ISSN: 157-9385
Website: www.arabianjbmr.com/JPDS_index.php

THE IMPACT OF TAX REFORM ON FEDERAL REVENUE GENERATION IN NIGERIA

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Abstract

The main objective of this paper is to ascertain the impact of tax reforms on tax revenue generation in Nigeria. Specifically, an attempt will be made to verify the relationship between federally collected revenue and specific tax revenue generation sources. The study employed annual time series data spanning the years (1981-2011). The various income taxes were used as a proxy for tax reforms. By way of preliminary test, the Augmented Dickey fuller was employed to test for unit root. All the time series variables were non-stationary at levels but became stationary after first differencing. The Johansen's co-integration test shows that long-run relationship exists between tax reform and federally collected revenue in Nigeria. The Granger causality shows that custom and excise Duties and value-added Tax granger causes federally collected revenue . The Partial Stock Adjustment Model shows that the various income taxes were statistically significant and have positive relationship with federally collected revenue. The coefficient of the Error correction model showed that 66.2940 percent of the deviation of federally collected revenue from its long-run equilibrium value can be reconciled yearly. On the whole, our study shows that tax reform by improving the tax system and reducing tax burden enhances the ability of the government to generate more revenue. The study proposed that VAT and CED provides good tax handle for the government to maximize its revenue. However, to maximize revenue from these taxes, their administration should be improved upon with effort directed towards reducing tax avoidance and evasion.

Keywords*:* Tax reform, federally collected revenue, unit root, cointegration, Granger causality, ECM and Nigeria.

1.0 INTRODUCTION

A major challenge facing Nigeria's Economy is the diversification of its revenue base. This diversification has become necessary with the realization that dependency on crude oil earnings cannot sustain public expenditure. The Economy face the danger of being grounded if proactive efforts are not made towards sustaining the diversification of the revenue base. The

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Website: www.arabianjbmr.com/JPDS_index.php

U.S.A. and other major oil consuming nations have consistently reduced their demand for Nigeria's oil over the last few years. This is not a good signal for our fiscal operations which are oil revenue driven. The U.S.A and other developed economies have designed new energy policies and strategies which motivates the creation of synthetic products that may eventually displace or drastically reduce their dependency on crude oil. These development is a clear invitation to Nigeria to make adequate move towards diversifying the revenue base.

The management of the Nigerian economy from 1967-1979 and from 1983 to 1999 did not initiate appropriate diversification of the revenue base of the economy. Though some tax reforms were implemented during military rule, they did not contain adequate initiatives for appreciable revenue productivity (Odusola, 2006). In addition the Structural Adjustment Programme (SAP) implemented by the administration of Ibrahim Babangida, with the broad intent of diversifying the economy, did not achieve its objectives. Military governments in Nigeria were notorious for continuously looting the treasury. The Petroleum Profit Tax (PPT) together with the mining rents and royalties constituted the bulk of revenue for the nation. The country has a deceptively high tax revenue-GDP ratio, a situation that reflects what is obtainable in countries like USA, United Kingdom and Netherlands. However, this spurious high tax-GDP ratio is betrayed by its external effective incidence and its high instability (Anyanwu, 1977:88).

Nigeria has been largely dependent on primary products for the generation of a high proportion of his recurrent revenue. Nigeria's revenue base has oscillated between primary products. Before the discovery of oil (pre-70s), the bulk of the public revenue came from exportation of agricultural products. Essentially, import duties, as an integral aspect of indirect tax was a relevant source of revenue, contributing on the average between 40 and 50 percent of the public generated revenue (Central Bank of Nigeria, 2010). The exportation of oil in from the first quarter of the 70s shifted the revenue base in favour of oil (Odusola, 2006, Iyoha, 2003). Since then, oil has constituted the bulk of public generated revenue, export earnings and foreign exchange reserve (Obadan, 2012).

The excessive dependency of the Economy on crude oil sales proceed has grave implications. The economy has become vulnerable to international oil market upheavals. Because public expenditure trends with public generated revenue, then upheavals in the international oil market will be transmitted domestically into the Nigeria's economy through unplanned changes in public expenditure (Akpan, 2009; Olusegun 2008; Akintoye, 2006 and Adeniyi, 2008). Okonjo Iweala (2005) remarked that there are two channels through which volatility in the oil market can be transmitted domestically into the Nigeria's economy. Firstly, negative oil price shock by reducing public revenue indispensably reduces the quality of pubic expenditure. Secondly, oil price volatility creates an environment of uncertainty thereby repelling private investment.

