Empirical Analysis of Value Added Tax on Economic Growth in Nigeria (1994-2018)

By

John Ayodele Ajayi, PhD and Rotimi Sopelu

This study examined the effect of Value Added Tax (VAT) on economic growth in Nigeria from 1994 to 2018. Secondary data, used for the study as relevant data on Value Added Tax Revenue, Total Revenue, Total Expenditure and Gross Domestic Product at current basic prices, were collected from the Central Bank of Nigeria statistical bulletin of 2018. Auto-Regressive Distributed Lag (ARDL) technique was used to estimate a multiple linear regression model that was tailored in line with the formulated hypotheses. Results from the study showed that there is a positive and insignificant effect between log value of total revenue and log value of total of value added tax on log value of gross domestic product while total expenditure has a negative and insignificant effect on log value of gross domestic product. The general hypothesis testing using F statistics (0.023**) also revealed that VAT has made significant impact on economic growth in Nigeria which is proxy by gross domestic product since its inception in 1994. Consequently, it was recommended among other things that there should be stringent penalty imposed on any individual or corporate body that indulges in any form of value added tax malpractices, if the high correlation between value added tax and overall tax revenue in Nigeria should be maintained. It is also recommended that government through Federal Inland Revenue Service should create an effective and reliable database for every vat-able person in Nigeria in order to minimize the incidence of tax evasion.

Keywords: Value added tax, Economic growth, Nigeria, ARDL

Introduction

Tax is a compulsory contribution imposed by a public authority irrespective of the exact amount of service rendered to the taxpayer in return (Jhingan, 2004). Thus, the tax system is not only an important instrument for generating revenue for the government; but also, a tool of national economic policy. Taxation arrangements can be used to redistribute income, correct market failure, encourage consumption of merit goods, discourage consumption of demerit goods and internalize externalities (Usman et al., 2019). Taxation is therefore incontrovertibly a major player in every economy of the world. The tax system is an opportunity for government to collect additional revenue needed in discharging its pressing obligations. Value Added Tax (VAT) is a tax on estimated market value added to a product or service at each stage of its manufacture or distribution and the additions are ultimately added to the final consumer (Kareem et al., 2020).

Aneke (2009) opines that taxes represent an instrument of fiscal policy used by government to manage the economic development of the state. Nzotta (2007) reported that tax is a compulsory contribution made by the citizens to the state or even an alien, subject to the jurisdiction of the government, for reasons of residence or property and this contribution is for general common good. He further stated that a tax imposes a general obligation on the taxpayer. This means that the taxpayer has a duty to pay the tax, if he is liable and should not in any circumstances evade it. These features thus make it criminal to evade taxes under any guise (Appah, 2011).

Despite this fiscal measure having been strategically placed as an important macro-economic tool to achieve economic growth and development, the three-tier structure of the government in Nigeria still faces a recurrent problem of dwindling revenue generation as characterized by yearly budget deficits and insufficient funds. This economic reasoning emphasized the revenue need of government and indicates that apart from strengthening the existing sources of revenue, it is also necessary for government to diversify its revenue base in order to meet its constitutional responsibilities. Myles (2000) states that the financial capacity of any government depends

among other things, on its revenue base, the fiscal resources available to it and the way these resources are generated and utilized. It is therefore, the duty of the government to adequately mobilize potential revenue across the country to prevent economic stagnation. This mobilization involves the adoption of economically and politically acceptable taxes that would ensure easy administration, accounting, verification, auditing and investigation based on the equality, neutrality and other attributes of a good tax. It is on the basis of this revenue diversification strategy that the government of Nigeria in 1994 introduced a new tax system called Value Added Tax.

The rationale behind the introduction of value added tax in Nigeria came from the study group set up by the federal government in 1991 to review the entire tax system. This review was urgently needed as it is proven theoretically that economic growth (GDP) depends on total government revenue generated via different means of which value added tax (VAT) revenue is inclusive. This proven assertion coupled with the need to revamp Nigeria's economy and set it on the path of growth and sustainable development, the Nigerian government worked tirelessly for years in search of a permanent solution to the economic problems it faced (Chigbu, 2014).

