Oil Revenue and Nigerian Economic Growth from 1981-2018: A Resource Curse?

Akinlolu Agbara Olojede and Nejo Femi Michael

Department of Economics AdekunleAjasin University
AkungbaAkoko, Ondo State, Nigeria

IJMSSSR 2020
VOLUME 2
ISSUE 4 JULY – AUGUST **ISSN: 2582-0265**

Abstract – Oil revenue has been the major source of income for the Nigerian economy over the years with little or no attention given to other sectors of the economy. This dependence has been questioned to being a resource curse for the nation. For this purpose, this research was conducted with a time series data employed from CBN and NBS ranging from 1981-2018. The study used the Ordinary Least Squares regression and Granger causality to test the effect and causal relationship between the variables modeled. The result discovered that there is a negative but statistically significant relationship between oil revenue and gross domestic product while other variables showed no significant probability values. The study concluded that oil revenue is a resource curse for the country judging from the dependence of the country on oil revenue and that it a negative effect which hinders other sectors from growing and help curb the rising economic volatility in the country.

Keywords: Nigeria, Economic Growth, Oil Revenue, Resource Curse.

Introduction

Nigeria is a country blessed with mineral resources out of which oil is singled out. Prior to the discovery of oil in Nigeria, agricultural sector was the main focus of Nigerian economy, adding about 85% to her foreign exchange earnings, providing over 60% of her employment capacity and approximately 52% to her gross domestic earnings (Azevedo, 2019). The discovery of oil in commercial scale made petroleum industry in Nigeria the biggest. Oil provided about 90 percent of foreign exchange earnings and approximately 80 percent of Federal revenue and contributes to the growth rate of Gross domestic product (GDP) of the Nigerian economy. The advent of oil in the 1970s led to Nigeria's neglect of its strong agricultural and light manufacturing bases in exchange for an unhealthy dependence on oil revenue (Akinlo, 2012).However, since the discovery of oil in Nigeria, there has been a paradigm shift from previous sources of income like agriculture to simply oil exploration. The income from oil exploration and exportation overtime has been the main stay of the economy. The focus on this sector of the economy has deprived other sectors the attention they deserve making the growth one sided and not spreading to others potentially helpful sectors. Before the advent of oil, Nigeria used to trade in Cocoa, Cotton and Oil palm among other cash crops. These cash crops helped the country survive and became a main notable exporter of agricultural produce. The agricultural sector began to develop the manufacturing sector as the raw agricultural produce were gradual being developed and this was leading to increasing local secondary production as well as an incentive for foreign direct investment to site manufacturing firms in Nigeria owing to its nearness to source of raw material. But since the advent of oil, the focus was sharply shifted away from agriculture, manufacturing and other upcoming sartorial growth which has left them underutilized over the years bringing the country to the case of a resource curse system.

A resource curse is a paradoxical situation in which countries with an abundance of non-renewable natural resources experience stagnant economic growth or low improving growth where other sectors of same economy are been ignored and given little or no attention. This occurs when a country starts to put all the focus of its production means on a single industry which in this case is oil to the neglect of investment in other major sectors. As a result, the nation becomes overly dependent on the single resource being concentrated upon and the overall domestic product becomes dominated by this single sector and extremely volatile. Also, it leads to redundancy in the economy as other potentially viable sectors are ignored limiting development to a limited people, society and nation at large. The curse comes from the fact that this oil revenue that has become the mainstay of the economy begins to negatively impact other parts of the economy by diverting available means of production and investment only to the industry, the full concentration of labor, capital with other economic resources to the oil industry can leave the country vulnerable to a downturn, high rise in unemployment rate, interest rate, inflation rate among

others. Skilled workers from other sectors begin to transfer to the resource sector creating lag in the former sector that is often left to degenerate. All economic focus starts to target the oil sector while they others begin to stiff, especially the manufacturing sector that was beginning to gain stamina when agriculture was the main stay of the economy.

