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Impact of Government Expenditure on Transportation Sector and Economic Growth in Nigeria (1980-2016)

Mustapha Yusufu

Department of Economics,
Modibbo Adama University of Technology, Yola.

Sunday Elijah

Department of Economics,
Federal University Gusau, Zamfara State.

Muhammad Usaini

Department of Accounting and Finance,
Federal University Gusau.

Abstract

The study examined the impact of government expenditure on transportation sector and economic growth in Nigeria. The related literatures were reviewed. Time series data for real gross domestic product (RGDP), capital expenditure (CEX), government expenditure on transport (GEXT) and interest rate (INTR) from 1980 to 2016 are used. Unit root test result indicated that all the variables are none stationary at level but becomes stationary at first difference $I(1)$ necessitating the use of ECM to determine the short and the long run relationship of the variables. The result of the analysis reveals that there is a long run relationship among the variables. It is therefore recommended that government should ensure that capital expenditure and recurrent expenditure are properly managed in a manner that it will raise the nation's production capacity and accelerate economic growth.

INTRODUCTION

The objective of every government is to promote economic growth and development through various intervention policies. Over the years government had been increasing expenditure on transportation, but the result had not yielded the desire positive result. This may not be unconnected with the poor management and corruption in the sector.

Over the years relationship between public sector expenditure and economic growth has continued to occupy series of debate among researchers and policy makers. The common consensus among the researchers is that public sector expenditure has been identified as an important instrument which the government uses to influence the performance of the economy. The channels through which public authorities satisfy the collective want of the people can be classified under public sector expenditure.

Many scholars have argued that increase in government spending can be an effective tool to stimulate aggregate demand for a stagnant economy and to bring about crowd-in effects on private sector. According to Keynesian view, government could reverse economic downturns by borrowing money from the private sector and then returning the money to the private sectors through various spending programs. High levels of government consumption are likely to increase employment, profitability and investment via multiplier effects on aggregate demand. Thus, government expenditure, even of a recurrent nature, can contribute positively to economic growth. On the other hand, endogenous growth models such as Barro (1990), predict that only those productive government expenditures will positively affect the long run growth rate.

Wagner's law of increasing or expansion of public particularly state activities other studies has been geared toward assessing the effects or impacts of the general flow of government services on private decision making particularly on the impact of government spending on long-run economic growth, especially the Keynesian economic school of thought, suggests that government expenditure accelerate economic growth, they argue that increase in government expenditure on socio-economic and physical infrastructures encourages economic growth which in turn brings development. For example, government expenditure on health and education raises the productivity of labour and increase the growth of national output. Similarly, expenditure on infrastructure such as power, road, communication etc., reduces production costs, increase private sector investment and profit of firms and finally fostering economic growth and development. Scholars like Abdullah (2000), Al-Yousif (2002) and Cooray (2009), but few to mention concluded that expansion of government expenditure contribute positively to economic growth.

In the neoclassical growth model of Solow (1956), productive government expenditure may affect the incentive to invest in human or physical capital, but in the long-run this affects only the equilibrium factor ratios, not the growth rate, although in general there will be transitional growth effects. Others have argued that increase in government expenditures may not have its intended salutary effect in developing countries, given their high and often unstable levels of public debt. The government consumption crowd-out private investments, dampens economic stimulus in short run and reduces capital accumulation in the long run. Vedder and Gallaway (1998) argued that as government expenditures grow incessantly, the law of diminishing returns begins operating and beyond some point further increase in government expenditures contributes to economic stagnation and decline.

