



Evaluation of Revenue Effect from Tax Components and Economic Growth in Nigeria

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Abstract

This research empirically examined the relationship between tax revenue and economic growth in Nigeria for the period 1994-2021. Ex-post facto research design was adopted in the investigation. Multiple regression analysis was employed, in which Auto-Regressive Distributed Lag (ARDL) model as the method of analysis was utilized in the research. The ARDL model evaluates long-run and short-run interactions among the specified variables. The unit root tests conducted using Augmented Dickey-Fuller (ADF) revealed that the time series variables used were stationary at level and the first difference, but none of the variables was stationary at the second difference. The ARDL – Bound test analysis revealed the existence of long-run equilibrium relationship between tax revenue and economic growth in Nigeria within the period of the study. The coefficient of error correction mechanism was statistically significant and also negatively signed. The results equally showed that both company income tax and value added tax were statistically significant and positively related to economic growth in Nigeria in both short-run and long-run periods; whereas personal income tax was statistically insignificant and positively related to economic growth in Nigeria in both short-run and long-run. Based on the findings, the study therefore recommended tax authorities responsible for tax administration should upgrade the tax database to capture all potential tax-payers in order to broaden tax income.

Keywords: Tax Revenue, Economic Growth, Autoregressive Distributed Lag Mode, Nigeria

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Introduction

For decades of years now, management spending on socio-economic infrastructures has been on the increase due to increase in population. Meanwhile, the revenue-generating capacity of the same government has not risen in relation to the rise in population rate. To overcome this steady dearth in revenue generation and the chronic budget deficit dilemma, the government needs to improve its income generation. To achieve this paramount goal, the government is



faced with different options but the best amongst the available options for now, is to raise revenue through taxation, because, revenue from taxes is more stable and precise than other sources. This simply suggests that tax is one of the major lubricants that oils the wheel of government activities (Monica & Kazeem, 2022).

Conceptually, tax is a compulsory payment by individuals and organizations to the relevant tax authorities at Federal, State, or Local Government levels. This suggests that a tax system provide government with the opportunity to generate the needed revenue to finance infrastructural projects and meet other needs that improve the entire welfare of the citizens. Tax system has various types. These include direct taxes (Taxes levied on factors of production) or indirect tax (Taxes levied on goods and services). Currently, Nigeria depends on direct taxes as the major source of government revenue such as value added tax, company income tax, personal income tax and petroleum profit tax among others. In Nigeria, taxation has many objectives. First, it is a way of achieving government's objective of exercising right and control over the public asset. Second, government imposes very high tax as a way of regulating the number of participants in the industry and discouraging its rapid depletion in other to conserve some of it for future generation. The third objective is to make taxation an instrument for wealth re-distribution between the wealthy and industrialized economics represented by the multinational organizations, who own the technology, expertise and capital needed to develop the industry and the poor and emerging economies from where the petroleum resources are extracted (Ayeni & Cordelia 2022).

Considering Keynesian theory of fiscal policy which maintains that economic growth is a reflective of fiscal variables, we observed using trend analysis that between 1996 to 1999, tax revenue increased from 7.3% to 9.21% while GDP even decreased from 4.1959% to 0.5841% respective in those years. Again, from 2000 to 2005, tax revenue increased from 9.5% to 14.22%. Within these periods, even though that GDP increased but its increment was not proportionate to that of tax revenue as it only rose from 5.0159% in 2000 to 6.4385% in 2005. Again, tax revenue increased from 18.31% in 2010 to 26.32% in 2015, while GDP decreased from 8.0057% to 2.6527% respectively. However, from 2016 to 2020, tax revenue decreased from 28.43% to 25.26% and in the same vein, GDP equally decreased from 2.6527% to -1.7943% respectively (CBN, 2020).



From the above trending, it is observed that these variables did not toe in the pattern of direction with the theory as they move in opposite direction; and even when they move in the same direction, they did not possess equal proportionate change. Therefore, the likely adverse economic implication of these deviations in the country's economic activities, could lead to the periodic increase in the country's unemployment and inflation rates as well as the external sector disequilibria; and these factors are highly conjectured as being able to militate against the growth of any economy. Hence, it is in the light of the above observation that the researcher examines the effect of revenue from tax components on economic growth in Nigeria.

