

DOES TAX REFORM IMPROVE THE STANDARDS OF LIVING? AN AUTOREGRESSIVE DISTRIBUTION LAGS (ARDL) ANALYSIS OF THE NIGERIAN SITUATION

LAWRENCE, U. EGBADJU
Department of Accounting
Federal University Otuoke
Bayelsa State, Nigeria
E-mail: lawuvie@gmail.com

EMMANUEL A. EREMIOKHALE
Bursary Department
Federal University Otuoke
Bayelsa State.

ABSTRACT

This study investigates the impact which tax reform has on the standards of living in Nigeria. Time series secondary data over the period 1985 to 2018 obtained from Statistical bulletin is used. Standards of living, proxied by per capita income, are the regressand while value added tax, petroleum profits tax and customs and excise duties are the regressors. The over results of the Autoregressive Distribution Lags(ARDL) model show tax reform do not improve the standards of living in Nigeria for the period we consider. Specifically, none of the independent variables-PPT, VAT, CIT and CED-statistically influence PCI both on the short run and on the long run on the long run except VAT(-1) which negatively and significantly influences PCI as well as that of CED(-1) which positively and significantly influences PCI, both, only on the short run.

KEYWORDS: Tax Reform, Standards of Living, PPT, VAT, CED.

INTRODUCTION.

Government needs money and much money so as to keep the machinery of governance going. Edewusi and Ajayi (2019) noted the urgency of the tasks of governments, whether in developed or developing countries, to improve the well-beings of their citizenry with respect to electricity, security, health-care, good road, education facilities, et cetera. Since improving the standard of living of its citizens is one major objective of any government, how to generate sufficient revenue to meet the needed infrastructures, social amenities and developmental projects that would spur economic growth should be of paramount concern to any sensible government (Ugochukwu, & Azubike, 2016). Egbadju and Oriavwote (2016) observed that tax revenue, which is as old as any human society and whether direct or indirect, is one major and certain source of funds to any government in this world in addition to other roles which taxation plays in this modern society. Expounding on this, Ebi and Ayodele (2017) argued that government requires money to back its ever-increasing expenditures and that tax constitutes a main source of raising such revenue for the provision of necessary goods and services, security, social amenities that would guarantee a favorable economic and social wellbeing of the society. Khuong, Liem, Thu and Khanh(2020) submitted that company income tax, which is generally seen as an aspect of corporate social responsibility, contributes immensely to economic development and any strategy whatsoever aimed at reducing a company's tax liabilities results in a significant shrink in the government's revenue, and this in turn will affect government's ability to carry out the needed social and/or economic

DOES TAX REFORM IMPROVE THE STANDARDS OF...

functions appropriately. A responsible government would ensure that tax is used to pool together a nation's resources for public infrastructure, research, health care security and safety, schools, courts, parks, safe drinking water, transportation, to mention but a few, and these boost the quality of life of people living in a country (Ironkwe & Agu, 2019). For the determination of the quality of life or standard of living of a people, according to (The World Bank Group, 2004 in Ironkwe & Agu, 2019) depends on their access to education, employment opportunities, security of life and property, clean and clear air, safe drinking water and improved health care delivery systems. In order to create a favourable environment that would promote and guarantee economic growth and prosperity for a nation, a tax system should be an effective and efficient means of harnessing a nation's internal resources. If a tax system falls short of its primary role of revenue mobilization for an improved standard of living and quality of life, that calls for a reform. What then is tax? Bouvier (1856) defined taxes as "all contributions imposed by the government upon individuals for the service of the state, by whatever name they are called or known, whether by the name of tribute, tithe, tillage, impost, duty, gabel, custom, subsidy, aid, supply, excise, or other name." Blackwell (2008) defined tax as "a charge imposed by the government on people and businesses on various activities and possessions, such as income, property, purchased goods, or inheritances, used by the government to fund itself and its programs". National Tax Policy (2012) defined tax as "a monetary charge imposed by the Government on persons, entities, transactions or properties to yield revenue".

As noted earlier, the imposition of tax is as old as mankind itself and the history of pre-colonial Nigeria like the Oyo, the Benin and the Kanem-Bornu empires among others testify to this. Various forms of tax such as the: Owe, Isakole, Owe Ori, Owe Ode, Zakat, jangali, Kudi n Kasa, et cetera were enforced by local rulers and law enforcement agents on their people to carry out developmental programmes in their communities (Nwokoye, & Rolle, n.d.). The established traditional tax systems were reformed and in 1904 and 1906, the existing community taxes were consolidated and codified to form the Land Revenue Proclamation and the Native Revenue Proclamation respectively. It is worthy to note that tax revenue was the only single reason Lord Lugard merged the Southern and Northern protectorates.

There was huge indirect tax revenue from Customs and Excise Duties in the South, but such moneys can never be made available for the North by the law establishing the two protectorates and necessitated the amalgamation. After the amalgamation in 1914, the Native Revenue Ordinance of 1917 was enacted in the North, in the West in 1918 and in the East in 1928. These were again replaced with the Direct Taxation Ordinance of 1940 among other tax laws which governed Africans and Non-African migrants living outside the capital city of Lagos. Following the devolution of power to the regions in 1954, the Eastern region enacted the Finance Law No.1 in 1956, the Western region in 1957 but the Northern region did not until 1962. After Independence, there were various tax practice reformations to better the lots of the people between 1961-1978; between 1979-1991; between 1992-2000 and between 2002-2012 when the National Tax Policy was established. What is a tax reform? It is a deliberate action to change the tax laws with respect to either the tax rate or the tax base so as to better the overall service delivery to the public and improve revenue generation. Tax reform is the process by which changes are made to the way taxes are collected or managed by the government and this is usually done to improve tax administration or to provide economic or social benefits which can include a reduction in the level of tax of all people by the government so that there can be a more progressive or

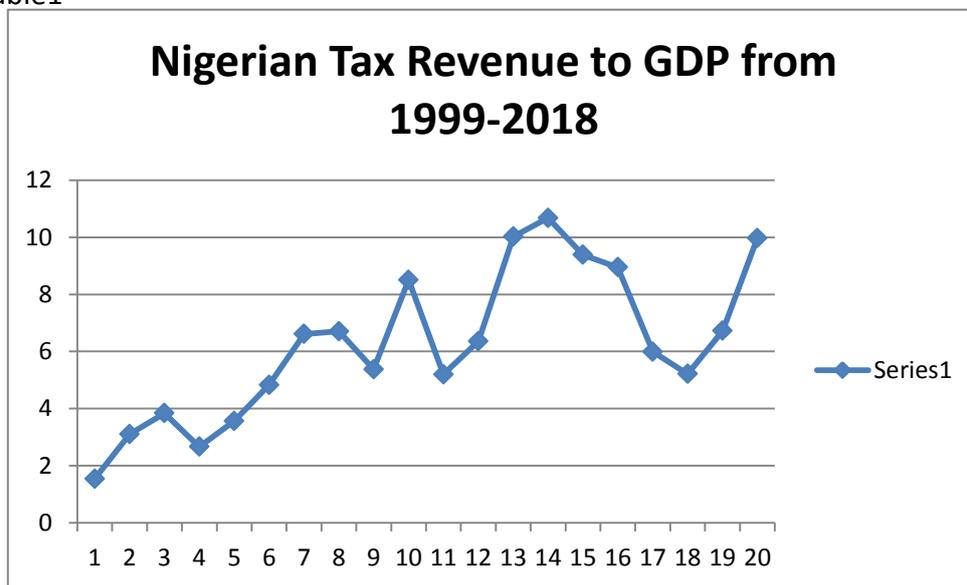
Lawrence U. E. & Emmanuel A. E.

less progressive tax system which is simplified, more understandable or more accountable.(Wikipedia, 2010). A well-structured tax system will minimize tax avoidance and evasion making it more tax payer friendly and easier to administer.

Statement of the problem.

Instability in revenue generation resulting from overdependence on crude oil sales and its attendant shock is a recurring challenge which successive Nigerian governments have not been able to solve. Lip services, over the years, have been paid to diversification of the economy and this has made the country vulnerable to external shocks. In his study, Oduola (2006) opined that in order to promote fiscal sustainability and to safeguard against the volatility of crude oil prices and economic viability at lower tiers of government, tax reforms are needed to diversify the revenue portfolio for the country. Table1 below is a pointer to this unstable revenue caused volatility in crude oil sales.

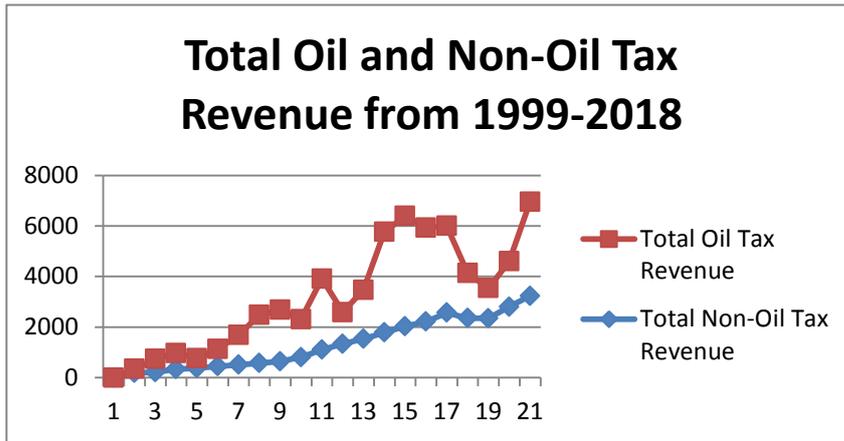
Table1



Oduola (2006) went on to say that the traditional tax revenue from non-oil sources has never assumed its strong role in the management of Nigeria’s fiscal policy and that the need to address this problem led to the tax policy reforms of 1991 and 2003 which did not achieve much. While non-oil tax revenue increases at slow but stable pace, that of oil revenue increases at high but unstable pace as shown in Table2.

