NEXUS BETWEEN NON-OIL SECTORAL CONTRIBUTION AND ECONOMIC GROWTH IN NIGERIA 1981-2018

Akanimo Ernest
Usoro1

Wasiu Akintunde
Yusuf2

Bartholomew O. N.
Okafor3

ABSTRACT

Nigeria has the largest economy in Africa and has the potential of rising through the world rankings to be among the top economies in the world. To achieve this however, diversification from over dependence on crude oil is required. Nigeria’s intrinsic potential lies beyond oil; harnessing this potential has become an imperative given the volatility of oil prices. This study identifies the non-oil sector as a priority sector with the most dominant transmission links to the overall economy. This sector in the medium-to-long term is key to boosting employment, reducing poverty and improving domestic food security. Therefore, the nexus between non-oil sector contribution and Nigeria economic growth is investigated, vis-a-vis the effect of government’s increased focus and investment in this sector. The study employed Autoregressive Distributed Lag (ARDL) model and Vector Error Correction Model (VECM). The reason for using this model is that it is simple and can be applied easily without consideration for the stationarity of the variables (at level or at first difference). The results confirmed the short-run relationship between the variables where non-oil revenue immediately impact the GDP growth of Nigeria by 8.49%. The study then conclude that the non-oil sector is crucial to the economic growth of Nigeria and therefore suggested increased government investment in the non-oil sector as well as strengthening of institutions.

Contribution/Originality: This study provides a better understanding of the non-oil sector and the factors that enhances its ability to function at full capacity as well as the dangers that the over reliance on oil poses to the nation.

1. INTRODUCTION

Nigeria is one of the few African countries endowed with abundant diverse natural resources, and a potential to be amongst the top economies in the world. However, the country has not lived to expectations; it relies solely on a major export product (Crude oil) for over 90 percent of the country’s revenue, while other sectors that could contribute immensely to the economy were left dormant. It is also despairing to note that despite the huge national endowment, majority of its citizens live in absolute poverty, unemployment is high and productivity is at its lowest levels. According to Ogundipe et al. (2014) the massive revenue from oil, presented a net wealth which thus provided an opportunity for investments; however, the huge revenues complicated macro-economic management and also made the country highly dependent on crude oil. In spite of the huge revenue from crude oil, the economy was still faced with many challenges including high and rising unemployment rate, weak institutions, high and
rising levels of unemployment, decrease in manufacturing production and poor infrastructural development. Prior to the discovery, exploration and exportation of crude oil, agriculture was the mainstay of the country’s economy contributing about 70% of the Gross Domestic Product (GDP), employing a huge percentage of the working population and provided huge foreign exchange earnings. Nigeria attained independence in 1960, and since its independence the role and performance of the non-oil sector especially agriculture has declined in its contribution to GDP.

The poor performance of the Nigerian economy in the face of huge revenue from crude oil has brought to limelight the importance of assessing the potentials of non-oil sector, with a view to moving Nigeria away from its overdependence on oil. Consequently, this has raised some fundamental questions such as: why the high and rising rate of poverty? Why the high level of unemployment? Why the high inequality in income? Could it be because of the neglect of the non-oil sectors of the economy? The Nigeria’s mono-cultural economy poses a serious threat to her economic stability. Omojolaibi (2013) observed that oil price volatility characterized by sharp declines in global crude oil prices have serious diminishing effect on government revenue, these effects includes rising fiscal deficit, weakening of the currency, foreign reserves depletion etc. Another factor that makes overdependence on oil bad is the mismanagement of the sector which makes the outputs from oil insufficient to meet the needs of the nation. Nigeria paints a picture of a resource abundant country which largely depends on one resource, with the other resources left underexploited. There has been a counter intuitive relationship between natural resources abundance and economic development, where developing economies with abundant natural resources tend to grow at a slower pace than those without. The non-diversification of the economy despite the massive resource abundance has deepened the country’s development dilemma. The focus of this study is to explore the reasons why the non-oil sector should be harnessed and fully exploited. It seeks to confirm the hypothesis that the diversification of the economy away from oil will boost economic growth. Based on these explanations, this study is anchored on the following questions; (1). To what extent has the non-oil sector contributed to Economic growth of Nigeria? (2) What is the impact of government non-oil revenue on economic growth? This study would provide a better understanding of the non-oil sector and the factors that enhances its ability to function at full capacity as well as the dangers that the over reliance on oil poses to the nation. The information analyzed here would be beneficial to economists and the government in understanding the dire need for the nation to make urgent steps in formulating policies and plans to diversify the economy away from crude oil and ensure timely and efficient execution of these policies and plans which will assist in solving the numerous economic and developmental challenges.