Economic growth on the other hand showed a growth of economic activity from one period to another. Economic activities which are intended to produce output (revenue). So that economic growth is basically shows the development of the output of the period to the next. In order to achieve the required level of capital accumulation output corresponding to the desired output level. Economic growth in this sense mathematically derived from the following equation Meier

and Rauch (2000) Output is assumed to be a function of capital (physical capital and human capital), then:

$$Y = f(k).$$

The special shape of the equation can be written into:

$$f(k) = Ak$$

Based on the formula above, then economic growth is a process of increase in output per capita in the long run produced by the economy of a Region. Based on such understanding, then there are three aspects to be considered in economic growth, which is the process of growth, output per capita and the long term economic growth Boediono (1999) the first aspect stressed that economic growth is a process that takes place in a dynamic and not a picture of the economy at a time. The second aspect is output per capita shows the total output compared with the population. While the third aspect shows that an economic growth can occur when the increase in output per capita occurred in the time period long enough. To achieve higher economic growth as expected, then there are three things that need to be considered, namely: the presence of capital accumulation, population growth, especially the growth of the labour force and the presence of technological progress (Todaro 2000).

In Nigeria, public expenditures on infrastructure have continued to increase over the years. Unfortunately, rising government expenditure has not translated into meaningful growth and development of the infrastructural sector in Nigeria especially in the rural areas. This study will be one of the few empirical studies on the empirical linkage of improvement in government expenditure on transportation and economic growth with specific reference on the Nigerian economy

LITERATURE REVIEW

The term public expenditure refers to the expenses incurred in the public sector. It is defined as the total government spending for the provision of goods and services. In a developing economy such as Nigeria, public spending or government expenditure has an active role to play in reducing regional disparities, developing social overhead, creation of infrastructure of economic growth in the form of transport and communication facilities, education and training, growth of capital goods, basic and key industries research and development and so on. It has a greater role to play in the form of stimulating savings and capital accumulation. One way in which public expenditure is expected to affect the pace of economic growth and development is the will and capacity of the people to work, save and invest. In this connect the exact effect depend largely on the precise form and magnitude of government expenditure although there are conflicting opinions as to whether public spending motivates and encourages or discourages the will to work. Some welfare expenditures might lead to an effect in either direction. Similarly, the net effect also depends upon economic activity and investment. An important way in which public expenditure can accelerate the pace of economic growth and development is by narrowing down the difference between social and private marginal productivity of certain investment. Public expenditure can be used to provide subsidies for those investments which are commonly non-viable but which are very helpful for economic growth. For example, subsidy on agricultural inputs if agricultural production is to be stimulated, or for investment in backward areas to reduce regional disparities and unemployment it can also be used to promote import substitution and at the same time, to keep the prices of necessary inputs of capital goods low (Bhatia, 2006).

Government expenditure is divided into two categories that is capital and recurrent expenditure, capital spending is an expenditure made by government for the acquisition of structures for further production and consumption in an economy. That is money spend by government on acquiring permanent infrastructural facilities that are essential to the economic growth and development. On the other hand recurrent expenditure refers to spending on current consumption such as salaries, wages and overhead cost. The idea regarding the need and the effect of public expenditure has varied over time. The earlier approach was closely linked with the philosophy of laissez-faire according to which, the best government was the one which governed the least. It was argued that everyone was the best judge of his own interests and that the government could not be expected to take any decision which was basically superior to the private one. The only sphere where the government could legitimately operate was the preservation of the society and undertaking those activities which were needed by the economy but were commercially unprofitable. It was this logic which delimited the state's legitimate sphere of activities to defence, law and order, administration and social and overheads. However, the fact that market mechanism failed in many respect to bring about the desired results in the economy, forced an intervention on the part of the state (Bhatia, 2006).

Public expenditure is the main instrument used by Governments especially in developing countries to promote economic growth which is an essential ingredient for sustainable development. Economic growth brings about a better standard of living of the people through provision of better infrastructure, health, housing, education services and improvement in agricultural productivity and food security (Loto 2012). Nearly all the sectors in the national economies of developing countries demand more budgetary allocations every year. For instance, the agricultural sector under the Maputo Declaration of 2003 requires African Governments to increase expenditure on agricultural sector to at least 10% of the national budgetary resources (NEPAD, 2011).

