

Taxation and Economic Growth in Nigeria

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Abstract: The paper examined the impact of tax revenue on economic growth in Nigeria from 1980 to 2015. The data used in the study were sourced from Central Bank of Nigeria (CBN) statistical bulletin. The study used data on real gross domestic product, petroleum profit tax, company income tax and customs and excise duties. The econometrics methods of Co-integration and ECM were employed as the major analytical techniques. The Co-integration result revealed the existence of a long-run relationship among the variables. The Parsimonious Error Correction result revealed that company income tax and customs and excise duties have positive and significant relationship with economic growth in Nigeria. However, petroleum profit tax impacted on economic growth in Nigeria but not significantly. Also, the coefficient of the parsimonious ECM has the appropriate sign (i.e., negative) and statistically significant. This implies that, the short run dynamics adjust to long run equilibrium relationship. The study therefore concluded that government should ensure that tax revenue together with revenue from other sources are efficiently used to make expenditures on education, housing, transportation, agriculture, health, power, road construction, national defense, among others that will help the various sectors of the economy to function very well thereby enhancing the growth and development of the country. To achieve this, government must avoid mismanagement, corruption and embezzlement. Government should also identify and eliminate all administrative loopholes for tax revenue to contribute significantly to economic growth of the country.

Key Words: Taxation, Revenue, RGDP, Co-integration and ECM.

I. INTRODUCTION

One of the objectives of government involvement in the economy is the attainment of sustainable economic growth. For any country to record sustainable or adequate economic growth, government must make expenditures on education, housing, transportation, agriculture, health, power, road construction, national defense, social security (retirement benefits), etc. This possibly gives details why the government looks for a medium through which money can be made available to achieve societal goals (Fagbemu and Noah, 2010). In order to meet the needs of the society, government needs huge funds and one medium through which government can get these funds is taxation (petroleum profit tax, company income tax, customs and excise duties).

Taxation is the art or process of being taxed. It is the primary source of governmental revenue. Specifically, it is an instrument for moving resources from the private hands to the public in order to achieve some of the country's economic and social goals (Ekine, 2011). The primary purpose of taxation is

to raise revenue to meet huge public expenditure. That is, to generate or create revenue capable of financing the expenditure of government at all levels (Emmanuel and Charles 2015). Taxation is a powerful tool in the hands of the governments (federal, state or local) to achieve stated economic and social goals among which is economic growth.

Furthermore, taxation according to Musgrave and Musgrave (1980) can be used extensively in regulating the pattern of consumption resulting in economic stabilization. Taxes can be used to control anti-social behaviour such as smoking, drinking of alcohol and pool betting or gambling by imposition of higher tax rate on production of such goods (Cornelius, Ogar and Oka, 2016).

Moreover, Anyanwu (1993), Nzotta (2007) as well as Onyele & Nwokoacha (2016) submitted that the purposes of taxation include raising revenue for the government for administration purpose and improvement of the society. As such, it is believed that payment of tax is helpful to the person paying and the citizenry, since tax revenue is used to accomplish some economic and social goals of the country. Examples of countries that have used tax revenue to create prosperity include Netherland and Canada. In addition, tax system provides a path for government to bring together additional revenue besides income from other sources, which is needed or required in discharging its imperative obligation. A good system of taxation also presents itself as one of the most effective means of assembling a country's domestic resources and it lends itself to make sustainable environment that will encourage growth and development. Tax revenues are usually used for the provision of public goods including the defense of country against external aggression, maintenance or upholding of law and order, and regulation of trade and business environment to guarantee social and economic justice. Strictly speaking, the entire essence of taxation is to generate revenue to advance the welfare of the inhabitants of a nation with focus on promoting the growth and development of the country's economy through the provision of essential amenities for improved public services through proper managerial system and structures. However, over the years, these benefits in Nigeria have been insignificant and revenue from taxes has been the explanation or cause of a little proportion of total government revenue in Nigeria.

This is because of poor tax management joined with the high rate of tax avoidance and evasion among tax payers which have led to financial shortfall and epileptic economic

performance. This could also be attributed to the over-dependence on revenue from oil as the major source of public finances or funds. That is, Nigeria is extremely dependent on oil. An observation of the Nigerian economy reveals that crude oil has significantly or considerably dictated the speed of growth and development of the country. Earnings from the exportation of crude oil has continued to account for over 80% of the overall revenue that accrue to the federal treasury, while the residual or remaining 20% is accounted for by non-oil sector including taxation (Akwe, 2014). Unhealthy reliance on crude oil or over dependence on oil revenue for economic growth and development in Nigeria is worrisome with the instability in the prices of crude oil, the total revenue produced by this source have decreased and diminished significantly (Onyele and Nwokoacha 2016). As reported by Jones, Ihendinihu, and Nwaiwu (2015), overall tax revenue as a percentage of GDP index of some African countries by the World Bank Group (2014) from 2009 to 2012 revealed that Nigeria has the lowest tax revenue as a percentage to GDP. The country's tax revenue as a percentage of GDP stood at 18.3%, 17.6% and 17.6% for years 2009, 2010 and 2011 respectively (Jones, Ihendinihu, and Nwaiwu, 2015). A breakdown of federal collected revenue in 2013 by the CBN revealed that, revenue from crude oil and gas exports, domestic crude oil sales, petroleum profit tax and royalties fell by 12.5% to ₦1,559.0 billion, 19.4% to ₦1, 510.3 billion and 14.8% to ₦3,719.0 billion respectively. Also, customs/excise duties fell by 8.7% to ₦433.6 billion, while value added tax and corporate income tax rose by 12.0% and 16.1% to ₦795.6 billion and ₦985.5 billion, respectively (CBN, 2013). Over the years, the Nigerian governments (federal, state or local) have made efforts to boost the tax revenue in order to meeting its mandate.