2. LITERATURE REVIEW

2.1. The Structure of Nigeria’s Non-oil Sector

The non-oil sector is comprised of economic activities that are outside the petroleum industry. The engine of the non-oil sector is the real sector where goods are services are produced through the combined utilization of raw materials and other production factors such as labour, land and capital. It therefore forms the main driving force for an economy and it is the engine of economic growth and development. The non-oil sector includes but not limited to agriculture, mining and quarrying, manufacturing, construction, trade, transportation and services. The services subsector is an aggregation of several mini sectors such as financial, telecommunication, health, education, tourism and real estate. Figure 1 presents the structure of the non-oil sector in relation to their contribution to GDP; the Figure shows that the services subsector leads in its contribution to economic activities, this is followed by agriculture. Manufacturing accounts for 8 percent of economic activities in the non-oil sector. The solid mineral contributes just 0.1 percent which is a clean manifestation that the varieties of solid material in Nigeria which are in commercial quantity are grossly underexploited. The contribution of the non-oil sector to exports over time has been very low. Figure 2 reveals that the non-oil sector made an average contribution of 5.47 percent to the total export volume between 1981 and 2018. The non-oil exports have increased from 3.9 percent to 7.1 percent which is
a remarkable improvement, but more needs to be done. The diversity and varieties of solid minerals and natural resources remained grossly unexplored though this sector has the capacity to greatly increase the country's output and put it among the league of leading exporting nations in the African continent and the world. This will also increase the country's foreign reserves and mitigate exchange management issues.

![Figure 1: Non-Oil Sector Contribution to GDP.](image1)


![Figure 2: Percentage oil and non-oil exports.](image2)


