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EFFECT OF TAX REFORMS ON REVENUE GENERATION IN NIGERIA

Maurie Nneka NWALA (Ph.D.) & John Toro GIMBA

Department of Banking & Finance, Nasarawa State University, Keffi, Nigeria

Abstract
The Nigerian government became concerned with seeking alternative source of revenue generation to support her teeming population following the oil price shocks in 2014 which saw oil price crash. Government resorted to tax as part of its strategy to improve its ability to generate non-oil revenue hence the focus of this study is to examine the effect of tax reform on revenue generation in Nigeria. The study adopts the Ex-post facto method of research design with time series data covering a period of thirty-one (31) years from 1986 to 2017. Data were obtained from the CBN statistical bulletin and National Bureau of statistics annual reports for the purpose of analysis. The tax reforms was proxied by Companies' Income Tax (CIT), value added tax (VAT) and Petroleum Profits Tax (PPT), while the revenue generation was proxied by total federally collected revenue. The study adopts descriptive statistics, Augmented Dickey fuller unit root test, ordinary least square (OLS) regressions, heteroskedasticity test and Variance Inflation Factor for the purpose of analysis. The study found that tax reforms has a positive but statistically significant effect on revenue generation in Nigeria. It is therefore concluded that the taxes have an inverse relationship with revenue generation in Nigeria. The study therefore recommends that companies' income tax, value added tax and petroleum profits tax should be reviewed in such a way that it will tackle the hydra-headed monster of multiple taxation and promote accountability and transparency in government business so as to restore the confidence of the tax payer in the tax system.

Keywords*: Tax Reforms, Company Income Tax (CIT), Value Added Tax (VAT), Petroleum Profits Tax (PPT), Revenue Generation.*

JEL Classification Codes: *H20, H24, H25, H29*

1. INTRODUCTION

The Nigerian government became concerned with seeking alternative source of revenue generation to support her teeming population and the economy in order to foster physical, political and socio-economic development following the oil price shocks in 2014 which saw oil

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

price crashed from $104 per barrel by the third quarter of 2014 to $59 per barrel at December, 2014, resulting in a sudden and significant drop in revenue inflow from oil sales. This led to the Nigerian authorities' to intensify efforts at increasing non-oil revenue since late 2015. Nigeria has resorted to tax as part of its strategy to improve its ability to generate non-oil revenue.

Tax is regarded as a compulsory levy imposed on individuals and corporate identities regardless of the status (Nightingale, 2002; Soyode & Kajola, 2006). Tax is considered a major source of revenue and revenues generated from tax can be used to finance public utilities, perform social responsibilities and grease the administrative wheel of the government.

In order to boost non-oil tax revenue, as well as to bridge the gap between national development needs and funding of these needs, the federal government of Nigeria have over the years embarked on various tax reforms. According to Nwokoye and Rolle (2015) Tax reforms in Nigeria began in 1986 even though Ogbonna and Ebimobowei (2011) noted that tax reforms in Nigeria can be traced to the introduction of income tax in Nigeria between 1904 and 1926. Other reforms that have been embarked upon by the Nigerian government since the inauguration of Nigeria's tax system include:(i) granting of autonomy to Nigeria inland revenue in 1945, (ii) the Raisman Fiscal Commission of 1957, (iii) formation of the Inland Revenue Board in 1958, (iv) the promulgation of Petroleum Profit Tax Ordinance No.15 of 1959, (v) the promulgation of Income Tax Management Act of 1961, (vi) the promulgation of the Companies Income Tax Act of 1979, and (vii) Tax Policy and Administration Reforms Amendment 2001 and 2004.

However, the Federal Inland Revenue Service stated that the Tax reforms in Nigeria began in 1943 when the Nigerian Inland Revenue Department, was carved out of the Inland Revenue Department of British West Africa and renamed Federal Board of Inland Revenue under the Income Tax Ordinance No.39 of 1958. The second reform chronicled by the FIRS was the Companies and Income Tax Act No.22 of 1961 establishing the Federal Board of Inland Revenue, FBIR and the Body of Appeal Commissioners (BAC) as well as the Joint Tax Board (JTB) that was charged primarily, to ensure uniformity of standards and application of Personal Income Tax in Nigeria. The third reform took place in 1993 with the enactment of the Finance (Miscellaneous Taxation provisions) Act No.3 of 1993 and Decree 104 of 1993 to review the composition of the FBIR and the functions of the Joint Tax Board respectively.

