IMPACT OF VALUE ADDED TAX ON INCLUSIVE GROWTH IN NIGERIA

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ABSTRACT

This study examines the impact of Value Added Tax (VAT) on inclusive growth in Nigeria using time series data for the period between 1994 and 2018. Inclusive growth was measured using a composite index constructed with the help of principal component analysis (PCA). The findings from the estimated Autoregressive Distributed Lag (ARDL), and long run regression models show that the impact of VAT on inclusive growth in the short run is opposite its long run impact.
Keywords: Autoregressive distributed lag, Inclusive growth, Value added tax

JEL Classification: H25, O40, E60

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1.0.   INTRODUCTION

The development outcomes for Nigeria have not been impressive. Statistics show that Nigeria has one of the lowest per capita incomes compared to its peers in Africa such as South Africa, Egypt, and Ghana. The GDP per capita for Nigeria as of 2018 was $2,028 as against South Africa, Egypt, and Ghana with $6,339, $2,549 and $2,202 respectively (WDI, 2019). The 2019 human development report by United Nation Development Programme (UNDP) indicates that 53.5 percent of the Nigerian population live below the poverty line (UNDP, 2019). In addition, the country has one of the highest rates of unemployment in the world with an unemployment rate of about 27 percent in Q4, 2020 (NBS, 2020). All these suggest that Nigeria is in the group of countries struggling to achieve inclusive growth (Mckinley, 2010; Ocheni, 2018; Yaru, Mobolaji, Kilishi & Yakubu, 2018).

The inability of Nigeria to achieve inclusive economic growth has been linked to her over-reliance on crude oil for revenue and the associated double–Dutch disease syndrome (Ishaq & Ogbanje, 2017). Thus, it has been advocated in several quarters that the Nigerian government should look beyond oil and focus on more sustainable sources of revenue, particularly taxation (Herbert, Nwarogu & Nwabueze, 2018). However, the Nigerian tax system is fraught with inefficiency largely due to the structural and administrative defects, the large presence of an underground or shadow economy, and the high level of poverty in the country (Odhiambo &

Olushola., 2018; Odusola, 2006). These peculiarities may have made the review of the rate of VAT from 5 percent to 7.5 percent the most politically acceptable option for the federal government to raise revenue (Finance Act, 2020).

Introduced in Nigeria in 1993, Value Added Tax (VAT) is relatively easier to administer and difficult to evade (Federal Inland Revenue Service (FIRS), 1999). VAT has become a significant source of revenue and a dependable tool of fiscal policy in Nigeria. Reports of the FIRS reveal that VAT revenue in Nigeria increased from ₦972.34 billion in 2017 to ₦1.1 trillion in 2018 (FIRS, 2018). Ajakaiye (2000) argued that VAT has a number of characteristics that theoretically make it quite straightforward and as painless as possible. First, it is a single rate tax (e.g., 5%), which makes it easier to administer. Second, it uses an input-output method, which makes it self-policing. It is expected to have a single effect on consumer prices. Third, all goods and services are "vatable", with limited and very specific exceptions.

Theoretical propositions suggest that taxes generally including VAT may be growth-enhancing if the revenue realized is used productively. And in some instances, it may retard economic growth if imposed in the wrong way or used in unproductive projects (Durusu-Ciftci, Gˇokmenoˇglu, & Yetkiner, 2018; Baier & Glomm, 2001; Marrero & Novales; Rebelo, 1991; Barro, 1990). The evidence from empirical literature also supports the divergent views about the impact of VAT on economic growth (Ewa, Adesola and Essien 2020; Durusu, et al., 2018; Uzoka & Chinedu, 2018; Ocheni, 2018; Okwara & Amori, 2017; Dang & Bala 2015 and Xing, 2012). For example, studies such as Dang & Bala (2015) and Ewa, Adesola and Essien (2020) supported the positive impact of consumption taxes (VAT) on economic growth, while others found the opposite (Durusu, et al., 2018). Some others argued that consumption tax (VAT) has no significant impact on economic growth (Xing, 2012). But it appears from the review of empirical literature that the impact of VAT or any other form of consumption tax on inclusive growth in Nigeria has not been given adequate attention. The study covers this research gap by examining the short and long run effects of VAT on inclusive growth in Nigeria. The study, therefore, contributes to the country specific literature on the tax-growth nexus based on empirical evidence from Nigeria.

The rest of the paper is arranged into four (4) sections. Section two presents the literature review where conceptual issues and theoretical and empirical literature are discussed. The third section contains the methodology, while the fourth section presents the results. The conclusion and recommendations are contained in the last section.