### 2.2. Empirical Review

A plethora of studies on how the discovery of crude oil has adversely affected the development of the non-oil sector suggests that the earlier Nigeria moves away from overdependence on oil the better for its economic growth and development. Akande and Adeyinka (2015) stressed that Nigeria needs to prioritize diversifying its economy away from oil as that will be the only way to escape the global uncertainty that arises from the volatility of the oil price. Similarly, Fasanya and Ogundare (2018) performed a trivariate analysis of oil revenue, economic growth and government spending in Nigeria; establishing that there is need for the government to diversify the sources of foreign exchange inflows, which will insulate the economy from external shocks. The study suggests that Nigeria should revive its huge agricultural potential which has been neglected since the discovery of crude oil. Oriakhi and Osaze (2013) discussed the consequences of oil price volatility on the growth of the Nigerian economy from 1970 – 2010, using VAR methodology among six variables. Oil price volatility impacted directly on real government expenditure, real exchange rate and real import while impacting on real GDP, real money supply and inflation using other variables, specifically government expenditure. This means that oil price changes determine government expenditure level, which in turn determines the growth of the Nigerian economy. The study suggests the following: fiscal prudence, reform in budgetary operations, export diversification, revival of the non-oil sector of the economy etc. Uzonwanne (2015) examined the relationship between economic growth and the non-oil sector.
The study notes that there has been a steady decline in the development of the country despite its huge natural resources and recommended that the government needs to acquire the courage to develop a heterogeneous economy. Micheal and Gbadebo (2016) investigated the specific impact of the non-oil mining exports to the growth of the Nigerian economy. This analysis deals with the structure and nature of export financing in Nigeria. The study provided a data benchmark for appraisal of possible improvements in the future performances of the non-oil mining export trade with respect to the growth of the economy. It suggested the stimulation of the mining sector to contribute positively to economic development. In a related study, Nwanne (2014) studied the relationship between diversification of the non-oil export products and economic growth in Nigeria from 1981 – 2014. It examined the role of non-oil export product on real economic growth. It further recommended that the government should enforce non-oil export policies towards reviving the failing non-oil export industry. It encourages the government to strengthen the legislative and supervisory framework of the non-oil products in Nigeria and diversify the economy to ensure effective contribution from all non-oil subsectors to the economic growth of Nigeria. Okonkwo and Madueke (2016) examined how increase in petroleum revenue has not led to economic development in Nigeria. The study advised government to diversify the economy through promoting and creating an enabling environment for non-oil sector development in Nigeria; reduce the size of employees in the public sector, increase budgetary capital expenditure especially in the areas of providing power supply, information technology and encourage the federating units to contribute to the revenue of the country. Nwankwo (2015) investigates the diversification of non-oil exports products as a prerequisite or precondition for accelerated real economic growth in Nigeria 1981 and 2014. The industrial, agricultural and manufacturing sectors have been identified as engines that would stimulate the growth of non-oil production for export. It recommended that the government should improve on export incentives and infrastructures and the electricity situation Nigeria should be improved upon.

In a related study by Manasseh et al. (2019) time series data was used to investigate the impact of oil price fluctuation and oil revenue on the wellbeing in Nigeria. The study explained that huge negligence of the non-oil sector like agriculture and overreliance on imports including agricultural produce which ordinarily should have been produced at a lower cost compared to other countries has led to the high price index relative to export price index causing a fall in the purchasing power of the disposable income. It recommends an investment in the non-oil sector especially in human capital development. Riti et al. (2016) examined the growth of Non-oil sector to act as a key to diversification and performance of the Nigerian Economy. The researchers employed Auto regressive Distributed Lag (ARDL) and VECM to estimate the long and short run relationship between the variables. The long run parameters indicated that agriculture and telecommunication components are positively contributing to GDP, while manufacturing turned out negative but significant. The Researcher recommended that the government should diversify the economy and initiate economic reforms towards the development of the non-oil sector. Onuorah (2018) examined the role of non oil exports on economic growth of Nigeria using five selected agricultural products (Cassava, Groundnut, Millet, Yam and Maize) as independent variables (Non Oil commodities); he holds the view that exports of the aforementioned products contributed positively to Nigeria's GDP. The study used annual time series data obtained the Central Bank of Nigeria Statistical Bulletins and National Bureau of Statistics which covers a period from 1985 to 2017.

3. METHODOLOGY

3.1. Nature and Sources of Data

This study in view of its nature made use of secondary data. Annual time series data from 1981 to 2018 were sourced from the Central Bank of Nigeria's Statistical Bulletin. The series Growth rate (GDP growth) and inflation rate were sourced from united nation conference on trade and development (UNCTAD) from 1981-2018. The dependent variable is the GDP growth rate and is used in measuring economic growth. The independent variables are measured as follows: Non-oil Revenue (NOR) which is a measurement for the Non-Oil Revenue, Recurrent
Expenditure (REXP), Inflation rate (INF) and official exchange rate of the naira to the US dollar was used as a proxy for exchange rate.

3.2. Model Specification

The functional form of the model is represented as:

\[
\text{GRWT} = F (\text{NOR}, \text{REXP}, \text{INT}, \text{EXCR})
\]  

(1)

Where;

\(\text{GRWT}\) = Economic growth.