The financial responsibility of modern democratic government is large. In the words of Sven Steinmo (1993). "Modern government needs lot of money. How they get it and from whom they get it are two of the most difficult political issues faced in any modern political economy". It is true that the resurgence of market tools as a basis for economic management and the fast globalization of economic activities requires the retrenchment of the state fiscally, but the new paradigm demands that the state should create the enabling environment through capacity building and facilitation (Okojie, 2003; Obadan, 2007 and World Bank, 2006). The financial responsibility of countries like Nigeria, where there is dearth of infrastructures, swelling rank of

ISSN: 157-9385
Website: www.arabianjbmr.com/JPDS_index.php

unemployed army, all pervading poverty, protracted Boko Haram insurgency etc is profound. Hence, it is imperative the country must diversity its revenue base to meet the profundity of its financial responsibilities.

On retuning to democratic dispensation on May 29, 1999, the Obasanjo's administration quickly saw the need to broaden the revenue base of the nation, so as to hedge the economy from re-occurring incidence of oil market shocks and provide sufficient financial resources to meet the profundity of the financial needs of the country. It become imperative to reform the tax administrative regime. To this extent, taxation has been defined as the transfer of resources from private sector to the public sector, so that the government can meet its financial responsibilities (Appah, 2004; Azubuike, 2009; Appah and Oyandonghan, 2011).

Tax reform is simply the series of action taken by Nigeria's government to promote the tax system. It is not novel as Nigeria has embarked on series of tax reforms. The several tax reforms were designed to broaden the tax base, reduce the tax burden on tax payers, restore the confidence of the tax payer on the tax system, and promote voluntary compliance on the part of the tax payer. On the whole, the ultimate goal of tax reform is the enhancement of public revenue generation.

Several studies pertaining to tax reforms in Nigeria have tied tax reform on economic growth undermining public generated revenue. Against this back drop, this paper is designed to examine the influence of tax reforms, beginning with the introduction of value-added tax (VAT) in 1993 to the new national tax policy of 2011 on public generated revenue in Nigeria. The paper is divided into five sections. Section I is the introduction, section II is dedicated to theoretical issues and empirical literature review, section III presents the methodology of the work, section IV presents and analyses the regression results and finally, section V presents the summary and recommendations.

2.0 THEORETICAL ISSUES

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.

The recommendations of the supply-siders became a major debate in the Washington consensus during the 90s. Their recommendations were generously patronized by Ronald Reagan's administration in USA. Indeed, tax reform became an increasingly important element of adjustment programme in LDCs and massively supported by world bank and IMF.

The essence of tax reform in both developing and developed countries of the world is the reduction or eradication of fiscal deficits through appropriate restructuring of the tax systems to attract higher revenues or to improve the revenue elasticity or buoyancy of the tax structure. Tax reform is therefore a deliberate design to increase revenue, improve efficiency, and promote equity (World Bank, 1991). Institutional aspects of tax reforms involve the semi-autonomous revenue authority model, where traditional line departments are separated from the ministry of finance and granted legal status of semi autonomous revenue authorities. Tax reform involves

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Website: www.arabianjbmr.com/JPDS_index.php

broad issues of economic policy as well as specific problems of tax structure design and administration (Musgrave, 1987).

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 assume the existence of perfect tax administration, which do not exist in Nigeria and several developing countries.

Anyanwu (1997) defined taxation as a compulsory transfer or payment (or occasionally of goods and services) from private individuals, institutions or groups to the government. Taxation is simply a pecuniary burden placed on individuals, so as to support the government. The ultimate essence of taxation is the provision of adequate revenue for the government to carry out its statutory obligations for the economic well being of the society (Appah, 2004; Azubuike, 2009). The government needs resources to finance its traditional functions. These functions include the stabilization of the economy, maintenance of government machinery, responsibility to external economics, and provision of basic infrastructures (Anyanwu, 1997; Abiola and Asiweh (2012).

The payment of taxation does not necessitate that the individual must get a commensurate benefit from the government. (Nightingale, 2002). In support of this reasoning Osunkoya (2009) indicated that the payment of tax does not mean that the government must do something in the locality of the tax payer. However, the fact that there is no quid pro quo in tax payment does not mean that the government should undermine its responsibility with respect to the provision of basic amenities. Odusola (2006) hinted that Nigerians do not like paying tax because they belief that the government officials are corrupt and will enrich themselves with the realized tax revenue. It follows that effective tax reform must enlist the confidence of the tax payer in both the tax system and its administration. It has been observed in the literature that people are not enthusiastic about paying taxes, yet they are inevitable for the provision of social welfare (Nightingale, 2002).