Literature Review

Revenue

This simply means income. Hence, revenue is a state's annual income from which public expenses are met. This revenue usually comes from tax. To this effect, tax is a compulsory but non-punitive levy by the government through its agent on the profits, income, or consumption of its subjects or citizens. It is also viewed as a compulsory and obligatory contribution made by individuals and organization towards defraying the expenditure of government (Ehinomen and Adeleke, 2012). From the above, it simply suggests that tax is mandatory financial charge or some other type of levy imposed on a taxpayer like an individual or legal entity by a governmental organization so as to collectively fund, public expenditures, or as a way to regulate and reduce negative externalities.

Tax Components

Tax components are sub-tax types which every tax authority can charge in the same jurisdiction or a different jurisdiction. The followings are different types of tax components:

Company Income Tax is the tax paid by all corporate entities in Nigeria to the Federal Inland Revenue Service. It is usually 30% of the company's total profit. All companies registered in Nigeria are expected to pay this tax except companies involved in petroleum activities (Bhartia, 2009).



Personal Income Tax is the tax imposed on individuals who are in employment or self-employed through businesses or partnerships. It is paid to the jurisdiction of the State Inland Revenue Service in the payer's state of residence. Individuals who are in employment pay their taxes which are deducted from their income through a system called Pay As You Earn (PAYE). Self-employed individuals pay through a process called direct assessment (Bhartia, 2009).

Value Added Tax is an indirect taxation imposed on goods and services. The final consumer of purchased goods or rendered services pays the VAT charges. Value Added Tax is usually a 7.5% rate and it is paid to the business owner or service provider who sums it up and pays to the FIRS. In other words, Value-added tax is a Consumption tax. Value-added tax in its simplest form is a tax chargeable on the supply of goods and services and only indirectly on the people who consume such goods and services. VAT is seen as a replacement of the Sales tax, which was earlier promulgated into existence through decree No.7 of 1986. The rationale behind replacing Sales tax with VAT was informed by the need to increase the tax base of consumption tax (Okwara & Amori 2017).

Economic Growth

Economic growth is described as the increase in per capital income. It is always evaluated as the rate of change in real GDP. Economic growth can exist either as positive economic growth or negative growth. It becomes positive when there are healthy macroeconomic variables of the economy (inflation, unemployment, etc.) and tends to be negative when these macroeconomic variables are shrinking (Senadza, Fiagbe & Quartey, (2017)

The Principles of Taxation

According to Samuel and Tyokoso (2014), Adam Smith (1776) maintained in his book "The Wealth of Nations" the most important set of principles, which are also known as the "cannons of taxation" which are still accepted generally by tax administrators all over the world. The principles of taxation are outlined below:

i). Principle of Equality: Everyone should pay the same proportion of his income as tax. This means proportional taxation or some percentage on all incomes and therefore rejected progressive taxation i.e (higher tax rates on higher incomes). It also means equal taxation of



earned and investment incomes, existing private wealth and capital are exempted, taxation is limited to income only.

ii). The Principle of Certainty: This principle asserts that the taxpayer should know how much tax he has to pay, and when it is to be paid. Such information should be adequately accurate and clearly stated by the tax regulations..

iii). The Principle of Convenience: Taxes should be collected at a time convenient for the taxpayers. For example, the Pay as You Earn income tax on salaries and wages deducted weekly or monthly as the case may be as income is received, is a good example of the principle of convenience.

iv). The Principle of Economy: The principle emphasizes that the cost of assessing and collecting a tax should be small in relation to the revenue so collected i.e. economy should be the yardstick so that the cost of collecting tax should not be excessive.

Theoretical Frame work

Keynesian Taxation Theory

The initiator of the Keynesian taxation theory was Keynes (1936) who exposed its main principles in his book “The General Theory of Employment, Interest and Money,” in which he advocated state interventions in the processes of market economy regulation. According to Keynes, fast economic development must be based on a market expansion and an associated increase in consumption. As a result, state intervention is achieved at the level of effective demand. One of the main assumptions in Keynes’s theory is that economic growth is related to monetary savings only on conditions of full employment. That is, according to Keynes, taxes must play the most important role in the system of state regulation. High taxes stimulate economic activity, influence the stability of the economy and in the context of the economic system act as “integrated flexibility mechanisms (Ayeni and Cordelia (2022)).

