Tax Revenue and Its Effect on Selected Macroeconomic Indicators in Nigeria

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ABSTRACT

Since the discovery of oil in the country, the attention of Nigeria's public revenue has gradually shifted from tax revenue to non-tax revenue. This has several consequences on economic growth and development in the country. This study examines the effects of tax revenue on selected macroeconomic indicators in Nigeria. It employed annual time series data from 1986 to 2015 for personal income tax (PIT), company income tax (CIT), petroleum profit tax (PPT), value added tax (VAT) as independent variables while the dependent variables are employment rate (ER) and price stability (PT). 2 (two) equations were developed to interrogate the relationships between the dependent and independent variables. An autoregressive distributive lag (ARDL) model was adopted to examine the effect of tax revenue on the designated macroeconomic indicators. The results of the analysis for the 2 equations were mixed. With the overall significant effect of tax revenue on price stability, and the mixed (significant/insignificant) effect on employment rate, it is clear that the use of taxes seem to favour price stability rather than employment generation in Nigeria. Though insignificant, the speed of adjustment to equilibrium was very high for price stability while it became very slow for employment level. This study therefore recommends that Government should avoid multiple tax, but rather grant reasonable tax holidays and reduce taxation to encourage new investments and boost employment. A good part of tax should be allocated to upgrade social and economic infrastructures to reduce cost of doing business and improve profits for businesses that could be re-invested in the economy. Finally, government should strive to balance-off the incidences between income tax and service taxes in order to reduce the tax burden on civil/public workers, who have been observed to be the only segment that pay accurate tax to cushion the overall effect on the disposable incomes of these category.

1. Introduction

Ever since the societal governance was institutionalized, government has been saddled with several responsibilities which require humongous expenditure each year. To meet these expenditures, governments have devised several ways of raising revenue. These revenues can broadly be classified as tax and non-tax revenues. The Nigerian National policy on tax, has defined tax revenues as those incomes gained by governments through the levying of taxation. They are usually proceeds and receipts paid by citizens or corporate bodies on incomes, profits, goods, services, transfers and so forth in accordance to certain statutes. Non-tax revenues on the other hand are all other receipts by government which cannot be classified as taxes (National Tax Policy, 2013).

In Nigeria, since the first oil well was discovered in Oloibiri, in the Niger Delta, the various governments have continuously paid more attention to non-tax revenues in meeting their constitutional mandates as captured in the various annual budgets and development plans. For example, the federal government retained revenue, continued moving upwards from N448.80m to N5,514.70m between 1970 and 1975, indicating an incremental rate of 1,129%. This unprecedented growth was as a result of the expansion in the non-tax revenue, specifically the oil component of the

federally collected revenue which ballooned from N166.60m to N4,271.50m during the period. In the same manner, the figures grew from N597,282.10 to N1,660,700.00 between 2000 and 2005 and further to N3,193,440.00 in 2008 (Obiechina, 2010).

Despite the above rosy picture, the situation with returns from tax revenue has been rather appalling. Out of a population in excess of 180 million, the Chairman of the Federal Inland Revenue Service, the Nigerian apex tax agency, Dr. Babatunde Fowler recently lamented that less than 20 million of the populace are in the tax net, contributing less than 10% of the estimated tax capacity of the country. This is because most governments in Nigeria have only paid lip service and not spent creative amount of time and intellect to figure out how taxes could be collected effectively and inclusively, (Fowler, 2016).

Tax administration and revenue collection generally has met with perennial challenges in year for a long time. This, according to various studies has been as a result of a combination of factors such as poor skill set by the tax administrators, weaknesses in the systems, lack of incentives and commitments, leakages and wastages, corruption, lack of data on tax payers, and the unorganized nature of the private sector (Jones, Ihendinihuu, & Nwaiwu, 2015).

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The situation in Nigeria is the direct opposite of what obtains in the developed world where water tight systems have been institutionalized to ensure that all who are supposed to pay tax not only do so but also pay the correct amounts as at when due. Some persons have also argued that the low tax returns and the over dependence on the unsustainable sources viz-a-viz the non-tax revenues due partly to international oil price volatility have impacted negatively on the desire to improve the infrastructural development, human development index and the general socio-economic fabric of the country (Obiechina, 2010).

