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Public Expenditure Administration and Real Gross Domestic Product in Nigeria

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ABSTRACT

This research work investigated the impact of public expenditure constituents on economic growth in Nigeria. Public expenditure was captured using education, health and agriculture against real gross domestic product (RGDP). Time series data and multiple regressions of Ordinary Least Square (OLS) techniques was used to analyse the effect of public expenditure on Nigeria's RGDP. The empirical results showed that public expenditure variables such as education and health impacted positively but not significantly while agriculture impacted negatively but significantly on the economic growth of Nigeria within the period within the study period. We recommend that government should invest more money on education and health to attract more patronage from within and outside the nation. Agriculture sector should be totally overhauled and more attention is required by the sector to enhance proper management of funds so as to attract foreign exchange and improve the foreign direct investments into the country.

Keywords: Public expenditure, Gross domestic product, Agriculture, Education, Health

INTRODUCTION

Ordinarily, the proper utilization of the resources of any country through the management of public expenditure, the implication should lead to poverty reduction, improvement in the standard of living of its citizens, mitigation of inequalities in income distribution and improvement in the general well being and economic development of the economy.

Indeed, there has been rather a co-existence of abundant resources and wealth and extreme poverty in the economy unlike her developed counterparts. For example, a recent world Bank report estimated that over 80% of oil revenue in Nigeria benefits 1% of the population, (Abdullah 2010)[1]. The country which ranked 6th in the world oil output is ranked 151 out of 171 countries in human capital development (UNDP) index, 2004). About 60% of the population lives in abject poverty (CBN, 2006)[2]. Before the debt forgiveness of 2006, the country was listed among the heavily indebted nations of the world with the external debt stock standing at a whopping \$37.5 billion (Soludo, 2006). About 60% of the population lives on less than US \$1 per day. This is inspite of astronomical increase in public expenditure over the years. For example, Nigeria's nationalof the attempts by the sucessive government of Nigeria to apply her vast financial resources, there exists what has been referred to as "the paradox of plenty".

The relationship between public expenditure and economic development has continued to generate series of debates among scholars. Government performs two functions protection of lives and poverty (security) and provision of public amenities (Abdullah, 2010) and (Al-Yousut, 2010)[1],[3]. Protection function consists of rules of law and enforcement of property rights. This helps to minimize risk of criminality, protection of lives and property and protection from external aggression. Under the provision of public goods are; defense, roads, education, health, power etc. Some scholars argue that increase in government expenditure on socio-economic and physical infrastructures encourages economic growth, for example, government expenditure on health and education raises productivity of labour and increase the growth of national output. Similarly, expenditures on infrastructures such as roads, communication and power reduce production cost, increases private sector investment and profitability of firms, thus fostering economic growth. Supporting this view, scholars such as Al-Yousuf and Abdullallah (2000), Ranjan and Sharma (2008) and Cooray (2009)[3],[1],[4],[5] concluded that expansion of government expenditure contributes positively to the economic growth of the nation.

Researchers on public expenditure and other related topics have been many and varied and so are their theories. For example, Ram (1986)[6] found that a stronger positive relationship exists between public expenditure and economic growth in lower income economies than in higher income economies. In contrast, Landan (1983)[7] concluded that the data he examined supported the view that government spending is associated with a reduction in a country's capacity to grow. Easterly, (2012)[8] seems to support Landan's result as he implied that government consumption spending is negatively associated with economic growth and GDP per capita. Ezirim and Muoghalu (2006)[9] investigated the extent to which factors like production growth, urbanization effects and taxation affects the size of public expenditure in less developed countries like Nigeria; and concluded that inflation constituted the most important factors that accounted for changes in government financial management. Aschauer (2009)[19] in an extensive study investigated the impact of public expenditure on economic growth; he made a comparative analysis of selected countries and concluded that significant relationship exists between some macroeconomic variables and changes in public expenditure.

However, most of these works have concentrated on the size of public expenditure and its determinants without giving much consideration on the effects of public expenditure activities on the growth of the economies under study. Thus, government activities sometimes produce misallocation of resources and impede the growth of national output. In fact, studies by Laudu (2006), Barro (1990), Engen and Skinner (2012) and

Folster and Herrekson (2011)[11],[12],[13],[14] suggested that large government expenditure has negative impact on economic growth and development.

