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Influence of Selected Tax Revenues on Federal Government Capital Expenditure in Nigeria, 2000 - 2022

Ikwuo, AmaKalu
Department Of Accountancy
University Of Calabar

Awa Felix Nweke, Ph.D
Department Of Accountancy,
Ebonyi State University, Abakaliki Nigeria

Nkwagu, Louis Chinedu, Ph.D
Department Of Accountancy,
Ebonyi State University, Abakaliki

Nkwagu, Christian Chibuike
Department of Economics,
Ebonyi State University, Abakaliki Nigeria

ABSTRACT
The study examined the influence of selected tax revenues on federal government capital expenditure in Nigeria, spanning from 2000 to 2022 with emphasis on company income tax, education tax, petroleum profit tax, and value added tax. The study adopted ex-post facto research design. Secondary data were collected from the Central Bank of Nigeria Statistical Bulletin, National Bureau of Statistics, and Federal Inland Revenue Service from 2000 to 2022. Regression techniques were employed in the empirical analysis. Findings showed existence of long- run equilibrium relationship among the variables. It showed that company income tax has a positive and significant while Education tax and Petroleum profit taxeshave positive and insignificant effects on federal government capital expenditure.The value added tax has a negative and significant effect on federal government capital expenditure. The implication of the findings is that, proper application of tax revenue will encourage the execution of federal government capital expenditure. The study recommends that government should provide more tax incentives to companies to encourage them pay taxes as and when due. Education tax rate should be increased to enable companies contribute meaningfully to infrastructural development in Nigeria. Revenue from petroleum profit tax should be property utilized to enhance the level of infrastructural development. Government should sustain value added tax and all observed administrative loopholes should be covered for VAT revenue to continue to contribute positively to capital expenditure.

Keywords:*Tax, company income, education, petroleum profit, and value added, capital expenditure*

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I. INTRODUCTION

The Nigeria tax system is structured as a tool for generating revenue. Government needs revenue to take care of its spending needs and to maintain a satisfactory level of public investments and social services (Chude and Chude, 2015). Tax revenue is the revenue collected from taxes on income and profits, social security contributions, taxes levied on goods and services, pay roll taxes, taxes on the ownership and transfer of property, and other taxes. It will be extremely difficult for government to function without taxes. This pool of fund that the governments collects from its citizens and business is used to ensure economic growth and development (Gatawa, 2016). Taxes are the main source of raising revenue in both developed and developing countries (Aizenman and Jinkara, 2008; Saced and Sheik, 2011). Nigeria as a developing country has a very low tax to GDP ratio which is attributed to narrow tax base, inelastic tax system, complex tax laws, complex network of exemptions and tax incentives and weak tax administration (Aregbengen and Fasanya, 2013). One of the most outstanding noticeable outcome of the last gross domestic product (GDP) rebasing exercise in Nigeria was the abysmal low ratio of tax revenue to GDP.

The need to shore up government revenue has become necessary and imperative as some states of the federation are already in dire financial need, needing financial support and guarantees from the federal government (Uzor, 2015). Not until recently, Nigeria has never considered taxes as a sustainable source of revenue as a lot of attention was focused on oil revenue. Before now, all the states in the country relied heavily on proceeds from federation account. The sharp drop in oil prices in 2014 created a huge gap in the implementation of some of the fiscal policies (Adegbite and Fasina, 2019). After this period, government began to look inward focusing on internally generated revenue (IGR) as a sustainable means of funding government programmes. Petroleum profit tax is a major source of revenue for the federal government of Nigeria to meet its statutory obligations of ensuring the economic development of Nigeria (Success, 2012). It assists the government to achieve the country's macroeconomic objectives in the areas of fiscal and monetary policies.

The company income tax rate is 30% for large companies (i.e companies with gross turnover greater than N100 million), assessed on a preceding year basis (i.e tax charged on profits for the accounting assessment). Any company covered under any multilateral agreement to which Nigeria is a party will be treated in accordance with those agreement from the effective date in Nigeria (Success, 2012) Tertiary education tax is imposed on every Nigerian company at the rate of 2.5% of the assessable profit for each year of assessment in practice, many companies pay the tax on a self-assessment basis along with their CIT. Generally, suppliers of goods and services in Nigeria are required to collect VAT at the rate of 7.5% and remit it to FIRS on or before the 21st day of the following month. VAT is governed by Value Added Tax Act (Modification Order), 2020.

