



Evaluation of the Relationship between Tax Revenue and Economic Growth in Nigeria: 1986-2022

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Abstract

The study examined relationship of tax revenue and economic growth in Nigeria. Over the years, government had tried to raise certain category of taxes such as value added tax, personal income tax, companies' income tax and so on but rather than improve, some macroeconomic indicators such as the growth rate of the GDP, interest rate, inflation rate and exchange rate have continued to deteriorate. By disaggregating the tax revenue into petroleum profit tax, companies' income tax, value added tax, gas income tax and stamp duty the study employed the ARDL model on data covering the period, 1986-2022. The study found evidence of a long run equilibrium relationship between tax revenue and economic growth. Specifically, the study found that in the long run petroleum profit tax and stamp duty had significant positive effect on economic growth contrary to the significant and negative effect induced by changes in gas income tax and value added tax. However, in the short run petroleum profit tax, value added tax and gas income tax had significant positive effect on economic growth as against the significant negative effect of companies' income tax in the period under review. Among other things, the study recommended that domestic increase in price of petroleum product should not be encouraged while blocking all associated oil revenue linkages by appropriate authorities. Also, corporate income tax for SMEs should be kept low while a moderate increase for large businesses may be encouraged. Finally, since increase in value added tax and other tax components exert direct effect on cost of living, the federal government through the federal Inland Revenue Service may consider a moderate upward adjusted in their prices only when it is necessary.

Keyword: Tax Revenue, Economic Growth, Fiscal Policy, ARDL model, Nigeria.

I. Introduction

The role of fiscal policy on economic growth is a long-standing debate that resulted in a vast array of academic literature. Policy makers and researchers have long been interested in how potential changes to tax revenue affect the size of the overall economy. It has been argued that tax revenue system is one major means of generating revenue needed for provision of infrastructure for economic development (Omojolaibi & Obieke, 2021). Some authors submitted that tax revenue is key to efficient functioning of government of any nation being it developing or developed as it enables the government to discharge its duties and obligations (Andersson & Lazuka, 2019; Ihurulam, Sanusi & Oderinde, 2021). Several sources of tax revenue are available to the government and its agencies to guarantee efficient and effective functioning. This is why Afuberoh and Okoye (2014) listed the sources to include revenue from royalties, rents from natural resources, foreign aid, interests from loans, grants, interest from capital investments. In their views, Nwachukwu, Nwoha and Inyama (2022) and Osamor, Omoregbee, Ajasa-Adeoye and Olumuyiwa-Loko (2023) identified possible mechanisms by which taxes can affect the performance of macroeconomic magnitudes. They averred that taxes could inhibit investment rate through such taxes as corporate and personal income taxes and capital gain taxes. Also, taxes can slow down growth in labour supply by disposing labour leisure choice in favour of leisure. Likewise, tax policy has effect on research and development expenditure. The authors further submitted that taxes could lead to a flow of resources to other sectors that may have lower productivity. Finally, they argued that taxes on labour supply can distort the efficient use of human capital with high tax burdens, even though they have high social productivity. Despite the opportunity provided by taxation for government to raise substantial revenue



to undertake its numerous responsibilities of providing infrastructural amenities to the citizens, most developing economies are yet to harness the crucial role played by taxation in economic development (Ayeni & Afolabi, 2020; Osamor, et al., 2023).

The profile of government revenue in Nigeria consists of oil and non-oil with oil contributing about 90% of government revenue while non-oil contributes the balance of 10%. In Nigeria, the revenue of government averaged ₦938.00 billion between 2010 and 2022, reaching an all-time high of ₦1837.52 billion in the third quarter of 2022 and a record low of ₦498.54 billion in the second quarter of 2015. Available statistics from the World Bank (2022) indicated that the oil and gas sector contributed 7.06% to GDP in the 4th quarter of 2018 before increasing to 9.77% in the 3rd quarter of 2019. Prior to the coronavirus (COVID-19) pandemic, the oil sector in Nigeria accounted for about 9% of the country's gross GDP. In the last quarter of 2020 (October – December), the oil industry contributed 5.9% to the total real GDP, a decrease of roughly 3% points compared to the previous quarter. In the third quarter of 2022, the contribution of the oil sector to the country's GDP reached 6.33%. Although, government has been making efforts to stir up the economy through fiscal policy of tax revenue, the Nigerian economy has been saddled with macroeconomic imbalances. Over the last two decades, a number of macroeconomic variables such as inflation rate, interest rate, exchange rate as well as the growth rate of the GDP have not performed very well with a disturbing statistics. For instance, the growth rate of the real GDP which anchored at 9.1% in 2010 declined to 2.8% in 2015. The economic growth rate entered negative territory of -1.6% in 2016 following economic recession occasioned by slump in global oil prices. Also, in 2020 because of global deadly Covid-19 pandemic the growth of the Nigerian economy was -1.9% before rising marginally to 3.3% in 2022 according to World Bank statistics. In the same vein, inflation rate which stood at 8.7% in 2015 rose to 19.8% in 2022 while the exchange rate of the naira to the US dollar has fluctuated heavily. In 2016, the exchange rate was ₦193.3/\$ but rose to over ₦500 to the US dollar in 2022 and as at December, 2023, has further depreciated to over ₦1000/\$ thereby creating severe hardship to many Nigerians. As at today (12th March 2024), a dollar goes for ₦1600.00 injecting a more severe economic menace among the Nigerian populace. States like Niger, Oyo,do and Nasarawa

