Analysis of the Effect of Value Added Tax on Consumption in Nigeria (1994 – 2018)

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Abstract: *This paper empirically estimates the effect of Value Added Tax (VAT) on consumption in Nigeria using annual data from 1994 to 2018. In addition to consumption, the variables captured in the model include VAT, interest rate and inflation rate. This paper further employed Auto Regressive Distributed Lag approach in estimating the relationship among the variables. The paper reveals that VAT has a positive and statistically significant impact on consumption in Nigeria. Therefore, this study recommends the needs for government to be reviewing the VAT rate from time to time in order to serve as a technique for controlling and checkmating the level of consumption in Nigeria.*
Keywords: *Consumption, Value Added Tax, Interest Rate and Inflation Rate.*

I.   Introduction

Nigeria is facing so many economic problems such as; poor planning, high rate of inflation, poor management, high interest rate and overdependence on oil wealth. It has been observed that, over the years, Nigerian revenue system has inherent problems in its structure by giving high concentration on oil revenue, while broad-based indirect taxes like the VAT, Customs and exercises duties were given little attention in previous years. Value Added Tax (VAT) is one of the major sources of government non-oil revenue in Nigeria. It is a tax that is imposed by the government on the cost of goods and services, created and consumed inside the country, imported into the country or shipped to other countries, whose weight are usually shifted in portion or in full by the tax payer who has paid the tax to the government while the final consumer bears the weight in the form of higher price. VAT is one of the components of indirect taxation in Nigeria, other components include Entertainment Tax, Import Duties, Export Duties, Excise Duties, among others. This research work intends to appraise VAT in relation to consumption and savings because from the components of indirect taxation, it is only VAT that is comparatively easy to administer and very hard to evade in Nigeria. This is however evident that through the introduction of VAT, there is increase in revenue base of federal government of Nigeria, because the problem of tax avoidance and tax evasion are reduced. (Naiyeju, 1996).

The issue of current plans underway by the Nigerian government to increase its VAT rate by 50% in 2019, that is to say, from the current rate of 5% to 7.5% is a conceptual and empirical issue that requires experts' interpretation and investigation. But the exciting aspect of Nigeria's VAT is the very low single rate of 5% which is one of the lowest in the world today and even in the West African sub-region. To mention but a few, Ghana has a VAT rate of 10%, Republic of Benin 18% while Togo has multiple rates ranging from 5% to 30% (Okoli & Afolayan, 2015).

Studies of this nature were conducted by many authors such as Andre, Jason, Cathal and Dirk (2009) in five European countries (Belgium, Greece, Hungary, Ireland and the UK), Bumpei (2011) in Columbia, Ezat (2013) in Malasia, Panayotis and Avraam (2013) in Greece, Mohammad and Masoume (2016) in India, Caroline and Joseph (2017) in USA, Vincent and David (2018) in USA, and Songra (2019) in India, none of the study of this nature has been conducted in Nigeria. Therefore, this study seeks to fill in the research gap by examining the effect of VAT on consumption in Nigeria using Autoregressive Distributed Lag (ARDL) approach to cointegration. This is due to fact that the approach provides robust and reliable outcomes irrespective of the order of integration. To achieve the above mentioned objective, this paper is divided into five sections including this introduction. Section two contains review of related literature, section three is the methodology, section four contains the findings and section five comprises conclusion and recommendations.

II.   Literature Review

The VAT has been widely used in Europe for nearly four decades, and now has also been adopted in numerous other countries around the world. "Value-added" is the value that a firm adds during production to materials and services purchased from other firms. It equals the difference between a firm's gross receipts and the costs of all intermediate inputs used to produce the product (including the cost of capital goods but excluding wages). A tax on the value-added of all businesses therefore has as its base the total value of all final

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products, making a VAT equivalent (under some conditions) to a national retail sales tax (James & Asmaa, 2012).

According to James and Asmaa, (2012) disclosed that several studies have examined the various issues involved when implementing a VAT in developing and developed countries, for instance, Metcalf (1995) confers the many issues related to the strategy of a VAT, including implementation, administration, compliance costs, its effect on savings and labor supply, its distributional effects, and various transitional alarms if implemented in the U.S. With regard to its impact on saving, Metcalf (1995) also emphasizes that there is to date no strong cut answer on whether implementing the VAT would increase savings rate. Bird (2005) and Diamond and Zodrow (2007, 2008) also discuss VAT design issues, and similarly conclude that the effect of a VAT on consumption is an important but unsettled issue.

