Tax Justice and Federally Collected Tax Revenue in Nigeria: A Vector Autoregressive Approach

Godwin Emmanuel Oyedokun
Nasarawa State University

Ishola Rufus Akintoye
Babcock University

Oyesola Rafiu Salawu
Obafemi Awolowo University

Improvement in tax revenue is currently the focus of Nigerian government due to dwindling national income resulting from over-reliance on petroleum revenue to the neglect of taxation over time. As a result, most taxpayers indulge in acts of non-compliance such as tax avoidance, tax evasion and capital flight. Extant literature indicates that non-compliance could be traced to the inability of tax administrators to detect non-compliance acts by most taxpayers. This study investigated the effect of tax justice on federally collected tax revenue in Nigeria. The study adopted ex-post facto research designs using secondary data covering the period of the year 2000 to 2016 obtained from the published annual reports obtained from the Federal Inland Revenue Service and Central Bank of Nigeria. Descriptive and inferential statistics including Vector Autoregressive (VAR) model were used to analyse data collected. The study found that, in the short run, there is a negative effect of expenditure on community and social services on tax revenue but a positive effect in the long run, wherein the short run, expenditure on economic services had a positive effect on tax revenue and in the long run, there was a little or no positive effect (VAR impulse-response function). In the case of VAR variance decomposition, tax revenue was responsible for the variation in self at an average of 85% both in the short and long run horizon, while expenditure on economic services and expenditure on community and social services were responsible for variation in tax revenue at a constant value of 1% and 3%, respectively while expenditure on administration had an increasing responsibility in determining the variation in tax revenue. The study concluded that tax justice improved tax revenue in Nigeria. The study recommended that government should improve services to the governed to promote tax justice which will, in turn, improve federally collected tax revenue.

INTRODUCTION

Over-reliance on petroleum revenue has affected some developing nations in revenue generation where Nigeria is not left out. According to Smith (2016), in the U.S.A, crude production retreated by

220,000 barrels per day to 8.9 million barrels per day in April 2008, the most recent month for which comprehensive information is available. It is the largest drop since 2008 as the two-year cost slump gloomy investment and drilling action (Smith, 2016). The output from many countries outside OPEC drop by 900,000 barrels a day in the year 2016, the largest fall since 1992, before regaining by 200,000 barrels per day in 2017 as predicted (Smith, 2016).

Nigeria's crude oil -- Bonny Light, which traded at $110.2 per barrel at January 2015, hitting $114.6 percent at June same year (2015), has been also traded under $35 per barrel as at May 2016. Similarly, as at December 16, 2016, the cost increased to $54.71 per barrel. Additionally, the danger by the US to decrease oil imports represents a negative risk on crude receipts of all members of the organisation of Petroleum Exporting Countries (OPEC). Revenue of Crude Oil is a significant source of government revenue in Nigeria, and because of the massive amount which does accrue to the authorities over time, it is relaxed in exploring other veritable sources of revenue including taxation.

Most often than not, taxpayers do explore various means of decreasing tax payable and occasionally they do completely explore illegal means of running away from the payment of tax reason adduced to tax injustice in the country. Tax injustice According to Spencer (2010) happens when a country mobilises tax revenue and spend same in a way not adding values into the lives of their taxpayer. The ability of the authorities to mobilise and spend tax revenue objectively and efficiently is fundamental to good governance of the reporting government. It is thought that taxation underpins sustainable development; it also provides the framework that protects taxpayers' rights and addresses people needs through the effective allocation of state resources. Solid tax associations between the country, companies and taxpayers provide a solid foundation for the broad-based increase and state accountability, and can also bring increased investment funding, by raising social equilibrium (Walpole & Tran-Nam, 2012).

Voluntary compliance is always appreciated as it might lower the operational costs of the taxation system. Understanding why folks pay taxes is therefore of great interest not only to tax academics but also to authorities and administrators. Questions regarding what happened to taxpayers' cash in Nigeria is begging for an answer. It is also difficult for the successive government to comprehend what happened to the tax earnings generated by his or her predecessors. This also educates constant probing of those events of past government by their successors. This effort has not yielded any positive result and most times, their reports are subject to litigations which hold no water. The motives are not far-fetched, the procedure and litigation process are faulty and do lack material (Walpole & Tran-Nam, 2012). They do not often follow forensic evaluation process.

This study, therefore, investigated how tax justices could help in improving tax revenue in Nigeria. This study, thus, improves the frontiers of knowledge in the area of federal government tax revenue generation by exploring the place of tax. Therefore, the objective of this study was to determine, the strength and influence of tax justice in enhancing federally collected tax revenue in Nigeria.

LITERATURE REVIEW

Conceptual Review
Taxation and Tax System in Nigeria

The tax system in Nigeria is made up of the tax policy, the tax laws and the tax administration. All these components are expected to work collectively to accomplish the financial intention of the nation. According to the presidential poll on national tax policy (2008), the fundamental objective of this Nigerian tax process would be to contribute to the well-being of all Nigerians directly through improved policy formulation and indirectly through appropriate utilization of tax revenue generated for the benefit of the public. In creating revenue to achieve this aim, the tax system is predicted to minimize distortion in the economy. Other expectations of this Nigerian tax system according to the presidential committee on national tax policy (2008) comprise: encourage economic growth and development; generate stable revenue or resources needed by government to accomplish loadable projects and or investment for the benefit of the people; provide economic stabilization; to pursue fairness and distributive equity; and correction of market failure and imperfection.