had openly shown public outcry on the intolerable levels of poverty in the country

There have been several empirical studies on the effect of tax revenue on economic growth with mixed findings. There were studies that found positive relationship between the variables (Akhor, Atu & Ekundayo, 2016; Abomaye-Nimenibo, Michael & Friday, 2018; Sani & Ahmad, 2019; Onoja & Ibrahim, 2020; Halim & Rahman, 2021; Osamor, et al., 2023). There were others who found negative relationship (Kumai, 2020; Agunbiade & Idebi, 2020; Raphael, Kalu & Nteegah, 2021; Adefolake & Omodero, 2022). One common characteristic of these studies is the disaggregation of tax revenue into petroleum profit tax, company income tax and value added tax. Besides these tax variables, there are others such as gas income tax and stamp duty whose impact on economic growth needed to be investigated. The inclusion of these two fiscal variables in the model is predicated on the fact that they have been understudied. This constitutes the gap that the study intends to close. The rest of the paper is organised as follows. Section two contains a brief review of related literature and section three presents the model. In section four, the findings of the study were presented while section five concludes the study with policy recommendations.

The desire of the government to raise resources to undertake developmental projects for the purpose of economic stabilization arose the interest for fiscal policies. Over the years, government had tried to raise certain category of taxes such as value added tax, personal income tax, companies' income tax and so on but rather than improve, some macroeconomic indicators such as the growth rate of the GDP, interest rate, inflation rate and exchange rate have continued to deteriorate. It is on this realization that some people have argued that even if the Nigerian government surpasses their annual tax revenue target, public revenues are not properly channeled to relevant sectors due to corruption and lack of political-will thereby bringing about high inflation, high unemployment rate, naira depreciation and several macroeconomic challenges.

Considering the above research problems, the following research questions become pertinent.

- i. What is the effect of petroleum profit tax on economic growth in Nigeria?
- ii. In what ways do companies' income tax affect economic growth in Nigeria?
- iii. How does value added tax affect economic growth in Nigeria?



iv. What is the impact of gas income tax on economic growth in Nigeria?

v. What is the relationship between stamp duty tax and economic growth in Nigeria?

The specific objectives of the study thus, are to determine the relationship the petroleum profit tax, companies' income tax, value-added tax, gas income tax and stamp duty on economic growth in Nigeria.

The study tested five null hypotheses as follows:

Ho1: Petroleum profit tax does not have effect on economic growth in Nigeria.

Ho2: Companies' income tax has no significant positive effect on economic growth in Nigeria.

Ho3: Value added tax does not have significant relationship with economic growth in Nigeria.

Ho4: There is no relationship between gas income tax and economic growth in Nigeria

Ho5: Stamp duty has no significant relationship with economic growth in Nigeria.

II. Literature Review

Conceptual Issues

Taxation

Taxation is generally viewed as the major channel through which government raises revenue to undertake its numerous policies and programmes. It is the compulsory levy by government on income, profits, consumption, interest, royalties and dividends, capital transfers and capital gains. Ejoor (2013) defined taxation as a science of imposing tax on citizens which is expected to yield income that government will use in the provision of amenities, both social and security and create condition for the economic well-being of the society. From the World Bank (2022)'s perspective, taxation is referred to as a compulsory transfer of resources to the government from other systems. Miller and Oats (2009) described tax as the statutorily compulsory determinable amount required by a legal authority from the productive activities of a person or corporate body for the provision of public goods and services.