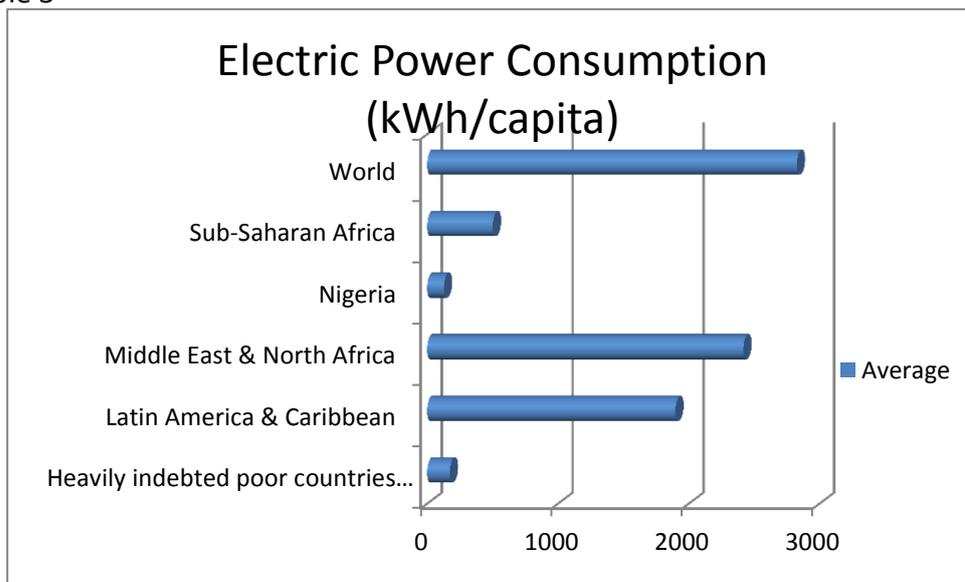
DOES TAX REFORM IMPROVE THE STANDARDS OF...

Table 2.



Taxes accruable to the Nigerian government are from petroleum profits tax, company income tax, value added tax and customs and excise duties. The inability of the government to realised much money from company income tax is due to low investment in the needed infrastructures which led to a very high cost of production. For example, see Table 3 below with respect to electric power consumption.

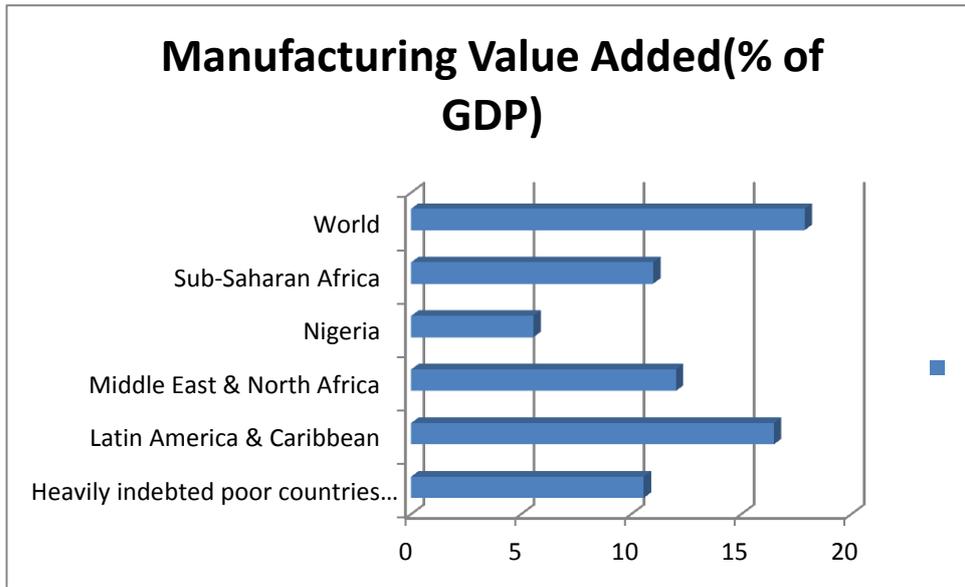
Table 3



Lawrence U. E. & Emmanuel A. E.

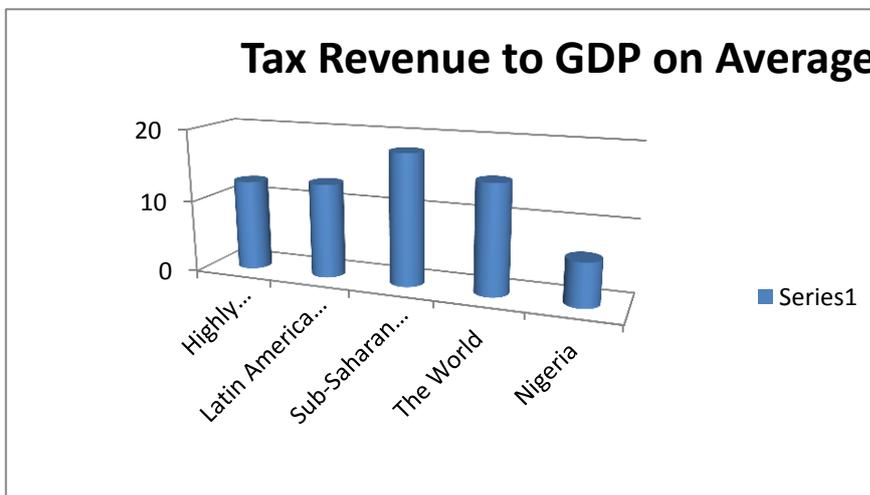
These results in a low manufacturing value added as shown in Table 4 below.

Table 4.



The low tax from low companies' profits as well as other sources of tax is the result of Table 5 below. Nigeria has one of the fastest growing populations in the world as shown in Table 6 below. This is reflected in a low per capita income and the resultant low life expectancy at birth as shown in Table 7 and Table 8 below respectively.

Table 5



DOES TAX REFORM IMPROVE THE STANDARDS OF...