Nigeria Federal Government Expenditure: capital data was reported at 426.170 NGN bn in Sept 2022. This records a decrease from the previous number of 498.800 NGN bn for June 2022. Capital expenditure is the money spent by the government on the development of machinery, equipment, building, health facilities, education etc. (CBN, 2021). Most developing countries in Africa including Nigeria experience high demand for capital projects that require high government expenditure and attention (Darma, 2014).

Statement of the Problem

The dwindling level of government revenue in Nigeria has far reaching effect for the achievement of fiscal and economic objectives of government (Appah, 2012). Nigeria tax system is confronted with many issues and challenges such as multiplicity of taxes, bad administration, and non-availability of databases, tax touting and non-payment of tax refund. Though several improvements have been made to reposition the Nigerian tax system, the system is still facing numerous challenges. In addition, the bureaucratic and administrative capacity are major impediment to the attempt to raise revenue to meet up the increasing federal government capital expenditure (Nwokah, 2009). Deficiencies in the administration and collection system, uncaptured income from the informal sector in the tax net are some of the causes of low revenue generation in Nigeria.

Nigeria has had series of tax reforms ranging from petroleum profit tax reform, company income tax reform, value added tax reform over the years. Despite the various reforms embarked upon by Nigeria government to increase tax revenue, prior statistical evidence indicates that the contribution of tax revenue to the funding of capital expenditures remained consistently low and relatively shrinking (Timbul and Imam, 2013). Also, inadequate tax personnel, fraudulent activities of tax collector and lack of understanding of the importance to pay tax by taxpayers are some of the challenges confronting tax revenue collection which has led to no or poor infrastructural development in Nigeria economy (Worlu, 2012). Poor revenue generation has led to poor implementation of capital expenditure budget in Nigeria.

Objectives of the Study

The broad objective of the study is to ascertain the effect of tax revenue on federal government capital expenditure in Nigeria during the period 2000 to 2022. Specifically, study strived:

1. To ascertain the effect of company income tax on federal government capital expenditure in Nigeria.
2. To determine the effect of education tax on federal government capital expenditure in Nigeria.
3. To ascertain the effects of petroleum profit tax on federal government capital expenditure in Nigeria.
4. To determine the effect of value added tax on federal government capital expenditure in Nigeria.

Research Hypotheses

The hypotheses tested in this research were stated in the null form. They include the following:

HO_1 There is no significant effect of company income tax on federal government capital expenditure in Nigeria.
HO_2 Education tax has no significant effect on federal government capital expenditure in Nigeria.
HO_3 The petroleum profit tax has no significant effect on federal government capital expenditure in Nigeria.
$HO_4$the Value added tax has no significant effect on federal government capital expenditure in Nigeria.

Significance of the Study

The study provides to both researchers and non-researchers with the effect of tax revenue on federal government capital expenditure. A knowledge of the effect, provides a sound premise for policy makers to formulate sound policies because, the findings no doubt, arose from sound empirical evidence from Nigeria experience.

It will serve as a guide for future governmental policy on tax revenue optimization and capital expenditure deepening. Information from this research work will provide the necessary recipe to strengthen existing tax laws by law makers. Researchers will also benefit from this research work.

Scope of the Study

The study covers from 2000 to 2022 focusing on the effect of tax revenue on federal capital expenditure in Nigeria. It emphasis on petroleum profit tax, company income tax, value-added tax and education tax.

Limitations of the Study

It is obvious that studies of this nature pose some teething problems. The researcher had difficult in having access to some vital materials in Federal Inland Revenue Service Office (FIRS) Abuja. Of course, the recent cash crunch in Nigeria took its fair toll on the research work, as the researcher could not have access to fund to expedite action on the study.

II. REVIEW OF RELATED LITERATURE

Company Income Tax in Nigeria

Company Income Tax (CIT) is one of the taxes levied in Nigeria in line with constitutional demands geared towards raising revenue for the nation. Chigbu and Njoku (2015) stated that taxes are levied on individuals, groups, businesses or corporate bodies by constituted authorities for fund used by state in the maintenance of peace, security, economic growth and development for the benefit of the citizenry. Company Income Tax was introduced in Nigeria in 1961. Company Income Tax has been amended many times with the last amendment in 2020. The Federal Inland Revenue Service is empowered and given the mandate to administer the tax.