Economic Growth and Development

According to Oxford Dictionary, 'Economic growth is the increase in the amount of goods and services produced per head of the population over a period of time.' Economic growth is described as the continuous increase in the per capita national product or net national product over a long period of time. This suggests that the speed at which the total output increases must be greater than the speed at which the population increases. Igbasan (2017) offered further insight when he submitted

that economic growth is that national product that is comprised of goods and services that meets the urgent need of a reasonable number of people. He averred that economic growth can be ascertained by four important indicators such as natural resources, human resources, technological development and capital formation. On the other hand, economic development is a wider concept of economic growth. In economic growth one or few sectors of the economy may be developed while most of the sectors are expected to have been developed when considering economic development.

Theoretical Issues

Theory of Traditional Tax Handle

This theory was the brain work of Solow and Swan (1956). The theory posited that the level of fiscal need is closely related to the level of economic development. According to this theory, to reach a certain level of growth of per capita income, there is need to create a given level of national income through taxes. Taxes are arranged to compulsorily make the household transfer the purchasing power to the government for its use. The process significantly affects the allocation of resources, income and wealth since they reduce the disposable income and wealth to those who bear them as well as recognize social costs which are not evident in the market prices. The theory suggests that as a country's per capita income and level of monetization increases, indirect taxes become more noticeable than direct taxes. Therefore, while direct taxes contribute significantly to the fiscal revenues, the indirect taxes contribute much more to the growth of the developing countries (Karumba, 2016).

Solow Neoclassical Growth Theory

The neoclassical growth theory in the Solow-tradition is based on the following production function: $Y_t = f(K_t, L_t, A_t)$ where Y is output, K is physical capital, L is the labour force and A is an index of overall productivity. The model recognizes that income growth can come from the increased efficiency of productive inputs, i.e. an increase in A , or the augmentation of such inputs, i.e. an increase in K and/or L . Positive growth rates can be sustained if and only if the decreasing returns to the accumulation of capital are offset by population growth, or if the marginal productivity of capital is constantly shifted upwards by technical progress.



Endogenous Growth Theory

This theory was developed by Romer (1994) two central assumptions of the Solow model were dropped, namely that technological change is exogenous and that the same technological opportunities are available in all countries. New growth models treat technology and knowledge as economic goods in an attempt to understand the determinants of long-term growth based on learning-by-doing or investment in human capital and new technologies.

Empirical Issue

The literature is replete with various studies on the relationship between tax revenue and economic growth in which mixed findings uncovered in the literature. Thus, Abubarka (2016) employed structural vector autoregressive to scrutinize the effect of fiscal policy shocks on output and unemployment in Nigeria for the period 1981-2015. The study found that tax revenue exerted significant negative effect on unemployment as against the significant positive effect induced by public expenditure in the period under review. Abomaye-Nimenibo, *et al.*, (2018) employed data spanning the period 1980-2015 on OLS methodology and granger causality test to scrutinize the relationship between tax revenue and economic growth in Nigeria. The study disaggregated tax structure into petroleum profit tax, companies' income tax and custom and excise duties and findings indicated evidence of long-run relationship among the underlining variables. Specifically, the study found no relationship between petroleum profit tax, companies' income tax and economic growth. However, custom and excise duties had significant positive effect on growth in Nigeria during the sample period. In their study, Sani and Ahmad (2019) scrutinized the relationship between tax revenue and economic growth in Nigeria for the period 1979-2018. The technique of ARDL model was employed and findings indicated that petroleum profit tax and companies income tax exerted significant negative impact on economic growth during the review period while custom and excise duties had positive and significant impact on growth performance in the short-run. Edewusi and Ajayi (2019) appraised the impact of tax revenue on economic growth in Nigeria. The study which spanned the period 1995-2015 utilized gross domestic product as a function of petroleum profit tax, companies' income tax and value added tax. The Johansen co-integration approach and OLS technique were employed for the study and findings revealed that although all three tax structure variables had

positive relationship with economic growth over the period of review only companies' income tax is statistically significant. The study advocated for best practices in the collection of tax so as to generate maximum revenue for the government.