The concerns regarding equity and stability and poverty alleviation after two decades of independence added another important dimension to public expenditure in terms of redistribution of resources. The inadequate returns on capital outlays and the macroeconomic crises of earlier 1990s arising out of high fiscal deficits shifted the focus of public expenditure of efficiency in its allocation and utilization of resources to facilitate adequate returns and restore macroeconomic stability in our educational, health and agricultural sectors.

The poor performance of the Nigerian health since 1986 has generated interests in issues of growth and development. From 1970-1985, there was financial depression. However, financial liberalization was introduced in 1986 to realize necessary finance to promote growth and development in the Nigerian health sector. This has made it necessary to study and understand the effects of health expenditure management on the economic growth of Nigeria.

Further more, the decline in the level of agricultural activities as a result of the oil boom in the 1970s in the Nigerian economy reduced the level of contributions made into the growth of the economic by agriculture hence the heavy dependence of Nigeria in oil revenues.

It is against this background that the problem of the study focused on determining the implications of public expenditure activities on the real GDP in Nigeria.

LITERATURE

Asogwa (2009)[15], conducted a research on the effect of public expenditure on economic growth in Nigeria for the period of 1970-2009, using ordinary least square (OLS) regression model, and found that there is a casual relationship between government expenditure and economic growth. Further results from their analysis showed that capital and recurrent expenditure on economic services had insignificant negative effect on economic growth during the period. Also capital expenditure on transfers had significant positive effect on growth. But capital and recurrent expenditure on social and community services and recurrent expenditure on transfers had significant positive effect on economic growth. But capital and recurrent expenditure on transfers had significant positive effect on economic growth. The study further recommended more allocation of expenditure to the services with significant positive effects.

Barro (2011)[16], in a study titled "the effect of federal government expenditure on economic growth in Nigeria", an augmented Soloru model specified in Cobb-Douglas

form with public capital as one of the factors using regression analysis techniques and a multivariate time series framework. His work indicated that two of the variables are stationary at first difference while other variables are stationary at all levels.

While Philip Peron test shows that three are stationary at all levels and others at first difference, public spending has no impact on growth, however, co-intergration and VEC results shows that there is long run relationship between public expenditure and growth.

Muritala and Taiwo in 2011[17] examined the trends and effects of government spending on the growth rates of real GDP in Nigeria between 1970 and 2008 using Ordinary Least Square (OLS) technique. The findings show that there is a positive relationship between real GDP as against the recurrent and capital expenditures.

In a very recent work in Nigeria by Stevens and Freinkman (2008)[18], on “stocktaking the reforms in public expenditure management”. The authors employed the global standard, the Public Expenditure and Financial Accountability (PEFA) framework to assess public expenditure performance in Nigeria from 1999 to 2007. PEFA is a product of a collective effort by EU, IMF and World Bank to develop an integrated framework which contains 28 high level performance indicators, each with graduations to benchmark countries and the performance of found that the PEFA diagnostics revealed a trend towards a system with upgrade in Nigeria public expenditure system. However, Nigeria was found to have performance woefully in most of the 28 performance indicators, some of their finding which includes: Overall rapid fiscal expansion which could not translate in improvements in the economic and social conditions, Excessive spending outside the annual budget with extra budgetary spending overranging 42% of the GDP within the preceding three years from 1999 and Poor quality of spending with persistent inefficiency and leakages in both current and capital budgets.

Many studies have aimed at estimating the effects of public expenditure on economic growth. Empirical studies have yielded conflicting results; some support the hypothesis that a rise in the share of public spending is associated with a decline in economic development (Benoit, 2008) and Scully (2009)[19],[20] others have found that public spending is associated positively with economic development (Ram, 1986)[6] and still other studies have found no significant relationship (Devarajan *et al.*, 1996) and Diamond (2009)[21],[22]. Public expenditure was observed in one study to have no development in developed countries (Sattar, 2010)[23]. In general, studies of the relationship between aggregate public expenditure and economic growth have not yielded robust, as the results of many are sensitive to small changes in model specification [24].

A number of studies have tested the effects of public expenditure components on economic growth and development. In general, these studies suggest that public sector consumption does not promote economic development[25].

