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Federal Capital Expenditure and its impact on Economic Growth in Nigeria; 1980-2010

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Abstract

The fact remains in the heart of many people that high federal capital expenditure will lead to economic growth, especially in developing country like Nigeria. This paper therefore, is an attempt to empirically ascertain that fact by investigating the impact of federal capital expenditure on economic growth in Nigeria from 1980-2010. To establish this empirical fact we employed multiple regression model of Ordinary Least Squares using secondary data. From the result, the Total Capital Expenditure (TCE), Capital expenditure on administration (ADM), capital expenditure on social community services (SCS) and capital expenditure on transfers (TRF) have positive impact on economic growth in Nigeria; this implies increase in these variables will cause positive change in economic growth. On the contrary, Capital expenditure on economic (ECO) has a negative impact on economic growth in Nigeria. One of the major challenges of poor utilization of federal capital expenditure is the issue of mismanagement of funds, the author recommends that government should increase its funding of anti-graft or anti-corruption agencies like the Economic and Financial Crime Commission (EFCC), and the Independent Corrupt Practices Commission (ICPC) in order to arrest and penalize those who divert and embezzle public funds especially funds for capital expenditures.

Keywords: Capital Expenditure, Economic Growth, Nigeria, Resources

1. Introduction

Every country's budget has two sides of its expenditure, the recurrent expenditures and capital expenditures. The formal are governments' payments for non-repayable transactions within a year while the later are governments' payments for non-financial (non-profit) assets used in the production for more than one year (CBN2010). Most developing countries in Africa including Nigeria experience high demand for capital projects that require high government expenditure and attention. But it sad to know that most developing countries put less resources in financing capital projects and more resources in financing recurrent needs of the country.

In the work Aregbeyen (2007) established a positive and significant correlation between government capital and public investment and economic growth, while he found that current and consumption expenditures were negatively associated with it. Laudau (1983) studied the effect of government (consumption) expenditure on economic growth for a sample of 96 nations. His result was that there is a negative effect of government recurrent expenditure on growth of real output and the capital expenditure contributes positively to economic growth, but over the years in Nigeria government has given more funds to the recurrent expenditure than the capital expenditure given a comparative analysis.

In the recent years government has also given attention to capital expenditure in Nigeria, in 2003 the capital expenditure increased from N241,688.3 million to N351,300.0 million in 2004, in 2005 the capital expenditure increased to N519,500.0 million, from N552,385.8 in 2006 to N759323.0 in 2007 and from N1,152796.6 in 2009 t0 N2 in 2010.

Despite this huge amount of capital expenditures, there is still an insignificant level of development witnessed. Public expenditure on all sectors of the Nigerian economy is expected to lead to economic growth in the sense that capital expenditure will boost the productive base of the economy which in turn will lead to growth. The interest by economists in Nigeria and other jurisdictions on the role of government capital expenditure is still inconclusive.

Barro (1990) endogenize government spending in a growth model and analyze the relationship between size of government and rates of growth and saving. He concluded that an increase in resources devoted to non-productive government services is associated with lower per capita growth. Therefore, government expenditure which enhances economic growth should be tailored towards productive services.

Nurudeen and Usman (2010) observe that rising government expenditure has not translated to meaningful development as Nigeria still ranks among world's poorest countries. Using disaggregated analysis approach, they investigated the effect of government expenditure on economic growth in Nigeria in the period 1970-2008 and found that government total capital expenditure, total recurrent expenditure and expenditure on education have negative effect on economic growth; but rising government expenditure on transportation and communication, and health exerts positive effect on economic growth.
However, this study faults the extent of disaggregation of the data that constituted variables of research interest in Nurudeen and Usman's study since expenditure on education, transportation and communication and health must have been part of total capital and total recurrent expenditure respectively.
Therefore, the paper is an attempt to examine the impact of federal capital expenditure on economic growth in Nigeria. To achieve the paper is subdivided into 5 parts: the introduction, the literature review, the research methodology, data presentation and analysis, the conclusion and recommendations.