In Spain, Mirovic, Kalas and Andrasic (2019) appraised the impact of tax revenue on selected macroeconomic variables using data covering 1996 to 2016. The macroeconomic variables in the model were personal income tax, property tax, corporate income tax and social security contributions. The dependent variables include gross domestic product per capita, unemployment, inflation, investment and government expenditures respectively to represent five models. The findings indicated among other things that tax revenue growth, personal income tax, tax on property and social security contributions have significant positive effects on gross domestic product per capita. In a related but different study, Ayeni and Afolabi (2020) utilized the VAR methodology on data spanning 1981-2018 in assessing the relationship between tax revenue, infrastructural development and economic growth in Nigeria. The study found that while tax revenue influences economic growth and infrastructure, infrastructure does not influence economic growth, though it significantly impacts tax revenue collected. Onoja and Ibrahim (2020) employed petroleum profit tax, value added tax and companies' income tax to ascertain their effect on economic growth in Nigeria. Using OLS technique, the study found evidence of significant positive effect of companies' income tax and value added tax on growth and no evidence of significant relationship between the later and petroleum profit tax in the period of review. Kumai (2020) examined the effects of capital gains tax on total tax revenue and economic growth in Nigeria using the simple regression technique from the period 2005 to 2018. The variables utilized are gross domestic product; capital gain tax; inflation rate and interest rate. Findings indicated an insignificant positive relationship between capital gains tax and total tax revenue/economic growth in Nigeria. The study concluded that capital gain tax has not contributed significantly to total tax revenue and economic growth in Nigeria.

In a related study, Agunbiade and Idebi (2020) employed co-integration, vector error correction methodology and granger causality to assess the extent of the relationship existing between growth and tax revenue disaggregated into petroleum profit tax, companies' income tax and value added tax. Accordingly, the study found



evidence of long run equilibrium relationship between the variables. In the short run, the study found that the two-period lag of companies' income tax had significant negative effect on growth while lag 1 of VAT exerted significant positive impact on economic growth in the period under consideration. However, the study could not find relationship between petroleum profit tax and economic growth in Nigeria. The study which advocated the simplification of the tax system, ease of implementation as well as ability to enforce compliance covered the period, 1981-2020. Raphael, *et al.*, (2021) assessed the extent of the effect of tax revenue on economic growth in Nigeria covering a data period of 1994 to 2020. The independent variables employed for the study were grouped into lower taxation effort and higher resource revenue with the gross domestic product as a proxy for growth. Employing Johansen co-integration approach, the OLS technique and vector error correction method, the study found evidence of significant positive impact of tax revenue on economic growth in Nigeria in the period of review. However, the study noted that the contribution of tax revenue to growth fell short of the optimal level with relation to the overall economic performance. Omojolaibi and Obieke (2021) used the ARDL model on data covering 1980-2019 to explore the relationship between tax revenue and macroeconomic performance in Nigeria. The study developed five models in which the first four models have as their dependent variables, gross domestic product, inflation, public debt as well as unemployment respectively. The common independent variables for the models include customs and excise duty, petroleum profit tax, value added tax, companies' income tax, population growth rate, exchange rate and non-oil export. The fifth model had macroeconomic performance index as the dependent variable and the explanatory variable consist of dynamics of tax system index in addition to non-oil export, population and exchange rate. Among other things, the study found evidence of significant negative effect of customs and excise duty on economic growth.

Meanwhile, Halim and Rahman (2021) employing data from Brazil, Russia, India and China referred to as BRIC as well as the countries of CIVETS comprising of Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa assessed the relationship between corporate tax rate and sustainable development for the period, 2000–2021. Accordingly, a panel regression technique in the context of fully modified OLS and dynamic OLS was employed for the study. Observably, the study

found the presence of positive and significant impact of corporate tax rate on sustainable development. The study averred that although, higher tax rate has the potentials to stimulate sustainable development, the reverse is the case in the emerging economies of Africa and Asia as against what is obtained in developed countries. The study further submitted that the success of sustainable development goals in emerging economies is hinged on the policy of taxation rate adopted by individual countries. Adefolake and Omodero (2022) submitted that the ability of government to attend to its responsibilities is mainly predicated on collection of taxes. The authors conducted research on the effect of tax revenue on economic growth in Nigeria covering a data scope of 2000-2021. The tax component is disaggregated into petroleum profit tax, companies' income tax and value added tax while the gross domestic product is employed as proxy for economic growth. The Johansen co-integration test and VECM was employed for the short run and long run analysis. Accordingly, the study found that economic growth is significant and positively responsive to changes in value added tax and petroleum profit tax contrary to significant negative response to changes in company income tax. Among other things, the study recommended sincerity on the part of corporate organization in paying their taxes as and when due with a view to stimulating growth. In a similar study, Nwachukwu, Nwoha and Inyama (2022) documented the impact of tax revenue comprising customs and excise duty, value added tax and petroleum profit tax on economic growth in Nigeria. The study employed the ARDL model and findings revealed a significant and positive effect of tax revenue variables on economic growth in Nigeria. Osamor, *et al.*, (2023) employed the ARDL model to assess how tax revenue affects economic growth covering the period 2011-2020. The component of taxation for the study were petroleum profit tax, value added tax, companies' income tax and customs and excise duty. Surprisingly, the study could not find evidence of significant relationship between tax revenue and economic growth in Nigeria thereby supporting Agunbiade and Idebi (2020) who had earlier reached similar findings.

