# Revenue Implications of Nigeria'S Tax System

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## Abstract

This is a study of the properties of the Nigeria's tax system particularly the bases of the company income tax, value added tax and personal income tax. The results indicate that their bases are not stable (not persistent and volatile). However, while the bases of the company income tax and personal income tax are more sensitive to cyclical swings (current state of the economy over time), that of the value added tax (VAT) is not. The policy implications of these findings support the recent government tax policy reform of a shift in focus in the tax system from direct taxation to indirect taxation. With the tax base of VAT being insensitive to the current state of the economy, the revenue therefrom will not drop sharply when the economy slows down. It will also shield the government from budgetary shortfalls as it will likely cushion against sharp declines in aggregate tax revenues.

**Keywords:** Tax System, Company Income Tax, Value Added Tax, Personal Income, Tax Policy, Nigeria.

## 1. Introduction

Taxation in Nigeria following the extent laws is enforced by the 3 tiers of government, that is, federal, state, and local governments with each having its sphere clearly spelt out in the Taxes and Levies (approved list for collection) Decree, 1998. However, Nigeria runs a largely centralized revenue collection system, with the federal government collecting the major revenue (petroleum revenue – profit taxes, royalties, crude oil sales; company income tax, value added tax, customs and excise duties) on behalf of the constituent governments.

The Nigerian tax system even though has been employed to achieve various economic objectives at notable periods, has basically been structured as a tool for revenue collection which was the legacy from the pre-independence government based on 1948 British tax laws. Over time however, it has been observed that the Nigerian tax system has inherent problems in its structure. Odusola (2006) reports that the Nigerian tax system is concentrated on petroleum and trade taxes while direct and broad-based indirect taxes like the value-added (VAT) are neglected. Thus, the tax system lacks the potential of diversifying the revenue portfolio for the country as to safeguard against the volatility of crude oil prices and to promote fiscal sustainability and economic viability at lower tiers of government.

An attempt to transform and diversify the existing revenue base led to various tax policy reviews in mid 1980s, 1991 and 2003 as well as the yearly amendments given in the annual budget. In spite of the various reforms, the tax system still had some set-backs especially in its structure and administration (Odusola, 2006) while tax revenue was still not significant as the diversification of revenue portfolio was not achieved. Taiwo (2008) observes that the distribution of government revenue is skewed in favour of oil revenue vis‐à‐vis non-oil revenue; non-tax revenue vis‐à‐vis tax revenue; but within the tax structure, indirect taxes vis‐à‐vis direct taxes. He posits that the observed distribution has wide-ranging implications most especially on fiscal performance and attainment of government policy objectives. Incidentally, tax revenue has been a key source of instability in the country's budget.

With the new national tax policy however, there is an intensified effort to grow internally generated revenue particularly tax revenue thus cushioning against declines in aggregate tax revenues. But we argure that it is not enough to shift focus in the Tax System from direct taxation to indirect taxation, having a reduction of the Companies Income Tax from 30% to 20%, Personal Income Tax from 25% to 17.5% of top rate while strategically

increasing the rate of Value Added Tax (VAT) from 5% to 15%. Reducing or increasing the tax rates in anticipation for higher revenue does not provide much insight. The revenue response to changes in tax rate or changes in economic fortunes can be more muted than the tax base response, as tax revenues alone will only provide inaccurate gauge of evolving tax bases. Tax bases are the first place to look in terms of underlying factors for tax revenue volatility. Similarly, showing the distribution of government revenue and how the revenue sources have grown or dwindled over time (Taiwo, 2008) does not provide much insight either. Revenue data alone do not tell the whole story of how the country's revenue sources evolve beacuse the revenues obtained from a tax are the product of the tax's effective rate and the base upon which the tax is levied. Accordingly, the changes in revenues from each tax is broken down into base and rate changes.