Other reforms carried out from the turn of the century include the enactment of the National Tax Policy (NTP). The policy identifies the Nigeria tax system and laws as a tool for revenue generation as well as economic management and development. Even though the NTP was heralded by the Setting up of a 20 man Study Group in 2002 as a reform strategy to review all existing tax legislations and the entire tax administration structure it was not adopted until 2010 by the Federal Executive Council and by February 2017 a revised national tax policy (NTP) was approved by the Federal Executive. Other key reforms from 2015 to date include signing of the Executive Order to commence the Voluntary Assets and Income Declaration Scheme Federal Government to sustain the revenue drive from non-oil sector. This executive order was considered a tax amnesty program it offered a 12 -month window of opportunity for taxpayers to regularise their tax liabilities. In exchange for full and honest declaration, the government waived penalties that should have been levied and also waived the interest that should have been paid on overdue tax.

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

Furthermore, in a bid to ensure voluntary compliance by high networth individuals and the informal sector. Several technology -driven initiatives aimed at increasing the number of taxpayers, and reducing taxpayers' burden by making tax payment more convenient such as the deployment of electronic payment channels for registration, filing, payment, receipt and tax clearance certificate to facilitate easy remittance of taxes by taxpayers. As well as information exchange for third party databases which was implemented in collaboration with other government agencies. The essence of these reform is to improve generation of public revenue generation through broadening the tax base, reduction of the tax burden on tax payers, restoration of the tax payers' confidence on the tax system, and promotion of voluntary compliance on the part of the tax payer. Therefore this study seeks to empirically ascertain if these reforms have succeeded in achieving this goal. Previous empirical study on the impact of tax reforms on revenue generation in Nigeria stopped at the 2012 tax reforms (see Oriakhi & Ahuru, 2014; Oti & Odey, 2016) or only examined the impact of one tax reform (Okafor, 2012; Okoye & Ezejiofor, 2014) however several other reforms have been put in place consequently this study, attempts to examine the impact of tax reforms on revenue generation in Nigeria, with special attention to the tax reform from 2015 to date.

The broad objective of this study is to evaluate the effect of tax reform on revenue generation in Nigeria over a period of thirty-one (31) years from 1986 to 2017. The tax reform in this study were proxies by companies' income tax, value added tax and petroleum profits tax and revenue generation was proxy by federally collected revenue. In line with the objective, the following hypotheses were formulated to be tested:

H_{01}: Companies' income tax has no significant effect on federally collected revenue in Nigeria.

H_{02}: Petroleum profits tax has no significant effect on federally collected revenue in Nigeria.

H_{03}: Value added tax has no significant effect on federally collected revenue in Nigeria.

2. LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Concept of Tax Reforms

Taxation has been defined as a compulsory levy imposed on the citizens of a country by the government, in order to generate revenue that will be used in general administration (Anyanwu, 1997). Ogundele (1999) defined taxation as the process of or machinery by which communities of group of persons are made to contribute in some agreed quantum and method for the purpose of administration and development of the society. Tax is dynamic, so reforms are necessary to effect the required changes in the national economy (Ola, 2001).

Tax reform is considered an ongoing process which policy makers and tax administrators continually adopt in the tax systems to reflect changing economies, social and political circumstances in the economy (Azubuike, 2009). Tax reform is a way of changing the way taxes

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

are collected and managed by the government. It is an attempt to correct weaknesses in the existing tax system, which may bring about introduction of a new tax rate, a new legal clause, a new assessment system to enhance its efficiency. Tax reform measures are undertaken to strengthen modern taxes and drastically reduce the complexity and lack of transparency of the system (Oriakhi & Rolle, 2014; Odusola, 2006; Anyanwu, 1997). Furthermore, tax reforms are designed to reduce the burden of taxation of all people by the government, make the tax system more progressive and less regressive and simplify the tax system, by making it more accountable and understandable.

2.1.2 Company Income Tax (CIT)

Section 93 (1) of the Companies Income Tax Act CAP 60 Laws of the Federation of Nigeria 1990 defined a company as "any company or corporation other than a corporation sole, established by or under any law in force in Nigeria or elsewhere". The Corporate Affairs Commission (CAC) is responsible for the registration of limited liability companies in Nigeria. A registered company is expected to end with the word Limited (Ltd) or Public Company (Plc). The companies' income tax is a subset of direct taxes because the incidence of payment and the burden of the tax are borne by the companies and not transferable to third parties. The Federal Inland Revenue Service (FIRS) under the supervision of the Federal Board of Inland Revenue (FBIR) is the relevant tax authority saddled with the responsibility of assessing and collection of companies' income tax among others.

