International Journal of Intellectual Discourse (IJID)
ISSN: 2636-4832 Volume 6, Issue 1. March, 2023

Asymmetric effect of oil price on government expenditure in Nigeria

Abdurrahman Muhammad, Umar Bala, & Mohammad Adamu

Department of Economics, Faculty of Social Sciences,
Bauchi State University Gadau, Nigeria

Corresponding Email: abdurrahmanmuhammad026@gmail.com

Abstract
This study investigates the impact of oil price on government expenditure in Nigeria, using annual data for the period (1981-2019), the study used a Non-Linear Autoregressive Lag Distributed model (NARDL) to assess the positive and negative effects of the crude oil price on Nigeria's government expenditure. In determining the effect of oil price on government expenditure, the study found that both the positive and negative changes in oil price have positive and significant effect on government expenditure, however the control variables, exchange rate, inflation and real gross domestic product have no significant effect on total government expenditure. The study also revealed an asymmetric relationship between crude oil price and government expenditure. Therefore, the study recommended that policy makers have to focus on deepening the oil and gas sector and policy that will stabilize the macroeconomic structure of the Nigerian economy, by specifically focusing on another sources of government revenue (diversify and reduce dependency on oil proceeds) and ensure fiscal discipline in governance.

Keywords: Government expenditure, oil prices, NARDL

1. Introduction

Nigeria is blessed with many natural resources of which petroleum plays a key role. Nigeria is the 11th largest producer and 7th largest exporter of crude oil. Oil is the major source of Nigeria's revenue, accounting for 35 percent of the GDP, over 90 percent of the exports and 80 percent government revenues (Ogbonna & Appah, 2012). As much as 85% of government revenue and 95% of foreign exchange earnings is accredited to oil exports, consequently, the economy has been largely unstable, due to the high reliance on oil revenue, and the volatility of oil price (Odulara, 2008). Several previous studies have analyzed the dependence of the country on natural resources, especially crude oil (Ayadi, 2005; Olomola & Adejumo, 2006; Adeniyi *et al.* 2011; Fasanya *et al.* 2013) but none provide decisive as how nonlinearity in oil prices have affected the government expenditure.

The growth in petroleum sector in 1970 is the contributed extensively to decline in agricultural export, whereas that of oil increased (Olomola & Adejumo, 2006). From the year 1981, the global oil market started to decline and it economic crisis emerge in Nigeria as the country depend on the sale of crude oil for her export revenue. In view of the fact that Nigerian economy has remain highly import-dependent economy on oil supported, the variation of oil prices would have effect on the Nigeria on its major source of income (Ufoeze *et al*. 2018).

On May 29, 2007, crude oil price was $67.2 per barrel and foreign exchange reserve was then $4.72bn as at 1999, increase to $43bn. Nigeria's economy look very strong (Nigeria National Petroleum Cooperation

NNPC, 2009). Actually, Nigeria had sufficient fiscal buffers, with excess crude oil Account in two figures and foreign exchange reserves documented at $62.08bn as at September 2008. During the global economic crisis, Nigeria's external reserves were vulnerable. It fall from $40bn as at April 2010, and by September 2011 it has reached a bottom balance $31.74bn (Economy Watch, 2014).

In July 2014, the dwindling in global crude oil crisis has adversely affected Nigeria, especially in the areas of foreign reserves, currency crisis, declining government revenue and ultimately threat in terms of ability to meet financial obligations as at when due. Oil price fell from it all time high of $108.66 in 2013 to $43.73 in 2016 and further fell to $37.35 (OPEC, 2016). This means between 2013 and 2016 oil price declined sharply by more than half (64.5%). Government revenue declined significantly from about N10, 068.9 billion in January 2014 to about N5, 616.4billion June, 2016 due to over 70 percent drop in crude oil price. However, government expenditures keep increasing, such that the gap between revenue and expenditure continues to widen. Instead of government expenditure to fall due to fall in revenue, the government spending has increased from about N4, 587.4billion in 2014 to N5, 858.6 billion in 2016 (CBN, 2016). It's evidenced that oil price changes have asymmetric effect on Nigeria's revenue and expenditure. Fall in oil price leaves Nigeria with the only option of borrowing from international and local sources to finance it expenditure; it fails to improve other sectors of the economy to generate revenue. In short, the effect could be behavior on all the macroeconomic indicators, including inflations, exchange rate, interest rates, and among others (Abdullah & Omaku, 2018).