Statement of the problem

In view of the less than satisfactory performance of taxation as a source of public revenue for in Nigeria, there are questions as to whether government has fully tapped the potential of this veritable source of revenue and whether the revenues arising from taxation has had any meaningful impact of relevant macroeconomic indicators in Nigeria. Specifically, how has government revenue from tax over the years impacted on the macroeconomic indicators like employment rate and price stability in particular and socio-economic development of Nigeria, in general. With the contribution of tax revenue, could it have done better, especially in the years after crude oil was discovered in the country.

Research objectives

This paper is therefore focused on interrogating the federal government of Nigeria tax revenue and its impact on macroeconomic indicators, such as employment rate and price stability for the period covering 1986 to 2015.

Specifically, the paper sets out to;
● Interrogate to what extent taxation has contributed to public revenue in Nigeria;
● Examine the relationship between tax revenue and macroeconomic growth indicators such as employment rate and price stability in Nigeria;
● Examine if tax revenue has been significantly responsible for economic growth in Nigeria.

2. Literature review and theoretical framework

According to Development Economists as well as Public Finance experts, all governments have a responsibility of stimulating the economy by providing socio-economic infrastructure for the development of the society in addition to its other responsibilities. This is done through the raising of public revenue which is spent on expenditures in the critical sectors of the economy like human capital, socio-economic infrastructure, security, law and order, public health and sanitation, economic services etc (Mbat, 2015).

The theoretical framework of this study shall be based on Wagner's law which postulates that as public revenues increases, government spending also increases, thereby positively affecting the key macroeconomic indicators in the economy. The law also infers that when government revenues are properly deployed in addressing the provision of critical infrastructure, it ultimately impacts positively on private sector investments through increased labour productivity and capacity utilization. The end result is a boost in economic growth and development of the society (Obiechina, 2010). The study shall also draw from the theory of optimal taxation, which is about how to design and implement an proficient tax regime that reduces inefficiency, leakages and other distortions, given inherent economic constraints, using the practical social welfare function that adds up public utilities. The theory prescribes tax policies and governance practices

that would lead to maximizing social welfare for a given revenue requirement. It places high premium on the productivity or yield of taxes collectable in which they are structured to present the optimum outcomes in terms of costs and benefits, taking into account taxpayers preferences and the use of technology in administering (Jones et al, 2015).

Overview of the sources of public revenue

The financial resources that accrue to the national or sub-national units through all sources constitutes public revenue. In effect public (government) revenue comprises all the finances mobilized or generated in all sectors of the economy, excluding monies raised through loans and other forms of borrowing. Such revenues are usually mobilized and collected through Government ministries, departments or agencies festooned with the appropriate authority and responsibility. Governments' revenue generation frameworks are usually dictated by provisions in the budget or appropriation laws (Obiechina, 2010).

Governments generate revenue to enable them undertake her constitutional responsibilities which is summarized as guaranteeing maximum affordable social and economic security for the greatest number of citizens and residents. These include protection of life and property, provision of security, socio-economic infrastructure and other social services. Other responsibilities of government include maintaining territorial integrity, provision and ensuring social order, justice and equity and forestalling lawlessness and anarchy. It also includes improvement of citizens' welfare as ventilated by the human development indicators (Mbat, 2015).

Globally, government revenue is usually categorized into tax and non-tax revenues. The preponderance of one over the other differs from country to country. While most advanced economies rely more on taxation as the primary source of revenue, most developing countries, especially those that have abundant extractive natural resources rely mostly on the non-tax revenues. In most cases preference is determined by the level of development, resource endowment, capacity and political will of the government in the country. Taxes are compulsory contributions or levies that are statutorily imposed by government for running the administration and providing the services required of it. Taxes are therefore imposed only by government on persons, groups, corporate bodies either on incomes, services and behaviour. Tax could be imposed with or without a direct bearing to the quantum of benefit derived from the good or services enjoyed by the tax payer. Being obligatory, it follows that anybody that fails to pay tax that has been properly imposed is liable for sanctions as prescribed by law. In general, taxes are broadly classified as direct or indirect, depending on the foundation on which the tax is derived and whether the burden of the tax can be passed on. While direct tax is levied on incomes or property of the tax payer and are not transferable, indirect tax is levied on persons or corporate entities who are intended to bear the burden and can thus transfer the tax to others. Indirect taxes are thus levied on services or commodities that are not consumed directly by the person who collects the tax (Musgrave & Musgrave**,** 2004).