Despite the revenue that accrue into the governments' treasury from petroleum profit tax (PPT), customs and excise duties (CED) and company income tax (CIT) and other sources in Nigeria, the governments still complain of inadequate funds or money to make expenditures on education, housing, transportation, agriculture, health, power, road construction, national defense, etc. and Nigerians have expressed sadness or disappointment about poor infrastructural facilities, inadequate economic growth, high rate of unemployment, etc., which have resulted to poor or pitiable standard of living. For instance, Emmanuel and Charles (2015) submitted that the greater number of the folks in Nigeria still wallows in abject poverty and majority of the people live below one US Dollar for each day. The space between the poor and the rich widens every day. Again, one of the macro economic problems facing the country today is inadequate economic growth. By economic growth, we mean the achievement of yearly increases in both the total and per capita output of goods and services. That is, sustained increase in the actual output of goods and services. In fact, the Nigerian economy still performs below expectation. This state of affairs raises an important question: what is the relationship between components of taxation (petroleum profit tax,

corporate income tax and custom/excise duties) and economic growth in Nigeria? In an attempt to answer the above questions, some researchers including Akwe (2014), Salami, Apelogun, Omidiya and Ojoye (2015), Nwadiolor and Ekezie (2016), reported that taxation has significantly contributed to economic growth in Nigeria, while Emmanuel and Charles (2015) as well as Onakoya and Afintinni (2016) disagreed with the above finding and as a replacement for it, they reported that taxation has not significantly contributed to economic growth in Nigeria. That is, the components or mechanism of taxation are together insignificant in impacting on economic growth in Nigeria. Based on the differences in opinions and empirical findings, it is therefore necessary to investigate the impact of tax revenue on economic growth in Nigeria from 1980 to 2015. However, most studies on the impact of taxation on economic growth add up all the various taxes together without separating the components of taxation. In related terms, similar studies have lost touch on current realities of the components of taxation. Thus, this study stands out to eliminate some of the deficiencies that have existed in this research area. The remaining parts of this paper were structured into literature review, methodology, results and discussion, conclusion and recommendations.

II. LITERATURE REVIEW

A long tradition exists in economic literature to the classification of taxes into two categories. These are direct and indirect taxes. The former is levied or imposed on the income, profits and possession/property of individuals and companies (Okpe, 1998). In the former (i.e., direct taxes), the legal responsibility is determined with direct reference to the tax paying ability of the taxpayer. Importantly, examples of direct taxes include petroleum profit tax and companies' income tax. The latter is imposed on goods and services delivered which are moved or shifted in part or in full to the final or last consumer who doesn't even know either when he/she pays or the exact amount he/she pays (Okpe, 1998). Value added tax is an example of indirect tax.

The Concept of Petroleum Profit Tax

This is a tax imposed on the profit of oil producing companies in Nigeria. That is, the petroleum profit tax is subject to any occupant or resident company or anyone in charge of a non-resident company who are exploring petroleum or producing it. This also includes any liquidator, recipient, or agent of liquidator or recipient of any corporation carrying on petroleum operations in Nigeria. It is regulated by Petroleum Profit Tax Act (1959) as amended. Akintoye and Tashie (2013) argued that petroleum profit tax is singled out because of the significance of oil in the Nigerian public revenue performance. It is the most significant tax in Nigeria in terms of its share of 95% of government revenue and 70% of total foreign exchange earnings. Therefore, it has become a significant source of revenue because of the extraordinary position which petroleum occupies in the Nigerian economy. The main problem or difficulty of this source of revenue is the

variation resulting from price fluctuation of crude oil prices in the international market.

The Concept of Company Income Tax

Company income tax (occasionally called corporate tax) is a tax levied on the profit of all companies operating within Nigeria. In the 1980s, the tax rate was 45% of the companies' declared profits, but this has now been reduced to 30%. Supporting this, Adereti, (2011) and Umo (2012) argued that this tax is payable for each year of evaluation of the profits of any corporation at a rate of 30%.

It is governed by Company Income Tax Act (CITA) 1979 as amended. Put differently, Company Income Tax Act, 1990 is the current enabling law that governs the collection of taxes on profits made by companies operating in Nigeria. It is relatively easy to collect as a result of government persistence on the submission of tax certificates in respect of any official responsibility from administration by corporations. This tends to promote obedience. However, the administration of companies' income tax in Nigeria does not measure up to appropriate standards. If good old tests of equity, certainty, convenience and administrative efficiency are applied, Nigeria will score low considering the following points: due to poor monitoring, people in the self-employed and unquoted private companies group evade tax. In a study conducted by Festus and Samuel (2007) on company income tax and the Nigerian economy, they concluded that company income tax is a chief source of revenue but non-compliance with tax laws and regulations by tax payers is deep in the system because of weak control. There is the need for a general tax reform in the country's system of company income tax.