Hence, value added tax was proposed in Nigeria and a committee was set up to carry out feasibility studies on its implementation. In January, 1993, the then government agreed to introduce VAT by the middle of the year. It was later shifted to 1 September 1993 by which time the relevant legislation would have been made and proper groundwork for success already laid. The actual implementation however, did not commence until January 1994 after the promulgation of the Value Added Tax Decree No. 10(1and 2) of 1993 (now VAT Act No. 102 of 1993). According to the Act a, 'Vatable' organization is an existing manufacturer, distributor, importer or supplier of goods and services (Adegbie et al., 2016). This highlights the fact that every vatable person has the obligation to register for VAT payment. Professionals like lawyers, accountants, engineers and a host of others who provide professional services to their clients are required to register. There is therefore no threshold nor stringent conditions for registration. Registration of VAT is to cover all the business activities of the vatable persons. Therefore, all domestic manufacturers, wholesalers, distributors, importers and suppliers of goods and services in Nigeria are expected to register for VAT within six months after the commencement of the Act or six months from the commencement of business, whichever is earlier. The Value Added Tax Act of 1993 was enacted to repeal and replace the sales tax which had been in operation under the Federal Government Legislated Decree No. 7 of 1986. Adegbie et al. (2016) opined that the Act was marred by a number of factors and considerations and the narrow base of the old sales tax negates the fundamental principles of consumption tax which by nature is expected to cut across all consumable goods and services. Value added tax in Nigeria is a federal government tax, which is administered using the existing machinery of the Federal Inland Revenue Services (FIRS). However, the interesting aspect of Nigeria's value added tax is the very low single rate of 5% which is one of the lowest in the world and even in the West African sub-region. To mention but a few, Ghana has a rate of 10%, Republic of Benin 18% while Togo has multiple rates ranging from 5% to 30% (Olaoye, 2004). Evidence suggests that in these countries VAT has become an important contributor to government revenue (Adereti et al., 2011). It was against this background coupled with the dwindling revenue that the Nigerian government increased the VAT rate to 7.5% in February, 2020. In Nigeria, VAT is also a major source of revenue. For example, actual VAT revenue for 1994 was N5.03 billion (Central Bank of Nigeria (CBN), 2004). Five years later, the figure was N26.38 billion, and with the advent of democracy in 1999, VAT revenue figure stood at N586.24 billion and in 2012, the revenue generated through value added tax was N656.24 billion in 2013, N655.71 billion in 2014 (CBN, 2014). The National Bureau of Statistics (NBS), 2018) puts VAT revenue at N795.43 billion in 2015, N777.50 billion in 2016 showing a reduction in revenue by 2.25 percent; between 2017 and 2018, the revenue was put to N972.35 billion in 2017 showing an increase of 25 percent between 2016 and 2017. As of 2018, the VAT revenue stood at N1.11trillion as reported by National Bureau of Statistics (NBS) and N1.17 trillion in 2019 (CBN Economic Report, 2019). The question to be asked then is "how have these revenues generated from VAT affected the growth of the Nigerian economy"? This forms the gap which this study intends to investigate.

Research Hypothesis

For the purpose of this research work, the following hypotheses which are in null form are formulated and tested for the study.

Hypothesis One:
H_0: There is no significant relationship between Value Added Tax (VAT) and economic growth in Nigeria.

Hypothesis Two:
H_0: There is no significant relationship between Total Revenue and economic growth in Nigeria.

Hypothesis Three:
H_0: There is no significant relationship between Total Expenditure and economic growth in Nigeria.

Literature Review

Ofishe (2015) empirically analyzed the impact of value added tax on economic growth in Nigeria from 1994 – 2012. Ordinary Least Square technique was used to estimate three models in line with the formulated hypotheses. Results from the models revealed a strong positive significant impact of VAT on economic growth as proxy by GDP in Nigeria. It also revealed that there is a positive relationship or impact of VAT on total tax revenue over the period studied. Consequently, it was recommended, among other things, that government should put in place measures to effectively utilize generated VAT revenue for infrastructural and economic development. It also recommends the review of tax incentives to attract both local and foreign investors in order to boost economic growth in Nigeria.

Houssa et al. (2017) did a study on value added in two West African countries, namely Benin Republic and Burkina Faso. The study covered a period of sixteen years (1999-2014) where the activities of twenty key sectors of each country's national output-output tables sources of VAT gaps. Results from their analysis show that the VAT gap in Benin Republic is mainly explained by inefficiencies in some key sectors such as transportation, agriculture, sales, telecommunications, post office, agricultural-based industries and other service sectors. On the other hand, in Burkina Faso, the study revealed similar sectoral contributions to VAT gap, however, public administration played a more dominant role than her Benin counterparts.

Okoli and Afolayan (2015) examined the extent to which VAT has been contributing to Nigeria's total federally collected revenue and subsequently her position among the other three components. Hence the study employed an Error Correction Model (ECM) for the analysis. Data spanning 1994 to 2012 sourced from the Central Bank of Nigeria annual report and CBN Statistical Bulletin were used for the analysis. Results from the study revealed that VAT is the second-long term source of the total federally collected revenue.

