The effects of Tax Revenue on Economic growth in Nigeria (1970 – 2011)

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ABSTRACT: *This study examines the effect of tax revenue on economic growth in Nigeria, utilizing time series data for the period spanning from 1970 to 2011. The study adopts the Ordinary Least Square (OLS) regression technique and established that tax revenue has positive effect on economic growth in Nigeria. The result shows that domestic investment, labour force and foreign direct investment have positive and significant effect on economic growth in Nigeria. It is recommended that efficient tax policy be implemented. Also, policy to improve labour productivity should be sustained, while policies to attract foreign investment should be implemented.*

KEYWORDS: *Taxation, Tax Revenue, Foreign investment, Ordinary Least Square, Regression.*

I.   INTRODUCTION

1.1   Background to the Study

For development and growth of any society, the provision of basic infrastructure is quite necessary. This perhaps explains why the government shows great concern for a medium through which funds can be made available to achieve their set goals for the society (Fagbemi et al, 2010). Government needs money to be able to execute its social obligations to the public and these social obligations include but not limited to the provision of infrastructure and social services. According to Murkur (2001), meeting the needs of the society calls for huge funds which an individual or society cannot contribute alone and one medium through which fund is derived is through taxation. Tax is a major source of government revenue all over the world. Government use tax proceeds to render their traditional functions, such as the provision of public goods, maintenance of law and order, defence against external aggression, regulation of trade and business to ensure social and economic maintenance (Azubike, 2009; Edame, 2008:14).

In Nigeria, tax revenue has accounted for a small proportion of total government revenue over the years. This is because the bulk of revenue needed for development purposes is derived from oil. Crude oil export has continued to account for over 80% of the total federal government revenue, while the remaining 20% is contributed by non-oil sector in which taxation is a part. For instance, Oil sector share in total revenue was 54.4% in 1972 against 45.6% share from non oil sector the same year. By 1974 oil share of total revenue had reached 82.1% while only 17.9% accrued from non oil sector. Following the glut in the world oil prices in the later part of the 1970s, the oil share in total revenue fell to 61.8% in 1978 while non oil sector's share rose to 38.2%. And since 1984, the oil sector share in total revenue has continued to rise, though with occasional falls in between periods. By 2006, oil share of total revenue had reached 88.6% against non oil share of 11.4%. As at 2009, oil sector share in total revenue stood at 78.8% while non-oil sector accounted for just 21.3% of the total revenue (CBN, 2010).

From the above picture, it is evidenced that revenue from the non-oil sector (in which taxation is a part) has not contributed significantly to total output. Thus, the study is an attempt to examine the effect of tax revenue on economic growth in Nigeria.

1.2 Statement of the Problem

Tax revenue has been seen as major source of government revenue all over the world. Government use tax proceeds to render their traditional functions, such as the provision of public goods, maintenance of law and order, defence against external aggression, regulation of trade and business to ensure social and economic maintenance.

However, it is evidenced that the role of taxation in promoting economic growth in Nigeria is not felt, primarily because of its poor administration. The major challenges facing tax administration in Nigeria include frontiers of professionalism, poor accountability, lack of awareness of the general public on the imperatives and

benefits of taxation, corruption of tax officials, tax avoidance and evasion by taxing units, connivance of taxing officials with taxing population, high rate of tax, poor method of tax collection, etc. Tax administration and individual agencies suffer from limitations in manpower, money, tools and machinery to meet the ever increasing challenges and difficulties. In fact, the negative attitude of most tax collectors toward taxpayers can be linked to poor remuneration and motivation.

There is also the problem of accuracy of tax statistics. Apart from some few states such as Delta, Lagos, Kaduna and Katsina and the Nigerian Customs Services, where tax are known to be well kept, other agencies of the states and relevant federal tax offices have serious failures in data management. Several other effects of taxation can also be identified. First, taxes can inhibit investment rate through high tax rates such as corporate and personal income, capital gain taxes. Second, taxes can slow down growth in labour supply by disposing labour leisure choice in favour of leisure. Third, tax policy can affect productivity growth through its discouraging effect on research and development expenditures. Fourth, taxes can lead to a flow of resources to other sectors that may have lower productivity. Finally, high taxes on labour supply can distort the efficient use of human capital high tax burdens even though they have high social productivity. From the foregone therefore, the major question raised is what possible effect does tax revenue have on economic growth in Nigeria?

1.3 Objective of the Study
The broad objective of this study is to examine the role of taxation on economic growth and development of the Nigerian economy. From the broad objective above, the specific objectives of this study are as follows:
  i. To examine the effect of tax revenue on economic growth in Nigeria.
 ii. To assess the impact of domestic investment on economic growth in Nigeria.
iii. To investigate the relationship between government expenditure and economic growth in Nigeria.