Table6

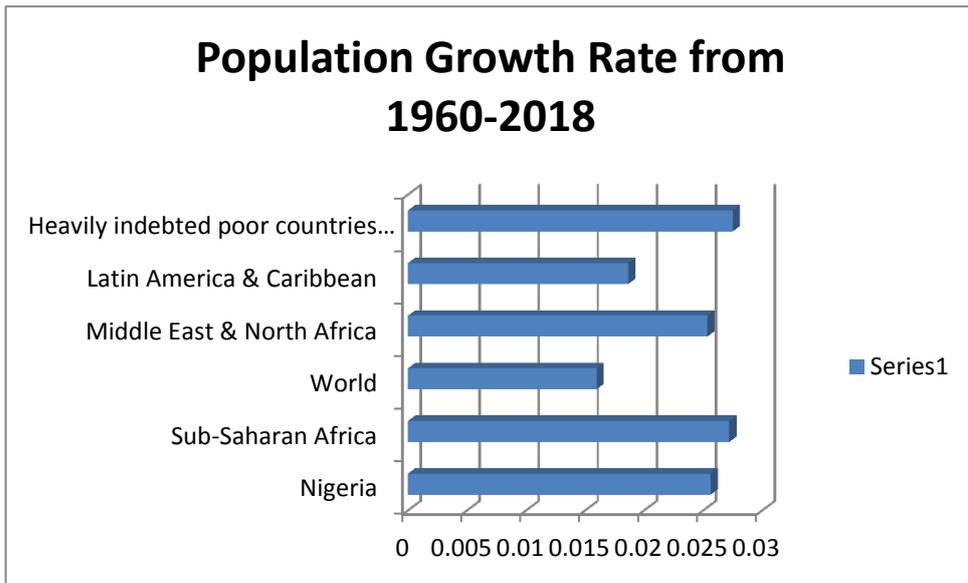


Table 7

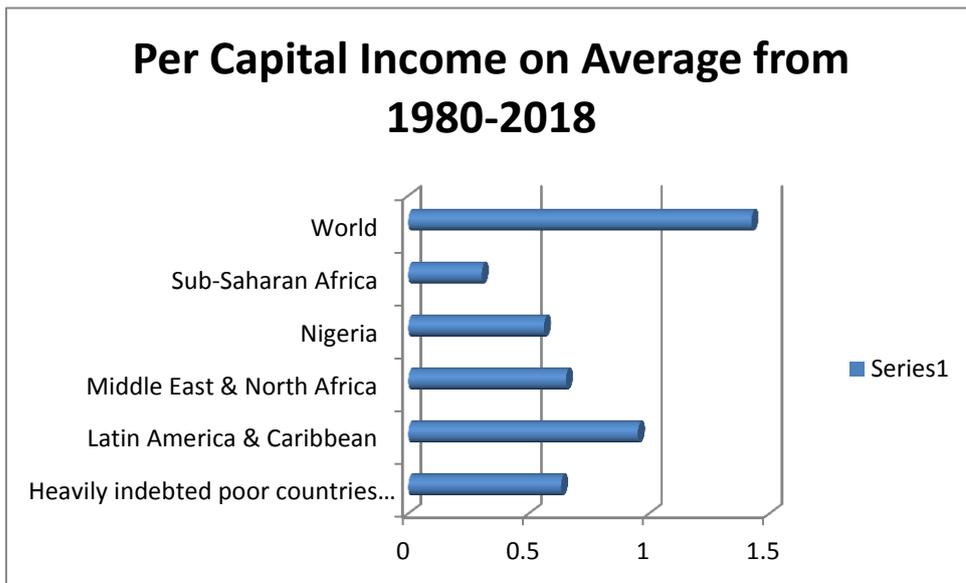
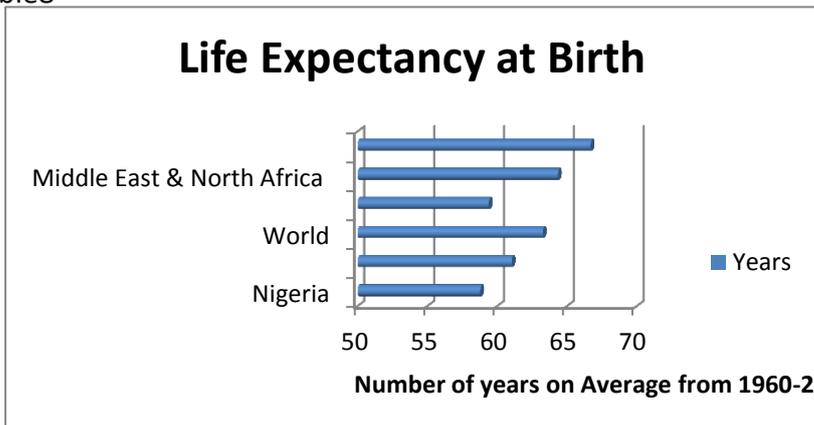


Table8



Several factors have been adduced to making the Nigerian tax system unproductive, among which are: inappropriate tax reforms, a narrow tax base, multiplicity of taxes, corruption among tax officials, unstable petroleum profits and gas taxes, untrained and ill-equipped workforce with modern infrastructure such as IT systems and property registers, high degree of informality, to mention but a few. Uchime and Sunday (2019) noted that the Nigerian tax system had been plagued by both tax evasion and tax avoidance and these combined with high rate of bribery, incompetent tax officials, and corruption in the economy resulted in inevitable level of underdevelopment which is a concomitant of tax evasion and unimplemented proper tax policy.

Theoretical Framework.

Ability to Pay Theory: This theory, developed by the English Economist teacher of Cambridge University-Arthur Cecil Pigou (1877-1959), is regarded as the most equitable and justified basis of imposing taxes on tax payers. Ability to pay means that taxes should be levied based on the capacity of an individual taxpayer. Using this approach, a taxpayer is expected to pay taxes just because he has the capacity to carry his own share of the total tax burden. Thus, if every taxpayer pays in accordance with his ability so as to **meet the cost of government expenditures**, such a system will be seen as just, equitable, fair and ethical basis of taxation. Incomes, ownership of properties and expenditures have been advocated as the bases of measuring 'ability-to-pay' of which income is accepted as the best measurement criterion. That is, Mr. A whose income is higher than that of Mr. B should pay more for the running of the government than Mr. B.

Benefit Received Theory: This theory, which was first developed by Knut Wicksell (1896) and later by Erik Lindahl (1919)-two Economists of the Stockholm School, is premised on the assumption of quid pro quo, that is, in exchange for something. Every taxpayer is expected to contribute his portion of the total tax burden in return for a proportional benefit obtained from the services rendered by government. According to this approach, the benefit received from publicly provided goods and services serves as a standard and a justification for tax payment. Thus those who pay the same amount to the government expenditures coffers enjoy the same amount of benefit while those who enjoy higher level pay higher taxes.

Empirical Review

Anyaduba and Otulugbu (2019) analysed the relationship between taxation and income inequality (GINI). The study used data from the year 1990 to 2016 sourced from the Central Bank of Nigerian Statistical Bulletin, Federal Inland Revenue Service and the National Bureau of Statistics. Value Added Tax (VAT), Custom and Excise Duties (CED), Petroleum Profit Tax (PPT) and Company Income Tax (CIT) were used as the independent variables, while GINI was used as the dependent variable. Data were analysed using Cointegration and Error Correction Models (ECMs). The regression result showed that VAT and CED had positive but insignificant relationship with GINI, while PPT had a significant relationship. It also showed CIT had a negative but significant impact on GINI. Ironkwe and Agu (2019) examined the relationship between total tax revenue and economic growth in Nigeria. The researchers obtained data from 1986 to 2016 collected from Central Bank of Nigeria statistical bulletin, Federal Inland Revenue Service (FIRS) and National Bureau of Statistics (NBS). Unemployment was used as the dependent variable, whereas total tax revenue was used as the independent variable. Multiple regression analysis was used in

DOES TAX REFORM IMPROVE THE STANDARDS OF...

analysing the data with the aid of stata version 13. The regression results revealed that total tax revenue and unemployment in Nigeria had a significant positive relationship. Edewusi and Ajayi (2019) examined the nexus between tax revenue and economic growth in Nigeria. Specifically, the study evaluated the impact of petroleum profit tax on economic growth of Nigeria, assessed the effect of company income tax on economic growth of Nigeria and ascertained the influence of value added tax on the economic growth of Nigeria. The researchers collected data from the statistical bulletins of the CBN and the FIRS. Gross domestic product was used as the dependent variable, whereas petroleum profit tax, company income tax and value added tax were used as independent variable. Data were analysed using the Multiple Regression Analysis, Co-integration and other post estimation tests.

The Multiple Regression Findings indicated a positive significant impact between petroleum profit tax and economic growth, company income tax and economic growth also influences positively and significantly on economic growth while the value added tax was also discovered a noticeable and positive effect on economic growth. Uchime and Sunday (2019) investigated the effect of taxation on domestic investment in Nigeria. The researchers used time series data from 1995 to 2017, sourced from the Central Bank of Nigeria Statistical Bulletin and National Bureau of Statistics. Company income tax, personal income tax, value added tax and gross domestic product were used as independent variable, while domestic investment expenditure was used as the dependent variable. Ordinary Least Square (OLS) Technique was used to analyse the data. The results from OLS showed that taxation and domestic investment in Nigeria had a long run relationship; Personal income tax and gross domestic product had insignificant negative effects on domestic investment in the long run, while company income tax has a significant positive effect on Domestic Investment. Value added tax has a non-significant positive relationship with domestic investment in the long run.

Soetan (2018) examined the effect of tax administration on tax revenue generation in Nigeria. Survey research design was employed and structured questionnaire was developed and used to collect data for this study. One hundred and twenty six (126) participants participated in the study. Tax revenue generation was used as the dependent variable whereas tax administration was used as the independent variable. Descriptive statistics and simple regression statistical techniques were used to analyze the data. The regression result indicated that tax administration does not have significant effect on tax revenue generation in Nigeria. But the descriptive analysis indicated that tax payers are not satisfied with the enlightenment of policy change in the tax administration. Yahaya and Bakare (2018) analysed the effect of petroleum profit tax and companies income tax on economic growth in Nigeria. The researchers used data from 1981 to 2014. Economic growth measured by gross domestic product (GDP) was used as the dependent variable, petroleum profit tax (PPT) and companies income tax (CIT) was used as the independent variables while customs and excise duties was used as the control variable. The data was analysed using Fully Modified Least Square (FMOLS) Regression Technique. The regression result indicated that petroleum profit tax (PPT) and company income tax (CIT) have positive significant impact on gross domestic product (GDP) in Nigeria. Nimenibo, Eyo and Friday (2018) empirically examined tax revenue and economic growth in Nigeria. The researchers obtained data from 1980 to 2015 by employing Gross Domestic Product (GDP) as the dependent variable and Petroleum Profit Tax (PPT), Company Income Tax (CIT) and Customs and Excise Duties (CED) as the independent variables. The study was analysed using the

Lawrence U. E. & Emmanuel A. E.

Multiple Regression Analysis. The result from Cointegration revealed that there was a long-run relationship among the variables. The short run regression result also revealed that there was no significant relationship between Petroleum Profit Tax and Company Income Tax and economic growth in Nigeria.