2. Literature Review and Theoretical Framework

According to Barro and Grilli (1994), Government spending (or government expenditure) includes all government consumption and investment but excludes transfer payments made by a state. Government expenditure can be for the acquisition of goods and services for current use to directly satisfy individual or collective needs of the members of the community or it can be for acquisition of goods and services intended to create future benefits such as infrastructure investment and the expenditures can represent transfers of money, such as social salaries and cost of administration.
In Ijaiya 2003, government expenditure is determined by rapid population growth and subsequent demographic transitions, increase in income and taste of the people in a country that had led to increase in demand for government goods and services, increase in technological requirements for industrialization, increase in urbanization, increase in inflation over time, balance in productivity growth between public and private sector, and the need to address natural disasters among other things.

Similarly, government expenditure is influenced by the expanded roles of government which include among others, the provision of pure public goods for, example, defense, law and order, properly rights, macroeconomic management, public health and education, protecting the poor through the provision of anti-poverty programmes and disaster, relief programmes, addressing externalities, for example, environmental protection, provision of social insurance, coordinating private sector activities and redistribution of income and assets (2006).

On economic growth Olopade and Olopade (2010) defines economic growth as the expansion of a country's potential GDP or output. For instance, if the social rate of return on investment exceeds the private return, then tax policies that encourage can raise the growth rate and levels of utility. Growth models that incorporate public services, the optimal tax policy lingers on the characteristic of services.

Economic growth has provided insight into why state growth at different rates over time; and this influence government in her choice of tax rates and expenditure levels that will influence the growth rates. For instance, exponential growth model is used when the rate of increase is proportional to the amount of quality present e.g. tax = y (t) = yoekt where (t) is the amount present at any time t, yo is the amount present at initial time = o; and the K is constant (k>o) is the growth rate. If a company increase production, tax will increase, it is also useful in studies in population growth known as doubling times with the following equation.

T = 1/k in 2: Where T is the amount of time required for Y to double in size, the constant k(k>o) is the growth rate; and in 2 ≈ 0.6931 also called rule of 70. Growth means an increase in economic activities. Todaro (2009) citing Kuznets defined a country's economic growth as a long-term rise in capacity to supply increasingly diverse economic goods to its population, this growth capacity based on advancing technology and the institutional and ideological adjustment that it demands.

The major source of federal capital expenditure is the federal government allocation over the years the government have put more resources in the recurrent expenditure than the capital expenditure, the trend of the capital expenditure is showed below.

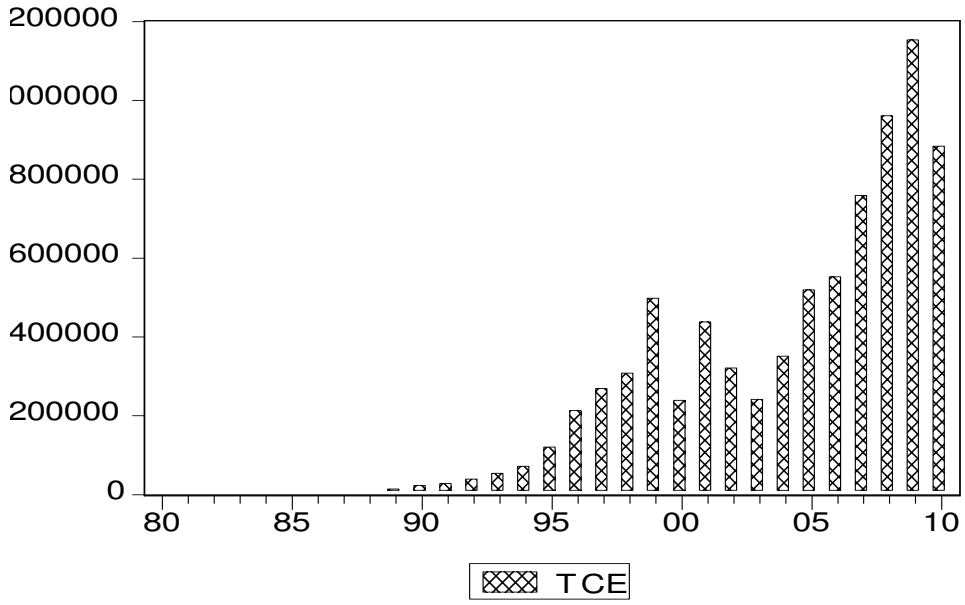

Figure 2.1: shows the total federal capital expenditure in Nigeria from 1980-2010

Figure 2.1 above the federal capital expenditure has received less attention in 80s, from 90s the trend increased up to 1999, in 2000 the trend dropped and received an increase in from 2005, up to 2009 and in 2010 the trend dropped. This implies that the trend of federal capital expenditure in Nigeria has not been consistent over the years. Form the figure the trend has experienced on pre-determine movement and in inconsistent attention, with this it is very easy to say that there is much to do in terms of federal capital expenditure in Nigeria.

