The Nexus Between Revenue Generation and Economic Growth in Nigeria

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Abstract
The general objective of the study is to examine the relationship between revenue generation and economic growth in Nigeria. Ex-post facto research design was used with secondary data collected from CBN database (2012-2022). The dependent variable was economic growth and measured by gross domestic product GDP while the independent variables was revenue generation and measured by oil and non-oil revenue. The study adopt usage the autoregressive distributed lag ARDL model for the data analysis which shows the long-run relationship between revenue generation and economic growth in Nigeria. It was discovered that oil revenue (OILR) exerts an insignificant positive effect on economic growth in Nigeria in the long run at 5% significant value. It implies that a unit increase in oil revenue will lead to 3.709184 units increase in economic growth in Nigeria. Conversely, non-oil revenue has a positive and significant coefficient of 1.257631 units. This implies that a unit increase in non-oil revenue will bring about 1.257631 units increase in economic growth in Nigeria in the long. The study recommends that effort should be made by the governments to diversify the main revenue source from oil to other sectors of the economy such as agriculture, extractive industries in order to increase revenue generated from other sources.

Key words: *Revenue generation, economic growth, oil revenue, non-oil revenue, GDP*

1.0 Introduction

Economic growth is the expansion of a nation's capability to produce the goods and services her people want. Todaro and Smith (2003) describe economic growth as the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national output and income. It is the basis of increased prosperity (Shaver & Flyer, 2000). The success or otherwise of any economy, whether developed, developing or underdeveloped, is a function of the availability of revenue to match the cost of governance.

Revenue generation is a way through which the government raises revenue to meet its capital and recurrent expenditure (Okoye & Olayinka, 2021). Revenue generation could be viewed as

the annual or periodical yield of taxes, as well as other sources of income that a nation, state, or public sector collects or receives into their treasury for public use (Olaoye & Bankole, 2019). According to Adegbie *et al.* (2020) there are three main sources by which government raises revenue to finance its expenditure these are tax sources, non-tax, and capital receipts. Fayemi (2001) sees revenue as all tolls, taxes, imprests, rates, fees, duties, fines, penalties, fortunes and all other receipts of government from whatever source arising over a period of either one year or six months. Revenues earned by the government are received from sources such as taxes levied on the incomes and wealth accumulation of individuals and corporations and the goods and services produced, exports and imports, non-taxable sources such as government-owned corporations' incomes, central bank revenue and capital receipts in the form of external loans and debts from international financial institutions (Ganyam *et al.*, 2019).

The Nigerian government has over the years implemented various policies in order to stabilize the economy and to achieve macroeconomic objectives (Akpan & Atan, 2020). One of such policies is fiscal policy which involves the use of government spending, taxation and borrowing to influence the pattern of economic activities and also influence the level and growth of aggregate demand, output and employment (Medee & Nembee, 2011). The most popular among them is taxation which is a means of sourcing finances for redistribution of income and wealth, and the provision of public goods and services like education services, public health, and infrastructure (World Bank, 2007). Taxes is one of the sources of government income. The issues of taxes are of paramount to every government because the performances of every government is measured by its ability to undertake development projects and improve the life of its people, governments therefore need to raise enough revenue to meet these commitments (Nartey, 2011). To solve this constant shortage in revenue generation and the recurring budget deficit problem, the government needs to boost its revenue generation (Obaretin & Uwaifo, 2020).

The revenue generation capable of lifting the federation of Nigeria to their desired level of improved economic growth that can translate to economic development has been a concern of most government. Olaoye and Bankole (2019) claimed that despite the increase in aggregate revenue generated in the country, the standard of living, infrastructural development economic progress and economic development of citizen in the country is second to zero. A recurrent problem of the three-tier system of governance in Nigeria is dwindling revenue generation as characterized by annual budget deficits and insufficient funds for meaningful growth and sustainable development. The Nigerian tax system is lopsided and dominated by oil revenue. However, it is clear that Nigeria's oil revenue can no longer adequately support her developmental objectives due largely to the serious fluctuations in the price of oil in recent years which has led to oil price volatility and a decrease in totally generated revenue by the government (Francisca, 2022)

However, previous studies ignore the impact of non-tax revenue on economic growth there by, resulting in not making full use of non-tax revenue to achieve sustainable economic development. Moreso, the direction of relationship between revenue generation and economic growth have generated conflicting outcome, also, this study will use Granger causality test to know the direction of relationship among variables in the study. This study is extremely important to uncover the effect of revenue generation on economic growth in Nigeria.