Also, Custom and Excise Duties was found to have a significant relationship with Economic Growth in Nigeria during the period under study. Eze, Chinyere and Emeka (2018) reevaluated the impact of tax policy on economic growth in Nigeria. The researchers used data from the period of 1981 to 2015. The dependent variable used in the study included real gross domestic product (RGDP), whereas personal income tax (PIT), companies income tax (CIT), government expenditure (GEX), exchange rate (EXCR), broad money supply (MS) and interest rate (INR) were used as independent variables. Auto Regressive Distributed Lag (ARDL) test and Pairwise Granger causality test were employed in the analysis. The ARDL test results indicated evidence of both long run and short run relationships among the variables. It also showed a positive and insignificant impact on personal income tax (PIT) and real GDP, while there exist a negative and significant impact on companies' income tax(CIT) real GDP. The results also revealed that GEX and MS have positive and insignificant impact on real GDP while EXCR and INR have negative and insignificant impact on real GDP. More so, the result of the Pairwise Granger causality test showed that PIT, CIT and MS have unidirectional relationship with real GDP with causality running from PIT, CIT and MS to RGDP. Gwa and Kase (2018) examined the contribution of tax revenue on the economic growth of Nigeria. The researchers used time series from the period from 1997 to 2016, and data was collected from CBN statistical bulletin and Federal Inland Revenue Service. The data was analysed using Ordinary least square of multiple regression models.

Petroleum profit tax (PPT), company income tax(CIT) and Value added tax (VAT) were used as independent variables, while gross domestic product (GDP) was used as dependent variable. The findings from the regression revealed that there were significant contribution of Company Income Tax (CIT) and Value Added Tax (VAT) on the economic growth of Nigeria. The finding also revealed that there was no significant contribution of Petroleum Profit Tax (PPT) on the growth of the Nigeria economy. Herbert, Nwarogu and Nwabueze (2018) investigated the effect of tax reforms on economic stability of Nigeria. The study used data from 2000 to 2015. Gross domestic product (GDP) was used as dependent variable, while Petroleum profit tax (PPT), company income tax (CIT) and Value added tax (VAT) were used as independent variables. The study was analysed using econometric linear model. The result showed VAT reforms had positive relationship on economic stability. Charles, Ekwe and Azubike (2018) examined the relationship between federally collected tax revenues and Nigeria's economic growth rate. The researchers used data from 2000 to 2016 and the data were drawn from annual reports of the Central Bank of Nigeria (CBN) and Federal Inland Revenue Services (FIRS) publication. Gross domestic product (GDP) was used as the dependent variable, whereas PPT, VAT, CED and CIT were used as independent variables. The data analysis was based on the Johansen Co-Integration test. The co-integration result showed that a meaningful long-run relationship exists between Federally Collected Tax Revenue (FTCR) and Gross Domestic Product (GDP) of Nigeria. Specifically, Custom and Excise Duties (CED) and Value-Added Tax (VAT) and Petroleum Profit Tax (PPT) Granger caused growth rate of Gross Domestic Product (GDP). Odhiambo and Olushola (2018) empirically researched on the relationship between taxation and economic growth in a resource rich country, using Nigeria as a case study. The researchers used data from 1986 to 2015. Petroleum profit tax (PPT), Companies income tax (CIT) and Custom Duties were

DOES TAX REFORM IMPROVE THE STANDARDS OF...

used as the independent variables, while Real gross domestic product (RGDP) was used as the dependent variable. Ordinary least square (OLS) estimation technique was employed in analysing the data. The OLS results revealed a significant impact between taxation and Real GDP growth rates. However, the proportion of tax contribution to the growth rate fell short of the optimal level in terms of the volume of economic activities and value of total output.

Ebi and Ayodele (2017) analysed the relationship between tax reforms and tax yield in Nigeria. The study used data between 1981 and 2014. The data was analysed using Error correction mechanism (ECM) technique. The ECM results revealed that: all the tax components were inelastic. There was a general improvement in post-reformed tax elasticity with petroleum profit tax and the total tax revenue, values of tax buoyancies were all positive, with post reform samples buoyancies being greater than that of common samples. Tax reform was further confirmed to improve tax revenues by positive and significant coefficients of the dummies. Popoola, Jimoh and Oladipo (2017) investigated the tax revenue and Nigerian economic growth. The researchers obtained data from 1986 to 2015. Real Gross Domestic Product (RGDP) was used as the dependent variable, whereas oil and non oil tax revenue were used as the independent variables. The study was analysed using descriptive and Paired Sample T-test with the aid of Statistical Package for Social Science (SPSS) Version 23 Statistical tools. The findings showed that, oil and non oil tax revenue and Gross Domestic Product (RGDP) were positive and strongly correlated, and there was significant difference between the effects of oil and non-oil tax revenue oneconomic growth in Nigeria.

Okwara and Amori (2017) examined the impact of tax revenue on the economic growth in Nigeria. The study collected data from the period of 1994 to 2015. The dependent variable used was Gross Domestic Product (GDP), whereas the independent variables included Value Added Tax (VAT) and non-oil income (tax). The data was analysed using Ordinary Least Square (OLS). The results from Ordinary Least Square (OLS) revealed that non-oil income impact on gross domestic product while value added tax had negative relationship and statistically insignificant for the period under review. The study concludes that tax revenue have significant impact on Nigerian economy growth. Madugba and Joseph (2016) examined the relationship between talue added tax and Economic development in Nigeria. The researchers covered eighteen years period between 1994 and 2012. Gross Domestic Product was used as the dependent variable, while Value Added Tax (VAT) and Total Consolidated Revenue (TCR) were used as independent variables. Multiple regression was used to analyse the data. The result of the multiple regression showed that value added tax revenue and Gross domestic product had a negative significant relationship. Also, the result showed a positive significant relationship between Gross domestic product and Total consolidated revenue. Etale and Bingilar (2016) investigated the impact of companies' income tax, value-added tax on economic growth in Nigeria. The study used data from the period 2005 to 2014 from the Statistical Bulletin of the Central Bank of Nigeria (CBN). Gross Domestic Product was used as the dependent variable, whereas company income tax and value-added tax were used as the independent variables. The study employed Ordinary Least Squares (OLS) technique in analyzing the data. The results of the Ordinary Least Squares (OLS) technique showed that there is a significantly positive impact of both company income tax and value-added tax on economic growth. Ojong, Anthony and Arikpo (2016) empirically examined the impact of tax revenue on the Nigerian economy. The study covered the period from 1986 to 2010 and data were sourced from Central Bank Statistical Bulletin and extracted through desk survey method. Petroleum profit tax, company income

Lawrence U. E. & Emmanuel A. E.

tax and non oil revenue were used as independent variables, while gross domestic product was used as the dependent variable. Ordinary least square of multiple regression models was used to analyse the data. The multiple regression result revealed that there was a significant relationship between petroleum profit tax and the growth of the Nigeria economy and between non oil revenue and the growth of the Nigeria economy. Also it revealed that company income tax and the growth of the Nigeria economy had no significant relationship. Peter and Ferdinand (2016) examined tax reforms and revenue trend in Nigeria. The researchers used data from 1981 to 2014. Total federally collected revenue was used as dependent variable, while Petroleum profit tax, Value added tax, Custom and excise duties and Company income tax were used as independent variables. The data collected were analyzed using relevant descriptive statistics and econometric models such as the Augmented Dickey Fuller and Philip-Peron unit root tests, Johansen co-integration test and Engle Granger Causality test. Results showed that most of the time series variables were non-stationary at levels but became stationary after first differencing. It also showed that long-run dynamic trend exists between tax reforms and total federally collected revenue in Nigeria. Results also showed that tax reforms granger-caused total federally collected revenue. Various income taxes and total federally collected revenue had a statistically significant and positive relationship. The coefficient of the Error Correction Model (ECM) had negative and statistically significant relationship.

Ovie and Igwe (2016) investigated the impact of companies' income tax and value added tax on federal government revenue generation in Nigeria. The study used data from the period of 2001 to 2016 and the time series data were sourced from Central Bank of Nigeria Statistical Bulletins and Federal Inland Revenue Service. Total Federally generated revenue was used as the dependent variable, whereas company income tax and value added tax were used as the independent variables. The data were tested using multiple regression, analysis of variance (ANOVA) and Pearson product moment correlation. The results of the multiple regression showed that CIT and VAT contribute positively and significantly to total federally generated revenue in Nigeria. Jones and Ekwueme (2016) empirically assessed the impact of tax reforms on the economic growth of Nigeria. The researchers used data from the period of 1985 to 2011. Gross domestic product was used as the dependent variable, whereas petroleum profit tax, company income tax, customs and excise duties, value added tax, personal income tax, education tax were the independent variables. The result from the multiple regression showed that customs and excise duties, value added tax, personal income tax and education tax had no statistical significant impact on economic growth. Result also showed that Petroleum profit tax and company income tax each had positive significant impact on economic growth. Onakoya and Afintinni (2016) investigated the relationship between taxation and economic growth in Nigeria using data from 1980 to 2013. Gross domestic product was the dependent variable, while petroleum profit tax, company income tax and customs and excise duties were the independent variables. The results revealed a significant positive relationship between petroleum profit tax, company income tax and economic growth, but a negative relationship existed between economic growth and customs and excise duties. Jelilov and Abdulrahman (2016) examined the impact of tax reforms on the economic growth of Nigeria. The researchers used data from 1986 to 2012. Gross domestic product was used as dependent variable, while petroleum profits tax, companies' income tax and value added tax were used as independent variables. The results showed that tax reforms and economic growth were positively and significantly related. Ogbonna and Ebimobwei (2016) investigated the

DOES TAX REFORM IMPROVE THE STANDARDS OF...

impact of tax reforms on the economic growth of Nigeria. The study employed data from 1994 to 2009 and Petroleum Profits Tax, Companies Income Tax, Value Added Tax, Education Tax, Personal Income Tax and Custom and Excise Duties as independent variables, while Gross Domestic Product was used as dependent variable.