The Concept of Custom and Excise Duties

Custom duties are taxes levied on imported items while excise duties are taxes levied on the manufacture of domestic commodities. Put differently, excise duties are taxes imposed on some goods that are manufactured in a country, such as cigarettes, tobacco, furniture, etc. they are imposed to generate money for the government and to discourage the manufacturing and consumption of certain goods deemed harmful to people's health. Custom duties can be used to defend home industries from well-organized industries abroad. Customs duty is based usually on the worth of goods or upon the weight, dimensions, or some other criteria that will be determined by the government. Customs and excise duties are the oldest forms of modern taxation. They are charged either as a percentage of the value of import or a fixed amount on specific quantity. Custom and excise duties contributed about 10% of the central government revenues between 1996 and 1997. It is an important source of revenue in our economy which is still largely import-dependent.

Theoretical Framework

The Cost of Service Theory of Taxation (CSTT) declares the existence of semi-commercial association between the state (government) and tax payers. The declaration or assertion of

this theory (, i.e., the cost of service theory) is that the cost incurred by the government (state) in providing essential or important services to the generality of people living in a given geographical area must collectively be met or funded by the people who are the beneficiaries of the services. Specifically, this theory is of the view that tax is similar to price. Therefore, if an individual does not consume the service or services of the state, the person or the individual should not be charged any tax. According to Lawrence (2015), this theory can no doubt be useful to some degree in those cases where the services are rendered out of prices and are a bit easy to determine, e.g., railway services, postal services, supply of electricity, etc., But most of the expenditure incurred by the government cannot be fixed for each individual because it cannot be exactly determined, for instance, the cost of services of the police, armed forces, judiciary, etc., to different individuals. This theory has been criticized. The argument is that, if it is applied, the government will not be able carry out welfare activities like education, medical care, social amenities, etc. Furthermore, it is not simple to calculate the cost for every individual of the different services offered by the state. In spite of the criticism faced by the CSTT theory, Madugba and Joseph (2016) argued that the cost of service theory is homogenous with benefits received theory of taxation (BRTT). The benefit approach was initially developed by Knut Wicksell (1896) and Erik Lindahl (1919), two economists of the Stockholm School. The benefit principle or tax equity rule proceeds on the supposition that there is essentially an exchange or contract association between the taxpayers and the state (government). Members of the society contribute to the cost of the various goods and services provided by the government in proportion to the benefits received. The benefits may be priced according to either the governmental cost of providing the service or the value of the service to the purchaser, or a mixture of these considerations.

The benefit principle emphasizes resource allocation efficiency. It involves an approximation of market behaviour in the allocative procedures of the public sector. According to this theory, the state (government) should levy taxes on individuals according to the benefit conferred on them. That is, people should be taxed according to the benefits they receive from tax-financed projects. The more a person benefits from the activities of the state, the more he/she should pay to the state. Put differently, the theory states that, citizens should pay tax in proportion to the benefits they derived or enjoyed from the goods and services provided by the government. The theory assumes that there is exchange relationship or *quid pro quo* between tax payers and government. That is, an individual voluntarily exchanges purchasing power in the form of taxes for the acquisition of government economic goods (Ekine, 2011). This principle involves *quid pro quo* arrangements whereby only consumers of public goods pay for such goods. The more the benefits consumed, the more the payments to be made. If for instance, free education is publicly financed, the parents of the

recipients should be taxed in proportion to the benefits they obtain. A parent having ten children in school, for example, should pay five times the amount of a parent who sends only two children to school. The government may elect to price the benefits according to costs incurred to provide such benefits or according to the value of the benefits to the consumer.

Furthermore, this principle has the benefit of directly relating to the revenue and expenditure decisions and taxation policy. In other words, the total supply of public goods will be determined through this principle by the demand for them as measured by what tax payers are willing to bear. Thus, basically, the benefit principle covers the way in which the goods and services should be supplied and financed privately and publicly. Ekine (2011) submitted that the benefit principle of imposing taxes is good because it leaves the taxpayers free to opt out of a state service. Recall that the basic tenet of benefit principle is that tax system should be based upon voluntary action. However, we note that if tax burden is to follow only, the voluntary approach, its role to bring about equal distribution of income and wealth is ruled out.

In this principle, the troubles of bringing about equal income distribution and wealth are ignored. Also, this principle ignores the possible use of the tax policy for bringing about economic growth or economic stabilization. Another problem in providing a choice to the taxpayers is the lack of an effective mechanism whereby they can be forced to reveal their true demand schedules for each state (government) service. In order to make sense, the benefit principle has to assume that the income and wealth distribution in the country is already a proper one and no change will be required. In other words the benefit principle implicitly adopts the existing state of income and wealth distribution which provides the effective demand for the acquisition of various governmentally supplied economic goods by an individual. The higher income individual would exert greater effective demand over these economic goods than would a lower income individual. Specifically, this principle has been subjected to severe criticism on the grounds that, if the state maintains a certain connection between the benefits conferred and the benefits derived. It will be against the basic principle of the tax. A tax, as we know, is compulsory contribution made to the public authorities to meet the expenses of the government and the provisions of general benefit. There is no direct quid *pro quo* in the case of a tax. And most of the expenditure incurred by the state is for the general benefit of its citizens, it is not possible to estimate the benefit enjoyed by a particular individual every year. Umo (2012) also accentuates that the problem with this principle is that it is very difficult to assign quantitative benefits in relation to the tax paid. Also, some people like physically handicapped, benefit from a programme without having the financial ability to pay taxes.

