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INDIRECT TAX ADMINISTRATION AND GOVERNMENT REVENUE GENERATION IN NIGERIA

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ABSTRACT:

This study examined indirect tax administration and government revenue generation in Nigeria. Specifically, the study sought to ascertain how Value Added Tax, and Customs and excise duty as proxies for indirect tax administration affects government revenue generation in Nigeria. Time series data for 22 years spanning from 2000 to 2021 were sourced from secondary sources including FIRS annual reports, CBN bulletin and National bureau of statistics (NBS) reports. The study adopted ex-post facto research design, and the formulated hypotheses were tested using ordinary least square regression (OLS) at 5% significant level and by way of preliminary test, augmented dickey fuller (unit root) test was used to ascertain the stationary state of the time series variables. The results of the analysis revealed that all the variables have a joint significant influence on the total government revenue generation in Nigeria at 5% significant level. While specifically, Value Added Tax have a positive significant effect on total revenue generation while Customs and Excise Duties showed both negative and non-significant effect on total revenue generation in Nigeria. The study recommends amongst others that government through FIRS should double efforts to sustain appreciable level of revenue via value tax by capturing all informal economic activities that may hinder collection of VAT and secondly, government should re-orientate the Nigerian Custom Service via rigorous training to improve their skills and knowledge and also ensure strict implementation of the Nigerian Custom Service reforms to curb loopholes through which revenue flow out.

1. INTRODUCTION

Tax is an involuntary fee levied and enforced by a government entity on corporate organizations and individuals to finance government activities (Ogundana et al, 2017). It has been a cheaper source of finance for government expenditure compared to other alternative sources and has become a popular

source of government expenditure financing globally. Traditionally, the objective of taxation has been to raise government revenue. In Nigeria, tax is segregated into direct and indirect tax. A direct tax is a tax levied on a person or organization and it is paid directly to the entity that imposed it. Examples include income tax, real property tax, personal property tax, and taxes on assets, all of which are paid by individual taxpayers directly to the government. Indirect taxes are basically taxes that can be passed on to another entity or individual. They are usually imposed on a manufacturer or supplier who then passes on the tax to the consumer. The most common example of an indirect tax is the excise tax on cigarettes and alcohol. Value added tax (VAT) is also an example of an indirect tax and have been in establishment since 1993.

Moreso, the imposition of tax by the government is one of the ways that government makes revenue available for carrying on its responsibilities. However, Nigeria being a country blessed with rich natural resources which contributes to government revenue surprisingly experiences uncommendable level of stagnancy in tax policies implementation, hence, experiencing a very low growth rate (Urama et al, 2019). With the discovery of oil in a commercial quantity in the country, the non-oil revenue (majorly agriculture and taxation) took a downturn as more focus were given to the production and exportation of oil. It is worthy to note that prior to the oil boom of 1970s, the non-oil revenue majorly dominated by agriculture and taxation have been the bulk source of government revenue as it constitutes about 74.0% of the federally collected revenue, leaving about 26.0%. to oil revenue generation. Interestingly, in early 2000, Nigeria continued to enjoy massive government revenue as the period witnessed the Gulf war crisis that attributed in pushing up the oil prices, thereby, increasing the oil revenue component of the federally-collected revenue from N71,887.10 million in 1990 to N1,591,675.80 million in 2000 and further to N6,530,630.10 million in 2008 (Obiechina, 2010). Unfortunately, the situation has been different in Nigeria in the last 7 years as oil revenue has continued to shrink given the global drop in oil prices. In 2015 alone, oil revenue reduced from N6793.8 billion naira in 2014 to N3,830.1 billion naira and up until most recently the oil revenue have been on a downward lane as fluctuations in oil price persists globally.

This perhaps, this has awakened the consciousness of the Nigerian government to other means of improving revenue especially through taxation. Also in this regards, in 2017, Abebe Selassie of International Monetary Fund had directed Nigeria to begin a new tax reforms to shore up revenues and possibly avert economic crisis triggered by tumbling crude oil prices, (The Nation Jul 27, 2017). Facing the current reality, government has been making efforts to wriggle up government revenue. Several efforts such as the introduction of technology, widening of tax net, administrative and tax

policy reforms et cetera, were put forward by the government to improve its tax revenue. Also, being mindful of low revenue from indirect taxes especially VAT which have been around the average of 900 billion since 2013 owing to the fact that the Nigerian VAT rate is one of the lowest in the world, the Federal Executive Council proposed on the 11th of September 2019 a new Value Added Tax rate of 7.5% for the country, up from 5%. While Urama et al (2019) anticipated that the 50% increase in VAT will have a significant negative effect in the economy, (Omodero 2020) revealed a significant positive effect. With this recent efforts of the government towards expanding tax revenue via indirect taxation by charging VAT on certain transactions that were before now VAT free, the question now is, has government generated revenue justified this?. Furthermore, the varying opinion observed among prior related scholarly efforts with regards to the discourse of this study has necessitated the need to examine the effect of indirect tax on government revenue generation in Nigeria.