Tax revenue as a proportion of GDP

According to Jones et al (2015), on the average, non-oil revenues in selected African countries, of which tax revenue is a fraction, accounted for an average of 22.5%, while tax revenue on its own was less than 18% of the gross domestic product (GDP) between 2008 and 2012. Apart from the fact

that the ratio for Nigeria is so low, a comparison of the proportion of gross tax revenues to the GDP in selected African countries shows that while most other countries recorded continuous increases, the reverse was the case with Nigeria (see table 1, below).

Table 1: Tax revenue as a proportion of GDP in % in selected African countries.

S/N	COUNTRY	YEARS			
		2009	2010	2011	2012
1.	Nigeria	5.1	2.3	1.8	1.6
2.	South Africa	25.4	25.9	26.1	26.4
3.	Ghana	12.6	13.4	14.9	
4.	Cote d'Ivore	15.4	15.6	11.5	15.6
5.	Benin	16.2	16.5	15.9	15.5
6.	Sierra Leone	8.4	9.3	10.9	10.9
7.	Ethiopia	6.7	8.3	9.4	
8.	Kenya	18.8	19.5	19.9	19.7
9.	Burkina Faso	12.5	12.4	14.2	16.3
10.	Angola	19.2	19.5	19.9	19.0
11.	Namibia	29.7	22.1	14.9	
12.	Mauritius	18.7	18.5	18.4	19.0
13.	Senegal	17.9	18.7	18.9	19.2
14.	Algeria	35.1	34.4	37.3	
15.	Morocco	24.0	23.4	23.8	24.5
16.	Botswana	27.7	22.0	23.8	27.2

Source: Adopted from Jones et al (2015)

An examination of the above table shows in a nut shell the precarious situation of tax as an engine of growth in Nigeria. The inability of the Nigerian Governments at various levels to collect tax has hampered their capacity to deliver services to their citizens and residents. As was stated by Fowler, Nigeria's tax to GDP ratio is an abysmal 6%, remains the lowest in Africa, which does not even have a good record in this regard (Fowler, 2016).

Nigeria's revenue structure and economic growth

According to the 1999 constitution, Nigeria operates a democracy based on loose federalism with the central government and 36 federating States. The revenue generating functions of the country is therefore domiciled in the federal government and the States, with some delineated to the Local Government Councils (LGCs) under the purview of the States. Government revenue generation has different jurisdictions with some in the exclusive legislative list of the federal government while others are on the concurrent legislative list. The federal government collects most of the so called juicy revenue heads, some of which is retained exclusively, while some is paid into the distributable pool of the federation account and periodically shared between all the tiers of government (African Development Bank, 2013).

In accordance with the relevant tax statutes, the federal government is responsible for personal income tax (PIT) for personnel of the armed forces, police, foreign affairs and residents of the Federal Capital Territory (FCT), company income tax (CIT), customs and excise duties (CED), value added tax (VAT), petroleum profit tax (PPT) and all other revenues accruing from the extractive industry, including mining, solid minerals, oil and gas. The States are in charge of PIT of their residents and unincorporated bodies, road tax, business premises registration and renewal, development levy, right of occupancy on State land etc, while the LGCs collect rate and fees, such as tenement rate, on and off liquor license, slaughter slap, marriage, birth and death certificates, domestic animal levy, bicycle, wheel barrow, canoe registration, merriment and temporary road closure fee, motor park fees, parking permits etc (Taxes & Levies Act, 1998).

In Nigeria, direct tax is the most common and arguably the most prominent source of revenue to the various tiers of government. These are taxes imposed on the incomes or profits of persons or corporate bodies rather than on services and paid directly by the payer to the imposing authority. Examples of direct taxes in Nigeria includes the PIT, the CIT and the PPT, while the prominent indirect taxes include VAT, import and export duties, road tax etc. Other forms of tax revenue in Nigeria include interest and repayments coming from mining (rents, royalties, income from joint venture projects and miscellaneous incomes). Non-tax revenues are derived from provision of administrative services, commercial receipts for government produced goods and services, fees for educational or health services, etc. Others include grants, donations from on-shore and off-shore sources, usually for specific programmes or projects such as education, health care, road infrastructure etc (Salami, Apelogun, Omidiya, & Ojoye, 2015).