In an order to fulfil the above expectations, the federal tax policy is anticipated to follow the principle of taxation, which is the lubricant to the successful tax system. The Nigeria tax system has been flawed by what is termed multiplicity of taxes and collecting entities in the 3 tiers of government levels: federal, local and state government (Nwosu & Okafor, 2014; Adebisi, & Gbegi, 2013;

Tax Plicy

According to the report of this Presidential committee on national tax policy (2008), "The National tax policy stipulates a set of guidelines, modus operandi and advice to which all stakeholders at the tax system must subscribe" Nigeria National Petroleum Corporation (NNPC), National population commission (NPC), and other agencies but under the advice of the federal gathering i.e. that the law-making body in Nigeria (presidential committee or national tax coverage, 2008). Suffice it to state that if there must be some successful implementation of the Nigeria tax strategy or attainment of its function, the usage of the national tax policy record remains essential.

According to the presidential committee on gross coverage (2008), "Nigeria needs a tax policy which does not only explain the record of guiding principles and rules, but also provide a continuous point of reference for all of the stakeholders in the nation and upon which they may be held liable. James, Zaimah and Kamil (2011) described the inability of tax policy to match up with equity and efficiency criteria where it is being judged. It was further mentioned that tax policy is always subjected to stress and impacts which most time does not guarantee a result that is in accord with the overall goal. Regrettably, most policy changes in Nigeria are without sufficient consideration of their taxpayers, administrative arrangement and price and the present taxes, this has in no small measure hindered the successful implementation and goal congruence of the nation's tax system. Agbonika, 2015) and James, Zaimah and Kamil (2011) opined that the best approach to reforming taxes is one that takes into account taxation theory, empirical proof and governmental and administration realities and mix them with good dose of local knowledge and a strong appraisal of the present macroeconomics and Global situation to produce a viable set of proposals sufficiently attractive to become Implemented and sufficiently effective to withstand changing times, with motive and still create favourable result.

Tax Legislation

Tax legislation pertains to the embodiment of rules and Regulations concerning tax revenue and the variety of type of tax in Nigeria. They are made by the legislative arm of this government. These laws are always subjected to change. There is not any doubt that the frequency of shift is a reflection of inconsistencies and thus hindered the achievement of the setup objectives. However, in an effort to match with the three years' policy, review as formerly stated and or adapt to the economic dynamism of the country, alter may likewise be made.

The following are some of the existing taxation laws in Nigeria: Personal Income Tax Act (PITA) CAP P8 Law of Federations of Nigeria (LFN) 2004; Companies Income Tax Act (CITA) CAP C 21 (LFN 2004.) (as amended in 2007); The Petroleum Profit Tax Act (PPT) Cap 354 LFN 1990 is now listed as CAP P,13 LFN 2004 and amended in 2007; Value Added Tax (VAT) Act No 102 LFN 1993 now CAP. V1 VOLUME 15 LFN 2004 (as amended); Capital Gains Tax Act (CGTA) CAP 42 LFN 1990 is now listed as Cap C1, LFN 2004; Stamp Duties Act CAP 411 LFN 1990 now listed as Cap S8 LFN 2004; Tertiary Education Trust Fund (Establishment) Act 2011; and Information Technology Development Act 2007 (Agbonika, 2015; Kanu, Ozurumba, & Ihemeje, 2014; Adebisi, & Gbegi, 2013).

Tax Administration in Nigeria

It is one thing to make policies, policies and regulation to achieve a desired goal or objective and it is another thing to execute these policies, regulation and rules. The organs and, or agencies responsible for tax policy execution in Nigeria are referred to as the administrative organ or agency in this research work. Efficiency and effectiveness must be the watchword in designing a tax administration structure which provides the desired result (Ebimobowel, & Eze, 2013; Fakile, Adegbie, & Faboyede, 2012). Put differently, taxation management in Nigeria is the responsibility of a variety of tax authorities according

to the relevant tax laws (Kiabel & Nwokah, 2009). Together with the joint tax board (JTB) and combined state revenue committee or local revenue committee, Nigeria tax jurisdiction administers taxes in Nigeria. The financial autonomy granted the three tiers of government had led to a multiplicity of tax. Taxpayers and corporate figures had been exposed to multiple levies or fees of tax the same title in various form. This had increased evasion and avoidance as such payment either consume deep to the profit of company or affect adversely, the distributable income of the person.

Tax Compliance Efforts

Tax compliance effort is an attempt aimed towards inspiring taxpayers to willingly comply with the provisions of tax laws (Okello, 2014). Although multiple taxation practices are the major problem facing tax administration in Nigeria (Ebimobowel, & Eze, 2013) other factors exist that influences tax compliance by taxpayers. One of such factors is, for example, is that the number of tax revenue generated by the government because of its price program differs among other things, on the willingness of the citizens to follow tax laws of a country. Furthermore, it is well known that some people do not like paying taxes, and because of this reason, it is difficult for tax authorities to impose and collect taxes in any place and everywhere (Fakile, Adegbie, & Faboyede, 2012).

According to Modugu, Eragbhe, & Izedonmi, (2012), an essential part of a tax system is how it is handled. No tax system is much superior to its authorities, so tax control is vital in creating and maintaining a sustainable and efficient tax system. What is more, the comprehension of the individual citizens regarding the equity of the tax process is regarded as a significant part that could significantly influence their tax compliance behaviour. An essential objective of taxation management is to ensure the maximum possible compliance by taxpayers of all kinds of the tax obligations. According to Gilligan and Richardson (2005), the taxation system that is perceived as unjust by the taxpayers will probably be less powerful and this might inspire the citizens to share in noncompliant behaviour.