2.0. LITERATURE REVIEW

2.1. Conceptual Review

2.1.1. Inclusive Growth

The term inclusive growth has been described variedly in literature. It was defined as an increase in national income which at least benefit the poor (Ravallion & Chen, 2003). IMF (2011) describes growth to be inclusive if it results in relatively higher income growth for the poor compared to the national average. Prasanna (2016) argues that it constitutes a type of growth process in which all sections of society including the rich and poor have participated in and also benefitted from thereby facilitating a reduction in income inequality. Unlike economic growth, inclusive growth does not only concerned with aggregate GDP growth but also its distribution among the citizens. While economic growth is usually measured in terms of change in aggregate GDP/ GDP per capita over time, inclusive growth is a multidimensional concept

and it is measured in terms of GDP per capita and other development outcomes (Durusu et al., 2018; Okafor, 2012). Several authors attempted to propose a multi-dimensional index that reflects each of the various dimensions of inclusive growth (McKinley, 2010). McKinley (2010) for example constructed inclusive growth based on four (4) dimensions: (i) success in achieving growth, productive employment, and access to economic infrastructure; (ii) success in reducing extreme poverty, moderate poverty, and inequality, including gender inequality, (iii) success in enhancing capabilities; and (iv) success in providing social protection. This measure was adopted by Yaru et al. (2018), though with the help of PCA to compute an inclusive growth index for Nigeria. Due to the comprehensive nature of this approach, this study also uses the variables proposed by McKinley (2010) and the approach used by Yaru, et al (2018).

2.1.2. Value Added Tax

The concept of value added tax is an indirect tax imposed on consumers at every stage of the consumption process from the raw stage to the finished stage. VAT is a consumption tax levied on the increase in the value of goods and services in the course of their production. It is an indirect tax whose burden or incidence could be absorbed by the impact points or business units, shifted forward or/and backward to other economic agents as final consumers or suppliers of raw materials for producers of the taxed goods (Ochiogu, 2001). VAT covers manufactured goods, imports as well as professional and banking services.

2.2.   Review of Empirical studies

Several studies have examined the impact of taxation in general and various forms of taxes such as VAT on economic growth in developed and developing countries (Ewa, Adesola & Essien, 2020; Okonkwo & Chukwu, 2019; Durusu, et al., 2018; Uzoka & Chinedu, 2018; Ocheni, 2018; Okwara & Amori, 2017; Ibanichuka, Ikebujo & Akani 2016; Ugochukwu & Azubike, 2016; Madugba & Joseph, 2016; Dang & Bala, 2015; Xing, 2012; Okafor, 2012; Adereti, Sanni & Adesina, 2011 and Martin & Fardmanesh, 1990). Some of these studies established a positive impact of taxation on economic growth (Ibanichuka, Ikebujo and Akani, 2016; Dang & Bala, 2015; Okafor, 2012; Adereti, Sanni & Adesina, 2011), while some established a negative impact (Uzoka & Chinedu, 2018; Ugochukwu and Azubike, 2016; Madugba & Joseph, 2016). Some others could not find a significant impact of VAT on economic growth (Okonkwo & Chukwu, 2019; Okwara & Amori, 2017). Examples of some of the studies on Nigeria that found VAT as having a significant positive impact on real GDP, in the long run, include Dang & Bala; 2015; Adereti, Sanni & Adesina, 2011; Ewa, Adesola & Essien, 2020. Similarly, Okafor (2012) found that a positive and significant relationship exists between GDP and VAT. Ewa, Adesola and Essien (2020) also established the positive and significant impact of VAT on the growth of GDP. Other studies that looked at the impact of VAT on some of the indicators of inclusive growth such as Okeke et al. (2018) reveal that tax revenue has a significant positive impact on the labour force. Also, Ibanichuka, Ikebujo and Akani (2016) revealed that revenues collected by the federal government through VAT are positively related to Human Development Index (HDI). Similarly, Ocheni (2018) showed that VAT and custom and excise duties (CED) have a positive and significant impact on HDI.

Meanwhile, Ugochukwu and Azubike (2016) found a negative and significant relationship between VAT revenue and GDP in Nigeria. Also, Madugba & Joseph (2016) showed a negative significant relationship between VAT revenue and GDP. Uzoka and Chinedu (2018) found that capital gain tax has no significant impact on economic growth in Nigeria but CIT,

PPT and VAT have significant positive impacts on economic growth in Nigeria. Okwara and Amori (2017) revealed that while non-oil income has a significant positive impact on GDP, VAT has an insignificant negative impact on economic growth in Nigeria. Similarly, Okonkwo and Chukwu (2019) showed that tax revenue has no significant impact on economic development measured using the human development index in Nigeria.