In the aspect of theoretical preposition of government expenditure and economic growth we found that generally, economic growth theory deals with long-run growth trend of the economy, or potential growth path (Branson, 2002). The focus is on factors that lead to economic growth over time and analysis of the forces that allow some economies to grow rapidly, some slowly and others not at all. Early growth theories emphasized on different aspects of the economy. For instance, Mercantilists emphasized surplus balance of trade, Physiocrats emphasized agriculture as the source of all wealth while the Cameralists favoured taxation and state regulation for strong economy (Lombardini, 1996).

Within the framework of the classical models of Smith and Malthus, economic growth is described in terms of fixed land and growing population. But without technological change, increasing population eventually exhausts the supply of free land and triggers law of diminishing returns which results to declining real wage down to subsistence level at which point Malthusian equilibrium obtains.

The Keynesians see demand as a prerequisite for growth. Therefore, their analysis concludes that aggregate demand management policies can and should be used to improve economic performance. In the Keynesian model, increase in government expenditure (on infrastructures) leads to higher economic growth. Contrary to this view, the neo-classical growth models argue that government fiscal policy does not have any effect on the growth of national output. However, it has been argued that government fiscal policy (intervention) helps to improve failure that might arise from the inefficiencies of the market.

Exploring the Keynesian framework, Harrod-Dommar model points out some dynamics of growth. For instance, to determine equilibrium growth rate in the economy, the balance between supply and demand for a country's output should be maintained. On supply side, saving is a function of the level of GDP. Investment is an important component of the demand for the output of an economy as well as the increase in capital stock. Therefore, the equilibrium rate of growth is given by matching proportionate change in output with the ratio of savings-output to that of capital-output. This sustains the economy along some warranted steady growth path.

According to the model, temporary deviations from the warranted growth path would not be self-correcting. Because of the lack of self-correcting forces within the dynamics of the model, it is said to be characterized by 'knife-edge instability'. That is, market-regulated growth espoused by the model is unstable and, thus, necessitates government intervention.

Empirical Evidence

So many empirical studies have been done on the impact of government expenditure on economic growth in different countries or economies like the work of Laudau (1983) who examined the effect of government expenditure on economic growth for a sample of 96 countries. He found that government expenditure exerts a negative effect on real output.

Donald and Shuanglin (1993) investigated the differential effects of various categories of expenditures on economic growth for a sample of 58 countries. Their findings suggested that while government expenditures on education and defense have positive effect, expenditure on welfare has insignificant negative effect, on economic growth. An obvious deficiency of study is that it does not provide a well-developed methodology to incorporate government expenditures in standard growth models.

In their empirical analysis of the relationship between government expenditure and economic growth, Folster and Henrekson (2001) employed various econometric approaches to study a sample of wealthy countries for the period 1970 to 1995. Based on their findings, they submitted that that more meaningful and reliable results are generated, as economic problems are addressed. In their own study, Abu-Bader and Abu-Qarn (2003) used multivariate co-integration and variance decomposition approach to analyze the causal relationship between government expenditures and economic growth in Egypt, Israel, and Syria. The variables used in the analysis included share of government civilian expenditures in GDP, military burden, and economic growth. They observed that, in the bivariate framework, a bi-directional and long run negative relationships existed between government spending and economic growth. But the causality test within the trivariate framework based on the above variables indicated that military burden has a negative impact on economic growth in all the countries, while civilian government expenditures have positive effect on economic growth for both Israel and Egypt.

Using data set on Greece, United Kingdom and Ireland, Loizides and Vamvoukas (2005) employed the trivariate causality test to investigate the relationship between government expenditure and economic growth. The result showed that size of government granger-causes economic growth in the three countries. Such growth was experienced both in the long and short runs in Ireland and the UK. When inflation is included in the analysis, the result showed that economic growth granger causes public expenditure expansion in Greece and the UK.

Komain et al (2007), employing the Granger causality test, examined the relationship between government expenditures and economic growth in Thailand and found that government expenditures and economic growth are not co-integrated. The result also suggested that a unidirectional relationship, as causality runs from government expenditures to growth. However, the result indicated a significant positive effect of government spending on economic growth.