1.4 Research Hypothesis
Based on the objectives above, the following research hypotheses are formulated, and which will be tested later.
  i. H_o: there is no significant effect of tax revenue on economic growth in Nigeria.
 ii. H_1: there is significant effect of tax revenue on economic growth in Nigeria.
iii. H_o: there is no significant impact of domestic investment on economic growth in Nigeria.
 iv. H_1: there is significant impact of domestic investment on economic growth in Nigeria.
  v. H_o: there is no significant relationship between government expenditure and economic growth in Nigeria.
 vi. H_1: there is significant relationship between government expenditure and economic growth in Nigeria.

II.   LITERATURE REVIEW AND THEORETICAL FRAMEWORK
Taxation as defined by Ogundele (1999) is the process or machinery by which communities or groups of persons are made to contribute in some agreed quantum and method for the purpose of the administration and development of the society. It can be inferred that the payment of tax will in turn be beneficial to the entire citizenry. This view is similar to the definition of Soyode and Kajola (2006) who defined tax as a compulsory exaction of money by a public authority for public purposes.

Nightingale (1997) described tax as a compulsory contribution imposed by the government. These various authors concluded that it is possible for tax payers not to receive anything identifiable for their contribution but that they have the benefit of living in a relatively educated, healthy and safe society. However, the infrastructure which tax payers are supposed to enjoy is in a deplorable condition (Fafunwa, 2005), educational system is in disarray (Obaji, 2005) and the health system is in a worrisome condition (Lambo, 2005).The World Bank (2000) noted that taxes are a compulsory transfer of resources to the government from the rest of the economy. They may be levied in cash or in-kind (for example, involving mandatory labour), and they can be explicit or implicit. Other classifications of taxes are Direct or Indirect (Classification by Incidence) and Proportional, Progressive & Regressive (Classification by Burden of Distribution) Adeyeye (2004) described tax as a liability on account of the fact that the tax payer has an income of a minimum amount and from certain specified source(s) or that he owns certain tangible or intangible property or that he is engaged in certain economic activities which have been chosen for taxation. Therefore, the individual contributes in some quantum measure to the fund available for use by government in providing necessary infrastructure for her citizens. (The World Bank, 2000; Adeyeye, 2004:18; Soyode and Kajola, 2006).

Tax, according to Black's Law Dictionary is a financial charge or other levy imposed on an individual or a legal entity by a State or a functional equivalent of a State (for example, secessionist movements or revolutionary movements). Taxes are also imposed by many sub-national entities. Taxes consist of direct tax or indirect tax, and may be paid in money or as its labour equivalent (often but not always unpaid). In essence, tax is seen as pecuniary burden put upon individuals or property to support the government in its oversight activities of a nation and exacted by legislative authority (Fagbemi et al, 2010).

In Nigeria, the taxation system dates back to 1904 when the personal income tax was introduced in northern Nigeria before the unification of the country by the colonial masters. It was later implemented through the Native Revenue Ordinances to the western and eastern regions in 1917 and 1928, respectively. Among other amendments in the 1930s, it was later incorporated into Direct Taxation Ordinance No. 4 of 1940 (Library of Congress, 2008). In essence, the Nigerian tax system has been based on 1948 British tax laws and has been undergoing a lot of changes. Since then, different governments have continued to improve on Nigeria's taxation system. A vital aspect of the improvement on the nation's tax system is the recent Federal Inland Revenue Service (Establishment) Act, 2007, Companies Income Tax (Amendment) Act, 2007 and the Draft National Tax Policy pending before the National Assembly. (Soyode and Kajola , 2006)

On the other hand, Kay, (1980) opined that tax avoidance takes place when facts of the transaction are admitted but they have been arranged or presented in such a way that the resulting tax treatment differs from that intended by the relevant legislation. In essence, tax evasion is illegal while tax avoidance is not illegal under the ambience of the law (Soyode & Kajola, 2006: 60; Kay, 1980: 142-145).

2.1 Theoretical Framework
Many theories of taxation exist but this study presents three of those theories as follows.
Diffusion Theory of Taxation
According to diffusion theory of taxation, under perfect competition, when a tax is levied, it gets automatically equitably diffused or absorbed throughout the community. Advocates of this theory, describe that when a tax is imposed on a commodity by state, it passes on to consumers automatically. Every individual bears burden of tax according to his ability to bear it.

For instance, a specific tax is imposed on say, cloth. Manufacturer raises prices of commodity by the amount of tax. Consumers buy commodity according to their capacity and thus share burden of tax. In the words of Mansfield: "It is true that a tax laid on any place is like a pebble falling into a lake and making circles till one circle produces and gives motion to another". This quotation explains that just as a pebble gets diffused in a lake, similarly a tax imposed on a commodity is also absorbed and its burden is felt equally among various sections of community.