Cross Country Studies

Durusu et al. (2018) empirically examined the impact of consumption tax, personal income tax, corporate profit tax, and property tax on long run economic performance using panel data from 30 OECD countries between 1995 and 2016. The study was analyzed using the common correlated effects (CCE) panel cointegration approach which allows for cross-sectional dependencies and provides both panel and country-specific results. The results of the study revealed that only consumption taxes such as VAT has a significant negative impact on long-run per capita income. Acosta-Ormaechea et al. (2018), investigate how changes in the composition of tax revenue affect long-run growth in a broad cross-section of countries. They constructed a dataset that covers 70 countries (23-high, 23-middle, and 24-low-income countries), with at least 20 years of observations during the period 1970–2009. The study finds that consumption and property taxes are indeed more growth-friendly than income taxes even in a broader sample of 70 countries over 40 years. Alm and El-Ganainy (2013) through a panel estimate examined value added tax (VAT) on aggregate consumption of fifteen European Union countries over the 1961–2005 period, the findings show that increases in the VAT rate could lead to both short- and long-run reductions in aggregate consumption. Ferede and Dahlby (2012) examine the impact of the Canadian provincial government's tax rates on economic growth using panel data covering the period 1977-2006. The findings revealed that, in Canada, a switch to a provincial VAT from a provincial retail sales tax promotes growth through its positive effect on investment. Martin & Fardmanesh (1990) examines the impact of various taxes on economic growth in a panel of 76 countries between 1972 and 1981. The results of the study analyzed using OLS reveal that total tax revenue has a negative impact on economic growth.

3.0.   METHODOLOGY

3.1.   Theoretical Framework

The study theoretical framework flows Barro (1990). Barro (1990) extended the endogeneous growth model framework which showed that tax revenue could produce an overall enhancement of economic growth. A number of studies built on Barro-style model (Glomm and Ravikumar, 1997; Bleaney et al., 2001; Baier & Glomm, 2001; Marrero & Novales, 2011). These studies also argued that an increase in taxes may enhance, inhibit or have no effect on growth, depending on factors such as the form and level of taxation and the composition of expenditures. The models used by previous studies suggest taxation as the variable that matters in addition to primary inputs for production—fixed investment, human capital, physical infrastructure, knowledge, population growth, and technology (Durusu et al., 2018; Yaru et al., 2018; Romer, 1986; Lucas, 1988; Rebelo, 1991). In the same vein, it was also argued that productive public expenditure is also important for growth (Yaru, et al., 2018; Barro, 1990).

3.2. Model Specification

From the foregoing, the model for the study on the basis of the study by Durusu et al., 2018 is thus given as

$$IG = f(TAX, FI) \tag{1}$$

This implies that inclusive growth (IG) depends on taxation (TAX) and fixed investment (FI) Here taxation is replaced with Value Added Tax (VAT) which is a consumption tax, while the fixed investment here is represented by the gross fixed capital formation (GFC). This implies that equation (1) can be expressed as

$$IG = f(VAT, GCF) \tag{2}$$

Furthermore, it has been argued in the empirical literature that government expenditure plays a crucial role in the variation of inclusive growth. Equally, the amount of labour force is also expected to improve the level of inclusiveness of the growth (Yaru, *et al.*, 2018; Okeke *et al.*, 2018 and Durusu *et al.*, 2018). In addition, inflation is incorporated as a measure of the level of economic uncertainty in the country. Thus, government spending, labour force, interest rate, and inflation are incorporated into the equation to have:

$$IG = f(GCF, LAB, VAT, INF, \text{INT}, GEX) \tag{3}$$

Equation (3) expresses inclusive growth as a function of gross fixed capital formation, labour force, VAT, inflation, interest rate, and government expenditure where f represents the general functional relationship linking inclusive growth with the independent variables of the study.

The model in (3) is expressed in linear econometric form as:

$$IG_t = \tau + \varphi_1 GFC_t + \varphi_2 LAB_t + \varphi_3 GEX_t + \varphi_4 INF_t + \varphi_5 VAT_t + \varphi_6 INT_t + \mu_t \tag{3.4}$$

Where IG represents an index of inclusive growth, GFC represents gross fixed capital formation, LAB represents labour force, GEX represents government expenditure, INF represents inflation, VAT represents value added tax, INT represents interest rate, μ_t represents error term

Given the nature of any time series where they are in most cases characterized with non-stationarity which may lead to spurious regression, the study follows Paseran, Shin and Lin (2001) to specify an Auto Regressive Distributed Lag Model from equation (3.4) above. The specification of an ARDL enables the study to decompose the impact of the dependent variable and independent variables into short run and long run. The ARDL specification of equation (4) is thus expressed as:

$$\Delta IG_t = \beta_0 + \beta_1 IG_{t-1} + \beta_2 GFC_{t-1} + \beta_3 LAB_{t-1} + \beta_4 GEX_{t-1} + \beta_5 INF_{t-1} + \beta_6 VAT_{t-1} + \beta_7 INT_{t-1} + \sum_{i=0}^{k} \varphi_1 \Delta IG_{t-1} + \sum_{i=0}^{k} \varphi_2 \Delta GFC_{t-1} + \sum_{i=0}^{k} \varphi_3 \Delta LAB_{t-1} \sum_{i=0}^{k} \varphi_4 \Delta GEX_{t-1} + \sum_{i=0}^{k} \varphi_5 \Delta INF_{t-1} + \sum_{i=0}^{k} \varphi_6 \Delta VAT_{t-1} + \sum_{i=0}^{k} \varphi_7 \Delta INT_{t-1} + \mu_t$$

$$\tag{5}$$

Where the term β_0 is the constant or intercept term, the term β_1 to β_7 are the long run multipliers and the terms associated with summation signs denote the short run dynamics of the model.

