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Public Expenditure and Economic Growth in Nigeria (A Granger Causality Approach) 1983-2012

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ABSTRACT:
This paper examines the impact of government expenditure on the Nigerian economy for the period 1983 - 2012. The government expenditure components used as the explanatory variables in the model are: expenditures on Health, Education, Defense, Agriculture and Transportation and Communication. The Gross Domestic Product (GDP) was used as a parameter for measuring economic growth. In order to establish the link between Government expenditure and economic growth in Nigeria, secondary data were collected from the Central Bank of Nigeria (CBN) statistical bulletin. The Augmented Dickey-Fuller (Stationarity) unit root test revealed that there is no unit root in the variables. The Johansen cointegration test result confirms that a long run relationship exists between the Gross Domestic Product (GDP) and government expenditure on Health, Education, Defense, Agriculture and Transportation and Communication. The pairwise granger causality test reveals that dual causalities exists between Government expenditure on health and the GDP, expenditure on education and GDP, expenditure on Agriculture and GDP and expenditure on Transport and Communication and GDP while the Gross Domestic Product causes Defense expenditure. This study concludes that a significant relationship exists between government expenditure and the Gross Domestic Product. It recommends strict monitoring of the expenditure on defense and the provision of modern equipments for the navy, the army and the air force as this would help in fighting the increasing rate of insurgency in the North. There is also need for the increased funding to these critical sectors of the economy in order to facilitate economic growth and the attainment of the millennium development goals.

Keywords: *Economic growth, Government expenditure, Cointegration, Granger causality, Nigeria*

INTRODUCTION

Rising government expenditure has been a top of the agenda in the international public finance since the past four decades. In Nigeria, government expenditure on defense, education, agriculture, health and transportation and communication have been on the increase in recent times. This increase in government expenditure could be as a result the following factors: (i) population growth, (ii) modernization of defense equipments by the army, navy, police and the air force. (iii) Rise in price, as this compels the government to spend more on purchase of goods and services. (iv) Rise in public revenue and (v) to accelerate economic growth in the country. Irresponsive public expenditure has been blames for the ills that beset our great country Nigeria, over spending leading to over indebtedness while indebtedness leads to debt crisis (Anyanwu, 1997).

Public expenditure is defined as expenditure

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incurred by public authorities like Federal, state and local government to satisfy the collective social wants of the people (Manoj and Gaurav, 2012). Anyafo (1996) referred to expenditure as an actual payment or the creation of obligation to make a future payment for some benefits, items or service received. He further classified expenditure into two broad categories: Capital Expenditure and Recurrent expenditure. Public expenditure is necessary to maintain macroeconomic stability because it is an important fiscal tool and can be used to manipulate or manage the economy (Begg et al., 1984). Provision of infrastructure is a major purpose of government expenditure. The infrastructures so provided add to stock of capital and are used by individuals and other economic units, thereby generating more outputs. It is believed that these activities will employment and enhance economic growth. Unfortunately, Nigeria is still ranked among the poorest Nations in the world with high level of poverty. Unemployment rate increasing day by day, the level of insecurity is at its peak in Nigeria which is characterized by kidnapping in the South/East and South/South geopolitical zones and the insurgency of the Boko Haram in the Northern parts of the country. The question is has the rising level of the government spending in impacted on economic growth in Nigeria? Public expenditure ought to propel economic growth (Keynes, 1936). The link between government spending and economic growth and their effect on the general well being of the citizenry was seen as a condition for sustainable development.

Economic growth ought to result in the reduction in mass poverty, improvement in the standard of living and general well being of the citizens of a country. These are major provisions of United Nations (UN) Millennium Development Goals (MDGs). In Keynesian thought government could stimulate the economy from stagnancy to dynamism, by borrowing money from the private sector and channeling same to desired sectors through government spending mechanism. The theory is premised on an increase in government consumption which is likely to increase employment, profitability and investment through multiplier effect on aggregate demand. Consequently government expenditure, no matter the type, can contribute positively to economic growth. Barro (1990), predict that only those productive government expenditures will positively affect the long run growth rate.

