Tax Revenue and Economic Growth in an Emerging Economy: a Vector Error Correction Model Approach

ABSTRACT

The main objective of this study is to examine the effect of tax revenue on economic growth in Nigeria.This study covers a period of 27 years (1995-2022). The reason for choosing this period is that it depicted by the fact that it fall within timeline in which value added tax one of components indirect was introduced by the Nigerian government. Pair Granger causality testing was employed to ascertain the relationship between dependent and independent variables. The results showed that first; there is a no significant relationship between company income tax and economic growth in Nigeria. The results revealed that there is a positive relationship between Value added tax and economic growth in both long run and short run. Finally, the Granger causality test results, showedthat there is no significant relationship between custom duty and economic growth in Nigeria. The study recommended that policy makers should concentration effort on long run policies that will stimulate generation of indirect taxes in the long-run

Keywords: Value added Tax, company income tax, Economic growth

INTRODUCTION

The economic growth of a nation is reliant on anunwavering means of income. After the Great Depression of the 1930s, Governments world over initiated the adoptionof stabilization policies that encompass miscellaneous macroeconomic policies in order to avert ugly incidence that occurred during the great depression. These were fiscal policies which require; government's run the economy via vicissitudes in revenue and expending capacity torealizewanted macroeconomic goals,prominent of these goals is economic advancement, (Adegbie, et al.,2016; Adeusi, 2020; Anojan, 2019)

Modern-day tax administrators are after numerousstrategic goalsand notable amongst these set objectives is generation of revenues for economic sustainability. Taxation is aimed at raising the requiredmoneys for executing capital project, for equitable redistributionof income, to engender economy stability, to overcome externalities, to influence the allotment of resources, while in the same vein it engender economic advancement. A good tax system is intended todrive economic growth and engender economic advancement. An effective tax system plays a vital role in achievement of economic growth and fiscal amalgamation (Agunbiade, &Idebi, 2020: Benos, 2009).

Economic theory opines that taxesproducesalterations and by extension influences the economy negatively.Some scholars suggestedthat corporate and personal income taxes greatly retard the growth of an economy, whereas consumption, environment and property taxes are have injuriouseffect on the economy (Chigbu et al.,2012; Fasoranti, 2013; Ebiringa, & Emeh, 2012).The it duty bound of government over world particularly specialized market to collect tax revenue from their citizen to provide social amenities. The quest to realize these duties principally depends on the aggregatevolume tax revenue collected by the government via

numerous channels includingtaxes. Taxes are of the one of the primogenital means through which the funds for provision indispensableamenities for the citizens of a nations.(Abiola &Asiweh, 2012; Abomaye-Nimenibo,2017).The principalpurpose of a tax system is to generate adequate revenue to fund crucialcapital project like road, bridges etc.. Tax remains one of the most veritable tools used for the enhancementof the public sectorperformance and the servicing of public debt (Afuberoh, & Okoye,). A good taxsystem avails itself as a veritable tool that help in mobilizing acountry's internal resources and create an ecosystem that isfavorable for the promoting economic advancement (Ayuba, 2014; Edame, &Okoi, 2014).

Over the years, the conventional tasks of governments have been maintenance of law and order and provision of social amenities by undertaking some investments and expenditure. Through these means, the government directly or indirectly improves the productivity of the private sector by efficient and effective allocation of scarce resources. It is worthy of note to stress that these roles have moved in contemporary times to include provision employment, price level stability, advancement of economic and expansion, preservation of equipoise of payment evenness and advancement of equitable revenue and fund sharing. In recognition of these functions, most governments across the globe attach great importance to the quality and performance of their economy and to achieve these objectives governments usually employ fiscal and financial policy apparatuses such as taxes and disbursements to boost economic activities and stimulus economic growth (Edewusi&Ajayi, 2019, Izedonmi&Okunbor, 2014))

The economy performance of any government from the stand point of the public sector is partly proxy by the volume and quality of infrastructure amenities accessible to its populace. The capacity of the government of a nation to provide social amenities is a function of the revenue at the disposal of that government. Most developing nations of the world have multiple strings of

incomes hence the delivery of social amenities is high. On the contrary most developing nation of the world are mono-economic, they depend largely on income generated from exports of natural resources such as oil and agricultural produces(Jibrin, et al., 2012; Etim., 2020)

Notwithstanding the numerous theoretical and empirical researches, as well as policy and policy polemics, on the impact of taxation on government capital expenditure in developing countries like Nigeria is still very much inconclusive. Prior studies suggests that tax revenue is negatively related with taxrate and by extension implies that high tax rates impedes government capital expenditure (Gacanja, 2012). Nantob (2014) argues that higher tax rates may create more distortion in revenue generation because tax evasion and tax avoidance will be high. The author further reported that lower rates will lead to generationof more productive income. Some extant literatures suggest that there is an inverse relationship between tax burden and capital expenditure.