The data collected were analysed using relevant descriptive statistics and econometric models such as White test, Ramsey RESET test, Breusch Godfrey test, Jacque Berra test, Augmented Dickey Fuller test, Johansen test, and Granger Causality test. The results from the various test revealed that tax reforms and economic growth were positively and significantly related and that tax reforms granger cause economic growth. Adegbie, Olajumoke and Danjuma (2016) evaluated the assessment of value added tax on the growth and development of Nigeria economy: imperative for reform. The study obtained data from 1994 to 2015. Gross domestic product was used as the dependent variable, while value added tax was used as the independent variable. Findings showed that VAT had a positive relationship with GDP. This shows a perfect positive correlation between VAT and GDP. Asaolu, Dopemu and Monday (2015) assessed the impact of tax reforms on revenue generation in Lagos State of Nigeria. The study used data from the period of 1999 and 2012. Total Revenue Generation was used as dependent variable, whereas Tax Payers and Tax Education and Programmes were used as independent variables. Data collected were analysed using ordinary least square regression techniques (OLS). The result from the ordinary least square techniques revealed that there was a long run relationship between the tax reforms and revenue generated in Lagos State. Thus, the tax reforms had positive and significant effect on the revenue structure of the State.

METHODOLOGY

Data Description

In this study, we shall carry out an empirical investigation to ascertain the extent of the relationship between the dependent variable (pci) and each of the independent variables (vat, ppt, cit, and ced). Annual time series secondary data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin and World Bank's WDI starting from the period 1994 to 2018.

Model Specification

The hypothesized functional long-run relationship of per capita income equation and four other macroeconomic variables, with respect to our variables of interest in this study, is given below as:

$$PCI_t = f(VAT_t, PPT_t, CIT_t, CED_t) \quad (1)$$

where PCI = per capita income (GDP/Population which represents standards of living); VAT = value added tax; PPT= petroleum profits tax; CED = customs and excise duties

By expressing it as double log-linear estimation model, equation (1) above can be re-written as:

$$\log PCI_t = \beta_0 + \beta_1 \log VAT_t + \beta_2 \log PPT_t + \beta_3 \log CIT_t + \beta_4 \log CED_t + \mu_t \quad (2) \quad \text{where: } \beta_0 \text{ is the intercept or constant; } \beta_1, \beta_2, \beta_3 \text{ and } \beta_4 \text{ are the regressors coefficients; log is the logarithm of natural numbers; } \mu_t \text{ is the white noise error term/stochastic disturbance term which is serially uncorrelated disturbance with zero means and constant variance-covariance (Pesaran, 1995); t is the index of time. A priori expected signs of coefficients are } \beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0.$$

Description of Estimation Technique

In estimating both the short-run dynamic and long-run relationship among the variables of interest in this study, we use the autoregressive distribution lag (ARDL) bounds testing approach to cointegration, which was developed by Pesaran and Shin (1999). For decades now, researchers have considered testing for

Lawrence U. E. & Emmanuel A. E.

the existence of cointegration among variables. The two-step residual-based approaches of Engle and Granger (1987); Johansen (1991, 1995) as well as the system-based reduced rank regression procedure of Johansen & Juselius (1990) which considered the null hypotheses of no-cointegration are the two common ones over the years. These and other methods of cointegration testing involve pre-testing for unit roots with the condition that the variables of interest must be integrated of the same order. However, the ARDL approach has an added advantage of yielding normal asymptotically consistent estimates of the long-run coefficients whether or not the underlying regressors are purely I(1), i.e. non-stationary, purely I(0), i.e. stationary or mutually cointegrated (Pesaran & Shin, 1995, 1999; Pesaran, Shin & Smith, 2001). The reason for pre-testing in ARDL bounds testing approach is only to ensure that none of the variables is of the second order, i. e. I(2) for short. The ARDL-based approach is very efficient when compared to other traditional cointegration techniques more importantly it is applicable for small samples (such as the case in our study) and for finite sample sizes. It permits the use of different optimal lag orders for different variables and the use of an appropriate lag length is sufficient to correct for both residual serial correlation and problem of endogeneity bias in variables (Pesaran & Shin, 1999). It allows a single equation to be used to estimate the relationships among variables, both for the long-run and the short-run parameters simultaneously. This single-equation set-up makes it very easy to interpret and implement (Salisu, 2015)

The form of the ARDL (p, q) model is generally written as:

$$Y_t = \alpha_0 + \sum_{i=1}^p Y_{t-i} + \sum_{i=0}^q X_{t-i} + \mu_t \quad (3)$$

where p is the optimum lag order of the dependent variable and q is/are the optimal lag order(s) of the independent variable(s).

The ARDL model of equation (2) above can be represented as:

$$\Delta \log PCI_t = \beta_0 + \beta_1 \log VAT_{t-1} + \beta_2 \log PPT_{t-1} + \beta_3 \log CIT_{t-1} + \beta_4 \log CED_{t-1} + \sum_{i=1}^p \pi_1 \Delta \log PCI_{t-1} + \sum_{i=1}^q \pi_2 \Delta \log VAT_{t-1} + \sum_{i=1}^q \pi_3 \Delta \log PPT_{t-1} + \sum_{i=1}^q \pi_4 \Delta \log CIT_{t-1} + \sum_{i=1}^q \pi_5 \Delta \log CED_{t-1} + \mu_t \quad (4)$$

where β_1 to β_4 are the long-run multipliers of the regressors, π_1 to π_5 are the short-run dynamic coefficients of the regressors. Δ is the first order difference operator.

We shall first estimate Equation 4 above to obtain the short-run regression output in order to establish that a long-run relationship exists among the variables considered. Secondly, we shall perform a joint significance test using the bounds testing to cointegration technique. The null hypothesis of there is no cointegration is $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$ against the alternate hypothesis of there is cointegration is $H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$. Two sets of asymptotic critical values which are the I(0) and the I(1) bounds are provided by Pesaran, Shin and Smith (2001). Of these two polar cases, they assumed that all the regressors/forcing variable (x_t) are either on the one hand, purely I(0) or, on the other hand, purely I(1). We then decide if a long-run relationship exists among the variables or not by comparing the Wald test(F-statistic) with the asymptotic critical I(0), I(1) values. If the F-statistic is higher than the I(1) bound, we reject the null hypothesis of no cointegration and accept the alternate hypothesis that there is cointegration. However, if the F-statistic is lower than the I(0) bound, we would not fail to reject the null hypothesis of no cointegration. If the F-statistic is between the I(0) and I(1) bound, the result is inconclusive. Finally, we go ahead and estimate the error correction version of the ARDL model in Equation 5 once we have established that there is cointegration among the variables of interest,

$$\Delta \log PCI_t = \pi_0 + \sum_{i=1}^p \pi_1 \Delta \log PCI_{t-1} + \sum_{i=1}^q \pi_2 \Delta \log VAT_{t-1} + \sum_{i=1}^q \pi_3 \Delta \log PPT_{t-1} + \sum_{i=1}^q \pi_4 \Delta \log CIT_{t-1} + \sum_{i=1}^q \pi_5 \Delta \log CED_{t-1} + \gamma ECT_{t-1} + \mu_t \quad (5)$$

where π_1 to π_5 are the short-run dynamics coefficients of the model's adjustment long-run equilibrium. γ is the speed of adjustment parameter which is always negative in most cases

DOES TAX REFORM IMPROVE THE STANDARDS OF...

but could be zero. At -1 , γ signifies an instantaneous and perfect convergence to equilibrium while at 0 means that there is no convergence to equilibrium after the process had a shock. ECT_{t-1} is the error correction term/ equilibrium correction term which is the extracted residuals from the regression of the long-run model, i. e., equation 5, forming the ARDL-ECM model. Other residual diagnostic tests to be carried out are as follows: serial correlation LM test, normality test and heteroscedasticity for the ARDL model goodness of fit. To test for model stability diagnostics tests, the cumulative sum (CUSUM) test and the cumulative sum of squares test (CUSUMSQ) of the recursive residuals will be used. This ensures that, within the 5 percent critical bounds, there is no structural break/instability or model misspecification.

DATA ANALYSIS AND DISCUSSION OF RESULTS

Unit Roots Tests. It is neither a compulsory nor a necessary condition for pre-testing before the application of the ARDL bounds testing approach for stationarity of the variables. We do this, however, in order to forestall an exercise in futility when it is later discovered that $I(2)$ variables are included (Nkoro & Uko, 2016). Table 1 below shows the results of the tests statistics and their p-values in brackets.