Anyafo (1996) maintained that government spending is required for the purpose of providing security and external defense of the country, payment of factor services and overhead costs as contained in the recurrent budget, enhancing the socio-economic well being of the citizenry, executing economic development program of the country, maintaining the political machinery and public administration of the country, providing advances, transfer payments and subsidies and servicing of both internal and external debts of the country.

The countries of sub Saharan Africa have witnessed high rate of economic growth recently, but this growth did not reduce mass poverty and extreme hunger. It is believed that poverty, unemployment, extreme hunger and privation as reasons for the various ills in Nigeria.

It is worrisome for this state of affairs to subsist in these economies where the deadline for the attainment of millennium development goals remains one year. The target of reduction of extreme poverty could be measured through the impact of education, health, transport and communication and defense on the economy. This is more so where public sector expenditure drives the direction of the Gross Domestic Product (GDP) (Musgrave, 2010). It is believed that the contributions of these public expenditure components to economic growth are critical to the attainment of the goals (MDGs) by the year 2015.

This study also investigates how government expenditure on Health, Education, Defense, Agriculture and Transportation and communication have affected the Nigerian economy using the Granger Causality theory and ascertain the relationship existing between these expenditure components and the Gross Domestic Product (GDP).

Literature Review

This section discusses relevant literature and theoretical framework that explains between government expenditure and economic growth.

Theory of Increasing Public Expenditure

This section highlights some basic theories that have been used to support the effects of

Public expenditure on economic growth. The theories include the following:

Wagner Theory

Adolph Wagner (1835-1917). He believes that there are inherent tendencies for the activities of different layers of a government (such as central, state and local governments) to increase both intensively and extensively. There is a functional relationship between the growth of an economy and government activities with the result that the governmental sector grows faster than the economy (Adesoye et al., 2010).

Wagner's Statement Indicates Following Points

In Progressive societies, the activities of the central and local government increase on a regular basis.

(i) The increase in government activities is both extensive and intensive.

(ii) The governments undertake new functions in the interest of the society.

(iii) The old and the new functions are performed more efficiently and completely than before.

(iv) The purpose of the government activities is to meet the economic needs of the people.

(v) The expansion and intensification of government function and activities lead to increase in public expenditure.

(vi) Though Wagner studied the economic growth of Germany, it applies to other countries too both developed and developing.

Musgrave Theory

Musgrave believes that changes in the income elasticity of demand for public services in three ranges of per capita income. He posits that at low levels of per capita income, demand for public services tends to be very low, this is so because according to him such income is devoted to satisfying primary needs and that when per capita income starts to rise above these levels of low income, the demand for services supplied by the public sector such as health, education and transport starts to rise, thereby forcing government to increase expenditure on them. He observes that at the high levels of per capita income, typical of developed economics, the rate of public sector growth tends to fall as the more basic wants are being satisfied.

Musgrave believes that Wagner was thinking of proportion of public sector in the economy. Nitti (1903) not only supported Wagner's thesis but also concluded with empirical evidence that it was equally applicable to several other governments which differed widely from each-others (Nitti, 1903). All kinds of governments, irrespective of their levels (say, the central or state government), intentions (peaceful or warlike), and size, etc., had exhibited the same tendency of increasing public expenditure.

Wiseman-Peacock Theory

Wiseman and Peacock (1890-1955). Peacock and Wiseman conducted their study based on Wagner's Law. They studied public expenditure for the period 1891 - 1955 in U.K. They found out that Wagner's Law was still valid at that time. They maintained that public expenditure does not increase in a smooth and continuous manner, but increases in the direction of revenue collection. At times, some social or other disturbance takes place creating a need for increased public expenditure which the existing public revenue cannot meet. The public expenditure increases and makes the inadequacy of the present revenue quite clear to everyone. The movement from the older level of expenditure and taxation to a new and higher level is the displacement effect. The inadequacy of the revenue as compared with the required public expenditure creates an inspection effect (Adesoye et al., 2010). The theory also believes that there is a gap between tolerance level of taxation and the expectation of the people on public expenditure. In this way, the public expenditure and revenue get stabilized at a new level till another disturbance occurs to cause a displacement effect. Thus each major disturbance leads to the government assuming a larger proportion of the total national activity. In other words, there is a concentration effect. The concentration effect also refers to the apparent tendency for central government economic activity to grow faster than that of the state and local level governments (Adesoye et al., 2010).