1.1 Objectives of the Study

Broadly, this study intends to critically assess the effect-significancy rate of indirect tax on revenue generation in Nigeria. Specifically, it intends to;

i. ascertain the effect of Value Added Tax (VAT) on total revenue generation in Nigeria.
ii. evaluate how custom and excise duties affects total revenue generation in Nigeria.

1.2 Hypotheses

The hypotheses (in null form) tested in the study are:

H_o: Value added tax has no significant effect on total revenue generation in Nigeria.

H_o: Custom and excise duties do not significantly affect total revenue generation in Nigeria.

2. LITERATURE REVIEW

2.1 Conceptual review

2.1.1 Value Added Tax

Value Added Tax (VAT) is a form of indirect and/or consumption tax imposed on the absorption of value and is ultimately borne by the final consumer of the goods and services. VAT therefore, is a tax is imposed on any person or individual, corporate sole, and organizations that consumes or buys any vatable goods and services in Nigeria, Abomaye-Nimenibo, Michael & Friday, (2018). Value Added Tax was introduced in Nigeria in 1993 through VAT Decree 102 of 1993 now referred to as Value Added Tax Act (VATA) Cap V1 LFN 2004 and VAT amendment act 2007 which replaced the old sales tax. Federal Inland Revenue Services administers VAT in Nigeria. The passage and

implementation of the Finance Act 2020 by the Buhari led administration in a quest to broaden revenue brought about notable changes to Nigerian taxes and VAT were not exempted. Below are some of the amendments by the 2020 Finance Act;

a. The VAT rate increased from 5% to 7.5% (representing 50% increase) on all vatable materials and business activities.
b. Improved the list of zero-rated goods to include; seasonings (honey), dough, mueslis, catering apply oil, gastronomic parsleys, fish, flour and thickener, and berries (fresh or dried), animal protein sources, milk, nuts, throbs, tubers, saline, spuds, H2O, domestically produced sterile bath sheets, swabs, or wipes, and services to include; services rendered by microfinance banks, training involving kindergarten, and other levels of schooling.
c. Businesses with turnover less than N25 million are now exempted from payment of VAT (section 38 of the Finance Act 2020).
d. Also the formula for sharing revenue accruing form VAT is 85% to the states and local governments, while the federal government has only a 15% share. From the 85% share,50% is allocated to the state and 35% to the local government. This will enable the state government to carry out their economic responsibilities and obligations such the minimum wage, (Omodero 2020).
e. The Act also clarifies that VAT record should be on a cash basis and no longer on an accrual basis (invoice based), a such taxpayer can only recover input VAT against output VAT that is collected.

Studies such as Ikeokwu and Leyirah (2019) revealed that Value Added Tax and Custom and Excise duties have materially positive impact on Nigeria's Per Capita Income (PCI), however on the contrary Olaoye and Ayeni (2018) had previously concluded that value-added tax and customs duties have no significant effect on revenue generated in Nigeria and that there is no long-run relationship among value-added tax, customs duties and revenue generated in Nigeria. Moreso, in an unindustrialized state such as Nigeria, it is important to recognize the fact that tax revenue is still highly undermined by the incidence of tax avoidance and evasion due to a high rate of underground and informal economic activities for which records are not kept (Omodero, 2020).

2.1.2 Custom and excise Duties

Custom duty is a levy imposed on goods exported or imported into the country. It is a form of indirect tax. The tax is statutorily backed by the Custom and Excise Management Act of 1958 as amended. Nigeria Custom Service is the agency charged with the responsibility of collecting custom

duties, excise, fees, tariffs, and other levies so imposed by the Federal Government on imports, exports and statutory rates, (Abomaye-Nimenibo et al, 2018). Custom Duties is therefore, the sum total of Import and Export duties collected by the Customs and Excise Department. Custom duty has remained a huge source of revenue prior and after the discovery of oil in Nigeria and have immensely contributed to national development thus, it is an essential component of the non-oil revenue. To this end, the Comptroller-General of Nigeria Custom Service, retired Col. Hameed Ali revealed that NCS in 2020 generated 1.5 trillion naira, while 1.02 trillion naira has been generated so far in first six months of 2021,(Vanguard Sept 1, 2021).Customs duties in Nigeria are the oldest form of modern taxation with its emergence in 1860 as import duties, which represents taxes on imports into Nigeria, charged either as a percentage of the value of imports or as a fixed amount of contingent on quantity, (Adegbie 2009).

