

A LOG LINEAR ASSESSMENT OF THE EFFECT OF VALUE ADDED TAX (VAT) ON REVENUE GENERATION IN NIGERIA

Okwori Joseph and Ochinyabo Samuel

Department of Economics,
Benue State University, Makurdi-Nigeria.

Corresponding Author: Okwori Joseph

Abstract

This paper is an assessment of the effect of Value Added Tax on Revenue Generation for sustainable development in Nigeria. The study is aimed at establishing an innovative method of assessing taxation on the Revenue Productivity theory-that is, high revenue generation at minimal cost given a very broad all inclusive base. Using a log-linear data for regression on e-views 7.0 technique, the study found a positive 0.186 tax elasticity and buoyancy which is desirable. This shows that VAT is not only a viable taxation tool in Nigeria but also has great potential to generate adequate revenue for the Nigeria Government. But, government as an element of the package included numerous exemptions, generous concessions, and arbitrary waivers especially for unproductive ventures. This has greatly affected revenue base, leaving high annual budget deficits, and an extremely poor fiscal performance. This also has implications for proper VAT threshold which raises concerns of abuse and high cost, sharply leading to revenue losses and poor response of VAT to GDP growth. The paper therefore recommends that there is a need to consider the technology of the tax collection. That is; the feasibility of the tax instruments, cost of administration, and compliance. Also, special attention in the area of automation, consumer information and its mechanism modified to respond to GDP flexibilities is required.

Keywords: log linear assessment, Value added tax, revenue generation, sustainable development

INTRODUCTION

Background of the Study

Fiscal Policy refers to that part of the government policy measures concerned with the raising of revenue through taxation and other means, and deciding on the level and pattern of expenditure for the purpose of influencing economic activities or attaining some desired economic goals (Anyanwu and Oaikhenan, 1995). In Nigeria, the major Fiscal Policy instrument includes changes in rates of taxes on Personal Income Tax (PIT), Company Income Tax (CIT), Petroleum Profit Tax (PPT), Customs & Excise Duties (CET), as well as, Mining rents and Royalties. These taxes along with interest and repayments, licenses, fines and fees constitute government revenue. Such taxes are imposed not only to generate revenue, but also to provide incentives or disincentives in certain specific socio-economic activities.

The discovery of oil in the country, and the subsequent oil boom of the 1970s made the country to neglect the revenue potential of an effective tax administration. This resulted in high tax evasion, tax avoidance and reduced tax payments. Between 1970 and 1974 import duties was the single most important revenue source accounting for between 40% -58% of total government revenue. In 1974, Petroleum Profit Tax (PPT) supplemented import duties, with both accounting annually for about 70% of total government revenue (Anyanwu and Oaikhenan, 1995).

The depressed economy of the 1980's coupled with high and very volatile oil prices, in the face of ever increasing need for infrastructure development, including the need to encourage inflow of investments to promote economic growth and development, the government had to seek

new ways of generating additional revenue to meet its fast growing expenditure. The government emphasized tax administration as if its sole purpose was to generate revenue for government expenditure. Haruna (2001) agrees that government embarked on these reforms with the intention of increased revenue intake for the government in order to meet its social and economic responsibilities.

In 1993, the government acting upon the recommendations of the Sylvester Ugo led committee enacted the "Value Added Tax" VAT Decree No 102 of 1993. It was reasoned that VAT a form of tax on consumption would be administered effectively to generate substantial revenue for core public expenditure to a great extent than its predecessor sales tax. (Naiyeju, 1996).

STATEMENT OF THE PROBLEM

The implementation of VAT in Nigeria since 1st January 1994 brought with it a barrage of arguments and controversies which has persisted to date. Proponents opined that it is a fiscal remedy whose adoption in Nigeria was premised on economic problems such as fiscal disequilibrium. Other advocates concluded that those with apprehension were un-informed, alleging that the issue was over blown or the opponents were driven by the sheer culture of fiscal pessimism that made every public policy a punching bag, even before it is evolved. The issues remain and these include the facts that the oil boom of the 1970's resulted in the neglect of other sources of revenue, and the revenue potential of an effective tax administration in the country was subsequently neglected. Since the oil glut of the 1980's oil prices have since become volatile till date. This