Empirical Review

Numerous studies have been conducted to investigate the relationship between government spending and economic growth.

Foster and Henrekson (2001), in their study on the growth effects of government expenditure in rich countries reveal that a positive relationship exists between government expenditure and economic growth. Ranjan and Sharma (2008) studied the effect of government spending on economic growth in India for the period 1950 -2007, their research revealed that a significant positive relationship exist between government spending and economic growth in India. Chih-HL et al. (2008) investigated the association between government spending and economic growth in the USA, using a Granger Causality approach, the study revealed that government expenditure causes Gross Domestic Product while GDP does not granger cause government expenditure. Wahab et al. (2011) investigated the relationship between government spending on the education sector and its effect on the Gross Domestic Product in Nigeria for the period 1999-2007. The paper adopted the Vector Auto Regressive approach and it was concluded that a direct relationship exist between government expenditure on the education sector and the Gross Domestic Product in Nigeria. Adewara and Oloni (2012), studied the Composition of Public Expenditure and Economic Growth in Nigeria, their study applied the Vector Auto Regressive (VAR) model. They considered expenditure on Health, Education, Defense, Investment, Agriculture, Water and Transportation and their effect on the economic growth of Nigeria. The results show variations in the impacts of public expenditure on the various sectors on economic growth in the country. While public expenditure on agriculture and transportation are positively and significantly related with growth.

Oyinlola (1993), in his paper titled: "Nigeria's National Defense and Economic Development: An Impact Analysis" reported that a positive relationship exist between defense expenditure and the Nigerian economy. Ogogio (1995), investigated the relationship between government spending and economic growth in Nigeria. The author disaggregated expenditure into current and recurrent expenditure and concluded that recurrent expenditure has more effects on the economy than the capital expenditure. Muritala and Taiwo (2011) in their study Government Expenditure and Economic growth in Nigeria, classified government expenditure as capital and recurrent expenditure. Their study revealed that a positive relationship exists between government expenditure and economic growth in Nigeria. They recommended continuous increase in government spending as it positively affects economic growth in Nigeria.

Mitchell (2005) in his paper titled: "The Impact of Government Spending on Economic Growth in the USA", concluded that increasing government expenditure has a negative relationship with the Gross Domestic Product of the country and suggested a reduction in government spending in the country. In Nigeria, Akpan (2005) studied the effect of Government Expenditure on Economic Growth in Nigeria. The author disaggregated government expenditure using the sectoral economic function basis for classifying government expenditure into capital and recurrent expenditure on administration, economic, social and community services and transfers. The finding revealed that there was no significant relationship existing between most of the components of government expenditure and economic growth in Nigeria.

This paper investigates the effects of government expenditure on the growth of the Nigerian economy using the Granger Causality approach. It considers government capital and recurrent expenditure on Health, Education, Transport and Communication, Defense and Agriculture as the explanatory variables while the Gross Domestic Product (GDP) is employed as a parameter for measuring economic growth as dependent variable. The research covers the period from 1983 to 2012.

RESEARCH METHOD

This study uses time series data sourced from Statistical Bulletin, Economic and Financial Review, Annual Reports and Statement of Accounts of the Central Bank of Nigeria (CBN) on various issues. The macroeconomic data cover Gross Domestic Product (GDP), and government expenditure on Health, Education, Transport and Communication, Defense and Agriculture for the period 1983-2012.