Advocates of this theory assume perfect competition in the market but in world of reality, it is imperfect competition which prevails. If tax gets automatically diffused through the community, then most of worries of finance minister will be over. He will simply impose tax and collect money from people without worrying about final resting place of a tax. In actual practice we find that taxes do not get distributed equally. Some taxes remain where they are imposed first and some are partly or wholly shifted on to me consumers.
Diffusion theory of taxation has however been criticised. The diffusion theory of taxation has never gained any importance in the world of reality. It has never been seen that a tax gets automatically equitably distributed among people. It is true that in some taxes, diffusion or absorption does take place but that too is not throughout the community.

Accordingly, another criticism of the theory of taxation is that there are few taxes like income tax, inheritance tax, toll tax in which there is no absorption at all.

2.1.1 *Benefit Theory of Taxation*
According to this theory, the state should levy taxes on individuals according to the benefit conferred on them. The more benefits a person derives from the activities of the state, the more he should pay to the government. If, in accordance with the "benefits theory of taxation," we conceive of taxes as payments in exchange for government benefits, perhaps states should be obliged to confer personal tax benefits on residents who contribute to their tax coffers. The benefits theory would imply that a resident should be able to collect personal tax benefits to the extent that her tax payments to the source state exceed the money value of any source state government benefits she already receives, including infrastructure, regulated labour and capital markets, and so on. Although intuitively attractive, the benefits theory of taxation suffers from several major draw backs.

First, it would be impossible to implement precisely due to the difficulty of determining the amount of government benefits, including diffuse benefits such as military protection received by each resident and non-resident taxpayer.

Second, the benefits theory does not accord with modern understandings of income taxation. In a purely domestic context, states generally do not condition government benefits upon recipients' payment of taxes. Indeed, taxpayers receiving the largest government benefits may be those who, due to their needy circumstances, pay the least taxes.

Third, if the state maintains a certain connection between the benefits conferred and the benefits derived. It will be against the basic principle of the tax. A tax, as we know, is compulsory contribution made to the

public authorities to meet the expenses of the government and the provisions of general benefit. There is no direct quid *pro quo* in the case of a tax.

Fourth, most of the expenditure incurred by the slate is for the general benefit of its citizens, it is not possible to estimate the benefit enjoyed by a particular individual every year. If we apply this principle in practice, then the poor will have to pay the heaviest taxes, because they benefit more from the services of the state. And if we get more from the poor by way of taxes, it is against the principle of justice.

2.1.2 Ability to Pay Theory

The most popular and commonly accepted principle of equity or justice in taxation is that citizens of a country should pay taxes to the government in accordance with their ability to pay. Rather than the benefits principle, the "ability-to-pay principle" generally dominates modern equity discussions. Under the ability to pay principle, people with higher incomes should pay more taxes than people with lower incomes. It appears very reasonable and just that taxes should be levied on the basis of the taxable capacity of an individual. For instance, if the taxable capacity of a person A is greater than the person B, the former should be asked to pay more taxes than the latter.

It seems that if the taxes are levied on this principle as stated above, then justice can be achieved. But our difficulties do not end here. The fact is that when we put this theory in practice, our difficulties actually begin. The trouble arises with the definition of ability to pay. The economists are not unanimous as to what should be the exact measure of a person's ability or faculty to pay. The main viewpoints advanced in this connection are as follows:

(a) Ownership of Property

Some economists are of the opinion that ownership of the property is a very good basis of measuring one's ability to pay. This idea is out rightly rejected on the ground that if a person's earns a large income but does not spend on buying any property, he will then escape taxation. On
the other hand, another person earning income buys property; he will be subjected to taxation. It is therefore absurd and unjustifiable that a person, earning large income is exempted from taxes and another person with small income is taxed.

(b) Tax on the Basis of Expenditure

It is also asserted by some economists that the ability or faculty to pay tax should be judged by the expenditure which a person incurs. The greater the expenditure, the higher should be the tax and *vice* versa. The viewpoint is unsound and unfair in every respect. A person having a large family to support has to spend more than a person having a small family. If we make expenditure as the test of one's ability to pay, the former person who is already burdened with many dependents will have to' pay more taxes than the latter who has a small family. So this is unjustifiable.

(c) Income as the Basics

Most of the economists are of the opinion that income should be the basis of measuring a man's ability to pay. It appears very just and fair that if the income of a
person is greater than that of another, the former should be asked to pay more towards the support of the government than the latter. That is why in the modern tax system of the countries of the world, income has been accepted as the best test for measuring the 'ability to pay 'of a person.
Apart from the theories of taxation reviewed above, this section also presents the review of growth theories.