Since tax revenues have been a key source of instability in the country's budget, it is important to study the stability of the predominant tax revenue bases, the developments in the country's favoured tax revenue sources. Undoubtedly, a more variable tax base places considerable challenges for the government because expenditures – financed in large part by tax revenue – are difficult to reduce in the short run. Incidentally there is little knowledge about the resilience of Nigeria's tax bases. It is on this note that the study tries to evaluate the properties of the relied tax bases to ascertain its stability and reliablility. Following Edgerton, et al. (2004), a study of the developments in a country's revenue sources should consider certain properties of the tax bases particularly persistence, volatility and sensitivity. This study sets out to do same thus examining the persistence and volatility, as well as the economic sensitivity of the bases of Value-added Tax, Personal Income tax and Companies' Income Tax which forms the objectives of the study.

Section 2 reviews briefly the new National Tax Policy, the rationale for it, and the arguments (concerns) that trailed its pronouncement. Brief overview of the Nigerian taxes, the revenue structure, and brief literature review are also contained in section 2. Section 3 provides the methodology and the data generating process while section 4 provides the results and analysis of results. Section 5 concludes.

## 2. New National Tax Policy and Preliminary Thoughts

In January 2010 the Federal Executive Council ratified and approved the National draft tax policy for the country. The approved tax policy provides a set of guidelines, rules and modus operandi that would regulate Nigeria's tax system and provide a basis for tax legislation and administration in the country. Specifically, the current objectives of the Nigerian Tax System (expanded) are to:

  ➢ Enable economic growth and development;
  ➢ Provide the government with stable resources that it shall invest in well-judged expenditure;
  ➢ Provide economic stabilization; to pursue fairness and distributive equity; and
  ➢ To correct market failures or imperfections.

To actualize the laudable objectives, part of the tax strategy is a shift of focus in the tax system from direct taxation to indirect taxation through gradually increasing Value- Added Tax to a rate that will not affect aggregate consumption in line with achieving stable non-oil revenue flows and to achieve high compliance in the tax system. Specifically therefore the Companies Income Tax drops to 20% from 30% while the Personal Income Tax drops from 25% to 17.5% of the top rate. As strategized, this is accompanied by an increase in the rate of Value Added Tax (VAT) from 5% to 15%.

Obviously, the impacts of the new tax system especially the significant increase in the value added tax has economy-wide effects and has generated a lot of debate. While some policy analysts are in favour of the tax system especially the increase in VAT, others are of the opposing view. Those in support of the new tax system posit that it will have an upward effect on the country's stable revenue base and hence economic growth thus achieving the first two objectives. Second, they argue that since the new tax policy is approved by the federal executive council and may likely be enacted into law soon, the phasing in slowly of the law will likely encourage consumption as households will rush to buy goods and services. This higher spending by consumers will boost aggregate demand which will help boost increased production and economic activities and thus improve aggregate employment thereby consolidating on the first two objectives. Third, over the longer-run the VAT would encourage saving which is needed if Nigeria is to remain competitive by investing in new technologies and new products.

However, other commentators are concerned that the increase in government revenue may actually not be guaranteed

even in the short run considering the shaky persistence nature of the base of the value added tax in the light of the global economic recession though adjudged to be gradually picking up. They adjudged the Nigeria's growth projections of 7.5 -8.9% for the 2009 fiscal year to be unrealistic as the actual growth rate for GDP in 2009 was finally at 2.91% (http://www.economywatch.com/economic-statistics/Nigeria/GDP Growth Constant Prices National Currency/) recording a reduction of 4.6% from the base projected level of 7.5% and 3.1% from last year's (2008) growth of 5.98%. With 2.91% growth in GDP in 2009 which is significantly lower than the 2008 figure (5.98%), commentators are asking if such growth could be said to be positive with the later[i] as to warrant a significant increase in government revenue even when the 2010 GDP growth was projected at 4.985%. This is predicated on the fact that there was a -19.2% variance between the government budgeted and actual annual revenue incomes from VAT in 2009 fiscal year. The government budgeted to collect revenue income of ₦580, 000m but ended up in collecting ₦468, 388.9m leaving a difference of ₦111, 611.1m (FMF, 2009). With this difference one may not be wrong to question the persistence nature of the tax base - the Gross Domestic Product (GDP) and its attendant growth rate in the light of the global economic recession adjudged to be gradually picking up. Finally, commentators argue that the increase in VAT rate (though may enhance the country's revenue base), will worsen the income inequality in Nigeria which will later shrink the tax base and reduce the revenue generation.