A number of studies have found a positive correlation between economic growth and various education indicators or expenditures: primary and secondary levels of educational attainment (Barro, 1990) and Easerly and Rebelo, 1993)[12],[25]; the share of expenditures on education in total expenditure and capital expenditures on education (Diamond, 2009)[22], other studies suggest indirect links between education and economic growth, for example, through the linkage between education and expenditure on private investment (Clements and levy, 1994)[26]. In contrast to the generally positive correlation between education and growth, a number of studies have reported only a weak correlation between labour productivity a factor strongly associated with economic growth and health indicators (Gwatkin, 1983)[27]. Other works of research have aimed at identifying the effects of household investments in education and health or public outlay specific education and health services; these studies have found in general, robust results, indicating the positive effects of such investments on lifetime earnings or educational and health indicators.

These studies points to the productivity of primary education and community health services, particularly in developing countries, as well as health education and preventive health care expenditures[28].

Overview of the Working of Public Expenditure in Nigeria

Economic growth has been one of the abiding goals of fiscal policy in Nigeria and public expenditure has been one of the key fiscal policy instruments to attain. Empirical studies have, however come out with debatable and competing results about the two. Some studies have found a negative impact of government spending on output growth and, therefore, advocated small government sector for faster growth (Barro, 2011)[16]. On the other hand, there are studies, which distinguished government capital accumulation and have found that government capital stock had a positive impact on productivity and growth (Rams, 2006) and (Aschuaer, 2009)[29],[10]. It may also be noted that empirical support of capital expenditure leading to increase in growth has not only been debated in terms of disputes pertaining to classification between consumption and investment but also on the basis of counter intuitive results found in some studies that productive expenditures, when used in excess, turn unproductive and the several components of recurrent expenditure, such as operations and maintenance may have higher rates of return than capital expenditure[21].

In this context, a better classification of public expenditure would be in terms of dividing it into productive (growth inducing) and non productivity (growth retarding)

categories (Nijikamp and Poot, 2004)[30]. In the case of Nigeria, studies have shown a stable long run relationship between public sector expenditure and national income with the causality running strictly from the former to the later, although in the short run there is a trade off between growth in public expenditure and income (Olugbenga, 2003)[31]. In Nigeria, it is observed that gross capital formation in the public sector (GCF PUB) is positively related to gross domestic product (GDP at factor cost). An investigation of the relationship between the two indicates that the elasticity of overall income with respect to public investment of the preceding year works out to about 0.90 over the period 2003-2004. A noteworthy feature, however, is that this is estimated to increase from 0.79 during the pre-reform period (1950-1991) to 1.42 during the reform period so far (1992-2004), (Iyoha, 2002)[32]. The benefits of the capital stock accumulation built up over the years are reflected in the improved productivity of capital formation in the public sector in the post reform period. The large stock of capital formed by public sector investment remained under-utilized as the regulatory regime stifled optimum mix of the public and private sector operations. The initiation of reforms in the nineties (1990s) provided a conducive environment for the private sector to increase investment and promote economic activity through better utilization of public infrastructure. It is also found that public sector capital formation has crowded in private investment in the Indian economy.

During the period 1971-1972 and 2003-2004, the public investment elasticity of private investment works out to 1.23. An econometric investigation of determinants of private investment indicates that private investments in manufacturing and services are favourably impacted by public sector investment in the services sector, corroborating the operation of a "Crowding in" phenomenon between appropriate types of public and private investment. On the whole, the amount spent by the government did not bring economic growth (Carvins, 2003)[33] cited by Likita, adjusting terms of trade stock in Nigeria (2004).

It is supremely implausible that Nigeria did not take sufficient viable projects with returns higher than the rate of interest on foreign assets; from that perspective, investing domestic savings in domestic capital made foreign sense. But did the Nigerian authorities give themselves enough time to fund the right projects and to complement the investment in a reasonable efficient manners? There are strong grounds to suspect that the answer is No.

The anxiety was how to dispose off the massive wealth that arose from oil-without putting a conservative policy in place. Carvins (2003)[33], as cited by Likita quote "however, in the years following the second oil shock, the authorities responded with policies that were significantly more in the activities and extravagant than were following the first oil shock. Naira generally depreciated on the black market until

sometimes during year 2000. It recorded somewhat during the year and much more strongly during 2000 and 2001, the naira traded at about \$1.00 as the oil market softened in 2002 and the inadequacy of the government response become clear, the black market naira depreciated drastically. By the end of 2003, its value had fallen to about \$0.25 at that point, the naira was officially priced well above \$1.00 and the black market premium reached almost 350 percent. This represented a massive vote of no confidence in the government economic policies. However, government have always been very careful in planning her expenditure by means of government budgets and national income determination.