Revenue Productivity Theory

The two aspects of revenue productivity agree that the tax base must be large enough and that the cost of operating the tax system must be below the revenue it generates. Adam Smith also argued that it made little sense to institute a tax system in which the cost of collecting the tax



is higher than the realized tax revenue. The major essence of introducing tax was to raise revenue. In furtherance of the economy principle, the revenue productivity theory agrees that it makes little sense to institute a tax system for which the cost of collection is higher than the realized tax revenue. The theory further emphasizes the aspects of having a large enough tax base to cover at minimum cost and stresses an efficient tax administration (Monica and Kazeem (2022)

Empirical Literature

The issue of tax and economic growth has attracted wide range of empirical studies, both foreign and domestic. The followings are some of the reviewed studies.

Ayeni and Cordelia (2022) assessed the effects of tax revenue on the economic growth of Nigeria utilizing time series data spanning from year 2000 till 2021. The data collected are analyzed and tested for unit root using Augmented Dickey Fuller method, Johansen co-integration and Vector Error Correction Model. The findings reveal that PPT and VAT have positive and significant effects on GDP. It also reveals that CIT has a negative and significant effect on GDP. Based on these findings, the inquiry suggests that trainings and workshops should be organized by government tax agencies to the Nigerian public and companies on the importance and benefits of tax revenue to the economy.

In their study, Johansson, Heady, Arnold, Brys, and Vartia (2020) examined the relationship between tax and economic growth. Their work argued that revenue generated from tax channels is meant for public services. This simultaneously affects household savings and investment reactions, human development, employment rates, investment channels and assets portfolio. With a focus on OECD countries, the study centered on the effect of tax structure changes on GDP per capita and the effecting determinants thereof. The study was limited to the dilemma of examining how much impact tax structures had on GDP levels or growth as long-term effects on GDP levels are purely theoretical. Finally, it reiterated the importance of eliminating tax burdens on taxpayers (optimal taxation), costs of tax reform transitions, and practical experiences of OECD member countries

Egolum and Celestine (2021) ascertained the effect of value added tax on economic development in Nigeria from 1994-2018. Two hypotheses were formulated in line with the objective of the study. Time series research design was adopted and the data for the study



were obtained from CBN statistical bulletin, Federal Inland Revenue bulletin and Joint tax board bulletin for the period under study. Pearson coefficient of correlation and simple regression analysis were applied for the test of the hypotheses formulated with aid of E-Views 9.0 statistical software. Findings showed that Value Added Tax had a positive and statistically significant relationship with economic development (proxied by Gross Domestic Product and Total Government Revenue) at 5% significant level. Based on these findings, the study recommends among others that Government should therefore put in place measures to enhance productivity so as to increase the contribution of VAT to economic growth and development in Nigeria.

Monica and Kazeem (2022) examined the effect of VAT on economic growth in Nigeria between 1994 and 2020 using consumer price index (CPI) as a threshold. A technique of Threshold Vector Autoregressive (TVAR) was employed and the results reveal that a VAT above the 10 percent threshold value endangers the economy while a VAT below the 7.59 percent threshold value does not harm the economy; rather, it improves people's well-being. It is therefore recommended that Nigerian economy should maintain the lower VAT threshold to cushion the effect of ever rising CPI on the citizens.

Methodology

Unit root test and Autoregressive Distributed Lag (ARDL) model were employed as the method of analysis. The test of unit root was used in the research to determine the order of integration of the variables of the study; while the ARDL technique was adopted for the examination of the magnitude or elasticity of the coefficients of the independent variables in relation to the dependent variable.