However, despite the criticism faced by the benefit theory of taxation, Bhartia (2009), Anyafo (1996), Ekine (2011) and Madugba & Joseph (2016) argued that benefit

theory of taxation is good, they were in support of the benefit received theory of taxation, because it leaves the taxpayers free to opt out of a state service and total supply of public goods will be determined through this principle by the demand for them as measured by what tax payers are willing to bear. Socio-Political Theory of Taxation (SPTT) as presented by Wagner (1883) asserts that social and political objectives should be the main issues in choosing taxes. The theory is in support of the view that a tax system should not be planned to serve certain persons, but should be used to satisfy the desire of the society as a whole (Chigbu, 2014). Hence, it also forms the basis for this study following the Nigerian case which is characterized by inadequate economic growth.

Empirical Literature

Worlu and Emeka (2012) used the 3-stage least squares method of econometrics to examine the impact of tax revenue on the economic growth of Nigeria from 1980 to 2007. Data were collected from CBN and FIRS Statistical Bulletins. The results showed that tax revenue stimulates economic growth through infrastructural development. Meanwhile, tax revenue has no self-governing effect on growth through the development of infrastructural and foreign direct investment.

Saheed, Abarshi and Ejide (2014), also sought to examine how petroleum tax has impacted on the economic growth in Nigeria using a simultaneous equation model. The result showed that a strong positive association existed between domestic consumption, petroleum profit tax, government policy and economic growth. The result also revealed that crude oil production had a negative but significant impact on GDP and other variables.

Akwe (2014) used the OLS regression technique to explore the impact of non-oil tax revenue on economic growth in Nigeria from 1993 to 2012. The outcome showed that non-oil tax revenue has a positive association economic growth in Nigeria.

Jones, Ihendinihu and Nwaiwu (2015) examined tax revenue and economic growth in Nigeria from 1986 to 2012. The OLS econometrics method and the Error Correction Method were used. The result showed that total revenue has long and short run equilibrating relationship with economic growth in Nigeria.

Salami, Apelogun, Omidia and Ojoye (2015) empirically considered the impact of taxation on the growth of the Nigerian economy from 1976 to 2006. The study employed both simple and multiple linear regression analysis of OLS method to determine the impact between the endogenous variable real GDP and the exogenous variables, petroleum profit tax, corporate income tax, custom and excise duties and value added tax. It was discovered that all exogenous variables had a significant impact on RGDP.

Emmanuel and Charles (2015) investigated the impact of taxation on the Nigerian economy from 1994 to 2012. They used Co-integration and ECM Methods of econometrics. The results revealed that positive relationships exist between tax components and dependent variables (GDP and unemployment). But, the individual explanatory variables have not contributed to the growth of the economy significantly; also the explanatory variables have not considerably contributed to the decrease of the high rate unemployment and inflation in Nigeria within the studied period.

Adaramola, and Ayeni-Agbaje (2015) examined the tax structure and economic growth in Nigeria: A disaggregated empirical evidence from 1986 to 2012. The Engel-Granger Co-integration and ECM methods were used. The result showed that tax revenue has a linear association with economic growth. Specifically, tax from petroleum profits and corporate income tax were found to be beneficial to growth. In the study, personal income tax and the custom and excise duties appear not encourage growth.

Eyisi, Oleka and Bassey (2015) investigated the effect of taxation on macroeconomic performance in Nigeria for the period 2002 to 2011 using OLS method. The outcome showed that tax revenue significantly impacted on economic growth. Also, tax revenue has a negative and significant influence on unemployment rate.

Cornelius, Ogar and Oka (2016) employed the OLS method of econometrics to investigate the impact of tax revenue on the Nigerian economy. The result showed that petroleum profit tax and growth have significant association. Meanwhile, company income tax and growth do not have significant association.

Onakoya and Afintinni (2016) investigated the co-integration association between tax revenue and economic growth in Nigeria from 1980 to 2013. The Engle-Granger co-integration VECM techniques were used. The result revealed that a long run association existed between taxation and economic growth. It also showed a significant positive relationship between taxes from petroleum profit, income from companies and GDP, but a negative association between GDP and customs and excise duties. Moreover, the tax variables were together not significant in influencing the country's economic growth.

With the aid of OLS, Nwadiakor and Ekezie (2016) looked at the effect of tax policy on economic growth in Nigeria from 1994 to 2013. The result showed that tax revenue has influenced economic growth meaningfully and the amount of indirect tax to overall revenue from taxes has increased for the period covered in the study.