Excise duty was introduced in 1962 as an ad valorem tax on the output of manufactured goods and it is legally backed by customs and excise Act of 1962 and 1965 and Customs and Excise Tariff Decree of 1995. Excise duty is administered by the Nigerian Custom Service (NCS). Excise duty is a form of indirect tax levied on locally manufactured goods such as; bleaching creams, alcohol, spirits and tobacco etc It is used as a measure to discourage consumption of harmful goods, (Odusola 2006). The emergence of the Finance Act 2020 provided amendments to the Customs and Excise Tariff (Consolidation) Act, in order to encourage domestic industries, the rates were not only reduced from (30% and 35% to 5% and 10%) respectively, duties will now apply to excisable goods as specified in the fifth schedule of the Act such as cigarettes, wines, spirit, beer, and stout, among others, only when they are imported while domestically produced items are; tobacco, spirits, and alcohol. Other previously excisable products but now suspended include; perfumes, cosmetics, toilet papers, non-alcoholic beverages, telephone recharge vouchers, soaps and detergents, paper packaging, spaghetti, and noodles, among others, (Omodero, 2020).

2.1.3 Government Revenue Generation

According to Section 162(10) of the 1999 Constitution CAP. C23 L.F.N. 2004, government revenue is any income or return accruing to or derived by the Government of the Federation from any source and includes - any receipt, however described, arising from the operation of any law; any return, however described, arising from or in respect of any property held by the Government of the Federation; and any return by way of interest on loans and dividends in respect of shares or interest held by the Government of the Federation in any company or statutory body. Thus, Revenue generation involves raising funds for the government, (Nnubia et al, 2020). Prior to the oil boom of

early 1970s, agriculture was the mainstay of the economy as the sectors contribution to GDP was about 70%. This contribution has fallen to about 30% with the advent of crude oil. Since the advent of crude oil, the trend has changed in favor of the latter, and now it is the oil revenue that contributes the bulk of the federal government's revenue. In Nigeria, government revenue is segregated into oil and non-oil revenue. While oil revenue covers all income generated from activities involving oil and gas in the country, non-oil revenue includes any income received from other sources.

Furthermore, given the fall in oil prices globally, government have intensified efforts towards improving non-oil revenue which is composed of mainly taxation. Revenue collection serves as a baseline for assessing the impact of the administrative tax reforms and restructuring of the Federal Inland Revenue Service (FIRS), however, since the reform in 2004, tax revenue has been increasing on an average of 26% per annum,(Udezo & Onuora, 2021).

2.2 Theoretical Review

2.2.1 Ability to pay tax theory

Ability to pay tax theory is an age long philosophy in finance and accounting propounded by an English economist Arthur Cecil Pigou, which suggests that taxation should be levied according to the taxpayer's financial capability. The theory holds that, taxes paid are sacrifice by taxpayers, promoting the subjects of what the sacrifice of each taxpayer should be and how it should be measured, (Nnubia et al, 2020). It is leveled on the premise of; equal sacrifice, equal proportionate sacrifice and equal marginal sacrifice between high income warmers and low income earners. Thus, those who make more can and should pay more taxes. The ability to pay tax theory of taxation suggests that the amount of tax an individual or organization pays should be relative to the amount they earn, as a means of easing the financial burden that taxes can create for low-income households and this conforms to the concept of the progressive tax system. However, this is synonymous to the PAYE practicable in Nigeria which progresses as the taxpayer's income increases. Ability to pay tax theory has suffered some criticisms as some argued that such a system discourages economic success as it penalizes those who earn the most.

2.2.2 Economic Deterrent Theory

The theory is also known as A-S model of tax compliance and was propounded by Allingam & Sandmo in the year 1972. It is based on behavior of taxpayers with regards to tax evasion and compliance. The deterrent theory posits that when an act's harm exceeds its gain, the act is socially undesirable and should be deterred at the lowest social cost. The government deters individuals by

imposing sanctions which could take the form of either fines or imprisonment. In this regard, economic deterrent theory is leveled on the assumption that a taxpayer's behavior is greatly influenced by tax audit, detection of evasion and the severity of penalties given to defaulters. It then means that the more severe the penalties given to tax evaders are, the lesser the avoidance and evasion giving room for higher compliance level and vice versa, (Ogbonna & Appah, 2016). The deterrent theory however relies on some unrealistic assumptions in determining the taxpayer's behavior, such as the use of coercion to discourage abnormal behavior, the use of coercion to achieve compliance rather than mutual agreement thus, it is greatly criticized.

Although the economic deterrent theory has been faced with series of critiques, it is largely applied by tax authorities in the administration of tax especially when the need to enforce strategy that involves the use of penalties and tax audit arises. Evidently, the deterrent theory is of huge importance in addressing noncompliance to tax obligations as a result of fear of tax audit, detection of evasion the resultant sanctions, (Ogbonna & Appah 2016). Thus it is an effective strategy to induce tax payer's behavior towards compliance. Therefore the theory applies when there is need for coercive measure to improve compliance level via melting of penalties on defaulters, this will make tax payers to comply and this invariably will lead to increase in government revenue. More importantly, this study is anchored on economic deterrent theory, this is because of it's relevance to this study, in that where mutual understanding between the government and the taxpayers fails to improve compliance, government must rely on certain strategies to deter citizens from evasion and avoidance in order to broaden the revenue available for its developmental purposes. However, the revenue so generated must be properly accounted for.