3.3. Data Sources and Measurement

In this study, secondary data were employed. The secondary data were annual time series data covering the period of 25 years from 1994 to 2018. The data needed for this study are those related to the variables used in constructing the inclusive growth index, gross fixed capital formation, human capital, value-added tax, government expenditure, inflation, and interest rate in Nigeria. The data were obtained primarily from secondary sources including the CBN statistical bulletin and World Development Indicators database. The data would be collected for the period ranging from 1994 to 2018. The choice of the scope depends on the availability of the data since the VAT was adopted in Nigeria in the year 1994.

The study involves six variables. Inclusive growth is the dependent measured by a composite index obtained from a set of variables representing development outcomes with the help of PCA. Details of the indicators are provided in Appendix 1. The independent variables include VAT as the focus variable, and five (5) control variables. The control variables include gross fixed capital formation, inflation, interest rate, labour force, and government expenditure. The summary description of the variables used in this study together with their measurement is presented in Table 1.

Table 1: Definition of Variables and Sources of data

Variables	Measurement	Sources of data
Inclusive Growth (IG)	Index obtained through PCA	See Appendix
Value Added Tax (VAT)	Total Amount of Value Added Tax Received in a Year	CBN, 2020
Inflation (INF)	Inflation, Consumer Prices (Annual %)	WDI, 2019
Labour Force (LAB)	Labour Force, Total	WDI, 2019
Gross Capital Formation (GFC)	Gross Fixed Capital Formation	WDI, 2019
Government Expenditure (GEX)	Total Annual Expenditure	CBN, 2020
Interest Rate (INT)	Lending interest rate (%)	WDI, 2019

Source: Author's Compilation, (2021)

3.4. Methods of Data Analysis

Descriptive statistical tools are used for the preliminary analysis to examine the data on the dependent and independent variables. These tools include a graph, means, standard deviation, and range. In order to ascertain the appropriate model to use in examining the impact of VAT, the Augmented Dickey Fuller (ADF), and ARDL Bound tests for unit root and cointegration were conducted. The outcomes of the two tests are presented in Table 3 and 4 respectively. The results of ADF test in Table 3 indicate that the series is the combination of I(0) and I(1), which makes the use of ARDL Bound test approach to testing co-integration appropriate. The result of the cointegration test in Table 4 in turn justifies the use ARDL modeling approach to

estimate the impact of VAT on inclusive growth. The method is also suitable for decomposing the impact of VAT on inclusive growth in short run impact and long run.

4.0. RESULTS AND DISCUSSION

In this section, the results of the descriptive analysis, preliminary tests, and ARDL regression models are presented, interpreted, and discussed.

4.1. Trend Analysis of Inclusive Growth

The trend analysis of the composite inclusive growth index for Nigeria over the period considered presented in Figure 1 shows that inclusive growth was lowest in the military era. The index shows a significant rise in inclusive growth in 2003, the 4th year after the country returned to democratic system of government. The increase was slightly stable until 2008 when a sharp decline was recorded probably due to the effect of global economic meltdown which occurred at the time. In 2018 the inclusive growth recorded a dramatic increase.

Source: Author's Compilation, (2021)

Figure 1: Trend Analysis for Inclusive Growth in Nigeria

4.2. Descriptive Statistics

Table 2 presents the summary statistics of the variables in the model. The results in Table 2 show that the average inclusive growth index over the period under consideration is -0.0776 with a minimum of -1.733039 and a maximum of 1.941, with a standard deviation of 1.1951. This indicates that inclusive growth varies widely over the years. The mean gross fixed capital formation for the period is found to be 7530 billion naira with a minimum and maximum value of 744 billion naira and 24,600 billion naira respectively. The estimated average labour force is 47.5 million people with a minimum of 30.5 million and a maximum of 60.5 million people. The government's average spending is found to be 5,510 billion naira with a minimum of 334 billion naira and a maximum of 14,000 billion naira over the period considered in this study. In addition, the study found the average VAT revenue to be 385 billion naira with a minimum revenue of 7.26 billion naira and a maximum of 1,220 billion naira.

Table 2: Descriptive Statistics of the Variables for the Model

Variable	Obs	Mean	Std.Dev.	Min	Max
IG	25	-0.07761	1.19513	-1.7330	1.9408
GFC	25	7.53e+12	6.00e+12	7.44e+11	2.46e+13
LAB	25	4.75e+07	3.05e+07	23.536	6.05e+07
GEX	25	5.51e+12	4.42e+12	3.34e+11	1.40e+13
VAT	25	3.85e+11	3.64e+11	7.26e+09	1.22e+12
INF	25	15.784	15.608	.686	75.402
INT	25	7.738	1.685	3.268	11.064

Source: Author's Computation, 2021

The average rate of inflation for the period is estimated to be 15.784 with a minimum of 0.686 and a maximum of 75.402. The average interest rate spread is estimated to be 7.738 with a minimum of 3.268 and a maximum of 11.064.