METHODOLOGY RESEARCH DESIGN

This study adopts ex-post facto research design. This was to enable the researcher determine the impact of public expenditure administration on the economic growth in Nigeria. Moreso, due to the quantitative nature of the study, the study used annual data because quarterly data may not be assessable for some of the variables.

The source of data used for this work is completely secondary source of data. The data generated for this work are quarterly and annually panel data from the period of 1988-2014. The data are generated on capital expenditure figures on education (EDU), health (HEA) and Agriculture (AGR) as well as the Cross Domestic produce (GDP) of the same period under review. All the data used were sourced from the central bank of Nigeria (CBN) statistical Bulletin, 2014.

In an attempt to test the implications of public expenditure management on economic growth of Nigeria from 1988-2014, given the design nature of this study, the research variables which are panel in nature are grouped into dependence and independent variables.

The dependence variable is the Gross Domestic product in billions of naira and it measures the impact of government expenditure on economic growth of Nigeria. On the other hand, the independent Variable are; educational expenditure and agricultural expenditure which were chosen based on the existing literature. The three explanatory variables have shown to be the main determinants of public expenditure management.

However, Adolph Wagner posited that education and health are among the core determinants of growth, on the other hand, the Physiocrats holds that wealth. Other Variables which may be included among the determinants of growth will be reflected in the model by ut (error terms). The relationship will be structurally expressed as:

$$GDP - F(EDU, HEA, AGR) \quad (1)$$

$$GDP = B_0 + B_1 EDU, + B_2 HEA, + B_3 AGR - Ut \quad (2)$$

The regression results will be evaluated based on the economic a priori condition (a positive relationship is expected to exist between the Bo (GDP) and the three independent variables (B₁, B₂, and B₃), statistical criterion (R², T-test and F-test) and economic criterion (test of autocorrelation)

RESULTS

Data do not become meaningful or useful until they have been analyzed. It was not possible or meaningful to resolve the hypothesis of the study until the collected data were used and scrutinize, using systematic analysis and verifiable techniques.

Table 1: Regression Result using OLS

Variable	Coefficient	std Error	t-statistic	prob.
EDU	1.044884	0.559276	1.868282	0.0757
HEA	1.941134	0.893868	2.171610	0.0415
AGR	-0.19389	0.180901	-1.071804	0.2960
C	253078.4	12151.36	20.82716	0.0000

R-Squared 0.971629 mean dependent var 444733.1
 Adjusted 0.967576 S.D dependent var. 207927.2
 R squared 0.967576
 S.E of regression 37440.60 Akaike infor criterion 24.4455
 Sum squared resid 2.94E +10 schwarz criterion 24.23957
 Log likelihood -296.5568 Hannan-Quinn criter. 24.09864
 F-statistic 239.7329 Durbin-watson stat. 1.003150
 Prob. (f-statistic) 0.0000

Source: E-view Regression package (version 7.0)

The following is a summary of the regression result obtained from the study.

$$253078.4GDP = 1.044884EDU + 1.941134HEA + (-0.193890)AGR$$

$$S (E) = (12151.36) (0.559276) (0.893868) (0.180901)$$

$$T^* - (20.82716) (1.868282) (2.171610) (-1.071804)$$

$$R^2 = 0.97$$

$$F-statistics = 239.7329$$

$$D (Durbin-Watson stat) = 1.003150$$

The regression result presented above shows that implications of public expenditure management on the economic growth of Nigeria from 1988-2014. The intercept Bo is 253078.4; it shows that if the explanatory variable are

held constant, the GDP will be increased by 253078.4. The coefficient of education is 1.044884; it shows that if educational expenditure is increased by a billion naira, the Gross Domestic product will increase by 1.044884 billion naira.

The coefficient of health expenditure is 1.941134; it implies that if health expenditure is increased by a billion naira, GDP will increased by a billion naira, the GDP will increase by 1.941134 billion naira. The coefficient of agricultural expenditure is -0.1941134 billion naira. The coefficient of agricultural expenditure is -0.193890; it entails that if Agricultural expenditure is increased by similar amount (a billion naira), the GDP will reduce by -0.193890 billion naira.