Model Specification

The relationship model for this research is stated in this form:

GDP = *f*(DEF, EDU, HEA, AGR, TRACO)……..(i)

$GDP_t = B_O + B_1DEF_t + B_2EDU_t + B_3HEA_t + B_4AGR_t + B_5TRACO_t \ldots + U_0$.....(ii)

GDP = Gross Domestic Product
DEF = Total government expenditure on defense
EDU = Total government expenditure on Education
HEA= Total government Expenditure on Health
AGR=Total government expenditure on Agriculture
TRACO=Total government expenditure on Transportation and Communication
B_0 = Intercept of the relationship
$B_{1\ldots n}$ =Measures of the slope
U_0 = Error term/stochastic variable

Tools of Data Analysis

i. Unit Root Test

The variables of the formulated model above will be tested for stationarity using the Augmented Dickey Fuller unit root test. The test will enable us determine if the time series of each of the variables is serially correlated. The objective is to avoid spurious results.
The general form is;
$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \Sigma_{i=1}\ \alpha_i\ \Delta Y_{t-1+} \varepsilon_t$
Where Δ = difference factor
Y_{t-1} = time series, and
ε_t = pure white noise error term.
This test will be conducted under the following null hypothesis:
H_o: $\delta = 0$ i.e non stationarity.

To do this, the unit test will be applied on the parameter δ and the resulting value will be compared with critical values developed by Dickey and Fuller.
Decision:

If the statistical value exceeds the critical value, we reject the null hypothesis of non stationarity.

ii. Causality Test

The concept of causality test will determine if past changes in a variable is responsible in the present observation or not, as there is a possibility that the relationships that exist in theory may not work in real life situations due to some factors which may not be clearly specified in the theory. Causation is said to run from X to Y if the past and present values of X are significantly different from zero as a group. The same apply to causation from Y and X, if the results are significantly different from zero, it means, and that causation runs both sides (Ajisafe et al., 2006).

$$Y_t = C + \sum_{j-i}^{k} aj\ X_{i-j} + \sum_{j-i}^{k} bj\ Y_{i-I} + e_{ij}$$

$$X_t = C + \sum_{j-i}^{k} dj\ Y_{i-j} + \sum_{j-i}^{k} \lambda j\ X_{i-I} + e_{ij}$$

iii. Cointegration Test

Co-integration test is used to show whether the linear combination of non stationary time series is stationary. Economically speaking, two variables will be co-integrated if they have a long term, or equilibrium, relationship between them (Koutsoyiannis, 2003). To test for this, the Engle-Granger (EG) or Augmented Engle-Granger (AEG) test would be employed. The following procedure shall be followed:

Estimate the model equation and obtain the value of the residuals.
Perform a unit root test on the residuals using ADF test.
The AEG test is thus specified as: $\Delta\mu_t = \delta\mu_{t-1} + \sum_{i=1} \alpha_i\mu_{t-1} + \varepsilon_t$

If δ is statistically significant, we will reject the null hypothesis of no co-integration and therefore conclude that the variables in the model have long run relationship.

DATA PRESENTATION AND ANALYSIS

This section, presents the secondary data collected and analyzed. This section provides the results and discussion of the study. The tables below show the results of the analysis of the secondary data generated from the Central Bank of Nigeria (CBN) using Eviews 7.2. The dependent variable which is the Gross Domestic Product and the explanatory variables (expenditure on Defense, Education, Health, Agriculture and Transportation and Communication) are analyzed and their causalities established.

Presentation and Interpretation of Results

Table 1: Result of stationarity (unit root) test

Variables	ADF-Statistic 5%	Critical Values	Order of Integration
AGR	-2.986225	-3.399753	Stationary at Level
DEF	-2.981038	-5.797667	Stationary at 2nd difference
EDU	-3.012363	-7.372118	Stationary at 1st Difference
HEA	-2.971853	-3.125784	Stationary 1st difference
TRACO	-3.029970	-13.68754	Stationary at 2nd Difference

Source: Eviews 7.2 output (see complete result as appendixes 1-5)

Table 2: Johansen cointegration test
series: GDP, EDU,DEF, HEA, AGR and TRACO

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.999973	359.1596	69.81889	0.0001
At most 1 *	0.998099	169.6956	47.85613	0.0000
At most 2 *	0.856412	56.92326	29.79707	0.0000
At most 3 *	0.545063	21.98867	15.49471	0.0046
At most 4 *	0.352085	7.811925	3.841466	0.0052

Trace test indicates 5 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
Source: Eviews 7.2 output.