In their study, Olugbenga and Owoeye (2007) investigated the relationships between government expenditure and economic growth in a group of 30 OECD countries for the period 1970-2005 using regression analysis. Their analysis showed that a long-run relationship exists between government expenditure and economic growth. The study also indicated a unidirectional causality from government expenditure to growth for 16 of the countries, thus supporting the Keynesian hypothesis government intervention. But, causality runs from economic growth to government expenditure in 10 of the countries, thereby confirming the Wagner's law. For the remaining four countries, findings indicated existence of feedback relationship between government expenditure and economic growth.

A study by Ranjan and Sharma (2008) showed that government expenditure exerted significant positive impact on economic growth in India during the period 1950-2007, and that the two sets of variables cointegrated.

In a study of government expenditure and economic growth in the United States, Liu et al (2008) examined the causal relationship between GDP and public expenditure for the period 1947-2002. The causality results revealed that while total government expenditure causes growth of GDP, the latter does not cause expansion of government expenditure. The study concluded that since public expenditure grows the US economy, based on the causality test, Keynesian hypothesis exerts more influence than the Wagner's law in US.

Cooray (2009) employed an econometric model that incorporates government expenditure and quality of governance in a cross-sectional study of the relationship between government expenditure and economic growth in 71 countries. The results showed that both the size and quality of governance correlated positively with economic growth.

In Nigeria, many studies have attempted to investigate the relationship between government expenditure and economic growth, and the impact thereof. Oyinlola (1993) used defense expenditure and economic growth in Nigeria, and found a positive relationship between defense expenditure and economic growth. The study by Ogiogio (1995) indicated a long-term relationship between government expenditure and economic growth. The result also showed that recurrent expenditure exerts more effect than capital expenditure on economic growth. However, some empirical studies in Nigeria suggest no long-run relationship between government expenditure and economic growth (Aigbokhan, 1996; Essien, 1997; Aregbeyen, 2006; Babatunde, 2007). Thus, there appears to be a controversy over the long run relationship between government expenditure and economic growth in Nigeria.

Empirical analysis by Fajingbesi and Odusola (1999) showed that government capital expenditure has a significant positive effect on real output, but that real government recurrent expenditure has insignificant effect on growth. Akpan (2005) used a disaggregated approach to examine the relationship. Components of public expenditure considered in his analysis were capital, recurrent, administrative, economic service, social and community service, and transfers. The study found no significant relationship between economic growth and most components of government expenditure in Nigeria.

Olorunfemi (2008) in a study on the relationship between economic growth proxies by GDP and public expenditure in Nigeria surprisingly concluded that there is no link between gross fixed capital formation and GDP and that public expenditure affects GDP without elaborating the type of relationship. He also failed to analyze the relationship between the component of public expenditure and growth. Additionally, the study proxy of Gross Domestic Product for growth in their analysis instead of real GDP which is a better measurement of economic growth is misleading.

Suleiman (2009) observes that such understanding could help to assess the impact on government expenditures and then on deficits arising from a structural deceleration in or from an improvement in the growth potential. He submits that a good knowledge of the structural relation between the non-cyclical component of government expenditure and potential output is key to obtaining a benchmark against which to evaluate the stance of expenditure policy and then of overall fiscal policy.

Consequently, he empirically examined the relationship between government revenues and expenditures, expenditures and economic growth as a fundamental step in understanding the behaviour of Nigerian public expenditure and the economy. His study found support for Wagner's law of ever increasing public finance and Friedman's Hypothesis. The study also showed that growth in real GDP was significant before the mid-1990s but thereafter fell below average government revenue and expenditure. He concluded that, during the period 1978–2008, government expenditure was not employed as a fiscal instrument and that revenue growth drove the government expenditure.

Adeniyi and Bashir (2011) found that governments spending on agriculture, education, defense and internal security services as well as structural adjustment programme are significant factors that influence economic growth in Nigeria. Usman et al. (2011) investigated the effect of federal government expenditure on economic growth in Nigeria by specifying an augmented Solow model in Cobb-Douglas form with public capital as one of the factors. Results of the regressions show that in the short run public spending has no impact on growth. However, Cointegration and VEC results show that there is long run relationship between public expenditure and growth.

Adewara and Oloni (2012) explored the relationship between the composition of public expenditure and economic growth in Nigeria between 1960 and 2008 using the Vector Autoregressive models (VAR). Their findings shows that expenditure on education has failed to enhance economic growth due to the high rate of rent seeking in the country as well as the growing rate of unemployment. They also found that expenditure on health and agriculture contributed positively to growth.