\(\text{NOR}\) = Non-Oil Revenue.

\(\text{REXP}\) = Recurrent Expenditure.

\(\text{INF}\) = Inflation Rate.

\(\text{EXCR}\) = Exchange rate.

Equation 1 was transformed into econometric model before estimation and two variables (NOR & REXP) were in natural logarithm. Thus, the model is specified below;

\[
\text{GRWT} = \beta_0 + \beta_1 \ln\text{NOR}_t + \beta_2 \ln\text{REXP}_t + \beta_3 \text{INF}_t + \beta_4 \text{EXCR}_t + \mu_t
\]  

(2)

\(\mu_t\) = Error term.

\(\beta_0\) = Constant parameter.

\(\beta_1, \beta_2, \beta_3, \beta_4\) = Coefficient or parameters of the model.

\(\text{GRWT}\) = GDP Growth Rate.

\(\ln\text{NOR}_t\) = Log of Non-Oil Revenue.

\(\ln\text{REXP}_t\) = Log of Recurrent Expenditure.

\(\text{INF}_t\) = Inflation.

\(\text{EXCR}_t\) = Exchange Rate.

\(t\) = Time Subscript.

Therefore, Equation 2 was employed as the model for the research.

3.3. Method of Data Analysis

The study used Auto Regressive Distributed Lag (ARDL) due to the dynamic nature of the regression model, especially when is it assumed that the lagged value of the dependent variable is expected to contribute to the current changes in the dependent variable. ARDL which was developed by Peasaran (2001) assists in deriving Error Correction Term (ECM) via linear transformation without ignoring the long-run information. This model can be used for variables with stationarity at level and first difference (I (0), I (1)) but cannot be applied to variables with I(2), and ECM is used to check the short run relationship. Also, the technique can determine the required parameter needed to be estimated for long-and short-run simultaneously and F-test can be applied to affirm the level of co-integration, by testing the joint significant of the lagged-levels of all the variables in the ARDL model. Different variables can be assigned different lag length as they enter the model. The basic conditional requirement
being that for co-integration to be established, the computed F-stat must fall above the lower- and upper-bounds critical value.

3.4. Unit Root Test

The unit root test is a test employed to test the stationarity level of the series. This checks the order of integration for each of the series. If the series is stationary at level it can be said that it is integrated in the order I (0), if it can be differentiated once to make it stationary, then it is integrated in the order I (1). We will employ Augmented Dickey-Fuller (ADF) test for this analysis.

\[
\Delta Y_t = \beta_0 + \beta_1 Y_{t-1} + ai \sum_{i=0}^{p} \Delta Y_{t-i} + \varepsilon_t
\]

Where

\(\Delta Y_t\) = Difference of a given time series variable.

\(\beta_0\) = Constant Parameter.

\(\beta_1\) = Coefficient of the first lag value of the series variable.

\(Y_{t-1}\) = First lag value of a series variable.

\(ai\) = Coefficient of the lag values of the differenced time series variable.

\(\Delta Y_{t-1}\) = Lag values of the differenced series variable.

\(\varepsilon_t\) = Error term.

3.5. Cointegration Test

This test is employed to check the long-term relationship between NOR 'Non-oil Revenue, REXP 'Recurrent Expenditure' INF 'Inflation Rate' and EXC 'Exchange Rate' to avoid the risk of a 'spurious regression'. This test is important because if two non-stationary variables are co-integrated then the VAR model in I (1) will be mis-specified. ARDL analysis was carried out using the following equation:

\[
\Delta GRWT_t = \beta_0 + \beta_1 GRWT_{t-1} + \beta_2 lnNOR_{t-1} + \beta_3 REXP_{t-1} + \\
\beta_4 INF_{t-1} + \beta_5 EXC_{t-1} + \sum_{i=0}^{p} \beta_6 \Delta GRWT_{t-i} + \sum_{i=2}^{p} \beta_7 \Delta lnNOR_{t-i} + \sum_{i=0}^{p} \beta_8 \Delta REXP_{t-i} + \\
\sum_{i=2}^{p} \beta_9 \Delta INF_{t-i} + \sum_{i=0}^{p} \beta_{10} \Delta EXC_{t-i} + \varepsilon_t
\]

Where \(\Delta\) = First difference operator.