2.1.3 Petroleum Profit Tax (PPT)

Petroleum profit tax involves the charging of tax on the incomes accruing from petroleum operations (Nwezeaku, 2005). Nigerian law by virtue of the Petroleum Profits Tax Act 1990 requires all companies engaged in the extraction and transportation of petroleum to pay tax (Buba, 2007). Petroleum profits tax is charged, assessed and payable upon the profits of each accounting period of any company engaged in petroleum operations during any such accounting period, usually one year (January to December) (Anyanwu, 1993). Petroleum profit tax is a tax applicable to upstream operations in the oil industry. It is particularly related to rents, royalties, margins and profit sharing elements associated with oil mining, prospecting and exploration leases. Adegbie (2010) noted that the taxable income of a petroleum company comprises proceeds from the sale of oil and related substances used by the company in its own refineries plus any other income of the company incidental to and arising from its petroleum operations. It is the most important tax in Nigeria in terms of its share of total revenue contributing 95 and 70 percent of foreign exchange earnings and government revenue, respectively (Odusola, 2006).

Nwadighoha (2007) also stated that the taxation of petroleum profit started in 1959 with the enactment of the Petroleum Profit Tax Act 1959 which was meant to have a retrospective effective date of 1st January 1958. This Act serves as a foundation for the present Petroleum Profit Tax Act, 2004; which was further amended in 2007.

2.1.4 Value Added Tax

An important landmark in tax reform in Nigeria was the adoption of the value-added tax (VAT) in January through the VAT Act No. 102 of 1993 but its implementation actually began

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

in January 1994. Since its introduction, 15 of the 42 sections of the Act have been amended. VAT was originally imposed on 17 categories of goods and 24 service categories. Such items as basic foods, medical and pharmaceutical products, books, newspapers and magazines, house rent, commercial vehicles and spare parts and services rendered by community and people's banks, however, were VAT- free. The revenue generated was to be shared 20:80 between the federal and state government: currently it is shared 15:50:35 among the federal/state/local levels. The state's allocation was to be earmarked as 30 per cent for the state of origin, 30 per cent for consumption/destination and 40 per cent for equality of the state.

2.2 Theoretical Framework

2.2.1 Supply-Siders Theory

The theoretical foundation of tax reform is gotten from the supply-siders. These are sets of Economist who had their hay days between 1970 and early 1980s. The supply-siders believed in the use of economic incentives to encourage production. They positioned that higher marginal tax rate will not only create disincentive to work, invest and save but encourages tax avoidance and evasion, that reduces public generated revenue. The leader of the group Arthur B. Laffer, using what is today known as the Laffer curve showed that there is an optimum tax rate that both encourages savings, investment and labour supply, and at the same time motivate tax payment obligation. Thus, tax rate in excess of the optimum rate will be harmful to economic activities.

2.2.2 Optimal Tax Reform Theory

Another dimension to the theory of tax reform is the optimal tax reform theory. Under this theory, it is required that the best way to raise revenue is through taxing goods or factors with inelastic demand or supply, and that taxation relating to distribution and externalities or market failures should concentrate on identifying the source or origin of the problem. Thus for distribution, one should look for the sources of inequality (for example, land endowments or earned in comes) and taxation should be concentrated there. Regarding externalities, an attempt should be made to tax or subsidize directly the good or activity that produces the externality (Stern, 1988). Employing the optimal tax reform theory, Newbery and Stern (1987) applied a normative framework to analyze the tax reform process. The optimal taxation approach according to them emphasizes the need to analyze the impact of tax reform and evaluate both its administrative costs and its effects on social welfare. The major problem of this approach is that it required substantial data which are difficult to source in developing countries. In addition, optimal taxation assumes the existence of perfect tax administration, which do not exist in Nigeria and several developing countries.

2.2.3 The Expediency Theory

The expediency theory is related to the tax composition development theory advanced by Hinrichs in the year 1966. The theory presupposes that enhancement in tax structure has the tendency to increase government revenue and advance the economy of a nation (Bhartia, 2009). The theory emphasizes that every tax proposal must pass the test of practicability. Every group tries to protect and advance its own interests and authorities are often forced to reshape the tax composition to accommodate these pressures. Chigbu, Akujuobi and Appah (2012) noted that

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

taxation presents a powerful set of policy tools to the authorities and should be used effectively to remedy economic and social ills of the society such as income inequalities, unemployment, regional disparities and cyclical fluctuations and so on.