The VAT was adopted in Nigeria in January 1993 by the VAT Act No102, but was not implemented until January 1994 at a standard rate of 5 percent. This represented one of the lowest rates in the world along with fewer other countries like Canada, Japan and Panama as at 2009. For example, Denmark, Norway and Sweden set their VAT rate up to 25 percent and above. While Bulgaria, China, Finland, Madagascar (Malagazy), Samoa and Singapore were contemporaries with Nigeria in 1994, France Urugua, Sweden, Ecuador and Norway Started since 1948, 1968, 1969, 1970 and 1970 respectively (Adebayo, 2016).

VAT has become a major source of revenue in many developing countries. In sub-Saharan Africa, for example, VAT has been introduced in Côte d'Ivoire Benin, Guinea, Kenya, Madagascar, Mauritius, Niger, Senegal, Togo and, lately, Nigeria. Evidence suggests that in these countries, VAT has become an significant provider to total government tax revenues (Ajakaiye,1999). According to Ajibola and Olowolaju (2017), one of the important landmarks in tax reform in Nigeria was the adoption of the value-added tax (VAT) in January through the VAT Act No. 102 of 1993 and its implementation began in January 1994. Ajakaiye (1999) also states that since its introduction, 15 of the 42 sections of the Act have been revised. Replacing sales tax, VAT was originally imposed on 17 categories of goods and 24 service categories. Such items as basic foods, medical and pharmaceutical products, books, newspapers and magazines, house rent, commercial vehicles and spare parts and services rendered by community and people's banks, however, were VAT-free (Ajibola and Olowolaju, 2017). VAT has also been introduced in Mexico and Ecuador since 1973 and by 1983 accounted for 12.35% and 19.71% of total government incomes in these countries, respectively (Schnepper 1996).

Naiyeju (1993) also identified certain specific inherent characteristics of VAT. Some of these characteristics are:
  i.   Broad Base: VAT has perhaps the broadest base in tax history. In most countries, it applies to both public and private consumption thus reducing the disadvantage associated with tax holidays. Also private individuals and developing countries are in one way or another compelled to pay VAT.
 ii.   Shifting: The incidence of the tax is shifted forward or dissolved in successive stages so that at the end it is final consumer that pays the tax. Since the elasticity of both demand and supply determines the degree of tax, shifting this quality of VAT prevents the substitution effect associated with direct taxes on income and profits. It thus induces the taxable business person to pay tax while encouraging the production and distribution of the taxable items as if no tax has been imposed on them.
iii.   Adaptability: The tax is flexible and has been variously adapted to the political and economic realities of different countries. For instance in developing countries, essential goods and services are exempted from VAT so as not to hamper them, while in developing countries, such goods and services are taxed.
 iv.   Paper Work: The operation of VAT involves a lot of paper work. Return forms, registration forms, tax, invoices etc.
  v.   Export rebate: It is a main characteristic of VAT to zero rate export i.e export has a tax rate of zero percent. The taxpayer is consequently entitled to a refund of whatever amount he might have paid as input VAT.
 vi.   Favourable Rate: The tax rate of VAT when compared to other taxes is relatively low for example, Nigeria's VAT rate in 1994 was 5% while the rate of company income tax was 35% and personal income tax was 30%. VAT rate remains 5%.

III. Theoretical Framework

The Benefit Theory: Benefit Theory of Taxation: This theory describes that every citizen should be called upon to pay taxes in proportion to the benefits derived by him from services provided by the Government. Impliedly, it means that the state provides certain services to its residents who should, therefore, give to the cost or value of these services in proportion to benefits received by them. The more the benefit a resident derives, the more taxes he should bear, is the main notion of the theory. Milton (1957) posits that the relation between aggregate consumption or aggregate savings and aggregate income, generally termed the consumption function, has occupied a key role in economic philosophy ever since Keynes made it a foundation of his theoretical structure in the General Theory.

Keynes took it for granted that current consumption spending is a highly reliable and stable function of current revenue that "the amount of aggregate consumption mainly depends on the amount of aggregate income (both

dignified in terms of wage units)." He named it a "fundamental psychological rule of any modern community that, when its real income is improved, it will not increase its consumption by an equal complete amount," and stated somewhat less definitely that "as a rule, a greater proportion of income is saved as real income rises. Milton (1957) suggested that a consumer unit's consumption depends not on its total income but on its position in the distribution of income among consumer units in its community.

