The Nexus between Government Expenditure and Economic Growth of a Developing Economy

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Abstract- *The objective of this study was to re-estimate and re-examine the association between government expenditure and economic growth in Nigeria using annual data from 1980-2009. Granger causality test was employed to test for causal relationship between these variables. The findings were consistent with previous empirical findings. The empirical result showed existence of causal relationship between government expenditure and economic growth, with a unidirectional causality running from government expenditure to economic growth. It can be concluded that in the period of study, government expenditure in Nigeria, to some extent, caused economic growth in the country, but the actual relationship is a subject of further study. Therefore, there should be high degree of transparency and accountability on spending by government at various sectors of the economy in order to prevent channeling of public to private account of government officials. Also, there is a need for reduction in hassle cost, sound fiscal policy, and improvement of monetary policy, political and social stability, and technological development to enhance economic growth.*

Keywords: *Government expenditure; Economic growth; Granger causality; Nigeria*

1. INTRODUCTION

There have been series of the debate among economists on the relationship between government expenditure and economic growth. These debates sought to determine the precise relationship between government expenditure and economic growth in the economy. According to Abdullah (2000) and Al-Yousif (2000), government performs two functions which are protection (and security) and provisions of public goods. Protection function consists of the creation of rule of law and enforcement of property rights. This helps to reduce risks of criminality, protect property and life, and the nation from external aggression. Some of the public goods provided by the government are defense, roads, education, health, and power supply, etc. Several economists and writers have argued that increase in government expenditure on socio-economic and physical infrastructures encourage economic growth (Abdullah, 2000; Josaphat and Oliver, 2000; Akpan, 2005).

However, some analysts disagreed that increasing government expenditure leads to economic growth (Landau,1983; Kormaing and Brahmasrene, 2007; Nurudeen and Usman, 2010). They posit that increased government expenditure may slowdown overall performance of the economy. For example, in trying to finance rising government expenditure, government may increase taxes and/or borrowing. This discourages individual from working for long hours or even searching for jobs. This in turn reduces income and aggregate demands. In the same way, higher profit tax tends to increase production costs and reduce investment expenditure as well as profitability of firms. Moreover, increase government borrowing particularly from thus reducing private investment. Barro, (1991), Engen, Skinner, (1992), and Folster, Henrekson, (2001) reported that large government expenditure has negative impact on economic growth.

In Nigeria, government expenditure has continued to rise due to the huge receipts from production and sales of crude oil, and the increased demand for public utilities e.g roads, communication, power, education and health. Besides, there have been increasing need to provide both internal and external security for the people and the nation. Unfortunately, rising government expenditure has not translated to meaningful growth and development, as Nigeria ranks among the poorest countries in the world. In addition, many Nigerians have continued to wallow in abject poverty, while more than 50 percent live on less than US$2 per day. Couple with this, is falling down infrastructure especially roads and power supply which has led to the collapse of many industries, including high level of unemployment. In addition, studies about government expenditure and the nature of its impact on economic growth is inconclusive. This paper shall further empirically investigate the theoretical problems with a view to explaining the reasons behind the observed causality between the variables. A better understanding of the relationship between government expenditure and economic growth would help to formulate a benchmark for neutral expenditure policy and useful information policy

making on proper management of public spending in Nigeria.

The paper is organized as follows. Section 1 is the general introduction. Section 2 presents the review of related literature which focus both on evidences from developed and developing countries as well as empirical evidences from Nigeria. Section 3 presents methodology and model Specification which is followed by the empirical analysis and discussion of findings in section 4. Section 5 concludes the paper while section 6 presents limitation and suggestions for future studies.

2. LITERATURE REVIEW

2.1 Evidences from Developed and Developing Countries

Many studies on the relationship between government expenditure and economic growth in developed and developing countries had been conducted in this paper. Among them is the study of Wadad and Kamel (2009). The study was carried out in Lebanon using disentangled governmental expenditures on four sectors: defense, education, health, and agriculture using multivariate cointegration analysis. The study revealed that government spending on education has a positive effect on economic growth in the long-run and negative impact in the short-run, while spending on defense has a negative effect on economic growth in the long-run and insignificant linkage in the short-run. Health spending, is negatively correlated to growth in the long-run and insignificant linkage in the short-run while spending on agriculture was found to be insignificant in both cases.

Kormaing and Brahmasrene (2007) studied the economy of Thailand. They used the Granger causality test. Their finding was that government expenditures and economic growth are not cointegrated but indicated unidimensional relationship. Landau (1983) found that the share of government consumption to GDP reduced economic growth which was consistent with the pro-market view that the growth in government constraints overall economic growth.

Also, Schltegger and Torgler (2006) examined the growth effect of public expenditure at the state and local levels in Switzerland having identified that most of the previous studies concentrated on aggregate public expenditure. The study covered the period of 1981 to 2001. The finding of the study shows that the public expenditure at both levels have negative impacts on growth as found by the previous studies at aggregate levels. Abu-Quarn (2003) investigated the causal link between government expenditures and economic growth from Egypt, Israel and Syria. The study found bi-direction causality from government spending to economic growth but with a long term relationship between the two variables.