The result of the stationarity (unit test) in table 1 above shows that expenditure on Agriculture is stationary at level; Health and Education are stationary at 1st difference while Defense and Transport and Communication are stationary at 2nd difference. Study therefore rejects the null hypothesis and concludes that there is no unit root in the variables.

The co-integration test result in table 2 above followed the Jahansen model and the result shows that there are at most 5 cointegrating equations in the model. The trace statistic ratios of 359.1596, 169.6956, 56.92326, 21.98867 and 7.811925 are greater than the 5% critical values of 69.81889, 47.85613, 29.79707, 15.49471 and 3.841466 in each case. This result shows that there exists a long run equilibrium relationship between Gross Domestic Product (GDP) and the explanatory variables (Education Expenditure, Defense Expenditure, Health expenditure, Agricultural expenditure and Transport and Communication expenditure).

Table 3: Pairwise granger causality
TESTS: Series: GDP, EDU, DEF, HEA, AGR and TRACO

Null Hypothesis:	Obs	F-Statistic	Prob.
AGR does not Granger Cause GDP	22	4.30698	0.0307
GDP does not Granger Cause AGR		1.45152	0.2618
EDU does not Granger Cause GDP	25	45.7684	3.E-08
GDP does not Granger Cause EDU		5.77066	0.0105
DEF does not Granger Cause GDP	28	2.79764	0.0817
GDP does not Granger Cause DEF		4.63148	0.0204
HEA does not Granger Cause GDP	28	18.2146	2.E-05
GDP does not Granger Cause HEA		11.4522	0.0004
TRACO does not Granger Cause GDP	23	8.87573	0.0021
GDP does not Granger Cause TRACO		8.04784	0.0032

Source: Eviews 7.2 output

Table 4: Fully modified least square result: (FMOLS)
Dependent variable: GDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EDU	0.652362	0.077860	8.378648	0.0000
TRACO	0.000714	0.075511	0.009453	0.0026
AGR	0.035648	0.010753	3.315104	0.0047
HEA	1.127510	0.204129	5.523520	0.0001
DEF	-0.002366	0.001113	-2.125380	0.0546
C	1936.543	1941.431	0.997483	0.3344
R-squared	0.982493	Mean dependent var		47626.81
Adjusted R-squared	0.976658	S.D. dependent var		59743.80
S.E. of regression	9127.734	Sum squared resid		1.25E+09
Durbin-Watson stat	2.234092	Long-run variance		43512240

Source: Eviews 7.2 output

From table 4 above, the equation of the model is estimated below:
GDP = 1936.543-0.002366DEF + 0.652362EDU +1.127510HEA+0.035648AGR+0.000714TRACO

DISCUSSION

The Table 3 above shows the Granger Causality tests for the relationship between economic growth and government expenditure. The result reveals that there are dual causalities between Education expenditure (EDU) and the Gross Domestic Product (GDP), Transport and Communication expenditure (TRACO) and the Gross Domestic Product (GDP), Health expenditure (HEA) and Gross Domestic Product (GDP). This attests to the fact that a healthy nation is a wealthy nation, as government expenditures on Health, Education and Transport and Communication increases, the Gross Domestic Product increases. Agriculture expenditure causes Gross Domestic Product (GDP), while expenditure on Defense does not

cause the Gross Domestic Product in Nigeria but the Gross Domestic Product (GDP) causes Defense expenditure. This is an indication that the Nigerian military is grossly underfunded, making it difficult and impossible to face the challenges of the sophistication in this 21st century. This accounts for the high level of militancy and insurgency in some parts of the country.