III. The Model

This study is anchored on the variant of the endogenous growth theory developed by Romer (1994) which argues that government revenue when properly collected and utilized can stimulate growth. The simple endogenous growth model of the aggregate production function is given as follows:



$$\ln Y_t = \alpha K_t^\alpha L_t^\beta \quad (1)$$

Where output (Y_t) is a function of the aggregate capital stock (K_t) which is presumed to be a composite of physical and human capital. The above equation can be linearized as:

$$\ln Y_t = \beta_0 + \beta_1 \ln K_{t-1} + \beta_2 \ln L_{t-1} + \varepsilon_t \quad (2)$$

Model Specification

The study adapts a linear model similar to Omojolaibi and Obieke (2021), Adefolake and Omodero (2022) as well as Osamor, *et al.*, (2023) covering the period 1986-2022.

$$GDP_t = (PPT, VAT, CIT, EDT, GIT, SDT) \quad (3)$$

In log stochastic term, equation 3.3a becomes:

$$\ln GDP_t = \alpha_0 + \alpha_1 \ln PPT_t + \alpha_2 \ln VAT_t + \alpha_3 \ln CIT_t + \alpha_4 \ln EDT_t + \alpha_5 \ln GIT_t + \alpha_6 \ln SDT_t + \varepsilon_t \quad (4)$$

Where: GDP = real gross domestic product at 2010 constant price, PPT = petroleum profit tax, VAT = value added tax, CIT = companies' income tax, GIT = gas income tax, STD = stamp duty, $0\alpha =$ constant, α_1 - α_5 = parameters to be estimated while ε_t is white noise error term.

Unit Root Test and Technique for Data Analysis

Firstly, unit root test will be conducted to ensure that the variables consist of only integration of order 0 and 1. The Dickey Fuller and Phillips-Peron tests are utilized for the tests. Secondly, the study is conducted using autoregressive distributed lag (ARDL) bounds testing approach to co-integration developed by Pesaran, Shinb and Smith (2001). The model estimates the short run and long run simultaneously on a software with predetermined lags as follows.

$$\begin{aligned} \Delta \ln GDP_t = & \alpha_0 + \sum_{i=1}^K \alpha_{1i} \Delta \ln GDP_{t-i} + \sum_{i=1}^K \alpha_{2i} \Delta \ln PPT_{t-i} + \sum_{i=1}^K \alpha_{3i} \Delta \ln VAT_{t-i} + \sum_{i=1}^k \alpha_{4i} \Delta \ln CIT_{t-i} + \\ & + \sum_{i=1}^k \alpha_{5i} \Delta \ln GIT_{t-i} + \sum_{i=1}^k \alpha_{6i} \Delta \ln SDT_{t-i} + \beta_1 \ln GDP_{t-1} + \beta_2 \ln PPT_{t-1} + \beta_3 \ln VAT_{t-1} + \\ & \beta_4 \ln CIT_{t-1} + \beta_{56} \ln GIS_{t-1} + \beta_{67} \ln SDT_{t-1} + \mu_t \end{aligned} \quad (5)$$

From equation 5, the F-statistic is calculated and compared to bounds of two critical values. Accordingly, a co-integration relation will be considered to exist between the dependent and the explanatory variables if the F-statistic exceeds the upper bound. On the other hand, no co-integration is possible if the F-statistic falls below the lower bound. In the final analysis, the test is inconclusive if the F-statistic lies between the two bounds. If co-integration exists, the unrestricted error correction method is estimated as follows:

$$\begin{aligned} \Delta \ln GDP_t = & \alpha_0 + \sum_{i=1}^K \alpha_{1i} \Delta \ln GDP_{t-i} + \sum_{i=1}^K \alpha_{2i} \Delta \ln PPT_{t-i} + \sum_{i=1}^K \alpha_{3i} \Delta \ln VAT_{t-i} + \sum_{i=1}^k \alpha_{4i} \Delta \ln CIT_{t-i} + \\ & + \sum_{i=1}^k \alpha_{5i} \Delta \ln GIT_{t-i} + \sum_{i=1}^k \alpha_{6i} \Delta \ln SDT_{t-i} + \lambda ECT_t \end{aligned} \quad (6)$$

Where λ is a parameter which measures the speed of adjustment to the equilibrium level after a shock. The sign of the ECT in equation 6 must be negative and significant to ensure that long-run equilibrium exists between the variables.