Macroeconomic growth indicators (employment rate and price stability)

While economic growth has been defined as a positive change in the productive capacity in any society over a given period of time, economic development is a more encompassing concept. A country is said to be growing if within the period under review, it has increased its productive capacity as a result of improvement in human capacity, technology and may be some favourable externalities. To determine whether a country is growing or not, analysts observe the country for a period and compute some critical indicators which are used for comparative analysis (Salami et al, 2015). Economic development on the other hand looks at the changes in the human development index (HDI), which was developed by the united nations development programme (UNDP) as a measuring tool to rank countries by their level of development, using health, education and standard of living indices. The health index compares life expectancy within the country as against the global standard, while education index represents literacy rate and general level of school enrollment in relation to other countries. The standard of living index represents the per capita income expressed in US$ at the purchasing power parity rate (UNDP, 2010).

An economic indicator is a part of economic information, usually of macroeconomic scale presented in quantitative form and used by policy makers and analysts to interpret or evaluate an economy. Such indicators could be anything the user chooses, but specific and statistical data like consumer price index, GDP, unemployment figures and the price of important commodities are usually sought after. Indicators could also be used to read future investment and business possibilities in the economy. As key statistics, indicators which can be classified into leading, coincidental and lagging are only useful if interpreted correctly. Even though it is argued that there exist a correlation between economic growth and corporate profit, determining whether a particular company would earn more profit based on one indicator is nearly impossible. Indicators provide signs along the way, but the best investors utilize many indicators, combining them to have insights into future patterns within multiple sets of data (Smith, 2009).

A country's economic conditions are influenced by numerous macro and micro economic factors. Some of these are monetary and fiscal policy, political stability, resource endowments, human capacity utilization, general price levels, foreign exchange rates, the state of the global economy, etc.

Macroeconomic indicators are released by designated government agencies and other specialized private organizations periodically to educate the public about the state of affairs of the economy. They are derived from the performance of an economy and provide an insight on the state and efficiency of the economy. The data are of importance to policy makers, planners and the financial authorities because they provide a guide to where the economy is and where it is headed (Onuorah & Akujuobi, 2013).

Some of the most used macroeconomic indicators include interest rates, employment indicators, gross domestic product, consumer price index, balance of trade and payments, price stability indicator. These indicators are watched closely by interested parties as they help in making informed conjectures of economic conditions and potential changes in them. Investors use indicators to form or adjust their views on economic growth and profitability. It is inferred that improvement in economic conditions would lead investors to be more optimistic about the future and potentially invest more, as they expect positive returns. The opposite could be true if economic conditions worsened (UNDP, 2010).

While all macroeconomic indicators are important, we shall be limiting the discussion in this paper to only employment rate and price stability. The employment rate estimates the proportion of the available labour force that is employed in any country. The rate is the ratio of the employed against the total working population, which are persons within the age bracket of 15 to 64 years. Conversely, unemployment rate, expressed in percentage is the share of the labour force that is unemployed. Price stability, on the other hand studies the behaviour of the general price levels of goods and services in an economy. It is usually a key objective of public policy as erratic price movements over a short term interferes with the efficient operations of the economy and negatively impact on its growth. The policy objective therefore aims at avoiding unwarranted upward price movements as well as undesired downward price movements. Price stability aims at supporting sustainable rates of economic activities and employment as inflation ultimately results in decline in the value of money and purchasing power, while deflation may result in increasing the real value of debt and aggravate recession (National tax Policy, 2013).

Empirical review

The relationship between public revenue in general and tax revenue in particular to economic growth in Nigeria has been of interest to researchers and policy makers. While Ibadin and Oladipupo (2015), Aderemi, Adesina and Sanni (2011) investigated the impact of specific tax revenues on economic growth indicators, others have looked at tax revenue as a whole. Ibadin and Oladipupo (2015) examined the impact of indirect taxes on economic growth in Nigeria between 1981 and 2014. They tested the time series data gathered using Augmented-Dickey Fuller test and found the residuals stationary at first level, while other variables like PPT, VAT and CED except GDP were stationary at second difference. Their conclusion was that VAT, PPT and CED at second-period lag had a positive and significant relationship with GDP while VAT of second-period lag showed a negative but significant relationship. Aderemi et.al (2011) investigated the relationship between VAT and GDP in Nigeria between 1994 and 2008.

