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ANALYSIS OF THE RELATIONSHIP BETWEEN PUBLIC EXPENDITURE AND NATIONAL INCOME IN NIGERIA (1986-2015)

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ABSTRACT

This study is set out to examine the nature and magnitude of the relationship between public expenditure and national economic growth in Nigeria. The specific objectives were outlined in a way to determine the nature and magnitude of the relationship between public capital expenditure on economic services, and social and community services and Nigeria's national income. The hypotheses were tested using the correlation analysis aided by the use of Eviews8 econometric software. Our study adopted the *ex post facto* design, hence our data were sourced from the Central Bank of Nigerian (CBN) Statistical Bulletin in a time series analyses that spans across the period 1986-2015. Our findings reveal that while public capital expenditure on economic services have not positively and significantly affected the Nigeria's national income, public capital expenditure on community and social services has a positive and significant effect on Nigeria's national economic growth.The implication of the finding is that funding provided for expenditures on agriculture, construction, transport and communication, and other economic services are not being marginally utilized, hence negative effect on national income. While those capital expenditures on education, health, other social and community services are appropriately utilized, little wonder positive effect on the national income growth. Therefore, government should ensure efficient utilization of funds provided for the economic services while ensuring adequate funding for education, health, other social and community services. All these will help to raise the productivity of labour and reduce production cost which increases private sector investment and thus fostering economic growth and development.

Keywords: National, Economic Growth, Public Expenditure, Economic Service, Social Service and Community Service.

Introduction

Government expenditure is the total money spent by all levels of government in a year and thus classified into capital and recurrent expenditure. It is usually an annual estimate called budget, which is normally a document prepared by the department of budget and planning of various levels of government. In annual budget, government expenditures are expected to translate into concrete and realistic program that use to improve both economic and social services of the citizen of the country [1].

The main objective of a government either military or civilian regime is to set aside adequate funds to improve both economic and social viable programs of the nation. The amount of revenue gotten by the government is the function of sources such as export and import duties, investments, fines, sale of government properties, donations and grants, loyalties and fees and loans among others. The loans here may be internal or external; when it is external it could be bilateral or multilateral. Such loans can be used to finance deficit budget or for project development needed to improve the economic growth of the nation to better the standard of living of the citizenry [2]. Economic growth is a significant indicator of the quality of life that citizens of the country are living and by which a country's level of growth is measured. It reveals the amount of social and economic satisfaction from available facilities or programs of the government in terms of infrastructures enjoyed by the citizens of a country [3]. On the other hand, government expenditure especially capital expenditure encourages manufacturing, investment and employment, it attracts foreign investors, it helps in raising the GDP of a country as well as per capita income and also reduces poverty level of citizens [4].

The Federal Government of Nigeria has continuously increased its spending due to higher export potential from sales of petroleum products and other internally generated revenues (IGR) from public utilities, financial security taxation among others. Central Bank of Nigerian Statistical Bulletin (2012), reveals that government expenditure both capital and recurrent is rising tremendously. Over the past decades, Nigeria government public expenditure has been consistently increased through its various activities and interactions with ministries departments and agencies (MDA) from million to billion, down to trillion naira currently [5]. Yet, millions of Nigerians are engulfed in abject poverty and the country is ranked among the poorest in the world with more than 70 percent living below poverty line, [6 and 7].The relationship between government spending and economic growth is especially important for developing countries, most of which have experience increasing levels of public expenditure over time. This has tended to be associated with rising fiscal deficits, as suggested by their limited ability to raise sufficient revenue to finance higher level of expenditure [8]. In his own contribution Baron (2012), [9], noted that government expenditure is a very crucial instrument for economic growth at the disposal of policy makers in developing countries like Nigeria. In the present, the government of Nigeria, expenditure for economic growth is not their priority as they focus on fighting corruption while people are dying in hunger and there is abject squalor and poverty [10].

