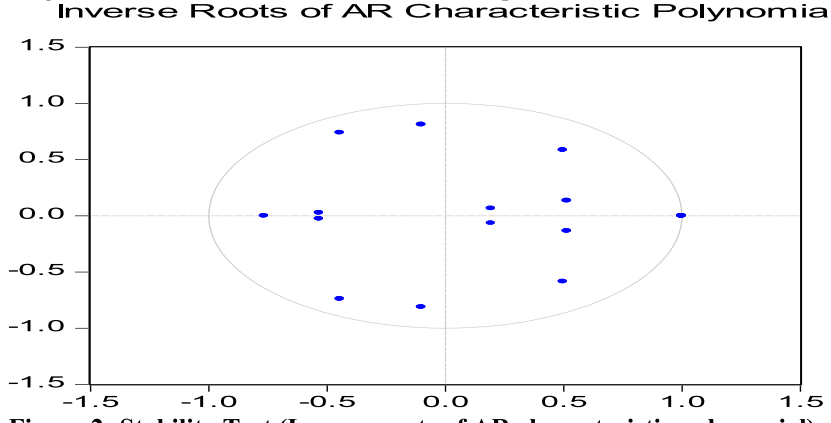

Figure 2: Stability Test (Inverse roots of AR characteristic polynomial)

Graph reports the inverse roots of the characteristic AR polynomial. Estimated VAR is stable since all roots have modules less than one and lie inside the unit circle

5.0 Conclusion and Recommendations

The oil industry is vital in Nigeria. Its output via oil revenue is generally agreed to be a catalyst to economic growth. This study concludes that oil revenue has a significant effect on the Nigerian economy both in the short run and long run. Hence, Strategies should be put in place to ensure that Oil Revenue increase is sustained and enhanced as this will ensure a sustainable increase in economic growth and development. This can be

done by increasing the domestic production capacity through rebuilding and renovating the nation's refineries and reducing oil revenue leakages in the form of Wastage and oil spillage. Government expenditure equally be should be channeled more toward economic propelling sectors to ensure the effective use of proceeds from Oil revenue. Among the sectors recommended is the real sector. This will in turn boost the overall domestic capacity of the economy and place the economy at an advantage in the foreign market and ultimately its exchange.

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