Again, the result in table 4 shows that 98% relationship exist between the dependent variable(Gross Domestic Product) and explanatory variables(Health, Defense, Transport and Communication, Education and Agriculture expenditure). It further reveals that, the explanatory variables account for 98% of the total variation in the model, leaving 2% variation to other variables not explained in the model. Durbin-Watson stat. value of 2.23 confirms the absence of auto correlation in the model. The t-stat. values confirm the result of the Granger Causality test, indicating that Agriculture expenditure t- stat. 3.315 (prob. 0.0047), Education expenditure t-stat. 8.378648 (prob. 0.000), Health expenditure t-stat. 5.523520 (prob. 0.000) and Transport and communication expenditure t-stat. 0.009453 (prob. 0.0026) are statistically significant and have significantly contributed to economic growth in Nigeria. While Defense expenditure t-stat. -2.125380 (prob. 0.0546) is statistically insignificant and have not significantly contributed to economic growth in Nigeria. The Defense sector of the country has been badly hit by poor funding and this could account for lack of modern defense equipments by the army, navy, police and the air force. This poses a great challenge to defending the territorial integrity of the country.

These findings are in consonance with the studies of Oyinlola (1993), Foster and Henrekson (2001), Wahab et al. (2011), Adewara and Oloni (2012) and others that government expenditure impacts positively on the economic growth.

CONCLUSION AND RECOMMENDATION

The purpose of this study is to investigate the effect of public expenditure on the economic growth of Nigeria, (A Granger Causality approach). The analysis covers the period of 1983 to 2012. The econometric analysis reveals that a long run relationship exists between economic growth and government expenditure in Nigeria. The Johansen Co-integration test affirmed that a long run relationship exists between the explanatory variables (expenditure on Health, Education, Transport and Communication, Defense and Agriculture) and explained variable (the Gross Domestic Product). The Granger causality result also confirms the relationship between government expenditure and economic growth.

Therefore study recommends the following:

The federal government of Nigeria should increase funding to the defense sector strictly monitor expenditure on Defense, as this would ensure be provision of modern and sophisticated equipments to reduce the high rate of insurgency of Boko Haram in the Northern parts of the country.

Government should monitor its expenditure on the critical sectors of the economy, like Health, Education, Agriculture and Transport and Communication. As this will ensure good health for all, food sufficiency, reduce the country's mono dependence on oil and eradicate illiteracy in the country and poverty in the country.

Public expenditure management in Nigeria needs be over hauled in order to prune down some un productive expenditures (Like salaries to ghost workers, unnecessary consumer subsidies, and other transfers etc.) thereby freeing the funds that are hitherto locked up for use in other productive projects.

Government should be encouraged to invest, because economic growth can only be achieved through fundamental process of investment. Investment in Agriculture will reduce government mono dependence on oil as well as reduce the high rate of unemployment in Nigeria.

REFERENCES

Abu, N. and Abdullahi, U. (2010). Government Expenditure and Economic Growth in Nigeria, 1970-2008: A Disaggregated Analysis. *Business and Economics Journal*, Volume 2010: BEJ-4, pp. 1-11.

Adesoye, A. B., Maku, O. E. and Atanda, A. A. (2010). Dynamic Analysis of Government Spending and Economic Growth in Nigeria. *Journal of Management and Society*, 1 (2), pp. 27-37.

Adewara, S. O. and Oloni, E. F. (2012). Composition of Public Expenditure and Economic Growth in

Nigeria. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 3 (4), pp. 403-407.

Akpan, N. I. (2005). Government Expenditure and Economic Growth in Nigeria: A Disaggregated Approach. *CBN Economic and Financial Review*, 43 (1).

Anyafo, A. M. O. (1996). *Public Finance in a Developing Economy: The Nigerian Case*, Department of Banking and Finance, University of Nigeria, Enugu Campus, Enugu.

Anyanwu, J. C. (1993). *Monetary Economics: Theory, Policy and Institutions*, Onitsha: Hybrid Publishers.

Anyanwu, J. C. (1997). *Nigerian Public Finance*, Onitsha: Joanne Educational Publishers.

Asterious, D. and Hall, S. (2007). *Applied Econometrics*: *A Modern Approach*, London: Palgrave Macmillan.

Bhartia, H. L. (2009). *Public Finance*, 13th ed. New Delhi: Vikas Publishing House PVT Ltd.