Milton (1957) also posits some of the severe criticism of benefit theory on the following grounds:

a) The assumption that the levy should be paid by an individual in proportion to welfares conferred by the State on that individual is quite improbable because the benefits derived cannot be correctly measured in terms of money. Benefit is purely a subjective matter and there is no scientific way to measure the magnitude of benefit and its money value.

b) If benefits accumulated to an individual are the basis of taxation, the poor must pay higher taxes because in a welfare State the poor get more benefits than the rich from the spending of the Government. This is clearly unjust and as such an unacceptable proposition.

c) It is also very difficult to determine under this theory what proportion of the general benefits accrues to particular individuals. Government is for civilized survival and there is, therefore, no basis for quantifying the services which the State renders.

d) Most of the services rendered by the State are indivisible and beneficiaries are unknown. For example, it is not possible to divide the benefits of national defense, among others.

e) Certain benefits accumulate only to definite persons and in definite proportion. If this principle is trailed, the whole of the benefit, they should return to the State as taxes. For example; pension paid to retired servants, definite and clear enough and therefore, they should offer the whole of their pension as taxes.

f) **Finally,** the equitable distribution of wealth, the main objective of most of the modern Governments, will be defeated if this principle is followed.

Modern Consumption Theory: Ajibola and Olowolaju (2017) stated that modern consumption theory begins with Keynes (1936) analysis of the psychological foundation of consumption behavior in his General Theory. "The fundamental psychological law upon which they are eligible to depend with great sureness from the knowledge of human nature and from the detailed truths of experience, is that men are disposed as a rule and on the average, to increase their consumption, as their income rises, but not by as much as the rise in their income. The famous features of Keynes' analysis are that the marginal propensity to Consume (MPC) falls with income, as does the average propensity to consume (APC).From a policy perspective, this indicates that redistributing income from high to low income households increases aggregate consumption since low-income households have a higher MPC. In General Theory, Keynes's theory of aggregate consumption expenditure was quickly adopted, but it was soon challenged by an empirical dilemma. Using five year moving medians of consumption spending, Kuznets (1946) indicated that long run time series consumption data for the U.S. economy are considered by a constant aggregate APC, a finding that is inconsistent with Keynesian consumption theory. At the same time, short sample total consumption time series estimates and cross-section individual household consumption regression estimates both confirm Keynes' theory of a diminishing APC.

IV. Review of Empirical Studies

Andre et al (2009) conducted a study on Incidence and Welfare Effects of Indirect Taxes. The study suggests that majority of micro simulation models are narrowed to ex ante assessments of reforms in the personal income tax system or in social security contributions and benefits. Their paper reports on an incorporation of indirect taxes, mainly VAT, excises and other consumption taxes, in the EUROMOD-micro simulation model. They sharpen the distributional image of the overall tax and benefit system by conveying the indirect tax incidence for five European countries into the image. They investigate explanations for the progressivity, and study the distributional effect of an integrated simulation of changes in social security contributions and indirect taxes as compensating channels of collecting government revenue. Their results revealed that a rise of social security contributions, followed by a rise in standard VAT rate to keep neutrality of the government budget. The results also showed that the weaker groups in society are adversely affected by this measure, while richer households benefit from it. This was true even while keeping savings constant.

Bumpei (2011) in his study of effect of the VAT rate change on aggregate consumption and economic development. He empirically determines the effect of a change in a country's Value VAT rate on its total consumption and its economic development. As for the effect on aggregate consumption, his study removes the income effect and discusses only the substitution effect. He used a panel data models on a samples that covered fourteen (14) developed countries, including Japan, and quarter periods from the second quarter in 1980 (1980 Q2) to the third quarter in 2010 (2010 Q3) and picking up 53 entries of the change of the VAT rate, this paper shows empirically that total consumption and economic development display three classes of trends when the VAT rate is changed. The first class is that total consumption and economic development rises [or declines] just

before the rise [or reduction] of the VAT rate. The second trend is that they drop [or rise] relatively dramatically as soon as the rise [or reduction] is implemented. The third trend is that after the dramatic fall [or rise] they increase [or decrease] gradually.