Unit Root Tests
The results of Augmented Dickey Fuller test for unit root conducted on each of the variables are presented in Table 3. The test is based on the null hypothesis that the series contain unit root. The results revealed that gross fixed capital formation (GFC) is stationary after the first difference implies that it is I(1) series. The index of inclusive growth (IG) and GEX are also an I(1) series, while the other variables are I(0).

Table 3: Augmented Dickey Fuller (ADF) Unit Root Test Results

Variables	Level t-Statistics	P-Value	1st Difft-Statistics	P-Value	Order of Integration
GFC	-1.83814	0.6514	-3.825742	0.0355	I(1)
IG	-1.8861	0.6303	-4.0599	0.0210	I(1)
LAB	-4.6373	0.0071	-3.4968	0.0671	I(0)
GEX	-1.248560	0.8740	-6.744754	0.0001	I(1)
VAT	-3.949334	0.0255	-6.534530	0.0001	I(0)
INF	-6.540974	0.0001	-7.581981	0.0000	I(0)
INT	-3.649373	0.0474	-5.374645	0.0014	I(0)

Source: Author's Computation, 2021

From the unit root test results, the variables are combinations of I(0) and I(1). The study further tested for the existence of long run relationship (co-integration) among the variables using Bound test approach.

Results of ARDL Bound Co-integration Test
The results of the ARDL bound test for co-integration are presented in Table 4.3. The results of the Bound test which is based on the null hypothesis of no co-integration reveal the existence of long run relationship between the dependent and independent variables.

Table 4: ARDL Bound Test Result

F-statistic		27.73817
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
10%	2.12	3.23
5%	2.45	3.61
1%	3.15	4.43

Source: Author's Computation, 2021

This is due to the fact that the estimated F-statistic of 27.7381 is greater than the upper bound value of 4.43, 3.61 and 3.23 for 1 percent, 5 percent, and 10 percent respectively. Thus, the null hypothesis of no co-integration among the variables is rejected at all conventional levels of significance.

ARDL Regression Results

The estimated short run coefficients for the ARDL regression model are presented in Table 5. The results revealed an error correction term (ECM) of -0.964 with a corresponding P-value of 0.0154. This means that the ECM is negative and significant at 5 percent level of significance. With a value of -0.964, the rate of adjustment is estimated to be about 96 percent, it implies that the model converges quickly to the long run equilibrium in case of any shock. The implication of this result is that the ECM confirms the existence of long run relationship between inclusive growth and the independent variables used in the study.

In addition to the above, Table 5 shows that the Value Added Tax has a negative and significant impact on inclusive growth in the short run given the respective coefficient and P-value of -0.000023 and 0.0188. The economic reason could be that the revenue generated from the value added tax, which is an indirect tax result in the upward review of prices which affects the aggregate demand negatively in the short run. More so, tax payment is a withdrawal from the system and can only impact productivity when the revenue generated is spent on public projects that could boast productive activities in the economy. Thus, that VAT has negative impact on inclusive growth in the short run is not surprising. This finding is similar to the findings of Ogochuku and Azubike (2018) who reported a negative impact of VAT revenue on economic development in Nigeria.

For the control variables, the result revealed a positive but non-significant impact of the contemporary value of gross fixed capita formation in the short run with its estimated coefficient of 0.0000 and P-value of 0.1921 while the first lag of the gross fixed capital formation with a respective estimated coefficient and p-value of 0.00001 and 0.0292 exerts a significant positive impact on inclusive growth in Nigeria. By implication, gross fixed capital formation has a significant positive impact on inclusive growth in the short run. The behaviour of Investment is a reflection that the investment level may have been increasing with the development of new firms, thereby creating profits, generating employment and income in an economy such that the poor could have opportunities that may subsequently better their lives and some of the poor may increase their lifestyle when they move away from below the poverty level, so as a result, this variable enhanced inclusive growth during the period under consideration in this study. The result further shows convincing evidence of the significant positive impact of government expenditure on inclusive growth in Nigeria implying that higher government expenditure results in more inclusive growth. This shows economically that an increased or improved level of government expenditure results in improved welfare of the

citizens, thereby leading to improve productivity in the Nigerian economy which subsequently improved the level of inclusive growth in Nigeria. The result is contrary to Yaru *et al*., 2018 who opined that the rising public spending is not stimulating inclusive growth in Nigeria. The result revealed that both contemporaneous and first lag of inflation has no significant influence on inclusive growth in the short run.