According to Oyedokun, Akioyamen, & Odunmnaku (2015), tax control in some other developing countries is characterized by decreased compliance degree and even despite Nigeria's human and natural endowment along with economic potentiality, the country has continued to record one of the lowest tax compliance levels in Africa (Oyedokun, Akioyamen, & Odunmnaku (2015).

EMPIRICAL REVIEW

Tax Justice and Federally Collected Tax Revenue in Nigeria

Kanu, Ozurumba and Ihemeje (2014) examined the relationship between the federal government of Nigeria's revenue and expenditure profile for the period 1970 to 2011. With the assistance of E-view statistical bundle - version 7.0, Granger causality tests were computed on a time series information and to stop the development of spurious outcomes, unit root tests were conducted. The research recommended that as government's programs, funding and budgets her investment decisions; she ought to be conscious of her general number of earnings accruals; set priorities because of its allocation and to guarantee quality within each of the cost categories. These forecasts for monetary planning whose chief goals must be to predict and to take cognizance of resource limitations and the linkages it spurs inside the larger market.

Devos (2012) researched the connection between professional advice and compliance behaviour of Australia taxpayers. The analysis adopted a survey study design and data have been gathered through a questionnaire administered to existing taxpayers. Findings of this study demonstrated that there is a statistically significant connection between the demand for participating taxation professionals and compliance behaviour generally. There was also evidence of a statistically significant connection between taxation professionals' aggressive information and the compliance behaviour of non-evaders. Fakile, Adegbie and Faboyede, (2012) highlighted the challenges facing Africa in mobilizing domestic revenue for sustainable development. The analysis does not utilize any econometric methods in reaching its completion nonetheless, that the lacuna in the present literature forms the cornerstone of recommendation and conclusion for the analysis. The research recommended that a well-structured tax strategy will

precipitate increase earnings, refocus government spending on public priorities and enhance democratic accountability.

Ohene (2011) evaluated the amount of tax compliance of informal sector operators at New Juaben, Ghana. The research employs primary data that were exclusively accumulated through surveys administered to operators of the informal sector in Ghana and have been further assessed using descriptive (diagrammatical) analytical tools. The study demonstrated that compliance amount of the sample respondents is at its minimum as variables concerning low income, higher unemployment rate, and bad financial state accounts for its explanations for non-compliance. The analysis nevertheless suggested the tax authority must instruct the public about understanding the taxation system, the cornerstone of calculating their tax liability and more significantly the requirement to cover income tax because of national growth and development.

Adebisi and Gbegi (2013) examined the effect of tax avoidance and tax evasion on personal income tax administration in Nigeria. The study used both secondary and primary data obtained by a questionnaire administered on 305 FIRS workers in Abuja and other financial reports. ANOVA results of this analysis demonstrated that there is a direct and positive relationship between tax avoidance, tax evasion, tax rates and personal income tax management in Nigeria; because of variables such as high tax rate, bad usage of tax revenue and private income creation rigour influence taxpayers' compliance behaviour. The analysis nevertheless recommended a decrease in the tax rate for a panacea to tax evasion. Chude and Chude (2015) analysed the effect of taxation on the sustainability of manufacturing companies in Nigeria. The research employs relevant secondary information obtained in the sample company which were further assessed using time series econometric technique with an error correction model. The research demonstrated that the degree of business tax has a significant influence on the sustainability, which firm income tax (CIT) has a considerable impact on profitability. The research concluded that the positive and significant connection between the sustainability and the tax-exempt variables indicates that coverage steps to enlarge tax earnings through more efficient tax management will impact favourably on growing the organization's profitability.

Fagbemi and Abogun (2013) investigated factors influencing voluntary compliance of SMEs in Kwara State, Nigeria. The study adopted a survey research design. The study demonstrated that high-risk variable which represents tax reform confidence in authorities and ethnic standards significantly impact compliance behaviours of SMEs operators in Nigeria. Sofia (2013) recognized the societal standards and variables that affect tax reform, and what weight do they have in forcing compliance. This study showed that social variables such as understanding of evasion by peers, in addition to authorities trust and acceptance, are important determinants of tax reform. Findings also revealed that culture also plays a part in the compliance mindset of taxpayers.

Oladele et al. (2013) analysed the impact on tax advisor in the earnings generation efficacy of the Lagos state, Nigeria. Findings of this analysis demonstrated that tax evasion and avoidance is uncontrolled in Lagos state since the actions of several unscrupulous tax advisers, tax officers, as well as accounting firms, encourage disputes in earnings generation. The analysis nevertheless suggested that Revenue agency (LIRS) must identify and study wages and remuneration which will avert sales officers from colluding with taxpayers. Additionally, actions of tax advisers should be tracked closely.

Mukhlis et al. (2014) identified factors that may affect tax compliance from SME entrepreneurs in Indonesia and to design a tax compliance model through tax education for SME entrepreneurs. The study adopts both qualitative and quantitative data. Findings of this study demonstrated that tax compliance could be constructed via tax fairness formed via the view of the entrepreneurs themselves, whilst taxation equity could be constructed through increasing the understanding about taxation to your SME entrepreneur. This understanding is coping with all the advantages related to tax rates and tax penalties, tax form, tax management, and the taxation support. The analysis summarily concluded that SME entrepreneurs may understand their tax obligations whenever there is an element of equity and tax advantages which may be obtained in real terms by SME entrepreneurs. The analysis nevertheless suggested that tax schooling activities should be performed through the dissemination of tax and taxation advantages for the joys of SMEs entrepreneurs in East Java, Indonesia.