The 2020 oil price crisis was caused by a disagreement between Russia and OPEC over proposed production cuts amidst Corona Virus pandemic. Nigeria's economy was largely affected by the Corona virus pandemic and Covid-19 lockdowns. Among others, oil price witnessed a sharp fall and the country lowered the daily crude oil production consistently. In January 2019, the oil price was $57/barrel, whereas in 2020 the price fell to $15/barrel (Statista, 2022). Nigeria's economy lost approximately $15.8bn. The country's gross domestic product diminished by 6.1 percent in the second quarter and by 3.62 percent in the third quarter of 2020 (Olujobi *et al.* 2022). The 2020 oil price shock happened in only half of a month after the dispute. Political and diplomatic measures are needed to avoid future drop and support rebalancing of the economy. Nigeria should change its developmental policies more on boosting production in the non-oil sectors.

Government expenditure has been increasing over the years with the multitude of physical capital and the various programs as well as massive projects that are to be carried out. In summary, government desire to bring about fast economic development has basically accounted for the budget deficits witnessed in national account (Adelegan and Out). The impact of budget deficit in Nigerian has not brought heavenly economic performance. Fiscal deficits tend to decrease national savings which has negative consequences for economic development. The over reliance on oil revenue has made the Nigerian economy prone to external shocks (Kilishi, et. al, 2010).

Given the above, it's significant to note that establishing a long run relationship between oil price and government expenditure would help to know any source of fiscal imbalance in the economy. The study adopted NARDL model to determine the short run and long run asymmetric effect of oil price on government expenditure in Nigeria. The study is divided into five sections. Section 1 introduction; section 2 presents the literature review;

section 3 explained the methodology; section 4 discusses the empirical analysis of the results and the findings of the study. Section 5 conclusion and recommendation.

2. Literature Review

The study adopts a Keynesian theory which advocate for state intervention in the economic management so as to attain full employment against cyclical recession or depression which is in contrast to the classical economic theory which believes in the Say's law. Keyne's theory asserted that some microeconomic actions of individuals and firms can lead to aggregate macroeconomic outcomes in which the economy operates below its potential output growth (Keynes, 1939). Keynesian school has suggested measures of ending recession as: -large borrowing and infrastructural spending -lower taxes and incentives - acceptance of Natural rate of inflation -countercyclical spending and investment - accommodating monetary policy - given bailout. Keynes favors injection of money into the economy in the face of recession in order to increase aggregate demand and that any outflow could lead the economy into depression (Jhingan, 2005)

Adedokun (2018) investigated the effect of oil shock (price and revenue) on the dynamic correlation between government revenues and expenditure in Nigeria. The result indicates that oil price shock could not explain the changes in government expenditure in the short run, while oil revenue shock can be strongly predicted both in short run and in the long run. Olayunbo and Olayemi (2018) focused on the dynamic relationship between non-oil revenue, government spending and economic growth in Nigeria. The results shows that government spending has negative effect on economic growth in the short and long run, while non-oil revenue has a positive effect on economic growth. Jabir and Aluthge (2019) investigated the factors that influenced the public expenditure in Nigeria using the Autor Regressive and Distributed Lag (ARDL) model. The result revealed that oil price and oil revenue has significant positive influence on public spending in Nigeria.

Aregbeyen and Fasanya (2017) study the fiscal response to oil price changes in Nigeria. The finding shows that real oil price had driven government expenditure dynamics and a long run relationship between oil price and government spending, non-oil growth, inflation and different exist. There is no asymmetric effect of oil price shocks on government spending. Also Algaeed (2018) found symmetric oil price shocks impact the total earnings of the Saudi government and hence, government expenditure. Moreover, Abdel-Latif *et al.* (2018) investigated the effect of oil price shock on government expenditure on the health and education sectors in Saudi Arabia, and find out that there is non-linear relationship between oil price shock and government expenditure in Saudi Arabia. Using the same method, Mohammad and Sani (2020) examine the asymmetric impact of oil price on public and educational expenditure, the empirical result shows the presence of co integrating relationship between oil price and public expenditure on education.