Resident Companies are liable to corporate income tax (CIT) on their worldwide income while non-residents are subject to CIT on their Nigeria source income. The CIT rate is 30% for large companies (i.e companies with gross turnover greater than N100 million), assessed on a preceding year basis (i.e tax is charged on profits for the accounting year ending in the year preceding assessment).

Education Tax in Nigeria Economy

In January 1993, the education Tax Act No. 7 of 1993 was promulgated alongside other education related Decrees. The Decree imposed a 2% tax on assessable profit of all companies in Nigeria. Remittance of education tax is 10^{th} day of the month following the month of deduction. First offence against the Act is liable on conviction to a fine of N1,000,000 or a term of 6 months imprisonment or both. Second and subsequent offences attracted a fine of N2, million or a term of 12 months or both. The federal government has increased education tax for tertiary institution from 2% to 2.5%. Tertiary education tax is imposed on every Nigerian company at the rate of 2.5% of the assessable profit for each year of assessment (CBN, 2021). The tax is payable within two months of an assessment notice from FIRS.

Petroleum Profit Tax in Nigeria

Companies engaged in petroleum operation in Nigeria are subjected to tax under Petroleum Profit Tax Act (PPTA) of 1959 as amended. Petroleum is defined in the Act as any mineral oil or relative hydrocarbon and natural condition in Nigeria excluding liquefied natural gas, coal or bituminous shale or other stratified deposits from which oil can be extracted by destructive distillation (Aguolu, 2014). Petroleum operation is defined in the Act as: the winning or obtaining and transportation of petroleum or chargeable oil in Nigeria by or on behalf of a company for it account by any drilling, mining, extracting or other like operation or process, not including refining at a refinery in the cause of a business carried on by the company engaged in such operation, and oil operations, and all operations incidental thereto and any sale of or any disposal of changeable oil by or on behalf of the company (PPTA, 1959).

Value-Added Tax and Nigeria Economy

In a bid to have a near perfect tax reform in the country, a major landmark was made in the area of adopting value-added tax (VAT) in January through the VAT Act No. 102 of 1993, with effective date of 1^{st} January 1994 (Odusola, 2016). The Act repealed the sales tax Act, 1986. The sales tax lasted only for six (6) years before it was repealed. The Act is now known as value-added tax Act, Cap VI, LFN 2004. It was last

amended in 2020, (ICAN, 2021).The standard VAT rate is 7.5% (increased from 5% on 1 February 2020). Zero-rated items include goods and service purchased for use in humanitarian donor-funded projects. Only a limited number of supplies are nil-rated, meaning any VAT suffered may be recredited to the tax payer. The Nigerian VAT Act does not clearly define the criteria to identify the point at which VAT is due-known as the time of supply. Typically, it is treated as the earlier of the invoice or payment date. The import VAT time of supply is the time of importation.

Government Capital Expenditure

Capital expenditure is the money spent by the government on the development of machinery, equipment, building, health facilities, end education etc (Ukeme, 2020). It also includes the expenditure incurred on acquiring fixed assets like land and investment by the government that gives profits or dividend in future. The 2022 capital expenditure of N5.4 trillion represents about 34% of 22 expenditure and also represent an 18% increase in capital expenditure compared to that of 2020. Low revenue generation has made Nigerian government sacrificed capital expenditure in the last 5 years as a result of spending lower than budgeted.

Empirical Review

Osho, Olemija and Falade (2019) examined the influence of tax revenue on government capital expenditure and economic growth in Nigeria. The main objective of the study was to examine the influence of tax revenue on government capital expenditure and economic growth. The study used relevant secondary data that spanned from 2009 to 2018. The data were analyzed using econometric view. Findings revealed that company income tax had a positive relationship with capital expenditure; petroleum profit tax had a negative effect on the financing of government development project; value added tax had insignificant positive relationship with total government capital expenditure. The study recommended that utilization of tax revenue on public goods will encourage the payment of tax by tax payers.