situation has been further aggravated by economic depressions at various other times. Further in 2007/08, there has been reduced oil output due to restive Niger Delta, oil bunkering, oil theft and vandalization of oil facilities. Falling oil prices, declining revenue have dire consequences for a nation in need of increased expenditure for economic growth and development. The result of this is an ever-expanding annual budget deficit N161.4billion(bn), N1013bn, N1105bn, N1,158 in 2005, 2006, 2010, 2011 respectively, which has consequences for the economy (CBN, 2011). VAT a remedial measure has met with other controversies; the federal government and state governments are still divided on its administration, the mode of collection and the sharing formula to adopt that will be equitable. The government is in dispute with the labour unions, trade unions and civil society organizations on the principles, productivity and on the rate. Severally, this has resulted in various nationwide labor disputes that last for days with its attendant effect on the economy, including loss of lives. The Federal Inland Revenue Service, Joint Tax Board, and the National Assembly (NASS) are in disagreement on the principles and its effective administration in Nigeria, so much that an amendment bill on VAT was stalled for long at NASS. This supposedly friendly tax has rather generated so much arguments and controversies, and as it happens often, it may have instilled public fears and public resistance to the policy and may reduce its effectiveness on the economy. Against this background, and amidst the hardships, strike actions, riots and deaths recorded in Ghana, Niger, Chad, Chile, India and other countries in reaction to the introduction of VAT and changes in the rates, it becomes imperative that an assessment of VAT and its effect on revenue generation, economic growth and sustainable development in Nigeria be undertaken. The uniqueness of this approach is the use of scientific methods and its inherent precision as against political measures which government has hitherto adopted. This proposed model helps policy makers to avoid the ambiguities that resulted in the arguments and protest highlighted above. This can therefore be said to stem the tide for contribution to knowledge of this paper.

The main purpose of the study is to assess the effect of VAT on revenue generation in Nigeria. The specific objectives are to: examine the growth and structure of public revenue in Nigeria; ascertain the contribution of VAT to public revenue in the country; identify the major factors influencing an effective VAT administration in Nigeria; and to examine the prospect for improvement in national revenue generation through VAT. The Study is structured as follows; section one is the introduction and statement of the problem, section two and three deals with the review of related literature including the theoretical framework and the analytical methodology, the empirical result obtained, section three states the conclusion drawn and recommendations made.

MATERIALS: SOURCES AND TYPES OF DATA

The data used for the study was collected mainly from secondary sources. The principal sources of these data are publications of the Central Bank of Nigeria (CBN);

Annual Statistical Bulletin, and the Bullion. These are data on; federally collectible revenue of Nigeria, Nigeria's VAT revenue, PPT revenue, Gross Domestic Product, and the Private consumption expenditure of Nigeria.

SIGNIFICANCE OF THE STUDY

The study is important because there is an urgent need to curb the ever present increasing unsustainable fiscal deficit affecting the Nigerian economy. There has been significant apprehension and its effect on revenue generation for sustainable development, and its implication on the welfare of the citizens, especially given the uprising that followed its introduction in some countries.

Also literature on the analysis of VAT in a disaggregated form is not commonly available, and more worrisome is that even the aggregated literature in this study area are not recent. This study therefore used the robust log linear method of data analysis to come up with findings and to draw specific conclusions. It is very important for policy makers, firms operating in Nigeria to understand the operating tax regimes, and for the households to understand the revenue and welfare effect of the tax. This approach in this paper come highly recommended as it will seriously enhance precision in tax decisions and help curb the menace of tax resistance and evasion which mostly is as a result of improper/inadequate understanding of the tax measures and its processes.

THEORETICAL FRAMEWORK

The theoretical basis for the research work is revenue productivity theory because the importance of taxation in revenue generation cannot be overemphasized. Authorities on finance based their arguments principally on this as an important criterion used to judge a good tax. The two aspects of revenue productivity agree that the tax base must be large enough and that the cost of operating the tax system must be below the revenue it generates. Adam Smith also argued that it made little sense to institute a tax system in which the cost of collecting the tax is higher than the realized tax revenue. Others like, David Ricardo and J.S Mills emphasized this prominence by putting revenue first in their division of public finance into three namely; "revenue, expenditure and public debt". The major essence of introducing VAT was to raise revenue; the law setting up VAT affirms this position. (Ndukwe, 1991) called it the look-inward approach. This is another important criterion used to judge a good tax. The two aspects of revenue productivity agree that the tax base must be large enough and that the cost of operating the tax system must be low.