The study of Lakuma and Sserunjogi (2018) on the value added tax gap analysis in Uganda shows that the compliance gap is estimated to be between 39 percent and 30 percent of potential VAT revenues during the period 2009/10–2016/17, and peaking in 2010/11 in that country. The estimated gap is higher than the typically observed levels in Sub-Saharan countries and near to the levels in Latin American countries. The estimated compliance gap increased to 64 percent of potential revenue in 2010/11, largely due to the significant reduction in imports during the 2010/11 election season, the lag effects of the global financial crisis, the effects of rebasing the economy from 2005/06 to 2009/10 and potential loss of information during the switchover from a manual VAT system to an electronic tax system. The gap has since gradually decreased to 30 percent of potential VAT revenues. The size of compliance gap relative to GDP was between 2.3 percent and 3.6 percent of GDP.

Owino (2019) carried on a study to empirically examine the impact of value added tax revenue on the economic growth of Kenya. Time series data for the period 1973 to 2010 was utilized. The study employed the Ordinary Least Square (OLS) technique to estimate the model. The empirical result found a positive but statistically insignificant relationship between VAT revenue and economic growth in Kenya. The study concluded that the impact of VAT on the economy is not statistically significant enough to influence the economic growth in Kenya, due to some problems (such as VAT gap), that are affecting the potentials of the country VAT system.

Abbas (2014) examined the impact of trade openness and liberalization on economic growth in developing countries during the period of 1990–2011 using the panel fixed effect model. The results showed that trade liberalization has a negative impact on economic growth of the selected countries whereas real exports make a significant positive impact on it.

Ahmed (2019) opines that the Nigerian GDP ratio stands at less than 1% (0.8%), which compares unfavourably to the ECOWAS average of 3.4%, and in September 2019, Ahmed (Nigeria's Minister of Finance) announced the government's proposed plan to increase the VAT rate by 50% from the standard 5% to 7.5% (which has been eventually increased to 7.5% in 2020). This revelation caused public outcry from tax experts, the general public and politicians, who said that the low VAT revenue was caused by weak tax administration, which tolerates VAT evasion that creates a huge VAT gap in the country.

Chigbu (2014) examined the impact of value added tax on the economic growth of Nigeria for the period 1994-2012. Secondary data collected from the relevant government agencies in Nigeria were analyzed with relevant econometric tests of Breusch-Godfrey Serial Correlation LM, White Heteroskedasticity, Ramsey RESET, Jarque Bera, Johansen Co-integration, and Granger Causality. Findings from the study showed that there exists a long run equilibrium relationship between economic growth and VAT. It was also found that VAT does granger, cause gross domestic product of Nigeria. On the basis of the empirical analysis, the paper concludes that VAT is one of the most important components of indirect taxes in Nigeria that affect the economic growth of the country and therefore should be properly managed to reduce the level of evasion by the input and output relationship in Nigeria.

Denis (2010) investigated the relationship between value added tax (VAT) and gross domestic product (GDP) in Nigeria. The study reveals that VAT is not effective as a revenue earner; this implies that significant parts of GDP which represent aggregate national income as well as aggregate national expenditure are not collected as tax.

Obianwuna (2005) conducted a study on value added tax implication for revenue generation in Nigeria. The major purpose of the study was to determine the implication of value added tax for revenue generation in Nigeria. The study adopted a descriptive survey design. The population for the study comprised 40 staff of the Federal Inland Revenue Service, Abuja and 120 staff from eight companies in Abuja totaling 160. The study found that broadening of the tax base has a different burden on imported goods and domestically produced goods and service. The study relates to the present study because both focus on VAT revenue collection in Nigeria.

Ugwu (2006) conducted a study on the administration of value added tax problems and prospects in the Nigerian economy. The major purpose of the study was to examine the prospects of VAT in the enhancement of public revenue in Nigeria. The study adopted a descriptive survey design. The population for the study comprised 35 Federal Inland Revenue Service Administrative Staff, 50 tax inspectors and 60 other categories totaling 145 in number. The study revealed that poor record keeping constitutes a problem to the success of VAT administration in Nigeria. It also revealed that poor quality personnel constitute problems for VAT administration in Nigeria. Ugwu's study relates to the present study because both focus on VAT administration. However, the present study differed from Ugwu's because the present study sought to find out the level of revenue realized each year while Ugwu's study was based on problems and prospects of VAT administration. In addition, Ugwu's study made use of primary data while this study applies secondary data.