Research Objectives

The general objective of the study is to examine the relationship between revenue generation and economic growth; while the specific objectives are:

i. To assess the relationship between oil revenue and economic growth in Nigeria
ii. To determine the relationship between non- oil revenue and economic growth in Nigeria

Research hypotheses

Hypothesis one: There is no significant relationship between oil revenue and economic growth in Nigeria

Hypothesis two: There is no significant relationship between non- oil revenue and economic growth in Nigeria

2.0 Literature review

Economic growth

Okoro (2012) explain economic growth as the increase in the amount of goods and services produced by an economy over time, and affirmed that it is measured as the percentage rate of increase in real gross domestic product GDP. Amadeo (2018) cited in Jamal (2020) emphasize that economic growth generates more profit for businesses, which enables companies to have more capital for investment and employ more employees in the business. As more employment created caused incomes to rise, and makes consumers to have more money to buy products and/or services. According to Dwivedi (2004), economic growth is a sustained increase in per capita national output or net national product over a long period of time. Iyoha (2004) defines economic growth from a time dimension when he opine that economic growth is the increase in output or per capita income over time. Izedonmi (2012) opine that economic growth measures the contribution of economics activities to the development of higher states of human welfare.

GDP is usually used as a proxy for economic development and economic growth (Bingliar & Preye, 2020). GDP measures the monetary value of final goods and services—that is, those that are bought by the final user—produced in a country in a given period of time (say a quarter or a year). It counts all the output generated within the borders of a country. GDP is composed of goods and services produced for sale in the market and also include some non-market production, such as defense or education services provided by the government.

Revenue generation

Ganyam and Ivungu (2019) opine that revenue generation is the annual or periodical yield of taxes, as well as other sources of income that a nation, state or public sector collect or receives into their treasury for public use; while Enahoro and Olabisi (2012) define revenue generation as ways through which government raise revenue for the purposes of meeting its capital and recurrent expenditure. Revenue collected by federal government in Nigeria can be divided into oil revenue and non-oil revenue. While oil revenue covers all revenue generated from oil and gas activities in the country, non-oil revenue looks at any revenue earned from sources other than oil and gas activities (Ganyam & Ivungu, 2019); Chijioke, Leonard, Bossco, and Henry (2018) assert that Nigeria preferred oil and non-oil due to the fact that oil is the major source

of government revenue. Other countries within and outside Africa divide revenues into tax and non-tax revenue.

Theoretical review

The endogenous growth model

The origins of the endogenous growth theory were partly due to the predictive failure of the neoclassical growth model theory of Solow (1956) which believed that taxes can hamper economic growth. Endogenous growth model developed by Romer (1986), emphasize that economic growth is mainly caused by long-run creativity rather than capital accumulation theory as inferred by previous theories. The endogenous growth theory primarily highlights that capital grows due to a higher savings rate, however, to attain higher long-run growth, an economy needs continuous technological progress. Endogenous growth theory argues that human capital and institutions spur technical innovations and enhance living standards. This thought was further developed through the seminal work of Lucas (1988). It was a direct affront on the neoclassical theory of economic growth. The endogenous growth theory advanced a steady growth which presupposes that policy changes can result in saving. According to the endogenous growth theory, government policy, including taxation, can permanently result to increase in per capita output where there is high level of innovation. The implication of the theory is that taxes and other fiscal policies of government can persistently increase per capita output

Expediency Theory of Taxation

The expediency theory of taxation was propounded by Buehler (1936) as revealed by Chiamaka *et al.* (2021). The theory stated that every tax revenue collection system must pass the test of practicability, which must be the only consideration when government is choosing a revenue collection system. The assumption of this theory is that the economic and social objectives of the government should be treated as irrelevant, since it is useless to have a tax which cannot be levied and collected effectively. This theory is relevant to the study in that sustainable economic growth and development is expected by states of the federation in Nigeria to enhance revenue collection by creating an enabling technological environment that facilitates efficient assessment and revenue collection process.