\(\beta_0\) = Constant Parameter.

\(\beta_i ln\) = Vector of the parameter of the lagged values of the natural logarithmic values of the explanatory variables.

\(\varepsilon_t\) = Error term.
To satisfy the long-run relationship, ARDL bound test requires a null hypothesis for no co-integration $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$

### 3.6. Vector Error Correction Model (VECM)

The short run relationship is specified by the equation below:

$$
\Delta GRWT_t = \beta_0 + \sum_{i=1}^{p} \beta_1 \Delta GRWT_{t-1} + \sum_{i=0}^{p} \beta_2 \Delta lnNOR_{t-1} + \sum_{i=0}^{p} \beta_3 \Delta EXP_{t-1} + \sum_{i=0}^{p} \beta_4 \Delta INF_{t-1} \\
+ \sum_{i=0}^{p} \beta_5 \Delta EXC_{t-1} + \sum_{i=0}^{p} \beta_6 \Delta ET_{t-1} + \epsilon_t
$$

$ET$ is the error correction term of one period Lag estimated from the equation above. Equation 3 above is ran at level and at first differences with the residual observations. It is expected that the residual coefficient (speed of adjustment) produced from the regression is negative and statistically significant, then it indicates the level of the short run predictive capacity of the model, but if the residual coefficient is positive then the model cannot be predicted in the short run. There are numerous models for a study of this nature, however models should be selected based on the track record of their use in terms of reliability, effectiveness and finally, adequacy of the model for the peculiar research. The autoregressive distributed lag (ARDL) and error correction model (ECM) was selected due to its relative simplicity, efficiency and the advantage of being able to aid in forming inferential information on the dynamic nature of the variable.

### 4. RESULTS AND DISCUSSION

#### 4.1. Unit Root Test and Lag Selection Criteria

Table 1 shows the estimates of the Augmented Dickey – Fuller (ADF) test at level and at first difference.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level $t$-statistics</th>
<th>P-value</th>
<th>1$^{st}$ Difference $t$-statistics</th>
<th>P-values</th>
<th>Order of integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRWT</td>
<td>-3.952625</td>
<td>0.0042</td>
<td>-8.475600</td>
<td>0.0000</td>
<td>(0)</td>
</tr>
<tr>
<td>LNOR</td>
<td>-1.009131</td>
<td>0.7386</td>
<td>-7.468559</td>
<td>0.0000</td>
<td>(1)</td>
</tr>
<tr>
<td>LNEXP</td>
<td>-1.563171</td>
<td>0.4907</td>
<td>-8.188467</td>
<td>0.0000</td>
<td>(1)</td>
</tr>
<tr>
<td>INF</td>
<td>-2.839787</td>
<td>0.0631</td>
<td>-6.385688</td>
<td>0.0000</td>
<td>(0)</td>
</tr>
<tr>
<td>EXCR</td>
<td>1.735597</td>
<td>0.9995</td>
<td>-4.120892</td>
<td>0.0021</td>
<td>(1)</td>
</tr>
<tr>
<td>Critical values</td>
<td>1%</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. VAR lag order selection criteria.