Tusubira and Nkote (2013) researched the association between income tax proficiencies and income tax compliance amongst SMEs in Uganda. A cross-sectional descriptive survey design was utilized, and information has been gathered out of 326 outside of 377 SMEs from Mbale district. The analysis used correlation and regression methods in assessing its own data. Findings of this study demonstrated that earnings tax proficiencies are multi-dimensional and important predictors of earnings tax compliance. The research recommended it to boost income tax proficiencies from SMEs in Uganda, intensive tax instruction with practical knowledge ought to be performed by Uganda Revenue Authority into the SMEs' employees involved in taxation issues for efficient compliance.

Adereti, Sanni and Adesina (2011) empirically investigated the contribution of Value Added Tax (VAT) to the GDP from the time of its inception to 2008. Both financial factors fluctuated greatly over the span although VAT Revenue was more secure. The article, therefore, suggested that all recognized administrative loopholes must be emptied for VAT Revenue to contribute more significantly to the economic development of the nation. This is supposed to be performed on the understanding that any actions are taken on either VAT Earnings or the GDP will take 2 years to succeed. Izedonmi and Okunbor (2014) empirically analysed the participation of VAT in the evolution of the Nigerian market. Surveys revealed that VAT Revenue balances and overall earnings account for up to 92% important variations in GDP in Nigeria. The authors urged that all recognized administrative loopholes must be emptied for VAT Revenue to continue to contribute more significantly to the economic development of the nation. Agbonika (2015) analysed the probable effect tax amnesty might have in boosting payment of taxation by defaulters. Without the use of statistical methods, the analysis concluded that although it is not suitable to relinquish tax enforcement practices it is equally not palatable to use enforcement resources as the only means of supporting tax payment. The research recommended that government may embrace both government's tools and amnesty provisions to promote payment of taxation by defaulters.

Ali, Odd-Helge, Sjursen and Chr.Michelsen (2015) examined factors influencing tax morale among Kenya, Uganda, Tanzania and South Africa citizens. The study adopted a survey design using secondary data which were gathered from the Eurobarometer (an independent, nonpartisan research project which consists of national sample surveys on the attitudes of citizens in selected countries towards democracy, markets, civil society and other aspects of development. Since the device asks a typical set of queries, stated can be systematically contrasted) and have been further analysed with binary logit regression. Finding in the analysis demonstrated that there exist several similarities, but also differences in variables which are connected with tax compliance mindset from the four nations. A rise in the understanding of people concerning the problem of evading taxation is found to improve the chance of tax compliant mindset in Kenya and South Africa. The findings furthered revealed that people that are somewhat more satisfied with public service provision are far more inclined to have a tax compliant mindset in most of the four nations.

Owolabi (2015) proffered an alternative to show of taxation scandals from the Nigerian market in the current times. The newspaper reviews cases of taxation scandals from Nigeria and therefore suggested that restructuring the taxation procedures, promulgation of successful tax legislation and criminalizing tax avoidance, tax evasion and other financial crimes will minimise the degree of taxation scandals from the market. The analysis gathered its information via surveys administered to employees of FIRS from the FCT and so was further analysed using the investigation of variance. Results of this analysis demonstrated that tax audit has important consequences on earnings generation of FIRS and taxation audits have a favourable connection with the revenue created by the Service. The analysis among others implied that tax audit ought to be performed on a regular basis to avoid tax evasion and intense tax avoidance from the taxpayers.

Oriakhi and Ahuru (2014) researched the effect of tax reform on earnings generation in Nigeria, with a 30-year yearly time series information (1981 -2011). The analysis embraced three analytic methods including the Augmented Dickey-Fuller evaluation to check for unit root; Johansen's co-integration evaluation to demonstrated the long-term connection between taxation reform and federally collected revenue in Nigeria; The Granger Causality to demonstrated Custom and Excise Duties and Value-Added Tax granger causes federally collected revenue; along with the Partial Stock Adjustment Model to

examine the effect of varied income taxes on earnings generation. The findings of this analysis revealed that revealed that a variety of income taxation was statistically significant and have a favourable connection with federally collected revenue. The analysis nevertheless suggested that enhancing the taxation system and decreasing tax burden will improve and government revenue creation. The analysis adopted a survey study design by collecting opinions of individual citizens' along with the data gathered were statistically treated with multiple regression techniques. Findings of this analysis demonstrated that the consequences of financial condition and risk taste significantly moderated the consequences of taxpayers' source of revenue and occupation on tax compliance behaviour.

THEORETICAL FRAMEWORK

Altruistic Behaviour Theory of Taxation

Altruistic behaviour theory of tax though seems to be not well known among taxation investigators (Walpole & Tran-Nam, 2012). Taxpayers' behaviour is forward-looking, and it is also consistent over the years. They are aware that tax earnings can be invested in a way that is beneficial for all, including themselves. Tran-Nam (2015) submitted that this motivation is not even altruistic, but a sort of far-sighted selfishness as Altruistic, logical people is, therefore, capable of being truthful, and responsible citizens. Recognizing why companies are tax compliant is interested not only to tax researchers but also to tax administrators, government and tax professionals. This is quite true for tax authorities which rely on self-assessment such as those of Australia, Canada, Ireland, New Zealand, the USA, the United Kingdom (UK), and Nigeria. Economists, psychologists, sociologists and political scientists have contributed to building models of tax compliance or noncompliance behaviour. Since these models are extensively examined in the literature (Roth and Scholz, 1989; Andreoni, Erard and Fienstein, 1989; James and Alley, 1999; Pope and McKerchar, 2011; Devos, 2014), it suffices to make two remarks. There are basically three Chief groups of citizen compliance. Models, particularly, the deterrence versions (Allingham and Sandmo 1972; Yitzhaki 1974); monetary psychology versions (Schmölders1959) and behavioural fiscal models (Tran-Nam, 2015). Second, none of these is by itself capable of supplying a full and consistent explanation of the full selection of tax compliance behaviours observed in practice.