Muse (2018) study the impact of oil price shock and fiscal spending in oil producing economy. The study reveals that shocks to oil price did not matter for fiscal spending in the oil producing economy and fiscal spending in Nigeria reacts indifferently to either negative or positive oil price shock. Also, Orhewere and Ogbeide-Osaretin (2020) investigated the impact of oil price volatility on capital expenditure using the Vector Error Correction Model (VECM), the result from the analysis confirms that oil price volatility and oil revenue have negative impact capital expenditure. In additions, there is a positive impact of oil

price shock on public expenditure on education both in short and long run.

Table 1: A summary of Empirical review of oil price and government expenditure

Authors	country	Period	model	Findings
Adedokun (2018)	Nigeria	1981-2014	SVAR, VAR, VEM	The result indicates that oil price shock could not explain the changes in government expenditure in the short run, while oil revenue shock can be strongly predicted both in short run and in the long run.
Olayunbo and Olayemi (2018)	Nigeria	2005-219	ECM	The results shows that government spending has negative effect on economic growth in the short and long run, while non-oil revenue has a positive effect on economic growth.
Jabir and Aluthge (2019)	Nigeria	1970-2019	NARDL	Oil price and oil revenue has significant positive influence on public spending in Nigeria.
Aregbeyen and Fasanya (2017)	Nigeria	1970-2013	VAR	Oil price shocks lead to a significant increase in public expenditure in the short-run and long run
Algaeed (2018)	Saudi Arabia	1970 - 2018	ARDL	found symmetric oil price shocks impact the total earnings of the Saudi government and hence, government expenditure
Abdel-Latif 2018)	Saudi Arabia	1990-2017	NARDL	there is non-linear relationship between oil price shock and government expenditure in Saudi Arabia
Mohammad and Sani (2020)	Nigeria	1990-2016	NARDL	Result shows the presence of co integrating relationship between oil price and public expenditure on education.
Muse (2018)	Nigeria	1990-2016	NARDL	Oil price did not matter for fiscal spending in the oil producing economy and fiscal spending in Nigeria reacts indifferently to either negative or positive oil price shock.
Orhewere and Ogbeide-Osaretin (2020)	Nigeria	1970-2018	VECM	Oil price volatility and oil revenue have negative impact capital expenditure.

Note: ARDL=Autoregressive distributed lag model; NARDL=Non-linear autoregressive distributed lag model; OLS=Ordinary least squares; 2SLS=Two-stage least squares; SVAR=Structural vector autoregression; VAR=Vector autoregression; VECM=Vector error correction model.

3. Methodology

3.1 Data

The study used secondary data for the analysis. Oil price was gotten from BP Statistical review, government revenue; government expenditure and real gross domestic product were gotten from CBN Statistical bulletin while exchange rate and inflation data were gotten from World Bank WDI. Annual data series for the period 1981 to 2019 (39yearly observations) were considered. The data are measured as follows; GEX is total government expenditure in billions of Naira, OP is the annual Brent Crude oil price measured in US Dollars, RGDP id the real gross domestic product measure in percentage of GDP, EXCH is rate of exchange measured from Dollar to Naira, and INF is the rate of inflation measured in consumer price index in local currency.