2.2.4 The Socio-Political Theory

Adolph Wagner advocated that social and political objectives should be the deciding factors in selecting taxes. The socio-political theory of tax advocates that a tax system should not be designed for the purpose of serving individuals, but should be used to cure the ills of the society as a whole (Chigbu, Akujuobi & Appah, 2012). Wagner did not believe in, the individualist approach to a problem. Each economic problem, according to Wagner, should be looked at in its social and political context so as to find an appropriate solution. In addition, the theory addresses the need for the government to effectively exploit tax revenue for the provision of economic and social facilities to the masses and by extension contribute to economic development.

2.2.5 Ability-to-Pay Theory

This theory developed by Authur Cecil Pigou (1920) suggests that every citizen should pay taxes according to his ability to pay, to meet the cost of government expenditure. This is synonymous with the principle of equity and justice in taxation. The higher income earners should pay more taxes than the lower income earners. Hence, no quid pro quo subsists. According to this theory, a citizen is to pay taxes just because he can and his relative share in the total tax burden is to be determined by his relative paying capacity. The basic tenet of this theory is that the burden of taxation should be shared by members of the society on the principles of justice and equity and these principles necessitate that the tax burden is apportioned according to their relative ability to pay (Chigbu, Akujuobi & Appah, 2012).

Supply-siders Theory was adopted for this study on the postulations that; the supply-siders believed in the use of economic incentives to encourage taxpayers. Arthur et al. (1979), using what is today known as the Laffer curve showed that there is an optimum tax rate that both encourages savings, investment and labour supply, and at the same time motivate tax payment obligation.

2.3 Empirical review

In an empirical work titled, "value-added tax and economic growth of Nigeria", Adereti, Sanni and Adesina (2011) used the ordinary least square techniques to determine the causal relationship between GDP, which was a proxy for Economic Growth and Value-Added Tax (VAT). The study found a substantial proportion of the variation in Economic growth could be accounted for by the variation of VAT revenue earnings. This lends credence to the catalytic role of tax reform to pubic generated revenue in Nigeria. However as have been noted in statistics that time series data does contain elements of trend over time and tends not to be stationary it can be concluded that the finding of this study is spurious especially as stationarity test was not conducted. To address this short coming Ogbonna and Appah (2012) used data from 1981-2007 to empirically investigated the impact of tax reform on economic growth in Nigeria. They conducted a unit root test and employed co-integration and error correction model as their

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

estimation technique. The results showed that both personal and company income taxes have positive and significant relationship with economic growth. This implies that tax reform stimulates economic growth validating the findings of Adereti, Sanni and Adesina (2011) even though the estimation technique was not robust.

Gachanja (2012), in researched the effect of tax reforms and economic factors on tax revenues in Kenya after Kenya introduced the tax modernization program in a bid to enhance revenue collection. A correlational study design was adopted in ascertaining the effect of tax reform on revenue generation. The study found that tax reforms in Kenya were negatively and significantly correlated with tax revenues, while economic conditions have positively impacted on revenues. The study concluded that the effect of tax reforms is counter- intuitive in Kenya. However the study only establish correlational relationship between the variables and did not examine the causal relationship among the variables.

In the work of Okafor, (2012) on Revenue Generation in Nigeria through E-Taxation. The study seek to determine whether electronic taxation does significantly curb tax evasion and avoidance ultimately leading to improved revenue generation. The study adopted survey method questionnaires were administered to residents of selected states in Nigeria and the data collected were analyzed using simple percentages and presented in tables. From the analysis the study discovered that electronic taxation will enhance revenue generation in the states studied, proper record keeping of a large data base of the citizenry achieved will enhance revenue generation. Also computer literacy of the citizens will also augment electronic tax administration and significantly curb tax evasion and avoidance as well as reduce operational compliance cost. The study concluded that e-government is an indispensable factor in achieving the objective of e-taxation.

Oriakhi and Ahuru (2014) anaysed the impact of tax reforms on tax revenue generation in Nigeria from 1981-2011. Johansen's co-integration methods and Granger causality test was utilized in estimating the models of the study. The proxy for tax reform used in the study were Value Added Tax, Company Income Tax, Petroleum Profit Tax and Custom and Excise Duties. The study concluded that there is a positive as well as statistically significant long-run relationship between tax reform and federally collected revenue in Nigeria while Custom and Excise Duties and Value-added tax (VAT) granger caused federally collected revenue. The study confirmed that tax reform that focuses on improving the tax system and reducing tax burden boosts government ability to generate more revenue.