Adereti et al. (2011) empirically evaluated the contribution of value added tax (VAT) to economic growth in Nigeria between 1994-2008. From their time series data of GDP and VAT revenue, it was observed that VAT revenue to total tax revenue averaged 12.4% which was considered very low when compared to other countries in Africa. The study also observed that there is no causality between VAT revenue and Nigerian gross domestic product. Both observations indicate that revenue from VAT has no significant impact on economic growth in Nigeria.

The literature reviewed above shows that there is no consensus among the various authors who have carried out empirical research on value added tax in developing nations and especially in Nigeria hence creating the gap which this study intends to address.

Methodology

Model Specification

This study made use of time series data from 1994 to 2018 which were collated from the Central Bank of Nigeria Statistical Bulletin. The data on economic growth is represented by GDP while data for Value Added Tax, Total Revenue and Total Expenditure represent the independent variables in the research model. In order to analyze the contributions of VAT to economic growth in Nigeria, a linear regression method was used for the analysis. The study is modeled according to the work of Rajeshwari (2010) and Onwuchekwa and Aruwa (2014).

The model is specified as follows:

$$GDP = f(VAT, TR, TE) \quad (3.1)$$

$$GDP = \beta_0 + \beta_1 VAT + \beta_2 TR + \beta_3 TE + \mu \quad (3.2)$$

Where:

GDP = Gross Domestic Product

VAT = Value Added Tax

TR = Total Revenue

TE= Total Expenditure

β_0 = constant

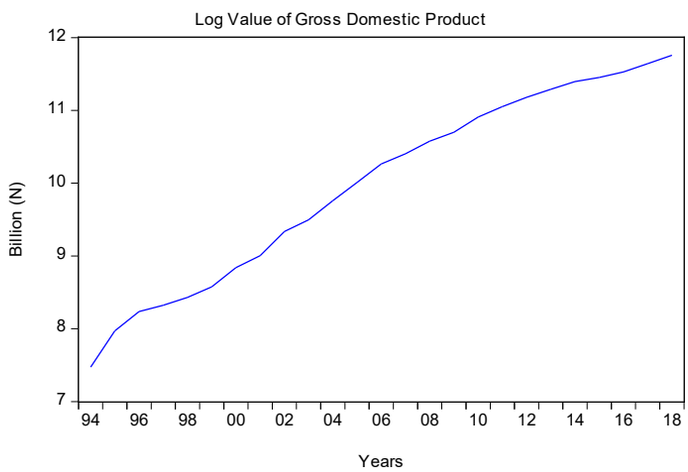
β_1, β_2 **and** β_3= coefficient of independent variable

μ = error term

Empirical Results and Discussions

Table 1 presents the description of the statistical properties of the variables under consideration in the study. The mean of the variables which include log of Gross Domestic Product (L_GDP), log of total expenditure (LTE), log of total revenue (LTR) and log of Value Added Tax (LVAT) are 9.98%, 7.16%, 7.17%, and 4.95% respectively amongst others.

Figure 1. *Trend of Gross Domestic Products in Nigeria (1994-2018)*



Note: Researchers computation with the aid of EViews 9 (2020)

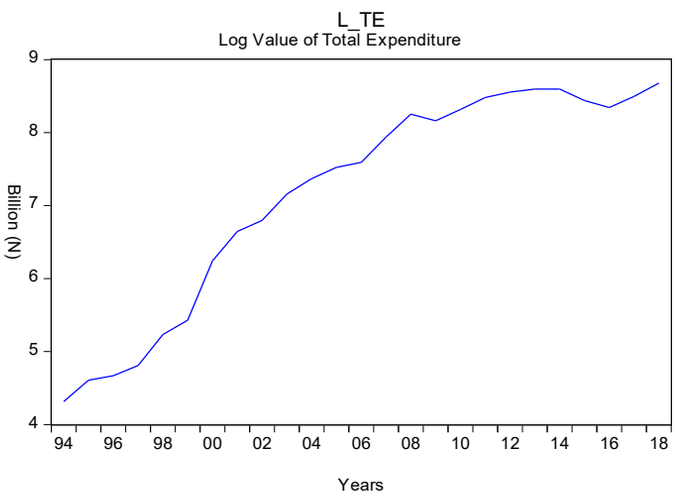
Table 1. *Descriptive Statistics*

	LGDP	LTE	LTR	LVAT
Mean	9.984192	7.169789	7.171086	4.958090
Median	10.26334	7.593364	7.704375	5.228378
Maximum	11.75793	8.676724	8.650925	6.802428
Minimum	7.474664	4.316020	4.230186	1.615420
Std. Dev.	1.326222	1.496040	1.503095	1.546884
Skewness	-0.307449	-0.735177	-0.748559	-0.588691
Kurtosis	1.751201	2.042086	2.059819	2.144438
Jarque-Bera	2.018331	3.207856	3.255520	2.206473
Probability	0.364523	0.201105	0.196369	0.331795
Sum	249.6048	179.2447	179.2771	123.9522
Sum Sq. Dev.	42.21274	53.71524	54.22305	57.42837
Observations	25	25	25	25