They used simple regression and descriptive statistical methods to analyze the ratios between the variables and found a significant and positive relationship between them. Although there was no causality between the variables, a lag period of two years was found to exist.

Tosun and Abizadeh (2005) and Umoru and Anyiwe (2013) also examined the impact of specific tax revenues on economic growth indicators. Tosun and Abizadeh looked at the correlation between economic growth and taxation in the Organization for Economic Cooperation and Development (OECD) countries between 1980 and 1999 and observed that economic growth as measured by per capita income has a significant effect on two tax mix. They reported that CIT and PIT especially responded very significantly to economic growth in the economy. Umoru and Anyiwe (2013) in their study of tax structure and economic growth in Nigeria ascertained that direct taxes which are taxes whose burden cannot be passed to another, were a stimulant to economic growth in Nigeria.

Ihendinihu, Jones, and Ibanichuka, (2014), investigated the nexus between tax revenue and economic growth using autoregressive distributed lag (ARDL) tests for the period 1986 - 2012 and found that tax revenue has a significant effect on economic growth within this period. In their study, they observed that about 73% of variations in GDP in the country was as a direct consequence of variations in tax revenue within the study period. This result was partly in consonance with the result of Worlu and Nkoro (2012), who used the least squares method of analysis in testing their data. Their findings was that for the period under review, tax revenue positively impacted on economic growth through the development of infrastructure, though there was no conclusive evidence that this was independent of other factors.

In the recent years, the issues of unemployment and inflation has continued to be a problem to successive governments. In this study, we shall be examining the effect of tax revenue on these two indicators to see how the fiscal policy could be used in addressing these problems.

3. Research methodology

In order to investigate the association between tax revenue and its effect on selected macroeconomic indicators in Nigeria, this study employs annual time series data for the following sources of tax revenue; namely, personal income tax (PIT), company income tax (CIT), petroleum profit tax (PPT), value added tax (VAT) as independent variables while the selected macroeconomic indicators as dependent variables are employment rate (ER) and price stability (PT) from 1986 to 2015. An autoregressive distributive lag (ARDL) model is adopted to examine the effect of tax revenue on the designated macroeconomic indicators in Nigeria.

Model specification

Guided by the perceived functional relationships between the independent and dependent variables, a connection is forged between the macroeconomic indicators and the tax revenues. The model which seeks to capture the relationship between these variables is specified using two separate equations. The functional relationship and the resultant models are thus specified as;

ER = f (PIT, CIT,PPT,VAT)...1

PT=f(PIT,CIT,PPT,VAT)...2

From the above functional relationships, the stochastic models are stated in its logarithm form as;

Equation 3:

$$\Delta ER_t = \alpha_0 + \sum_{k=1}^{n} \alpha_1 \Delta LogPIT_t + \sum_{k=1}^{n} \alpha_2 \Delta LogCIT_t$$

$$+ \sum_{k=1}^{n} \alpha_3 \Delta LogPPT_t + \sum_{k=1}^{n} \alpha_4 \Delta \log VAT_t + p1$$

$$\Delta LogPIT_{t-k} + p2 \, \Delta LogCIT_{t-k} + p3 \, \Delta LogPPT_{t-k} + p4$$

$$\Delta LogVAT_{t-k} \, e_t$$

Equation 4:

$$\Delta PT_t = \alpha_0 + \sum_{k=1}^{n} \alpha_1 \Delta LogPIT_t + \sum_{k=1}^{n} \alpha_2$$

$$\Delta LogCIT_t + \sum_{k=1}^{n} \alpha_3 \Delta LogPPT_t + \sum_{k=1}^{n} \alpha_4 \Delta \log VAT_t$$

$$+ p1 \, \Delta LogPIT_{t-k} + p2 \, \Delta LogCIT_{t-k} + p3 \, \Delta LogPPT_{t-k} + p4$$

$$\Delta LogVAT_{t-k} \, e_t$$

The F-statistics will be used to observe the long-run relationship between the variables in the model. Hence, the hypotheses stated in the null form is as follows:

$H0: \rho1 = \rho2 = \rho3 = \rho4 = 0$

From the models,

a0 to a4 are the model parameters

e is the stochastic error term

The a priori expectation is that the model parameters are expected to be positive or greater than zero. This implies that a priori, some economic growth is expected when tax revenue is not collected.