2.2 Exogenous growth model

The exogenous growth model, also known as the neo – classical growth model or Solow-Swan growth model was first devised by Nobel Prize winning Economist, Robert Solow in 1957. The model believes that a sustained increase in capital investment increases the growth rate only temporarily; because the ratio of capital to labour goes up but the marginal product of additional units of capital is assumed to decline and the economy eventually moves back to a long – term growth path, with real GDP growing
at the same rate as the work force plus a factor to reflect improving productivity. A steady – state growth path is reached when output, capital and labour are all growing at the same rate, so that output per worker and capital per worker are constant.

The centrepiece of the standard neoclassical growth model developed by Solow (1957) is an aggregate production function of the form $Y_t = F(K_t, L_t, A_t)$

Where Y is output, K is capital, L is labour and A is an index of technology or efficiency. Solow posits that F has the usual neoclassical properties; in particular, it is characterized by constant returns to scale, decreasing returns to each input, and a positive and constant elasticity of substitution. The fundamental dynamic equation of the model relates the evolution of the capital stock to a constant rate of saving and a constant rate of depreciation. Labour and the level of technology grow at exogenous exponential rates.

If there were no technological progress, growth in this model would eventually come to a halt. However, the formulation of the model is chosen so as to allow increases in efficiency to offset the diminishing returns to capital. The economy therefore converges to a steady state in which output and capital per worker both grow at the exogenous rate of technological progress. Accordingly, in the long run, economic growth is unaffected by changes in the rate of saving or population growth. Changes in these parameters alter only the level of the long-run growth path, but not its slope.

Neo – classical economists believe that to raise an economy's long-term trend rate of growth requires an increase in the labour supply and an improvement in the productivity of labour and capital. The new – classical model treats productivity improvements as an exogenous variable, meaning that productivity is assumed to be independent of capital investment.
This model assumes that countries use their resources efficiently and that there are diminishing returns to capital as
labour increases. From these two premises, the neo – classical model makes three important predictions, first, increasing capital relatives to labour creates economic growth, since people can be more productive given more capital. Second, poor countries with less capital per person will grow faster because each investment in capital will produce a higher return than rich countries with ample capital. Third, because of diminishing returns to capital, economics will eventually reach a point at which no new increase in capital will create economic growth. This point is called a "steady state".

The short-run implications of the neo- classical growth model include the following
(i)   Policy measures like tax cuts or investment subsidies can affect the steady state level of output but not the long – run growth rate.
(ii)   Growth is affected only in the short – run as the economy converges to the new steady state output level.
(iii) The rate of growth s the economy converges to the steady state is determined by the rate of capital accumulation.
(iv)   Capital accumulation is in turn determined by the savings rate and the rate of capital depreciation.

Apart from the short-run implication, the model has following long – run Implications
(i)   An economy will always converge towards a steady state rate of growth, which depends only on the rate of technological progress and the rate of labour force growth.
(ii)   A country with a higher saving rate will experience faster growth.
       Several criticisms have been levelled against the model. Empirical evidence offers mixed support for the model. Limitations of the model include its failure to take account of entrepreneurship and strength of institutions. In addition, it does not explain how or why technological progress occurs. This failing has led to the development of endogenous growth theory.

2. 3   Endogenous or New Growth Theory
Endogenous growth theory or new growth theory was developed in the 1980s, as a response to criticism of the neo classical growth model. The endogenous growth theory holds that policy measures can have an impact on the long – run growth rate of an economy. Endogenous growth economists believe that improvements in productivity can be linked to a faster pace of innovation and extra investment in human capital. Endogenous growth theorists stress the need for government and private sector institutions and markets which nurture innovation, and private incentives for individuals to be inventive. The theory also provides a central role for knowledge as a determinant of economic growth.

The endogenous growth literature has produced two distinct approaches on how to incorporate human capital into models of economic growth. The first, which is due to Lucas, regards the accumulation of human capital as the engine of growth. The second approach emphasizes the role of the human capital stock in the process of innovation and adoption of new technologies. In the model formulated by Lucas, human capital enters into the production function similarly to the way in which technology does in the Solow model, that is, in labour-augmenting form.

Lucas proposes the following production technology:

$$Y_t = AK_t^{\beta} (u_t\, h_t\, L_t)^{1-\beta}\, h_{a,t}^{\gamma}$$

where Y, A, K and L are, once again, output, technology, capital and labour, while u is the fraction of an individual's time allocated to work, h is the skill level or human capital of the representative agent, and h_a is the average human capital in the economy. The level of technology, A, is assumed to be constant (so that it could in principle be dropped from the expression or subsumed within the capital term). Population growth is taken as exogenous.