*2.1 An Overview of the Nigerian Taxes*
Briefly we examine the major components of the Nigerian tax system. The Nigerian Tax system has undergone significant changes in recent times. The tax laws are being reviewed with the aim of repelling obsolete provions and simplifying the main ones. For detailed analysis of Nigerian taxes, see Odusola, (2006), and the Federal Inland Revenue Service (FIRS) website: http://www.firs.gov.ng .

*2.2 Personal Income Tax (PIT)*
This is a tax that is imposed on individulas who are either in employment or running their own small businesses under a business name or partnership. The law guiding the taxation of personal incomes is the personal Income Tax Act (Cap P8 LFN 2004). Under the law, Federal and State'tax boards are empowered to identify persons living in or earning income from Nigeria who are required to pay tax, and assess incomes and tax their incomes using specified guidleine and rules. The law also guides the tax officila in identifying the residence of potential tax payers, as well as the sources and origins of their incomes for the purpose of taxing the income. The forms of tax that are administered under the Act are: pay-as-you-earn (PAYE) being taxes from employment and second taxes from self employed person. Until date, several amendments have been made with the current being a tax rate reduction from 25% to 17.5% of top rate.

2.3 *Companies Income Tax (CIT)*
Companies income tax was introduced in 1961. The original law that created it has been amended many times and is currently codified as the Companies Income Tax Act of 2004 (CITA CAP C21 2004 LFN) amended in 2007. The profit or gain of any company accruing in, derived from, brought into, earned in or received in Nigeria are assessable to tax under Companies' Income Tax Act CAP C21 2004 LFN amended in 2007. The tax rate has been 30% and it is applied on the total profit or chargeable profit of the commpany but for the new tax policy that brought it down from 30% to 20%. It should be noted that Oil Marketing Companies, Oil Services Companies are liable to tax under CITA at the rate 20% and Educatin Tax at the rate of 2% on the assessable profit. Education tax is treated as allowable expense.

2.4 *Petroleum Profit Tax (PPT)*
The Petroleum Profits Tax Act requires all companies engaged in the extraction and transportation of petroleum products to pay tax. It is particularly related to rents, royalties, margins and profit-sharing elements associated with oil mining, prospecting and exploration leases. Oil producing Companies are liable to tax under the Petroleum Profit Tax Act CAP P13 LFN 2004 at the following rates: Joint Venture Contracts, Risks Service Contracts and Sales Risk Operations – First Five years 65.75 percent; subsequently 85 percent; production Sharing Contract (PSCs) – 50 percent of chargeable profit (mainly for deep off-shore exploration and prodcution). Oil producing sharing companies are to file tax returns within 5months of the year end. PPT is payable in 12 monthly installments plus a final installment payable within 21 days of the date of service of the notice assessment.

2.5 *Custom Duties*
Custom duties in Nigeria are the oldest form of modern taxation, and their introduction dates back to 1860, known otherwise as import duties, they represent taxes on imports into Nigeria charged either as a percent of the value of imports or as a fixed amount contingent on quality. Imports duties are the country's highest yielding indirect tax. Prior to

introduction of SAP in 1986, custom duties were as high as 300 percent but currently range between 2 to 75 percent. The Nigerian custom services (NCS) administer the tax.

### 2.6 *Excise Duties*

Excise duties, introduced in1962, are an ad-valorem tax on the output of manufactured goods, as enforced by the customs and Excise Act of 1962and 1965andthe customs and Excise Tariff Decree of 1995. The tax is administered by the country's custom services.

### 2.7 *Value Added Tax (VAT)*

Value added tax (VAT) came into effect on January 1, 1994 to replace the Sales Tax. Taxable persons are obliged to register under VAT Act. The tax is at a single rate of 5 percent of taxable goods and services. Supply of all goods and services except those specifically exempted are subject to VAT. Non resident companies, which transact business in Nigeria, are also required to register for VAT and render VAT returns using the address of the company in Nigeria with whom they have subsisting contract. Since its introduction, 15 of 42 sections of the act have been amended – Value added Tax Act, Cap VI, LFN 2004 amended in 2007.