2.1 EMPIRICAL LITERATURE REVIEW

The impact of taxation on macroeconomic variables have been undertaken by several studies. Apart from revenue generation, taxation is often utilized to create both incentive and disincentive effects. It is usually employed to enhances desirable production activities through lower tax rates and discourage socially undesirable activities through high tax rates. High tax rate distort the demand and supply of labour, leading to impairment of productivity. Hence, taxation is veritable tool that could be used to influence savings behaviour, labor supply, education, and productivity.

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The need to mobilize own-financial resources for the growth and development of developing countries cannot be overemphasized. In order to finance adequate level of public expenditure and largely minimize budget deficits, developing countries most undertake significant tax reforms (United Nations, 2002). In an attempt to meet the needs of the public sector, the World Bank Global Monitoring Report (2005) noted that countries must rely on an effective tax system in the long run, but that most developing countries have not been able to raise sufficient revenues for essential public infrastructure and human development services. A strong indication that something is either wrong with our policy reforms or its administration. There is no point in designing a good tax structure that cannot and will not be administered effectively (Bird, 1991).

Engen and Skinner (1996) suggested that a number of recent theoretical studies have used Endogenous growth models to stimulate the effects of tax reform on economic growth. All these studies conclude that reducing the distortionary effects of the current tax structure would permanently increase growth.

In a bid to empirically investigate the impact of tax reform on Nigeria's economic growth, Okafor, (2012) employed the use of ordinary least square, where economic growth was proxied by the Gross Domestic Product (GDP) and tax reform proxied by the various income tax-petroleum profit tax (PPT), value-added tax (VAT), custom and excise duties (CED) and company income tax (CIT). The regression result showed goodness of fit and all the income taxes have positive coefficients showing that tax reform can stimulate economic growth.

In an empirical work titled, "value-added tax and economic growth of Nigeria", Adereti, Sanni and Adesina (2011) using the ordinary least square techniques regressed the GDP, which was a proxy for Economic Growth on Value-Added Tax (VAT). The model estimated has a high explanatory power as the coefficient of determination was put at 0.950544, showing that substantial proportion of the variation in Economic growth proxied by the GDP is accounted for by the variation of VAT revenue earnings. This lends credence to the catalytic role of tax reform to pubic generated revenue. In a closely related approach Ogbonna and Appah (2012) using time series analysis and employing the scope (1981-2007) empirically investigated the impact of tax reform on economic growth in Nigeria. Because the time series variables were non-stationary at levels, they employ the methodology of co-integration and error correction modeling. The use of Augmented Dickey fuller showed that the variables were stationary after first difference. The partial stock adjustment model was used in estimating the ECM. The results showed that changes in all the income taxes have positive coefficient. This implies that tax reform will stimulate economic growth. The use of Granger causality showed that all the income tax granger causes the GDP.

2.2 TAX REFORMS IN NIGERIA

Tax reform became imperative in Nigeria because of the nature of its tax structure, which according to Anyanwu (1997) was complex, inelastic, inefficient, inequitable and unfair. Moreover, the country depended on import and export duties, while there were no opportunities to generate revenue through consumption-based tax such as VAT. The dependency of the country on taxes relating to foreign trade activities had made the revenue base of the country to be very unstable. In addition, the Nigeria's tax base was very narrow while the tax rate was very high.

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It is against this back drop that Nigeria's government decided to reform the tax system. The main objective behind the tax reform was to create an efficient tax system based on taxes that are politically feasible and administratively practicable, thereby generating more revenue and at the same time reducing the tendency for economic distortions. According to Alli (2009), some of the objectives of tax reform in Nigeria are:

- To bridge the gap between national development needs and the funding of the needs.
- To accelerate improved service delivery to the public.
- To boosts non-oil revenue by structurally diversifying the economy.
- Make pragmatic efforts at reviewing the tax, laws thereby ameliorating the incidence of tax avoidance and Evasion.
- To increase the confidence of the public on the tax system, thereby provoking voluntary compliance.
- To improve the system of tax administration thereby making it more responsive, reliable, skillful and tax payer's friendly.
- To reduce the complexity of the tax system both for the tax administrator and the tax payer.

The tax reform of the 90s was preceded by the inauguration of two study groups. The first study group with respect to direct tax was inaugurated on the 9th of January, 1991. The group was assigned to take a critical examination of the Nigeria's tax system since independence, evaluate the possible changes that have been made and assess the effectiveness of the system and proffer necessary recommendations.