Setting aside the last term on the right-hand side for the moment, the most important assumption of the model concerns the law of motion according to which the human capital variable evolves over time.
Because there are no diminishing returns to the acquisition of skills, human capital can grow without bound, thereby generating endogenous growth. The properties of the steady state in the Lucas model depend on whether there are external effects of human capital, which is the case if $\gamma \neq 0$. In that case, the term h in the production function therefore affects output. And because there are no diminishing returns to the acquisition of skills, human capital can grow without bound, thereby generating endogenous growth. Lucas assumes that individuals invest in human capital by spending part of their time acquiring skills, instead of a fraction of their income, like in Mankiw/Romer/Weil (1992). Besides, Lucas ignores depreciation of human capital. More importantly, and contrary to Mankiw/Romer/Weil, in the Lucas model, there are two
sectors of production: one for consumption goods and physical capital, and another for human capital. The only input in the production of human capital is human capital. This takes into consideration that education "relies heavily on educated people as an input". Above all, the Lucas model is characterized by self-sustained growth, which is driven by the accumulation of human capital.

The classical growth model consists of two sectors, producers of final output and an R & D sector. The Research and Development (R & D) sector develops ideas that they are granted a monopoly power. R & D firms are assumed to be able to make monopoly profits selling ideas to production firms, but the free entry condition means that these profits are dissipated on R & D spending.

The new growth model has some implications which include:
(i)   That policies which embrace openness, competition, change and innovation will promote growth.
(ii)   That policies which have effect of restricting or slowing change by protecting or favouring particular industries or firms are likely over time to slow growth.
(iii)   That sustained economic growth is everywhere and always a
        process of continual transformation.
(iv)   That those economies which cease to transform themselves are
        declined to fall off the path of economic growth. Various criticisms have been levelled against the endogenous growth model.

One of the main failings of endogenous growth theories is the collective to explain conditional convergence reported in the empirical literature. Another frequent critique concerns the cornerstone assumption of diminishing returns to capital. Some content that new growth theory has proven no more successful than exogenous growth theory in explaining the income divergence between the developing and developed worlds.

III.   RESEARCH METHODOLOGY
The design adopted in this study is aimed at revealing the causal relationship between tax revenue and economic growth in Nigeria. To achieve this objective, the study specifically employed the time series design. This involves observing a single group at different times (Ndiyo, 2005).
To estimate the time series data collected, the study employed the classical Ordinary Least Square (OLS) regression technique in the estimation of the relevant data.

3.1 Model Specification
The starting point of the model building for this study is the neo-classical growth model, which is expressed as
Y = f (L, K, A) . . . . (1)
Where:
         Y   =   Output
         L   =   Labour input
         K   =   Capital Input
         A   =   Index of technology or efficiency index Apart from the traditional variables captured in the model above, other growth enhancing variables can also be captured and included in the model. For this purpose, other growth determinants such as tax revenue domestic investment, foreign direct investment and labour input are included in the model.
The neo-classical growth model in the expanded form can be expressed as:

GDP   =   (LAB, DINV, FDI, TAXREV) . . . .(2)

Where:

GDP = Gross Domestic Product, measuring economic growth.

LAB = labour input in Nigeria

FDI   =   Foreign Direct Investment

TAXREV =   Tax revenue in Nigeria

The econometric form of the model can be written as:

GDP   = $b_o + b_1$ LAB $+ b_2$ DINV $+ b_3$ FDI $+ b_4$ TAXREV $+ U$ . . . .(3)

The estimated linear form of the model when expressed in its log form can be expressed as:

Log (GDP) = $b_o + b_1$ log (LAB) $+ b_2$ (INV) $+ b_3$ log (FDI) $+ b_4$ log (TAXREV) $+ U$ . . . . (4)

Where:

b_o = the autonomous interest

b_1 to b_4 = the coefficients to be estimated

U = the stochastic error term

The theoretical expectations about the signs of the coefficients are as follows:

$b_o > o$, $b_1 > o$, $b_2 > o$, $b_3 > o$, $b_4 > o$

It is expected that the sign of the coefficient of labour should be positive.

This is because according to the neo-classical theory, an increase in the amount of labour input leads to an increase in the level of output other things being equal. In the similar manner, the sign of the coefficient of domestic investment is expected to be positive. This is because an increase in domestic investment will lead to an increase in the gross domestic produced and hence growth.

Meanwhile, the sign of the coefficient of foreign direct investment is expected to be positive. This is because an increase in the flow of foreign investment will lead to an increase in gross domestic product.

Lastly, the coefficient of tax revenue is expected to be positive. This is so because; an increase in tax revenue provides the necessary revenue to the government to embark on growth promotion activities. Thus, the higher the revenue collected from taxes, the higher will be the level of economic activities.