Okoye and Ezejiofor (2014) ascertained whether e-taxation can resolve the issue of tax evasion and to prevent corrupt practices of tax officials in Nigeria. Three research questions and hypotheses were formulates in line with the objectives of the paper. Data were collected from both primary and secondary sources. Data collected were analyzed by use of means and standard deviation and the three hypotheses formulated were tested by the use of Z-test statistical tool. Findings show that E-taxation can enhance internally generated revenue and reduce the issue of tax evasion in Enugu state. Another finding is that E- taxation can prevent corrupt practices of tax officials. The implication of this is that the extent at which government has gone in inaugurating their e-tax administration is still low hence some tax administrators and tax payers are still not aware of the online tax assessment/collection in Nigeria. Based on the findings, the

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

researcher recommends that the Government should support the establishment of e-tax administration so as to start ripping the benefit of high rate of compliance among taxpayers and E-taxation should be implemented to reduce the diversion of government funds to private pockets.

Nwokoye and Rolle (2015) empirical examined the relationship between tax reforms and investment in Nigeria from 1981-2012. However the study employed Ordinary Least Square data analysis technique ignoring the fact that the study is used time series data. Tax reforms was proxied by value-added tax, company income tax and custom and excise duties while investment was proxied by gross capital formation. The study found that value-added tax, and company income tax are positive and significantly impacts investment, while, custom and excise duties is negative and significant impact on investment. The study concluded that value-added tax, and company income tax stimulated investment in Nigeria however custom and excise duties stifles investment in Nigeria. Even though the study was able to establish causality it was unable to tell if there was any long run relationship or impact among the variables.

Oti and Odey (2016) examined the relationship between tax reforms and revenue trends in Nigeria after the tax reform of 2012. The study employed Johansen co-integration test and Engle Granger Causality test to analysed the model of the study. Petroleum profit tax, company income tax, custom and excise duties, and value added tax were used as proxy for tax reforms in Nigeria for the period studied. The study found a long-run statistical significant relationship between tax reforms and total federally collected revenue in Nigeria. While unlike the study of Oriakhi & Ahuru (2014) the study reveals that only Petroleum Profit Tax granger-caused total federally collected revenue while Total Federally Collected Revenue granger caused Company Income Tax. Similarly like the study of Oriakhi & Ahuru, (2014) established, the study concluded that tax reform in Nigeria for the period studied significantly impacted revenue generation in Nigeria.

3. METHODOLOGY

This study adopts the ex-post facto method of research. The design is used because data needed for analysis already exist. The study covers Nigerian economy with time series data being used. Data relating to revenue from value added tax, companies' income tax, petroleum profits tax and federally collected revenue is adopted for the study. The data covered a period of thirty-seven (31) years, ranging from 1986-2017 for both dependent variable and the independent variables. The data for this study is obtained mainly from secondary sources. The secondary data that relates to selected taxes (companies' income tax, petroleum profits tax and value added tax) and federally collected revenue is collected from Central bank of Nigeria statistical bulletin and national bureau of statistics annual reports for the regression analysis. The study adopts the following techniques of data analysis: descriptive statistics, Augmented Dickey Fuller unit root test, Ordinary Least Square (OLS) multiple regressions, heteroskedasticity test and Variance Inflation Factor (VIF) in order to ascertain the effect of tax reforms (CIT, PPT and VAT) on revenue generation in Nigeria.

From the above function, the model below was derived:

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

$FCR_t = \alpha + \beta_1 CIT_t + \beta_2 PPT_t + \beta_3 VAT_t + \varepsilon_t$

Where:
FCR_t = federally collected revenue for the period covered
CIT_t = Companies' income tax for the period covered
PPT_t = Petroleum profits tax for the period covered
VAT_t = Value Added tax for the period covered
α = Constant Term
β = Beta coefficient
ε = error term

4. FINDINGS AND DISCUSSIONS

The results for data analysis on the effect of tax reform on revenue generation, ranging from descriptive statistics, the summary of stationarity test results, summary of regressions analysis, Heteroskedasticity test and the variance inflation factor are presented below.

Table 1 Descriptive Statistics Test Result

	CIT	FCR	PPT	VAT
Mean	346692.6	4762.948	4108935.	115113.0
Median	192600.0	5196.046	1378550.	25502.69
Maximum	1180407.	11116.85	32010000	564890.0
Minimum	12275.00	201.9108	42803.00	5.030000
Std. Dev.	360648.2	3589.386	8571244.	165354.3
Skewness	0.909307	0.263911	2.811712	1.499385
Kurtosis	2.572103	1.811027	9.318106	4.172113
Jarque-Bera	3.490456	1.692253	71.54135	10.36647
Probability	0.174605	0.429074	0.000000	0.005610
Sum	8320623.	114310.7	98614432	2762712.
Sum Sq. Dev.	2.99E+12	2.96E+08	1.69E+15	6.29E+11
Observations	24	24	24	24

Source: Authors' Computation, (2019)

The descriptive statistics test provides brief descriptive coefficients that summarize the data set used in this study. It is a representation of the entire population of the study. The descriptive statistics is broken down into measures of central tendency and measures of variability, or spread. The descriptive statistics shows the mean, maximum, minimum, standard deviation, skewness and kurtosis with twenty-four (24) observations of the variables used in the

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

study. The mean describes the average value of the series and the standard deviation measures the deviation of the data from the average.