These literatures have tried in investigating the impact of public expenditure on economics in Nigeria and some have agreed that public expenditure have a positive impact on economic growth, while disagreed, some also established that some component of recurrent capital is negatively related to economic growth. Most studies focuses on the aggregated impact of government expenditure on economic growth. From the reviewed literatures there no clear studies on the impact of federal capital expenditure on growth especially in Nigeria, therefore this paper will bridge the gap by examining the impact of federal government expenditure on economic growth.

3. Methodology

Secondary data were used in this research and these data were gotten from Central Bank of Nigeria statistical bulletin of Dec. 2009 and 2010 and Nigeria Bureau of Statistic. In an attempt to established empirical evidence on the impact of Federal Capital Expenditure on economic growth, econometric model of Akpan (2005) who used a disaggregated approach to examine the relationship. Components of public expenditure considered in his analysis were capital, recurrent, administrative, economic service, social and community service, and transfers. This model was chosen because it uses the disaggregated approach to examine the two economic variables.

In this study the model of Akpan (2005) was modified to examine the impact of Federal Capital Expenditure on economic growth in Nigeria.

RGDP= f(TCE, ADM, ECO, SCS, TRF)……..3.1

From equation 3.1 above the Real Gross Domestic Product (RGDP) is a function of Total Capital Expenditure (TCE), Capital expenditure on administration (ADM), Capital expenditure on economic, capital expenditure on social community services and capital expenditure on transfers.

From equation 3.1 we derived the econometric model below

$RGDP = \alpha + \beta 1TCE + \beta 2ADM + \beta 3ECO + \beta 4SCS + \beta 5TRF + \mu$……3.2

Take the natural log of the equation 3.1 above, we have the following equation.

$InRGDP = \alpha + \beta 1InTCE + \beta 2InADM + \beta 3InECO + \beta 4InSCS + \beta 5InTRF + \mu$…3.3

Where: α is the constant, β1, β2, β3, β4, and β5 are the parameters and the variables have been explained above. The apriori expectations of the variables are given as (β1, β2, β3, β4, β5 > 0). This implies that the variables are expected to have positive impact on the dependent variable. The Ordinary Least Squares was used in the estimation of parameters and E-views 7.0 was used in analysis of the data.

4. Data presentation and Analysis

The data for analysis is presented in appendix I below the variables are the Real Gross Domestic Product (RGDP), Total Capital Expenditure (TCE), Capital expenditure on administration (ADM), Capital expenditure on economic (ECO), capital expenditure on social community services (SCS) and capital expenditure on transfers (TRF).

Table 4.2: Result of Augmented Dickey-Fuller (ADF) Test for Stationarity

VARIABLES	ADF STATISTIC	1% Critical Value	5% Critical Value	DIFFERENCE
RGDP	5.432041	-3.6752	-2.9665	1^{ST}
TCE	5.930097	-3.6852	-2.9705	2^{ND}
ADM	5.278954	-3.6752	-2.9665	1^{ST}
ECO	5.862866	-3.6959	-2.9750	3^{RD}
SCS	5.645654	-3.6852	-2.9705	2^{ND}
TRF	4.982861	-3.6959	-2.9750	3^{RD}

Source: computation from table 4.1E-views software 7.0)

From the Table 4.3.1, the Real Gross Domestic Product in Nigeria is stationary at first difference with ADF statistic value of 5.432041 at 1 percent, Total Capital Expenditure (TCE) is stationary at second difference with ADF value of 5.930097 at 1 percent and Capital expenditure on administration (ADM) is stationary at first difference with ADF value of 5.278954 at 1 percent.

Similarly, Capital expenditure on economic (ECO) is stationary at third difference with ADF value of 5.862866 at 1 percent; Capital Expenditure on Social Community Services (SCS) is stationary at second difference with ADF value of 5.645654 at 1 percent, 5 percent and Capital Expenditure on Transfers (TRF) is stationary at third difference with ADF value of 4.982861 at 1 percent, 5 percent and 10 percent. Therefore data is fit to be used for regression estimation and for economic analysis and inference.