Empirical review

Takuma and Iyke (2015) investigated the causal influence of tax revenue on economic growth in Ghana using Granger causality Toda-Yamamoto test. Using a quarterly dataset which spans the period 1986Q1-2014Q4, the study found strong evidence of unidirectional causal flow from tax revenue to economic growth in Ghana. The study recommended that the policymaker must first embrace accountability of the revenue raised from taxation.

Onyekwelu *et al.* (2018) assessed the relevance of Non-Tax Revenue on the Growth of Nigerian Economy. The study adopted the ex- post facto research design. Secondary data were employed in the study. Results show that revenue from crude oil export has a positive and insignificant effect on Gross Domestic Product (GDP). Revenue from domestic crude oil sales has a positive and insignificant effect on Gross Domestic Product (GDP).Result further reveals that revenue from royalties has positive and significant effect on Gross Domestic Product (GDP). However, revenue from other oil sources not classified above has positive and insignificant effect on Gross Domestic Product (GDP). The study recommended that the country employ the revenues realized judiciously on economic sectors that will better

accounting and collection strategies be put in place to forestall the huge funds which are not accounted for in the oil sales revenue in Nigeria.

Okwara and Amori (2017) examined the impact of tax revenue on the economic growth in Nigeria for the period of 1994-2015. The study employed Ordinary Least Square (OLS). The results revealed that non-oil income has significant impact on gross domestic product while value added tax has negative relationship and statistically insignificant for the period under review. The study therefore recommended that government should diversify the main revenue source from crude oil to other sectors of the economy such as agriculture, extractive industries in order to attract direct and indirect taxes.

Madugba, Michael and Kalu (2015) explore Corporate Tax and Revenue Generation: Evidence from Nigeria. The study tested the relationship between Petroleum Tax Income on Total Consolidated Revenue and the relationship between Companies Income Tax on Total Consolidated Revenue. The result of the correlation showed a positive significant relationship between Petroleum Tax Income and Total Consolidated Revenue. Also, it showed a positive significant relationship between Companies' Income Tax (CIT) and Total Consolidated Revenue. The study recommends that federal government should reduce the tax incentives granted to petroleum companies in Nigeria as well as non-petroleum companies as this will increase the amount of tax revenue generated through corporate taxes in Nigeria. Also, the tax rate of non-petroleum companies should be increased as this will create room for more revenue from such source.

Ibanichuka, Akani, and Ikebujo (2016) study the effect of tax revenue on the economic development of Nigeria for the period 1993 to 2014 to find out if there is an association among VAT and Human Development Index. The study made use of the ordinary least regression (OLS) analysis technique and found a positive but insignificant relationship between Value Added Tax and HDI. Ojong, Anthony and Arikpo (2016) examine the impact of tax revenue on the Nigerian economy. Data were sourced from Central Bank Statistical Bulletin and extracted through desk survey method. Ordinary least square of multiple regression models was used to establish the relationship between dependent and independent variables. Ugochukwu and Azubike (2016) used archival data from Nigeria to investigate the relationship between value-added tax and government revenue. The result of the study was positive and significant at the 5%

3.0 Methodologies

Research Design

This study adopts the ex-post facto design on the basis that it does not provide the study an opportunity to control the variables mainly because they have already occurred and cannot be manipulated

Sources of data

The source of data is secondary. This is so because the published data on economic growth proxy by gross domestic product and total government revenue proxy by oil revenue and non-oil revenue were gathered from Central Bank of Nigeria Statistical Bulletin, 2022. The Instrument used was the internet. It was on the webpage of the official website of CBN that the Bulletin was downloaded from. The data covered a period of tem years for proper trends analysis (2012 – 2022). Economic growth is the dependent variable, and measured by gross

domestic product (GDP), while revenue generation is the independent variable and measured by Oil Revenue (OILR) and Non-Oil Revenue (NOILR).