The resource curse is a perfect example of the idiom "too much of good thing." This is particularly the case with oil-producing countries like Nigeria, Venezuela, and Saudi Arabia among others. Meanwhile, Saudi Arabia recently announced a new economic plan called Saudi Vision 2030 intended to diversify its economy away from the oil industry and break its resource curse (World Bank, 2018).Most members of OPEC like U.A.E and Saudi Arabia amongst others have had a sustainable economic growth and fast developing but Nigeria's economy in spite of the huge oil revenue has remained economically unhealthy. In previous works like that of Akinlo(2012) and (Igberaese, 2013) among others, there exists conflicting results on the empirical analysis of oil revenue on economic growth, with some results indicting reverse causality and others indicating insignificant parameters, leading to the need for more in depth research on the subject. Likewise, most of the existing literatures on this topic have singled out effect only without building a model that can examine how much contribution other sectors of the economy have added to the economy within the time lag to understand if the concentration on oil industry has helped other economies grow better or not. A few related researches have also been carried out on this topic but the most recent work done was in 2015, hence this research will expand its data analyses to 2018 so as to get the recent and more reliable position of the impact of oil revenue on the economy. The objective of this study isto examine the effect of oil revenue on economic growth in Nigeria from 1981-2018 and also to check if oil revenue and other variables representing selected sectors of the economy granger cause economic growth.

LITERATURE REVIEW

A lot of researches have been carried out on oil revenue and economic growth in Nigeria and different literatures have been reviewed. Some literatures important to this study are reviewed below.

The Dutch disease theory posits that when a country is focused on a major source of income originating from her natural resources, such country is bound to be negatively affected over time and the supposed revenue emanated from the sales of the natural resource can turn to a disease. Another theory cardinal to this research is the Resource endowment theory of growth. The major advocates of this theory were Adam Smith "absolute cost advantage" and David Ricardo "Comparative cost advantage". The theory of comparative advantage suggested a country gains the most economic benefit relative to other countries by producing at cheaper overall cost, commodities which a country has in excess or can be more easily produced by other countries. Other countries will therefore benefit from trade only if they accept the cost advantage of the trading country and focus on producing a commodity in which they have an advantage over others (Igbesere, 2013). The role of oil revenue to the development and well-being of many oil producing countries of the world most especially Nigeria has remained over time one of the focal concern of macro economists and most researchers for decades.

Brown and Nnamaka (2014) carried out a study titled Oil revenue and its Impact in Developing Countries: A Case of Nigeria. The objectives of the study centered on an empirical investigation of oil revenue and its impact on growth of the Nigerian economy. The study used ordinary least squares regression method, Augmented Dickey Fuller unit root and co-integration test. The main objective of the study was to ascertain the effects of petroleum income on the Nigeria economy. The study investigated the effects of petroleum income on the Nigerian economy from the year 2000 to 2009 using the gross domestic product (GDP), per capita income (PCI), and inflation (INF) as the explained variables, and oil revenue, petroleum profit tax/royalties (PPT \R), and licensing fees (LF) as the explanatory variables.

However, Odularu (2008) carried out a study titled Crude Oil revenue and the Nigerian Economic Performance. The aim of the study was to ascertain the impact of crude oil on the Nigerian economy. The study analyzed the relationship between the crude oil sector and the Nigerian economic performance using the Ordinary Least Square regression method. The study found that crude oil consumption and export have contributed to the improvement of the Nigerian economy. The study concluded that the production of crude oil (domestic consumption and export) despite its positive effect on the growth of the Nigerian economy has not significantly improved the growth of the economy, due to many factors like misappropriation of public funds (corruption) and poor administration.

Akinlo (2012) assessed the importance of oil in the development of the Nigerian economy. He modeled oil sector against other four sectors i.e. manufacturing, agriculture, trade & service and building & construction. Empirical evidence shows that the five subsectors are co integrated and that the oil can cause other non-oil sectors to grow. However, oil had adverse effect on the manufacturing sector. Granger causality test finds bidirectional causality between oil and manufacturing, oil and building & construction, manufacturing and building & construction, manufacturing and trade & services, and agriculture and building & construction. 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 & construction. The paper recommends necessary regulatory and pricing reforms in the oil sector to consolidate it into the economy and reverse the negative impact of oil on the manufacturing sub sector. The findings of Ibeh and Akinlo revealed that petroleum industry have not rely contributed significantly to Nigeria economy this owned to the fact that Nigeria government have not used her revenue generated from the sector efficiently.

Method

This study employed the Ordinary Least Square (OLS) regression method to examine the effect of oil revenue on economic growth between the period of 1981 and 2018. Annual time series data from 1981 to 2018 were used. This study used annual data series ranging from 1981 to 2018. The data were sourced from the Central Bank of Nigeria Statistical Bulletin (2018) and Nigeria Bureau of Statistics (2018).