Both the Augmented Dickey Fuller (ADF) unit root tests and the Phillips Perron (PP) unit root tests are consistent in the choice of $\log(\text{vat})$, $\log(\text{cit})$, $\log(\text{ced})$ and $\log(\text{ppt})$, the independent variables, as either $I(1)$ or $I(0)$. They only differ in the choice of $\log(\text{pci})$, the dependent variable. Although the ADF and the PP are commonly used to test for unit roots, the ADF test which is very simple to construct can achieve a better and more reliable results than others (Arltová & Fedorova, 2016). We, therefore, applied the ADF, for it is generally considered to be superior because of its popularity and widespread applicability (Nkoro & Uko, 2016). We can go ahead with the ARDL method of estimation for as much as none of the variables of interest is $I(2)$ which would have invalidated the ARDL model assumption of all variables either be a $I(0)$, a $I(1)$ or a combination of both $I(0)$ and $I(1)$.

Table1:

PP- Unit Roots Tests (5% is the preferred benchmark for significance level compared to 1% or 10%)							
Levels				First Difference			
Variable s/ Models	Intercept	Trend and Intercept	Order of Integration I(d)	Intercept	Trend and Intercept	Order of Integration I(d)	Final Decision I(d)
Log(PCI)	-3.021381(0.0471)	-1.758540(0.6928)	I(0)	-4.895459(0.0007)	-4.999922(0.0029)	I(1)	I(0)
Log(VAT)	-3.950387(0.0062)	-3.368071(0.0796)	I(0)	-6.539349(0.0000)	-6.730565(0.0001)	I(1)	I(0)
Log(CIT)	-2.451362(0.1393)	-0.956493(0.9318)	Not	-5.287153(0.0003)	-5.562842(0.0009)	I(1)	I(1)
Log(CED)	-3.738029(0.0100)	-4.068272(0.0199)	I(0)	-5.973686(0.0001)	-7.723662(0.0000)	I(1)	I(0)
Log(PPT)	-1.988632(0.2894)	-1.551016(0.7821)	Not	-4.069348(0.0049)	-5.273136(0.0016)	I(1)	I(1)
ADF- Unit Roots Tests (5% is the preferred benchmark for significance level compared to 1% or 10%)							
Levels				First Difference			
Variable s/ Models	Intercept	Trend and Intercept	Order of Integration I(d)	Intercept	Trend and Intercept	Order of Integration I(d)	Final Decision I(d)
Log(PCI)	-1.319814(0.6015)	-0.078146(0.9918)	Not	-3.235691(0.0313)	-5.161489(0.0020)	I(1)	I(1)
Log(VAT)	-3.950387(0.0062)	-3.628387(0.0484)	I(0)	-7.119332(0.0000)	-4.412203(0.0112)	I(1)	I(0)
Log(CIT)	-2.157888(0.2256)	-0.951716(0.9325)	Not	-5.371791(0.0002)	-5.562842(0.0009)	I(1)	I(1)
Log(CED)	-3.184797(0.0336)	-4.068272(0.0199)	I(0)	-5.585235(0.0001)	-5.778150(0.0005)	I(1)	I(0)
Log(PPT)	-1.677151(0.4295)	-1.651315(0.7411)	Not	-4.136772(0.0042)	-4.271494(0.0135)	I(1)	I(1)

Source: Author's Computation Using Eviews 10+

Lag Length Selection.

It is very necessary that selecting an appropriate or true lag length is essential in the estimation of a parsimonious model. The Akaike Information Criterion (AIC), the Schwarz-Bayesian Information Criterion (SBIC) as well as the Hannan-Quinn Criterion (HQC) are some of the most commonly used information criteria. Ayalew, Babu and Rao (2012) hinted that selecting a lag length which is lesser than the true lag length under-estimate the true lag length and picking a lag length which is higher than the true lag length overestimates the lag length. Too few lags lead to autocorrelated errors while too many lags lead to an increase in mean-square forecast errors due to over-fitting (Lütkepohl, 1993, 2005).

DOES TAX REFORM IMPROVE THE STANDARDS OF...

For individual variable choice of lag length, all the information criteria were consistent in the choice of lag1 for log(pci), log(ppt), log(cit) and log(ced) except for log(vat) where SBIC choose lag1 but AIC chose lag2. For collective choice of lag length, all the information criteria unanimously selected Lag1 for log(pci) log(ppt) log(vat) log(cit) log(ced). Therefore, we use the AIC which is the default criteria as shown in Table 2 below.

Table 2. VAR Lag Order Selection Criteria

Endogenous variables: LOG(PCI) LOG(PPT) LOG(VAT) LOG(CIT)

LOG(CED)

Exogenous variables: C

Date: 11/12/19 Time: 08:55

Sample: 1994 2018

Included observations: 24

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-6.503157	NA	1.79e-06	0.958596	1.204024	1.023709
		140.9443		-	-	-
1	87.45973	*	6.05e-09*	4.788311*	3.315744*	4.397639*

* indicates lag order selected by the criterion. Source: Author’s Computation Using Eviews 10+

ARDL Approach to Cointegration Testing

There are two steps to estimating a cointegration test using the ARDL approach. The first step is to estimate the Traditional ARDL model where only the results of the short-run dynamics are estimated as shown in Table 3 below.

Table 3. Dependent Variable: LOG(PCI)

Method: ARDL

Date: 11/12/19 Time: 09:35

Sample (adjusted): 1995 2018

Included observations: 24 after adjustments

Maximum dependent lags: 1 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (1 lag, automatic): LOG(PPT) LOG(VAT)

LOG(CIT)

LOG(CED)

Fixed regressors: C

Number of models evaluated: 16

Selected Model: ARDL(1, 0, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOG(PCI(-1))	0.705635	0.157175	4.489485	0.0004
LOG(PPT)	0.044247	0.028769	1.538028	0.1449

Lawrence U. E. & Emmanuel A. E.

LOG(VAT)	0.357977	0.217601	1.645110	0.1207
LOG(VAT(-1))	-0.510910	0.147177	-3.471409	0.0034
LOG(CIT)	0.017862	0.149387	0.119572	0.9064
LOG(CIT(-1))	0.221037	0.133844	1.651448	0.1194
LOG(CED)	-0.158196	0.113067	-1.399131	0.1821
LOG(CED(-1))	0.256404	0.108083	2.372287	0.0315
C	0.755985	0.668672	1.130577	0.2760

R-squared	0.997493	Mean dependent var	12.04781
Adjusted R-squared	0.996156	S.D. dependent var	1.046072
S.E. of regression	0.064853	Akaike info criterion	-2.353392
Sum squared resid	0.063089	Schwarz criterion	-1.911621
Log likelihood	37.24070	Hannan-Quinn criter.	-2.236190
F-statistic	746.1249	Durbin-Watson stat	2.262474
Prob(F-statistic)	0.000000		

Source: Author's Computation Using Eviews 10+

In reading a regression result, a value of at least 2 for the t-statistic or at least 0.05 for the p-value is considered statistically significant. From Table 3 above, the results revealed that the impact of PPT, VAT, CIT and its lag 1, i. e. (CIT(-1)) as well as CED on the standards of living proxied by PCI are statistically insignificant in the short run in the period under review. However, while VAT(-1) impact on PCI was negatively significant, that of CED(-1) was positive and significant, all in the short run. Note that the above result is the only one that should be reported if there is no cointegration among the variables.

The second step is to estimate the long run and bounds tests where we obtain the results of the F-statistic and long run estimates. We then compare the F-statistic value with the I(0) and I(1) sets of asymptotic critical values as shown in Table 4 below.

Table 4. F-Bounds Test Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	3.636554	10%	2.2	3.09
K	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Since the F-statistic, 3.636554, in Table 4 above is higher than the I(1) bound at 5%, we reject the null hypothesis of no cointegration and accept the alternate hypothesis that there is cointegration among the variables. Accompanying the F-Bounds test is the results of the long run estimates in Table 5 below.

Table 5

Levels Equation

DOES TAX REFORM IMPROVE THE STANDARDS OF...

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(PPT)	0.150315	0.134929	1.114027	0.2828
LOG(VAT)	-0.519536	0.914273	-0.568250	0.5783
LOG(CIT)	0.811575	0.545021	1.489072	0.1572
LOG(CED)	0.333628	0.433729	0.769209	0.4537
C	2.568188	1.632937	1.572741	0.1366

As discussed under the results of the short run estimates, a value of at least 2 for the t-statistic or at least 0.05 for the p-value is considered statistically significant. From Table 5 above, none of the independent variables-PPT, VAT, CIT and CED-statistically influenced PCI, the standard of Nigerians' living on the long run.

Estimation of the Error Correction Model

The ECM specification is a combination of the short run equation and the long run representation. In this study, the most important result we are interested in is the error correction term, $CointEq(-1)^*$. It is expected to have a negative sign and to be significant.