In furtherance of the economy principle, the revenue productivity theory agrees that it makes little sense to institute a tax system for which the cost of collection is higher than the realized tax revenue. They theory further emphasizes the aspects of having a large enough tax base to cover at minimum cost and stresses an efficient tax administration so as to enforce compliance

As earlier referred to, Adam Smith's *Wealth of Nations* published in 1776 provide the theoretical basis for taxation emphasizing equality, certainty, convenience and economy. Again, as seen earlier, other economists like J.M. Keynes believe that these are not sufficient to meet all the purposes of modern economic policy which are partly achieved through the budget. These are the allocation, distribution and standardization functions. As a result, they have proposed five broader criteria of taxation. These are the principles of equity, efficiency, simplicity, neutrality and revenue: Canon of Equality, Canon of Convenience, and Canon of Economy.

CONCEPTUAL FRAMEWORK

Taxation

One of the fiscal instruments employed by the government to influence economic activities in the country is taxation. Put simply, "taxation is a compulsory payment made by individuals and organizations to the relevant Inland Revenue Authority at the federal, states or local government areas level" (Anyafu, 1986). Similarly Udu and Agu (2001) define it as a compulsory payment made by each eligible citizen towards the expenditure of the state. It is levied by the government without regard to the specific benefits that the individual tax payers may receive.

Value Added Tax

The United Kingdom Statement of Standard Accounting Practice (SSAP) No 5, defines Value Added Tax as "a tax on the supply of goods and services which are eventually borne by the final consumer but collected at each stage of production and distribution chain". This definition of (SSAP) expresses three essential characteristics of VAT. These are:

- That the tax is a consumption tax.
- The burden of VAT is multi-stage.
- The value added is an important feature to VAT because the determination of value added is central to the calculation and computation of VAT. Value added is described as the increase in the value of goods and services in the process of production or delivery. The Central Bank of Nigeria (CBN) Economic and Financial Review (1993) agrees with this position.

Revenue Generation

All governments undertake activities which are economic in nature and are either transfers or exhaustive, which may lead to the output of goods and services. Whichever way government requires financial resources on a regular and steady basis to achieve their objectives (Ogiji, 2004)

Public revenue according to Nnadi and Falodun (2003) is a term used to describe all the income expected by the government within the budget period. It consists of recurrent and capital revenue. Recurrent revenue is the money received regularly every year by way of taxes, fees, fines and so on. Capital revenue consists of all bulk loans and grants received by the government from within the economy, or from abroad.

Types of Taxes

Taxes are classified into two main kinds; Direct and Indirect taxes depending on the tax incidence and the method of collection. Direct taxes are levied on individuals and organisations, the burden of which cannot be easily passed on to others. Indirect taxes are taxes levied on expenditure. They are levied initially on the producer, wholesaler or importer, but are ultimately paid wholly by either the final consumer or producer or, alternatively, shared according to the degree of elasticity of demand for the taxed product.

The Principles of an Effective Tax System

The principles of taxation sets out the criteria according to which the government could decide on an appropriate mix of the various taxes. Taxes are generally judged on the basis of two criteria, namely, efficiency and equity. A tax is considered good or otherwise according to how equitable or efficient it is. A good tax system should possess the following qualities: certainty, convenience, economy, equity, simplicity, neutrality, flexibility, productivity.

Linkage between Taxation to Revenue Generation

The fiscal theory of the state shows that the most desired form of revenue to a government is valuable and easily exploitable government owned resources like crude oil while the least valuable is tax on its citizens as this poses a constraint on the use of such funds. The economy principles requires that the cost of collecting this tax should be as low as possible, so as not to take up virtually all the revenue yield by the tax. It is necessary to match the cost of collection with the amount collected, and efforts should be made to minimize the cost of collection in order to maximize tax revenue. Only then will a tax system be regarded as good and efficient.