Bose, N., Haque, M. E. and Osborn, D. R. (2003). Public Expenditure and Economic Growth: A Disaggregated Analysis for Developing Countries. *The Manchester School*, 75 (5), pp. 533-556.

CBN (2010). Central Bank of Nigeria Statistical Bulletin, Abuja Nigeria.

Douglas, S. and Williams, O. (1997). The Impact of Government Expenditure on Economic Growth in the OECS; A Disaggregated Approach, World Bank Research, Oxford University Press.

Folster, S. and Henrekson, M. (2001). Growth Effects of Government Expenditure and Taxation in Rich Countries. *European Economic Review*, 45 (8), pp. 1501 -1520.

Jhingan, M. L. (2004). *Macro-Economic Theory*, 11th ed. New Delhi: Vrinda Publications (P) Ltd.

Kumar, R. D. and Sharma, C. (2008). Government Expenditure and Economic Growth: Evidence from India. *The ICFAI University Journal of Public Finance*, 6 (3), pp. 60-69.

Lawal, A. W. and Abdolkadir, I. R. (2011). An Analysis of Government Spending on the Education Sector and Its Contribution to GDP of Nigeria. *International Journal of Financial Economics and Econometrics*, 3 (1), pp. 163-170.

Liu, Ch.-H., Hsu, C. and Younis, M. Z. (2008). The Association between Government Expenditure and Economic Growth: The Granger Causality Test of the US Data, 1974-2002. *Journal of Public Budgeting, Accounting and Financial Management*, 20 (4), pp. 439-452.

Mitchell, J. D. (2005). The Impact of Government Spending on Economic Growth. *Backgrounder*, (1831), pp. 1-18.

Musgrave, R. A. and Musgrave, P. B. (2004). *Public Finance in Theory and Practice*, 5th ed. New Delhi: Tata McGraw.

Nnamocha, P. N. (2002). *Public Finance for a Developing Economy*, Owerri: Bon Publishers.

Nwaimo C. E. (2009). *Applied Principles of Economics*, Owerri, Imo State: Supreme Publishers, Okigwe Road.

Nwosu, E. J. (2000). *The Challenge of Poverty in Africa*, Skill Mark Media Ltd, Owerri.

Nzotta, S. M, (2004). *Money, Banking and Finance: Theory and Practice*, 2 nd ed, Owerri, Imo State: Hudson-Jude Nigeria Publishers.

Ogiogio, G. O. (1995). Government Expenditure and Economic Growth in Nigeria. *Journal of Economic Management*, 2 (1).

Osiegbu, P. I., Onuorah, A. C. and Nnamdi, I. (2010). *Public Finance: Theories and Practices*, Asaba: C.M. Global Company Ltd.

Oyinlola, O. (1993). Nigeria's National Defense and Economic Development: An Impact Analysis. *Scandinavian Journal of Development Alternatives*, 12 (3).

Taiwo, M. and Abayomi, T. (2011). Government Expenditure and Economic Development: Empirical Evidence from Nigeria. *European Journal of Business and Management*, 3 (9), pp. 18-28.

World Bank (2010). Knowledge, Productivity and Innovation in Nigeria: Creating a New Economy, Washington D. C.: The World Bank.

Appendix
Unit Root Test Results

Appendix 1

Null Hypothesis: AGR has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.399753	0.0207
Test critical values:	1% level	-3.724070	
	5% level	-2.986225	
	10% level	-2.632604	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(AGR)
Method: Least Squares
Date: 03/28/14 Time: 01:40
Sample (adjusted): 1984 2012
Included observations: 25 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGR(-1)	-0.719235	0.211555	-3.399753	0.0025
C	73835.47	35502.54	2.079724	0.0489

R-squared	0.334458	Mean dependent var	12396.39
Adjusted R-squared	0.305522	S.D. dependent var	183349.0
S.E. of regression	152794.5	Akaike info criterion	26.78819
Sum squared resid	5.37E+11	Schwarz criterion	26.88570
Log likelihood	-332.8524	Hannan-Quinn criter.	26.81524
F-statistic	11.55832	Durbin-Watson stat	2.231806
Prob(F-statistic)	0.002460		