Also, Kouassy and Bohoun (1994) found, in Cote d'Ivorie, that public investment had a net crowding-in affect on the private sector and a negative impact on economic growth. The conclusion of the studies of Devarajan et al (1996), Fuente's (1997), Amin (1998), Kneller et al (1999) and Bose et al (2003) however, contradicted above positions. Devarajan et al (1996) found that productive government expenditure enhanced economic growth. Fuente's (1997) investigation of 21 OECD countries (1965-1995) showed that public expenditures sometimes tend to crowed-out private investment through reduction of disposable income and savings and may exert some negative "externality" effect on the level of productivity. Amin (1998) also reported that government expenditure enhanced economic growth. The study conducted by Kneller et al (1999) confirmed the studies of Devarajan et al (1996) and Fuente (1997). Bose et al (2003) found that government capital expenditures in GDP is positively and significantly correlated with economic growth.

In spite of the diversity of reviewed empirical studies in terms of methodologies, coverage and level of countries developments, almost a common conclusion has been apparent. Public expenditure on education, transportation, infrastructure and telecommunication for example persistently appeared to have had significant growth effects in both the developed and developing countries.

2.2 Evidences from Nigeria

Recent studies in Nigeria include Ogbole et al (2011), Nurudeen and Usman (2010), Maku (2009), Akpan (2005), and Aregbeyen (2007). The resulting findings were equally mixed. Ogbole et al (2011) found existence of causal relationship between government expenditure and economic growth with a unidirectional causality running from government expenditure to GDP. Nurudeen and Usman (2010) for instance, show that government total recurrent and capital expenditure had insignificant growth effects on economic growth and the impact of expenditure on education was negative. The findings of Akpan (2005) also indicated growth effects of the differect components of government expenditure to be weak. This may be as a result of the prevailing corruption in the country. As noted by Haque and Kneller (2008) that corruption increase public investment eventually, making it ineffective in promoting growth.

Babatunde and Adefabi (2005) examined the long-run relationship between Education and economic growth in Nigeria using the Johansen co- integration approach as a framework of analysis. The results of the co integrating technique suggest that there is long-run relationship between enrolments in primary and tertiary levels of education and the average years of schooling with output per worker. The study concluded that a well educated labour force possessed a positive and significant impact on economic growth through factor accumulation and on the evolution of total factor productivity.

Aregbeyen (2007) believe that though government expenditure were necessary for economic growth, the quality of such expenditure is of more important consideration. According to him, the quality of government expenditures is the distribution of government expenditure between capital and consumption purpose on one hand and current and consumption purpose on the other hand.

From the general review of empirical works from Nigeria for the various periods investigated by the authors, this paper intends to follow a positive path to determine whether government expenditure actually influence economic growth in Nigeria in terms of increase in the level of output. Moreso, the paper took government expenditure in the aggregative level and analyze its relationship with economic growth in Nigeria.

3. METHODOLOGY AND MODEL SPECIFICATION

This study seeks to investigate the direction of causation between government expenditure and economic growth in Nigeria using the Granger causality test as developed by Granger (1969). The paper employed time series data from the period 1980 to 2009. The data were obtained from the 2010 Statistical Bulletin of the Central Bank of Nigeria. In the paper, government expenditure, the independent variable, is represented by GOVEXP was also used by Egwaikhide (2005) in his study. The dependent variable, economic is measured by gross domestic product (GDP). The thrust of analysis is to determine whether movements in GDP in the period of study were caused by government aggregate expenditure in Nigeria.

Most of the macroeconomic time series data are non stationarity (Nelson and Plosser,1982). It is convenient to estimate relationships through the regression method only if the series are stationary.To check whether or not the variables under consideration are stationary. One of the test for stationarity which is Augmented Dicker Fuller (ADF) test is applied to data series. The decision rule is that, if t-ADF (absolute value) > t-ADF (critical value), reject H_0 of non-stationarity and if otherwise accept H_1. The level of significance is 0.05.

For the test for causality, the standard Granger (1969) test was employed. According to this test, a variable (i.e. government expenditure variable) is said to Granger cause another variable (i.e. GDP) if past and present values of government expenditure variable help to predict levels of output growth (GDP).The Granger causality equations for the variables are:

$$GOVEXP_t = \sum_{i=1}^{n} \alpha_i GOVEXP_{t-1} + \sum_{i=1}^{n} \beta_{t-1} GDP_{t-1} + \mu_i \ldots\ldots\ldots\ldots(1)$$

$$GDP_t = \sum_{i=1}^{n} \tau_i GOVEXP_{t-1} + \sum_{i=1}^{n} \psi_{t-1} GDP_{t-1} + \upsilon_i \ldots\ldots\ldots\ldots\ldots(2)$$

Where:
GOVEXP = Government expenditure
GDPG = Gross domestic products
The null hypothesis to be tested are
H1: $\tau = 0$, i = 1 . . . n i.e. government expenditure do not Granger cause GDP, and
H1: $\beta = 0$, i = 1 . . . n, i.e. GDP does not Granger cause government expenditure.