The relationship between tax burden and provision of social amenities has led to scholarlydiscourse among policymakers in past decades and the extant literature has divulged that the allotment of tax income in an economy is influenced by government policies which often engenderbehavioural distortions of economic players.. Investigating the effects of tax revenue on provision of social amenities can be approach from three stand points, namely exogenous, endogenous and incidence schools of thought. The exogenous school focused on the exogenous growth model as pioneered by Solow (1956) postulates that tax policy has a role to play in attaining long-term economic growth, on the premise that labour and technological progress (which is key factors responsible for economic expansion) are determined outside the model. At the other extreme is the endogenous school of thought who focused on the endogenous growth models which according Dwivedi (2004)argued that tax policy have a significant relationship

with capital expenditure and welfare over time, and economic expansion is determined within the model. The incidence school of thought argues that there is causality between tax burden (tax) and revenue generation. The proponents of this school of thought contend that the direction of the relationship between aforementioned variables ride on the wings of prevailing macroeconomic factors on ground (Bruno& Emmanuel, 2019)

This study is built on the perspective of the incidence school of thought and draws its strength from their arguments. Very few prior studies looked at the causation between tax and capital expenditure holistically.This creates the gap in knowledge that this study intend to fill. Theobjective this study is to ascertain the causality between tax revenues and capital expenditure in in Nigeria.

Theoretical Framework

This work is anchored on the theory stated below

2.3.2Benefits Theory

The benefit theory was initially developed by Wicksell (1896) and Lindahl (1919). Thetheory had beingused to elucidate issues such as tax progressivity, business taxes, and taxes on propertyor wealth. The benefits theory of taxation strengthens by Cooper (1994) postulated that government should impose taxon a personfounded on the benefits the persons attained from the services (social goods) performedby the government. This theory presumed that there is an emblematic associationamid the taxpayers andthe government. This theory tends to explain the associationbetween tax and economic growth.This theory argues the tax proceedscollected by the government ought to bereinvested into the sustainability of the nation'sadvancement via the provision of social amenities,enforcement of law and order.Lastly, converting to the feasible tax system that amalgamates both goods tax and individual income tax, concurrently resulting in an

optimumconsequence for society, have been evaluated by numerous scholars. Specifically, they founded their study on the analysis of Mirrlees (1971) with regard optimal income taxationby accumulationconceivableinfluence of commodity taxation on the economy. To be more exact, the study is founded on utility intensificationglitch,bearing in mindthat both consumption of goods and labor supply are subject to income restraint, price of numerouskinds ofgoods as well as capability of labor force. In that manner having leisureliness also considered as being one of the products with its price being equivalent to hourly wage of the labor, since one needs to forgo one hour salary in order to receive additional hour of relaxation time. Atkinson and Stiglitz (1976) argue that product taxes can be equivalent to zilch and employment of only income tax is sufficient to meet welfare and to get the most out ofits set goal. Precisely, the outcomes are grounded on the taxation of inborncapability of persons. In the condition of separation, immaterialinfluence of product taxation on consumers buying pattern is discovered. Otherwise, it also can be implicitly stated that a certain clusterof productsthat are being chosenover other categories of products by consumers, who are supplying more working hours, needs to pay higher tax. This is primarilybecause thepositiveassociation between marginal rate of replacement of a commodity and labor because labor supply upsurges, other being equivalent. Moreover, Mirrlees(1976) emphasize that the certain kind of goods that are being more preferred by those workers with highest ability should be taxes the most with the highest rates. Alternatively, Christiansen (1984) made slightly different approach with respect to combined optimal taxation structure by considering income taxation and commodity taxation jointly. The author particularly elucidatesthat taxcan be structured in two categories.First stage is the economy with the most advantageous income taxation systemdevoid of any commodity taxes. The second category,

involves product taxation and ascertain itsinfluence on the wellbeing of households by preserving the tax revenue continuous.