Statement of the Problem

The relationship between economic growth and government expenditure is an important subject of analysis that has been subjected into intense debates in the literature. The general view is that public expenditure, notably on human capital can be growth enhancing while the financing of such expenditure can be growth retarding [8]. But studies done in Nigeria on this subject matter have reported different and contradicting results. Some studies argue that increased public expenditures are growth enhancing, other studies disagree and submit that increased public expenditures is growth retarding , yet others argue that increased public expenditures cannot predict economic growth either ways. In addition to this, majority of the empirical analyses used time series analysis using regression model which does not generate stationary data that capture the dynamics of the associations between economic growth and public expenditures. In order to incorporate dynamism in the analysis of the time series data, this study used the CBN classification of public expenditure into capital and recurrent as well as into administration, economic services, community and social services and transfers.

This study thus, not only examines the nature of the relationship government expenditure on national economic growth but most importantly determines if such a relationship is significant with national economic growth in a covariance analysis. Suffice it to state the obvious that several empirical studies which have been done in this area have generated different results. This study adopted the capital and recurrent expenditures for economic services, and social and community services classifications to ascertain the nature and magnitude of the relationship between public expenditure and national income. This is because the capital expenditure on economic services, and community and social services provides the platform for the smooth running of the economy. This is the main gap filled by this study.

To actualize this mission, the paper has as broad objective guiding the work as to; examine the nature and magnitude of the relationship between public expenditure and national economic growth in Nigeria. The specific objectives are to; determine the relationship between public capitals expenditure and economic services expenditure and Nigeria's national income, ascertain the effect of public capital expenditure and community services expenditure on Nigeria's national income.

To achieve the broad objective which by so doing other specifics objectives would follow suit, the paper hypothesized that public expenditure has no positive and significant effect on Nigeria's national income.

The rest of the paper is structured into; part two which reviews the related literature, part three discusses the methodology; part four presents and analyses the data and lastly part five gives summarizes the findings, concludes with recommendations.

Methodology

Research Design

This study used *ex-post facto* research designed to ascertain the nature and magnitude of the relationship between public expenditure and national income in Nigeria. The adoption of the *ex-post facto* research design is based on the fact that the study relied on historic data that were obtained from CBN Statistical Bulletin of various years. Capital and community and social expenditure components data are published in the CBN statistical bulletin annually. The nature of data is time series and spans across the period 1986-2015.

Technique of Analysis

The hypotheses stated in section one, were tested using the correlation analysis aided by the use of E-views 8 econometric software. The correlation analysis is a statistical technique that shows the nature as well as the magnitude of the relationship between an independent variable (capital expenditure components of economic services and community and social services) on the dependent variable (national income) to test all the stated hypotheses. However, to avoid misleading correlation result that arises while using time series data, the study firstly ensured data stationarity by applying the Augmented Dickey Fuller test and where non-stationary data exist, differencing stationary process (DSP) was applied to generate stationary data.

Re-stating the hypotheses as thus modeled:

Hypothesis one which states that public capital expenditure on economic services does not have a positive and significant relationship with Nigeria's national income is modeled thus:

$r= [1/(n-1)]x\Sigma[((GDP-GDP)/S_{GDP})X((CEES-CEES)/S_{CEES})]$ ....(1)

Hypotheses two states that capital expenditure on community and social services does not have a positive and significant relationship with Nigeria's national income and is thus modeled as:

$r=[1/(n-1)]x\Sigma[((GDP-GDP)/S_{GDP})X((CCSS-CCSS)/S_{CCSS})]$ ....(2)

Where:

n = number of observation in the sample

Σ = summation

GDP = Gross Domestic Product

GDP* =the sample mean of Gross Domestic Product

S_{GDP} = the sample standard deviation of the Gross Domestic Product

CEES = the value of the Capital Expenditure on Economic Services

CEES* = the sample mean of the Capital Expenditure on Economic Services

S_{CEES} = the sample standard deviation of the Capital Expenditure on Economic Services

CCSS = the value of Capital Expenditure on Community and Social Services

CCSS* =the sample mean of Capital Expenditure on Community and Social Services

S_{CCSS}= standard deviation of Capital Expenditure on Community and Social Services