β, τ, α and ψ represents parameters to be estimated; n represents the number of lags; and μ and υ represents the serially uncorrelated error terms.

4. DATA ANALYSES AND DISCUSSION OF FINDINGS

Unit Root Test

The study first tested for unit root in variables using the Augmented Dickey Fuller Test. The results of the test are shown in table 1

Table 1: Unit Root Test

Variables	Levels	First Differences	Critical Values
GDP	-2.04777	-6.49574	-3.59571*** 1(I)
GOVEXP	-1.84546	-5.62349	-3.58491*** 1(I)

Source: Author's Calculation *** indicates level of significance at 5%

Table 1 presents the results of Augmented Dickey Fuller unit root test on the variables at their level and first differenced values.The results of ADF unit root test on the variables indicate that the variables are non-stationary in levels, but stationary in first difference. This means that at the first difference 1(I), the variables have no unit root and can be used for analysis at this position. This estimation is necessary to avoid the problem of "spurious" results.

Granger Causality Test

The results of Pair wise Granger causality between government expenditure and GDP proxied for economic growth, as well as the computed F values and their respective probabilities for the data of those series during the period 1980-2009 with specific lag period, as calculated through equations (1) and (2), are presented in table 2. To assess whether the null hypothesis is to be accepted or rejected, a significance level of 5 per cent is chosen.

The results presented in Table 2 provide convincing evidence of a unidirectional causality running from government expenditure to economic growth proxied by GDP. The decision was taken from the probability values. We therefore, reject the null hypothesis that government expenditure does not Granger cause GDP and conclude that government expenditure actually affects GDP (economic growth).The finding that government expenditure Granger-cause GDP somewhat agrees with the a priori expectation that when government expenditure is

directed to productive channels in an economy, output (GDP) tends to increase (Nurudeen and Usman, 2010; Olopade and Olopade, 2010; Taiwo and Agbatogun, 2011). But this relationship may not directly imply long run associationship as have been earlier observed in the extant empirical studies cited above. Taiwo and Agbatogun (2011), for instance using Johansen Cointegration, unit root test and error correction model, it was discovered that total capital expenditure, inflation rate, degree of openness and current government revenue are significant variables to improve growth in Nigeria.

Table 2: Pair wise Granger Causality Test

S/N	Null Hypothesis	Obs	Number of lags	F Statistics	p-value
1	GDP does not Granger cause GOVEXP	28	2	2.06325	0.44653
2	GOVEXP does not Granger cause GDP	28	2	4.52024	0.03861

Source: Author's Calculation

A strong correlation is however a necessary condition for causality. Furthermore, it is important to note that it is the causal relationship that actually strongly shows the general level of effectiveness of government expenditure for the entire period 1980-2009. This finding may imply that government expenditure in Nigeria, in the period of study, influences economic growth to some extent since a causal relationship has been established between government expenditure and *GDP* in the period. It is possible that government spending in the period have a measure of effectiveness in causing some form of economic growth in Nigeria. Practically speaking, this finding is partly supported by the periodic increase in spending on the provision of some basic infrastructure and in some sectors of the economy during the period. However, from experience we know that generally some factors limit the effectiveness of government spending such as: poor quality of government expenditure; inappropriate macroeconomic policy mix; persistent budget deficits; corruption and misappropriation of public funds improper timing of fiscal policies; time lags between preparation, approval and execution of budgets and fiscal policies, etc. these factors are likely to have limited the effectiveness of government spending in the period since they were prevalent.

5.CONCLUSION & RECOMMENDATIONS

This paper attempts to investigate the intertemporal interactions between government expenditure and economic growth. A time series analysis is conducted with particular attention given to the causal flow in the context of pair wise Granger causality from1980-2009. The empirical results established the existence of Granger causality running from government expenditure comprises expenditure on administration, economic service, and social and community service) to economic growth without any feedback effect. From the findings of this study it may be concluded that there exists a significant relationship between government expenditure and economic growth in Nigeria in the period 1980-2009. In view of the findings of this paper, we recommend high degree of transparency and accountability on spending by government at various sector of the economy in order to prevent channeling of public to private account of government officials. Also, government consumption spending should be well co-ordinated by all the arms of government to prevent 'crowd out' effect on government investments. Consequently, there is a need for reduction in hassle cost, sound fiscal policy, improvement of monetary policy, political and social stability, and technological development to enhance economic growth.

6. LIMITATION AND SUGGESTION FOR FURTHER STUDY

Although we observe that government expenditure Granger cause economic growth (GDP), the precise degree or extent of effectiveness and quality of government expenditure was not determined. This is therefore a subject of further studies. Also, further study may focus on the disaggregated analysis of government expenditure to precisely determine which type of government expenditure influencing economic growth (GDP) in Nigeria and vice versa. This process will facilitate appropriate policy formulations.

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