The second group was inaugurated on the 20th of April, 1991 and was assigned to assess the indirect tax regime of Nigeria. A major outcome of the study was the shift from foreign trade activity towards consumption-based tax. To this extent the value-added tax (VAT) came into existence by decree 102 of 1993, but its implementation started from January 1994. VAT replaced the sales tax, which has been in existence since 1986. It was a consumption-based tax imposed on both domestic and imported goods. However, several items such as food, medical and pharmaceutical product, books, news papers, magazine, house rent, commercial vehicles and spare parts including services rendered by community and people's banks were VAT-free (Odusola, 2006).

Initially, the federal government's share of the VAT proceeds was 20 percent and state and local governments received 50 and 30 percent respectively. This situation was reversed in the year 1995, as the share of the federal government was increased to 50 percent while state and local governments respectively received 30 and 20 percent. The agitations from the state government that VAT supplanted sales tax which statutorily was a revenue source within the domain of the state government, and hence the revenue sharing formula should be in their favour, provoked a revision. The reviewed formula became 35, 40 and 25 percent respectively for federal, state and local government. Further agitations from sub-national governments that their revenue base cannot meet their fiscal responsibilities provoked yet another revision of the VAT-sharing formula. The new formula assigned 15 percent to the federal government, while states and local government respectively received 50 and 25 percent.

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Another important reform was the introduction of Decree No 21 of 1998. This decree assigned eight, eleven and twenty specific taxes respectively to the federal, state and local government. The essence of this decree is to stop the duplication of taxes at the state and local governments level and discourage the incidence of multiple taxation. To this extent, the Joint Tax Board (JTB) was instructed to publish a list of various taxes at each of the government's level. Further, sub-national government were prohibited from using ad-hoc tax administrators.

2.2.1 Recent Tax Reforms

The tax reform of 2004 under the chairmanship of Ifueko Omoigie Okauru marked a milestone improvement in tax administration in Nigeria. The achievements and progress made is one that has not been surpassed in the history of tax administration in Nigeria. The tax reforms of 2004 constitute an integral part of the National Economic Empowerment and Development Strategies (NEEDS).

The tax reform of 2004 was the outcome of recommendations made by the study group (2002) and the working group (2003) which reviewed the work of the former. Both groups made wide consultations after which they came out with nine bills that were presented by the federal executive council (FEC) to the national assembly for ratification. These bills are: the federal Inland revenue service act 2004, personal income tax act 2004, petroleum profit tax act 2004, value-added tax act 2004, education tax act 2004, custom excise tariff etc (consolidation) Act 2004, National Sugar Development Act 2004 and National Automotive Council Act 2004.

Essentially, the study group (2003) recommended that Nigeria needed national tax policy that is principally directed towards national development. Such national policy will constitute a means of attracting foreign direct investment, providing direction and focus on general tax practices, blending various opinions on taxes of different kinds as well as the issues surrounding those opinions, consolidation of several policy documents into a single document for easy reference (FIRS Hand Book, 2012).

In addition, certain recommendations were made by the study group, which among others include:

- Taxation should hence forth be regarded as an obligation for any Nigerian citizen that expects the government to provide basic amenities and meet other statutory obligations.
- Taxation should be solely collected by authorized tax administrators, hence there is prohibition of the act of using consultants and ad hoc tax administrators.
- The country will shift from direct taxation to indirect taxation with less distortionary effect.
- Compilation of registers for individuals and corporate tax payers, and also the issuance of smart tax identify cards for all tax payers.
- The reduction of company income tax from 30 percent to 20 percent and personal income tax from 25 to 17.5percent.

On April 7, 2012 the national tax policy document was launched by president Goodluck Jonathan. Summarily, some of the salient provisions of the national tax policy are: the provision of a stable preference point for all stakeholders in the country on which they shall be held

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accountable, shifting the focus of the tax system from direct to indirect tax that is considered less distortionary, reducing the personal income tax from 25 percent to 17.5 percent, and company income tax from 30 to 20 percent, strategically increasing VAT from 5 to 15 percent, avoiding internal multiple taxation on income, property, imports, production and turnover by the various tiers of government, reducing and streamlining the number of tax incentives in the Nigeria tax system, collection of taxes only by career administrators that are public servants, thereby prohibiting the use of ad-hoc tax administrators, vesting of the power to impose, reduce, increase, review or cancel any rate of tax on the National Assembly, especially with respect to taxes from the executive, subjecting the Nigeria's tax system to comprehensive reviews every three years pertaining to existing tax legislations.