In the classical state theory, the tax is imposed mainly on the economic activities of the citizens to the extent that the government depends on the payment of finance to finance state activities, noting that the struggle is normally over the extent and use of these resources generated that becomes political and the basis for legitimacy for governments.

Empirical Literature Review

VAT has become an indispensable component of the tax advice and tax reforms in developing countries. The growing practice of VAT is reflected in the extensive literature on the technical, economic and distributional dimensions of VAT, and there is a growing consensus on the "best practice" and desirable features required of a good VAT system.

Delfin et al (2005) using a computable general equilibrium method described South African VAT as showing (i) a mildly regressive tax and (ii) an effective source of government revenue compared with other tax instruments in South Africa. They recommended the increase in VAT rates in such a manner that will benefit low-income households without placing excess burdens on high income households. World Bank (1993) in a regression result from a full sample of 34 countries gave

a VAT rate coefficient of 0.389, indicating that VAT generates revenues of some 0.4 percent of GDP for every percentage point of the rate. As expected VAT revenue as a percent of GDP rises with increases in coverage and size of the tax base; the estimated equation shows a positive and significant base coefficient at the 6% level. The low significance can be attributed to the inadequacy of the available data as a measure of the true base. The base dummy used has the right sign, but does not fully capture the diversity of VAT, hence its low significance. Muriithi and Moyi (2003) did a study on tax reforms and revenue generation in Kenya. The study applied the concept of elasticity and buoyancy as its methodology.

The estimate obtained suggests that the reforms carried out had a positive impact on the over- all structure of the taxes system and on the individual tax handles. Despite the positive impact, the reforms failed to make VAT respond to changes in income as it was income inelastic, even though it was a dominant tax in the structure. The result obtained was 0.645. On this basis, they concluded that VAT spurred a less than proportionate return to tax revenue in Kenya. Kusi (1998), did a study for the World Bank on Tax reforms and revenue productivity in Ghana. He evaluated the over- all tax system and that of the individual taxes using the method of elasticity. The analysis result obtained suggests that direct taxes indicated a more than proportionate return to total revenue, while taking absolute values the returns from indirect taxes was inelastic in their contribution to the revenue performance of the tax system. Despite the positive impact the reforms had on the over-all tax system the contribution of the indirect taxes remain low due to amongst other reasons an inappropriate threshold.

VAT and Revenue Generation in Nigeria

VAT as a tax policy made its debut in 1994, since then, it has contributed significantly to revenue generation. From a modest beginning of N7206.8 million in 1994, it has risen N136,411.2 million in 2003. It contributed to total tax revenue 18.8% in 1998 and the lowest 7.3% in 2000 and 2002. Details of further proceeds are as follows N91.7 billion (2001), N108.6 (2002), N136.4 (2003), N178.1 (2005). In 2005, a total of N1.7 trillion was generated from different types of taxes including the petroleum profit tax and education tax.

It is however important to note that with the positive attributes of effectiveness and equity of VAT, its contribution to the total tax revenue in Nigeria has been very low. The highest contribution to the total tax revenue is 18.8% in 1998. Since 2000, during this democratic dispensation the highest was 14.13% in 2008, with the lowest ever recorded been in 2005 when it was 7.18%. VAT generated N532.9bn, N649.5bn and N802.9bn in 2010, 2011, and 2012 respectively. Tax also constitutes a substantial part of the revenue accruing to the state in Nigeria. This is especially the case when VAT is added to the internally generated revenue, which is substantially made up of other taxes.

A number of factors have been responsible for low performance of taxation to generate adequate revenue in Nigeria in order to achieve the macro-economic objectives of the country. These problems include the following:

- (i) Inefficiency in tax regulation.
- (ii) Outright corruption
- (iii) Tax evasion and avoidance
- (iv) Administrative lapses
- (v) Unnecessary incentives and allowances. (Some of which are arbitrarily given by presidential fiat)
- (vi) Problems of high tax regime in Nigeria.

Analytical Method

The study employed the Ordinary least Square in analyzing the data collected. It used time series data of the current revenue of the government of Nigeria as published by the Central Bank of Nigeria annual statistical bulletin for various years. These are Real GDP, VAT Revenue and Private Consumption Expenditure 1994-2012. The study fit the regression through the origin because it is appropriate in this case, and it fits well based on a strong a priori expectation (Damodar and Porter, 2009). Also Theil (1978) suggest that if intercept is absent in some cases, the slope coefficient maybe estimated with far greater precision.