### 2.8 *Education Tax (ET)*

The Education Tax Act, Cap E4, LFN 2004 initially was introduced in 1993 (Education Tax Act No.7), to prevent the education system from total collapse due to financial crisis that had rocked the sector for years. It is therefore viewed as a social obligation placed on all companies in ensuring that they contribute their own quota in developing educational facilitites in the country. An education tax of 2 percent is imposed on assessable profits of all companies incorprated in Nigeria.

### 2.9 *Capital Gains Tax (CGT)*

Capital gains tax was introduced at its inception in 1967. With effect from 1996, CGT is computed at the rate of 10% of the chargeable gain. However beginning from 1998, gains on sale of shares and stock of all forms are exempted from capital gains tax.

### 2.10 *Stamp Duties*

Stamp duty is a tax raised by requiring stamps sold by the government to be affixed to designated documents, for example, conveyance document concerning land transfers bonds, debentures, conventions and warrants.

### 2.2 *Revenue Structure*

Taiwo (2008) carefully catalogues the revenue structure of Nigeria for the period 1978-2006. While oil revenue rose astronomically during 1970-2006 from ₦1.93 billion to ₦188.32 at an average of rate of 13.6 percent, non-oil[ii] revenue rose mildly same period from ₦5.42 billion to ₦24.13 billion at the rate of 4.3 percent. Similarly Taiwo (2008) observes that non-tax[iii] revenue prevailed over and above tax revenue. Non-tax revenue rose in real terms, from ₦15.32 billion in 1998 to ₦115.61 billion in 2006, and averaged ₦71.19 billion. It accounted for S2.6 percent of federally collected revenue, on average. On the other hand tax revenue[iv] during the period 1998-2006 at constant prices rose from ₦19.08 billion to ₦95.54 billion and averaged ₦59 billion and accounted for between 37.9 and 45.6 percent of government revenue. The average share of tax revenue was 43.6. Again, following classification of revenue on direct taxes[v] and indirect taxes, (including user charges); direct taxes rose from N9.86 billion in 1998 to ₦81.32 billion in 2006, and averaged ₦44.30 billion. On average, direct taxes accounted for 32.7 percent of revenue. On the other hand, indirect taxes[vi] and user charges rose in real terms during 1998-2006, from ₦24.53 billion to ₦129.83 billion. On average, it amounted to ₦85.89 billion while it accounted for 64.4 percent of revenue.

### 2.3 *Brief Literature Review*

Conceptually Edgerton, et al, (2004) posit that the more positive the realtionship the current year's and previous years's growth, the more persistent the tax base is said to be. Which means, in a highly persistent base, growqth in one year is unlikely to turn into a sudden decline in the next year. It implies that the taxation os a persistent base requires relatively few rate adjustments to gernerate a steady sream of revenues. Similarly Edgerton, et al, (2004) also posit that a highly volatile tax base exhibits large, unanticipated deviations from its trend, while a less volatile base displays only small deviations. Volatile tax bases are uncertain such that knowing the current year's performance provides little indication of what the tax base will do the following year. Such uncertainty leads to unpredictable revenues and the potential risk of large budget gaps. This view is corroborated by Gardner (2011) who posit that a volatile tax is one for which year-over-year revenue growth, experiences noticeable peaks and troughs. By contrast, s stable tax is one for which the growth rate varies little from year to year. In other words, when volatile taxes grow or fall, they are responding to

changes in the business cycle: tax collections increase rapidly when the economy grows, and grow more slowly when the economy slows down. Economic sensitivity following Edgerton, et al, (2004) describes the strength of the relationship between a tax base and the current state of the economy. Sensitive or procyclical bases move in the close step with the economy such that it falls when the economy is declines and is insentive will not be affected by trhe short-run economic shifts. They maintain that tax bases that tend to drop sharply when the economy slows can expose the country to budgetary shortfalls as many government financed expenditures do not automatically shrink with a slowing economy.