Ntekpere and Olayinka (2020) investigated the effect of tax revenue on public debt and capital expenditure. The main objective of the study was to investigate the effect of t ax revenue on capital expenditure in Nigeria. The study used secondary data from Central Bank of Nigeria (CBN) Statistical Bulletin. It adopted the ordinary least square regression method by E-view to analyze the data. The findings revealed that tax revenue had a statistically significant, positive and negative effect on public debt and capital expenditure. Tax revenue had both positive and negative effect on external debt in Nigeria (R2 – 0.789, F = 0.00010). The study recommended that government should channel all borrowed money to capital project.

Zahradden (2019) investigated the relationship between tax revenue and public expenditure in Nigeria. The main objective of the study was to analyze the relationship between tax revenue and public expenditure in Nigeria for the period of 1985-2017. The study used secondary data from Central Bank of Nigeria (CBN) Statistical Bulletin. The technique employed in the study were Augmented Dickey Fuller test, Johasen Co-integration test, vector Error correction Model Granger Causality test and diagnostic test. The result showed a significant long-run relationship and a unidirectional relationship between tax revenue and public expenditure in Nigeria. The study recommended that government should endeavor to provide social amenities to all nooks and crannies of the country as this will boost the level of tax compliance in Nigeria.

Theoretical Framework

This study is anchored on benefit theory. This theory was propounded by Knut Wicksell in (1896) This theory provides the framework that taxes should be considered as payment for services rendered by the state to the tax payers and so proportioned. This theory explains, that every citizen should be called upon to pay taxes in proportion to the benefit derived by him, from services provided by the government. It is implied that the state provides certain facilities, to its civilians who should, therefore contribute to the cost or value of these facilities in proportion to benefits received by them. The major assumption of the theory is that the more the benefit a citizen derives, the more tax he should bear. The benefit justifies the payment of tax. In relation to this research work, people tend to pay taxes easily when the government uses the fund generated in providing facilities (capital expenditure) that will be beneficial to them.

Gap in Literature

Based on the literature review, the following gaps have been identified. Firstly, most research on the effect of tax revenue on federal government capital expenditure stopped at 2019. Secondly, most research work on the effect of tax revenue on federal government capital expenditure, adopted mainly two theoretical approaches; Keynesian theory and social theories of development. To close these gaps, this study extended its coverage to 2022. The study went further to adopt Benefit Theory as against the two theoretical approaches normally used. Despite the wide variety (mainly empirical) explanations and insight on the revenue-expenditure nexus, no unified theoretical proposal has been reached yet (tamborini and Tomasethi, 2020).

III. METHODOLOGY

The study adopted ex-post facto research design. Ex-post facto is an offshoot of experimental research design. The study approached the independent variables in retrospect to ascertainits possible effects on the dependent variable. The *Ex-post facto* research design was adopted because the data to be used already existed.

The study made use of relevant secondary data sourced from Central Bank of Nigeria (CBN) Statistical Bulletin, National Bureau of Statistics (NBS) and Federal Inland Revenue Services (FIRS). The data gathered was estimated using regression technique, with aid of E-view 9.0 econometric software.

Model of Specification

Generally, multiple regression model was used and specified as follows

$Y = (X_1, X_2, X_3 \ldots Xn)$

To empirically investigate the relationship between capital expenditure (CAPEX) and taxes proxy by the various variables; Company Income Tax (CIT), Education Tax (EDT), Petroleum Profit Tax (PPT) and Value-Added Tax (VAT), we hypothesized that capital expenditure depend behaviorally on tax revenue. Thus, such behavioral relationship can be given in the equation below.

$CAPEX = B_0 + B_1 CIT + B_2 EDT + B_3 PPT + B_{4VATt} + Ui_t$ …….. (1)

Where

CAPEX = Capital expenditure

B_0 = Intercept or average CAPEX when other variables are not applied

B_1 = Coefficient of explanatory variable CIT

B_2 = Coefficient of explanatory variable EDT

B_3 = Coefficient of explanatory variable PPT

B_4 = Coefficient of explanatory variable VAT

Ui_t = Is the Gausian white noise

In a bid to accomplish this task of measurement, capital expenditure (CAPEX) was made measurable using elements such as petroleum profit tax, company income tax, value-added tax.