The deterrence models emphasize the benefits and costs of earnings tax evasion and therefore are consistent with an adversarial tax civilization where people are perceived by tax administrators as being responsive mostly to economic incentives and punishment. These models thus offer tax administrators with a theoretical justification for its use of these deterrence measures as tax auditing, prosecution and penalties for enhancing compliance. Going from the rationality approach, financial psychologists, especially later ones, view individual citizens like and large responsible citizens and taxpaying within an intricate social procedure, and just one (1) variable of a fantastic number of interrelated decisions made by individuals. The fiscal psychology versions are consistent with a concerted tax culture where tax administrators can encourage taxpayers' positive attitudes regarding the tax system to improve tax compliance. In the behavioural financial models, by implementing non-expected utility concept to the compliance conclusion and by addressing social interaction (like loss of social prestige after detection of tax evasion, etc), it is likely to match the observed extent of tax compliance.

In the behavioural fiscal models, by applying non-expected utility theory to the compliance decision and by addressing social interaction (such as lack of social prestige after detection of tax evasion, etc), it's possible to match the observed scope of tax compliance. Similarly, the monetary psychology models are also consistent with Becker's approach to altruism in his paper on social interaction (Becker 1974). According to this way of believing, taxpayers are not only economic but also social agents, who can feel altruistic when paying taxes. Most literature within the area of tax compliance concentrates on the individual taxpayer but not all businesses can be treated like individuals.

METHODOLOGY

This study embraced *ex-post facto* study design, which was predicated on the usage of the secondary. The *ex-post facto* research design is acceptable for another part of the research which was on secondary information. This Data was gathered by Federal Inland Revenue Service (FIRS), Federal Ministry of Finance, division of the Accountant general of the Federation, Central bank of Nigeria (CBN), and Nigeria Bureau of Statistics (NBS) (2016 Statistical Bulletin) being the taxation revenue, Gross Domestic Product and Expenditure per industry as reported over the period under review (years 2000 to 2016).

The population of the study involves all the figures of tax revenue, Gross Domestic Product and Government Expenditure per sector as reported within the period of 17 years (2000 - 2016).

MODEL SPECIFICATION

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TaxRev = f(TaxJ)...3.1

TaxRev = CIT + TET + VAT + CGT + PPT

TaxJ = Admin + ComSer + EcoSer

$$TaxRev = \alpha_0 + \beta_0 \, Admin + \beta_1 ComSer + \beta_2 EcoSer + \mu_0$$

This model was tested with the use of secondary data, by finding the effect of the figure of total tax revenue in relationship with the figure of proxy federal government Expenditure in some strategic areas that could be adjudged to benefit the taxpayers such; Expenditure on Administration; Expenditure on Social and Community Services; and Expenditure on Economic Services.

Definition of Variables
Dependent Variables

TAXREV = Tax Revenues in Nigeria (TAXREV)

CIT = Companies Income Tax (CIT)

TET = Tertiary Education Tax (TET)

VAT = Value Added Tax (VAT)

CGT = Capital Gain Tax (CGT)

PPT = Petroleum Profit Tax (PPT)

TAXREV = CIT + TET + VAT + CGT + PPT

Independent Variables

Z = Tax Justice

z_1 = Expenditure on Administration (Admin)

z_2 = Expenditure on Social and Community Services (ComServ)

z_3 = Expenditure on Economic Services (EcoSer)

TJ = Admin + ComSer + EcoSer

Techniques for Evaluation of Model's Parameters

The estimated model parameters (constants and coefficients) has been assessed by determining the strength of these individual factors (Forensic Accounting Techniques) about the various dependent variable (federally collected tax Revenue in Nigeria) by using adjusted R^2.

To assess the impact of tax justice on federally collected tax revenue in Nigeria, first, the unit root test was carried out, followed by co-integration test which directed the use of the VAR model, technique employed which consisted of four endogenous variables (GTaxRev, LAdmin, LComSer and LEcoSer) – although GTaxRev was the major equation this study examined, represented by Y which include;

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + ... + A_\rho Y_{t-\rho} + \mu_t$$

With A_i are (K x K) coefficient matrices for i= $1, ..., \rho$ and μ_t is a K-dimensional process with $E(\mu_i) = 0$ and time-invariant position definite covariance matrix $E(\mu_t \mu_t^T) = \Sigma_\mu$ (white noise). Hence, Y is a vector which consists of GTaxRev, LAdmin, LComSer and LEcoSer.

Majorly, the interest under this technique is the impulse-response function and the variance decomposition whose processes are based upon Wold moving average decomposition presented as;

$$Y_t = \Phi_0 \mu_t + \Phi_1 \mu_{t-1} + \Phi_2 \mu_{t-2} + ...$$

with $\Phi_0 = I_K$ and Φ_s can be computed recursively according to;

$$\Phi_s = \sum_{j=1}^{s} \Phi_{s-jA_j}, \text{ for s=1, 2, ...,}$$

whereby $A_j = 0$ for $j > \rho$.

Finally, forecasts for horizons $h \geq 1$ of an empirical $\text{VAR}(\rho)$-process can be generated recursively according to:

$$YT + h | T = A_1 YT + h - 1 | T + A_2 YT + h - 2 | T + ... + A_\rho YT + h - \rho | T$$

where $YT + j | T = YT + j$ for j ≤ 0.