Table 6. ARDL Error Correction Regression Dependent

Dependent Variable: DLOG(PCI)

Selected Model: ARDL(1, 0, 1, 1, 1)

Case 2: Restricted Constant and No Trend

Date: 11/12/19 Time: 18:29

Sample: 1994 2018

Included observations: 24

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(VAT)	0.357977	0.107007	3.345351	0.0044
DLOG(CIT)	0.017862	0.088377	0.202117	0.8425
DLOG(CED)	-0.158196	0.081804	-1.933841	0.0722
CointEq(-1)*	-0.294365	0.054575	-5.393740	0.0001
R-squared	0.781174	Mean dependent var		0.152695
Adjusted R-squared	0.748350	S.D. dependent var		0.111960
S.E. of regression	0.056164	Akaike info criterion		-2.770058
Sum squared resid	0.063089	Schwarz criterion		-2.573716
Log likelihood	37.24070	Hannan-Quinn criter.		-2.717969
Durbin-Watson stat	2.262474			

Source: Author's Computation Using Eviews 10+

Lawrence U. E. & Emmanuel A. E.

As we can see from Table 6 above, CointEq(-0.294365) is negative and its t-statistic (-5.393740) is significant at the 1% level ($p = 0.0001$). CointEq(-0.294365) is called the Speed of Adjustment. This shows that the reversion to equilibrium is at an adjustment speed of 29.44%. That is, the previous period deviation from equilibrium is corrected in the correct period by an adjustment speed of 29.44%. Again, it tells us that about 29.44% of departure from long-run equilibrium is corrected each period.

Granger Causality Test.

When the results of the short run regression (t-statistic), the long run regression (t-statistic) as well as the error correction term, ECM_{t-1} are statistically significant, it is an indication that a long-run causality runs from all the regressors, independent/explanatory variables, towards the target/ dependent variable (Ahmed, Muzib and Roy, 2013). They do not, however, tell us the direction of causality. Thus, we run the Granger causality test to know if there is independent causality (No causality between the variables), unidirectional causality (One variable granger causes the other variable) or bidirectional causality (Both variables granger cause each other). From our result in Table 7 below, there is no bi-directional relationship between the variables. However, there exist a unidirectional causality between PCI and VAT; between PCI and CED; between CIT and VAT; between VAT and CED; and between CIT and CED. All other relationship is independent. That is, no causality between the variables.

Table 7. Pairwise Granger Causality Tests

Date: 11/12/19 Time: 18:44

Sample: 1994 2018

Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
LOG(PPT) does not Granger Cause LOG(PCI)	24	1.96951	0.1751
LOG(PCI) does not Granger Cause LOG(PPT)		1.20561	0.2846
LOG(VAT) does not Granger Cause LOG(PCI)	24	0.93673	0.3441
LOG(PCI) does not Granger Cause LOG(VAT)		11.1222	0.0031
LOG(CIT) does not Granger Cause LOG(PCI)	24	3.02121	0.0968
LOG(PCI) does not Granger Cause LOG(CIT)		1.34266	0.2596
LOG(CED) does not Granger Cause LOG(PCI)	24	0.02384	0.8788
LOG(PCI) does not Granger Cause LOG(CED)		5.59621	0.0277
LOG(VAT) does not Granger Cause LOG(PPT)	24	1.92375	0.1800
LOG(PPT) does not Granger Cause LOG(VAT)		1.49122	0.2356
LOG(CIT) does not Granger Cause LOG(PPT)	24	1.10420	0.3053
LOG(PPT) does not Granger Cause LOG(CIT)		2.45513	0.1321
LOG(CED) does not Granger Cause LOG(PPT)	24	1.99910	0.1720
LOG(PPT) does not Granger Cause LOG(CED)		0.79753	0.3820
LOG(CIT) does not Granger Cause LOG(VAT)	24	18.4164	0.0003
LOG(VAT) does not Granger Cause LOG(CIT)		0.00908	0.9250

DOES TAX REFORM IMPROVE THE STANDARDS OF...

LOG(CED) does not Granger Cause LOG(VAT)	24	2.21596	0.1515
LOG(VAT) does not Granger Cause LOG(CED)		5.74618	0.0259
LOG(CED) does not Granger Cause LOG(CIT)	24	0.02985	0.8645
LOG(CIT) does not Granger Cause LOG(CED)		9.21833	0.0063

Source: Author's Computation Using Eviews 10+
Model Diagnostics and Stability Tests

The results from Appendix Table 8 and Table 9 show that there is no serial correlation and no problem of heteroskedasticity since their p-values are clearly higher than 0.05. Since the p-value of the Jarque-Bera statistic is higher than 0.05 as shown in Table 10, the model is normally distributed. With respect to stability, the model is very stable since the results from Table 11 and Table 12 are within the 5% boundary.

CONCLUSION AND RECOMMENDATIONS

This study examines the impact which increased revenue generated from PPT, VAT, CIT and CED as a result of tax reforms have on the standard of living in Nigeria. The results of the autoregressive distribution lag (ARDL) model revealed that the impact of PPT, VAT, CIT and its lag 1, i. e. (CIT(-1)) as well as CED on the standards of living proxied by PCI are statistically insignificant in both the short run and in the long run over the period under review. However, while VAT(-1) impact on PCI was negatively significant, that of CED(-1) was positive and significant, only in the short run.

REFERENCE

- Adegbe, F. F., Olajumoke, J. & Danjuma, K. J. (2016). Assessment of value added tax on the growth and development of Nigeria economy: imperative for reform. *Accounting and Finance Research*, 5 (4).
- Ahmed, M. U., Muzib, M, & Roy, A. (2013). Price-Wage Spiral in Bangladesh: Evidence from ARDL Bound Testing Approach. *International Journal of Applied Economics*,10(2), 77-103.
- Anyaduba, J. O. & Otulugbu, P. O. (2019). Taxation and income inequality in Nigeria. *Accounting and Finance Research*. 8(3)
- Arltová, M. and Fedorova, D. (2016). Selection of Unit Root Test on the Basis of Length of the Time Series and Value of AR(1) Parameter. *STATISTIKA* 96 (3)
- Asaolu, T. O., Dopemu, S.O. & Monday, J. U. (2015). Impact of tax reforms on revenue generation in Lagos state: a time series approach. *Research Journal of Finance and Accounting*, 6 (8).
- Ayalew, S., Babu, M. C. & Rao, L. K. M. (2012). Comparison of New Approach Criteria for Estimating the Order of Autoregressive Process. *IOSR Journal of Mathematics (IOSRJM)* 1(3) 10-20
- Blackwell, H.A. (2008). *The Essential Law Dictionary*". Sphinx® Publishing, An imprint of Sourcebooks, Inc.® Naperville, Illinois, USA
- Bouvier, J. (1856). "A Law Dictionary" Adapted to the Constitution and Laws of the United States of America and of the Several States of the American Union Revised Sixth Edition, 1856.
- Charles, U. J., Ekwe, M. C. & Azubike, J. U. B. (2018). Federally collected tax revenue and economic growth of Nigeria: a time series analysis. *International Accounting and Taxation Research Group, Faculty of Management Science*.

Lawrence U. E. & Emmanuel A. E.

- Ebi, B. O. & Ayodele, O. (2017). Tax reforms and tax yield in Nigeria. *International Journal of Economics and Financial Issues*, 7(3), 768-778.
- Edewusi, D. G. & Ajayi, I. E. (2019). The Nexus between Tax Revenue and Economic Growth in Nigeria. *International Journal of Applied Economics, Finance and Accounting*, 4 (2).
- Egbadju, L. U. & Oriavwote, V. E. (2016). Value added tax and macroeconomic performance: A dynamic modeling of the Nigerian experience. *European Journal of Business and Management*, 8(17), 49-59.
- Etale, L. M. & Bingilar, P. F. (2016). The impact of company income tax and value-added tax on economic growth: evidence from Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 4 (7), 106 - 112.
- Eze, O. M., Chinyere, U. C. & Emeka, A. (2018). Re-Evaluation of the economic impact of tax policy on the growth of Nigerian economy. *IOSR Journal of Economics and Finance*, 9(2), 61 – 74.
- Gwa, D. P. & Kase, J. (2018). The contribution of tax revenue on the economic growth of Nigeria. *International Journal of Inflation & Good Governance Quagmire in Africa*, 10(4,5), 48 – 59.
- Herbert, W. E., Nwarogu, I. A. & Nwabueze, C. C. (2018). Tax reforms and Nigeria's economic stability. *International Journal of Applied Economics, Finance and Accounting*, 3 (2), 74 -87.
- Ironkwe, U. I. & Agu, E. O. (2019). Tax revenue and economic development in Nigeria. *International Journal of Advanced Academic Research*, 5(4).
- Jelilov, G., Abdulrahman, S. & Isik, A. (2016). The impact of tax reforms and economic growth of Nigeria. *The Empirical Economics Letters*, 15 (5).
- Johansen, S. & Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration with Application to the Demand for Money. *Oxford Bulletin of Economics and Statistics* 52, 169 – 210.
- Johansen, S. (1991). Estimation and Hypothesis Testing of Cointegrating Vector in Gaussian Vector Autoregressive Models. *Econometrica*, 59, 1551-1580.
- Johansen, S. (1995). Likelihood-based Inference in Cointegrated Vector Autoregressive Models. *Oxford University Press: Oxford*.
- Jones, E. & Ekwueme, D. C. (2016). Assessment of the impact of tax reforms on economic growth in Nigeria. *Journal of Accounting and Financial Management*, 2 (2).
- Khuong, N. V., Liem, N. T., Thu, P. A. & Khanh, T. H. T. (2020). Does corporate tax avoidance explain firm performance? Evidence from an emerging economy. *Cogent Business & Management* (Taylor & Francis.), 7, 1-17.
- Lütkepohl, H. (1993). Introduction to Multiple Time Series Analysis. Second Edition. Berlin, Springer-Verlag.
- Lütkepohl, H. (2005). New introduction to multiple time series analysis. Berlin, Germany: Springer Berlin Heidelberg.
- Madugba, J. U. & Joseph, U. B. A. (2016). Value added tax and economic development in Nigeria. *International Journal of Development and Economic Sustainability*, 4 (3), 1 – 10.
- National Tax Policy (2012). Downloaded from: [http:// admin.theiguides.org](http://admin.theiguides.org) › Documents › national tax policy
- Nimenibo, S, W. A., Eyo, M. J. & Friday, H. C. (2018). An Empirical analysis of tax revenue and economic growth in Nigeria. *Global Journal of Human-Social Science*, 18 (3).