Note: Researchers computation with the aid of EViews 9 (2020)

The trend of gross domestic products (GDP) in-Nigeria is graphically shown in Figure 1. Over the periods of consideration (1994 to 2018), the GDP of Nigeria barely shows an upward movement arising from improvements in investment and government expenditure in the country. However, it could be observed from the trends that the movement maintains a constant increase over a long time and a shortfall in a few years arising from an economic downturn experienced at different year's level.

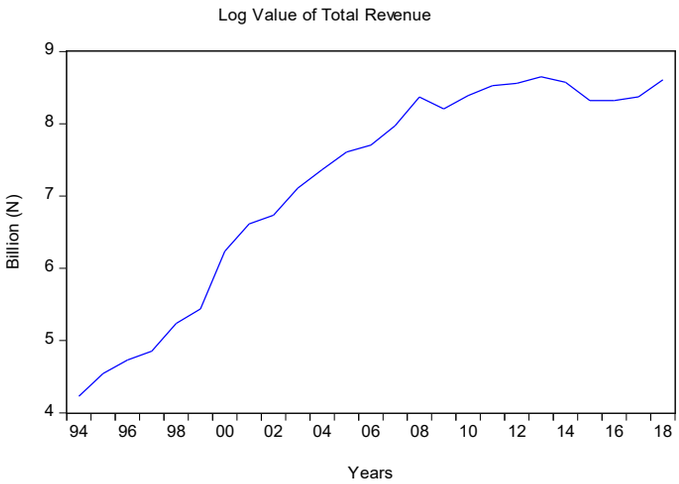
Figure 2. *Trend of Total Expenditure in Nigeria (1994-2018)*



Note: Researchers computation with the aid of EViews 9 (2020)

The trend of total expenditure in Nigeria is graphically shown in Figure 2. Over the periods of consideration, the total expenditure of Nigeria barely depicts an upward movement. However, the trend witnessed a sharp increase within 2007 and 2008 resulting from increase in government spending as a result of a national election conducted in the country within the year.

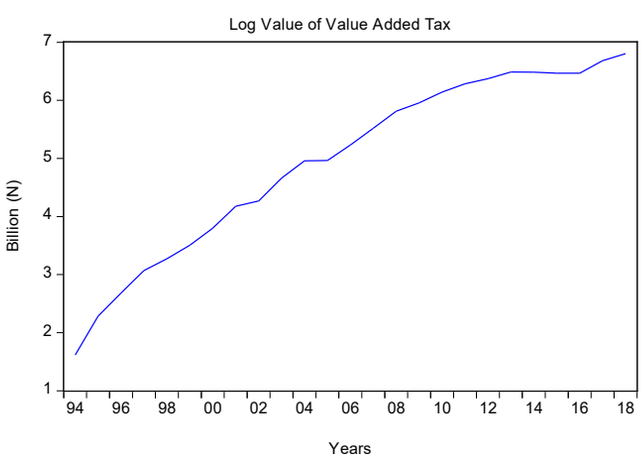
Figure 3. *Trend of Total Revenue in Nigeria (1994-2018)*



Note: Researchers computation with the aid of EViews 9 (2020)

The trend of total revenue in Nigeria is illustrated in Figure 3. Over the periods of consideration, total revenue in Nigeria barely depicts an upward movement. It could be observed that the trend increases in 1994 arising from the introduction of VAT, which added to the income level of the government of the country in the aforementioned year. However, between 2014 and 2016 the trend experienced a fall which could be as a result of a decrease in the oil level patronage in the country and the tax avoidance and evasion practices.

Figure 4. *Trend of Value Added Tax in Nigeria*



Note: Researchers computation with the aid of EViews 9 (2020)

The trend above shows the movement of VAT in Nigeria from 1994 till 2018. As it could be seen in Figure 4, the trend shows an upward movement with a little fall in 2003, 2005 and 2016 which could be as a result of reduction in consumption of VAT chargeable commodities in the country for the identified periods.

Unit Root Tests

To determine the order of the stationarity of the series, the Augmented Dickey-Fuller unit root test was engaged for which the results are presented in Table 2. The unit root test is usually employed to ascertain whether a time series variable is stationary or not.