Gardner (2011) argues that there is growing economic evidence that income taxes, as States have chosen to structure them, are no more volatile than the sales taxes the same States levy. However, Sobel and Holcombe (1996) examined long term trends in collections from these taxes and found that "the personal income tax has about the same cyclical variability as the retail sales tax". Similarly Bruce et al. (2006) had same result. They found that in the short run, "neither the personal income tax nor the sales tax emerges as the universally more volatile tax". They examine the relative dynamic response of State personal tax revenues and sales tax bases to changes in state personal income. Their econometric analysis which includes separate analyses of long-run and short-run responses depending upon the relationship between current and expected tax base growth. These same studies Gardener (2011) reports, confirm the Legislative Analysts'Office of California (2005), finding that shifting away from income taxes is likely to reduce the long-term sustainability of state revenue streams. Along that line Sobel and Holcombe (1996) found that the income tax "has a significantly higher long-run growth rate" than the sales tax, while Bruce et. al., found that in the long run, the average growth rate of state income tax bases is "more than double"that of state sales tax bases. Most states have asymmetric short-run income elasticities which are again greater for income taxes than for sales taxes. But a joint analysis of l ong- and short-run dynamics reveals that neither tax is universally more volatile. After calculating state-specific income elasticities for both taxes, we employ cross-section regression techniques to explain the variation in elasticities across states. Several policy factors are found to be important, including elements of tax bases and rate structures.

However, Boyd (2009) posits that the study of Sobel and Holcombe (1996) and that of Bruce et al. (2006), all find Hawai'i's tax system to be volatile, or unstable, in response to short run changes in personal income. He argues that they do not have the same results in measuring volatility between tax bases. Sobel and Holcombe (1996) find the GET tax base more volatile, while Bruce, Fox and Tuttle find the income tax base more volatile. Boyd (2009) thus points out that this could have something to do with how they measured bases. Sobel and Holcombe (1996) use the reported tax base for GET and the Federal Adjusted Gross Income (AGI) for the income tax base. Bruce et. al. (2006) use the same AGI but derive state sales tax bases by dividing sales tax revenue by the main rate. This could lead to differences because intermediate goods are sometimes taxed at a different rate.

## 3. Methodology

This study employed the econometric technique (OLS) in estimating the sensitivity, volatility and persistence of the Nigerian tax system. Persistence measures the relationship between the current year's tax bases and previous year's tax bases. The more strongly positive the relationship is between the current year and previous years, the more persistence the tax base is said to be. That is, if the tax base is highly persistence, growth in one year is unlikely to lead to a sudden decrease in the next. Volatility measures the deviation from the steady state of macroeconomic equilibrium or a change in the growth rate which cannot be sustained beyond the short-run period (Kandil, 2000). Thus, if a tax base is highly volatile, it will display large, unanticipated deviations from its trend, while a less volatile base displays only small deviations. A volatile tax base usually complicates the job of fiscal authority in tax revenue projection and probably may results in large budget gaps since predicting what the next year tax revenue would be is uncertain knowing the current year's performance provides little indication. Lastly, economic sensitivity of a tax describes the strength of the relationship between the tax base and economic activity. In other words, a sensitive tax base will decline when there is a downturn in economy activity, while insensitive tax bases are relatively unaffected by short run economic shifts. A highly sensitive tax base can expose the economy to budget deficit because most of government expenditures do not shrink automatically with a sluggish economy.

*3.1 Model Specification*

Based on the subject matter, the following equations which are also in line with literature are used to capture the objectives of the study.

$$\Delta grCIT = \beta_0 + \beta_1 \Delta CIT_{-1} + \varepsilon \ldots\ldots\ldots\ldots\ldots(1)$$
$$\Delta grVAT = \beta_0 + \beta_1 \Delta VAT_{-1} + \varepsilon \ldots\ldots\ldots\ldots\ldots(2)$$
$$\Delta grPIT = \beta_0 + \beta_1 \Delta PIT_{-1} + \varepsilon \ldots\ldots\ldots\ldots\ldots(3)$$
$$\Delta grCIT = \beta_0 + \beta_1 \Delta CIT_{-1} + Residual + \varepsilon \ldots\ldots\ldots\ldots(4)$$
$$\Delta grVAT = \beta_0 + \beta_1 \Delta VAT_{-1} + Residual + \varepsilon \ldots\ldots\ldots\ldots(5)$$
$$\Delta grPIT = \beta_0 + \beta_1 \Delta PIT_{-1} + Residual + \varepsilon \ldots\ldots\ldots\ldots(6)$$
$$\Delta grGDP = \beta_0 + \beta_1 \Delta VAT_{-1} + \beta_2 \Delta PIT_{-1} + \beta_3 \Delta CIT + \varepsilon \ldots\ldots\ldots\ldots\ldots(7)$$