The equation of the research, the model can be written as follows:

GEX = *f*(OP, EXCH, INF, RGDP) (1) Where;

OP= Oil price, GEX= Government expenditure, EXCH= Exchange rate, INF= Inflation, RGDP= Real gross domestic product

The econometric form of the function is stated as follows;

$$\ln GEX_t = \alpha_0 + \alpha_1 \ln OP_t + \alpha_2 \ln EXCH_t + \alpha_3 \ln INF_t + \alpha_4 \ln RGDP + \mu_t \quad (2)$$

3.2 Nonlinear ARDL

In other to capture the nonlinear and asymmetric co-integration between the variables used in this study, the study chooses to use the Nonlinear ARDL (NARDL) bound testing approach developed by (Shin et al., 2014). NARDL makes distinction between short term and long-term changes of the independent variables and the dependent variables. NARDL allow the combination of different integration orders, and it also allows incorporating the possibility of asymmetric effect of negative and positive changes in the independent variables on the dependent variables, unlike that of ARDL. It also chooses appropriate lag order for the variables, thereby solving the issue of multicollinearity. In addition, NARDL method provide graph of cumulative dynamic multipliers used to traced the adjustment patterns following the negative and positive shocks to explanatory variables.

Equation (2) under previous section can be modified and extended to an asymmetric long run equation as:

$$\ln GEX_t = \alpha_0 + \alpha_1 POS_t + \alpha_2 NEG_t + \alpha_3 \ln EXCH_t + \alpha_4 \ln INF_t + \alpha_5 \ln RGDP_t + \mu_t \quad (3)$$

Where $\alpha 0$, $\alpha 1$,….,$\alpha 5$ are long run parameters to be estimated and μ_t is the stochastic error term. The constant term α_o captures all the exogenous factors such as a constant term, linear trend and dummy variable for structural breaks, if any. In equation (3), *POS* and *NEG* represent the element of asymmetry in ARDL model. The values of *POS* and *NEG* are generated by computing

$$POS_t = \sum_{j=1}^{k} \Delta OP_j^+ = \max(\Delta OP_j, 0) \quad (4)$$

And

$$NEG_t = \sum_{j=1}^{k} \Delta OP_j^- = \min(\Delta OP_j, 0) \quad (5)$$

Where *POS* is the partial sum of positive changes in OP, and *NEG* is the partial sum of negative change in OP. The impact of oil price on fiscal policy may be asymmetric. The hypothesis can be tested by evaluating $\alpha 1$ and $\alpha 2$ in equation (4) and (5) as they capture the effect of oil price increase or decrease on fiscal policy, respectively. The scenario of $\alpha 1 = \alpha 2$indicates no asymmetry is found between oil price and fiscal policy. If $\alpha 1 \neq \alpha 2$ then the presence of nonlinear relation is concluded.

As shown in Shin et al. (2011), the equation can be framed in ARDL setting the line of Pesaran and Shin (1999) and Pesaran et al. 2001) as:

$$\Delta \ln GEX_t = \beta_0 + \beta_{1i} \ln GEX_{t-i} + \beta_{2i} OP^{+}_{t-i} + \beta_{3i} OP^{-}_{t-i} + \beta_{4i} \ln EXCH_{t-i} + \beta_{5i} \ln INF_{t-i} + \beta_{6i} \ln RGDP_{t-i}$$

$$+ \sum_{i=1}^{m} \varphi_{1i} \Delta \ln FP_{t-i} + \sum_{i=0}^{m} \varphi_{2i} \Delta \ln EXCH_{t-i} + \sum_{i=1}^{m} \varphi_{3i} \Delta \ln INF_{t-i} + \sum_{i=0}^{m} \varphi_{4i} \Delta \ln RGDP_{t-i} + \sum_{i=0}^{m} (\theta_i^{+} \Delta OP^{+}_{t-i} + \theta_i^{-} \Delta OP^{-}_{t-i}) + \varepsilon_t$$

(6)

Where all variables are defined above m the lag orders, the aforementioned long run impact of increase in crude oil price and its reduction on government expenditure. $\sum_{i=1}^{q} \theta_i^{+}$ Measures the short run influence of oil price increase on fiscal policy while $\sum_{i=1}^{q} \theta_i -$ the short run influences of oil price reduction on fiscal policy. Hence, in addition to the asymmetric long run relation, the asymmetric short run influences of oil price changes of government expenditure are also captured.