4. Empirical presentation and interpretation of findings

TABLE 1A: Unit root test using the Augmented Dickey-Fuller (ADF) statistics.

Variables	At Level	At 1st or 2nd Difference	Order of integration
PT	-3.2540	-5.7680	I(1)
ER	-3.9554	-	I(0)
CIT	-1.4294	-7.1577	I(1)
PIT	-1.8207	-6.3177	I(1)
PPT	-2.4019	-6.0602	I(1)
VAT	-2.4221	-7.5349	I(1)

TEST OF CRITICAL VALUES:

1% = -3.6392

5% = -2.9511

10% = -2.6143

Augmented Dickey-Fuller (ADF) unit root test

The ADF unit root test was used to test for stationarity and to determine the suitability or otherwise of the variables of interest in the model and the absence of the existence of unit root among them. This is because, most time series data are not stationary, hence, it is necessary to conduct unit root test on the data. In order to determine if the data is stationary, the ADF unit root test statistic values must be greater than the Mackinnon critical value at 1%, 5% and 10% levels of significance with the comparison done at absolute (value) terms.

The ADF unit root result was conducted and presented in table 1A. The result of the test showed that only one of the variables of interest (ER) was stationary at all levels. This is so because the test statistic values for the variable (ER) using the ADF unit root test statistics was greater than the critical values at 1%, 5% and 10% levels of significance.

However, when the remaining variables (PT, CIT, PIT, PPT, VAT) were differenced once, they became stationary. This is because the ADF unit root test statistics values were found to be greater than the critical values at 1%, 5% and 10% levels of significance. As a result of the stationarity integration orders (I(0) and I(1)) found in the ADF unit root test, the autoregressive distributive lag model is most suitable to capture the long and short run dynamics of our model. In order to estimate the ARDL model, we started determining the optimal lag order selection criteria. The result as presented in table 2 showed that the Akaike Information Criterion (AIC) and all other information criteria were significant, implying that the optimal lag for this study is four.

TABLE 2: VAR Lag Order Selection Criteria.

Endogenous variables: LER LPT LPIT LCIT LPPT LVAT						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-58.11789	NA	2.22e-06	4.007368	4.282194	4.098465
1	22.55422	126.0502*	1.42e-07	1.215361	3.139140	1.853039
2	49.64545	32.17084	3.19e-07	1.772159	5.344890	2.956418
3	98.07043	39.34529	3.20e-07	0.995598	6.217282	2.726439
4	213.8755	50.66470	1.84e-08*	-3.992216*	2.878421*	-1.714794*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

TABLE 3: ARDL Bounds Test (ER).

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	5.457912	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

TABLE 4: ARDL Bounds Test (PT).

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	5.605694	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

ARDL F-bound test

For employment rate (ER), the F-test through the Wald test (bound test) was conducted to check the joint significance of the coefficients specified in the model. The Wald test was performed by imposing restrictions on the estimated long-run coefficients of determinants (CIT, PIT, PPT, VAT) and ER. The ARDL bound test tabulated lower and upper bound were selected based on 1%, 5% and 10% significance level. The result in table 3 shows that the coefficients of determinant (CIT, PIT, PPT, VAT) are jointly co-integrated with the dependent variable, ER, hence, a long-run relationship exists. The calculated F-statistic is 5.45. (unrestricted intercept and no trend) compared with Pesaran critical value at 5% level of significance is higher than the lower bound (2.45) and the upper bound (5.06).

The value revealed the evidence of long-run co-integration between CIT, PIT, PPT, VAT and ER. Similarly, for price stability (PT), the F-test through the Wald test (bound test) was conducted to check the joint significance of the coefficients specified in the model. The Wald test was performed by imposing restrictions on the estimated long-run coefficients of determinants (CIT, PIT, PPT, VAT) and PT. The ARDL bound test tabulated lower and upper bound were selected based on 1%, 5% and 10% significance levels. The result in table 4 shows that the coefficients of determinant (CIT, PIT, PPT, VAT) are jointly co-integrated with the dependent variable, PT, hence, a long-run relationship exists. The calculated F-statistic is 5.60 (unrestricted intercept and no trend) compared with the Pesaran critical value at 5% level of significance is higher than the lower bound (2.45) and the upper bound (5.06). The value revealed that there is evidence of long-run co-integration between CIT, PIT, PPT, VAT and PT.