III. METHODOLOGY

The study used Co-integration/ECM methods of econometrics to analyze the secondary data sourced for the study from CBN

Statistical Bulletin. In an attempt to achieve the objectives of this study, an econometric model aimed at capturing the relationship between economic growth (RGDP) and tax revenue variables (petroleum profit tax, company income tax, customs and excise duties) in Nigeria, in line with the conceptual, theoretical and empirical literature reviewed was developed. Specifically, this work adapted the empirical model of Jones, Ihendinihu and Nwaiwu (2015). That is, the model was cast in agreement with that of Jones et al (2015), whose model is in the form $RGDP = f(GTR)$ but with slight modification. This study disaggregated taxation into its various components of petroleum profit tax, company income tax and customs and excise duties. Therefore, the model for this study states that, economic growth (RGDP) depends on Petroleum Profit Tax (PPT), Company Income Tax (CIT) and Customs and Excise Duties (CED). The functional relationship and the resultant model for this study is as specified below:

$$RGDP = F(PPT, CIT, CED) \quad (3.1)$$

$$RGDP_t = a_0 + a_1PPT_t + a_2CIT_t + a_3CED_t + U_t \quad (3.2)$$

Where: RGDP = Real Gross Domestic Product used as proxy for Economic growth, PPT = Petroleum Profit Tax, CIT = Company Income Tax, CED = Customs and Excise Duties, U = Error Term, a_0 = the constant parameter, a_1 , a_2 and a_3 = the slope parameters

Apriori expectation: On the apriori: a_1 , a_2 , and $a_3 > 0$.

Technique of Data Analysis

The study used the Co-integration and Error Correction Model (ECM) methods. The Augmented Dickey Fuller test (ADF) was employed to test for the stationarity of the time series. Also, the Co-integration was used to test for the long run relationship among the variables in the model (i.e., the co-integration measures the long run relationship among the variables) and the ECM to correct the pitfall of the short run model. That is, the ECM approach corrects abnormalities that may affect regression results. It is important to note that time series data are prone to error because of unsteadiness in business activities from which most of our data are derived. Hence, the choice of these econometric techniques will help us to determine how the variables considered in this paper have influenced the real gross domestic product in Nigeria.

Augmented Dickey-Fuller Unit Root Test

Before unit root test was conducted, descriptive statistics such as mean and median were used to analyze the movement of the variables under consideration. Moreover, the unit root test encompasses testing the order of integration of the individual series in a model. Thus, a variable is said to be integrated of a particular order if the ADF critical value is greater than the variable critical value at 1%, 5% and 10%. Augmented Dickey-Fuller test relies on rejecting a null hypothesis of unit root (the series are non-stationary) in favour of the alternative hypothesis of stationarity. The tests are conducted with and

without a deterministic trend (t) for each of the series. The general form of ADF is estimated by the following regression:

$$\Delta M_t = \alpha_0 + \alpha_1 M_{t-1} + \sum \alpha_i \Delta M_{t-i} + \delta_t + U_t \quad (3.3)$$

Where: M is a time series, t is a linear time trend, Δ is the first difference operator, α₀ is a constant, t-1 is the optimum number of lags in the independent variables and U is random error term.

Co-integration Test

Co-integration is an econometric technique used for testing the correlation between non-stationary time series data. Two variables are said to be Co-integrated if they have a long run or equilibrium relationship between them (Gujarati, 2007). Hence, co-integration technique has been developed to address the problem of spurious correlation often associated with some time series data. This study used Johansen co-integration procedure. Moreover, the basic argument of Johansen’s procedure is that the rank of matrix of variables can be used to determine whether or not the two variables are co-integrated. A lack of co-integration suggests that such variables have no long-run relationship. According to Johansen (1998), the general form of co-integration is given by

$$y_t = \mu + \Delta_1 y_{t-1} + \dots + \Delta p y_{t-p} + U_t \quad (3.4)$$

Where: y_t is an nx1 vector of variables that are integrated of order commonly denoted (1) and U_t is an nx1 vector of innovations. However, an extension of this in the co-integration technique is the error correction mechanism (ECM) (Engle and Granger, 1987). These authors have established that co-integration is a sufficient condition for an error correction model formulation.

Error Correction Model

The purpose of the ECM is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. Specifically, the ECM helps to show the speed of change from the short-run equilibrium to the long-run equilibrium state. The model specification with an ECM form can be formulated as:

$$\Delta QD_t = \beta_0 + \sum \beta_1 \Delta QD_{t-1} + \sum \beta_2 \Delta Y_{1t-1} + \sum \beta_3 \Delta Y_{2t-1} + \delta_1 ECM_{t-1} + \mu_{1-t} \quad (3.5)$$

Where; QD is the dependent variable, β₁ – β₂ are the slope parameters, Y₁ –Y₃ are the set of explanatory variables, δ₁ECM_{t-1} is the coefficient of ECM, Δ is change and μ is the disturbance term. Based on our model in 3.2, the dynamic (error correction) representation is given below:

$$\Delta RGDP_t = \beta_0 + \sum \beta_1 \Delta RGDP_{t-1} + \sum \beta_2 \Delta PPT_{1t-1} + \sum \beta_3 \Delta CIT_{2t-1} + \sum \beta_4 \Delta CED_{3t-1} + \delta_1 ECM_{t-1} + \mu_{1-t} \quad (3.6)$$

Note the variables as earlier defined.

Post Estimate Tests

These tests were carried out as post estimate tests to ascertain if the statistical criteria of the estimated model are met, authenticate if parameters are reliable and as well as ascertain if the general model is good for policy recommendation. Thus, the Wald Test for Coefficient of

Restrictions of the estimated model and normality test via Jarque-Bera were conducted.

IV. RESULTS AND DISCUSSION

Descriptive Statistics for Underlying Series

The essence of the descriptive statistics is to ascertain stability of the time series.