IV. Presentation and Discussion of Results

Table 1 is the results of unit root tests using the Mackinnon critical value of 5% level of significance from the ADF test and doubled checked with the PP tests. The tests were conducted at level

and first differencing to show the order of integration. Accordingly, the tests show that the variables were stationary at either integration of order 0 or order 1 thereby fulfilling the crucial condition for the ARDL technique.



Table 1: Stationarity test results

Augmented Dickey Fuller Test				Phillips-Peron (PP) Test		
Variable	Level	First Diff	Order	Level	First Diff	Order
LGDP	-3.59	-	0	-1.50	-3.69	1
LPPT	-2.09	-6.28	1	-2.09	-6.34	1
LCIT	-1.23	-6.03	1	-0.98	-9.09	1
LVAT	-4.33	-	0	-3.76	-	0
LEDT	-4.54	-	0	-5.18	-	0
LGIT	-4.11	-	0	-3.83	-	0
LSDT	-2.12	-4.87	1	-2.10	-11.99	1
C.V = 5%	-3.54	-3.55		-3.54	-3.54	

Source: Author's computation using EViews 12.0

In what follows, the ARDL model in Table 2 with lags (4, 2, 3, 2, 2, 0) was estimated for the purpose of obtaining the F-statistic for the bound co-integration test. Table 2 also contains a battery of diagnostic tests performed on the models to avoid misleading results. Accordingly, the tests revealed that the model passes the diagnostic tests and is

satisfactory as it is normally distributed, serially uncorrelated, has no heteroscedasticity and is correctly specified. Also, the model is considered stable as the CUSUM and CUSUMSQ tests of model stability lie within the two critical boundaries as indicated in Fig 1 and Fig 2 respectively.

Fig 1: Stability Test (CUSUM)