In equation (1) the $\Delta$grCIT is the change in growth rate of the Company income tax while $\Delta$CIT is change in the lagged value of Company income tax. In equation (2) $\Delta$grVAT is the change in growth rate of Value-added Tax while $\Delta$VAT$_{-1}$ is the change in the lagged value of Value-added Tax. In equation (3) $\Delta$grPIT is the change in growth rate of the Personal Income Tax while $\Delta$PIT$_{-1}$ is the change in the lagged value of Personal Income Tax. All the variables in equations 4 -6 have been earlier defined except $e$, which is the error term or the white noise. In equation (7) $\Delta$grGDP is change in growth rate in Gross Domestic Product while others have been previously defined. Gross domestic product (GDP) was used as a proxy for general economic activity (national income) while personal income (derived from the GDP) was used as a proxy for personal income tax base. The symbol $\Delta$ is a difference operator. $\beta_0$ (Beta 0) is the constant term while the rest of the Beta's are the estimated parameters. The symbol e is the error term as earlier defined while the lagged value captures the relationship between the current year growth of the tax base and previous year value. Equations 1, 2 and 3 were used to capture the persistence of the various tax bases; while volatility was captured by multiplying 100 to the coefficient of the standard errors in equations 4, 5 and 6 respectively. Sensitivity of the taxes was captured with equation number 7 and calculated as the coefficient on the growth rate of economic activity in a regression of the annual growth rate on the growth rate of economic activity and a constant.

*3.2 Data Generation Process*
The inherent problem in tax analysis is getting the actual tax bases. This is corroborated by Shome (1998) who posits that in practice, data on appropriate tax bases are usually difficult to obtain from the national accounts. Where this is not possible however, literature suggests that the tax base should be defined as closely as possible to the source from which the tax is collected. Accordingly, proxy bases are used in place of the theoretically proper bases. Consequently, the bases of the taxes in this study were derived from their source of collection particularly tracing it from the income side of the national income account. Accordingly, Personal income was computed from the national income after some adjustments were made. This was to reflect transfer flows between the government and individuals and between businesses and individuals. The personal income was adopted as proxy for personal income tax base. Personal Income is national income less social security payment, public administration charges, plus transfer payment. Company income tax was also derived from the national income account, as real GDP less rail transport, electricity, water, public administration, education, health, social services and private non-profit organization income. It should be recalled that VAT replaced the sales tax effectively in January 1, 2004. Because our time series data started from 1970, we derived the sales tax levied at retail, wholesale levels, and private final consumption for 1970-1993 and assumed it to be part of the value-added tax to get an extended tax base series for VAT. Particularly, VAT was defined as real GDP less Agriculture income, Rail transport, electricity, water, public administration, education, health, social services and private non-profit organization income. Lastly, we use the gross domestic product as proxy for income or economic activity.

**4 Result Presentation and Analysis**
4.1 *Unit Root Test*
In this section, we present the results of the unit root test and co integration test as well as the coefficients of estimated regression on persistence, volatility and sensitivity of the tax system. We began the analysis by examining the time series properties of the underlying data before estimating the model. The essence is to ensure that the data is stationary so as not to have spurious result as it has been observed that most time series data are non-mean reversing. The unit root

test of stationarity using Augmented Dickey Fuller (ADF) was employed. The result is presented in table 1 in the appendix (insert table 1 here). Following Dickey and Fuller (1981), a variable is stationary if its t-adf value is greater than the critical value at a given percent either at 5% or at 1% level. From table 1 in the appendix, -1.951 and -2.67 are the critical values at 5% and 1% respectively. Similarly, the t-adf values for grGDP, CIT, VAT and PIT are -8.7956, -7.3680, -7.4295, and -9.2286 respectively. All the variables are stationary at first differencing implying they are integrated at order 1.