EMPERICAL LITERATURE

Abu and Abdullah (2010) investigates the relationship between government expenditure and economic growth in Nigeria from the period ranging from 1970 to 2008. They used disaggregated analysis in an attempt to unravel the impact of government expenditure on economic growth. Their results reveal that government total capital expenditure, total recurrent expenditure and Education have negative effect on economic growth. On the contrary, government expenditure on transport, communication and health result in an increase in economic growth. They recommend that government should increase both capital expenditure and recurrent expenditure including expenditure on education as well as ensure that funds meant for development on these sectors are properly utilized. They also recommend that government should encourage and increase the funding of anti-corruption agencies in order to tackle the high level of corruption found in public offices in Nigeria.

Olorunfemi, (2008) studied the direction and strength of the relationship between public investment and economic growth in Nigeria, using time series data from 1975 to 2004 and observed that public expenditure impacted positively on economic growth and that there was no link between gross fixed capital formation and Gross Domestic Product. He averred that from disaggregated analysis, the result reveal that only 37.1% of government expenditure is devoted to capital expenditure while 62.9% share is to current expenditure.

Devarajan and Vinay (1993) used panel data for 14 developed countries for a period ranging from 1970 to 1990 and applied the Ordinary least square method on 5-year moving average. They took various functional types of expenditure (health, education, transport, etc) as explanatory variables and found that health, transport and communication have significant positive effect while education and defence have a negative impact on economic growth.

Abu-Bader and Abu-Qurnas (2003) used multivariate co-integration and variance decomposition approach to examine the causal relationship between government expenditure and economic growth for Israel, Egypt and Syria and observed a bi-directional and long run negative relationship between the government expenditure and economic growth. Moreover, the causality test within the trivariate framework shows that military burden impacted economic growth negatively in all the countries. And government expenditure on civilian has impacted economic growth positively for both Israel and Egypt.

Okonkwo and Gods love (2015) investigated the impact of growth on government expenditure in Nigeria with the help of time-series annual secondary data from 1970 to 2013 using symmetric autoregressive distributed lag (ARDL) estimation technique found that economic growth has significant impact on government expenditure in Nigeria.

Abraham and Mike (2014) study the impact of government expenditure on economic growth in Nigeria using time series secondary data from 1981 to 2011 with the application ordinary least square technique and concluded that the explanatory variables total public spending, private capital formation, exchange rate and the lag value of gross domestic product are statistically significant in explaining the variation in growth with the exception of private capital formation and exchange rate.

Mitchell (2005) examined the effect of public spending on economic performance in developed countries. He assessed the international evidence, reviewed the latest academic research, cited examples of countries that have significantly reduced government spending as a share of national output and analysed the economic consequences of these reforms. Regardless of the methodology or model employed, he concluded that a large and growing government is not conducive to better economic performance. He further argued that reducing the size of government would lead to higher incomes and improve American's competitiveness.

Loto (2011) investigated the impact of sectoral government expenditure on economic growth in Nigeria for the period 1980-2008 and applied Johansen cointegration technique and error correction model. Results inferred that in the short run expenditures on agricultures and education were negatively related to economic growth. However, expenditures on health, national security, transportation, and communication were positively related to economic growth, though the impacts were not statistically significant.

This study intent to adopt Keynesian theory of growth which states that increase in government spending will raise aggregate demand and increase consumption, which will in turn increase production and employment.

METHODOLOGY

The data for this study was obtained through secondary sourced from publications of Central Bank of Nigeria (CBN) statistical bulletin and annual abstract of national bureau of statistics

(NBS), for the period of 1980 to 2016. The data was analysed using Ordinary Least Square (OLS) technique.

Model specification

This study employed a multiple regression models and made use of econometric procedure in estimating the impact of government expenditure on transportation sector and economic growth. The model for the study are as follows:

Functional relationship

$$RGDP = F(CEX, GEXT, INTR) \quad (1)$$

The above functional relationship has been transformed in to econometric linear models as follows.

$$RGDP = \beta_0 + \beta_1 CEX + \beta_2 GEXT + \beta_3 INTR + U \quad (2)$$

Where:

- RGDP = Real Gross Domestic Product
- CEX = Capital Expenditure
- GEXT = Government Expenditure on Transportation
- INTR = Interest Rate
- U_t = Error Term.

RESULT AND DISCUSSION

Analyses of results are discussed in four sub-sections: (1) unit roots test analysis, (2) co-integration test analysis, (3) analysis of granger causality and (4) regression analysis.