Table 5: Estimated Short-Run Coefficient

Dependent Variable: Inclusive Growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$\Delta(IG(-1))$	-0.162523	0.109843	-1.479603	0.2771
$\Delta(GEX)$	0.000001	0.000000	6.992692	0.0198
$\Delta(GEX(-1))$	0.000002	0.000000	5.799565	0.0285
$\Delta(GFC)$	0.000000	0.000000	1.938803	0.1921
$\Delta(GFC(-1))$	0.000001	0.000000	5.722008	0.0292
$\Delta(INF)$	0.038363	0.026768	1.433135	0.2882
$\Delta(INF(-1))$	-0.010263	0.006599	-1.555167	0.2602
$\Delta(INT)$	-0.171189	0.050125	-3.415249	0.0761
$\Delta(INT(-1))$	0.161436	0.092475	1.745724	0.2230
$\Delta(LAB)$	-0.000000	0.000000	-2.476295	0.1316
$\Delta(LAB(-1))$	-0.000000	0.000000	-3.002369	0.0953
$\Delta(VAT)$	-0.000023	0.000003	-7.192044	0.0188
$\Delta(VAT(-1))$	-0.000002	0.000004	-0.563256	0.6300
CointEq(-1)	-0.964398	0.121198	-7.957219	0.0154

Cointeq = IG - (-0.0000*GFCF +0.0000*VAT -0.0000*GEX + 0.0504*INF -0.4769*INT -0.0000*LAB -19.0120)

Source: Author (s) Computation, 2021

Furthermore, the result revealed that the contemporaneous value of interest rate has a significant negative impact on inclusive growth implying that a higher interest rate is associated with a lower level of inclusive growth in the country. This might have been a reflection that high interest rate in Nigeria may have discouraged intending investors or distorted the expansion of the old firms such that this subsequently leads to a decrease in the level of inclusive growth in Nigeria. In addition, the result revealed that contemporaneous labour has a negative but insignificant impact on inclusive growth in the short run but its first lag has negative and significant impact at 10 percent level of significant in the short run. This suggests that labour incentives may not have been adequate or satisfactory such that employee's willingness was affected and thereby affected the level of productivity of the employees which eventually affected inclusive growth adversely.

Long-Run Regression Estimates

The estimated long run coefficients are presented in Table 6. The result in the table revealed that value added tax has positive impact on inclusive growth in the long run given its estimated coefficient of 0.000016 and the long run positive impact is statistically significant at 5 percent level of significance since it has a P-value of 0.0474. This finding agreed with the a priori expectation of the study and also in tandem with the work of Ofoegbu et al. (2016) where the positive and significant impact of VAT on economic development in Nigeria was recorded.

The implication of this result is that VAT may enhance inclusive growth in the long-run, however, the behaviour of the result shows that VAT revenue has been re-directed into the productive sector of the economy or into the provision of infrastructural facilities whose uses have been able to improve the welfare of the people but this does not seem to conform to the happenings in the country where we experience a high level of unemployment, poverty prevalence, poor standard of living and lot more.

Table 6: Estimated Long-Run Coefficient

Dependent Variable: Inclusive Growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GEX	-0.000002	0.000000	-5.432367	0.0323
GFC	-0.000000	0.000000	-0.663192	0.5754
INF	0.050447	0.027695	1.821526	0.2101
INT	-0.476932	0.124145	-3.841735	0.0616
LAB	0.000001	0.000000	8.928580	0.0123
VAT	0.000016	0.000004	4.427815	0.0474
C	-19.011994	3.893950	-4.882445	0.0395

Source: Author's Computation, 2021

For the control variables, the gross fixed capital formation records non-significant negative impact on inclusive growth in the long-run. Government expenditure exerts a significant negative impact on inclusive growth in the long run given the estimated coefficient and P-value of -0.000002 and 0.0323 respectively implying that higher government expenditure results in to lower level of inclusive growth. The acclaimed government expenditure was not really spent on projects within the economy in which they might have been embezzled and thereby having an adverse effect on inclusive growth in Nigeria. The estimated coefficient and corresponding P-value of 0.050447 and 0.2101 respectively indicate that inflation has a positive but insignificant long run impact on inclusive growth in Nigeria. The estimated coefficient of -0.4769 with a corresponding P-value of 0.0616 implies that interest rate has a significant negative impact on inclusive growth in the long-run. This by implication means that interest rate is a barrier to achieving inclusive growth in Nigeria over the long run. In addition, the estimated coefficient of 0.000001 and corresponding P-value of 0.0123 reveals that labour force has a significant positive impact on inclusive growth in Nigeria in the long-run. Probably in the long-run government might have improved the level of human capital development which shows improvement in labour productivity which subsequently leads to the improved level of inclusive growth in Nigeria.