Panayotis and Avraam (2013) also investigated the effect of indirect taxes on consumer prices with empirical evidence for Greece. The study posits that the significance of the tax incidence is obvious both for academics and for policymakers. Using data of Harmonized Index of Consumer Price (HICP) and Harmonized Index of Consumer Price with Constant Taxes (CT_HICP), it is projected in the study that the effect of CT_HICP of the imposition of indirect taxes regulates the degree of tax incidence and the support of indirect taxes to inflation. Their findings revealed that the 2-digit groups through which indirect taxes displayed the highest contribution to the general index inflation rates was: For 2010 to the total tax contribution 4.18% (out of 5.11% inflation) the transport donated 1.55%, alcoholic beverages- tobacco 0.52%, restaurants and hotels accounts for 0.36%, food and non-alcoholic beverages accounts for 0.31%, clothing and footwear also donates (0.31%) and miscellaneous goods and services 0.31%. In 2011, to the total tax contribution 1.39% (out of 2.29% inflation) the categories taking the higher part in this total tax contribution are: Restaurants and hotels (0.95%), Food and non-alcoholic beverages (0.35%), Housing - water- electricity- gas and other fuels (0.13%).

Ezat (2013), empirically examined the impact of direct and indirect taxation, he discovers that taxes have macro and micro economic effects in a modern economy. The economic effects of taxation may be encouraging as well as adverse. Due to heavy burden of tax, the ability of tax –payer to work may be affected negatively or he may be reluctant to work more since his extra income is taxed. This is turn, may affect production poorly. There are also direct and indirect effects on the distribution of income. Taxation also affects the allocation of production and income of the community. Such changes caused by different taxes have far-reaching effects on the economic welfare of the society. Therefore, the government should not keep only revenue consideration in mind but the economic effects of taxation should also be considered. Economics is alarmed with the production and distribution of wealth. Taxation has either direct or indirect effects on almost every aspect of production and distribution in modern economies and is therefore a significant aspect in economic research. Economic efficiency is about maximizing economic output given the resources available to the community. This is not just maximizing production but also producing the goods and services that consumers value most. It is possible to show that, in certain circumstances, markets are economically efficient. If a tax changes an otherwise well-organized market this is known as the excess load of taxation, which means the extra economic cost levied on the community because taxes have caused people to create economic resolutions they would not otherwise have made.

Mohammad and Masoume (2016) studied the influence of VAT on the scope of current government and construction government. Research hypotheses tested by reviewing the relationship between VAT and the size of current government (in the form of current cost to gross domestic product (GDP)) and the size of construction government (in the form of construction cost to GDP). In this regard, seasonal time-series statistic within the period of 2008-2014 applied through using ARDL approach. Research results indicate that there is a positive, significant relationship between VAT and the size of current and construction governments. This means that tax influences the size of construction government than the size of current one. Indeed, dissimilar to developed countries, collecting VAT mostly influences the ratio of construction expenditures to GDP rather than influencing reduced poverty through increasing welfare expenditure, which increase government current spendings.

Ajibola and Olowolaju (2017) examine taxation and its influence on household consumption; The Nigerian experience for the period of 1994-2014. Secondary data were sourced from CBN Statistical Bulletin and was used for analysis in the study. The operational variables for the study work were household consumption being the independent variable and taxation being the dependent variable. Ordinary Least Squares regression (OLS) was used in analyzing the relevant data via the use of E-View software. The OLS findings revealed that the household consumption was influenced by inflation rate negatively company income tax positively and value added tax positively. It is therefore recommended that the government should ensure that inflation is managed and kept at its minimum so as to increase household consumption. Also, the government should implement and maintain an effective and efficient taxation system to increase revenue, so the government can provide the essentials for the economy needed for production.

Caroline and Joseph (2017) study the effects of border-adjusted consumption taxes (mainly VAT) in a sample of 34 advanced economies from 1970 through 2015. They discover that the real exchange rate tends to increase by the full amount of any consumption tax rise, with little influence on the current account balance and modest offsetting effects on the trade and income balances. Case studies propose that adjustment comes initially through prices. they note that the border-adjusted cash flow tax of the House Republicans varies in important ways from consumption taxes used in their study, which raises the possibility of a slower modification process with temporarily larger trade effects.