2.3 Empirical Review

Evidence from prior studies, has presented varying opinion on the revenue accruing from VAT, Custom and Excise duties and according to Olaoye & Ayeni (2018), who studied the effect of Value added tax and customs duties on revenue generation in Nigeria; the secondary data used were collected from FIRS report ranging from the year 2000 to 2016. The study employed Autoregressive Distributed Lag (ARDL) and Granger causality test and the findings showed that there is no long-term relationship amongst VAT, customs duties and revenue generation and also that there is no causality between the variables during the period under study.

Contrarily, Inyiama and Ubesie (2016), who reviewed the effect of Value added tax, custom and excise duties on Nigerian economic growth, the study used secondary data and employed regression

technique in analyzing the data while the Correlation analysis was used in the assessment of the relationship amongst the variables and the results revealed a very high relationship amongst the variables thus, VAT, Customs and excise duties are major contributor to gross domestic product in Nigeria.

Adegbie (2009) researched on Custom and excise duties contribution towards the development and growth of Nigerian economy, both primary and secondary data were used source necessary data. The primary data were obtained by administration of structured questionnaire to a sample size of 100 persons randomly drawn from industrialists, business entrepreneur and educated persons while the secondary data were sourced from CBN statistical report from 1981 to 2007. Chi -square and linear regression were used to run analysis, the findings showed custom duties significantly contributes to Nigeria revenue and invariably a strong relationship exists between custom and excise duties and economic development.

Nwaorgu, Herbert and Onyilo (2016), also carried out a longitudinal assessment of tax reforms and national income in Nigeria (1971 to 2014), Diagnostic test such as F- statics, Adjusted R-square and Durbin-Watson were employed to analyze collected data and the results revealed that tax reforms proxy by VAT and PIT has positive significant effects on national income tax while custom and excise duties yielded negative and statistically non-significant effect.

Osho, Adeyeye and Adeniran (2019) evaluated the effect of VAT on investment, social and economic development in Nigeria. Secondary data sourced from CBN bulletin, federal ministry of finance, NBS reports etc for the period of 1999 to 2018. They employed Ordinary Least Square technique and Granger Causality test in testing hypotheses and the results showed that VAT contributes significantly to the total revenue of the federal government, the study however further revealed that despite the massive contribution of VAT to total revenue, it has no significant impact on economic development in Nigeria.

Omodero (2020) examined the consequences of indirect taxation on consumption in Nigeria. The study used various econometric tools such as trend analysis, pairwise Granger Causality test, unrestricted co-integration rank test and least square techniques to test data spanning from 2015 to 2019 and the results showed that VAT and customs and excise duties (proxies for indirect taxes) positively but insignificantly affect consumption.

Mukolu and Ogodor (2021), studied the effect of Value added tax on economic growth of Nigeria, data collected from CBN statistical bulletin for the period spanning from 1994 to 2018 were analyzed using Augmented Dickey Fuller method of analysis and the findings revealed VAT had a positive and significant impact on total revenue in Nigeria.

Agbo and Nwadialor (2020), empirically examined the development of VAT administration in Nigeria, the study aimed at examining the origin and popularity of VAT system globally, identifying its emerging issues and related consequences. The study showed that empirical evidence showed that VAT have gained popularity universally, VAT have gone through some amendments in Nigeria and that the 50% increase in VAT although may increase revenue but may have some negative effects on the per capita income.

Evidently, majority of the existing literatures were mostly focused on determining the effect of these indirect taxes on economic development and growth with minimal or no attention to how they actually affects government revenue and in addition by taking into consideration the recent years of assessment the study fills period gap.

3. MATERIAL AND METHOD

The study adopted the ex-post facto research design, which is an attempt to establish facts and arrive at conclusions concerning past events, it is a systematized and objective enquiry into events, developments and experience of the past and a such the researcher lacks control over the variables under study. The choice of this design is leveled on the facts that the secondary data utilized in this study are composed of information and records of events which occurred prior to this research work. Time series data from secondary sources were obtained. The relevant data were collected from Central Bank of Nigeria (CBN) Statistical Bulletin, Central Bank of Nigeria Annual Report and Statement of Accounts, National Bureau of Statistics (NBS) and Federal Inland Revenue Service (FIRS) reports of various years involving value added tax revenue, custom and excise duties revenue for 22 years period (2000 – 2021). The study also employed both descriptive and inferential statistics in analyzing the collected data, while tables and charts were used to ascertain their trend, Augmented Dickey fuller test were carried out to ascertain trend-stationarity of time series data. The formulated hypotheses were be tested using regression analysis at 5% significant level.