IV. RESULT

The Descriptive statistics test was carried out to examine the characteristics of the dependent and independent variables. The descriptive result is presented in the table 1 below**:**

Table 1: Descriptive statistics result

	LCAPEX	LCIT	LEDT	LPPT	LVAT
Mean	6.719271	6.283851	4.343326	7.202320	6.164432
Median	6.773881	6.501380	4.872905	7.300041	6.490956
Maximum	7.988305	7.949515	5.795145	8.497072	7.834946
Minimum	5.478553	3.997283	2.116256	5.413430	4.069027
Std. Dev.	0.699703	1.105927	1.222968	0.764944	1.030561
Skewness	-0.058863	-0.682756	-0.646585	-0.716656	-0.399164
Kurtosis	2.369668	2.395739	1.901285	2.995473	2.201675
Jarque-Bera	0.394045	2.136851	2.759487	1.968806	1.221540
Probability	0.821172	0.343549	0.251643	0.373662	0.542933
Sum	154.5432	144.5286	99.89650	165.6534	141.7819
Sum Sq. Dev.	10.77085	26.90766	32.90433	12.87306	23.36524
Observations	23	23	23	23	23

Sources: Descriptive Analysis, 2023 From E-view 9.0 version

The table 1 above shows the descriptive statistical analysis for the dependent and independent variables. The mean is the average value of the series which is determined by dividing the total value of the series by the number of observations. The average percentage of Capital Expenditure (CAPEX) within the period under review stood at 6.72. This indicates that the volume of Capital Expenditure implementation in Nigeria is low. Other indicators followed the same pattern as shown on the table above.

The average percentage of Company Income Tax (LCIT) within the period under review stood at 6.28. This indicates that the volume of domestic debt in Nigeria is low. Other indicators followed the same pattern as shown on the table above. In the same vein, the average percentage of Education Tax

(LEDT) within the period under review stood at 4.34. This indicates that the volume of public debt service in Nigeria is high. Other indicators followed the same pattern as shown on the table above.

The average percentage of Petroleum Profit Tax (LPPT) within the period under review stood at 7.20. This indicates that the volume of External debt in Nigeria is high. Other indicators followed the same pattern as shown on the table above. In the same vein, the average percentage of Value Added Tax (LVAT) within the period under review stood at 6.16. This indicates that the volume of public debt service in Nigeria is high. Other indicators followed the same pattern as shown on the table above.

Table 2: Unit Root Test Results.

Variable	Level				1st Difference				Order of integ
	ADF Statistic	5% Crit value	P-value	Remark	ADF Statistic	5% Criti value	P-value	Remark	
LCIT	-1.6199	-3.0049	0.4561	Non-stationary	-6.8262	-3.0124	0.0000	Stationary	I(1)
LEDT	-1.4692	-3.0049	0.5299	Non-stationary	-6.3504	-3.0124	0.0000	Stationary	I(1)
LPPT	-1.6407	-3.0049	0.4460	Non-stationary	-4.3460	-3.0124	0.0030	Stationary	I(1)
LVAT	-1.69940	-3.0049	0.4177	Non-stationary	-4.9751	-3.0124	0.0007	Stationary	I(1)

Source: Author's computation 2023 using E-views 10

From Table 2 above, the result reveals that none of the variables was stationary at level because at this point, the ADF statistics were less than the 5% critical values in absolute terms, and their p-values were each greater than 0.05. At first difference though, all the variables became stationary following the decision criteria set out above. As indicated in the last column of the table, the variables were each integrated of order one (1), that is, I(1); hence they have the same order of integration. Consequently, Johansen cointegration method was employed to test for the existence of cointegration or long-run relationship among the variables of the study model.

From the summary of the result of Johansen cointegration test, the Trace test indicated the existence of 2 cointegrating equations among the variables of the model at the 5% level of significance while the Max-eigen value test indicated the existence of 1 cointegrating equation at the same level of significance. Thus, both results suggest that the factors in the study have a long-term relationship. In view of the fact that the variables are cointegrated, the study used the vector error correction mechanism (VECM) to estimate the short- and long-run impact of public debt on Nigerian economic growth in order to determine how quickly the short-run connection adjusts.

However, the presence of cointegrating equations implies that the connection between the dependent and independent variables is subject to short-term volatility. In order to smoothen out these fluctuations, the vector error correction model (VECM) was employed. This process is meant to tie the short-run dynamics of the co-integrating equations to their long-run static dispositions. The result is presented in Table 3 below.