Table 2. *Test for Stationary at Level and First Difference*

Variables	Table 2 – Augmented Dickey – Fuller (ADF) Test						I (d)
	Level			First difference			
	Model I	Model II	Model III	Model I	Model II	Model III	
LGDP	-1.470085	0.215487	2.088105	-3.038715**	-4.968100***	-1.593932	1(1)
LTE	-2.745871*	-0.418633	1.571405	-3.290961**	-3.623456*	-0.946208	1(1)
LTR	-2.962363*	-0.451380	1.602595	-3.436716**	- 4.456593***	-2.479838**	1(1)
LVAT	-5.513936***	-2.228366	1.776518	-3.965081***	-5.244759***	-1.963390**	1(1)

Note 1: Authors Computation using E- Views 9 (2020)

Note 2: *, ** and *** represent significance level at 1%, 5% and 10% respectively.

Table 2 shows that Gross Domestic Products (GDP) is not stationary at levels thereby, making the variable to be integrated of order one that is I(1). Hence, the variable is stationary at first difference. Similarly, all the independent variables which include: Total revenue (TR), total expenditure (TE) and value added tax (VAT) show that at first level difference, there is stationary at first difference which is at both intercept (model I), Intercept and trend (Model II) and None (Model III).

Cointegration Test

Table 3. *Johansen Cointegration Test*

Trace Test			
Hypothesized No. of CE (s)	**Trace Statistics**	**0.05 Critical Value**	**Prob**
None	46.65	47.85	0.0647
At Most 1	26.59	29.80	0.1121
Maximum Eigenvalue			
Hypothesized No of CE(s)	**Maximum Eigen Statistics**	**0.05 Critical Value**	**Prob**
None	20.06	27.58	0.3372
At Most 1	16.72	21.13	0.1856

Note: Authors Computation using E- Views 9 (2020)

Table 3 shows the cointegration test result of the analysis using the Johansen cointegration test in order to determine if there exists a long run relationship between the dependent and independent variables. However, it could be observed from the trace statistics result at both none (46.65) and at most 1 (26.59) has a lower value compared to the critical value result at 5% in both none and at most 1 respectively indicating that there is no long run relationship between the dependent and independent variables. Also, the Maximum Eigen value shows a lower value of 20.06 and 16.72 at both none and at most 1 result respectively compared to the critical value result at 5% indicating a no cointegration relationship between the dependent and independent variables in the research work which is similar to the outcome of the trace test. Hence, the result estimation will only test for the short run relationship between the independent and the dependent variables.

Model Estimation

Table 4. *Short run (Dynamic Model)*

Dependent Variable- Log Gross Domestic Product (LGDP)				
Variables	**Coefficient**	**Std. Error**	**T-stat**	**Prob**
Constant (C)	2.7823	1.7752	1.5670	0.3615
D(L_TE)	-0.1091	0.5025	-0.0217	0.8638
D(L_TE (-1)	-0.6385	0.2600	-0.2455	0.2462
D(L_TR)	0.122	0.3215	0.3797	0.7690
D(L_TR (-1)	0.4120	0.2145	1.9209	0.3056
D(L_VAT)	0.1492	0.2160	0.6907	0.6152
D(L_VAT (-1)	-0.1063	0.2490	-0.4270	0.7431
ECM (-1)	-0.4212	0.2751	-1.5313	0.3683
R^2	0.99			
Adjusted R2	0.99			
F stat (Prob)	1102.55(0.023)			
Durbin Watson (DW)	2.46			

Note: Authors Computation using E-Views 9 (2020)

Table 4 depicts the model estimation for the short run analysis using the Auto-Regressive Distributed Lag (ARDL) model. It could be observed that log of total expenditure (L_TE) at the level has a negative relationship with the log of gross domestic product (L_GDP) in Nigeria for the period under observation. This implies that a unit increase (decrease) in total expenditure will lead to decrease (increase) of 10.9% in the gross domestic product of Nigeria. However, at the first order, there also exist a negative relationship between government expenditure and gross domestic product in Nigeria. In relation to this, a unit decrease in government expenditure will tend to lead to an increase of 63.8% in the gross domestic product. Similarly, there is no significant relationship between total expenditure and gross domestic product which could be seen from the calculated probabilities which are greater than the critical value (5%) acceptance region at both level and first difference in the Table 4 above.

Furthermore, from Table 4 it could be seen that a direct relationship exists between log of total revenue (L_TR) and log of gross domestic product (L_GDP). Hence, a unit increase in the total revenue will bring about 12.2% increases in the gross domestic product at level. Whereas, at the first difference, a unit increase in the total revenue will bring about 41.2% increases in the gross domestic product. Meanwhile, there is no significant relationship between total revenue and gross domestic product at level and first difference showing higher values of 0.76 and 0.30 respectively which is above the critical value of acceptance at 0.05.