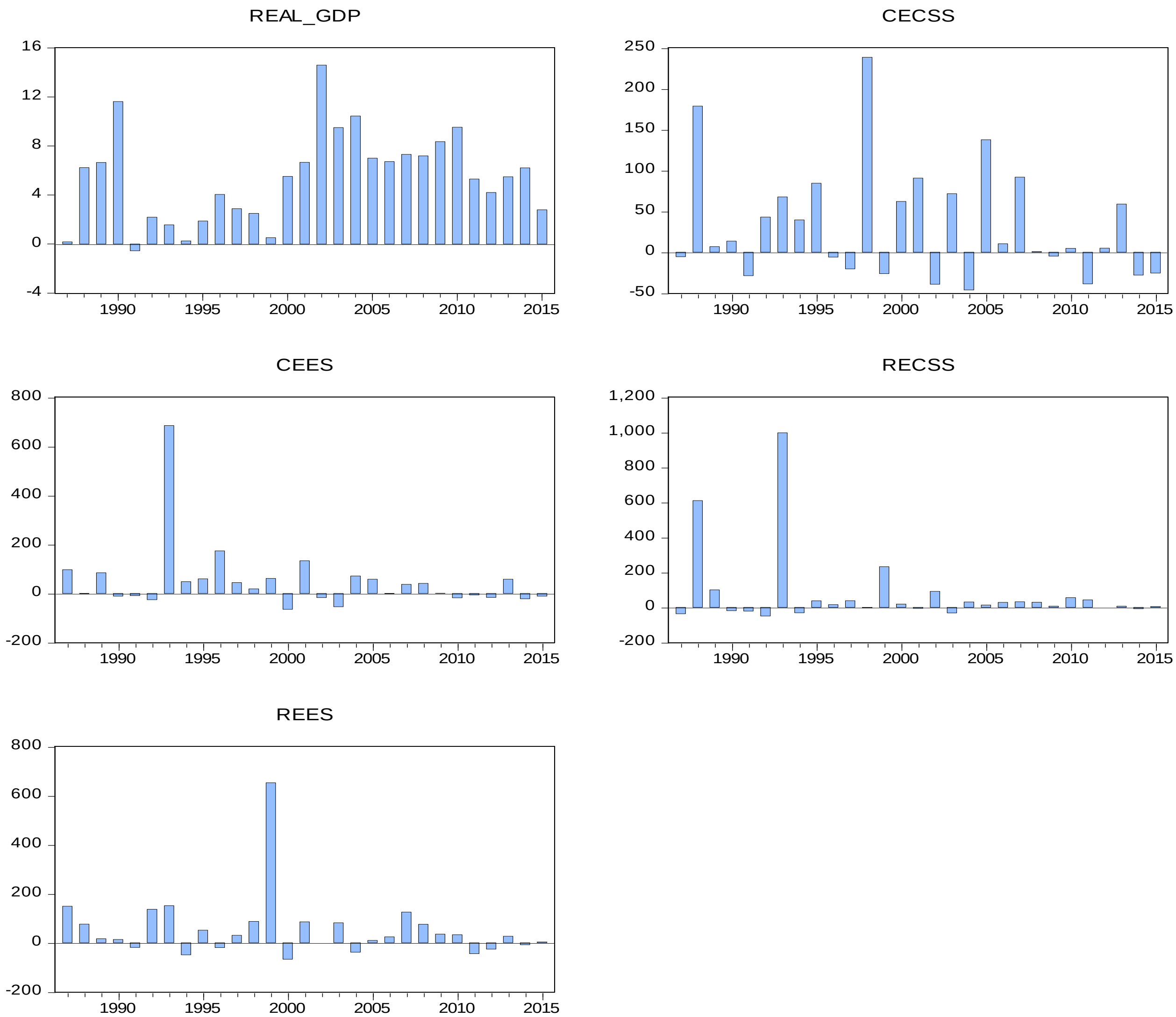
Dependent Variable: National Domestic Product (GDP)

Independent Variables: Capital Expenditure on Economic Services (CEES), Capital Expenditure on Community and Social Services (CECSS).