Table 4.3: Data Estimation Results

VARIABLES	COFFICIENT	STANDARD ERROR	T-STAT	PROB.
C	9.85	0.738	13.50	0.0000
TCE	0.215	0.267	0.804	0.029
ADM	0.193	0.158	1.22	0.235
ECO	-0.306	0.1427	-2.140	0.347
SCS	0.137	0.159	0.857	0.099
TRF	0.046	0.053	0.859	0.398
R-SQUARE	0685			
ADJ R-SQUARE	0.621			
F-STATISTIC	10.481			
D-W STATISTIC	1.65			
PROB	0.000020			

Source: computation using E-views package

Interpretation and Discussion of Results

The growth and federal capital expenditure equation given the R-square of 0.685 suggests that federal capital expenditure has a strong and positive relationship on Real Gross Domestic Product and the Adjusted R-square of 62 percent shows that the model in use is capable of determining the total variation in dependent variable. The function shows that 62 percent variation the dependent variable can be accountable by the change in the independent variables.

Similarly, The F-statistic suggest that the model employed in the study is statistically significant given the value as 10.481, meaning at 5 percent level of significant, the equation in use is statistically significant. This implies the equation is useful in explaining a unit change in Real Gross Domestic Product in Nigeria.

The results indicate that Total Capital Expenditure (TCE), Capital Expenditure on Administration (ADM), Capital Expenditure on Social Community Services (SCS) and Capital Expenditure on Transfers (TRF) are positively related to gross domestic product. Total Capital Expenditure (TCE) was statistically significant, while Capital Expenditure on Administration (ADM), Capital Expenditure on Social Community Services (SCS) and Capital Expenditure on Transfers (TRF) are statistically insignificant in explaining the variation in Real Gross Domestic Product in Nigeria. From the result the a prior expectation of Total Capital Expenditure (TCE), Capital expenditure on administration (ADM), Capital Expenditure on Social Community Services (SCS) and Capital Expenditure on Transfers (TRF) were proved to be true being positively signed.

On the other hand Capital expenditure on economic (ECO) was negatively related to Real Gross Domestic Product in Nigeria and statistically significant in explaining the variation in Real Gross Domestic Product in Nigeria.

5.0 Conclusion and Recommendations

This paper was an attempt to examine the impact of federal capital expenditure on economic growth in Nigeria; most literature reviewed were on the impact of public expenditures on economic growth. But this paper was able to do empirical study on the impact of federal capital expenditure on economic growth from 1980-2010. Secondary data were used and the researcher adopted Ordinary Least Squares with a multiple equation, E-view 7.0 was used in the model estimation and stationarity test was conducted on the data used and all the variables were stationary at various differences.

5.1 Major Findings

The result suggests that there is a positive impact of federal capital expenditure on economic growth in Nigeria, implying the dominance of public sector as the major economic growth driver for the national economy. The paper investigated some of the problems of federal capital expenditure in Nigeria, the most challenging factors identified being the low proportionality of capital expenditure relative to recurrent expenditure, poor planning of federal capital expenditure due to the absence of proper planning and adoption of a programme based budgeting strategy, late disbursement of federal capital funds and mismanagement (embezzlement) of funds by government officers, these have hinder and prevent the federal capital expenditure from meeting its goals and objectives to their fullest.

5.2. Policy Recommendations

First. The federal government need to revert to development planning utilizing programme based budget that address development interventions in an objective and result oriented framework, hence making capital expenditure spent more positively impactful on national development needs.

Secondly, In view of the positive correlation between economic growth and capital expenditure spent despite the low percentage of capital expenditure in the overall public expenditure programme, government should strive towards increasing the percentage of capital expenditure and properly be managed in a manner that will raise the quantum of national economic assets, hence improving productive capacity and accelerate economic growth to a double digit.

Thirdly, government should increase its investment in transport and communication sectors through direct funding and Public-Private –Partnership (PPP) model, since it would reduce the cost of doing business as well as raise the profitability of firms, hence contributing to overall national output and economic prosperity.

Fourthly, government should encourage massive investment directly and through Public-Private-partnership (PPP) in the human capital sector of the national economy-education and health sectors through increased funding especially the funds for capital projects and maintenance, as well as ensure strict due diligence and implementation of PPP guidelines and processes for the development of education and health services.

Lastly, government should increase its funding of anti-graft or anti-corruption agencies like the Economic and Financial Crime Commission (EFCC), and the Independent Corrupt Practices Commission (ICPC) in order to arrest and penalize those who divert and embezzle public funds.