Additionally, result on log of value added tax (L_VAT) shows a positive relationship with the log of gross domestic product (L_GDP) at level. Hence, a unit increase in the value of value added tax will bring about 14.9% increase in the gross domestic product of Nigeria. Also, log of value added tax (L_VAT) has an insignificant affect on economic growth in Nigeria.

The Error Correction (ECM) Coefficient in Table 4 indicates the speed of adjustment from the short-run dynamics to long-run equilibrium is 42.12%. In other words, 42.12% of the long-run disequilibrium in the previous years is adjusted every year.

Conclusively, the Adjusted R^2 value of 0.99 indicates that 99% variation in gross domestic product is explained by total expenditure, total revenue and value added tax. The F-Statistic which is less than 0.05 confirms that the estimated model in Table 4 is significant and valid. More so, the Durbin Watson (DW) value of 2.46 falls in the range of acceptability indicating that there is no autocorrelation in the estimated model.

Post Estimation

The model estimated was validated and verified using a series of diagnostic and stability checks to scrutinize the independence of the residuals from the fitted model. For a model to be robust, the residuals must exhibit the required independence during the checks, if not; the model is unacceptable statistically and requires further model modification before additional diagnostic and stability checks. In this way, the ARDL model becomes unbiased to make the correct statistical inferences.

Tables 5 and 7 present the diagnostic test for the ARDL model. The tests employed to validate the ARDL model include; Serial Correlation Test using Q statistics, Heteroscedasticity Test and Normality Test.

Serial Correlation Test

Table 5. *Q-statistic Probabilities Adjusted for 4 Dynamic Regressors*

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
.**| . |	.**| . |	1	-0.256	-0.256	1.5827	0.208
. *| . |	. *| . |	2	-0.081	-0.157	1.7510	0.417
***| . |	****| . |	3	-0.457	-0.572	7.3608	0.061
. |**. |	. *| . |	4	0.243	-0.174	9.0404	0.060

Note: Authors Computation using E- views 9 (2020)

Table 5 shows that the Q-statistics is insignificant at the acceptance critical value of 0.05. This indicates that there is no serial correlation in the model. Hence, the null hypothesis that there is no serial correlation cannot be rejected.

Heteroscedasticity Test

ARDL residual heteroskedasticity was tested with Breusch-Pagan-Godfrey Test statistic.

Null Hypothesis: No conditional heteroskedasticity

Alternative hypothesis: There is conditional heteroskedasticity

The results are presented below:

Table 6. *Heteroskedasticity Test: Breusch-Pagan-Godfrey*

F-statistic	0.091684	Prob. F (19,1)	0.9963
Obs*R-squared	13.34135	Prob. Chi-Square (19)	0.8206
Scaled explained SS	0.053935	Prob. Chi-Square (19)	1.0000

Note: Authors Computation using E- views 9 (2020)

From Table 6, the calculated F-statistics is 0.091 with a probability of 0.99 which is greater than the tabulated probability of 0.05. Thus, we accept null hypothesis that there is no conditional heteroscedasticity and reject alternative hypothesis that there is conditional heteroscedasticity. Evidence from the Table shows that the ARDL residual Heteroskedasticity Test cannot reject the null hypothesis of no conditional heteroskedasticity at the 5% significance level. Meaning that, no conditional heteroskedasticity exists in the residuals of the ARDL model. Therefore, we can conclude that the model is homoscedastic i.e. it has a zero mean and constant variance.

Normality Test

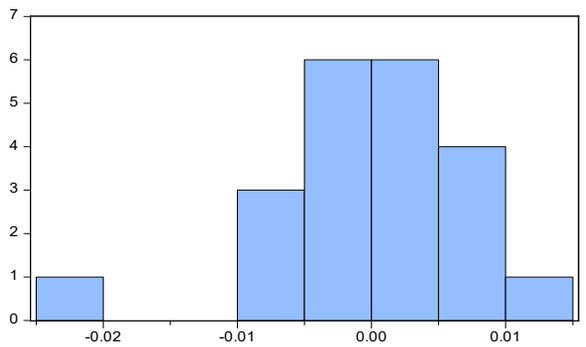
ARDL residual normal distribution was tested with Jarque-Berra test statistic.

Null Hypothesis: The residual of the series is normally distributed.

Alternative hypothesis: There residual of the series is not normally distributed.