Table 4.1: Descriptive Statistics of Underlying Series

	RGDP	CED	CIT	PPT
Mean	428600.5	134157.2	551804.2	432685.8
Median	306456.3	56350.00	17954.15	120483.5
Maximum	969969.1	438300.0	8270667.	32010000
Minimum	31546.08	1616.000	403.0000	3746.900
Std. Dev.	263763.2	153376.3	1594041.	9730301.
Skewness	0.828738	0.820502	3.761748	2.144604
Kurtosis	2.418029	2.245207	17.24666	5.770360
Jarque-Bera	4.628877	4.893910	389.3553	39.10829
Probability	0.098822	0.086557	0.000000	0.000000
Sum	15429619	4829660.	19864953	1.56E+08
Sum Sq. Dev.	2.43E+12	8.23E+11	8.89E+13	3.31E+15
Observations	36	36	36	36

Note: RGDP, PPT, CIT and CED as earlier defined.

Source: Researchers’ Computed Result From (E-Views 9)

The descriptive statistics reported in Table 4.2, indicated that real gross domestic product (RGDP), Custom and Excise duties (CED), Company income tax (CIT) and petroleum profit tax (PPT) averaged ₦428600.5 million, ₦134157.2 million, ₦ 551804.2 million and ₦ 4326858 million respectively. The standard deviation showed that the dependent variable (RGDP) converged around its mean. While the independent variables (Custom and Excise duties, Company income tax and petroleum profit tax) did not converge around their respective mean. The Skewness test result showed positive values for all the series, meaning that they have high tails. Real gross domestic product and Custom and Excise duties are platy-kurtic in nature since their values for kurtosis, 2.418029 and 2.245207 respectively are less than 3. This indicates a higher than normal distribution. However, Company income tax and petroleum profit tax are leptokurtic in nature since their values for kurtosis 17.24666, and 5.770360 respectively are more than 3. This indicates a flatter than normal distribution. Specifically, the Kurtosis test showed that real gross domestic product and Custom and Excise duties have thin tails while the remaining variables -

Company income tax and petroleum profit tax have large tails. The probability of Jarque-Bera statistics suggest that the null hypothesis of normal distribution for Custom and Excise duties and petroleum profit tax are rejected at 5% level while that of the real gross domestic product and Custom and Excise duties cannot be rejected.

Unit Root Test (Test for Stationarity)

To stay away from false regression results which may happen as a result of carrying out regressions on time series data, we first subject the data to stationarity test by using the Augmented Dickey Fuller (ADF) tests. The ADF test was done with the following hypotheses: H_0 : Variable contains unit root and hence is non-stationary. H_1 : Variable does not contain unit root and hence is stationary. See Table 4.2 and 4.3 for unit root test results.

Table 4.2: Unit Root Test at Level

Variables	ADF Test	Critical Values			Order of integration
		critical value 1%	critical value 5%	Critical value 10%	
RGDP	2.275536	-3.639407	-2.951125	-2.614300	Not Stationary
PPT	0.708396	-3.639407	-2.951125	-2.614300	Not Stationary
CIT	1.108225	-3.639407	-2.951125	-2.614300	Not Stationary
CED	0.104207	-3.632900	-2.948404	-2.612874	Not Stationary

Note: RGDP, PPT, CIT and CED as earlier defined.

Source: Researchers' Computed Result From (E-Views 9)

The stationarity test result in Table 4.2 reveals that at various levels of significance (1%, 5% and 10%), the variables were not stationary at level. In line with Granger and Newbold (1974), the variables were differenced. See table 4.3.

Table 4.3: Unit Root Test at First Difference

Variables	ADF Test	Critical Values			Order of integration
		critical value 1%	critical value 5%	Critical value 10%	
RGDP	6.374925	-3.639407	-2.951125	2.614300	1(1)
PPT	5.834829	-3.646342	-2.954021	2.615817	1(1)
CIT	5.651023	-3.646342	-2.954021	2.615817	1(1)
CED	7.794226	-3.639407	-2.951125	2.614300	1(1)

Note: RGDP, PPT, CIT and CED as earlier defined.

Source: Researchers' Computed Result From (E-Views 9)

The stationarity test result in Table 4.3 reveals that at various levels of significance (1%, 5% and 10%), the variables were stationary. Specifically, all the variables were stationary at first difference. This makes it inappropriate for the application of the OLS technique. Therefore the test to determine the long run relationship can be achieved with the aid of the Johansen Co-integration test which is presented in Table 4.4.

Test for Co-integration

According to Iyoha and Ekanem, (2002) co-integration deals with the methodology of modeling non-stationary time series variables. Specifically, Johansen co-integration test was used to examine the long run relationship among the variables at 5% level. For fact about the Johansen co-integration result, see the table 4.4.

Table 4.4: Johansen Test for Co-integration

Eigen value	Trace Statistic	5% critical value	Prob. **	Hypothesis of CE(s)
0.986687	195.3335	47.85613	0.0000	None *
0.665660	48.48752	29.79707	0.0001	At most 1 *
0.271585	11.23724	15.49471	0.1973	At most 2
0.013531	0.463187	3.841466	0.4961	At most 3

Source: Researchers' Computed Result From (E-Views 9)

The Table 4.4 shows that there are two co-integrating equations because three of the Trace Statistic(s) are larger than critical value at 5%. Therefore, there is a long-run relationship among RGDP, PPT, CIT and CED which prevent them from wandering apart without bound. That is, the null hypothesis (H_0) of no co-integrated among the variables was rejected. Given that there are two co-integrating equations, the requirement for fitting in an error correction model is satisfied. The Error Correction Mechanism (ECM) intends to authenticate the existence of long-run association and incorporate the short-run dynamics into the long-run equilibrium relationship.