ARDL Co-integration and Long run tests

Given the results above, there was need to estimate the long run coefficients, which measures the long run effect of the independent variables on the dependent variable. From the ARDL co-integration tests, the long run estimates are presented and reported in equations 1 and 2.

$$LER = 15.9907 - 33.8129*LPIT + 28.0095*LCIT - 2.7162*LPPT + 2.8621*LVAT \quad (1)$$

$$LPT = 1.3856 - 1.0786*LPIT + 0.6443*LCIT + 0.6389*LPPT - 0.6237*LVAT \quad (2)$$

The results of the long run estimates in equation 1 showed that the independent variables (CIT, PIT, PPT, VAT) had both negative and positive impact on the dependent variable (ER) in the long run. The result also showed a negative and insignificant relationship between (PIT and PPT) and ER in the long run, while a positive but insignificant relationship existed between (CIT and VAT) and ER in the long run.

On the other hand, the results of the long run estimates in equation 2 showed that the independent variables (CIT, PIT, PPT, VAT) had both negative and positive impact on the dependent variable (PT) in the long run. The result showed a negative and insignificant relationship between (PIT and VAT) and PT in the long run, while a positive but insignificant relationship existed between (CIT and PPT) and PT in the long run.

ARDL Short run test

TABLE 5: ARDL Short run test(ER).

Dependent Variable: LER				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LPIT(-3)	0.615679	0.343607	1.791813	0.1109
LCIT(-3)	-1.478351	0.588039	-2.514038	0.0361
LPPT(-4)	0.205517	0.087283	2.354609	0.0463
LVAT(-1)	0.337195	0.176176	1.913967	0.0920
C	0.503032	2.039602	0.246632	0.8114
ECT(-1)	-0.150441	0.181211	-0.830199	0.4305
R-squared	0.967383	Mean dependent var		3.017901
Adjusted R-squared	0.877686	S.D. dependent var		0.374031
S.E. of regression	0.130811	Akaike info criterion		-1.100800
Sum squared resid	0.136892	Schwarz criterion		-0.036874
Log likelihood	40.06241	Hannan-Quinn criter.		-0.753987
F-statistic	10.78506	Durbin-Watson stat		2.191204
Prob. (F-statistic)	0.000871			

An ARDL Short run test was also carried out and the results as presented in tables 5 and 6 showed that the short-run model have a good fit on the data.

This is given by the high value of the R-squared of 0.967 (96.7%) and the adjusted R-squared of 0.877 (87.7%) for model one (with ER as the dependent variable). According to the adjusted R-squared, about 88% of the systematic variations in the employment level in Nigeria have been explained by changes in CIT, PIT, PPT and VAT.

TABLE 6: ARDL Short run test (PT).

Dependent Variable: LPT				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LPIT	-1.765324	0.661339	-2.669318	0.0193
LCIT(-1)	2.344043	0.740199	3.166775	0.0074
LPPT(-3)	-0.950062	0.260680	-3.644552	0.0030
LVAT(-4)	-0.765673	0.215264	-3.556897	0.0035
C	1.989234	0.764951	2.600473	0.0220
ECT(-1)	-0.783583	0.416200	-1.882711	0.0823
R-squared	0.933931	Mean dependent var		2.695439
Adjusted R-squared	0.847533	S.D. dependent var		0.750030
S.E. of regression	0.292864	Akaike info criterion		0.674037
Sum squared resid.	1.115002	Schwarz criterion		1.506674
Log likelihood	7.552434	Hannan-Quinn criter.		0.945456
F-statistic	10.80965	Durbin-Watson stat		1.857971
Prob. (F-statistic)	0.000046			

In the same vein, the result in table 6 showed the goodness of fit given by the high value of R-squared of 0.933 (93.3%) and the adjusted R-squared of 0.847 (84.7%) for model two (with PT as dependent variable). According to the adjusted R-squared, about 85% of the systematic variations in the price stability in Nigeria have been explained by changes in CIT, PIT, PPT and VAT.

Meanwhile, the error correction factor has a negative sign but statistically insignificant against theoretical expectations. The coefficient of the error correction factor for model one (with ER as dependent variable) showed that about 15% of the short-run disequilibrium has been deemed corrected each year. This is rather a very slow speed of adjustment from short-run disequilibrium to long-run equilibrium.