3.1 Model Specification

The model used in this study was adopted from (Ogenyi & Agada 2020), stated as;

$TRG = f (B_0 + B_1PPT + B_2CIT + B_3VAT + B_4EDT + u\ i)$,

This is however modified to suit this study as follows:

$TGRG = f(a_0 + a_1IT + u\ i)$……..……1

TGRG = (Dependent variable).

IT = (Independent variable consisting of VAT and CED) thus,

$TGRG = f(a0 + a1VAT + a2CED + u\ i)$……2

Where:

TGRG = Total government Revenue Generation

a_0 = Constant term

VAT = Value Added Tax

CED = Custom and Excise Duties

a_1, a_2…… = Coefficient of determination for independent variables.

u i = Error term.

3.2 Decision Rule

The null hypothesis will be rejected if the regression result is less than 0.05 and the alternative hypothesis will be accepted.

4. RESULT AND DISCUSSIONS

4.1 Data Analysis

4.1.1 Descriptive Statistical Analysis

Summary of statistics such as mean, standard deviation, maximum, minimum, skewness, kurtosis, and Jarque-Bera statistic were used to descriptively analyse the data collected for the purpose of the study.

Table 1 Descriptive Analysis

	TGRG (₦' Billion)	VAT (₦' Billion)	CED (₦' Billion)
Mean	6865.436	644.9722	568.7325
Median	7108.100	612.0500	500.2150
Maximum	11116.80	2072.850	2240.000
Minimum	1731.800	58.00000	101.5000
Std. Dev.	3095.995	514.1823	479.0182
Skewness	-0.254351	1.051151	1.973176
Kurtosis	1.822462	3.871839	7.692087
Jarque-Bera	1.508259	4.748132	34.45692
Probability	0.470420	0.093101	0.000000
Sum	151039.6	14189.39	12512.12
Sum Sq. Dev.	2.01E+08	5552052.	4818626.
Observations	22	22	22

Source: Author's Computations using E-views, 10

In Table 1 above, the mean of TGRG from 2000 to 2021 is 6865.436 with a standard deviation of 3095.995. The highest federally collected revenue is 11116.80 while the lowest revenue generated by the government over the period in focus is 1731.800. Data on TGRG are negatively skewed and platykurtic. However, the Probability of Jarque-Bera for TGRG (0.470420) shows that the distribution of TGRG does not significantly deviate from a normal distribution. The mean value of VAT from 2000 to 2021 is 644.9722 with a standard deviation of 514.1823. The highest revenue derived from VAT is 2072.850 while the lowest revenue generated from VAT over the period in focus is 58. Data on VAT are positively skewed and leptokurtic, although the Jarque-Bera Probability for VAT (0.093101) signifies that the distribution of VAT does not significantly deviate from a normal distribution.

The average value of CED is 568.7325 with a standard deviation of 479.0182. CED ranged from 101.5 to 2240 while its distribution has positive skewness, leptokurtic property and significantly deviates from a normal distribution (Jarque-Bera Probability = 0.000000).

Unit Root Test Augmented Dickey-Fuller (ADF) was used to examine whether the data has a unit root. This diagnostic test is necessary because the presence of unit root in time series data leads to spurious regression estimates. The test results are presented in Table 4.3 below.

Table 2: Augmented Dickey-Fuller Test of Unit Root

Variables	T-ADF	Lag Length	Test critical values:@ 5% Level	Remark
LOG(TGRG)	-4.442762	I(1)	-3.020686	Stationary
LOG(VAT)	-3.465491	I(0)	-3.020686	Stationary
LOG(CED)	-4.473409	I(2)	-3.040391	Stationary

Source: Author's Computations using E-views, 10

The decision on whether a variable has a unit root is drawn using the T-ADF and Test critical values at 5% level. If the absolute value of T-ADF is greater than the absolute value of Test critical values at 5% level, the conclusion is that the variable is stationary, that is, got no unit root. From the Table 3 above LOG(VAT) is stationary at levels and LOG(CED) is stationary at order I(2).

4.2.2 Normality Test

The normality test carried out in the study was done in order to assess the distribution pattern of the residuals. The assumption of OLS regression technique is that the residuals are normally distributed.

Table 3 Normality Test

Jarque-Bera Stat	Probability of Jarque-Bera Stat
1.127560	0.569054

Source: Eviews 12 Output (2022)

The normality test conducted with the aid of Jarque-Bera Stat revealed that the residuals did not significantly deviate from a normal distribution. This conclusion was because of the Probability of Jarque-Bera Stat = 0.569054 > 0.05.

4.2.3 Test for Serial Correlation

The observations of the error term are assumed to be uncorrelated with each other. Thus, one observation of the error term is not supposed to predict the next observation. Breusch-Godfrey Serial Correlation LM Test which was used to carry out test of serial correlation is shown hereunder.