An essential component of the national tax policy is the introduction of tax payers identification number (TIN). TIN was made possible by cooperation between the state and federal government. It is a nation-wide electronic base system for the registration and storage of data of tax payers in Nigeria. President Jonathan remarked that TIN by revolutionizing tax administration in Nigeria will expand the country's tax base and increased the opportunity for tax generated revenue. He further remarked that TIN will modernize tax administration in Nigeria and ensures it is in keeping with best global practices. Overall, the aim of the national tax policy is to have a nation and people that see taxation as a partnership with the government.

It is believed that the partnership between the government and tax payers will broaden the tax base by bringing into the tax net both the formal sector and the informal sector that has consistently been elusive to tax administrators. Other notable reforms with statutory revenue implications are the education tax which was introduced in the year 1994 through decree No. 7 and the personal income tax act of 14th June, 2011 through Nigeria official Gazette No. 115 volume 98. The PITA deleted sections 3 (1) (b) (ii)-(xii) of the personal income tax act of 2004 which provided employees with free tax allowances etc. This imply that free tax allowances are no longer practicable. This would have been a desirable and welcome development for state governments since it will broaden their tax base, but with increase in statutory relief allowances under PITA, the prospecting benefits maybe defeated.

Yet, another interesting aspect of tax reform in Nigeria is the restructuring of Federal Inland revenue service (FIRS).

The restructuring became imperative because of the understanding that the existing structure was ineffective, chaotic and was giving fillip to indiscipline and fraud, and had cause the government to lose huge amount of tax revenue. The intent was to supplant the existing structure with one that allows feedback from bottom to the top, and also organized work around team.

The first step in restructuring FIRS was to make tax collection a function of ICT. In addition, all the various VAT offices and the area tax offices (ATOs) were lumped together and renamed integrated tax office (ITOs). Furthermore, after wide and due consultation, the management of FIRS concluded that there are seven strategic pillars on which to hinge the tax reform agenda. These strategic flanks were funding/autonomy, capacity building (improve structure and staffing); process re-engineering; auditing oil/gas and large tax payers; tax payer

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education, strengthen investigation and enforcement, and automate tax collection (FIRS Handbook, 2012).

Essentially, the FIRS was granted autonomy in the year 2007 under the FIRS Act 2007. By this, it became independent in both funding and human resources, being free from civil service bureaucracy. Several other structural changes were made. For instance, new departments were created. Some of the newly created departments were: process operation department (POD); Audit department; Tax policy research and development department (TPRD), Regional coordination department, modernization department etc. Each of these departments was assigned specific function, but collaboratively work towards the achievement of the reform agenda. As part of net working, group of departments was lumped together, and headed by directors that report directly to the executive chairman of FIRS.

The federal Inland Revenue service (Establishment) Act 2007 established the tax appeal tribunal to resolve disputes arising from the act, as well as the administration of the legislation listed in the first schedule to the act.

2.3 TAX REFORM AND ENHANCED REVENUE GENERATION IN NIGERIA

The single most important index to measure the performance and the outcome of the recent tax reform is the improvement in revenue collection, particularly non-oil tax revenue. Revenue collection serves as the baselines for assessing the impact of the recent tax reform and the re-structuring of the federal Inland Revenue Service (FIRS). Since the reform in 2004, tax collected revenue has been increasing on an average of 26percent per annum. Today, the ratio of tax revenue to the GDP stood at 7percnet. This however is dismal when compare with what is obtainable in emerging economies where the ratio lies between 15 and 20percent (Okonjo Iweala, 2012).

TABLE 1: COLLECTION OF TAXES FROM 2005-2011 (TARGET VS ACTUAL

Tax Types	2005		2006		2007		2008		2009		2010		2011	
	Target ₦b	Actual ₦b	Target ₦b	Actual ₦b	Target ₦b	Actual ₦b	Target ₦b	Actual ₦b	Target ₦b	Actual ₦b	Target ₦b	Actual ₦b	Target ₦b	Actual ₦b
PPT	876.1	1,352.2	2,780.6	1,352.2	1,147.5	1,132.0	1,536.4	2,060.9	638.8	939.4	1,203.2	1,480.36	1,927.53	3,070.59
CIT	174.0	170.2	158.8	246.7	299.0	332.4	364.0	420.6	587.0	600.6	587.0	666.06	776.50	715.44
VAT	231.0	192.7	77.8	232.7	265.0	312.6	323.0	401.7	481.4	580.0	580.0	564.89	770.09	659.15
E/T	17.1	21.8	35.9	28.4	36.1	59.6	42.0	59.5	139.5	74.8	74.8	89.18	97.24	139.74
Consolidated	6.2	4.9	1.0	5.9	5.7	10.3	9.0	27.0	29.9	53.6	53.6	32.93	45.00	43.87
NITDEF	-	-	-	-	-	-	-	2.5	4.4	8.8	8.7	5.88	8.72	8.68
Total	1,304.4	1,741.8	3,054.1	1,866.2	1,753.3	1,846.9	2,274.4	2,972.2	1,909.0	2,197.6	2,507.3	2,839.3	3,625.10	4,628.48

Source: FIRS Gauge (2012), a quarterly publication of the federal Inland Revenue Service October-December, 2011.