FCR has a Mean of 4762.948 with Standard Deviation of 3589.386. It also has Skewness of 0.263911 with Kurtosis of 1.811027. In a like manner, CIT has a Mean of 346692.6 with Standard Deviation of 360648.2. Also, it has a Skewness of 0.909307 with Kurtosis of 2.572103. PPT has a mean of 4108935 with standard deviation of 8571244. It also has a Skewness of 2.811712 with Kurtosis of 9.318106. VAT has a mean of 115113.0 with standard deviation of 165354.3. It also has a Skewness of 1.499385 with Kurtosis of 4.172113. The maximum and minimum values of the variables are as follows: FCR has a maximum of 11116.85 and minimum of 201.9108. CIT has maximum of 1180407. As well as minimum of 12275.00. PPT has maximum of 32010000 with minimum of 42803.00. VAT has maximum of 564890.0 with minimum of 5.030000. This implies that, the data are normally distributed.

Table 2 Unit Root Test Results

Null Hypothesis: has a unit root								
Exogenous: Constant								
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel								
Lag Length: 7 (Automatic - based on AIC, maxlag=7)								
* MacKinnon (1996) one-sided p-values.								
		CIT I(1)		**VAT I(1)**		**PPT I(1)**		**FCR I(1)**	
		t-Statistic	Prob.*	t-Statistic	Prob.*	t-Statistic	Prob.*	t-Statistic	Prob.*
Phillips-Perron test statistic		-5.18946	0.0002	-4.69261	0.001	-9.99406	0.000	-10.5943	0.000
Test critical values:	1% level	-3.67017		-3.76959		-3.67017		-3.67017	
	5% level	-2.96397		-3.00486		-2.96397		-2.96397	
	10% level	-2.621007		-2.642242		-2.621007		-2.621007	

Source: Authors' Computation, (2019)

The Phillips-Perron (PP) unit root test is used in order to investigate the order of integration among the variables (CIT, VAT, PPT, and FCR). The series is said to be stationary if the absolute computed value exceeds the absolute critical value, and non-stationary if otherwise. From table 2, the series CIT, VAT, PPT, and FCR were not stationary at conventional level. However, they were stationary at first difference level. -5.18946, -4.69261, -9.99406 and

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

-10.5943 respectively. With their associated p-value of 0.0002, 0.001, 0.000 and 0.000 respectively. Therefore, we reject the null at first difference test.

Table 3 Lag length Selection Criteria

VAR Lag Order Selection Criteria						
Endogenous variables: CIT, FCR, PPT, VAT						
Exogenous variables: C						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1123.921	NA	5.28e+41	107.4210	107.6200	107.4642
1	-1080.173	66.66343	3.90e+40	104.7784	105.7731	104.9943
2	-1016.225	73.08320	4.95e+38	100.2119	102.0025	100.6005
3	-941.7485	56.74398*	3.43e+36*	94.64271*	97.22915*	95.20403*
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Source: Authors' Computation, (2019)

The study used the Akaike Information Criterion (AIC) to select the optimum lag length to be used in the Vector Error Correction Model. The AIC selects lag length 3.

Table 4 Cointegration test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.983656	169.0579	47.85613	0.0000
At most 1 *	0.880978	82.66659	29.79707	0.0000
At most 2 *	0.793163	37.96926	15.49471	0.0000
At most 3 *	0.207241	4.876947	3.841466	0.0272
Trace test indicates 4 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.983656	86.39127	27.58434	0.0000
At most 1 *	0.880978	44.69733	21.13162	0.0000
At most 2 *	0.793163	33.09232	14.26460	0.0000
At most 3 *	0.207241	4.876947	3.841466	0.0272
Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Authors' Computation, (2019)