Vincent and David (2018) carried out a study on Indirect taxes and government inequality reduction: A cross-national analysis of the developed world. The study discovers the role of indirect taxes in assisting to finance public social transfers in the advanced countries, with special attention to the seeming paradox where by countries whose social benefit programs provide the most inequality reduction tend to finance those programs with the most regressive tax mix. It finds that the share of indirect taxes in a nation's GDP and the degree to which market inequality is reduced by public social transfers are positively related, even controlling for other tax types, the share of the population that is elderly and the unemployment rate; that a large indirect tax burden is politically possible because of some combination of fiscal illusion and the fact that indirect taxes do not retard economic growth or investment; and that the high indirect taxes that finance public social transfers are often the product of a political process in which democratic corporatism, institutional structures and union density play key roles. The article concludes with a discussion of the incidence of indirect taxes, finding that their regressive effect is outweighed by the redistribution accomplished by the public social transfers they help to finance.

Songara (2019) evaluated an overview and impact of Goods and Services Tax (GST) in India: GST also known as the Goods and Services tax is well-defined as the giant indirect tax structure aimed to support and improve the economic growth of a country. The aim of his research is regarding impact of GST and its impact on various sectors. With the introduction of GST, there is disorder and confusion among common man. GST bill will be a form for economic integration of India. The main trait of the GST is to transform India into a unified market by dismantling the current fiscal barrier among states and can expect improved tax compliance. There would be only single tax, that too at the state level, monitored by the central government. GST is also diverse in the way it is charged at the final point of consumption and not at the manufacturing stage.

V.   Methodology

The paper used annual data spanning from of 1994 to 2018. The data was sourced from Statistical Bulletin of the Central Bank of Nigeria and World Development Indicators (WDI) a publication of World Bank. The choice of the study period is based on the availability of data in relation to the variables captured in the model and with the consideration of Nigeria's current plan to increase its VAT rate by 50%, which is from 5% to 7.5%. The variables in the model are consumption (CONS), value added tax (VAT), interest rate (INT) and inflation rate (INF).

Model Specification

This study adapted the model from the works of MacDonald and Ricci (2003) and Asiama and Kumah (2010) to specify the model for estimating the effect of VAT on consumption and savings in Nigeria. The variables are consumption, VAT, inflation rate and interest rate. However the choice of variables was based on the consideration of the economic condition of the country under study (Nigeria). The model is given as:

$$CONS_t = \beta_0 + \beta_1 VAT_t + \beta_2 INT_t + \beta_3 INF_t + \mu_t \tag{3.1}$$

Where
CONS = consumption
VAT= value added tax
INT= interest rate
INF= inflation rate
$\beta_0 - \beta_7$ = coefficients

Specification of Autoregressive Distributed Lag (Bound Testing) Model

Autoregressive Distribution Lag Model (ARDL) otherwise known as bound testing approach to cointegration, developed by Pesaran et al. (2001) will be used to estimate the effect of indirect taxation on consumption in Nigeria. The ARDL is valuable because it permit us to describe the presence of an equilibrium or relationship in terms of long run and short run dynamics without missing long run information. It also involves in the estimation of unrestricted error correction model (UECM) (Abubakar, 2010 and Umar, 2014). The ARDL models for testing the effect of indirect taxation on consumption and savings in Nigeria can be written as:

$$\Delta CONS_t = \beta_0 + \sum_{i=1}^{m} \beta_1 CONS_{t-1} + \sum_{i=1}^{m} \beta_2 VAT_{t-1} + \sum_{i=1}^{m} \beta_3 INT_{t-1} + \sum_{i=1}^{m} \beta_4 INF_{t-1} + \alpha_1 CONS_{t-1} + \alpha_2 VAT_{t-1} + \alpha_3 INT_{t-1} + \alpha_4 INF_{t-1} + \mu_t$$

Where m is the optimal lag length which will be determined using Akaike Information Criteria (AIC) and Schwartz Information criteria (SIC), Δ is the difference operator, β_0 in each equation is the constant parameter, β_1 to β_4 are the vectors of the coefficients of the first difference lagged values of the variables controlled in models, while α_1 to α_4 are the each equation represent the coefficients of the level lagged values of variables captured in models. Although, the ARDL model consist two parts, the first part of the equations with β_1 to β_4

stand for the short-run dynamics of the models, while the coefficients α_1 to α_5 represents the long-run relationship (Abubakar, 2010).