*4.2 Conitnegration Test*
If the dependent variable has the same order of integration with any or all of the explanatory variables as in table 1 in the appendix, there may be the possibility of co-integration among the variables. The presence of co integration among the variables makes it difficult to see the real effect of the explanatory variables on the dependent variable. Consequently, the study adopts the most often used Engle Granger co-integration procedure to test for the presence of co-integration among the variables particularly the dependent variable and the explanatory variables. The result as presented in table 2 in the appendix reveals that there is no co-integration among the variables (dependent variable and explanatory variables) since the residuals generated from the linear combination of the non stationary variables (excluding the constant term) was not stationary using the Augmented Dickey-Fuller unit root test. The fact that they have the same order of integration is just a mere coincidence. (Insert table 2 here).

4.3 *Presentation of Coefficient of Persitence, Volatility, and Sensitivity Estimates*
(Insert Table 3 here)
4.3.1**.** *Tax Persistence*
The estimates from the lagged growth of the taxes indicate that the company income tax base have persistence value of -0.49, while that of value added tax base is -0.48 and -0.42 for personal income tax base respectively. The implication, is that the three tax bases under consideration are not persistence. In other words, there is no guarantee that the growth of the tax revenues in the respective taxes in one year will persist the following year as there is probably bound to be a decline in growth in the proceeding year's tax revenue. The adjustment of the VAT rate upwards is on the right direction since taxation of a non persistent base requires relatively significant adjustment to generate a steady stream of revenues.

4.3.2 *Volatility of the taxes*
The three taxes as shown in table 3 in the appendix reveals that the taxes are volatile. Following the result, company income tax and value added tax have volatility coefficient of 14.5% apiece, while personal income tax have 119% as its volatility coefficient. However, in comparison, the size of unexpected changes in the base for personal income tax is more compared to company income tax and value added tax. The level of volatility displayed by the personal income tax base exhibits large, unanticipated deviations from its trend while the company income tax and value added tax with less volatile bases display only small deviations. High volatile tax base such as the personal income tax portend uncertainty such that knowing the current year's performance provides little indication of what will become of the tax base the following year. This uncertainty is likely to lead to unpredicatable revenues from personal income tax and by implication the risk of large budget gaps. The graph in the appendix explains the trend of the volatility. (Insert figure 1).

4.3.3 *Sensitivity of the taxes*
The economic sensitivity of the tax as revealed in the result indicates that the company income tax has a value of 0.26, value added tax -0.30 and 0.69 for personal income tax. Accordingly, company income tax and personal income tax are the most economically sensitive, responding positively to changes in the current satate of the economy – moving in close step with the economy and falling when the economy declines. Meanwhile, value added tax is insensitive and relatively unaffected by short-run economic shifts.

**5.0 Conclusion**

The study so far examined the revenue implication of Nigeria's tax system with reference to the properties (tax bases) of the Company Income tax, Value added tax and Personal Income tax over the period 1970 -2008 where data is

available. The concept of persistence, volatility and sensitivity were employed in the analysis. The outcomes of the results are quite remarkable and could pose a challenge to fiscal authority in Nigeria particularly in tax revenue projection. The result shows that company income tax base is not persistent, volatile, but sensitive, or procyclical to the state of the economy. The value added tax base is not sensitive to the current state of the economy, not persistent and realtively volatile. Finally, the base of the personal income tax is so volatile, and not persistent, but sensitive to the state of the economy. The policy implication of this finding supports the recent government tax policy reform of a shift in focus in the tax system from direct taxation to indirect taxation. A reduction in the companies income tax rate from 30% to 20%, personal income tax rate from 25% to 17.5% of top rate and an increase in the rate of value added tax (VAT) from 5% to 15% as stipulated in the new national tax policy document is a step in the right direction. With the tax base of VAT being insensitive to the current state of the economy, the revenue therefrom will not drop sharply when the economy slows down. It will also shield the government to budgetary shortfalls as it will likely cushion against sharp declines in aggregate tax revenues.