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Website: www.arabianjbmr.com/JPDS_index.php

Table 1 above makes comparison between targeted and realized tax revenue for the years 2005-2011. In 2005, government target was N1.3trillion but the actual revenue surpassed by standing
at N1.7trillion. by 2006, thought the actual tax revenue fell short of the projected tax revenue, but the revenue collected for that year marked an improvement over the previous year. Before 2004, actual collected tax revenue never exceeded N1 trillion (FIRS Gauge, 2012). In the year 2007, actual collected revenue was 105.3percent of targeted tax revenue. In the year 2008, collected tax revenue stood at 2.972 trillion, which was above the cumulative tax revenue for the past eight years (1996-2003) preceding the reform years. Cumulative tax revenue between 1996-2003 was N2.682trillion. The tax collected revenue for 2011 stood at N4.6trillion. This was nothing short of a miracle because 2011 was a year heralded by several unpleasant upheavals. In addition, the social unrest in the country was another intractable challenge. Instructively, the non-oil tax revenue stood at N1.7 trillion which was in excess of its value in the preceding years. For 2013, the collected tax revenue was N4.8trillion which marked an improvement over the collected revenue for both 2011 and 2012.

3.0 METHODOLOGY

In order to lend empiricism to our wok, we shall employ the use of regression analysis. Total federally collected revenue will be regressed on several tax revenues (petroleum profit tax, value added tax, custom and excise duties). These various tax revenue are use as proxy for tax reform (as cited in Okafor, 2012).

Time series variables obtained from published journals and the Central Bank statistical bulletin will be employed. The scope of the work will be (1981 – 2011), giving us a total sample observation of 30. There is high tendency that economic time series variables are non-stationary at levels, but may become stationary only after first differencing or second (see Iyoha, 2006; Gujarati, 2009). The dangers inherent in using non-stationary time series variables in running regression has been established (see Granger and Newbold, 1974; Box and Jenkins, 1970 and Yule, 1926). Our study will employ the methodology of co-integration and error correction modeling.

By way of preliminary test, we shall employ the augmented dickey fuller test in ascertaining the stationarity state of our time series variables. In order to ascertain if a common stochastic drift exist among our variables, we shall employ either the Engle-Granger two stage test or the Johansen Co-integration test. By using the co-integration and error correction model, we have combined short-run dynamics with long-run Equilibrium in a broad macro econometric modeling. The Partial Stock Adjustment Model (PSAM) will be employed in estimating the ECM model.

3.1 MODEL SPECIFICATION

To empirically investigate the relationship between Federally Collected Revenue (FCR) and Tax reform proxies by the various income Tax-Value Added Tax (VAT), Company Income Tax (CIT), Petroleum Profit Tax (PPT) and Custom and Excise Duties (CED), we hypothesized

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Website: www.arabianjbmr.com/JPDS_index.php

that federally collected revenue depends behaviourally on the various income tax. Thus, such behavioural relationship can be given in equation 3.1 below.

FCR = F (PPT, VAT, CED, CIT)----------(3.1)

Equation (3.1) can be re-specified in a stochastic form.

$FCR = \beta_0 + \beta_1 PPT + \beta_2 VAT + \beta_3 CIT + \beta_4 CED + U_{1t}$----------(3.2)

Where U_{1t} is the Gaussian white noise.

Based on apriori expectations, all the various income tax is expected to have positive relationship with federally collected revenue. Thus, $B_i > o$ where i = 1,2,3,4.