However, the Granger Causality theorem states that when the variables under control are cointegrated (evidence of cointegration or long run relationship), then there must be an error correction model (ECM) that describes the short-run relationship. The rationale behind ECM is that it specifies the speed of adjustment from the short-run equilibrium to the long-run equilibrium level (Nmadu, 2014 and Ajao and Igbokoyi, 2013). The ARDL-ECM models are specified as follows:

$$\Delta CONS_t = \beta_0 + \sum_{i=1}^{m} \beta_1 CONS_{t-1} + \sum_{i=1}^{m} \beta_2 VAT_{t-1} + \sum_{i=1}^{m} \beta_3 INT_{t-1} + \sum_{i=1}^{m} \beta_4 INF_{t-1} + \beta_5 ECM_{t-1} + \mu_t$$

Where ECM is the error correction model

VI.   Results and Discussions

Unit Root Tests (Augmented Dickey-Fuller and Phillips-Perron)

Variables	Augmented Dickey-Fuller		Phillips-Perron	
	Level	1st Diff.	Level	1st Diff.
LCONS	-1.553151	-3.403453***	-1.367457	-6.345414*
LVAT	-3.420492***	-6.106052*	-3.247225***	-6.106052***
INT	-2.202114	-4.492923*	-2.315475	-4.492786*
INF	-2.796691	-5.666068*	-4.012150**	-5.519539*

Source: *Author's computations using Eviews 9. (see appendix II)*
Note: *, ** and *** indicates significant at 1%, 5% and 10% respectively.

To confirm whether the variables are stationary or not a unit root tests were carried out using Augmented Dickey-Fuller and Phillips-Perron testing approaches and the results is presented in Table 4.2. Result from the ADF test demonstrated that consumption and savings are stationary after first difference (I(1)), while VAT is stationary at level value (I(0)). However, interest rate is stationary after first difference as indicated by ADF test. Consequently, the P-P test shows that; consumption, savings and interest rate are all stationary after first difference, while VAT and inflation rate are stationary at level value. From the results we can deduce that the series exert different order of integrations with some are stationary at level value and others are stationary after first difference. This is also proving to us that the best method that is suitable to handle the result of this nature is ARDL approach. The study further conducted bound test in order to find the presence of cointegration among the variables. The bound test result is presented in Table below

ARDL Bounds Test

Test Statistics		
F-statistics	4.59	
Critical Value Bounds		
Significance Level	I(0)	I(1)
10%	2.37	3.2
5%	2.79	3.67
1%	3.65	4.66

Source: *Author's computations using Eviews 9. (see appendix III)*

From the table 4.3, it is evident that there is an existence of long run relationship at 5% level of significance between consumption, VAT and other variables (Interest rate and inflation rate). This is because; the F-statistic (4.59) is greater than the lower and upper critical value bounds at 5% or 10%. Therefore, the null hypothesis of no long run relationship (cointegration) cannot be accepted. While the alternative hypothesis of existence of long run relationship can be accepted. The presence of long run relationship permitted the study to generate the long-run and short-run relationships among the variables. The result of long run relations is summarized and tabulated in Table 4.4.

Long Run Coefficients of the ARDL

Dependent Variable: Consumption				
Variables	Coefficient	Std. Error	t-Statistics	Prob.
LVAT	0.374575	0.023193	16.150616	0.0000
INT	-0.019123	0.012533	-1.525776	0.1444
INF	0.002059	0.001753	1.174661	0.2554
C	26.688754	0.458606	58.195365	0.0000

Source: *Author's computations using Eviews 9. (see appendix IV)*
The result in Table 4.4 shows that, there is positive and statistically significant relationship between VAT and consumption. An increase in VAT will lead to increase in consumption in Nigeria in the long run. Similarly, a 1% increase in in VAT will lead to

Long Run Coefficients of the ARDL

Dependent Variable: Consumption				
Variables	Coefficient	Std. Error	t-Statistics	Prob.
LVAT	0.374575	0.023193	16.150616	0.0000
INT	-0.019123	0.012533	-1.525776	0.1444
INF	0.002059	0.001753	1.174661	0.2554
C	26.688754	0.458606	58.195365	0.0000

0.37% increase in consumption expenditure in Nigeria.

Furthermore, there is negative and statistically insignificant relationship between interest rate and consumption, meaning to say that an increase in interest rate will lead to decrease in consumption in Nigeria in the long run. This means that a 1% increase in interest rate will lead to 0.019% decrease in consumption expenditure in Nigeria. Thus, the relationship is not statistically significant. In the case of inflation rate, there is positive but statistically insignificant relationship between inflation rate and consumption. This means that an increase in inflation rate will lead to insignificant increase in consumption in Nigeria in the long run, meaning to say that a 1% increase in inflation rate will lead to 0.002% increase in consumption expenditure in Nigeria.