Data Presentation and Analysis

The percentage growth rates of public capital and recurrent expenditure on economic services, community and social services and real Gross Domestic Product were calculated and graphically represented categorically in **Fig. 1** below. These percentage changes were interpreted using trend analysis to show percentage increases or decreases in public capital expenditure on economic services as well as the measure of the economic growth (GDP) over the period 1986 to 2015.

Fig. 1 Graphical Representations of Data in National Growth Rates (%)



Source: CBN Statistical Bulletin of various years

From the figures it has been shown that Nigeria's economy recorded differing rates of growth between 1986 and 2015. In 1986, a percentage increase of 43.48% was recorded and jumped to 60.41% in 1992 this resulted in real GDP growth of 0.17% and 2.19% respectively. In 1995, a whooping percentage increase of 107.71% was recorded which was as a result of the economy growing from ₦2,907.36 billion in 1994 to ₦4,032.30 billion in 1995, hence, an increased real GDP growth rate of 1.87%. In year 2000, a percentage growth of 43.47% was recorded and resulted in a real GDP growth of 5.52% but dropped to 2.09% in 2009 with a real GDP growth rate of 8.35%. The economy grew from ₦24, 794.24 billion in 2009 to ₦54, 612.26 billion in 2010 resulting in a real GDP growth of 9.54%. However, growth rates of real GDP of 5.49%, 6.22% and 2.79% were recorded in 2013, 2014 and 2015 respectively to close the period under review.

Government capital expenditure on economic services, include expenditures on agriculture, construction, transport and communication, and other economic services as presented in Fig.4.1 showed decreases in the bars of economic services capital expenditure in years 1988, 1990,1991, 2000, 2002, 2003, 2006, 2010, 2011, 2012, 2014 and 2015 to stand at -1.43%, -11.22%, -9.77%, -65.53%, -17.10%, -54.49%, -1.06%, -18.53%, -6.25%, -16.95%, -22.20% and -11.36% respectively. This implies that expenditure in economic services in these years dropped from previous years during the period under review.

Government capital expenditure on community and social services include expenditure on education, health, and other social and community services. Fig. 1 shows the bars of social and community services capital expenditure recorded negative growth rates in years 1987, 1991, 1996, 1997, 1999, 2002, 2004, 2009, 2011, 2014 and 2015 of -5.53%, -28.83%, -6.07%, -20.26%, -26.15%, -39.12%, -46.11%, -4.76%, -38.82%, -28.06% and -25.44% respectively during the period under review. This shows that capital expenditure in community and social services in these years dropped from previous years during these years in period under review.

To guard against spurious result, this study took caution by checking the stationarity properties of the variables to avoid unit root problem that are associated with most time series data. A time series is considered to be stationary if its means and variances are independent of time. If a time series is non-stationary, the regression analysis carried out in a conventional way will produce spurious results. A spurious regression occurs when after regressing a time series variable on others, the tests statistics show a positive relationship between these variables even though no such relationship exist. The Augmented Dickey Fuller (ADF) test reveals that real GDP, capital expenditure on economic services and recurrent expenditure on community and social services were not stationary at level and hence the application of The DSP (Difference-Stationary Process). The DSP is an approach of differencing a non-stationary time series to be converted into a stationary time series at first and second differences. Thus, all the time series were stationary after differencing. This is evidenced by the categorical graph of the variables presented in **Fig. 1** above showing that the mean and variance of all the variables are independent of time.

Test of Hypotheses

Test of Hypothesis One

Hypothesis one seeks to examine the nature and significance of the relationship between public capital expenditure on economic services and national income. Data from appendix 2 was used to test hypothesis one at 95% confidence interval.

Decision Rule: The decision criteria are to accept the null hypothesis if the sign of the correlation coefficient is negative and probability of the t-statistics is > 0.05. Otherwise, refuse to reject the null hypothesis and accept the alternate hypothesis accordingly.

Re-statement of hypothesis one in both null and alternate forms

$H_{0:}$ Public capital expenditure on economic services does not have a positive and significant relationship with Nigeria’s national income.

H_1: Public capital expenditure on economic services expenditure has a positive and significant relationship with Nigeria’s national income.