4.3. Post-Estimation Tests

Four post-estimation tests were conducted to examine whether or not the model conforms to the econometric assumptions. These tests include the normality test, serial correlation test, heteroscedasticity test, and stability test. The results of the first three tests are contained in Table 7. The result of the test for normality which is based on the null hypothesis that the error terms are normally distributed shows a Jacque-Bera value of 2.9544 with a corresponding p-value of 0.2283. This indicates that the null hypothesis of the normally distributed error term could not be rejected at any conventional level of significance and by implication, it is concluded that the residuals are normally distributed (Tsagris & Pandis, 2021; Ghasemi & Zahediasl, 2012). However, the result of the serial correlation test suggests that the null

hypothesis of "No serial correlation" cannot be accepted at 5 percent significance level. From the test result of the LM, the R-square shows 10.97047 with a corresponding P-value of 0.0041. This implies that the model suffers serial correlation problems. This is common with ARDL model given that lag values of the dependent variable is included as a regressor.

Table 7: Post-Estimation Results

Tests	Observed R^2/ Jacque-Bera	Probability
Normality	2.954429	0.228273
Serial Correlation	10.97047	0.0041
Heteroscedasticity	15.93644	0.4574

Source: Author's Computation, 2021

For the test of heteroscedasticity (Breusch-Pagan-Godfrey test), the result shows that the R-squared and probability value is 15.93644 and 0.4574. Hence, this implies that the null hypothesis could not be rejected at any conventional level of significance, and by implication, it is concluded that the residual is heteroskedastic (Klein, et al., 2016; Greene, 2012; Breusch &Pagan, 1979). The implication of examining normality, serial-correlation, and heteroscedasticity tests is to know if the result of our findings are spurious or not and also to ascertain if the results are good for predictions. Hence, the outcome of the post-estimation results shows that the results of the model on the impact of VAT on inclusive growth in Nigeria are of good fit to analyze the objective of the study.

Stability Test
The study also tested for stability of the models through CUSUM and Squares of CUSUM. The results are shown in Figures 2 and 3 below. Both figures show that the models are stable as they stay within the stability areas of the curves, hence, it can be concluded that the models for the impact of value added tax on inclusive growth in Nigeria are stable both in the long and short runs.
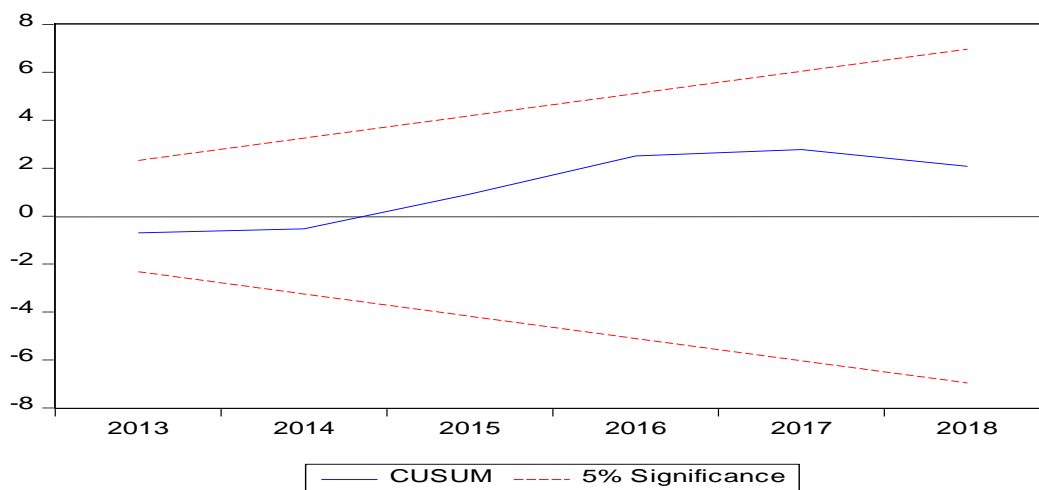