<table>
<thead>
<tr>
<th>Lag</th>
<th>Log L</th>
<th>LR</th>
<th>FPE</th>
<th>AIC</th>
<th>SC</th>
<th>HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-493.442</td>
<td>NA</td>
<td>3725804</td>
<td>29.32009</td>
<td>29.5456</td>
<td>29.39664</td>
</tr>
<tr>
<td>1</td>
<td>-368.2</td>
<td>206.28</td>
<td>10435.99</td>
<td>23.4254</td>
<td>24.7703</td>
<td>23.88283</td>
</tr>
<tr>
<td>2</td>
<td>-332.439</td>
<td>48.3913</td>
<td>6132.273</td>
<td>22.79016</td>
<td>25.5927</td>
<td>23.6322</td>
</tr>
<tr>
<td>3</td>
<td>-295.546</td>
<td>39.05641</td>
<td>4039.737</td>
<td>22.09095</td>
<td>25.68238</td>
<td>23.31573</td>
</tr>
<tr>
<td>4</td>
<td>-230.37</td>
<td>49.84082*</td>
<td>716.0061*</td>
<td>19.72763*</td>
<td>24.44139*</td>
<td>21.33515*</td>
</tr>
</tbody>
</table>

Note: * indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error.
AIC: Akaike information criterion.
SC: Schwarz information criterion.
HQ: Hannan-Quinn information criterion.

In summary, this implies that all variables are not stationary at Level and at 1$^{st}$ difference. GRWT and INF are integrated of the order zero I (0) while LNOR, LNEXP and EXCR are integrated of the order of one I (1). With the ARDL model, lag selection is very essential and according to Bahmani-Oskooee and Nasir (2004) lag selection is very sensitive such that the result of the F-statistic could be affected. This research therefore employed VAR Lag
selection criteria, through which lag 4 is selected given that the sign falls mostly on lag 4 with all criteria. Lag four is employed in all future estimation. This result is posted below in Table 2.

4.2. The Long Run Relationship (ARDL)

Table 3. Co integration bound tests result.

<table>
<thead>
<tr>
<th>F-statistic</th>
<th>ECM_{-1}</th>
<th>-0.542617***</th>
<th>(-7.053043)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant level</td>
<td>10%</td>
<td>5%</td>
<td>1%</td>
</tr>
<tr>
<td>F-Bounds Test</td>
<td>Lower bound</td>
<td>2.2</td>
<td>2.56</td>
</tr>
<tr>
<td></td>
<td>Upper bound</td>
<td>3.097</td>
<td>3.49</td>
</tr>
</tbody>
</table>

Note: The number in parenthesis represents t-statistics, *** signifies 1% level of significant, F-statistics is determined with restricted constant and no trend.

Given the above method of analysis employed in this research, it follows a bound test for co integration using ARDL technique. Following the assumptions and criteria of Banerjee for establishing long-run in ARDL, the model fully satisfies them with reported negative ECM_{-1} of -0.542617 and significant at one percent. The result as posted in Table 3 also fulfilled the criteria established by Peasaran (2001) which suggested that the F statistics fall outside the lower and upper bounds respectively for any of the respective significant levels. In this outcome, the F-statistics falls above the upper bound at 1% level of significant which therefore established that there exists long-run relationship between the dependent variable and independent variables. The speed of adjustment toward long run equilibrium is 54.47%. In other words, convergence to a long-run requires an average speed of 27.26% to meet up with a significant long run relationship.