4. Results and Discussion

4.1 Unit Root Test

The unit root test result using Augmented Dickey-Fuller (ADFP and the Perron (PP) are provided in table 1

Table 2. Unit Root Test

Variables	Unit root test ADF Level	1st diff.	Unit root test PP Level	1st diff.
Intercept only				
LOP	-1.026940	-5.830236*	-1.026940	-5.824941*
LGEX	-1.431787	-2.007791	-1.092481	-7.308496*
LEXCH	-2.091014	-5.205206*	-2.239890	-5.205206*
LINF	-3.391148*	-6.889738*	-3.271640*	-9.623778*
LRGDP	0.017194	-3.859853*	0.703549	-3.859853*
Trend and intercept				
LOP	-2.339364	-5.801202*	-2.339364	-5.792540*
LGEX	-0.408356	-7.694569*	-0.913691	-7.584934*
LEXCH	-1.252272	-5.609226*	-1.251353	-5.809300*
LINF	-4.436434	-6.784463*	-3.222790	-10.00537*
LRGDP	-1.508392	-3.766662*	-3.125435	-3.617739*

Source: Authors computation using Eviews9 (2022)

ADF is the Augmented Dickey-Fuller test and PP is the Philip Perron test. * indicate the rejection of the null hypothesis of non-stationarity at 1% level.

Clearly from Table 1, both Augmented Dickey Fuller and Philip Perron unit root tests concluded that the variables are stationary at level I(0) and first difference I(1). There is no variable that is integrated at second order I (2). This fulfills the requirement to proceed to the bounds test for co integration.

4.2 Cointrgration Test

Table 3: NARDL Bound Test

OP---GEX	F-Statistics	Lower bound	Upper bound	Conclusion
(I)	3.371747	2.26	3.35	Cointegreation

Source: Authors computation using Eviews9 (2020)

From Table 2, the F statistic (3.37) in the first model is larger than the upper bound critical value (3.35) at 10% significance level, which indicates the occurrence of co integration (or long-run relationship) between Oil price and government expenditure.

4.3 Result of Nonlinear ARDL Estimation

Table 4 Nonlinear Autoregressive Distributed Lag (NARDL) Estimation Results.

Model GEX----OP		
Variables	**Coefficients**	**T stats**
Constant	21.843893*	1,948870
ΔLOP	0.452397**	2.301441
ΔLOP	-0.262522**	-2.076586
ΔLRGDP	-0.935064*	-1.748221
ΔLEXCH	0.216146	1.667588
ΔLINF	-0.025408**	-0.404919
LOP+	0.959110	2.432065
LOP_	0.556563	-2.284951
LRGGDP	-1.982394	-1.732984
LEXCH	0.605166***	5.521585
LINF	0.160295	0.738878
ECM	-0.471684	-4.105418
Adj R	0.996658	

Source: Authors computation using Eviews9 (2022)

Note: 1. the superscripts "+" and "-" show the positive and negative cumulative sums, respectively. 2. LGEX, LRGDP, LEXCH, LINF are the estimated long-run coefficients related with positive and negative changes in oil prices. 3. *, **, and *** represent significance at 10%, 5%, and 1% levels, respectively.

The empirical results from the table indicate that asymmetric changes in oil price have a positive significant relationship with the government expenditure in both the short run and long run. Result suggests that when oil price increase by 1% increase, it cause government expenditure to increase by 0.45% in the in the short run. Decrease in oil price by 1% leads to increase government expenditure by 0.26% in the short run. Furthermore, positive oil price shows a positive significant relationship with government expenditure in the long run and a 1% increase oil price led to increase in government expenditure by 0.95%. Similarly, negative oil price shows a positive significant connection with government expenditure. A 1% decrease in oil price lead to increases Government expenditure by 0.55%. This asserted that both positive and negative change in oil price leads to increase in government expenditure. When oil price appreciate, Nigeria gets enough revenue to finance it expenditure. And when oil price depreciate

Nigeria increases it expenditure by borrowing (from local and international) and foreign aids. The effect inflation and gross domestic product on government expenditure were insignificant, exchange rate has a positive statistically significant relationship with expenditure

The ECM coefficient of -0.429348 provide an evidence of gradual adjustment towards long run equilibrium (about 42% disequilibrium is ratified on yearly basis by changes in price to government expenditure). This implies that in case of distortion in equilibrium, it takes about for equilibrium to be re-established. The F-statistic is significant at 1% level, and that implies the overall validity of the model.