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APPENDIX I

Federal government capital expenditure and its components (millions)

Years	RGDP	TCE	ADM	ECO	SCS	TRF	%GDP
1980	31546.8	10163.4	1501.1	5,981.1	2,456.7	224.5	20.5
1981	205222.1	6567.0	720.1	3,629.4	1,299.0	918.5	13.8
1982	199685.3	6417.2	385.4	2,542.5	968.3	2,521.0	13.1
1983	185598.1	4885.7	1098.2	2,290.7	1,026.5	470.3	9.2
1984	183563.0	4100.1	262.7	656.3	237.6	2,943.5	6.9
1985	201036.3	5464.7	459.6	892.7	1,154.0	2,958.4	8.0
1986	205971.4	8526.8	264.8	1,099.9	655.4	6,506.7	12.3
1987	204806.5	6372.5	1,816.2	2,159.7	619.1	1,777.5	6.1
1988	219875.6	8340.1	1,898.6	2,128.7	1,726.0	2,586.8	6.0
1989	236729.6	15034.1	2,617.5	3,926.3	1,844.8	6,645.5	6.9
1990	267550.0	24048.6	2,919.9	3,485.7	2,096.0	15,547.0	9.0
1991	265379.1	28340.9	3,345.0	3,145.0	1,491.7	20,359.2	9.1
1992	271365.5	39763.3	5,118.5	2,336.7	2,132.6	30,175.5	7.5
1993	274833.3	54501.8	8,081.7	18,344.7	3,575.3	24,500.1	8.0
1994	275450.6	70918.3	8,785.1	27,102.8	4,994.4	30,036.0	7.9
1995	281407.4	121138.3	13,337.8	43,149.2	9,215.6	55,435.7	6.3
1996	293745.4	212926.3	14,863.6	117,829.1	8,656.2	71,577.4	7.9
1997	302022.5	269651.7	49,549.0	169,613.1	6,902.0	43,587.6	9.6
1998	310890.1	309015.6	35,270.4	200,861.9	23,365.6	49,517.7	11.4
1999	312183.5	498027.6	42,737.2	323,580.8	17,253.5	114,456.1	15.6
2000	329178.7	239450.9	53,279.5	111,508.6	27,965.2	46,697.6	5.2
2001	356994.3	438696.5	49,254.9	259,757.8	53,336.0	76,347.8	9.3
2002	433203.5	321378.1	73,577.4	215,333.4	32,467.3	0.0	4.6
2003	477533.0	241688.3	87,958.9	97,982.1	55,736.0	11.3	2.8
2004	527576.0	351300.0	137,765.9	167,721.8	30,032.5	15,729.8	3.1
2005	561931.4	519500.0	171,574.1	265,034.7	71,361.2	11,500.0	3.6
2006	595821.6	552385.8	185,224.3	262,207.3	78,681.3	26,272.9	3.0
2007	634251.1	759323.0	226,974.4	358,375.6	150,895.2	23,036.0	3.7
2008	672202.6	960900.0	287,103.6	504,286.9	152,174.6	17,325.0	4.0
2009	716949.7	1152796.6	318,888.3	503,009.2	120,696.9	210,202.0	4.7
2010	851734.8	883870.0	264,554.2	412,245.2	147,409.5	59,661.1	3.0

SOURCE: CBN STATISTICAL BULLETIN DEC. 2010

APPENDIX II

Dependent Variable: LOG(RGDP)
Method: Least Squares
Date: 09/24/13 Time: 09:59
Sample: 1980 2010
Included observations: 30
Excluded observations: 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.855201	0.738693	13.34140	0.0000
LOG(TCE)	0.214811	0.267141	0.804111	0.0292
LOG(ADM)	0.192867	0.158405	1.217554	0.2352
LOG(ECO)	-0.305530	0.142759	-2.140186	0.0427
LOG(SCS)	0.136946	0.159702	0.857511	0.0996
LOG(TRF)	0.045813	0.053290	0.859694	0.3985

R-squared	0.685884	Mean dependent var	12.60656
Adjusted R-squared	0.620444	S.D. dependent var	0.616221
S.E. of regression	0.379642	Akaike info criterion	1.077682
Sum squared resid	3.459079	Schwarz criterion	1.357921
Log likelihood	-10.16523	F-statistic	10.48100
Durbin-Watson stat	1.653266	Prob(F-statistic)	0.000020