DOES TAX REFORM IMPROVE THE STANDARDS OF...

- Nwokoye, G. A. & Rolle, R. A. (n.d.) Tax Reforms and Investment in Nigeria: An Empirical Examination . (n. p.)
- Odhiambo, O. & Olushola, O. (2018). Taxation and economic growth in a resource-rich country: the case of Nigeria.
- Odusola, A. (2006). Tax policy reforms in Nigeria” World Institute for Development Economics Research, 2006/03
- Ogbonna, G. N. & Ebimobowei, A. (2016). Impact of tax reforms and economic growth of Nigeria: A time series analysis. *Current Research Journal of Social Sciences*, 4 (1), 62 - 68.
- Ojong, C. M., Anthony, O. & Arikpo, O. F. (2016). The impact of tax revenue on economic growth: evidence from Nigeria. *IOSR Journal of Economics and Finance*, 7 (1), 32 – 38.
- Okwara, C. C. & Amori, O. M. (2017). Impact of tax revenue on economic growth in Nigeria. *International Journal of Scientific Research in Social Sciences & Management Studies*, 2 (2).
- Onakoya, A. B. & Afintinni, O. I. (2016). Taxation and economic growth in Nigeria. *Asian Journal of Economic Modelling*, 4 (4), 199 – 210.
- Ovie, O. & Igwe, M. N. (2016). Impact of companies’ income tax and value added tax on revenue generation in Nigeria. *FUNAI Journal of Humanities and Social Sciences*, 2 (2), 44 – 59.
- Pesaran, M. H. & Shin, Y. (1995). An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis. Retrieved from <https://www.researchgate.net/publication/4800254>
- Pesaran, M. H. & Shin, Y. (1999). An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis. In *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium*, Cambridge University Press, Cambridge.
- Pesaran, M. H., Shin, Y. and Smith, R.J. (2001). Bounds Testing Approaches to the analysis of levels relationships. *Journal of Applied Econometrics*, 16, 289-326.
- Pesaran, M. H. (1995). Planning and macroeconomic stabilisation in Iran, *DAE Working Papers Amalgamated Series No. 9508*, Department of Applied Economics, Cambridge University, Cambridge.
- Peter. A. O. & Ferdinand. I. O. (2016). Tax Reforms and Revenue Trend in Nigeria: The Dyadic Interact. *Research Journal of Finance and Accounting*, 7 (19).
- Popoola, A. A., Jimoh, I. & Oladipo, A. A. (2017). Tax revenue and Nigerian economic growth. *European Journal of Accounting, Auditing and Finance Research*, 5 (11), 75-85.
- Salisu, A. A. (2015) Econometrics for researchers, Module IV. *Centre for Econometrics and Allied Research*.
- Soetan, T. A. (2018). Tax administration and tax revenue generation in Nigeria: Taxpayers Perspective. *International Journal of Latest Engineering and Management Research*, 2 (10). 38 – 47.
- Uchime, H. N. & Sunday, A. A. (2019). Effect of taxation on domestic investment in Nigeria. *International Journal of Economics, Business and Management Studies*, 6(1), 96 – 104.
- Ugochukwu, M. J. & Azubike, J. U. B. (2016). Value added tax and economic development in Nigeria. *European Centrs for Research, Training and Development*. 4(3) 1-10
- Wikipedia (2010) https://en.wikipedia.org/wiki/Tax_reform

Lawrence U. E. & Emmanuel A. E.

Yahaya, K. A. & Bakare, T. O. (2018). Effect of petroleum profit tax and companies income tax on economic growth in Nigeria. *Journal of Public Administration, Finance and Law*.

Appendix

Table 8. Breusch-Godfrey Serial Correlation LM Test:

Null hypothesis: No serial correlation at up to 2 lags

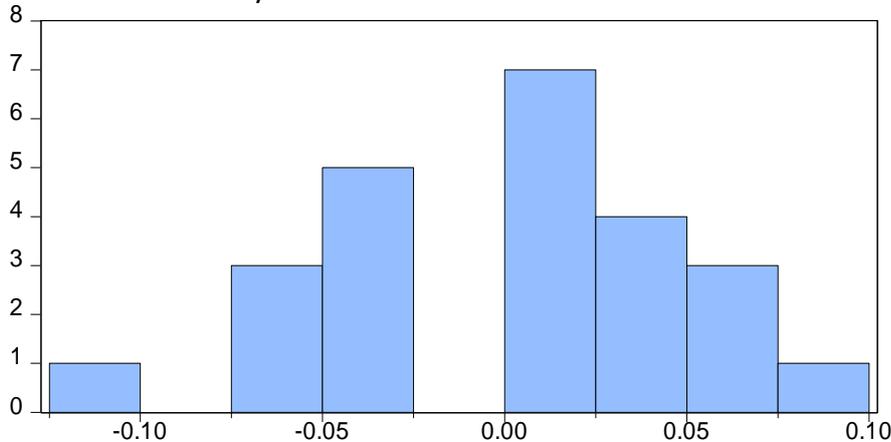
F-statistic	0.376181	Prob. F(2,13)	0.6937
Obs*R-squared	1.312989	Prob. Chi-Square(2)	0.5187

Table 9. Heteroskedasticity Test: Breusch-Pagan-Godfrey

Null hypothesis: Homoskedasticity

F-statistic	3.113300	Prob. F(8,15)	0.0277
Obs*R-squared	14.97889	Prob. Chi-Square(8)	0.0596
Scaled explained SS	4.190430	Prob. Chi-Square(8)	0.8395

Table 10. Normality Test



Series: Residuals	
Sample 1995 2018	
Observations 24	
Mean	7.22e-16
Median	0.011671
Maximum	0.091956
Minimum	-0.118342
Std. Dev.	0.052373
Skewness	-0.272102
Kurtosis	2.432349
Jarque-Bera	0.618385
Probability	0.734039

Source: Author's Computation Using Eviews 10+

Table 11a CUSUM Test

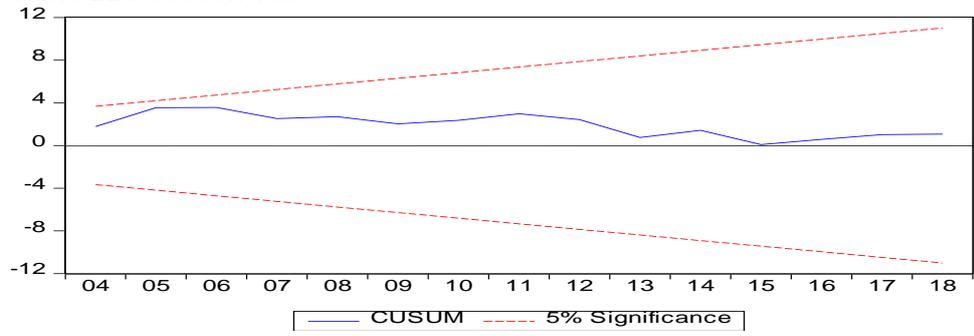
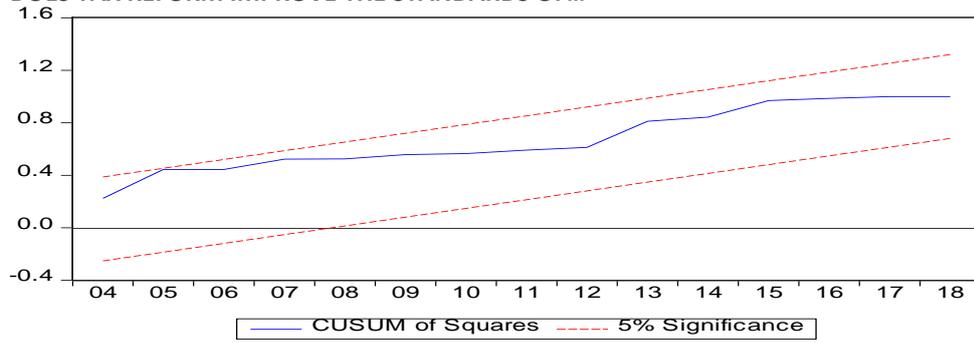


Table 11b CUSUMSQ Test

DOES TAX REFORM IMPROVE THE STANDARDS OF...



Source: Author's Computation Using Eviews 10+