RESULTS AND DISCUSSION OF FINDINGS

Impact of Tax Justice on Federally Collected Tax Revenue in Nigeria

This section presents how objective of this study was achieved. It presents a descriptive summary of the data used for analysis in objective one. The descriptions of the data set are in terms of minimum, maximum, mean, standard deviation and skewness. The summaries of descriptive statistics of tax revenue (TaxRev), Expenditure (Admin, ComSer, and EcoSer) is shown in Table 1.

The summary of descriptive statistics presented in table 1 is of the time series of variables employed in this study. The period covered in the study was 17 years commencing from 2000 – 2016. The variables considered includes federally collected tax revenue as the dependent variable and capital expenditure on administration, social and community services and economic services as independent variables.

In line with the procedure when dealing with data with time series property, the respective statistical features of all the series employed are presented in table 4.10. The mean statistic revealed that the average tax revenue, expenditure on administration, social and community services and economic services were ₦2408.46 billion, ₦717.65 billion, ₦422.21 million and ₦208.46 billion respectively. The observed minimum for tax revenue, expenditure on administration, social and community services and economic services were ₦2000 billion, ₦433.90 billion, 144.53 billion, ₦79.63 billion and ₦28.59 billion respectively. The maximum value for average tax revenue, expenditure on administration, social and community services and economic services were 2016 billion, 5007.70 billion, 1282.40 billion, 844.07 billion and 562.75 billion respectively. Also presented is the standard deviation for this series, it depicts rate of dispersion in the series, the standard deviation for tax revenue, expenditure on administration, social and community services and economic services were (5.04975), (1639.06), (400.63), (308.02) and (151.01) respectively. The value of skewness for tax revenue, expenditure on social and community services and economic services shows that the series is positively skewed hence asymmetric while that of administration shows that the series is negatively skewed which also infer asymmetrically.

TABLE 1
DESCRIPTIVE STATISTICS FOR TIME SERIES VARIABLES

	N	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
Year	17	2000.00	2016.00	2008.0000	1.22474	5.04975	.000	.550	-1.200	1.063
TaxRev	17	433.90	5007.70	2408.4588	397.52990	1639.05776	.432	.550	-1.280	1.063
Admin	17	144.53	1262.40	717.6524	97.16684	400.62916	-.026	.550	-1.654	1.063
ComSer	17	79.63	844.07	422.2100	74.70562	308.01916	.316	.550	-1.835	1.063
EcoSer	17	28.59	562.75	208.4647	36.62459	151.00704	.711	.550	.161	1.063
Valid N (listwise)	17									

Source: Author's Computation 2018

TABLE 2
CORRELATIONS

		TaxRev	Admin	ComSer	EcoSer
Pearson Correlation	TaxRev	1.000	.845	.841	.583
	Admin	.845	1.000	.957	.766
	ComSer	.841	.957	1.000	.636
	EcoSer	.583	.766	.636	1.000
Sig. (1-tailed)	TaxRev	.	.000	.000	.007
	Admin	.000	.	.000	.000
	ComSer	.000	.000	.	.003
	EcoSer	.007	.000	.003	.
N	TaxRev	17	17	17	17
	Admin	17	17	17	17
	ComSer	17	17	17	17
	EcoSer	17	17	17	17

Source: Author's Computation 2018

With respect to kurtosis, Table 1 also shows that the distributions have kurtosis <3 (excess kurtosis <0). Tax revenue, -1.280, expenditure on administration, and social and community services have a negative figure of -1.654 and -1.835 respectively while and economic services shows .161. These results show that the distributions are all **leptokurtic**. When compared to the normal distribution, their tails are longer and fatter, and their central peak is higher and sharper. Though the kurtosis statistics disclose that the data for all variables of interest (dependent and independent) are not from a normal distribution, but they are valid because they were acquired from reliable sources.

Table 2 presents the result of the correlation between tax revenue, expenditure on administration, social and community services and economic services. The table shows a positive and significant relationship between, tax revenue and expenditure on expenditure on administration, social and community services and economic services with correlation coefficients of $r(17) = .845, .841$, and $.583$ respectively. Table 4.11 also show that there exists a positive and significant relationship between expenditure on administration, tax revenue, social and community services and economic services with correlation coefficients of $r(17) = .841, .957$, and $.766$ respect. Similarly,

Table 2 indicates that there is a significant positive relationship between expenditure on social and community and tax revenue, expenditure on expenditure on administration, social and community services and economic services with correlation coefficients of $r(17) = .841, .957, .636$ respectively.

Furthermore, from table 2, there is a positive relationship between expenditure on economic services, tax revenue, expenditure on administration, social and community service giving correlation coefficients of $r(17) = .563, .766$, and $.636$ respectively.

These results suggest that the more the revenue accrued from tax revenue, the more the government can spend on expenditure that can bring about increase in tax justice (expenditure on expenditure on administration, social and community services and economic services) and this relation is causal as the more the government spends the more the taxpayers fulfil their tax obligations.

HYPOTHESIS TESTING

The hypothesis tested under this objective includes:

H_0: *Tax justice does not have any significant effect on the volume of federally collected tax revenue in Nigeria*

UNIT ROOT TEST

Table 3 presents the unit root results of the variables under investigation. The test employed was the Augmented Dickey-Fuller (ADF) unit root test, which sort to reject the null hypothesis of the presence of unit root in the growth rate of tax revenue (GTaxRev), log of administrative expenditure (LAdmin), log of social and community services (LComSer) and log of economic services (LEconSer) based on comparing the calculated T statistics with the tabulated T statistics.