Short Run Coefficients of the ARDL

Dependent Variable: D (Consumption)				
Variables	Coefficient	Std. Error	t-Statistics	Prob.
D(LVAT)	0.347819	0.071748	4.847805	0.0001
D(INT)	-0.015019	0.013518	-1.111071	0.2812
D(INF)	0.000765	0.001774	0.431066	0.6715
ECM(-1)	-0.997315	0.227112	-4.391299	0.0004

Source: *Author's computations using Eviews 9. (See appendix V)*

The result in Table 4.5 shows that there is positive and statistically significant relationship between VAT and consumption in the short run. This means that an increase in VAT will lead to increase in consumption in Nigeria in the short run, meaning to say that a 1% increase in VAT will lead to 0.34% in consumption expenditure in Nigeria. Additionally, there is negative and statistically insignificant relationship between interest rate and consumption. This indicates that an increase in interest rate will lead to decrease in consumption in Nigeria in the short run, meaning to say that a 1% increase in interest rate will lead to 0.015% decrease in consumption expenditure in Nigeria. Moreover, with regards to inflation rate, there is positive but statistically insignificant relationship between inflation rate and consumption in the short run. This shows that an increase in inflation rate will lead to insignificant increase in consumption expenditure in Nigeria in the short run, meaning to say that a 1% increase in inflation rate will lead to 0.000765% increase in consumption in Nigeria. However, the result shows that the coefficient of Error Correction Model (ECM) has the correct sign that is negative, less than one, and statistically significant. This explains that when there is any distortion in the economy, the system will correct itself from the short run to the long run at the speed of 99%.

Post Estimation Tests

Tests	F-statistics	Prob.
Autocorrelation Test	0.220261	0.8047
Heteroscedasticity	1.030418	0.4185
Normality	1.000061	0.606512

Source: *Author's computations using Eviews 9.*

Post estimation test were conducted using three technics, namely; Breusch Godfrey Serial Correlation LM test, Heteroscedesticity test of Breusch Pegan Godfrey and Normality test of Jarque Bera in order to find out the reliability of the result. The result of the autocorrelation test in Table 4.5 indicates that the series or model is free from the problems of serial correlation or autocorrelation. This is because; the p-value of f-statistics is not statistically significant even at 10%. Therefore, the null hypothesis of no serial correlation will be accepted. Similarly, the result of heteroscedasticity test also shows that the null hypothesis of non constant variance will be accepted, because the p-value of f-statistics in hetroscedasticity test is not statistically significant. Finally, the normality test result indicates that the p-value of f-statistics is not statistically significant because the variables in the models are normally distributed, as such the null will be accepted.

Stability Tests for Consumption Model
To ensure the stability of the model, this study conducted stability tests through the use of cumulative sum of recursive residual and cumulative sum of square of recursive residual.
The Cumulative Sum of Recursive Residual Test

The result of the test from Figure 4.1 shows that the model is stable, because the recursive errors fall within 5% critical lines of the CUSUM test.
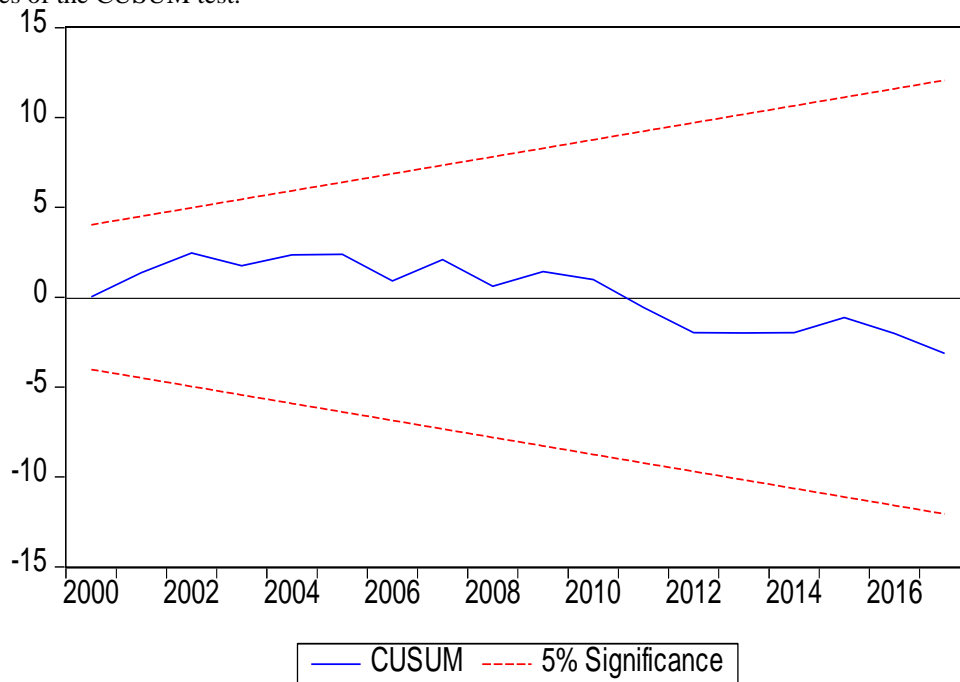