To assess the productivity of the Nigerian VAT, it adopted a robust model to ensure that a valid result is obtained. This model uses the elasticity and buoyancy of the tax which will help to determine how VAT responds to changes in Gross Domestic Product (GDP). It has been used internationally by Mansfield (1972), Osoro (1991), Kusi (1998), Muriithi and Moyi (2003), and approved by the World Bank and other international organizations. Amina (2000) alleged that assessing tax productivity is important not only because it allows for the examination of the responsiveness of the tax system, but also it affects the system's equity and efficiency. Muriithi and Moyi (2003) state the income elasticity of a tax can be broken down into tax to base elasticity and base to income elasticity. Therefore, the income elasticity of a tax is essentially the product of their tax elasticity. Generally, the concept assumes the following functional relationship;

$$TR = aY^e$$

Where TR is total revenue, Y is GDP, e = error term

A logarithm transformation of the equation above enables the derivation of the elasticity coefficient. This is represented as

$$\log TR = \log a + b \log Y + e$$

Where b provides an estimate of tax buoyancy (in percentage terms the change in tax relative to change in GDP).

Gujarati and Porter (2009) suggest that log enables the measurement of growth rate of certain economic variables and reduces the incidence of heteroscedasticity and skewness of data. According to Muriithi and Moyi (2003) the income elasticity of a given tax can be decomposed into two elements; the elasticity of the tax to the base and the elasticity of the base to income.

EMPIRICAL RESULT

The empirical findings using tax elasticity and buoyancy obtained an estimate of positive 0.186 as per the result attached on the appendix C. A high tax elasticity, that is, tax elasticity index of one or more is particularly desirable since it allows growth in expenditure to be financed by using tax revenue without recourse to the politically unpopular decision to raise tax rates. But, even though the result obtained is positive, its contribution is inelastic. That is, it contributes less than proportionately to revenue generation in Nigeria. This can be attributed to:

- ❖ To an in-appropriate rate being changed for VAT
- ❖ Slow based private final consumption expenditure which from the base for VAT assessment.
- ❖ Poor tax management and management information system
- ❖ Excessive waivers, exemptions and concessions being granted by the government.
- ❖ Other leakages because of inefficient evaluation of the tax

The analysis has thrown some light on the efficiency of tax administration in Nigeria over the period covered by the study. The result indicated that VAT revenue spurred a less than proportionate increase in total federal collectible revenue. The result obtained for VAT elasticity cannot be explained exclusively in terms of VAT rates, but also in terms of an in-appropriate threshold. Thus poor performance on the economy can be due in part to the decline in the real private final consumption expenditure, the base of the tax, and more so, inefficient tax administration. It also suggest that may be ineffective use rather than raising revenue is the major base of fiscal policy management in Nigeria. It embodies over generous waivers, frivolous exemptions. All these suggest that revenue leakage is a major problem of taxation in Nigeria.

MAJOR FINDINGS

- i The Nigerian VAT has potential for revenue generation, but it is inelastic to GDP
- ii VAT has no proper threshold in Nigeria
- iii Waivers, exemptions, concessions, evasion are the major threat to VAT revenue generation in Nigeria.

CONCLUSION

The study appraises the revenue productivity of VAT as it will assist in an objective assessment of the Nigeria's sustainable level of revenue as a basis for determining its level of expenditure. Since the advent of oil boom in Nigeria, the country caught the 'dutch disease' and never effectively and efficiently administered its other tax sources.

In spite of the positive coefficient obtained from the multiple regression result, the inelastic result from the contribution obtained in the log-linear estimation of the elasticity and buoyancy with regression indicates these facts. Amongst other problems, information available suggest that over-time adjustments and reforms in the Nigerian tax system are usually influenced by group

pressures, and not analyzed on any identifiable macro-economic or widely based public policy objectives.