4.4 Diagnostic Test

Table 5: Residual Diagnostic Test

OP----GEX
Jarque-bera = 0. 97
Serial autocorrelation = 0.2534
Heteroskedasticity = 0.7835

Source: Authors computation using Eviews 9 (2022)

This test was applied on the residuals of the model. The Jarque-Bera of 0.97 is above 5% level, meaning that the errors in the model are normally distributed. The probability values serial correlation 0.2534 is more than 5%, meaning that the errors in the model are not serially correlated. The probability value of Heteroskedasticity is 0.7835 and is higher than 5%, meaning that the errors in the model are Homoskedastic. It is notice that both the two models pass the entire residual diagnostic test.

4.5 Wald Test for Asymmetry

Table 6: Wald Test Result

Test Statistic Value	**Df**	**Probability**
F-Statistic	3.452294 (2, 17)	0.0552
Chi-Square	6.9045872	0.0317

Source: Authors computation using Eviews 9 (2022)

The Wald test was conducted in order to check for asymmetric relationship between oil price and government revenue and expenditure in Nigeria. It is noticed that in both the model, the probability value is less than 5%. This is evidence that there is long run asymmetric relationship between oil price and fiscal policy (government revenue and expenditure).

5. Conclusions and Recommendations

The study indicate that the asymmetry exists both in the short run and the long run oil price with reference to government expenditure signifying that the positive shocks of oil price impact government expenditure positively and in much larger magnitude when compared to a negative shock meaning a reduction in oil price increases the government expenditure in Nigeria but with a lesser speed of adjustment. Moreover, the study indicates that exchange rate and inflation have a positive statistically significant relationship with government revenue, gross domestic products had insignificant negative effect on foreign direct investment during the study period. The exchange rate has a positive and statistically significant in influencing expenditure, but inflation and RGDP were insignificant.

The government should take steps to ensure that any unforeseen influences resulting from the vagaries of oil price shock are guarded against. Expenditure lost its explanatory power to price on oil revenue, the study recommend that efforts should be made to diversify the economy such that government spending would be financed by its generated revenue rather than borrowing or depending on foreign aids.

References

Abdel-Latif, H. Osman, R. A., and Ahmed, H. (2018). Asymmetric Impact of Oil Price Shocks on Government Expenditures: Evidence from Saudi Arabia. *Cogent Economic & Finance, 6*(1), 1512835.

Abdullahi, A. O. and Omaku, A. A. (2018). Fiscal Policy and 2016 Recession in Nigeria, An Analysis of 2017 Budget. *Journal of Economic and Finance, 9*(6), 2321-5925.

Adedokun, A. (2018). The Effect of Oil Shocks on Government Expenditures and Government revenues Nexus in Nigeria (with Exogeneity Restrictions). *Future Business Journal*, 4: 219-222.

Adelegan, A. E. and Out, E. (2020). Government Expenditure and Oil Revenue in Nigeria, *East African Scholars Journal of Economics, Business and Management.* 2617-4464 | ISSN 2617-7269 DOI: 10.36349/EASJEBM.2020.v03i05.004

Adeniyi, O. Oyinlola, A., and Omisakin.O. (2011).Oil Price Shock and Economic Growth in Nigeria: A thresholds important? *OPEC Energy review*, *35*(4), 308-333.

Algaeed, A. H. (2018). Symmetric oil price shocks and government expenditure-real exchange rate nexus: ARDL and SVAR models for an oil-based economy, *Economics & Finance (2020),* 8:1782076https://doi.org/10.1080/23322039.2020.1782076.

Aregbeyen.O. and Fasanya, O. I. (2017). Oil Price Volatility and Fiscal Behavior of Government in Nigeria, *Asian journal of economics modeling*, *5*(2), 118-134.