Table 4 Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.761154	Prob. F(2,14)	0.4855
Obs*R-squared	2.157590	Prob. Chi-Square(2)	0.3400

Source: Eviews 12 Output (2022)

The Breusch-Godfrey Serial Correlation LM Test in Table 4 shows F-statistic = 0.761154 and P>|F| = 0.4855. Since the p-value is greater than 0.05, the null hypothesis of no serial correlation was accepted.

4.2.4 Test for Heteroskedasticity

For a valid and reliable OLS result, the error term needs to have a constant variance (no heteroscedasticity). That is, the variance of the errors should be consistent for all observations so that the variance does not change for each observation or for a range of observations. This preferred condition is known as homoscedasticity. Breusch-Pagan-Godfrey Heteroskedasticity Test was used to examine this assumption.

Table 5 Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.725434	Prob. F(5,16)	0.6143
Obs*R-squared	4.065679	Prob. Chi-Square(5)	0.5400
Scaled explained SS	1.188690	Prob. Chi-Square(5)	0.9460

Source: Eviews 12 Output (2022)

Table 5 above shows that the value of F-statistic is 0.725434 and the Prob>F = 0.6143. Thus, the null hypothesis of no heteroskedasticity was accepted since the p-value is greater than 0.05.

4.2.5 Test for Linearity

OLS regression produces valid results when the explanatory variables can be linearly combined to explain the response variable. Thus, the null hypothesis that linear combinations of the fitted values help explain the response variable was tested using Ramsey RESET Test.

Table 6 Ramsey RESET Test
Equation: UNTITLED
Specification: LOGTGRG C LOGVAT LOGCED
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.264567	15	0.7949
F-statistic	0.069996	(1, 15)	0.7949
Likelihood ratio	0.102422	1	0.7489

Source: Eviews 12 Output (2022)

The findings in Table 6 reveal that the null hypothesis of a linear combinations of the fitted values was accepted. This is because the Prob(t) = 0.7949 is greater than 0.05.

4.2.6 Multicollinearity Test

OLS assumes that there is no strong or perfect correlation between or among the predictor variables. Variance Inflation Factors were used to test for Multicollinearity assumption in the study.

TableTable 7 Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.006806	241.2501	NA
LOGVAT	0.020432	5192.780	126.7502
LOGCED	0.004233	1053.411	16.64039

Source: Eviews 12 Output (2022)

Centered VIF that is less than 10 signifies there is no evidence of multicollinearity issue in the model. Table 7 shows that the values of the LOGVAT and LOGCED Centered VIFs are greater than 10 can cause multicollinearity problem in the model. To resolve this, the affected variables were centred by subtracting the mean from all the observations. However, the multicollinearity was

still severe even after centering. The use of OLS for the estimation of test result still remain efficient given that the assumptions of no serial correlation and homoscedasticity were met.

4.2 Test of Hypotheses

The hypotheses to be tested are that administration of indirect tax does not significantly affect revenue generation in Nigeria. OLS is considered appropriate for this hypothesis since it is an optimal linear unbiased estimator especially if the errors are serially uncorrelated and homoscedastic.

Table 8 Regression Estimates
Dependent Variable: LOGTGRG
Method: Least Squares
Date: 12/18/22 Time: 01:26
Sample: 2000 2021
Included observations: 22

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.553922	0.082500	18.83534	0.0000
LOGVAT	0.101968	0.142940	0.713363	0.0459
LOGCED	-0.040422	0.065063	-0.621271	0.5432

R-squared	0.992708	Mean dependent var	3.777768
Adjusted R-squared	0.990429	S.D. dependent var	0.254653
S.E. of regression	0.024913	Akaike info criterion	-4.319819
Sum squared resid	0.009931	Schwarz criterion	-4.022262
Log likelihood	53.51800	Hannan-Quinn criter.	-4.249723
F-statistic	435.6134	Durbin-Watson stat	2.097591
Prob(F-statistic)	0.000000		

Source: Eviews 12 Output (2022)

The R-squared value of 0.992708 shows that the proportion of the variations in LOGTGRG that are accounted for by changes in LOGVAT and LOGCED is 99.27%. The adjusted R-squared = 0.990429 penalized the R-squared for the addition of regressors that do not contribute to the explanatory power of the model. The F-test = 435.6134 and its associated Prob>|F| = 0.000 shows that the linear regression model provides a better fit to the data than a model that contains no independent variables. The Durbin-Watson stat = 2.097591 falls within the safe range of 1.5 to 2.5, thereby suggesting no problem of autocorrelation. The major objective of the study is to examine the effect of indirect tax on government revenue generation in Nigeria using data from 2000 to 2021. The specific objectives determined the effect of Value added tax (VAT) and custom and excise duties (CED) on the total revenue generation in Nigeria. The conclusion drawn from the Prob>|F| =

0.000 is that the revenues from the administration of indirect taxes have a joint significant effect on the total federally collected revenues in Nigeria.