TABLE 3
UNIT ROOT TEST

Variables	At Level		At First Difference		Conclusion
	T Statistics	ADF Statistics	T Statistics	ADF Statistics	
GTaxRev	-2.681330	-1.731909	-4.004425	-4.692087***	I(1)
LAdmin	-2.673459	-2.559694	-3.081002	-3.398142**	I(1)
LComSer	-2.673459	-1.033470	-3.959148	-5.556459***	I(1)
LEconSer	-2.673459	-1.967418	-3.081002	-3.409708**	I(1)

Source: E-Views Result, 2018

The result in table 3 above established that all the included variables are I(1) variables suggesting that none of them is stationary at level but after the first difference. Hence, it means that when there are shocks to the variable, the value in the series do no revert to its mean value. Therefore, the need to carry out a cointegration test to validate which technique is suitable for estimation.

CO-INTEGRATION TEST

Based on the result presented in table 12 above, a residual-based cointegration test developed by Engle and Granger (1987) was carried out. The approach was to estimate a long-run model and generate the residual which will be subjected to unit root test. The decision rule is to conclude that there is co-integration among the variables once the residual is stationary at levels. This result is presented below in Table 13.

TABLE 4
UNIT ROOT TEST FOR RESIDUAL OF THE LONG RUN MODEL

Variable	T Statistics	ADF Statistics	Conclusion
ECM	-2.681330	-2.184251	I(1)

Source: EViews, 2018

The table 4 reveals that the residual could not pass the unit root test, hence it can be concluded that there is no co-integration among the variables under investigation. By no co-integration, it is established that there is no long-run relationship between the variables in question which include; GTaxRev, LAdmin, LComSer and LEcoSer.

LAG LENGTH SELECTION

The result of Table 4 above gives the backing to carry on the most appropriate technique in order to estimate the model that achieves the objective, which is the Vector Autoregressive (VAR) model. However, before this can be done, there is need to ascertain the optimal lag length to be employed. The result is specified below in table 5.

TABLE 5
LAG LENGTH SELECTION CRITERIA

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-14.1823	NA	0.000193	2.797278	2.971108	2.761548
1	30.51442	55.01136	2.75e-06	-1.6176	-0.74845	-1.79625
2	84.83130	33.42577*	2.31e-08*	-7.51251	-5.94803	-7.83408
3	1418.114	0.000000	NA	-210.1713*	-207.9115*	-210.6358*

* 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
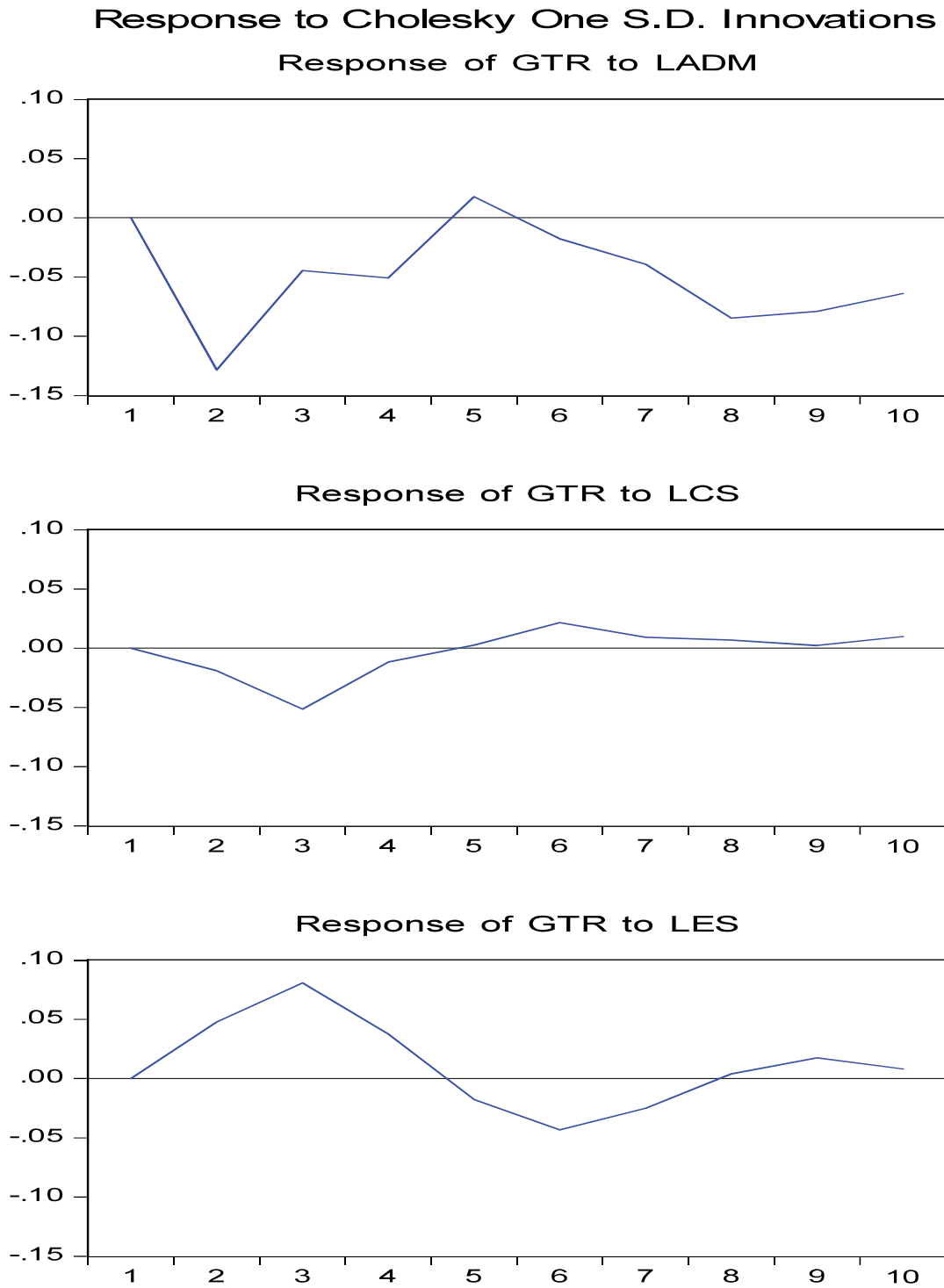Source: EViews, 2018