Table 3: Summary of VECM Result

Independent variables	ECT	LCIT	LEDT	LPPT	LVAT	CONST.
Regression coefficients	N/A	0.2626	0.1264	0.9249	-1.7600	-4.7103
t. statistics		1.0743	0.7267	6.2178	-5.3057	N/A
Regression coefficients	-0.3148	-0.0792	0.2521	0.4829	-0.1948	0.0879
t. statistics	-2.0533	-0.5959	1.0654	3.0326	-0.3706	0.9756
P-value	0.0000	0.0421	0.9697	0.6676	0.0011	0.0033

Source: Researcher's computations 2023 from E-Views

The upper panel of Table 3 shows the long-run relationship while the short-run relationship is shown in the lower panel. As for the long-run, the result shows that the regression coefficient of Company Income Tax (LCIT) is about 0.2626 with T-statistic 1.0743 which suggests that the variable has a positive effect on the dependent variable, Capital Expenditure (CAPEX), in the long run. Likewise, the regression coefficient of Education Tax (LEDT) is about 0.1264 with T-statistic 0.7267 which suggests that the variable has a positive effect on the dependent variable, Capital Expenditure (CAPEX) in the long run. In different vein, the regression coefficient of Petroleum Profit Tax (LPPT) is about 0.9249 with T-statistic 6.2178 which suggests that the variable has a positive effect on the dependent variable. The regression coefficient of Value Added Tax

(LVAT) is about -1.7600 with T-statistic -5.3057 which suggests that the variable has a negative effect on the dependent variable.

For the short-run relationship, the study transformed the regression into system format which was estimated by Ordinary Least Squares (OLS) so as to obtain relevant statistics of the result such as the p-values which the VECM method did not contain. It should be noted that short-run, as used in this study, refers to not-very-long a time. The short-run result shows that the regression coefficient of the error correction term (ECT) is -0.3148 with T-Statistics -2.0533 and P-value 0.0000. It is the speed of adjustment of the estimated relationship from the short-run to the long-run. The result is interpreted to mean that about 5% of the errors arising from disequilibrium in the previous period are corrected in the current period. Thus, the relationship is expected to return to steady-state or stable condition within few years. The p-value (less than 0.05) indicates that the result is statistically significant at the 5% level of significance. In conclusion, the speed of adjustment is no doubt fast enough to ensure a return to equilibrium as quickly as possible.

The result further shows that the regression coefficient of Company Income Tax (LCIT) is -0.0792 with T-statistic -0.5959 and p-value 0.0421. This is considered to suggest that the Nigerian federal government capital expenditure (CAPEX) and Company Income Tax (LCIT) have a negative connection, with 8% rise in (LCIT) having a negative impact on CAPEX. The p-value (less than 0.05) and T-statistic (less than 2.0 in absolute terms) imply that the result is statistically significant. The regression coefficient for Education Tax (LEDT) is 0.2521, with a T-statistic of 1.0654 and a p-value of 0.9697. This shows that the Nigerian federal government capital expenditure (CAPEX)) and Education Tax (LEDT) have a positive relationship, with a 1% increase in (LEDT) putting upward pressure on CAPEX. The T-statistic (less than 2.0) and the p-value (more than 0.05) indicate that the result is statistically not significant at the 5% level of significance.

Conversely, the regression coefficient of the Petroleum Profit Tax (LPPT) is 0.4829 with T-statistic 3.0326 and p-value 0.6676. This suggests that there is a positive relationship between Capital Expenditure (CAPEX) and Petroleum Profit Tax (LPPT) such that a 1% increase in the latter would result in positive rise in CAPEX. The T-statistic (more than 2.0) and the p-value (more than 0.05) indicate that the result is statistically not significant at the 5% level of significance.

The regression coefficient for Value Added Tax (LVAT) is -0.1948, with a T-statistic of -0.3706 and a p-value of 0.0011. This shows that the Nigerian federal government capital expenditure (CAPEX)) and Value Added Tax (LVAT) have a positive relationship, with a 1% increase in (LEDT) putting downward pressure on CAPEX. The T-statistic (less than 2.0) and the p-value (more than 0.05) indicate that the result is statistically significant at the 5% level of significance.