4.2.1 Hypothesis One

Value added tax has a positive significant effect on total revenue generation in Nigeria.

The coefficient of value added tax (β3 = 0.101968) signifies that total revenue generation changes by 0.101968 given a one-unit shift in LOGVAT. The sign of this regression coefficient tells there is a positive relationship between LOGVAT and LOGTGRG. This positive coefficient implies that as the value of value added tax increases, the mean of revenue generation also tends to increase, and vice versa.

4.2.1.1 Decision Rule

The Pro>|t| = 0.0459 is less than 0.05 and so the null hypothesis is rejected and the alternate hypothesis accepted. The conclusion drawn from this is that value added tax has a significant positive effect on total revenue generation in Nigeria at 5% level of significance. The conclusion from the analysis of the first objective is that revenues generated from VAT significantly affect the total revenues collected by the federal government. This finding is largely inline with that of Adegbie (2009), Agbo and Nwadialor (2020), and Mukolu and Ogodor (2021).

4.2.2 Hypothesis Two

Custom and excise duties do not significantly affect total revenue generation in Nigeria.

The coefficient value of custom and excise duties (β4 = -0.040422) signifies that total revenue generation changes by -0.040422 given a one-unit shift in LOGCED. The sign of this regression coefficient tells there is a negative relationship between LOGCED and LOGTGRG. This negative coefficient implies that as the value of custom and excise duties increases, the mean of revenue generation tends to decrease, and vice versa.

4.2.2.1 Decision Rule

The Pro>|t| = 0.5432 is greater than 0.05 and so the alternate hypothesis is rejected in favour of the null hypothesis. The conclusion drawn from this is that custom and excise duties have a non-significant negative effect on total revenue generation in Nigeria at 5% level of significance. The conclusion drawn from analysis is that the effect of CED on total revenue generation is both negative and non-significant. The negative influence which CED has on total revenue generation is understandable since increases in CED tend to hike product prices and reduces product demand from which companies are expected to generate income and profits to pay tax. This finding is in line with the study conducted by Nwaorgu, Hebert and Onyilo (2016).

Granger Causality Test

Pairwise Granger Causality Test was used to determine whether there is a bi-directional or uni-directional relationship among the variables. The results of the granger causality tests for the causal relationship between revenue generation and proxies of tax administration are shown in Tables.

Table 4.9 Pairwise Granger Causality Tests
Date: 12/19/22 Time: 04:50
Sample: 2000 2021
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LOGTGRG does not Granger Cause LOGVAT	20	0.38738	0.6854
LOGVAT does not Granger Cause LOGTGRG		1.54368	0.2457

Source: Eviews 12 Output (2022)

According to the granger causality test in Table 9, the past values of LOGTGRG do not contain information that helps to predict LOGVAT. On the other hand, the past values of LOGVAT do not also contain information that helps to predict LOGTGRG. Therefore, no causal directional relationship exists between LOGVAT and LOGTGRG at 5% level of significance.

Table 10 Pairwise Granger Causality Tests
Date: 12/19/22 Time: 04:50
Sample: 2000 2021
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LOGTGRG does not Granger Cause LOGCED	20	0.34284	0.7152
LOGCED does not Granger Cause LOGTGRG		0.38825	0.6849

Source: Eviews 12 Output (2022)

According to the granger causality test in Table 10, the past values of LOGTGRG do not contain information that helps to predict LOGCED. On the other hand, the past values of LOGCED do not also contain information that helps to predict LOGTGRG. Therefore, no causal directional relationship exists between LOGCED and LOGTGRG at 5% level of significance.

CONCLUSION AND RECOMMENDATIONS

This study has examined the effect of indirect tax on government revenue generation in Nigeria for 22 years period spanning from 2000 to 2021. Generally, it has been said that taxation is a major source of government revenue globally. This is because, tax revenue aids the government in carrying out its responsibilities. However, the workability of any tax system is largely dependent on both the appropriateness of the legal regulations available and the integrity of tax administrators. In many countries, including Nigeria, little amount of collected government revenue can be largely linked to either the inability of tax administration to carry out its function properly or by corruption at high or low levels. Owing to this poor administration of taxes, revenue from taxation have remained insufficient for the discharge of government's responsibilities. The findings of the study as seen, revealed that indirect tax proxy by Value Added Tax and Customs and excise duties jointly had a significant effect on total government revenue generation in Nigeria.