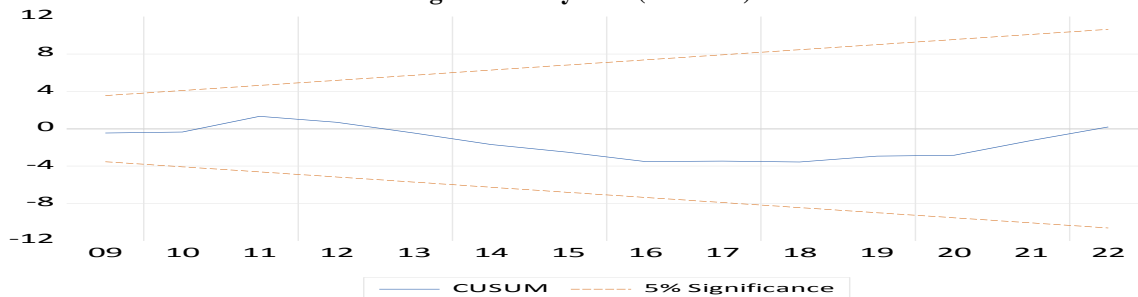


Table 2: ARDL Model Estimation

Dependent Variable: LGDP

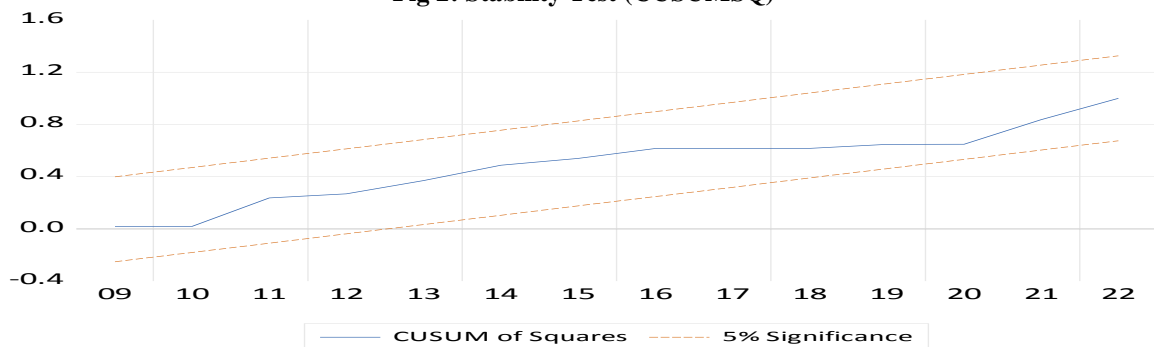
Variable	Coefficient	Std error	t-statistic	Probability
Constant	0.51	0.86	0.59	0.57
LGDP(-1)	0.97	0.16	5.93	0.00
LGDP(-2)	-0.22	0.23	-0.98	0.34
LGDP(-3)	-0.46	0.24	-1.89	0.08
LGDP(-4)	0.68	0.17	3.96	0.00
LPPT	0.03	0.01	2.13	0.05
LPPT(-1)	0.03	0.02	2.02	0.05
LPPT(-2)	0.02	0.01	1.42	0.18
LCIT	-0.02	0.03	-0.51	0.62
LCIT(-1)	-0.02	0.03	-0.53	0.60
LCIT(-2)	-0.04	0.04	-1.13	0.28
LCIT(-3)	0.08	0.03	2.39	0.03
LVAT	0.06	0.05	1.19	0.26
LVAT(-1)	0.04	0.06	0.64	0.52
LVAT(-2)	-0.18	0.04	-3.96	0.00
LGIT	-0.02	0.01	-1.51	0.15
LGIT(-1)	-0.01	0.01	-0.96	0.35



LGIT(-2)	-0.02	0.01	-1.73	0.11
LSDT	0.02	0.01	2.32	0.04
R ²	0.99			
DW-Stat	2.47			
F-Stat	89.4			
Diagnostic Tests				
Tests	F-statistic	Prob	Decision	
Jarque-Bera (Normality) Test	0.09	0.95	Normally Distributed	
Breusch-Godfrey Serial Correlation	1.06	0.38	No Serial Correlation	
ARCH LM Test	2.35	0.14	No heteroscedasticity	
Ramsey Reset	6.43	0.12	No Misspecification	

Source: Extracted from Eview 12

Fig 2: Stability Test (CUSUMSQ)



In Table 3, the bound co-integration test indicates that the F-statistic exceeds the upper critical bound thereby confirming the presence of co-integration between economic growth rate and selected tax variables.

Table 3: ARDL Bound test for co-integration

F-Statistic	5% Level	
K	I(0)	I(1)
5	2.39	3.38
F-statistic = 5.86		

Source: Extracted from Eview 12

Table 4 presents the effect of tax structure on economic growth in the long run which shows evidence that these variables explained 99% variation in economic growth as suggested by the highly robust R². Likewise, the model revealed absence of serial correlation as the DW statistic of 2.47 lies within the acceptable autocorrelation region of 1.50-2.50.

Table 4: ARDL Long run model of Growth

Dependent Variable: LGDP

Variable	Coefficient	Std error	t-statistic	Probability
Constant	0.51	0.86	0.59	0.57
LPPT(-1)	0.05	0.01	3.72	0.00
LCIT(-1)	0.01	0.03	0.29	0.78
LVAT(-1)	-0.08	0.03	-2.47	0.03
LGIT(-1)	-0.04	0.02	-2.23	0.04
LSDT(-1)	0.02	0.01	2.32	0.03
R ²	0.99			
DW	2.47			
F-Stat	89.4			

Source: Extracted from Eview 12



Also, the positive constant may be interpreted to mean that in the absence of all the explanatory variables, growth of the GDP will be positive. This is predicated on the fact that other sectors beside the tax variables also contributed to economic growth in the period under review.

The results therefore revealed that over the long run, petroleum profit tax and stamp duty tax had significant positive effect on economic growth in Nigeria. For instance, a 1% increase in petroleum profit tax and stamp duty tax increases economic growth by 0.05% and 0.02% respectively. This is similar to the findings of Onoja and Ibrahim (2020), Raphael, et al., (2021) and Adefolake and Omodero

(2022). On the contrary, the study further found that the impact of value added tax and gas income tax on economic growth is negative and statistically significant. For instance, a 100% increase in value added tax led to 8% decrease in economic growth while a similar 100% increase in gas income resulted in 2% reduction in growth in the long run. These findings gave credence to the studies of Abubarka (2016) and Sani and Ahmad (2019). Meanwhile, the relationship between company income tax and economic growth seems to be positive but statistically insignificant. Osamor, *et al.*, (2023) had earlier reached similar findings.