3.2   Technique of Data Analysis
The analysis of data proceeds using three main criteria, namely

(i)   Economic a priori criteria

Economic a priori criteria are based on economic theory concern about the signs and magnitudes of the parameter estimates in the model. It is based on the prediction that our model conforms to the relevant economic theory. In other words, it has to do with determining whether the estimates conform to the stated expected signs and magnitude of the parameters as provided by the relevant economic theory.

(ii)   **Statistical Criteria (first – Order – Test)**

Statistical test is based on the theory of statistics and are used to ascertain the prediction power of the model. It is also used to establish whether the parameters used in the model are statistically significant and to also test for the statistical significances of the parameters of model.

The statistical measures used for testing the statistical significance include:

(i)   t – statistics: this is used to decide whether the estimated parameters in the model are statistically significant or not as a given level of significance before accepting or rejecting the null hypothesis.

(ii)   R - Squared and Adjusted R – Squared: These are used to measure the goodness of fit of the estimated model. They measure the proportion of the total variations in the dependent variable that is explained by variations in the explanatory variables.

(iii)   F – Statistics: This is the test for the existence of a significant liner relationship between the independent variables taken together with the dependent variable. The F – statistics is specially used to test for the overall significance of the estimated model.

(Econometric Criteria (second – order Test)

Econometric Criteria or second – order test are aimed at detecting the possible validity of some of the assumptions on which the particular econometric method is based. Fir this study, the Durbin – Watson (D – W) criterion is used to test for the absence or presence of autocorrelation in the model.

3.3 Data Sources

Secondary sources of data were used as the main data collection sources. Time series data collection method was the main method of data collection. The relevant data for this study

were collected from the Central Bank of Nigeria statistical Bulletin (various years) and Central Bank of Nigeria Annual Report and Statement of Accounts. The study was based on time series data collected from the period 1970 – 2011.

IV.   PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

The results of the estimated model analyzed shows that tax revenue though having a positive impact, did not affect economic growth significantly in Nigeria. This is the case where revenue realized from taxes is spent on consumption instead of production.

The results also revealed that domestic investment has both positive and significant impact on economic growth in Nigeria. This means that government policy to increase the rate and level of domestic investment in Nigeria, will surely lead to a significant increase in economic growth.

Furthermore, the positive and significant relationship between foreign direct investment and economic growth showed that the inflow of capital in form of investment has helped in bridging the resource gap and provided a veritable source of investment in the country an increase in the flow of foreign investment has therefore led to an increase in economic growth in Nigeria.

Finally, the positive and significant effect of labour input on economic growth shows that labour input is an important input in the aggregate production function. The implication of this is that any government policy to improve the quality of human resource will lead to an increase in economic growth in Nigeria. Utilizing data for the periods covering from 1970 – 2011, the empirical result of the estimated model is as follows:

GDP = 505535.5 + 10.575 TAXREV + 6.486 DINV + 0.063 LAB + 5.138 FDI

        SE   (610190.5)   (7.328)   (0.787)   (0.025)   (2.395)

t Value (0.828)   (1.424)   (8.240)   (2.49)   (2.146)

R – Squared = 0.959

Adjusted R – Squared = 0.954

F – Statistic = 214.878

Durbin – Watson = 1.785

4.1   Analysis of Results

The empirical results of the estimated model above is analyzed using three criteria, namely economic apriori criteria, statistical criteria and the econometric criteria.

Economic apriori criteria: The empirical results shows that all the explanatory variable have their correct signs as theoretically expected. The estimated regression line has a positive intercept, represented by the constant term, indicating that holding all explanatory variable constant gross domestic products will still increase by 505535.5.

There is a positive relationship between tax revenue and economic growth. This is consistent with the apriori expectation indicating that an increase in tax revenue by 1 billion naira will lead to an increase in economic growth by 10.58 billion naira, other things being equal.

The result also shows that there is a positive relationship between domestic investment and economic growth in Nigeria. This is consistent with the theoretical postulation, implying that a billion naira increase in domestic investment will lead to an increase in economic growth by 6.48 billion naira, other things being equal.

Further examination of the result also shows that labour input is positively related to economic growth in line with the neo-classical growth model. This means that a thousand increase in labour force will lead to an increase in economic growth by 0.06 billion naira ceteris paribus.

Lastly, the empirical result shows that foreign direct investment has a positive relationship between foreign direct investment and economic growth in Nigeria. This conforms to the theoretical postulate, indicating that an   increase in foreign direct investment by 1 billion naira will bring about an increase in economic growth by 5.14 billion naira, other factors remaining the same.

Statistical Criteria:

This study employs the standard normal test i.e.

 (Ƶ - Test) because the sample size is greater than 30.

The Ƶ - test is computed at 5% level of significance and at 5% level of significance, the t – statistic value computed is 1.96. This value is then compared with the calculated value in the result obtained. If the calculated value is greater than the critical value at 5% level of significance, then the particular parameter estimate is statistically significant and vice versa.