Ayadi, F. O. (2005). Oil Price and Nigerian Economy, *OPEC Reviews 2005.3*(29), 199-217.

Dharam, P. G. (1991). The Political Economy of Oil and Gas in Africa, The Case of Nigeria.Lagos Nigeria, *Taylor and Francis Publishers.*

Economy Watch (2014). Managing the Impact of Declining Oil Prices.

Fasanya. I. O., Onakoya, A. B., & Adabanija, M. A. (2013). Oil Discovery and Sectoral Performance in Nigeria, Application of Dutch Disease.*UIP Journal of Applied Economics,12*(2), 25-40.

Jabir, A. and Aluthge, C. (2019). Modeling the Determinant of Government Expenditure in Nigeria. *Cogent Economics & Finance*, 7(1), 1620154.

Jhingan, M. (2005). Economics of Development and Planning.*Vrinda Publications, Delhi.*

Keynes. J. M. (1939). The General Theory of Employment, Interest, and Money. Web edition eBooks@Adelaide 2010.

Mohammad, A. R. and Sani, Y. (2020). Asymmetric Impact of Oil Price Shock on Government Educational Expenditure: Evidence from Nigeria. *International Journal of Intellectual Discourse*, 3(1), pp. 397-409.

Muse, B. A. (2018). Oil Price Shock and Fiscal Spending in Oil Producing Economy: The Role of Asymmetry, *Journal of Energy and Research Reviews, 1*(4),1-10.

Nigeria National Petroleum Company NNPC (2009). The Nigerian Oil and Gas Report, Q2, Business Monitor International, R3025940.

Ogbonna, G. N., and Appah E. (2012). Impact of Petroleum Revenue and the Economy of Nigeria.*Current Research Journal of Economic Theory, 4*(2),11-17,2012 ISSN: 2042-485X. Maxwell Scientific Organization, 2012.

Olomola, P. A., and Adejumo, A. V. (2006). Oil Price shock and Macroeconomic Activities in Nigeria. *International Research Journal of Finance and Economics*.*3*(1), 28-34.

Olayunbo, D. O.and Olayemi, O. F. (2018). Dynamic Relationship among Non-oil Revenue, Government spending and Economic Growth in Oil Producing Country: Evidence from Nigeria. *Future Business Journal,4*(2018),246-260.

Olujobi, O. I., Olarinde, E. S., Yebisi, T. E., Okorie, (2022). Covid-19 Pandemic: The Impact of Crude Oil Shock on Nigeria's Economy, Legal and Policy Options. *Sustainability* 2022, 14, 11166. https://doi.org/10.3390/su141811166 .

OPEC (2016). Operation of Petrol Exporting Countries Basket, retrieved from http://www.opec.org.

Orhewere, B. and Ogbeide-Osaretin, E. N. (2020). Oil Price Shock and their Impact on Capital Expenditure in Nigeria. *Economica*, 16(12), PP. 227-238.

Pesaran, M. H., Shin, Y., and Smith, R. J. (2001). Bound Testing Approach to the Analysis of Level Relationship, *Journal of Applied Econometrics,16*(3),289-326.

Pesaran, M. H., and Shin, Y. (1999). An Autoregressive and Distributed Lag Modelling Approach to Cointegrating" In Econometric and Economic Theory in the 20th Century: *The Ragnar Frisch Centennial Symposium*, by S. Storm Eds., Cambridge University Press: Cambridge.

Raouf, E. (2021). Oil Price Shock and Government Expenditure, *International Journal of Energyand Economic Policy*, *11*(15), 78-84.

Shin, Y., Yu, B., and Greenwood-Nimmo, M. (2011). Modeling Asymmetric Cointegration and Dynamic Multipliers in a Nonlinear ARDL Framework. Mimeo: *University of Leeds.*

Statista (2022). Impact of Corona Virus on Oil Price in Nigeria 2020. Published Feb 1, 2022.

Ufoeze, I. O., Okuma, C. N., Nwakoby, C. &Alayeku, U. B. (2018). Effect of Foreign Exchange rate Fluctuation in the Nigerian Economy, *Economic Series Issue,* 105-122.