Figure 4.1 Stability Test

The Cumulative Sum of Square of Recursive Residual Test
The result of the test from Figure 4.2 displays that the model is stable, because the recursive errors fall within 5% critical lines of the CUSUM of Squares test.
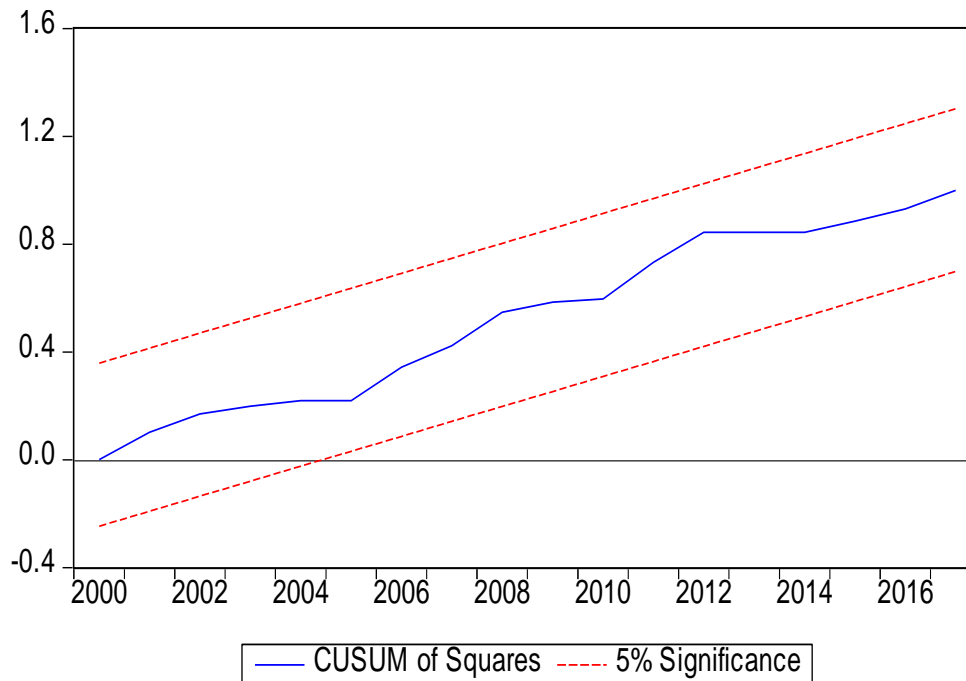

Figure 4.2 Stability Test

VII. Conclusion and Recommendations

The study examined the effect of VAT on consumption and savings in Nigeria. It also controlled for other variables such as interest rate and inflation rate which were considered to have influence on consumption. The results conclude that VAT has positive influence on consumption, while interest rate has negative on consumption in both short run and long run, and whereas inflation rate has negative relationship with

consumption from the results, it has been empirically revealed that VAT has significant favorable influence on consumption in Nigeria. This is however not in conformity with what is recorded in theory which states that an increase in VAT will lead to decrease in consumption. In view of the foregoing, this study recommend the needs for government to be reviewing the VAT rate from time to time in order to serve as a technique for controlling and checkmating the level of consumption in Nigeria. The results also revealed that the interest rate has negative influence on consumption in both the short run and long run. This study recommends that government should choose appropriate rate of interest that will favor the consumers, savers and investors. This will foster savings, investment and stabilize the level of consumption in the economy.

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