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

Table 5 Johansen Normalisation coefficient

1 Cointegrating Equation(s):		Log likelihood	-983.0818
Normalized cointegrating coefficients (standard error in parentheses)			
FCR	CIT	PPT	VAT
1.000000	0.004426	-0.000933	-0.023723
	(0.00108)	(8.9E-05)	(0.00165)
	[4.09814]	[-104.8314]	[14.37757]
Adjustment coefficients (standard error in parentheses)[t-statistic]			
D(FCR)	-0.412710		
	(0.18428)		
D(CIT)	-59.25614		
	(10.6175)		
D(PPT)	-179.8551		
	(515.396)		
D(VAT)	10.30829		
	(11.8443)		

Source: Authors' Computation, (2019)

In the long run CIT has a negative impact on FCR while PPT and VAT has a positive impact on FCR. The coefficients are statistically significant at 5% level. In conclusion the null hypothesis of no cointegration is rejected against the alternate hypothesis of cointegrating relationship in the mode at the t- statistic of [4.09814], [-104.8314], [14.37757] greater than 2 .

Table 6 Cointegration long run model

Cointegrating Eq:	CointEq1
FCR(-1)	1.000000
CIT(-1)	0.004426
	(0.00108)
	[4.11570]
PPT(-1)	-0.000933
	(8.9E-05)
	[-10.5269]
VAT(-1)	-0.023723
	(0.00165)
	[-14.3769]
C	517.9364
Standard errors in ( ) & t-statistics in [ ]	

Source: Authors' Computation, (2019)

From the result in table 6 it can be inferred that in the long run CIT is negative and significantly impacts FCR as can be seen from the result of the t- statistics 4.11570 which is higher than 2. PPT and Vat are positive and significantly impacts FCR in the long run as depicted by the t-statistics -10.5269 and -14.3769 respectively.

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

Using system equation to test the coefficient for the short run variables

Table 7 System equation of short run variables

System: UNTITLED				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.412710	0.184278	-2.239611	0.0302
C(2)	0.002678	0.375719	0.007129	0.9943
C(3)	0.117602	0.578411	0.203320	0.8398
C(4)	-0.007492	0.006223	-1.204014	0.2350
C(5)	0.006693	0.006672	1.003162	0.3213
C(6)	-0.000182	0.000110	-1.648910	0.1063
C(7)	-0.000109	0.000135	-0.806405	0.4243
C(8)	0.004698	0.005244	0.895839	0.3752
C(9)	0.002899	0.004595	0.630964	0.5313
C(10)	139.4974	520.4018	0.268057	0.7899
Determinant residual covariance		5.39E+35		
Equation: D(FCR) = C(1)*(FCR(-1) + 0.00442611783037*CIT(-1) - 0.0009329441955*PPT(-1) -0.023723139669*VAT(-1) + 517.936419941) + C(2) *D(FCR(-1)) + C(3)*D(FCR(-2)) + C(4)*D(CIT(-1)) + C(5)*D(CIT(-2)) + C(6)*D(PPT(-1)) + C(7) *D(PPT(-2)) + C(8)*D(VAT(-1)) + C(9)*D(VAT(-2)) + C(10)				
Observations: 21				
R-squared				0.626245
Adjusted R-squared				0.320446
S.E. of regression				1358.315
Durbin-Watson stat				1.956751

Source: Authors' Computation, (2019)

Table 8 Post Diagnostic Test

VEC Residual Heteroskedasticity Tests (Levels and Squares)			
Joint test:			
Chi-sq	df	Prob.	
182.0400	180	0.4434	
Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.457483	Prob. F(2,17)	0.6404
Obs*R-squared	1.174673	Prob. Chi-Square(2)	0.5558

Source: Authors' Computation, (2019)

The Test of Heteroskedasticity given the P-value of 0.4434 indicates that there is no problem of heteroskedasticity The Breusch-Godfrey Serial Correlation LM Test indicates that, there is no autocorrelation. This is given by the F-statistic of 0.457483 and its corresponding P-value of 0.6404, and corroborated by observed R-squared of the auxiliary regression P-value of 0.5558.

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

As earlier mentioned in chapter one of this study, this research work is meant to find answers to three research questions from which the objectives of the study and the research hypotheses were formulated. From the statistical analysis above, companies' income tax has a negative but statistically significant effect on revenue generation in Nigeria which implies that an inverse relationship exist between the dependent variable and the independent variable. Consequently, as companies' income tax increases, revenue generation decreases and vice versa. However, petroleum profits tax has a positive but statistically significant effect on revenue generation in Nigeria which implies that an inverse relationship also exist between the dependent variable and the independent variable. Thus, as petroleum profits tax increase, revenue generation increases and vice versa.