Model Specification

The model for this study assumes an underlying relationship between revenue generation and economic growth of Nigeria. The model for this study is formulated in line with the modification of the work conducted by Joseph and Omodero (2020) when accessing the nexus between government revenue and economic growth in Nigeria. Joseph and Omodero (2020) formulated their model as:

$CGDP = f(FRR, VAT)$ … … … … … … … … … … … … … … … .3.1

Where:

CGDP = Change in Gross Domestic Product
FRR = Federally Received Revenue
VAT = Value Added Tax

In line with the model in the work of Joseph and Omodero (2020), this study formulates its model as:

$GDP = f(OILR, NOILR)$ … … … … … … … … … … … … … … … .3.2

Equation 3.1 can be represented as:

$GDP = f(\beta_0 + \beta_1 OILR + \beta_2 NOILR + \mu)$ … … … … … 3.3

The study introduced logarithm to all the variables, to bring them to the same unit of measurement. The model becomes:

$LogGDP = \beta_0 + \beta_1 OILR + \beta_2 NOILR$ … … … … … … … … . .3.4

Considering the time series dimension, equation 3.4 can be stated as:

$\text{LogGDP} = \beta_0 + \beta_1(\text{OILR})_t + \beta_2(\text{NOILR})_t$ … … … … . .3.5

To incorporate error correction mechanism, the model becomes:

$$\Delta\text{LogGDP} = \beta_0 + \sum_{i=0}^{n} \beta_1 (\text{OILR})_{t-1} + \sum_{i=0}^{n} \beta_2 (\text{NOILR})_{t-1} + \sum_{i=0}^{n} (\text{ECM})_{t-1} \text{ … … … … … … … … … … … . .3.6}$$

Where:

GDP = Gross domestic product
OILR = Oil Revenue
NOILR = Non-oil Revenue
Ƒ = Functional notation
Δ = Change
t_{-1} = each Lagged variable
$\sum_t$ = White noise residual
$\sum_{i=0}^{n}(\text{ECM})_{t-1}$ = Error Correction Model

Estimation Techniques

Auto Regressive Distributed Lag (ARDL) Model

The choice of this estimation procedure is primarily informed by the fact that it passes the fitness-for-the-purpose-test. There is mixture of integrated order, hence, the study adopt usage the ARDL model for the data analysis.

Granger Causality

After ARDL model, Pairwise Granger Causality test developed by Granger (1988) was employed. Since ARDL cannot determine the direction of relationship among the variables, Granger causality test assists the study to know the variables that granger cause each other or whether no relationship exist. The decisions whether to accept or reject the hypothesis is taken based on the value of the F statistics and the probability. Three types of causality exist using this technique: bidirectional causality which arises when the two variables relate with each other. That is they influence one another; unidirectional causality occurs when only one variable influence the other variable and when no causality flows from the variables implies that none of the variable relates. However, the Granger equations for the model are presented as:

$$ECD_t = \sum_{i=1}^{n} \beta_i \, ECD_{t-1} + \sum_{j=1}^{n} \alpha_j \, TFCR_{t-j} + u_t \quad \ldots\ldots\ldots \quad 3.7$$

$$TFCR_t = \sum_{i=1}^{n} \delta_i \, TFCR_{t-1} + \sum_{j=1}^{n} \varphi_j \, ECD_{t-j} + u_t \quad \ldots\ldots\ldots\ldots \quad 3.8$$

$$OILR_t = \sum_{i=1}^{n} \beta_i \, OILR_{t-1} + \sum_{j=1}^{n} \alpha_j \, ECD_{t-j} + u_t \quad \ldots\ldots\ldots\ldots \quad 3.9$$

$$ECD_t = \sum_{i=1}^{n} \delta_i \, ECD_{t-1} + \sum_{j=1}^{n} \varphi_j \, OILR_{t-j} + u_t \quad \ldots\ldots\ldots\ldots \quad 3.10$$

$$NOILR_t = \sum_{i=1}^{n} \beta_i \, NOILR_{t-1} + \sum_{j=1}^{n} \alpha_j \, ECD_{t-j} + u_t \quad \ldots\ldots\ldots\ldots \quad 3.11$$

$$ECD_t = \sum_{i=1}^{n} \delta_i \, ECD_{t-1} + \sum_{j=1}^{n} \varphi_j \, NOILR_{t-j} + u_t \quad \ldots\ldots\ldots\ldots \quad 3.12$$

Diagnostic Test

Unit Root Test

Time series data are often assumed to be non-stationary since nearly all economic variables are non-stationary at their plain form which formulates coefficients inconsistence and makes all the empirical results unauthentic, there are meticulous methods which neutralize the trouble of serial correlation of error terms, such as Augmented Dickey Fuller Test (ADF) thus, it is necessary to perform unit root test to ensure that there is stationary of data. The test would be employed to avoid the problem of spurious regression. In conducting this test, the Augmented Dickey-Fuller (ADF) unit root test would be employed to determine the stationarity of data.