From the results obtained, three explanatory variables are statistically significant at 5% level of significance. These variables include domestic investment, labour force and foreign direct investment. The statistical significance of these variables is that their t –statistic values calculated for domestic investment (8.24), labour force (2.49) and

foreign direct investment (2.15) are all greater than the critical value of 1.96 at 5/5 level of significance. This means that these variables are significant in explaining short-run variations in economic growth in Nigeria.

On the other hand, tax revenue is not statistically significant. This is because t- statistic value (1.420) calculated is less than the critical value (1.96) at 5% level of significance. This shows that the variable is less significant in influencing economic growth in Nigeria during the reference period. Adjusted R – Squared of 0.954 shows that about 95 percent of the systematic variations in the dependent variable (GDP) has been explained by variations in the independent variables (TAXREV, DINV, LAB, FDI). The 5 percent left unexplained is due to changes in other variables not captured in the model but represented by the disturbance term. The high value of adjusted R – Squared shows that the estimated regression model has a good fit on the data.

Similarly, the high value of F – Statistics (214.88) shows that the overall model is statistically significant at 5% level of significance. This means that there exists a high degree of linear relationship between the dependent variable and the independent variables in the model.

From the result obtained, the D – W value of 1.79 falls in the shaded region, representing the region of no autocorrelation. Thus, it can be concluded that there is no autocorrelation among the variables in the model. Hence, the model can be employed for policy formulation in the Nigerian economy in the short – run.

V.   SUMMARY OF FINDINGS
The objective of this study was to examine the effect of tax revenue on economic growth in Nigeria. From the results obtained, the following summary of findings are highlighted
  i.   The result showed that there is a positive relationship between tax revenue and economic growth in Nigeria. However, the variable was not statistically significant in influencing economic growth in Nigeria.
  ii.   Domestic investment also has a positive relationship with economic growth, indicating that an increase in the level and rate of investment will lead to an increase in the level of output and hence economic growth in Nigeria. The variable apart from being theoretically consistent with a priori expectation was also statistically significant.
  iii. Further examination of the result also revealed that labour force has a positive relationship with economic growth in Nigeria. This is in line with theoretical postulate. The variable was also statistically significant in influencing economic outcomes in Nigeria during the reference periods.
  iv.   The empirical result further showed that there is a positive and significant relationship between foreign direct investment and economic growth in Nigeria. This result is indeed consistent with a priori and theoretical expectation.
  v.   The high value of adjusted R – Squared showed that the estimated regression line has a good fit on the data and that the estimated model has high expandability power.
  vi.   In the same vein, the high value of F – Square showed that the overall model is statistically significant. This also means that there is a high linear relationship between the dependent variable and the explanatory variable in the model.
  vii. Econometric test conducted using the Durbin – Watson statistic showed that there is no autocorrelation in the model. The model therefore can be used for policy formulation in the Nigeria economy.

5.1 Policy Recommendations
Based on the results obtained, the following policy recommendations are made.
  i.   The positive relationship between tax revenue and economic growth calls for efficient tax policy to be formulated and implemented so as it to continue to generate the needed revenue for the government. Also revenue collecting authorities of the government should be made more effective in their operations of collecting revenue for the government. Equally important is the need for the upgrading of revenue collecting technique so as to be able to generate more tax revenue for the government.
  ii.   The positive and significant effect of domestic investment on economic growth in Nigeria calls for the implementations of policies that will promote investment in Nigeria. Policies such as reducing the cost of doing business should be implemented. Also basic infrastructures such as steady power supply, functional transport systems and efficient water supply should be provided and made workable.
  iii. The positive impact of labour force on economic growth equally calls for the implementation of policies which will enhance labours productivity in the country. This can be done through the provision of more technical education and continuous training of labourers.
  iv.   Finally, the positive and significant impact of foreign direct investment on economic growth calls for appropriate policies to be adopted so as to attract more foreign investors in the country. The provision of infrastructural facilities and the need to cut down the cost of doing business is a right steps in the right direction.

VI.   CONCLUSION
This study examines the effect of tax revenue on economic growth in Nigeria, from the periods 1970 to 2011. It is generally asserted that tax is a major source of government revenue all over the world because the

revenue from tax aids the government in carrying out its responsibilities. However, the role of taxation in promoting economic growth in Nigeria has not been significantly felt due largely to its poor administration.

The result obtained shows that tax revenue has positive effect on economic growth in Nigeria. A part from tax revenue the result also shows that domestic investment, labour force and foreign direct investment have positive and significant effect on economic growth in Nigeria.

It is important that efficient and effective tax policy be implemented to ensure that enough revenue is generated for growth purposes. Policies to promote domestic investment should also be a implemented. Also policies to improve labour productivity should be implemented and sustained. Lastly, there is need to institute policies that will attract more foreign investors into the country. In this regard, the provision of basic and functional facilities is the right step in the right direction.