Appendix 2:

Null Hypothesis: D(DEF,2) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.797667	0.0001
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(DEF,3)
Method: Least Squares
Date: 03/28/14 Time: 01:47
Sample (adjusted): 1987 2012
Included observations: 26 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DEF(-1),2)	-2.071113	0.357232	-5.797667	0.0000
D(DEF(-1),3)	0.403593	0.225433	1.790304	0.0866
C	406903.9	277979.7	1.463790	0.1568

R-squared	0.740580	Mean dependent var	-132110.3
Adjusted R-squared	0.718021	S.D. dependent var	2554399.
S.E. of regression	1356428.	Akaike info criterion	31.18678
Sum squared resid	4.23E+13	Schwarz criterion	31.33194
Log likelihood	-402.4281	Hannan-Quinn criter.	31.22858
F-statistic	32.82960	Durbin-Watson stat	2.076611
Prob(F-statistic)	0.000000		

Appendix 3:

Null Hypothesis: D(EDU) has a unit root
Exogenous: Constant
Lag Length: 2 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.372118	0.0000
Test critical values:	1% level	-3.788030	
	5% level	-3.012363	
	10% level	-2.646119	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EDU,2)
Method: Least Squares
Date: 03/28/14 Time: 01:49
Sample (adjusted): 1987 2012
Included observations: 21 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EDU(-1))	-4.031466	0.546853	-7.372118	0.0000
D(EDU(-1),2)	2.025528	0.392230	5.164134	0.0001
D(EDU(-2),2)	0.892168	0.250632	3.559679	0.0024
C	11624.09	4778.329	2.432668	0.0263

R-squared	0.890486	Mean dependent var	2057.337
Adjusted R-squared	0.871160	S.D. dependent var	56585.58
S.E. of regression	20311.02	Akaike info criterion	22.84536
Sum squared resid	7.01E+09	Schwarz criterion	23.04431
Log likelihood	-235.8763	Hannan-Quinn criter.	22.88854
F-statistic	46.07695	Durbin-Watson stat	2.090882
Prob(F-statistic)	0.000000		

Appendix 4:

Null Hypothesis: D(HEA) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.125784	0.0360
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(HEA,2)
Method: Least Squares
Date: 03/28/14 Time: 01:52
Sample (adjusted): 1985 2012
Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(HEA(-1))	-0.707858	0.226458	-3.125784	0.0043
C	7973.487	4925.711	1.618749	0.1176

R-squared	0.273145	Mean dependent var	2840.020
Adjusted R-squared	0.245189	S.D. dependent var	28283.91
S.E. of regression	24573.03	Akaike info criterion	23.12544
Sum squared resid	1.57E+10	Schwarz criterion	23.22059
Log likelihood	-321.7561	Hannan-Quinn criter.	23.15453
F-statistic	9.770528	Durbin-Watson stat	1.811378
Prob(F-statistic)	0.004328		

Appendix 5:

Null Hypothesis: D(TRACO,2) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-13.68754	0.0000
Test critical values:	1% level	-3.831511	
	5% level	-3.029970	
	10% level	-2.655194	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 19

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(TRACO,3)
Method: Least Squares
Date: 03/28/14 Time: 01:57
Sample (adjusted): 1987 2010
Included observations: 19 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TRACO(-1),2)	-4.882948	0.356744	-13.68754	0.0000
D(TRACO(-1),3)	2.688318	0.275920	9.743123	0.0000
C	6592.683	4137.025	1.593581	0.1306

R-squared	0.962158	Mean dependent var	-2078.517
Adjusted R-squared	0.957427	S.D. dependent var	84322.27
S.E. of regression	17398.35	Akaike info criterion	22.51008
Sum squared resid	4.84E+09	Schwarz criterion	22.65920
Log likelihood	-210.8457	Hannan-Quinn criter.	22.53531
F-statistic	203.4030	Durbin-Watson stat	1.490805
Prob(F-statistic)	0.000000		