Similarly, value added tax has a positive but statistically significant effect on revenue generation in Nigeria which implies that an inverse relationship also exist between the dependent variable and the independent variable. Thus, as value added tax increases, revenue generation increases and vice versa. This study aligns with the studies conducted by Adegbite and Shittu (2017), Eshghi, Eshghi and Li (2016); Saidu (2015); Mandinga (2015); Jana (2013); Djankov, et al (2010); Svetlana (2009); Vartia (2008); Demirhan and Masca (2008); Claudio and Soraphol (2003); and Voget (n.d) who concluded in their study that tax reform have a positive but significant relationship with revenue generation. This study also contradicts the findings of Nwokoye and Rolle (2015), who found that Companies Income Tax (CIT) negatively and significantly stimulates revenue generation in Nigeria.

5. CONCLUSION AND RECOMMENDATIONS

The objective of this study is to empirically investigate the impact of the various tax reforms beginning with the introduction of value-added tax in 1993 and the National tax policy of 2011 on federally collected revenue in Nigeria. Based on the statistical analysis made in chapter four, this study therefore arrives at the following basic conclusions. subsequently, the study concludes that tax reforms has a significant effect on revenue generation in Nigeria which implies that, as taxes increases, revenue generation increases and vice versa. Therefore, the study finally arrives at the conclusion that the tax reforms have an inverse relationship with revenue generation in Nigeria. Based on the findings and conclusions made, the study therefore makes the following recommendations:

i. Companies' income tax goes to show that tax reform by improving the tax system, reducing tax avoidance and evasion, reducing tax burden by scaling down the company income tax (CIT) from 30 to 20 percent improve the ability of the government to generate more revenue through taxation. This has the potential to improve both the quantity and quality of public expenditure, and de-link Nigeria's public expenditure from the happenings in the international oil market, thereby hedging the economy away from oil price volatility. However, in order to consolidate the benefits from tax reforms effort should be made to achieve full autonomy for the Federal Inland Revenue Service (FIRS), tackle the hydra-headed monster of multiple taxation and promote accountability and transparency in government business so as to restore the confidence of the tax payer in the tax system.

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

ii. Petroleum profits tax policy should have more significant impact on the revenue base of Nigeria, the government should minimize or find ways of eliminating totally the widespread corruption and leakages in the PPT administration.

iii. With regards to VAT, there should be an upward review of the VAT, from the current 7.5% to about 10% on luxury goods while the current rate of 7.5% may be maintained on necessities. Also, developing a sound billing habit, increasing consumers' consciousness on demanding bills, easing the tax reduction and VAT refund process, discouraging the sellers' trend of demanding huge amount of tax credit, developing cooperate and positive thinking of VAT personnel to correct mistakes of the sellers on maintaining the account and relevant training for the VAT personnel are some measures to be taken into consideration.

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Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com

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APPENDIX

Year	CIT (₦'B)	PPT (₦'B)	VAT (₦'B)	FCR (₦'B)
1986	1103	4811	N.A	12,595.50
1987	1235	12504	N.A	25.3806
1988	1551	6814	N.A	27.5967
1989	1914	10598	N.A	53.8704
1990	2997	26909	N.A	98.1024
1991	3828	38616	N.A	100.9916
1992	5417	51477	N.A	190.4532
1993	9554	59208	N.A	192.7694
1994	12275	42803	5.03	201.9108
1995	21873	42858	6.2569	459.9873
1996	22000	76667	11.286	523.597
1997	26000	68574	13.9053	582.8111
1998	33315	68000	16.2068	463.6088
1999	46211	164300	47,100	949.1879
2000	51147	525100	58,500	1906.1597
2001	68660	639200	91,800	2,231.60
2002	89100	392200	108,600	1731.8375
2003	114800	683500	136,400	2575.0959
2004	113000	1183500	159,500	3,920.50
2005	140300	1904900	178,100	5,547.50
2006	244900	2038300	221,600	5965.1019
2007	275300	1500600	289,600	5,727.51
2008	420600	2812300	401,700	7866.6
2009	600600	1256500	481,400	4844.5923418
2010	666060	1944700	564,890	7303.67155
2011	569073	30700000	3410.1	11116.8469582437
2012	816519	32010000	3572.51591850929	10654.7471901125
2013	963551	2666340	3905.38033882418	9759.79381548908
2014	1180407	2453950	3672.03	10068.852
2015	993187	2678430	2859.02382724525	6912.50155063575
2016	299803	6400000	2471.80852963409	5679.03279028056
2017	551942	6361710	3578.48247890244	7317.7

Source: Central Bank of Nigeria Annual Statistical Bulletin

Corresponding Author: +2347031567777
Email Address: maurienwala@gmail.com