4.0 ANALYSIS OF REGRESSION RESULTS

4.1 UNIT ROOT TESTS

In order to ascertain the stationary state of our time series variables we employ the unit root test. This is imperative since we are ignorant of the data generating process. The Augmented Dickey-Fuller test was employed and the results are shown in table 4.1

Table 4.1: Summaries of Unit Root Tests: At 99% Critical Levels

AT LEVELS			AT FIRST DIFFERENCE		
Variables	**ADF**	**Remark**	**Variables**	**ADF**	**Remark**
FCR	2.96	Non-stationary	DFCR	-7.289695	stationary
CIT	3.66	Non-stationary	DCIT	-8.567837	stationary
PPT	2.96	Non-stationary	DPPT	-4.628360	stationary
VAT	2.86	Non-stationary	DVAT	-6.692997	stationary
CED	3.67	Non-stationary	DCED	-5.807121	stationary

Source: Authors' computation using E-views 7.0

Note:

The results of the unit root test using Augmented Dickey –Fuller at 1 percent level shows that all the time series variables are non-stationary at levels, but became stationary only after first differencing, hence the variables have an order of integration of one. This conclusion is based on comparison of the augmented Dickey fuller statistics and the critical values provided by MacKinon (1996). Hence, His permit us to carry out the Johansen's cointegration test designed to ascertain whether a common stochastic drift exist among our time series variables.

4.2 CO-INTEGRATION TEST

Having established the time series properties of the data, the study proceeds to conduct the Johansen multivariable co-integration test by first determining the number of cointegrating vectors in the model. When time series variables are non-stationary, it is important to ascertain if a long-run meaningful relationship exist among the non-stationary series. The variables are said

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to be co integrated if a long-run meaningful relationship exist among them. The Johansen's cointegration test using both trace statistics and maximum Eigen value is given in the tables below.

Table 4.2 Johansen Co-Integration Test
Unrestricted co-integration Rank Test (Trace)

Hypothesized No of CE(S)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob**
None	1.000000	4.482451	3.841466	0.0393

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
** MacKinon-Haug-Michelis (1999) p-values

The co-integration result based on the trace test indicates that the variables are co-integrated at the 5% level. This implies that there is a long-run relationship between the variables in the model.

Unrestricted co-integration Rank Test (maximum Eigen Value)

Hypothesized No of CE(S)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob**
None	1.000000	3.981321	3.841466	0.0411

Max-Eigen value test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
** MacKinon-Haug-Michelis (1999) p-values

The co-integration result based on the maximum Eigen value indicates that the variable are cointegrated at the 5% level since there is one co-integrating vector. Thus, a long-run meaningful relationship exist among the variables.

4.3 PAIRWISE GRANGER CAUSALITY

To ascertain the nature of causality among all the time series variables particularly between public generated revenue and the various income taxes we employ the pair wise Granger causality test. The results are shown in the table below.

Table 4.3: Pair Wise Granger Causality

Null Hypotheses	Obs	F-stat	Prob
CIT does not granger cause FCR FCR does not granger cause CIT	30	5.69167 0.20892	0.0092 0.8129

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CED does not granger cause FCR FCR does not granger cause CED	30	2.57746 0.11473	0.0960 0.8921
PPT does not granger cause FCR FCR does not granger cause PPT	30	14.4670 0.67803	0.00007 0.5167
VAT does not granger cause FCR FCR does not granger cause VAT	30	0.32274 0.13811	0.7303 0.8724

Source: Author's Computations Using E-views 7.0

The pair wise Granger causality test shown in table 4.3 shows that the probability value of CIT being 0.0092 falls short of the critical value of 0.05, hence we accept the null hypothesis that company income tax does not granger cause federally collected revenue, but federally collected revenue granger causes company income tax since the p-value of 0.8129 is greater than the critical value of 0.05. The table further shows that custom and Excise Duties (CED) and federally collected revenue (FCR) granger causes one another and the same is applicable to value added tax (VAT) custom and excised and federally collected revenue (FCR). Finally, petroleum profit tax (PPT) does not granger cause federally collected revenue (FCR), but it is being granger caused by federally collected revenue (FCR). On the whole, the relationship between custom and excise Duties (CED) and federally collected revenue (FCR) on the one hand, and between value-added tax (VAT) and federally collected revenue (FCR) on the other hand are bi-directional, but between company income tax (CIT) and federally collected revenue (FCR) on one hand and between petroleum profit tax (PPT) and federally collected revenue (FCR) on the other hand is uni-directional flowing from federally collected revenue (FCR) to both petroleum profit tax (PPT) and company income tax (CIT).

4.4 COINTEGRATION AND ERROR CORRECTION MODEL

Using the Partial Stock Adjustment Model (PSAM), we obtained the Error Correction Model that is expressed in Table 4.4.