The results are presented as follows:

Table 7. *Normality Test for the Residuals*



Series: Residuals	
Sample 1998 2018	
Observations 21	
Mean	1.10e-15
Median	0.001528
Maximum	0.010297
Minimum	-0.021771
Std. Dev.	0.007417
Skewness	-1.140347
Kurtosis	4.565671
Jarque-Bera	6.696278
Probability	0.035150

Note: Authors Computation using E- Views 9 (2020)

The calculated Jarque-Bera statistics is 6.69 with a probability of 0.035 while the tabulated probability is 0.05. Evidence from the graph thus shows that the null hypothesis of multivariate normal distribution will be rejected at the 5% significance level, meaning that, the ARDL residuals are not normally distributed

Conclusion

The Nigerian government in its quest at increasing revenue mobilization decided to change the tax structure in order to ensure efficiency and effectiveness in the administration of tax, and reduce over dependency on oil as the only major source of revenue. This prompted the government to replace the sales tax with value added tax in December 1993 with the introduction of Decree 102 of 1993 which marks the phasing out for the Sales Tax Decree 107 of 1986, on the grounds that the previous system encouraged tax evasion, had a narrow base of revenue generation and deferred the payment of tax.

The study revealed that VAT has economic impact on consumption patterns of Nigeria which is in tandem with the works of Ajibola and Olowolaju (2017). Following the result of the data gathered using the Auto-Regressive Distributed Lag (ARDL), it was discovered from the coefficients result of the identified variables (Value Added Tax, Total Expenditure and Total Revenue) that VAT and total revenue has a positive effect on economic growth since the introduction of VAT in 1994 and this is in line with the study of Chigbu (2014), Udoffia and Godson (2016). However, total expenditure result depicted an inverse effect on economic growth of Nigeria based on the outcome of the data analysis. This result contradicts the outcome of Chude and Chude (2013).

The general hypothesis testing using F statistics (0.023) also revealed that VAT has made significant impact on economic growth in Nigeria which is proxied by GDP. The general outcome of this study conforms to the results of Chigbu (2014) and that of Ofishe (2015).

Conclusively, results from this study shows that value added tax has a positive significant effect on economic growth (GDP) in Nigeria. Its proper monitoring, collection, and usage is a necessary ingredient to achieve growth in the country.

The paper therefore recommends that government through the Federal Inland Revenue Service should create an effective and reliable database for every vat-able person to minimize (if not eliminate) the incidence of tax evasion. In the same vein, the entire tax system should be overhauled to discourage tax avoidance as VAT payers are ever willing to take advantage of loopholes in the tax system to reduce their tax liabilities.

In addition, as seen from the results of this paper that total expenditure has a negative effect on economic growth which ought to depict a positive effect. Hence, the government of Nigeria should develop a policy that will monitor the spending and disbursement of government funds for the purpose of improving economic output and as well increase the economics of scale. This can be done through effective incorporation of standard organizational ethics at all levels of government activities.

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The Authors

John Ayodele Ajayi, PhD
Department of Finance
Faculty of Management Sciences
University of Lagos-Akoka, Nigeria
E-mail: ajayiayodele82@gmail.com
+2348034231162
(Corresponding Author)

Rotimi Soelu
Research Assistant
E-mail: rotimisopelu@gmail.com
+2348136982894

Data for the Study

Year	GDP (Billion) N	VAT(Billion) N	TE (Billion) N	TR (Billion) N
1994	1762.81	5.03	74.89	68.73
1995	2895.2	9.82	100.34	94.05
1996	3779.13	14.6	106.66	113.32
1997	4111.64	21.5	122.63	128.21
1998	4588.99	26.38	187.23	188.15
1999	5307.36	33.31	228.34	229.79
2000	6,897.48	44.55	513.53	510.95
2001	8134.14	65.01	768.33	745.07
2002	11332.25	71.36	894.36	841.97
2003	13301.56	105.54	1282.87	1225.17
2004	17321.56	142.19	1586.11	1582.24
2005	22269.98	143.24	1853.1	2016.86
2006	28662.47	186.49	1984.98	2218.03
2007	32995.38	249.47	2799.74	2897.68
2008	39157.88	333.99	3841	4313.81
2009	44285.56	386.7	3507.7	3660.03
2010	54612.26	464.69	4089.92	4400.06
2011	62980.4	536.23	4821.67	5046.25
2012	71713.94	586.24	5190.52	5220.77
2013	80092.56	656.85	5406.77	5715.43
2014	89043.62	655.71	5415.6	5286.83
2015	94144.96	642.92	4619.59	4104.66
2016	101489.49	642.92	4203.59	4104.66
2017	113711.63	797.45	4897.45	4330.48
2018	127762.55	900.03	5864.8	5478.1
Source: CBN Statistical Bulletin				