Presentation of the Correlation Results for the Test of Hypothesis One

Covariance Analysis: Ordinary least square (OLS)
Date: 10/18/16 Time: 04:26
Sample (adjusted): 1986 2015
Included observations: 28 after adjustments
Balanced sample (leastwise missing value deletion)
Correlation
t-Statistic
Probability

Table 1 Correlation Result for Test of Hypothesis One

	REAL GDP	CEES
REAL GDP	1.000000	

	28	
CEES	-0.080563	1.000000
	-0.419985	----------
	0.6778	----------
	28	28

Source: Eviews8 Result (2016)

Table 1 shows the sign of the correlation coefficient as -0.080563 been negative and the probability of the t-Statistic of 0.6778 > 0.05. Therefore, we accept the null hypothesis and conclude that public capital expenditure on economic services does not have a positive and significant effect on Nigeria's national income.

Test of Hypothesis two

Hypothesis two seeks to examine the nature and magnitude of the relationship between public capital expenditure on community and social services and national income. Data from appendix 2 was used to test hypothesis two at 95% confidence interval.

Re-sstatement of the hypothesis in both null and alternate forms

H_0: Public capital expenditure on community and social services does not have a positive and significant relationship with Nigeria's national income.

H_1: Public capital expenditure on community and social services has a positive and significant relationship with Nigeria's national income.

Decision Rule: The decision criteria are to accept the null hypothesis if the sign of the correlation coefficient is negative and probability of the t-statistics is > 0.05. Otherwise, reject the null hypothesis and accept the alternate hypothesis accordingly.

Presentation of the Correlation Results for the Test of Hypothesis Two

Covariance Analysis: Ordinary
Date: 10/18/16 Time: 04:28
Sample (adjusted): 1986 2015
Included observations: 28 after adjustments
Balanced sample (leastwise missing value deletion)
Correlation
t-Statistic
Probability
Observations

Table 2: Correlation Result for Test of Hypothesis Two

	REAL GDP	CECSS
REAL GDP	1.000000	

N	28	
CECSS	0.156675	1.000000
	0.808881	----------
	0.4259	----------
N	28	28

Source: Authors' Computation 2016

Table 2 shows the sign of the correlation coefficient as **0.156675** to be positive and the probability of the t-Statistic of **0.4259 > 0.05.** Therefore, we reject the null hypothesis and conclude that public capital expenditure on community and social services has a positive and significant relationship with Nigeria's national income. This is an indicative that public capital expenditure on community and social services impacts positively and significantly on national income.

Summary of Findings

Findings arising from the study are summarized thus:

- Public capital expenditure on economic services does not have a positive and significant relationship with Nigeria's national income vis-à-vis economic growth
- Public capital expenditure on community and social services has a positive and significant relationship with Nigeria's national income vis-à-vis economic growth

Conclusion and Recommendations

This study incorporates the dynamism in the CBN classification of public expenditure into capital and recurrent as well as into administration, economic services, community and social services and transfers expenditure to examine the nature of the relationship between public expenditure and national economic growth and most importantly to determine if such relationships are significant with national economic growth in a correlation analysis. Findings from the study reveals that while public capital expenditure on economic services have failed to be positively and significantly related with Nigeria's economic growth, public capital expenditure on community and social services has a positive and significant relationship with Nigeria's national economic growth. The implication of the above finding is that funding provided for expenditures on agriculture, construction, transport and communication, and other economic services are not being marginally utilized while those expenditures on education, health, social and community services are inadequate. It implies that expenditure on health and education could not raise the productivity of labour, decreases the growth of national output, and hence does not support economic growth of the Nigeria economy during the period under review.

Therefore, government should ensure efficient utilization of funds provided for the economic services while ensuring adequate funding for education, health, other social and community services. All these will help to raises the productivity of labour and reduce production cost which increases private sector investment and thus fostering economic growth and development in

Nigeria. Similarly, expenditure on infrastructure such as roads, communication and power reduces productions cost and increases private sector investment and profitability of firms thus fostering economic growth. This is why scholars concluded that expansion of government expenditures contribute positively to economic growth. Unfortunately, rising government expenditure seems not to have translated into meaningful growth and development in Nigeria.

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