Based on the findings of this study we carefully recommend the following

a. In order to maintain appreciable level of revenue via VAT, government should device a means of capturing all the informal economic activities that may hinder the collection of VAT revenue and punish the nonchalant behavior of some companies and individuals who fail to remit VAT revenues to the appropriate government revenue authorities.
b. In order to ensure creativity, government should re-orientate the Nigerian Custom Service via rigorous training to improve their skills and knowledge and also ensure strict implementation of the Nigerian Custom Service reforms to curb loopholes through which revenue flow out.

REFERENCES

Abomaye-Nimenibo W. A. S., Michael J. E & Friday H. C. (2018). An empirical analysis of tax revenue and economic growth in Nigeria from 1980 to 2015. *Global journal of human-social science: political science*, 18(3), 9-40.

Abebe S. of International Monetary Fund. The nation P. 2, Jul 27 2017

Adegbie F. F. (2009). Custom and excise duties contribution towards the development and growth of Nigerian economy. *Accounting And Finance Research*, 5(4), 163-178. http://dx.doi.org/10.5430/afr.v5n4p163.

Agbo E. I & Nwadialor E. O.(2020). The Genesis and development of value added tax administration: case study of Nigeria. International journal of academic research in accounting, *Finance And Management Sciences*. 10(2), 15-30. http://dx.doi.org/10.6007/IJARAFMS/v9-i2/7266.

Ganyam AI, Ivungu JA, Anongo ET (2019). . Effect of tax administration on revenue generation in Nigeria: Evidence from Benue State tax administration (2015-2018). *International Journal of Economics, Commerce and Management*, 7(7):394-414.

Ikeokwu Q. C. & Leyirah C. M. (2019). Indirect taxes and economic growth in Nigeria. Advance *Journal of Management, Accounting And Finance*, 4(04), 13-31. www.iaspub.org.uk/AJMAF/

Inyiama, O.I.; Ubesie, M.C. Effect of value added tax, customs and excise duties on nigeria economic growth. *International Journal Of Managerial Studies Researches*, 4(10), 53–62.

Mukolu, M.O & Ogodor, B.N (2021). The Effect of Value Added Tax on Economic Growth of Nigeria. *IAR Journal Of Business Management*, 2(1), 203-210. https://iarconsortium.org/journal-info/IARJBM

Nwaorgu, I. A., Herbert, W. E., & Onyilo, F. (2016). A longitudinal assessment of tax reforms and national income in Nigeria: 1971-2014. *International Journal of Economics and Finance*, 8(8), 43-52. http://dx.doi.org/10.5539/ijef.v8n8p43

..Nnubia I. C., Okafor G. O., Chukwunwike O. D., Asogwa O. S. & Ogan R. J.(2020). Effect of E-taxation on revenue generation in Nigeria a pre-post analysis. *Academy Of Entrepreneur Journal*, 26(3).

Obiechina, M. E. (2010). Analysis of Revenue Generation as a tool for socio-economic and infrastructural development in Nigeria. *CBN Bullion*, 34(4), 41-54.

Odusola, A. (2006). Tax Policy Reforms in Nigeria. UNU-WIDER (United Nations University-World *Institute for Development Economies Research*, 1-45.

Ogbonna, G., and Appah, E. (2016). Effect of Tax Administration and Revenue on Economic Growth in Nigeria. *Research Journal of Finance and Accounting*, 7(13), 49-58.

Ogenyi M. A., & Agada P.(2020). Revenue generation in Nigeria: An evaluation of corporate tax contributions. *Journal of business and Management (IOSR-JBM)*. 22(4), 18-26. http://dx.doi.org/10.9790/487X-2204061826.

Ogundana, O. M., Ogundana, O. M., Ogundana, O. M., Ibidunni, A. S., & Adetoyinbo, A. (2017). Impact of Direct and Indirect Tax on the Nigerian Economic Growth. *Binus Business Review*, 8(3), 215-220.http://dx.doi.org/10.21512/bbr.v8i3.3621

Olaoye C. O. & Ayeni O. F. (2018). Effect of value added tax and Custom duties on revenue generation in Nigeria (2000-2016). *European Journal Of Accounting, Auditing And Finance Research*, 6(3), 78-85.

Omodero C. O (2020). The consequences of indirect taxation on consumption in Nigeria. *Journal Of Open Innovation: Technology And Complexity*. 6(105), 1-13. doi:10.3390/joitmc6040105

Osho A. E., Adeyeye M. O., & Adeniran T. E. (2019). The effect of value added tax on investment, social and economic development in Nigeria. *International Journal Of Business, Finance And Economic Research*, 1(4), 182-203. http://www.scienceparkjournals.com/IJBFE

Udezo N. O. & Onuorah (2021). Effect of tax reforms on revenue performance in Nigeria. *International Journal Of Innovative Finance And Economics Research*, 9(1), 188-130.

Urama N. E, Nfor D. & Iheonu C. (2020). Increasing VAT from 5 to 7.5%: what are the likely impacts. Afriheritage policy brief No. 22/Sept 2019. https://www.researchgate.net/publication/339134279