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APPENDIX I

Table 1: DATA PRESENTATION ON THE DETERMINANTS OF ECONOMIC GROWTH USED IN THE MODEL

YEAR	GDP	INV	TAXREV	LAB	FDI
1970	5,281.1	17126	513.50	17126	1,003.2
1971	6,650.9	22437	941.60	22437	1,322.8
1972	7,187.5	23223	1,102.00	23221	1,571.3
1973	8,630.5	22775	1,366.20	22775	1,763.7
1974	18,823.1	22708	3,517.20	22708	1,812.1
1975	21,475.2	37802	3,780.10	37802	2,287.5
1976	26,655.8	53153	4,729.80	53153	2,339.0
1977	31,520.3	63145	1,622.50	63145	2,531.4
1978	34,540.1	60609	5,641.30	60609	2,863.2
1979	41,974.7	48476	6,893.10	48476	3,153.3
1980	49,632.3	60428	10,957.00	23354743	3,620.1
1981	47,619.7	18,220.6	9,054.60	24093173	3,757.9
1982	49,069.3	17,145.8	7,732.40	24638733	5,382.8
1983	53,107.4	13,385.8	6,292.50	25221730	5,949.5
1984	59,622.5	9,149.8	7,164.60	25695336	6,418.3
1985	67,908.6	8,799.5	9,898.80	26165397	6,804.0
1986	69,147.0	11,351.5	7,641.70	26681764	9,313.6
1987	105,222.8	15,228.6	13,799.20	27384100	9,993.6
1988	139,085.3	17,562.2	14,087.20	27980150	11,339.2
1989	216,797.5	26,825.5	18,327.90	28655147	10,899.6
1990	267,550.0	40,121.3	58,547.20	29354373	10,436.1
1991	312,139.7	45,190.2	53,900.70	30131658	12,243.5
1992	532,613.8	70,809.2	72,948.70	30999564	20,512.7
1993	683,869.8	96,915.5	75,248.10	31686387	66,787.0
1994	899,863.2	105,575.5	74,098.90	32068259	70,714.6
1995	1,933,211.6	141,920.2	122,863.20	33821533	119,391.6
1996	2,702,719.1	204,047.6	184,467.00	34806379	122,600.9
1997	2,801,972.6	242,899.8	191,574.10	35876605	128,331.9
1998	2,708,430.9	242,256.3	195.90	36977666	152,410.9
1999	3,194,015.0	231,661.7	359.90	38102686	154,190.4
2000	4,582,127.3	331,056.7	769.20	39248921	157,508.6
2001	4,725,086.0	372,135.7	986.50	40415526	161,441.6
2002	6,912,381.3	499,681.5	781.60	41803119	166,631.8
2003	8,487,031.6	865,876.5	1,130.20	42660902	178,478.6
2004	11,411,066.9	863,072.6	1,690.30	43732314	249,220.6
2005	14,572,239.1	804,400.8	2,478.00	44900539	324,656.7
2006	18,564,594.7	1,546,525.7	2,682.50	46089292	481,239.1
2007	20,657,317.7	1,915,348.8	2,308.90	47299418	552,498.6
2008	24,296,329.3	2,050,510.0	4,034.30	48620127	399,841.9
2009	24,712,669.9	3,048,023.41	2,844.50	64960971	441,271.3
2010	29,205,782.96	4,007,832.40	3,692.00	67099103	759,503.35
2011	37,543,654.7	4,207,422.64	5,921.40	67,256,090	1,753,546.3

SOURCES: 1. CENTRAL BANK OF NIGERIA STATISTICAL BULLETIN, 2011
2. World Bank Data Sheet, 2010
3. CBN Annual Report and Statement of Accounts, 2011

APPENDIX II

Dependent Variable: GDP
Method: Least Squares
Date: 01/10/13   Time: 07:34
Sample: 1970 2011
Included observations: 42

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	505535.5	610190.5	0.828488	0.4127
TAXREV	10.57470	7.428147	1.423598	0.1629
INV	6.486051	0.787173	8.239681	0.0000
LAB	0.062854	0.025143	2.499881	0.0170
FDI	5.138382	2.394730	2.145696	0.0385

R-squared	0.958729	Mean dependent var		5303967.
Adjusted R-squared	0.954267	S.D. dependent var		9366932
S.E. of regression	2003140.	Akaike info criterion		31.96967
Sum squared resid	1.48E+14	Schwarz criterion		32.17654
Log likelihood	-666.3631	Hannan-Quinn criter.		32.04550
F-statistic	214.8779	Durbin-Watson stat		1.784506
Prob(F-statistic)	0.000000			