4.3. Short Run Relationship

Table 4. ARDL error correction regression.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D[GRWT(-1)]</td>
<td>-0.41611</td>
<td>0.107861</td>
<td>-3.8578</td>
<td>0.0027</td>
</tr>
<tr>
<td>D[GRWT(-2)]</td>
<td>-0.4051</td>
<td>0.119486</td>
<td>-3.37359</td>
<td>0.0062</td>
</tr>
<tr>
<td>D[GRWT(-3)]</td>
<td>-0.25325</td>
<td>0.109008</td>
<td>-2.32324</td>
<td>0.0403</td>
</tr>
<tr>
<td>D[LNNOR]</td>
<td>8.495636</td>
<td>2.583843</td>
<td>3.287955</td>
<td>0.0022</td>
</tr>
<tr>
<td>D[LNNOR(-1)]</td>
<td>-13.4135</td>
<td>3.269644</td>
<td>-4.10244</td>
<td>0.0018</td>
</tr>
<tr>
<td>D[LNNOR(-2)]</td>
<td>-5.42981</td>
<td>1.885714</td>
<td>-2.87944</td>
<td>0.0415</td>
</tr>
<tr>
<td>D[LNREXP]</td>
<td>-6.51477</td>
<td>2.085897</td>
<td>-3.12325</td>
<td>0.0097</td>
</tr>
<tr>
<td>D[LNREXP(-1)]</td>
<td>-19.48964</td>
<td>3.553823</td>
<td>-5.484134</td>
<td>0.0002</td>
</tr>
<tr>
<td>D[LNREXP(-2)]</td>
<td>-10.64014</td>
<td>5.027177</td>
<td>-2.115925</td>
<td>0.0579</td>
</tr>
<tr>
<td>D[LNREXP(-3)]</td>
<td>-11.26724</td>
<td>3.350989</td>
<td>3.362373</td>
<td>0.0063</td>
</tr>
<tr>
<td>D[INF]</td>
<td>0.049088</td>
<td>0.0482</td>
<td>1.018435</td>
<td>0.3303</td>
</tr>
<tr>
<td>D[INF(-1)]</td>
<td>0.087382</td>
<td>0.039731</td>
<td>2.199539</td>
<td>0.0501</td>
</tr>
<tr>
<td>D[INF(-2)]</td>
<td>0.18049</td>
<td>0.041876</td>
<td>4.310666</td>
<td>0.0012</td>
</tr>
<tr>
<td>D[EXCR]</td>
<td>-0.10526</td>
<td>0.028124</td>
<td>-3.90468</td>
<td>0.0072</td>
</tr>
<tr>
<td>D[EXCR(-1)]</td>
<td>-0.10822</td>
<td>0.034993</td>
<td>-3.0926</td>
<td>0.0016</td>
</tr>
<tr>
<td>D[EXCR(-2)]</td>
<td>-0.11823</td>
<td>0.032519</td>
<td>-3.65379</td>
<td>0.0039</td>
</tr>
<tr>
<td>D[EXCR(-3)]</td>
<td>0.062846</td>
<td>0.045225</td>
<td>1.389633</td>
<td>0.1921</td>
</tr>
<tr>
<td>ContEq(-1)*</td>
<td>-0.54262</td>
<td>0.076934</td>
<td>-7.053043</td>
<td></td>
</tr>
</tbody>
</table>

Note: Restricted constant and no trend.

The Table 4 above shows the short-run result which is represented by the error correction representation for ARDL, it can be seen from the result that there is an element of a long run relationship which is represented by the ECM-1 (cointEq). The ECM-1 is given as -0.542617 indicated that the speed of convergence or adjustment from the short-run to the long run takes 54.26 percent. This result is significant at 1%. The statistics above indicates that the non-oil sector has a positive influence at level on GDP Growth of Nigeria. It means that the non-oil sector can immediately impact the GDP growth of Nigeria by 8.49% in the short run. This has demonstrated that the impact of the non-oil sector on the GDP growth of the country is short run phenomenon. The signing of the African
Continental Free Trade Agreement (ACFTA) presents Nigeria the perfect opportunity as the largest concentration of black people in the world to champion the cause for trade among African Nations by exploring its huge varieties of Natural resources and investing and utilizing its multi-billion dollar non-oil sector or else the country will be a dumping ground for products from emerging economies. The government needs to as a matter of urgency fix electricity so as to drive down the cost of production in the non-oil sector; this will ensure that Nigeria competes favourably with her counterparts in Africa. However, at lag one and lag two, there are both negative and significant. It shows that with lag one, a percentage increase in the utilization of the non-oil sector, will decrease the growth of the economy by 13.41 percent, and also with lag two, the decrease will be by 5.42 percent approximately. The assumption in this research is that investment and exploration of the non-oil sector will facilitate economic growth but that is not the information passing through with the outcome of this analysis. The reason for such negative outcome is not farfetched, as this is due to corruption as a result of weak institutions in the country. If the proceeds for the non-oil sector are not reinvested immediately, these funds are embezzled and misappropriated thereby leading to a negative outcome.