Table 4.4: Error Correction Estimate

Variable	**Coefficient**	**Std.Error**	**T-stat.**
DCED	22.61035	17.08890	2.231461
DCIT	1.897582	5.081004	2.136789
DPPT	2.034256	2.118196	4.467890
DVAT	4.236780	1.349379	3.245678
ECM(-1)	-0.662940	0.285187	-2.324580

R^2 = 0.821357
R^{-2} =0.801435
S.E.E. = 2153745
Durbin – Watson stat = 1.983298

Table 4.4 shows the error correction estimates with a coefficient of determination puts at 0.821357, showing that 82.1357 percent of the variation in federally collected revenue (FCR) is explained by the various income taxes. Thus, judging by the R^2 and $\bar{R}^2$,the estimated model has

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high explanatory power and commendable goodness of fit. The independent variables are correctly signed showing positive relationship between tax reform and federally collected revenue (FCR) in Nigeria. Furthermore, the coefficients of the variables are statistical significant at 5 percent. Essentially, the coefficients of the error correction model (ECM) is both negative and statistically significant, showing that an established long-run relationship can be attained. The speed of adjustment put at -0.662740, showing that 66.2740 percent of the deviation of federally collection revenue (FCR) from its long-run equilibrium value can be reconciled per annum.

5.0 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. The study went further to examine the relationship between the various income taxes i.e, custom and excise Duties , company income tax , petroleum profit tax and value-added tax on public generated revenue proxied by the federally collected revenue . In order to carry out this exercise, an annual time series datafrom central bank of Nigeria spaning the years (1981-2011) was employed. The Johansen co-integration test showed that a long-run meaningful relationship exists between tax reform and federally collected revenue (FCR) in Nigeria. Essentially custom and excise Duties (CED) and value-added tax (VAT) granger cause federally collected revenue (FCR).

This goes to show that tax reform by improving the tax system, reducing tax avoidance and evasion , reducing tax burden by scaling down the personal income tax (PIT) from 25 to 17.5 percent and 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. Essentially, CED and VAT granger cause federally collected revenue, and provide handles for the government to maximize tax revenue. Thus, the administration of VAT and CED should be improved upon with focus directed towards reducing evasion and avoidance.

ISSN: 157-9385
Website: www.arabianjbmr.com/JPDS_index.php

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APPENDIX

YEARS	IFCR N0'000,000	PPT N0'000,000	CIT N0'000,000	CED N0'000,000	VAT N0'000,000
1981	13,290.50	6,326	403	2,326	na
1982	11,433.70	4,847	550	2,336	na
1983	10,508.70	3,747	562	1,984	na
1984	11,253.30	4,762	787	1,616	na
1985	15,050.40	6,711	1,004	2,184	na
1986	12,595.50	4,811	1,101	1,728	na

ISSN: 157-9385
Website: www.arabianjbmr.com/JPDS_index.php

1987	25,380.60	12,504	1,235	3,541	na
1988	27,596.70	6,815	1,551	5,672	na
1989	53,870.40	10,598	1,914	5,816	na
1990	98,102.40	26,909	2,997	8,641	na
1991	100,991.60	38,616	3,828	11,457	na
1992	190,453.20	51,477	5,417	16,055	na
1993	192,769.40	59,208	9,554	15,485	na
1994	201,910.80	42,803	12,275	18,095	7,261
1995	459,987.30	42,858	21,878	37,364	20,761
1996	523,597.0	76,667	22,000	55,000	31,000
1997	582,811.10	68,574	26,000	63,000	34,000
1998	463,608.80	68,000	33,300	57,700	36,000
1999	949,187.00	164,300	46,200	87,900	47,100
2000	1,906,159.70	525,100	51,100	101,500	58,500
2001	2,231,600.00	639,200	68,700	170,600	91,800
2002	1,731,837.50	392,200	89,100	181,400	108,600
2003	2,575,095.90	683,500	114,800	195,500	136,400
2004	3,920,500.00	1,183,600	113,000	217,200	159,500
2005	5,547,500.00	1,904,900	140,300	232,800	178,100
2006	5,965,101.90	2,038,300	244,900	177,700	221,600
2007	5,715,600.00	1,600,600	275,300	241,400	289,600
2008	7,866,590.10	2,060,900	420,600	205,250	401,700,000
2009	4,844,592.34	939,400	600,600	223,325	481,400,000
2010	7,303,671.55	1,480,360	666,060	214,287	564,890,000
2011	9,987,629.0	3,070590	715,440	Na	659,150,000

Sources: **CBN Statistical Bulletin, 2012**
FIRS Gauge for 2011 and 2012

Where: **FCR = Federally Collected Revenue**
PPT = Petroleum Profit Tax
CIT = Company Income Tax
VAT = Value –Added Tax
CED = Custom and Excise Duties
NA = Not Available

raining human resources in
organizations. South; foreman and Co.