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METHODOLOGY

Area of Study

This study covers the impact of indirect tax on economic growth economic growth. The study focuses on twenty seven (27). In order to obtain a robust analysis, the researcher used the macroeconomic data.

This research, dueto its nature made use of secondary data. The data were sourced from the publications of Federal Inland Revenue Service, Central Bank of Nigeria (CBN) Statistical Bulletin and the publications of the National Bureau of Statistics (NBS) for the study span through a periodtwenty-seven, 1995-2022. VECM is employed to analyse data extracted from the field.

.3.5 Model Specification

Based on the conjectural framework and the objective of the study, the econometric model is adapted from the works of Aderet*iet al*. (2011) and Yadirichukwu and Ebiringa (2012)and is specified as follows:

This study will adopt Regression Model to examine the effect of tax revenue on economic growth in Nigeria. The model structure is as follows;

GDP = F (VAT, CIT, CED) …….. (3.1)

$GDP = ß0 + ß1\ CIT_{it} + ß2\ VAT_{it} + ß3\ CED_{it} + \mu o$…. …… (3.2)

Where:

GDPit = Gross Domestic Product

ßOit = Constant

ß1-3 = Co- efficient independent variables

CIT = Company Income Tax

VAT = Value Added Tax

CED = Customs and Excise duties

µo= Error term

i = Number of time

t = Period of time

3.8.3 Data Analysis Technique

Accordingly, Vector Error Correction Model (VECM) is suitable to estimate the effect of determinant variables on Economic growth. Thus, the equations below represent Error Correction Model. Besides, the purpose of ECM model is to indicate the speed of adjustment from the short run equilibrium to the long run equilibrium state.

Model

$\Delta GDPi_t = \sum_{k-i}^{m} \theta_{1.1,j.k}\Delta GDPi_t + \sum_{k-i}^{m} \theta_{1.2,j.k}\Delta VATI_{t-K} + \sum_{k-i}^{m} \theta_{1.3,j.k}\Delta CED_{t-K} + \sum_{k-i}^{m} \theta_{1.4,j.k}\Delta + CIT_{t-K}Ui_t$,……. (1)

$\Delta VATIi_t = \sum_{k-i}^{m} \theta_{2.1,j.k}\Delta GDPi_t + \sum_{k-i}^{m} \theta_{2.2,j.k}\Delta CEDI_{t-K} + \sum_{k-i}^{m} \theta_{2.3,j.k}\Delta VAT_{t-K} + Ui_t$.....(12)

$\Delta CEDi_t = \sum_{k-i}^{m} \theta_{3.1,j.k}\Delta GDPi_t + \sum_{k-i}^{m} \theta_{3.2,j.k}\Delta VAT_{t-K} + \sum_{k-i}^{m} \theta_{1.3,j.k}\Delta CED_{t-K} + \sum_{k-i}^{m} \theta_{1.3,j.k}\Delta CED_{t-K}$

$\Delta CITi_t = \sum_{k-i}^{m} \theta_{3.1,j.k}\Delta GDPi_t + \sum_{k-i}^{m} \theta_{3.2,j.k}\Delta VAT_{t-K} + \sum_{k-i}^{m} \theta_{1.3,j.k}\Delta CED_{t-K} + \sum_{k-i}^{m} \theta_{1.3,j.k}\Delta CIT_{t-K}$

DATA PRESENTATION AND ANALYSIS

4.3 Inferential Statistics

4.3.1Panel unit root test results

Unit root test null hypothesis assumption is on the premise that is all sequence are not static, while the alternative hypothesis presumes that some of the sequence are static.

Table 1. The unit root test for the variables at 5% sig level with no trend.

Variable	ADF value (I)	PP value (I)	ADF value (0)	PP value (0)
GDP	-4.514 (2.925)*	-4.622 (-2.926)*	-0.854 (-2.925)	-0.540(2.925)
CIT	- 6.261 (2.947)*	-17.63(-2.925)*	-10.439(-2.941)*	-5.953 (2.925)*
CED	- 6.331 (2.925)*	-22.12(-2.925)*	-8.113 (2.928)*	-4.385 (-2.925)*
VAT	- 6.111 (2.925)*	-20.12(-2.911)*	-6.113 (2.928)*	-7.382 (-2.925)*
	The F unit root test for the variables at 5% sig level at intercept.			