Decision Rule: Augmented Dickey-Fuller (ADF) test statistics must be greater than Mackinnon Critical Value at 5% and at absolute term i.e. ignoring the negativity of both the ADF test statistics and Mackinnon critical value, before the variable can be adjudged to be stationary, otherwise we accept the null hypothesis (H_0) and reject the alternative hypothesis (H_1).

Unit Root Models

The Unit Root models are presented below;

$$\Delta Y_t = \beta_1 + \delta Y_{t-1} + \sum_{\tau=1}^{m} \alpha_i \Delta Y_{t-1} + \varepsilon_t \quad \text{.....3.13 (with intercept)}$$

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{\tau=1}^{m} \alpha_i \Delta Y_{t-1} + \varepsilon_t \quad \text{.....3.14 (with trend and intercept)}$$

***A Priori* Expectation**

Positive relationship was envisaged between the dependent and explanatory variables in the model based on economic theory.

4.0 Data Presentation

The descriptive data of economic growth measured by real gross domestic product, oil revenue and non-oil revenue are given below.

Table 4.1: Descriptive Statistics Result

	GDP	OILR	NOILR
Mean	10.50437	6.949258	5.984748
Median	10.49288	7.898745	6.338064
Maximum	11.18987	9.091444	8.763600
Minimum	9.741426	2.091864	1.504077
Std. Dev.	0.514131	1.997809	2.187948
Skewness	0.063882	-0.900378	-0.569547
Kurtosis	1.398944	2.598148	2.065041
Jarque-Bera	3.977046	5.248157	3.348014
Probability	0.136897	0.072507	0.187494
Sum	388.6615	257.1226	221.4357
Sum Sq. Dev.	9.515887	143.6847	172.3361
Observations	37	37	37

Source: Author's Computation, (2023)

The descriptive statistics of the variables used in the study are presented in table 4.1. Mean is the average value of the series which is gotten by dividing the total value of the series by the number of observations. From table 4.1 it is clearly indicated that the mean for economic growth (GDP), oil revenue (OILR) and non-oil revenue (NOILR) are 10.50437, 6.949258 and 5.984748 respectively.

Median is the middle value of the series when the values are arranged in an ascending order. Maximum and minimum are the maximum and minimum values of the series in the current sample. Standard Deviation measures the degree of discrepancy in the series. The variable that recorded the highest value of discrepancy is non-oil revenue. Conversely, economic growth shows the lowest level of discrepancy.

Skewness is a measure of asymmetry of the distribution of the series around its mean. The skewness of a normal distribution is zero. Positive skewness implies that the distribution has a long right tail and negative skewness implies that the distribution has a long left tail. From the table 1, it can be observed that oil revenue and non-oil revenue have negative skewness

therefore have a long left tail while economic growth indicated positive skewness, therefore described as long right tail.

Kurtosis measures the peak or flatness of the distribution of the series. If the kurtosis is above three, it shows the peak of the distribution is higher than normal distribution. Hence, the distribution is peaked or leptokurtic relative to the normal and if the kurtosis is less than three, this shows the peak of the distribution is less than normal distribution. Thus, the distribution is flat or platykurtic relative to normal. In this case, all the variables have their kurtosis values lesser than three and as such are flat or platykurtic.

Jarque-bera statistics has the null hypothesis that the variables are normal distribution. The statistically significance of the statistics shows that all variables are normally distributed as their probability values exceeded 5%.