In Table 5, the maximum lag length provided was three due to the limitation of the number of observations in the series. However, based on the AIC, which provides a consistent criterion, the optimal lag length selected was three since it has the less value of -210.1714. It is based on this lag length that the VAR model should be estimated although was impossible due to the limited amount of observations under investigation.

IMPULSE-RESPONSE FUNCTION

The VAR model was estimated using two (2), as the optimal lag length owing to the fact that the lag length selected as optimal was unable to be estimated subject to the number of observations included in the study. Hence, the impulse-response function and the variance decomposition result have been presented in Figure 1 and Table 6, respectively. First, the figure describes the response of GTaxRev to shocks in LAdmin, LComSer and LEcoSer while the variance decomposition expresses what percentage of LAdmin, LComSer and LEcoSer are responsible for variation in GTaxRev over the sampled period.

From the result, it can be picked that when there is a shock to LAdmin, GTaxRev response negatively in the first period although, from the second period, adjustment is made toward equilibrium or convergence which was achieved by the mid of the fifth period but later diverged even to the tenth period and never converged again. Aggregately, it can be concluded that LAdmin has a negative effect on GTaxRev.

Response to Cholesky One S.D. Innovations

Response of GTR to LADM

Response of GTR to LCS

Response of GTR to LES

Source: EViews, 2018

INTERPRETATION OF RESULT

GTaxRev responded differently in the case of shocks to LComSer. When there was a shock to LComSer, GTaxRev diverged from equilibrium to assert a negative effect on GTaxRev but later made its way back to convergence at the mid of the fifth period although diverged a little for a period to the mid of the sixth period before it returned towards convergence. It can be thus concluded that in the short run, there is a negative effect of LComSer on GTaxRev but a positive effect in the long run wherein the short run, there is no effect.

The third graph in Figure 1 reveals the effect of LEcoSer on GTaxRev, that is, the response of GTaxRev to a shock in LComSer. A shock to LEcoSer produces a positive response to GTaxRev from the first period to the mid of the third period before it responded towards the equilibrium although, the response turned to be negative from the start of the fifth period and by the eighth period, there was a positive response toward convergence but never did. Therefore, it can be concluded that in the short run, LEcoSer had a positive effect on GTR and in the middle run, there was a negative effect of LEcoSer on GTaxRev while in the long run, there was a little or no positive effect.

VARIANCE DECOMPOSITION

In the case of variance decomposition, GTaxRev is seen to be responsible more for variation howbeit; there was a gradual reduction in this over the period while LComSer and LEcoSer were responsible for variation in GTaxRev at a constant value of 1% and 3%, respectively while LAdmin had an increasing responsibility in determining the variation in GTaxRev. Basically, GTaxRev was responsible for variation in self at an average of 85% both in the short and long run horizon.

TABLE 6
VARIANCE DECOMPOSITION

Period	S.E.	GTaxRev	LAdmin	LComSer	LEcoSer
1	0.508057	100.0000	0.000000	0.000000	0.000000
2	0.528037	93.13653	5.911703	0.129605	0.822162
3	0.539334	89.58804	6.344452	1.032989	3.034516
4	0.543342	88.34313	7.121867	1.063107	3.471893
5	0.557390	88.71756	6.870662	1.012518	3.399260
6	0.568035	88.31076	6.712132	1.120191	3.856918
7	0.575218	87.91760	7.013016	1.118734	3.950653
8	0.582744	86.09812	8.944292	1.103813	3.853775
9	0.591336	84.62756	10.46932	1.073560	3.829552
10	0.599560	83.86462	11.32062	1.071080	3.743682

Source: EViews, 2018

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study examined empirically the strength and relevance of tax justice in improving federally collected tax revenue in Nigeria. It also showed that tax justice will promote tax compliance and in turn improve federally collected tax revenue in Nigeria. The study also provided an insight that tax justice could be proxied with government revenue on the various sector of the economy. The study, therefore, concluded that promoting tax justice will aid the increase in federally collected tax revenue in Nigeria.

Recommendations

On the foundations of the findings and conclusions drawn from this study, the following Suggestions are made:

Tax injustice should be discouraged in Nigeria, provisions of social, community and economic services to be taken with overriding importance since these will make it possible for taxpayers to adopt tax concerted compliance in Nigeria.

Those charged with governance in Nigeria should be more concerned about tax reform and an effective tax system that will promote country's tax policy, execute a review of all the tax laws to aid simplification. This will nevertheless promote tax justice and enhance federally collected tax revenue in Nigeria.

The study also suggested that the federal government should be transparent in their dealings, and judiciously spend tax remove on amenities that improve tax compliance and thus, improve federally collected tax earnings in Nigeria.

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