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i  The more strongly positive the relationship is between the current year's and previous year's growth, the more persistent the tax base is said to be. In other words, in ahighly persistent base, growth in one year is unlikely to run into a sudden decline in the nest. Taxation of a persistent base thus requires realtively few rate adjustments to generate a steady stream of revenues. Federal Reserve bank  of  New  York  (2004):  Currrent  Issues  in  Economics  and  Finance  Vol  10.  Number  4 http://www.newyorkfed.org/research/currentissues

ii  Non-oil revenue comprises companies' income tax, customs and excise duties, privatization/GSM proceeds, the VAT, tax on petroleum products, federal government independent revenue, education tax and other miscellaneous items. Of these sources, the dominant ones have been the companies' income tax, customs and excise duties, and the VAT and federal government independent

revenue. During 1998-2006, these sources accounted for 3.8, 6.2, 4.3, and 2.2 percent respectively of federally collected revenue, respectively.

[iii] Note: 3: Non-tax revenue comprises crude-oil/Gas exports, domestic crude oil sales, and privatization/GSM proceeds.

[iv] Note 4: The major sources of tax revenue in Nigeria are petroleum profit tax and royalties; companies' income tax; customs and excise tax duties, the VAT; tax on petroleum products and education tax. The first four of these sources were relatively prominent, with a share of28.7, 3.8, 6.2 and 4.3 percent of federally collected revenue respectively.

[v] Note 5: Direct taxes comprise petroleum profit tax and royalties; companies' income tax and education tax. The first two were more prominent during 1998-2006 and accounted for 28.7 and 3.8 percent of revenue respectively (Taiwo, 2008).

[vi] Note 6: Indirect taxes and User charges consist of crude oil/gas exports, domestic crude oil sales, customs and excise duties, privatization GSM proceeds, the VAT and tax on petroleum products. However" the principal sources were crude oil/gas exports, domestic crude oil sales, customs and excise duties, and the VAT, with a share of 38.4, 13.6, 6.2 and 4.3 percent of revenue respectively (Taiwo, 2008).

**LIST OF TABLES**

**Table 1: Unit Roots Test (ADF -Test)**

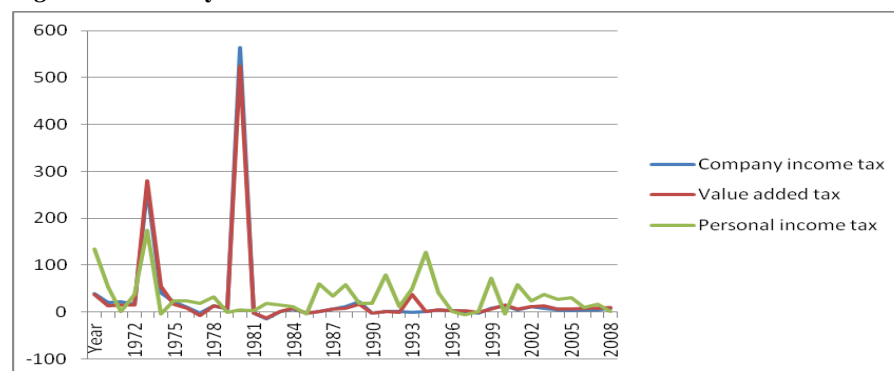|        | t-adf      | 5% critic value | 1% critical value | Order Of Integration |
|--------|-----------|-----------------|-------------------|----------------------|
| grGDP  | -8.7956** | 1.951           | -2.63             | 1                    |
| CIT    | -7.3680** | 1.951           | -2.63             | 1                    |
| VAT    | -7.4295** | 1.951           | -2.63             | 1                    |
| PIT    | -9.2286** | 1.951           | -2.63             | 1                    |

NB ** indicates significance at 5% and 1% level

**Table 2: co integration results**

|          | t-adf      | 5% critic value | 1% critical value |
|----------|-----------|-----------------|-------------------|
| Residual | -1.8755   | -1.95           | -2.626            |
| Residual | -2.5590*  | -1.95           | -2.626            |
| Residual | -4.4648** | -1.95           | -2.626            |

**Table 3: Estimated coefficients**

| TAX PROPERTIES | CIT   | VAT   | PIT   |
|----------------|-------|-------|-------|
| PERSISTENCE    | -0.49 | -0.48 | -0.42 |
| VOLATILITY     | 14.5  | 14.5  | 119   |
| SENSITIVITY    | 0.26  | -0.30 | 0.69  |

*Figure* 1: *volatility of the taxes base*