The Error Correction Test

According to Iyoha and Ekanem (2004), Error Correction Model (ECM) involves using lagged residual to correct for deviations of actual values from the long-run equilibrium values. In order to capture the short-run deviations that may have occurred within the period of the study, the general-to-specific rule was followed. The estimated result of the parsimonious error correction representation for the RGDP model is presented in table 4.5.

Table 4.5: Parsimonious Error Correction Mechanism

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10615.29	4180.780	2.539070	0.0183
D(RGDP(-1))	0.282303	0.207363	1.361394	0.1866
D(RGDP(-2))	0.279537	0.204574	1.366436	0.1850
D(RGDP(-3))	-0.049130	0.080414	-0.610970	0.5472
D(PPT)	0.000246	0.000609	0.404603	0.6895
D(CIT)	0.006483	0.001983	3.270169	0.0034
D(CIT(-2))	-0.005886	0.002528	-2.327913	0.0291
D(CED)	0.214017	0.092466	2.314556	0.0299
ECM(-1)	-0.222867	0.074995	-2.971748	0.0068
R-squared	0.735601	Mean dependent var	23751.59	
Adjusted R-squared	0.643636	S.D. dependent var	24524.42	

S.E. of regression	14640.16	Akaike info criterion	22.25318
Sum squared resid	4.93E+09	Schwarz criterion	22.66542
Log likelihood	-347.0509	Hannan-Quinn criter.	22.38983
F-statistic	7.998707	Durbin-Watson stat	1.712108
Prob(F-statistic)	0.000040		

Source: Researchers' Computed Result From (E-Views 9)

Table 4.5 shows that the dynamic model is a good fit. The reason is that the difference in predictors account for 74% of the overall disparity in the model looking at the R². Put differently, the R² value of 0.735601 indicates that the variation in economic growth (RGDP) explained by petroleum profit tax, company income tax; and customs and excise duties is 74%. Therefore, the explanatory power of the model estimated is 74 percent. The Durbin Watson (DW) value of 1.712108 based on the rule-of-thumb implies that serial autocorrelation is not a problem for the model. Therefore, the model is admissible in decision making.

Moreover, the coefficient of the Error Correction Term has the right sign (i.e., negative) and statistically significant. This shows that disequilibria in the economic growth (RGDP) in the previous year were corrected for in the current year. It therefore, follows that the ECM could rightly correct any deviations from short run to long-run equilibrium relationship between RGDP and the explanatory variables.

In addition, the coefficient of the current form of petroleum profit tax appears with the right sign (i.e., positive) implying a positive relationship between petroleum profit tax and economic growth. This conforms to the apriori expectation. This means that a unit increase in petroleum profit tax will increase economic growth by 0.000246 million. Meanwhile, the absolute value of the t-statistic for the slope coefficient is not significant at conventional level (i.e., 5 %). Thus, the study convincingly accepts that there is no significant relationship between petroleum profit tax and economic growth in Nigeria. The implication of this result is that petroleum profit tax has impacted on economic growth in Nigeria but not significantly during the period of study.

Furthermore, the coefficient of the current form of company income tax appears with the right sign (i.e., positive) implying a positive relationship between company income tax and economic growth in Nigeria. This conforms to the apriori expectation. This means that a unit increase in company income tax will increase economic growth by 0.006483 million. Moreover, the absolute value of the t-statistic for the slope coefficient is significant. Thus, the study convincingly accepts that there is a significant relationship between company income tax and economic growth in Nigeria. The finding corroborates the empirical work of Onakoya and Afintinni (2016) which examined the relationship between tax revenue and economic growth in Nigeria from 1980 to 2013, and observed that companies' income tax had positive and significant effects on economic growth in Nigeria. This also means that tax policies toward corporate bodies in Nigeria

have been well articulated and coordinated towards increasing economic growth of the country during the period under consideration.

Also, the coefficient of the current form of customs and excise duties is positive, implying a positive relationship between customs and excise duties and economic growth. This conforms to the apriori expectation. This means that a unit increase in customs and excise duties will increase economic growth by 0.214017 million. Furthermore, the absolute value of the t-statistic for the slope coefficient is significant at conventional level (i.e., 5 %). Thus, the study convincingly accepts that there is a significant relationship between customs and excise duties and economic growth in Nigeria. The finding alludes to the empirical work of Salami et al (2015) which investigated the impact of taxation on the growth of the Nigerian economy from 1976 to 2006, and affirmed that customs and excise duties had a significant impact on the economy of the nation. This also means that tax policies toward raising revenue from customs and excise duties in Nigeria have been well articulated and coordinated towards increasing economic growth of the country during the period of study.

Post Estimate Tests

The diagnosis tests were employed to examine the reliability of the estimated model for prediction or policy purposes. Specifically, the Wald test for coefficient of restrictions and normality tests were applied as diagnostic or post-estimate tests. The results of these tests are reported below.