Unit Root Test

In conducting this test, the Augmented Dickey-Fuller (ADF) unit root test was employed to determine the stationary of data, and the results of the ADF unit root test is reported in table 4.2

Table 4.2: ADF Unit Root Test

Variables	ADF Test @ Level	Critical Values @ 5%	ADF Test at FD	Critical Values at 5%	Decision
GDP	-0.929929	-2.948404	-3.658418	-2.948404	I(1)
OILR	-3.290642	-2.945842	NA	NA	I(0)
NOILR	-2.932144	-3.646342	-7.480371	-2.948404	I(1)

Source: Author's Computation, (2023)

From the result in Table 4.2 using ADF test statistics, oil revenue was stationary, the variables were integrated of order zero while GDP and non-oil revenue were stationary at first difference due to the random nature of the data. They were differenced once before they could attain stationarity. These can be seen by comparing the observed values (in absolute terms) of the ADF test statistics with the critical values (also in absolute terms) of the test statistics at the 5% level. The hypothesis of no stationary was therefore rejected.

It implies that GDP and non-oil revenue variables used in the quest to examine the effect of revenue generation on economic growth of Nigeria are non-stationary series that retain innovative shock passed on them for only a short period, given that they are now stationary and integrated at order one I(1) at 5% significant levels while oil revenue become stationary at I(0). Since the variables are mixture of I(0) and I(1), any attempt to specify the dynamic function of the variables in the level of the series will be inappropriate and may lead to spurious regression. Based on the foregoing, the result obtained from the unit root test analysis provided a good justification to use Autoregressive Distributed Lag (ARDL) technique. Hence ARDL procedure was adopted for the study analysis.

Test for Co-integration

Table 4.3 Unrestricted ARDL Model

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
C	0.551049	0.338841	1.626279	0.1140
GDP(-1)	0.953580	0.037508	25.42332	0.0000
OILR	0.172179	0.105417	1.633315	0.1125

NOILR	0.058379	0.044779	1.303718	0.2019
R^2	0.995881			
Adjusted	0.995349			
F-statistic	1873.691			
Prob f-statistic)	0.000000			

Source: Author's Computation, (2023)

Table 4.3 provided the unrestricted ARDL test on the effect of revenue generation on economic growth in Nigeria. This test was carried out as it served as the basis for the determination of bound test approach which guided the study on the existence of long-run relationship among the variables.

Table 4.4 Co-integration Bound Test for ECD

F- Statistic		13.01228
Significance	**Lower Bound**	**Upper Bound**
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

Source: Author's Computation, (2023)

Table 4.4 revealed that the computed F-statistic for testing the joint null hypothesis that the coefficients of the level variables in the underlying ARDL model are not zero (meaning that there exist a long-run relationship among them) as the values of 13.01228 falls above the lower and upper bounds of 2.79 and 3.67 which implies that the null hypothesis is rejected showing that there is a valid co-integration among the variables used in the study at 5% level of significance.

Estimated Short Run Error Correction Model using the ARDL Approach

Table 4.5 shows the outcomes of the statistical test conducted in the short run error correction model to ascertain the short-run upshot of the effect of revenue generation on economic growth in Nigeria.

Table 4.5 Short Run Error Correction Model using the ARDL Approach

Variable ARDL (1, 1, 1, 1)	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(OILR)	0.037544	0.117653	0.319107	0.7518
D(NOILR)	0.007459	0.043081	0.173135	0.8637
CointEq(-1)	-0.048223	0.007130	-6.763346	0.0000

Source: ***Author's Computation, (2023)***

Table 4.5 indicates the short run model which measures the short run dynamics of the parameters alongside the error correction term pertaining to the study. Specifically, the study discovered that in the short run Oil revenue and non-oil revenue indicated insignificant positive relationship of 0.037544 and 0.007459 units respectively in the short-run. The result implied

that a unit increase in both oil and non-oil revenue will increase economic growth by 0.037544 and 0.007459 units respectively.

Finally, the error correction term which denotes the speed of adjustment from short-run to long run reported a correct sign (-) and significant at 5% level of significant which corresponds with theoretical *apriori* expectation. The value of the coefficient is -0.048223 ($p=0.01<0.05$) and this result shows that a percentage (5%) of the short-run inconsistencies are being corrected and incorporated into the long-run equilibrium relationship in each period. In other word, it can be said that revenue generation has a low speed of adjustment back to equilibrium at a rate of 5% per annum and therefore implied that an approximate 5% of the discrepancy between long-run and short run level of revenue generation was corrected and incorporated on yearly basis.