Following the work of Akinlo (2012) in assessing the importance of oil revenue in the development of the Nigerian economy over the period of 1960-2009. The adapted form of the model is expressed below;

$GDP_t = F(GDP_{t-1}, OREV_t GEXP_t)$……Eq(1)

Where;

GDP is the Gross Domestic Product

GDP_t= lagged form of GDP

OREV = Oil Revenue

OILP = Oil Production

Equation (i) is linearized as follow;

$GDP_t = B_0 + B_1GDP_t + B_2OREV + B_3GEXP_t + \mu$…….Eq (ii)

Where GDP = Gross Domestic Product OREV = Oil Revenue GEXP = Government Expenditure u is the stochastic term.

Modifying equation (i), this study adopted the model below;

LGDP = f (LOILR, AGRIC, MANF, BCON) …….Eq (iii)

The linear form of the equation (iii) is expressed as follow;

$LGDP = \Omega_0 + \Omega 1LOILR + \Omega_2AGRIC + \Omega_3MANF + \Omega_{4L}BCON + \mu$

Where;

LGDP = Real Gross Domestic Product

LOILR= Log of Oil Revenue

AGRIC = Agriculture Revenue

MANF= Manufacturing Revenue

BCON = Building and Construction Revenue

Ω_0= constant intercept

Ω_0-Ω_4= slope of coefficients of the explanatory variables captured in the model, Ui= stochastic disturbance term

Results

Unit Root Test

Testing for the existence of unit roots is an important concern in the study of time series models. However, in order to test for the stationary of the time series data used in this research work, the Augmented Dickey Fuller (ADF) Unit Root test was used with a 5% critical value. Table 1 reveals the result of the unit root test, which is presented below.

Table 1: Unit root result

Variable	ADF test statistics	T-statistics at 5 % level	P-value	Order of Integration
AGRIC	-3.863661	-2.948404	0.0000**	I(1)
BCON	-6.532059	-2.948404	0.0000**	I(1)
LGDP	-5.520504	-2.945842	0.0001**	I(1)
LOILREV	-9.541890	-2.945842	0.0000**	I(1)
MANF	-3.848818	-2.967767	0.0000**	I(1)

Source: E-views 2020 (2020).

The table 1 shows the unit root test using Augmented Dickey Fuller Test. The results shows that log of Gross Domestic Product(In GDP), log Oil Revenue(LOILREV), Agriculture revenue(AGRIC), Building and Construction revenue(BCON) and Manufacturing revenue (MANF) were stationary at first level difference and it is seen that the t- statistics is greater than the critical value at 5% level of significant.

Table 2: Johansen Co-integration Test

Hypothesized No of CE(S)	Trace Statistics	Max-Eigen Statistics	Prob. for Trace	Prob. For Eigen
None	137.2820	52.11417	0.0000	0.0014
At most 1	85.16787	35.44629	0.0018	0.0322
At most 2	49.72158	28.60463	0.0330	0.0369
At most 3	21.11695	14.26314	0.3504	0.3438
At most4	6.853805	6.645551	0.5947	0.5319

Source: E-views 2020 (2020).

Table 2 shows the Johansen Co-integration Test result. The findings showed both Max-Eigen statistics and Trace Statistics. The findings show that at none both Max-Eigen statistics and Trace Statistics were statistically significant.

Table 3: Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
D(AGRIC) does not Granger Cause D(LNGDP)	35	1.37827	0.2675
D(LNGDP) does not Granger Cause D(AGRIC)		0.05672	0.9450
D(CONSTR) does not Granger Cause D(LNGDP)	35	0.55618	0.5792
D(LNGDP) does not Granger Cause D(CONSTR)		0.15584	0.8564
D(LNOILREV) does not Granger Cause D(LNGDP)	35	1.37944	0.2672
D(LNGDP) does not Granger Cause D(LNOILREV)		0.53703	0.5900
D(MANF) does not Granger Cause D(LNGDP)	35	0.96616	0.3921
D(LNGDP) does not Granger Cause D(MANF)		0.07759	0.9255
D(MINNIG) does not Granger Cause D(LNGDP)	35	0.02290	0.9774
D(LNGDP) does not Granger Cause D(MINNIG)		0.04775	0.9534
D(CONSTR) does not Granger Cause D(AGRIC)	35	1.03161	0.3687
D(AGRIC) does not Granger Cause D(CONSTR)		1.01606	0.3741
D(LNOILREV) does not Granger Cause D(AGRIC)	35	1.55294	0.2282
D(AGRIC) does not Granger Cause D(LNOILREV)		0.05661	0.9451

D(MANF) does not Granger Cause D(AGRIC)	35	0.20312	0.8173
D(AGRIC) does not Granger Cause D(MANF)		5.06420	0.0127
D(MINNIG) does not Granger Cause D(AGRIC)	35	0.86735	0.4303
D(AGRIC) does not Granger Cause D(MINNIG)		0.65866	0.5249
D(LNOILREV) does not Granger Cause D(CONSTR)	35	1.29570	0.2886
D(CONSTR) does not Granger Cause D(LNOILREV)		3.48227	0.0437

Source: E-views 2020 (2020).