Durbin-Watson (DW) method was used to test for autocorrelation. The result shows that the estimated Durbin-Watson statistic is 1.9 approximately. Using 5% level of significance, and given the 3 explanatory variables (excluding the constant term) and 23 observations (after adjustment) of the study, the tabulated Durbin-Watson statistics for the lower and upper limits are $D_L = 0.75$ and $D_U = 2.02$ respectively. The Decision Rule is as follows: If $DW^* < D_L$: autocorrelation is present in the estimated model (where DW* is the estimated Durbin-Watson statistic); If $DW^* > D_U$: there is no autocorrelation in the model; If $D_L < DW^* < D_U$: there is inconclusive evidence as to whether autocorrelation is present in the estimated model; hence an additional test would be required to decide. Following the decision rule, the regression result shows that DW* = 1.6. The third condition is observed here, that is, $D_L < DW^* < D_U$, which translates into $0.75 < 1.6 < 2.02$. This leads to the conclusion that there is inconclusive evidence as to whether autocorrelation is present in the estimated model. The study therefore resorted to the serial correlation LM test in order to determine whether autocorrelation is present in the estimated model.

Table 4:Breusch-Godfery Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	4.646659	Prob. F(2,15)	0.2762
Obs*R-squared	8.058081	Prob. Chi-Square(2)	0.1070

Source: Researcher's Computations, 2023

The null hypothesis being tested is that there is no serial correlation in the estimated system least squares result under reference. The decision rule is as follows: reject the null hypothesis if the p-value of the F-statistic is less than 0.05; otherwise uphold. Going by the result on table 6 above, we observe that the concerned p-value is 0.2762. Guided by the stated decision rule, we upheld the null hypothesis given that the p-value is greater than 0.05. Accordingly, we conclude that there is no serial correlation in the estimated system least squares result under consideration. The absence of positive serial correlation suggests no autocorrelation, that is,

the error terms of successive periods are serially independent. This satisfies the relevant assumption of the OLS regression method. The implication is that the estimated model is reliable for predictor purpose.

(b) Test for normality of distribution of the regression residuals

This test was performed to ascertain whether the regression residuals are normally distributed. The test matches the skewness and kurtosis of data to see if it matches a normal distribution. A normal distribution has a skew of zero (i.e. it is perfectly symmetrical around the mean) and a kurtosis of 3. Kurtosis tells us how much data is in the tails and gives one an idea about how "peaked" the distribution is. In general, a large J-B value indicates that errors are **not** normally distributed. The decision rule is that if the J-B statistic is very low and the p-value of the J-B statistic is less than 0.05 then we conclude that the errors are not normally distributed; otherwise conclude that the errors are normally distributed. In the present study, the joint J-B statistic is about 8.77 and its p-value is about 0.55 as shown in the appendix. Thus, since the p-value is greater than 0.05, we accept the null hypothesis and conclude that the regression residuals are normally distributed at the 5% level of significance.

Test of Research Hypotheses

The parameter estimates and their probability values were considered at 5% level of significance. If the probability value of the parameter estimate is larger than 0.05, the decision criterion was to accept the null hypothesis and reject the alternate hypothesis. Table 3 was used to test the hypotheses (Summary of VECM Result).

Hypothesis One

H_0: There is no significant effect of Company Income tax on federal government capital expenditure

The coefficients of Company Income tax (LCIT), both long-run (0.2626) and short-run (0.0792), reveal positive associations with a p-value of 0.0421, according to the estimation (VECM) result shown in table 3, LCIT is a positive and significant statistic in evaluating federal government capital expenditure (CAPEX) as evidenced by its P-value. Considering that the null hypothesis was rejected and the P-value [0.0421] was less than 5% (0.05), the study rejected the null hypothesis and concluded that the Company Income tax has meaningful effect on federal government capital expenditure (CAPEX).

Hypothesis Two

There is no significant effect of Education tax on federal government capital expenditure.

The coefficients of Education tax (LEDT), both long-run (0.1264) and short run (0.2521), reveal direct associations with a p-value of 0.9697. Based on the regression (VECM) result shown in table 3, LEDT is a positive and has no significant parameter in assessing federal government capital expenditure (CAPEX).as evidenced by its P-value. The analysis upheld the null hypothesis and concluded that the Education tax (LEDT) has no meaningful effect on federal government capital expenditure (CAPEX).in Nigeria because the threshold of significance is less than the P-value [0.9697].