Source: Researcher's computation

Significance * @5%

From Table 1, time series of GDP, CIT, CED and VAT are static at first variance as portrayed by the absolute values of ADF and PP larger than critical values the 5% ADF critical values signifying that the variables are joined of order one. In additional, to affirm the stationary status of the variables ADF and PP test were performed with trend. The results for ADF and PP confirmed that GDP, CIT,CEDand VAT remained static at first difference since the real values of ADF and PP exceed the correspondence critical values. The Unit test reveals that there is a combination of I(I) and I(0) of the supplementary regressors, therefore the Auto Regressive Distributive Lag (ARDL) testing could be continued.

4.3.2 Co-integration

When evaluating variable for co-integration, the VAR model with dual lags, as recommended by AIC and HQIC is considered. The work employed a Panatela principle in order to fix the suitable limitations in the model. The study start by approximating dualistic models. For these models we go from the utmost limiting factor, which includes delimiting constant to the minimum limiting factor which comprises a delimiting trend in the model. Trace statistics and critical value are

placed side by side until null hypothesis is not retained. The outcomes of the estimating model are displayed in Table 2.

Table 2Vector Estimation Correction Model

ECM					
Independent variable	Dependent Variables	Coefficient	Standard Error	T-Stat.	R-square
CIT	RGPD	-0.200795	0.00021	-13.2219	0.7954
CED		-0.050365	0.00086	-6.24074	0.6594
VAT		0.001815	0.00054	3.38482	0.8593
Long run					
CIT		-0.000264	0.00022	-1.19506	
CED		0.001432	0.00080	1.78713	
VAT		0.020407	0.0006	3.99987	
Short run Estimate					
CIT	RGDP	-0.000416	0.00024	-3.75464	
CED		-0.000763	0.00096	-3.79847	
VAT		0.001286	0.00053	3.44983	

Source: Author's computation

VECM result reveals that CIT has no significant impact on RGPD in long run at both 5% as depicted by t= --1.195 but has significant positive impact in the long run as depicted by t = 3.755. The negative sign of EMC (eq) (t= -13.221) connotes that CIT has no significant relationship with RGDP in the long run. The result also shows that CIT can only explains 79.5% of RGDP while about 21% is unaccounted for.

The result further reveals that CEDhas negative impact on RGDP in the short run at 5% as depict by t= -3.798 but has no significant in the long run as depicted by t= 1.798. The negative sign of EMC (p= -6.240) connotes that it is not probable for CED to influence RGDP in the foreseeable future. The result also shows that CED can only explains 65% of RGDP while 35% is accounted. The result shows that 5% rise in FDI will to lead to decrease in RGDP by 0.001 units in the short run. .

Finally, the result reveals that VAT has significant impact on RGDP in both long as and short run by t=3.99 and t =3.44 respectively. The positive of EMC (Eq) (t= 3.38) connotes that it is likely for VAT to influence RGDP in the foreseeable future. The result also shows that CED can only explain 85% of RGDP while 25% is unaccounted. The result shows that 5% rise in FDI will to lead to about 0.0204 units rise in change in RGDP.

5.2 Conclusion

The principalduty of every responsible government is the delivery ofsufficient public goods and services that enhance the quality oflife of citizens. The realization of these dutiesdepends on thequantum of incomegutted by the government via a variety of means. Taxation is among the feasiblechannels of generating. When taxes are competently and effectively collected, there will be an upsurge government's earnings and citizens on the other hand will anticipate that such incomewill be used for the provision ofsocial facilities that will improve the quality of life of citizens. However, untrained tax personnel and deceptive activities of tax personnel pose immense challenges to revenuegeneration.

In acknowledgement of government'sfunctions withrespect to providing welfare, a lot nations world over attribute prodigiousimpact of tax on the economy to the fiscal policy of government.To this end, this study is targeted at finding out the causation among economic growth and tax revenue. This study adopted ADF and Philips-Perron (PP) unit root test, panel Johansen cointegration test, VECM, impulse response function and pairwise granger. Stability tests were also performed to ascertain the stability of the variable. The outcome the study divulged that first, that there is a no emblematic association between Company Income Tax and

economic growth in Nigeria. This connotes thatthe Nigerian government is yet to explore this channel of revenue.

Second, the outcomes of the study revealed that there is a affirmative associationbetween VAT and economic growth in both elongated and immediate run. This connotes that VAT has become one of the foremost channels of taxes in Nigeria.

Based on the result the study recommends,government should close every leakage that may led to drainage of taxes

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