In capturing the study, these variables were used as proxy:

$$\text{GDP} = F(\text{CIT}, \text{PIT}, \text{VAT}, \text{TEXP}, \text{INF}, \text{EXR}) \quad 1$$

Where GDP = Gross Domestic Product (dependent variable); F = Functional Notation; CIT = Company Income Tax; PIT = Personal Income Tax; VAT = Value Added Tax; TEXP = Total Export; INF = Inflation Rate; EXR = Exchange rate

In a functional form, we have;

$$\text{GDP} = b_0 + b_1 \text{CIT} + b_2 \text{PIT} + b_3 \text{VAT} + b_4 \text{TEXP} + b_5 \text{INF} + b_6 \text{EXR} U_t \quad 2$$



Where:

b_0 = Constant Term of the Regression Equation; b_1 = Regression Coefficient of CIT

b_2 = Regression Coefficient of PIT; b_3 = Regression Coefficient of VAT; b_4 = Regression Coefficient of TEXP; b_5 = Regression Coefficient of INF; b_6 = Regression Coefficient of EXR

U_t = Random Variable/Stochastic Variable; t = Indicates that it is a time series analysis

Results

Table 1: Augmented Dickey-Fuller Unit Root Test Results

Variables	Level			First Difference			Remarks
	t-Statistics	5% critical value	p-value	t-statistics	5%-critical value	p-value	
LGDP	-1.855675	-2.976263	0.3470	-5.935965	-2.981038	0.0000	I(1)
LCIT	-1.927320	-2.986225	0.3151	-5.390399	-2.991878	0.0002	I(1)
LPIT	-0.719697	-2.981038	0.8246	-13.96562	-2.981038	0.0000	I(1)
LVAT	-0.276427	-2.976263	0.9162	-5.572702	-2.981038	0.0001	1(1)
LTEXP	-1.108834	-2.976263	0.6973	-6.526865	-2.981038	0.0000	1(1)
INF	-3.407922	-2.976263	0.0196	-----	-----	-----	1(0)
LEXR	-1.390186	-2.976263	0.5720	-4.997708	-2.981038	0.0004	1(1)

Sources: Researcher’s computation from E-view 9

The Augmented Dickey Fuller (ADF) unit root test presented in table 1above, revealed that the inflation rate (INF) was stationary at level whereas gross domestic product (GDP), company income tax (CIT), personal income tax (PIT), value added tax (VAT), total export (TEXP) and exchange rate (EXR) were stationary at first difference.

Table 2: ARDL Bounds Test

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	K
F-statistic	4.502351	6
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Sources: Researcher’s computation from E-view 9

The results of the ARDL bounds test presented in Table 2 above shows that a long-run relationship exists between tax revenue and economic growth in Nigeria within the period of



the study, since F -statistic (4.502351) exceeds the upper critical value at 5% (3.61) level of significance.

Table 3: ARDL Short-run Coefficients Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LCIT)	-0.331734	0.085851	-3.864053	0.0038
D(LCIT(-1))	0.042777	0.013807	3.098212	0.0054
D(LPIT)	0.100747	0.074181	1.358126	0.2075
D(LVAT)	0.004882	0.026286	0.185708	0.8568
D(LVAT(-1))	0.026733	0.012015	2.224877	0.0372
D(LTEXP)	0.893053	0.225183	3.965891	0.0033
D(INF)	-0.006317	0.008183	-0.771891	0.4600
D(LEXR)	-0.295741	0.119015	-2.484913	0.0347
D(LEXR(-1))	0.282902	0.108728	2.601926	0.0286
CoIntEq(-1)	-0.321342	0.087647	-3.666322	0.0052

$R^2 = 0.978505$; F -stat = 429.4823, and Prob(F -stat) = 0.000000 , DW stat = 1.716405

Source: Researcher's compilation from E-view 9

Table 3 illustrates the short-run coefficients test results of the ARDL model. The results indicated that company income tax and value added tax at lag one have positive and significant effect on gross domestic product; whereas personal income tax has positive and insignificant effect on gross domestic product . Again, the results equally indicated that both export and exchange rate have positive and significant effect on gross domestic product in the short-run; while inflation rate has negative and insignificant effect on gross domestic product in the short run.