Test of Hypotheses on Effect of Revenue Generation on Economic Development of Nigeria

Dependent variable: GDP

Table 4.6 ARDL Co-integration Regression for GDP

Series: GDP, OILR, and NOILR

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**	**Decision**		**Remark**
					H_0	**H_1**	
C	11.871042	3.218651	3.688204	0.0009			
OILR	3.709184	4.300577	0.862485	0.3950	Accept	Reject	Non-significant
NOILR	1.257631	1.389741	3.226837	0.0025	Reject	Accept	Significant

Source: Author's Computation, (2023)

The result in Table 4.6 is the autoregressive distributed lag model which shows the long-run relationship between revenue generation and economic growth in Nigeria. It was discovered that oil revenue (OILR) exerts an insignificant positive effect on economic growth in Nigeria in the long run at 5% significant value. It implies that a unit increase in oil revenue will lead to 3.709184 units increase in economic growth in Nigeria. Conversely, non-oil revenue has a positive and significant coefficient of 1.257631 units. This implies that a unit increase in non-oil revenue will bring about 1.257631 units increase in economic growth in Nigeria in the long run.

Test of hypotheses

Hypothesis One: There is no significant relationship between oil revenue and economic development of Nigeria

The result of the ARDL regression indicated that the coefficient of oil revenue is 3.709184 units with probability value of 0.3950, which is greater than 0.05 i.e $P > 0.05$ (i.e. $0.3950 > 0.05$) meaning that oil revenue is insignificant in explaining economic growth in Nigeria. Therefore, the null hypothesis is accepted while alternative rejected.

Hypothesis Two: There is no significant relationship between non-oil revenue and economic growth in Nigeria**.** The coefficient of non-oil revenue is 1.257631 with a probability value of 0.0025 which is lesser than 0.05. Therefore, P Therefore, P < 0.05 (i.e. 0.0025 < 0.05) thereby confirming the significant effect of non-oil revenue on economic growth in Nigeria. Therefore, the alternative hypothesis is accepted while null is rejected.

Causality Result

Table 4.7: Causality Result

Causality Direction:	Obs	F-Statistic	Prob.
OILR does not Granger Cause GDP	35	2.80127	0.0767
GDP does not Granger Cause OILR		0.10145	0.9038
NOILR does not Granger Cause GDP	35	2.12018	0.1376
GDP does not Granger Cause NOILR		2.41874	0.1062

Source: Author's Computation, (2023)

Table 4.7 indicates the causality test result conducted to examine the causal relationship between revenue generation and economic development of Nigeria. Evidence from this result showed that no causal link was found among any of the variables with economic development of Nigeria. It implied that all the variables move independently with economic development of Nigeria.

4.8 Diagnostic Tests

In other to validate the result obtained from this finding, it is necessary to test the data for different diseases which would mislead the output and end up with wrong interpretations and conclusions. To this end different tests namely: Normality test, Breusch-Godfrey Serial Correlation LM Test and Heteroskedasticity test were employed to assure the robustness of the model used. All the test results are presented as follows.