The R^2 from the regression result is 0.971629. this signifies that the explanatory variable explain the variation in economic development to be 97% in other words, 97% of the variation in economic development is explainable by the independent variables in the models.

Table 2: T-test

Variables	T-cal	T-tab	Decision	Conclusion
EDU	1.512727	2.080	$t^*_{cal} < T\text{-tab}$	Not significant
HEA	-1.698122	2.080	$t^*_{cal} < T\text{-tab}$	Not significant
AGR	5.613946	2,080	$t^*_{cal} < T\text{-tab}$	Significant

From the above illustration, two of the variables are not statistically significant and thus null hypothesis is accepted for the two variables that are insignificant while the null hypothesis is rejected for the variable that appeared significant.

The f-test is used to test for the statistical significance of the joint explanatory variables on the dependent variable. The tabulated value used for comparism was determined at 5% level of significance (95% confidence level), a k-1 and N-k degree of freedom.

Where $k = 4$ and $N = 27$, the degree of freedom becomes 3 and 23 ie 4-1 and 27-4 respectively.

Therefore, the f-value ($f_{0.05}$) becomes 3.07 ie F-tab at 3 under 23 ($V_2 = 3$ and $V_1 = 23$).

If the calculated f-value (f^*) is greater than the tabulated f-value ($f_{0.05}$), we reject the null hypothesis and conclude that the joint influence of the explanatory variables on the dependent variable is not statistically significant. The hypothesis is stated thus.

H_0 : The joint influence of the explanatory variables on the dependent variable is not statistically significant.

H_1 : The joint influence of the explanatory variables on the dependent variable is statistically significant. The computed f-value (f^*) was found to be 239.7329 and the tabulated f-value ($F_{0.05}$) is 3.07.

Since F^* is greater than $F_{0.05}$ we reject the null hypothesis and conclude that the joint influence of the explanatory variables on the dependent variable is statistically significant and reliable.

To test for the impact of educational expenditure, health expenditure and agricultural expenditure on the economic growth of Nigeria, the F-test was employed; this is because the three hypothesis are all in the same line, i.e they are all on impacts studies. The F-test shows that statistical significance of the joint influence of the explanatory variables on the growth variable. From the regression result, the calculated (F^*) was 239.7329 while the tabulated ($f_{0.05}$) is 3.07 for all the three variables respectively. So $F\text{-cal} > f\text{-tab}$ (ie $239.7329 > 3.07$). Therefore, we reject the null hypothesis for all the three stated hypothesis and conclude that educational expenditure, health expenditure and agricultural expenditure have significant impacts on the economic growth of Nigeria.

CONCLUSION

It was observed that during the period of 1980s, the value of the gross domestic product remained low especially when compared to the value of the gross domestic product of 1990s, from 1990s up till 2014 there was also an increase in the GDP. The same thing can also be said about the capital expenditures on education, health and agriculture but more expenditure were made on education and health and less on agriculture. All these increases are attributed to government's expenditure pattern.

Considering the statistical techniques employed, the following results were obtained.

The computed coefficient of multiple determination shows that 97% of the total variations in the dependent variable (GDP) is accounted for, by the variation in the explanatory variables in the models. From the t-test result, it was observed that education, health and agriculture have a positive relationship with the GDP under the period in review but the f-test which is used to test the statistical significance of the joint influence of the explanatory variables on the dependent variable showed that at 5% level of significance (95% confidence level), the joint influence of the explanatory variables on the dependent variable is statistically significant and reliable.

Based on the research findings, it can be said that it is important to emphasize that public expenditure management is quantitatively important in the Nigerian economic growth. It is worthy to note here that the objectives and hypothesis of this study have been achieved as expected.

Therefore, the researcher concludes that the level of educational expenditures over the years in review impacted positively but not significantly on the economic growth of Nigeria. On the other hand, the level of health expenditures over the same period of time impacted positively but insignificantly on the economic growth of Nigeria. Again, the level of expenditures on agriculture over the period of 1988-2014 impacted negatively but significantly on the economic growth of Nigeria especially before the neglect of agriculture and overall dependence of the economy on oil revenues. However, government should increase its investment on education since the current level of investment impacted positively but insignificantly on the real GDP. Agricultural sector should be totally overhauled and more attention is required by the sector in order to enhance proper management of funds likewise the health sector.

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