The result above shows the granger causality direction between the variables under study. None of the variables granger cause log of gross domestic product however revenue from agricultural sector with a p-value of 0.0127 shows a uni directional relationship with the manufacturing sector revenue and also, revenue coming from the construction sector shows a uni directional relationship with a significant probability value of 0.0437 running rom construction to oil revenue. This implies that as more and more attention is given to the agricultural and construction sectors of the economy, this will be more productive boost for the proceeds coming from oil revenue as the focus of returns will no longer be relied solely on oil revenue anymore.

Ordinary Least Square Regression Result

Table 4 Least Square Regression Estimates (LGDP as dependent Variable)

Regress or variable	Coefficient	Std Error	T-stat	Prob
C	1.373964	0.100219	13.70958	0.0000**
AGRIC	0.002194	0.001291	1.699406	0.0989
CONSTR	6.610005	0.000325	0.203179	0.8403
LNOILREV	-0.197274	0.094580	-2.085789	0.0451**
MANF	-0.000366	0.000362	-1.013252	0.3185
R-squared	0.938452			
Adjusted R-squared	0.914819			
Prob. (F-Statistics)	0.0000			
Durbin-Watson Stat	2.447973			
** indicates statistically significant				

Source: E-views 2020 (2020).

From table 4 above, the result shows that only oil revenue has a long run effect on the gross domestic product with a statistically significant p-value of 0.0451 while other variables in the model as reflected in the result do not have a long run possibility. This may be due to the fact that the concentration of the Nigerian government over the years has been solely on oil production neglecting other sectors thereby limiting their contribution to the nation's purse and pitting an embargo on a possible future effect these other sectors could have had on the economy. The result also confirmed that for every one unit decreased variation in oil revenue, there will be a 19unit increase variation in the gross domestic product. This means that the less government focuses on oil revenue, the higher the tendencies of other sectors to grow substantially adding productively to the economy. The R squared of 0.93 showed a strong goodness of fit and which implies that the result is reliable.

Discussion and Conclusion

From the above results, it is clear that the government need to break free from the resources curse associated with oil revenue. The granger causality showed no directional relationship between oil revenue, agricultural sector, construction, manufacturing and gross domestic product however the OLS result showed negative relationship between oil revenue and gross domestic product. This implied that the focus on oil revenue by the country in the

future will bring less addition to the nation's purse than it is now by 19 percent. This is true because the world is diversifying very fast from the use of crude oil as energy source. Nations of the world are moving very fast to cleaner energy sources like solar and electricity which uses little or no crude oil product at all. This fast diversification will negatively affect countries dependent on crude oil exportation as their major source of income like Nigeria because prices will plummet over time and the country will no longer have any incentive left to seek as there will be fewer buyers of the product by the day raising the debt profile of such country and giving access to higher unemployment rate, inflation rate among many other vices that befalls an economically weakened country. At that point, the resource curse would have become more evident than it is now from the result. It is therefore crucial that the country diversifies from the unchecked reliance on crude oil to other sources of income like agriculture and construction as this will aid the manufacturing sector, and the result gross domestic product will increase by 66 percent per every 1percent increase in construction investment. This research therefore concluded that the case of oil revenue in Nigeria judging from the result is a resourcecurseparadox of her mineral resource as it brings more harm to the country's GDP than good when solely focused on with no active and working strategy to diversify.

REFRENCES

1. Akinlo, A. E. (2012). How important is oil in Nigeria's economic growth?.
2. Azevedo, J. P. (2019). WBOPENDATA: Stata module to access world bank databases.
3. Brown, E. D., &Nnamaka, U. C. (2019).Oil Revenue and Economic Growth; an Empirical Evidence from Nigeria.
4. Igberaese, T. (2013).The effect of oil dependency on Nigeria's economic growth.*An unpublished M. Sc thesis from International Institute of Social Sciences, The Netherlands*.
5. Odularu, G. O. (2008). Crude oil and the Nigerian economic performance.*Сетевоеиздание «Нефтегазоведело»*, (1).