Figure 2: CUSUM Test for Stability

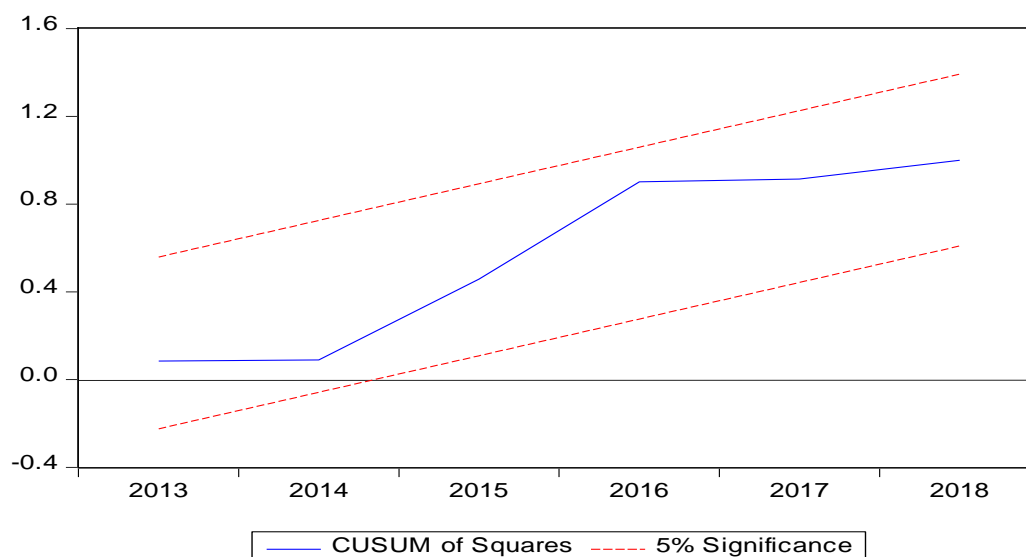Source: Author's Computation, 2021

Figure 3: CUSUM of Squares Test for Stability
Source: Author's Computation, 2021

5.0.   CONCLUSION

This study empirically examined the impact of VAT revenue on inclusive growth in Nigeria. The study uses ARDL modeling approach. The results of the ARDL ECM regression indicate that VAT has a significant negative impact on inclusive growth in the short run, while long run regression estimates suggest the impact is positive in the long run. The outcome of the study suggests that VAT may look detrimental to inclusive growth in the short run, but over the long run, the narrative is expected to change. Public investment made with the proceeds from VAT may promote productive activities in the private sector.

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Appendix:
Summary of the Proposed Composite Index of Inclusive Growth by McKinley (2010)

Broad Dimensions	Components	Weight (in %)	Aspect of Inclusiveness	Proposed Indicators	Indicators used for this study
Success in achieving Growth, Employment generation and access to Economic Infrastructure	Economic Growth	25	Pace and pattern of growth	i. rate of growth of GDP per capita ii. Share of industry, services, and agriculture in the total value added	i. rate of growth of GDP per capita ii. Share of industry, services, and agriculture in the total value added
	Productive Employment	15	Creation of productive employment opportunities	i. Share of the employed in industry ii. Share of the employed in manufacturing iii. Share of own-account workers and formally unpaid family workers in total employment iv. Share of worker who are part of households with income level below 2.50 per day per person international PPP poverty line	i. GDP per Capita of the employed ii. Total Employment to population ratio
	Economic Infrastructure	10	Access of the population to economic infrastructure (roads, electricity, telecommunication etc)	i. Proportion of the population with access to electricity ii. number of telephone subscribers per 100 people	i. Proportion of the population with access to electricity ii. number of telephone subscribers per 100 people
Success in reducing extreme Poverty, moderate poverty, and Inequality	Income Poverty, income inequality & Gender equity	25	Reduction in absolute Poverty and income inequality(vertical and horizontal) and gender inequality	i. The proportion of the population living below nationally determined poverty lines ii. proportion of the population living below the 2.50 per day per person international poverty line iii. Gini coefficient iv. income share of the poorest 60 percent of the population v. the income or expenditure gap between rural and urban areas	i. Proportion population living above $1.25 dollars per day. ii. Proportion of population above $ 2.00 per day iii. Gini index iv. income share of the poorest 60

Broad Dimensions	Components	Weight (in %)	Aspect of Inclusiveness	Proposed Indicators	Indicators used for this study
(including vertical, horizontal & Gender inequality)				vi. where feasible, the income or expenditure gap among regions or among major ethnic groups vii. The ratio of literate females to literate males among thos aged 15- 24 years viii. ratio of girls to boys in secondary education ix. the percentage of births attended by skilled personnel/ maternal mortality rate x. share of women in non-agricultural wage employment	percent of the population
Success in enhancing Human Capabilities	Health & Nutrition, Education and access to safe drinking water and sanitation	15	Possession of human capabilities necessary take advantage of opportunities by the growth process/population access to public goods and services such as education, health and other vita infrastructure such as safe drinking water and sanitation Degree of equality of opportunities that a country's	i. Under -5 mortality rate ii. mortality rate for under age 40 iii. percentage of those under age 5 years who are under weight iv. net primary enrollment ratio v. proportion of the population with access to safe water vi. proportion of the population with access to adequate sanitation	i. Children (under <) survival rate per 1000 ii. life expectancy iii. proportion of population with safe drinking water iv. proportion of population with improved sanitation facilities v. electricity consumption per capita vi. number of telephone subscribers per 100 people

			population enjoys		
Success in providing basic Social Protection(especially for eliminating extreme poverty)	Basic forms of social protection or safety nets	10	Access to social protection including labour market policies, social insurance programs, social assistance and welfare schemes	i. the total expenditures on all social protection programs as a ratio to GDP ii. the number of beneficiaries of social protection programmes as a ratio of reference populations for key target groups iii. the number of social protection beneficiaries who are poor as a ratio to the total poor population iv. the average social protection expenditure for each poor person as a ratio to the poverty line	
Promoting good Governance		-	Success of government in mobilizing domestic sources of finance Capacity and willingness of government to invest in development	i. Revenue-GDP ratio ii. public investment –GDP ratio	i. Percentage of Non oil federally revenue collected in total federal government revenue ii. polity II

Source: (Yaru et al. 2018).