4.4. Stability and Diagnostic Tests

Table 5 shows the result for diagnostic test. This test was done to ascertain the extent of dependability of the model applied in the project work. It has absorbed the use of Jarque-Bera test for Normality test, Breusch-Godfrey test for serial correlation Lagrange Multiplier statistics. Two different Heteroscedasticity tests were also conducted, first with Breusch-Pagan-Godfrey and another with Harvey Heteroscedasticity test. All these tests further indicated that the model is normal with no sign of serial correlation and heteroscedasticity. The Adjusted R-Squared value (0.81) is high enough, and it means the independent variables has high degree of influence on the dependent variable. The null hypotheses for normality test, serial correlation test and heteroscedasticity test could not be rejected (we do not reject the null hypothesis) since their probabilities is greater than 0.05 level of significant.so therefore we have no issue of serial correlation and heteroscedasticity Generally, this implies that the short run co-efficient in the ECM model are stable and therefore dependable.

<table>
<thead>
<tr>
<th>Diagnostic test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-Square</td>
<td>0.907735</td>
</tr>
<tr>
<td>Adjusted R-square</td>
<td>0.809704</td>
</tr>
<tr>
<td>Normality Test</td>
<td>1.234102 (0.53953)</td>
</tr>
<tr>
<td>Serial Correlation</td>
<td>0.025554 (0.9748)</td>
</tr>
<tr>
<td>Heteroscedasticity Test</td>
<td>1.256035 (0.3574)</td>
</tr>
<tr>
<td>Heteroscedasticity Test II</td>
<td>1.544775 (0.2299)</td>
</tr>
</tbody>
</table>

Note: Numbers in parentheses are probabilities, Jarque Bera Normality Test was utilised, Serial correlation is with Breusch-Godfrey serial correlation Lagrange Statistics, Heteroscedasticity test is with Breusch-Pagan-Godfrey test and Heteroscedasticity test II is with Glejser test.

5. CONCLUSION

The conclusion drawn from this study is that Nigeria endowed with abundant physical and human resources has the potential to rank among the richest, most resilient and diversified economies in the world if only it can make effective use of these vast resources. The Country needs to develop a self sustaining system thereby enhancing the standard of living of her people. Overdependence of a single product makes the country susceptible to internal and external shocks due to oil price volatility.

6. RECOMMENDATIONS

Based on the research findings, the following recommendations are proffered; Promotion of Small and Medium Scale Enterprises (adopting the south East Asian strategy) Government should increase its investment in SMEs and encourage them to use local raw materials and serve as a linkage between foreign-dependent large enterprises and the rest of the economy through sub-contracting. Also, strengthen institutions and enforce existing policies on
the Non-oil Sector: From the analysis above, Non-oil sector impacts immediately on the growth of the economy but this growth turns negative after a year or so due to corruption in the system which is as a result of weak government institutions. Increased Government investment in the non-oil sector especially the services, manufacturing and trade subsector as a diversified economy will insulate the country from internal and external shocks and encourage steady growth. The huge funds used in paying fuel subsidy if invested in the non-oil sector would have brought considerable gains to the economy.

**Funding:** This study received no specific financial support.
**Competing Interests:** The authors declare that they have no competing interests.
**Acknowledgement:** All authors contributed equally to the conception and design of the study.

**REFERENCES**


*Views and opinions expressed in this article are the views and opinions of the author(s), The Economics and Finance Letters shall not be responsible or answerable for any loss, damage or liability etc. caused in relation to/ arising out of the use of the content.*