Evidence of these claims is supported by the p-values and the coefficients of the variables estimated in the regression equation. From the estimation results, the coefficients of LCIT (-1), LPIT, LVAT (-1), LTEXP, INF and LEXR (-1) are 0.042777, 0.100747, 0.026733, 0.893053, -0.006317 and 0.282902 respectively; whereas their associated p-values are 0.0054, 0.2075, 0.0372, 0.0033, 0.4600 and 0.0286 respectively.

The results also indicated ECT value of -0.321342 and p-value of 0.0052 is significant at 5 percent critical value. The ECT result depicts speed of adjustment which is in tandem with the granger representative theorem in which it upholds that a negative and statistically significant speed of adjustment as a required condition for a significant long-run association.



The above result shows that the R^2 is 0.978505, which implies that the model explains about 97.8505% of the total variations in gross domestic product (GDP) are explained by the independent variables (company income tax, personal income tax, value added tax, total export and exchange rate during the period of the study. While the remaining 0.021495% variations are as a result of other explanatory variables that are not captured in the model. The Prob (F-statistic) being 0.000000, implies that the joint influence of the explanatory variables is statistically significant as it is less than 0.05 at 5% level of significance. Again, Durbin Watson statistic being 1.716405 which is approximately 2, shows the absence of serial auto correlation in the model.

Table 4: ARDL Long-run Coefficients Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LCIT	0.068070	0.019515	3.488131	0.0022
LPIT	0.313520	0.188859	1.660076	0.1313
LVAT	0.000916	0.000402	2.277750	0.0333
LTEXP	2.779137	0.581037	4.783063	0.0010
INF	0.014398	0.022713	0.633912	0.5419
LEXR	0.134802	0.299480	0.450121	0.6633
C	-2.993229	0.993193	-3.013744	0.0146

Source: Researcher's compilation from E-view 9

Table 4 above reveals the long-run coefficients test results of the ARDL model for which the variables under consideration were estimated. From the results, both company income tax and value added tax have positive and significant effect on gross domestic product; whereas personal income tax has positive and insignificant effect on gross domestic product. Again, the results equally indicated that both exchange rate and inflation rate have positive and insignificant effect on gross domestic product in the short-run; while export exerts positive and significant effect on gross domestic product in the short run in Nigeria.

In the same vein, these claims are supported by the p-values and coefficients of the variables estimated from the ARDL long-run coefficients test. From the results, the coefficients of LCIT, LPIT, LVAT, LTEXP, INF and LEXR are 0.068070, 0.313520, 0.000916, 2.779137, 0.014398 and 0.134802 respectively and their p-values include 0.0022, 0.1313, 0.0333, 0.0010, 0.5419 and 0.6633 respectively.



Conclusion: The study examined the effect of tax revenue on economic growth in Nigeria for the period 1994-2021. Autoregressive distributed lag (ARDL) model is the method of analysis utilized in the investigation. The variables modeled in the research include gross domestic product, company income tax, personal income tax, value added tax, total export, exchange rate and inflation rate. The results of the ARDL model revealed presence of equilibrium long-run relationship among the variables used in the study. The results estimated indicated that both company income tax and value added tax have positive and significant effect on gross domestic product both in the short-run and the long-run. The results also showed that personal income tax has a insignificant and positive effect on gross domestic product in both the short-run and long-run. Thus, the study recommends that tax authorities responsible for tax administration should upgrade the tax database to capture all potential tax-payers in order to broaden tax income.

Recommendations: The study makes the following recommendations:

(i). Since the study discovered that company income tax exerts positive and significant effect on economic growth in Nigeria both in the short-run and the long-run; the management and administration of company income tax duty in Nigeria should be done in a manner that it will not have adverse effect on the companies such as distorting the forces of demand and supply. That is, effort should be made in adjusting the company income tax so that it does not discourage production).

(ii). Since the analysis revealed that personal income tax has a positive and insignificant effect on economic growth in both the short-run and long-run periods, government should embark on massive public enlightenment campaign by carrying out tax education among the citizenry to ensure voluntary tax compliance.

(iii). Having unraveled that value added tax has a positive and significant impact on gross domestic product proxied for economic growth in Nigeria, the study also recommended that the tax authorities responsible for tax administration should upgrade the tax database to capture all potential tax-payers in order to broaden tax income.



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