Hypothesis Three

H_0: There is no significant effect of petroleum profit tax on federal government capital expenditure.

Decision

The coefficients of of petroleum profit tax (LPPT**),** both long-run (0.9249) and short-run (-0.4829), reveal direct associations with a p-value of 0.6676, according to the regression (VECM) result provided in table 3. LPPT is a positive and not significant statistics in evaluating federal government capital expenditure (CAPEX) as evidenced by its P-value. The analysis confirmed the null hypothesis and concluded that the petroleum profit tax had no meaningful effect on federal government capital expenditure because the level of significance is less than the P-value [0.6676].

Hypothesis Four

H_0: There is no significant effect of value-added tax on federal government capital expenditure.

The coefficients of value-added tax (LVAT), both long-run (-1.7600) and short run (-0.1948), reveal inverse associations with a p-value of 0.0011. Based on the regression (VECM) result shown in table 3, LVAT is a negative and a significant parameter in assessing federal government capital expenditure (CAPEX).as evidenced by its P-value. The analysis rejected the null hypothesis and concluded that the value-added tax (LVAT) has meaningful effect on federal government capital expenditure (CAPEX) in Nigeria because the threshold of significance is greater than the P-value [0.0011].

V. CONCLUSION AND RECOMMENDATION

Based on the test of hypotheses, the following findings were made.

1. Company income tax has a positive and significant effect on federal government capital expenditure in Nigeria between the years 2000 to 2022. The coefficient of company income tax (LCIT), both long-run (0.2626) and short-run (0.0792), reveal positive associations with a p-value of 0.0421, according to the estimation (VECM) result shown in table 3, LCIT is a positive and significant statistic in evaluating federal government capital expenditure (CAPEX) as evidenced by its P-value
2. Education tax has a negative and significant effect on federal government capital expenditure in Nigeria between the years 2000 to 2022. The coefficients of Education tax (LEDT), both long-run (0.1264) and short run (0.2521), reveal direct associations with a p-value of 0.9697. Based on the regression (VECM) result shown in table 3, LEDT is a positive and has no significant parameter in assessing federal government capital expenditure (CAPEX).as evidenced by its P-value
3. Petroleum profit tax has a negative and significant effect on federal government capital expenditure in Nigeria between the years 2000 to 2022. The coefficients of of petroleum profit tax (LPPT**),** both long-run (0.9249) and short-run (-0.4829), reveal direct associations with a p-value of 0.6676, according to the regression (VECM) result provided in table 3. LPPT is a positive and not significant statistics in evaluating federal government capital expenditure (CAPEX) as evidenced by its P-value
4. Value added tax has a positive and significant effect on federal government capital expenditure in Nigeria between the years 2000 to 2022. The coefficients of value-added tax (LVAT), both long-run (-1.7600) and short run (-0.1948), reveal inverse associations with a p-value of 0.0011. Based on the regression (VECM) result shown in table 3, LVAT is a negative and a significant parameter in assessing federal government capital expenditure (CAPEX).as evidenced by its P-value

Conclusion

The study examined the effect of selected tax revenue on federal government capital expenditure in Nigeria spanning from 2000 to 2022. Secondary data were collected and analyzed with econometric Ordinary Least Square method, conclusions were drawn from the results as follows.

There is a positive and significant effect between company income tax and federal government capital expenditure in Nigeria between the periods under review. There is a negative and significant effect between education tax and federal capital expenditure in Nigeria between the periods under review. Petroleum profit tax has a negative and significant effect on federal capital expenditure in Nigeria between the periods under review, while value added tax has a positive and significant effect on federal capital expenditure in Nigeria between the period under review.

Recommendations

1. Government should provide more tax incentives to companies to encourage them pay their taxes as at when due.
2. Education tax rate should be increased to enable companies contribute meaningfully to infrastructural development in Nigeria economy.
3. Revenue from petroleum profit tax should be properly utilized to enhance the level of infrastructural development.
4. Government should sustain value added tax and all observed administrative loopholes should be covered for VAT revenue to continue to contribute positively to capital expenditure.

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