Table 4.6 Wald Test for Coefficient of Restrictions in the Model

Test Statistic	Value	Df	Probability
F-statistic	19.02814	(4, 23)	0.0000
Chi-square	76.11254	4	0.0000

Null Hypothesis: C(1)=0, C(2)=0, C(3)=0, C(4)=0

Null Hypothesis Summary:

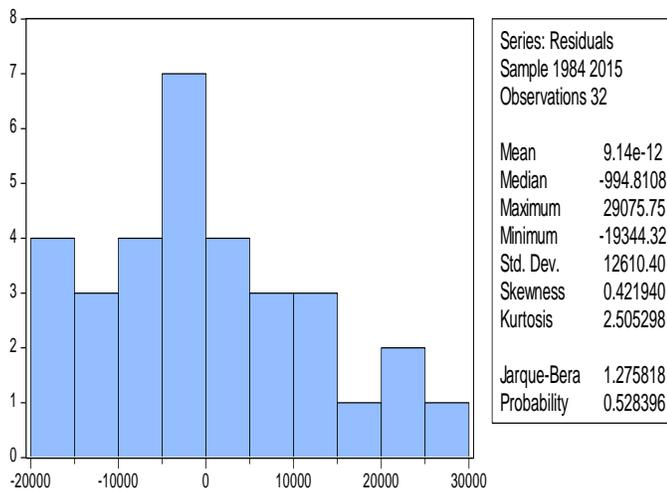
Normalized Restriction (= 0)	Value	Std. Err.
C(1)	10615.29	4180.780
C(2)	0.282303	0.207363
C(3)	0.279537	0.204574
C(4)	-0.049130	0.080414

Source: Researchers' Computed Result From (E-Views 9)

The Wald test was employed to check if the coefficient of the explanatory variables in the co-integration, and ECM models are jointly equal to zero. Specifically, the F-statistic was employed for the test. Thus, the result presented in Table 4.6 showed that F-statistic is 19.02814 and the probability value of (0.0000) is less than 0.05 at 5% level. Thus, all the

independent variables in the estimated model are jointly significant in explaining economic growth in Nigeria over the study period.

Table 4.7: Normality Test for the Model



Source: Researchers' Computed Result From (E-Views 9)

The Jarque-Bera statistic was applied to examine whether the error term in the ECM model is normally distributed at 5% level. Thus, the result presented in Table 4.7 revealed that the error term is normally distributed at the conventional level (i.e., 5%). This is because the probability value of the Jarque-Bera statistic of 0.528396 is greater than the 0.05% conventional level.

Policy Implication

The policy implication of the results includes:

(i) The tax policy regarding petroleum profit tax has impacted on economic growth of Nigeria but not significantly or meaningfully. In addition, the income generated from petroleum profit tax and other sources were not efficiently and effectively utilized to provide infrastructural facilities and social amenities which will help the various sectors of the economy to function very well thereby enhancing the growth and development of the country. Revenue generated from petroleum profit tax will impact on economic growth meaningfully if petroleum profit tax performance is not hindered majorly by mismanagement, corruption and embezzlement. Therefore, a well managed tax policy is needed to increase economic growth in Nigeria.

(ii) The tax policy regarding companies (corporate bodies) in Nigeria has impacted on economic growth of Nigeria significantly. The implication of this result is that company income tax has contributed significantly or meaningfully to increase economic growth of Nigeria during the period under consideration. The significant relationship between company income tax and economic growth also reflect the potency of the variable as an important conduct in transmitting fiscal

policy impulses to the aggregate economy thereby increasing economic growth.

(iii) Policies regarding customs and excise duties have been well articulated and coordinated towards increasing economic growth in Nigeria during the period of study. The positive sign displayed by the customs and excise duties revealed that customs and excise duties have the ability to increase the economic growth of the country. Therefore, a well coordinated tax policy is needed to increase economic growth of Nigeria. This means that customs and excise duties as a variable, is an important variable that can contribute to the economic growth of Nigeria. The significant relationship between customs and excise duties and economic growth also reflect the potency of the variable (i.e., customs and excise duties) as an important medium in transmitting fiscal policy impulses to the aggregate economy thereby increasing economic growth.

V. CONCLUSION AND RECOMMENDATIONS

This study on taxation and economic growth in Nigeria from 1980 to 2015 is very important because it examined empirically the degree to which Nigeria's tax revenue has influenced economic growth in Nigeria from 1980 to 2015. With the utilization of data on real gross domestic product, petroleum profit tax, company income tax and customs and excise duties from CBN Statistical Bulletin and the use of Co-integration and Error Correction Mechanism (ECM) methods of econometrics to analyze the data so as to know the relationship that exist amongst the variables. The regression result showed that about 74% systematic variation in real gross domestic product is explained by the three explanatory variables (petroleum profit tax, company income tax; and customs and excise duties). The F-statistic of 7.998707 is also significant. The result further revealed that company income tax and customs and excise duties exert a positive and significant relationship with economic growth. Moreover, petroleum profit tax exerts a positive but insignificant association with economic growth. In the light of the above, it is obvious that tax revenue as a fiscal policy tool of government if properly managed can be effective in increasing economic growth in Nigeria. The study therefore concluded that tax revenue impacted on economic growth in Nigeria positively. Government should ensure that tax revenue together with revenue from other sources are used to make expenditures on education, housing, transportation, agriculture, health, power, road construction, national defense, among others that will help the various sectors of the economy to function very well thereby enhancing the growth and development of the country. To achieve this, government must avoid mismanagement, corruption or dishonesty and embezzlement. Government should also identify and eliminate all administrative loopholes for tax revenue to contribute significantly to economic growth in Nigeria.

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