Similarly, the error correction factor has a negative sign but statistically insignificant against theoretical expectations. The coefficient of the error correction factor for model two (with PT as dependent variable) showed that, about 78% of the short-run disequilibrium has been deemed corrected each year. This is rather a very fast but insignificant speed of adjustment from short-run disequilibrium to long-run equilibrium.

Analysis of the short-run estimates showed that changes in the previous three periods of company income tax have a negative but significant impact on the current employment level in Nigeria. The result also revealed that changes in the previous three periods of PIT have a positive but insignificant effect on the current employment level in Nigeria in the short-run. Similarly, variations in the previous four lagged periods of PPT led to a significant positive effect on the current employment level in Nigeria in the short-run, *ceteris paribus*. Finally, the variations in the previous lagged values of VAT led to an insignificant but positive effect on the current employment level in Nigeria in the short-run.

Considering price stability (PT) as the dependent variable, the analysis of the short-run estimates showed that changes in the previous periods of company income tax have a positive and significant impact on the current price stability in Nigeria. The result also revealed that changes in the current value of PIT have a negative but significant effect on the current PT in Nigeria in the short-run. Similarly, the

variations in the previous three lagged periods of PPT led to a significant but negative effect on the current PT level in Nigeria in the short-run, ceteris paribus. Finally, the variations in the previous four lagged values of value added tax will lead to a significant but negative effect on the current price stability level in Nigeria in the short-run.

5. Summary, conclusion and recommendations

In summary, this paper sets out to investigate the extent to which taxation has contributed to public revenue in Nigeria. It also examined the relationship between tax revenue and employment rate and price stability in Nigeria and finally tried to evaluate if tax revenue has been significantly responsible for economic growth in Nigeria. 2 (two) equations were developed to interrogate the relationships between the dependent and independent variables. The study thereafter collated time series data from 1986 to 2015 for the variables studied. An autoregressive distributive lag (ARDL) model was adopted to examine the relationships between the variables. The results of the analysis for the 2 equations were mixed.

From our findings, we could safely conclude that with the overall significant effect of taxation on price stability, and the mixed significant/insignificant effect on employment level in Nigeria, it is clear that the use of taxes seem to favour price stability rather than employment generation in Nigeria. Though insignificant, the speed of adjustment to equilibrium was observed to be very high for price stability while it became very slow for employment rate. This is against the expectations that, as government generate more revenue from taxes, same would be invested appropriately in capital investments or social and economic infrastructure which can stimulate the economy and whose multiplier effect would have generated employment for the teaming population. On whether tax revenue has significantly been responsible for economic growth in Nigeria, the study could not find a water tight case as the proportion of tax to Gross Domestic Product (GDP) remains small and in some cases it has been seen as a disincentive to investment promotion and employment generation. Taxation has therefore remained a potentially significant source of economic growth in the country rather than an actual one.

However, with the findings from this study, the following recommendations are meant to address some of the critical observations and present a way forward:

1. Rather than imposing heavy taxes on companies that increases the cost of doing business and serves as a disincentive to employment creation, government should grant reasonable tax holidays and reduce tax rates for these companies. It should rather enhance the tax net by improving tax administration and collection mechanism to bring in all who are due to pay tax. This will serve as an incentive to new investments and boost employment opportunities in the economy.

2. A greater part (volume) of tax revenue, especially at the federal and state levels should be allocated to prioritized capital projects (social and economic infrastructures), like energy, road and rail infrastructure, educational funding etc in the economy. The effect of this will reduce cost of doing business and improve profits for businesses that could be re-invested in the economy.

3. Government should avoid the issue of double/multiple incidences of tax especially when imposing VAT. While the rate of this tax could be increased, government must watch its cost of implementation and the leakages

4. Government should strive to balance-off the incidences between personal income tax and VAT in order to reduce the tax burden on civil/public workers. These categories of tax payers have been observed to be the only segment that pay accurate PIT as this is removed at source. There should be a way of balancing to cushion the overall effect on the disposable incomes of these category.

5. Finally, as oil revenue continue to dwindle and as oil's imminent collapse approaches, the Nigerian government must begin to pay adequate attention to improving tax administration and collection strategies. This is because taxation is not only a way of redistributing income between the wealthy and not so wealthy, but also the surest means of increasing the public revenue available for the provision of social and economic spending.

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