The core objective of VAT is to enhance the degree of sustainable revenue, and it has the potential for a high yield as confirmed by the regression result, but the government as an element of the package included numerous exemptions generous concessions and arbitrary waivers especially for unproductive ventures. This has greatly affected its revenue base, and where current revenue is insufficient to cover current expenditure the leaves continuous large deficits and an extreme poor fiscal performance. This may lie at the heart of our persistent economic crisis.

The argument that Nigeria's VAT rate is the lowest in Africa or the world and should be the reason for its inelastic nature may be erroneous, especially when backed by so many descriptive statistics. Caution must be exercised in interpreting nominal data, for good performance contribution must be measured by elasticity and not at a point in time; but over a period. The positive coefficient and the inelasticity indicated that not to have a proper VAT threshold raises abuse, tax costs. The result provided empirical evidence to the data tested and the arguments that both official administrative costs, evasions, exemptions, waivers raise cost sharply as practiced in Nigeria resulting in revenue losses and poor response of VAT to GDP growth.

In conclusion, since VAT indicates a positive coefficient it has potentials, but there is a need to consider the technology of the tax collection. That is, the feasibility of the tax instruments, the cost of administration and compliance, including the waivers, exemptions, concessions and evasion issues so as to make it respond automatically and positively to GDP growth.

RECOMMENDATIONS

The result obtained showed that the current VAT revenue profile is sustainable and that improvement must be made in order for it to respond to economic growth, and generally increase revenue generation in Nigeria. It is based on this importance attached to VAT revenue that the following recommendations are made.

1. Special attention should be given to the provision of an adequate and clearly identified threshold for VAT.
2. authorities must formulate policies intended to make VAT respond to changes in national income.
3. Significant reviews and rationalization need to be made in the areas of rates adjustments, exemptions, waivers and evasions additional capacity awareness such as automation, audit and risk profiling and general skill development.
4. Government should desist from revenue bursting activities.
5. There is an urgent need for the improvement of the tax information system.

Table 2: Real GDP, Vat Revenue And Private Consumption Expenditure 1994-2012

Year	Real GDP (Nbn)	VAT Revenue(Nbn)	Private Consumption Expenditure (Nbn)
1993	274.8	-	502.8
1994	275.5	7.3	610.3
1995	281.4	20.8	1387.4
1996	293.7	31	2124.3
1997	302	34	2091.1
1998	310.9	36.9	2371.3
1999	312.2	47.1	2454.8
2000	329.2	58.5	2478.8
2001	357	91.8	3687.7
2002	433.2	108.6	5540.2
2003	477.5	136.4	7044.5
2004	527.6	159.5	8111.1
2005	562	178.1	10009.4
2006	595.8	221.6	12256.4
2007	634.3	289.6	15556.3
2008	674.9	407.6	17327.4
2009	718.9	468.39	18980.9
2010	776.3	562.9	22845.1
2011	834.0	649.5	22940.7
2012	846.7	802.9	23849.1

Source: Cbn Annual Statistical Bulletin 2011/ Nbs Annual Abstract

Dependent Variable: VAT

Method: Least Squares

Date: 10/17/13 Time: 03:39

Sample: 1995 2012

Included observations: 18

Variable	Coefficient	Std. Error
ELAST	0.186667	0.084317
R-squared	-87.106272	Mean dependent var
Adjusted R-squared	-87.106272	S.D. dependent var
S.E. of regression	4.677133	Akaike info criterion
Sum squared resid	371.8847	Schwarz criterion
Log likelihood	-52.79480	Hannan-Quinn crit.
Durbin-Watson stat	0.461025	

Year	VAT	LOG VAT	ELASTICITY
1994			
1995	20761	4.317248	4.2906
1996	31000	4.491362	7.8357
1997	34000	4.531479	3.2112
1998	36000	4.556303	2.7461
1999	47100	4.673021	52.035
2000	58500	4.767156	3.7738
2001	91800	4.962843	4.6501
2002	108600	5.03583	0.8728
2003	136400	5.134814	2.1989
2004	159500	5.202761	1.5255
2005	179100	5.253096	1.719
2006	221600	5.34557	3.4547
2007	309700	5.490941	3.8799
2008	404500	5.606919	4.7889
2009	468400	5.670617	1.9907
2010	562900	5.750431	2.2746
2011	649500	5.812579	1.9272
2012	710589	5.851618	12.7347

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