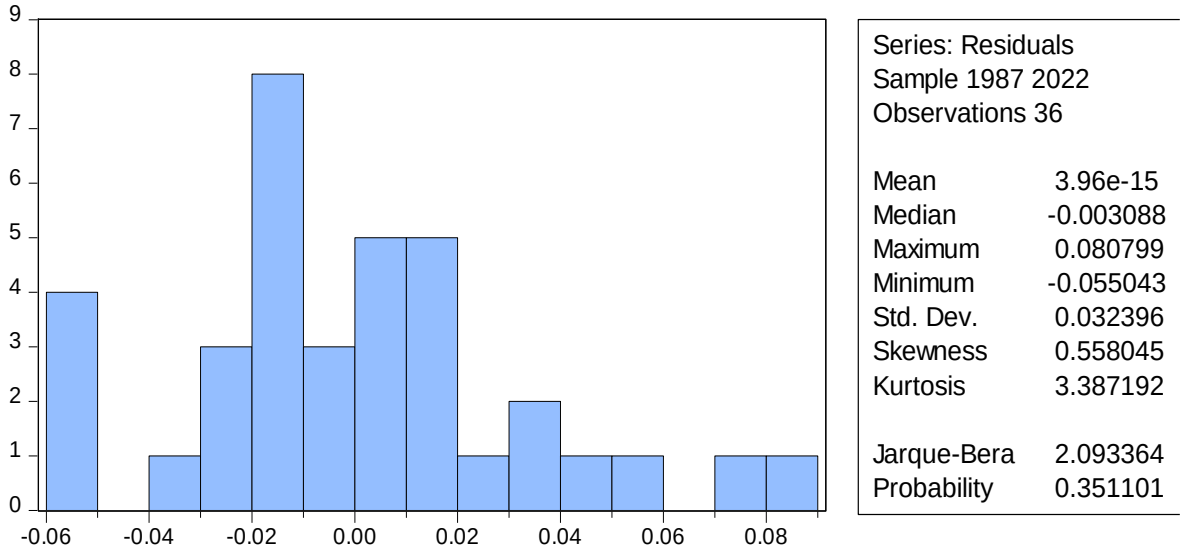

Figure 4.1: ARDL Normality Test

From the normality diagnostics, the Jarque–Bera is 2.093364 with a corresponding probability value 0.351101 which is greater than 0.05 hence, the study fail to reject the null hypothesis that the residuals are normally distributed.

Serial Correlation LM Test

The serial Correlation test is an alternative to the Q-statistic test for serial correlation. Unlike the Durbin Watson statistic for AR(1) errors, the LM test may be used to test for higher order ARMA errors and is applicable whether there are lagged dependent variables or not. The serial Correlation test is preferred to Durbin Watson in testing autocorrelation in any stated model. The result of the serial correlation test is presented in table 4.8.

Table 4.8: Breusch-Godfrey Serial Correlation LM Test

F-statistic	7.921303	Prob. F(2,29)	0.1318
Obs*R-squared	12.71857	Prob. Chi-Square(2)	0.9217

Source: Author's Computation, (2023)

The null hypothesis is that there is no serial correlation. Evidence from the p-value of the Breusch-Godfrey serial correlation test in Table 4.8 reflects the acceptance of the null hypothesis as it depicts an insignificant at 5% level. This is because the probability value is greater than 5%. In the light of this, the variables in the model have no serial correlation.

4.10 Heteroscedasticity Test

Table 4.9: Heteroscedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.465492	Prob. F(4,31)	0.0655
Obs*R-squared	8.688541	Prob. Chi-Square(4)	0.0694
Scaled explained SS	7.689934	Prob. Chi-Square(4)	0.1036

Source: Author's Computation, (2023)

The null hypothesis of heteroscedasticity test is that there is no heteroscedasticity. As depicted from table 4.8, the probability of the Chi- square indicated that the null hypothesis is accepted. On this note, the study concludes that the model used in investigating effect of revenue generation on economic growth Nigeria is valid and the result can be used for forecasting.

Findings

This study examined the effect of revenue generation and economic growth in Nigeria. The long-run result indicated that oil revenue indicated insignificant positive relationship with economic growth. It implied that a unit increase in oil revenue will lead to an increase in economic growth in Nigeria. The positive relationship supports the *apriori* expectation. The implication of this result is that though the bulk of revenue comes from oil sector, it impact on economic growth is second to none

Moreover, non-oil revenue indicated a significant positive effect with economic growth in the long run which suggest that an increase in the non-oil revenue will increase economic growth within the country.

Finally, the study validates the result obtained from the findings by testing the data for different diseases which would mislead the output and end up with wrong interpretations and conclusions. To this end different tests namely: Normality test, Breusch-Godfrey Serial Correlation LM Test and Heteroscedasticity test were employed to assure the robustness of the model used. From the diagnosis tests, it was indicated that diagnosis diseases were not present in the model. This is inferred from the fact that each of the tests has failed to reject the null hypothesis.

Conclusion

The research work critically examined the effect of revenue generation and economic growth in Nigeria. The main findings emerged from this study indicated that revenue generation capacity in Nigeria though positively related to economic growth but very weak in translating to any meaningful development in the country. Oil revenue indicated positive insignificant relationship with economic growth in Nigeria. From this, it was concluded also that the bulk of revenue from oil sector are channeled to unproductive sector of the economy. Lastly, non-oil revenue exhibited significant positive relationship with economic growth of Nigeria.

Recommendation

The study recommends that effort should be made by the governments to diversify the main revenue source from oil to other sectors of the economy such as agriculture, extractive industries in order to increase revenue generated from other sources.

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