Table 5: ARDL ECM of Economic Growth

Dependent Variable: DLGDP

Variable	Coefficient	Std error	t-statistic	Probability
DLGDP(-3)	-0.68	0.12	-5.80	0.00
DLPPT	0.03	0.01	3.29	0.00
DCIT(-1)	-0.04	0.02	-2.42	0.03
DVAT(-1)	0.18	0.03	5.40	0.00
DGIT(-1)	0.02	0.01	3.06	0.00
ECM(-1)	-0.03	0.00	-7.65	0.00
R ²		0.86		
DW		2.47		

Source: Extracted from Eview 12

In Table 5, the short run results are depicted where the ECT captures the speed of adjustment between the long run and the short run. Accordingly, the R² indicated that the model has a relatively robust goodness of fit as it shows that the independent variables account for 86% variation in economic growth. Likewise, the DW statistic reveals absence of serial correlation. Therefore, the results indicated that company income tax exerted significant negative effect on growth in the short run. This result gives credence to the findings of Halim and Rahman (2021). On the contrary, petroleum profit tax, value added tax and gas income tax had significant positive effect on economic growth in the short run. Statistically, a 100% increase in petroleum profit tax led to increase in economic growth by 3%. These results gave credence to the findings of Mirovic, Kalas and Andrasic (2019) and Nwachukwu, et al., (2022).

V. Discussion of Findings

The study examined the impact of tax structure disaggregated into petroleum profit tax, company income tax, value added tax, gas income tax and stamp duty tax on economic growth in Nigeria.

In Nigeria, raising revenue through taxation is normally saddled with various challenges such as tax invasion and avoidance, the attitudes of tax payers to under-declare their taxes and high level of corruption among tax officials. All these account for reasons why tax revenue have exerted various impacts on the economic growth. Thus, while petroleum profit tax acts as stimulant to growth in both the short and the long run the same cannot be said of company income tax whose short run impact on growth is significantly negative. This is not surprising as corporate tax has continued to rise so much so that most small and medium enterprise (SMEs) businesses have be squeezed out of existence thereby raising unemployment and poverty level as well as other social vices in Nigeria.

Also, the effect of value added tax and gas income tax most especially in the long run is statistically negative whilst their short run effect is positive. Over the years, government effort at raising revenue from taxation apart from taxes on petroleum products has focused on value added tax. The implication of high vatable goods is one reason for price inflation thereby affecting the level of economic growth in Nigeria. In the same vein, whilst government focused to raise much revenue



through gas income taxes, it has continued to tell on the economy through declining standard of living. For instance, the price of domestic cooking gas has risen more than ten folds over the last one decades and for an economy where more than 60% of the population live below the poverty line of less than \$1 a day, the impact of rising gas price on the economy can be better imagined.

VI. Summary and Conclusion

The basic argument in the literature is that government fiscal policy of raising revenue through taxation is vital to implementation of policies and programmes in her bid to meet the yearnings and aspirations of the citizenry. However, as crucial as tax revenue to the functioning of the economy, a number of macroeconomic variables has not performed very well among which economic growth, a proxy for the gross domestic product is relatively more pronounced. The study assessed impact of tax revenue on economic growth in Nigeria. It disaggregated tax revenue component into petroleum profit tax, company income tax, value added tax, gas income tax and stamp duty tax covering a data period of 1986-2022. The bound test to co-integration approach in the context of autoregressive distributed lag was employed for the study. The study found evidence of long run equilibrium relationship between tax revenue and economic growth. Specifically, the study found that in the long run economic growth is significant and positively responsive to changes in petroleum profit tax and stamp duty tax contrary to its significant and negative response to changes in gas income tax and value added tax. However, in the short run petroleum profit tax, value added tax and gas income tax had significant positive effect on economic growth as against the significant negative effect of company income tax in the period under review. The conclusion reached by the study therefore is that since tax revenue is important for any country's government to cater for the welfare of her people through macroeconomic stability, government attempt to use taxation in fine-tuning the economy must be done after holistic examination of the system to avoid policy somersault. Therefore, it is recommended by the study that since revenue from petroleum profit tax dictates the pace of price inflation in Nigeria with a high multiplier effect, domestic increase in price of petroleum product should not be encouraged while all associated oil revenue linkages should be blocked by appropriate authorities. Also, corporate income tax for SMEs should be kept low while a moderate increase for large businesses may be encouraged. Finally, since

increase in value added tax, gas income tax and stamp duty tax tend to have direct effect on cost of living, government may consider a moderate upward adjustment in their prices only when it absolutely necessary.

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