Unit Root Test

Table 4.1 Augmented Dickey Fuller Test Result

Variable	1 st Difference	Critical Values at 5% Level of Significance	Order of Integration
RGDP	-6.137718	-3.544284	I(1)
CEX	-5.575344	-3.544284	I(1)
GEXT	-4.706290	-3.544284	I(1)
INTR	-6.225971	-3.548490	I(1)

Source: Author's Computation, (2018)

From table 4.1, it reveals that all the variables are none stationary at level but became stationary after their first differences as indicated by the absolute values of ADF of the variables which were above the critical values of ADF at 5% level of significance. The U_t that is error term was stationary at level, indicating that that there is a long run relationship or co-integration among the variables.

Co-integration

Table 4.2: Co-integration Test Result

Eigen Value	Trace Statistic	Critical Value at 5%	Probability
0.559625	45.30825	47.85613	0.0851
Eigen Value	Max-Eigen Statistic	Critical Value at 5%	Probability
0.559625	28.70450	27.58434	0.0358

Source: Author's Computation, (2018)

From table 4.2 above, the result of cointegration test shows a trace statistics of (45.30825) which is less than the critical value at 5% level of significance (47.85613) with probability 0.0851, but the

Max-Eigen statistics shows a trace statistics of (28.70450) which is greater than the critical value at 5% level of significance (27.58434) with the probability (0.0358) indicating that there is cointegration among the variables.

Table 4.3: Granger Causality Test Result

Hypothesis	F. Statistics	Probability
GEXT does not Granger Cause CEX	1.4374	0.2541
CEX does not Granger Cause GEXT	3.35148	0.0486
INTR does not Granger Cause CEX	0.79500	0.4609
CEX does not Granger Cause INTR	4.01652	0.0285
RGDP does not Granger Cause CEX	2.21480	0.1267
CEX does not Granger Cause RGDP	0.16255	0.8507
INTR does not Granger Cause GEXT	2.10462	0.1395
GEXT does not Granger Cause INTR	2.85952	0.0730
RGDP does not Granger Cause GEXT	1.89704	0.1676
GEXT does not Granger Cause RGDP	3.17768	0.0560
RGDP does not Granger Cause INTR	0.31697	0.7308
INTR does not Granger Cause RGDP	0.74681	0.4825

Source: Author's Computation, (2018)

From the table above, it shows that government expenditure on transportation (GEXT) does not granger cause capital expenditure (CEX) but, causality run from capital expenditure to (GEXT). Interest rate (INTR) does not granger cause (CEX), but causality run from (CEX) to (INTR). However real gross domestic product (RGDP) does not granger cause (CEX), so also granger causality does not run from (CEX) to (RGDP). Interest rate (INTR) does not granger cause government expenditure on transportation (GEXT), (GEXT) does not granger cause (RGDP). Similarly (RGDP) does not granger cause (INTR), Interest rate (INTR) does not granger cause (RGDP)

Table: 4.4 Error Correction Model Test Result

Variable	Co-efficient	Std. Error	t-stat	Probability
C	153704.2	113554.5	1.353572	0.1860
RGDP(-1)	0.216963	0.093726	2.314872	0.0276
CEX	2813.180	13513.05	0.208182	0.8365
INTR	2607.903	1557.936	1.673948	0.1057
GEXT	3976.155	1067.094	3.726154	0.008
ECM (-1)	-0.774053	0.094745	-8.169879	0.0305

Source: Author's Computation, (2018)

From the table above, the lag value of the coefficient RGDP (0.216963) is positive and significance with probability of (0.02676), meaning that previous RGDP influences current RGDP. Similarly the coefficient of CEX was also positive but not significance with probability of (0.8365), meaning that if CEX increase RGDP will also increase but the increase is not significance at the short run. However the coefficient of INTR (6199.350) is positive and not significance with probability (0.4611) indicating that increase in INTR will increase RGDP but the increase will not be much significant and also the coefficient of GEXT reveals the similar result that positive but not significant and finally the coefficient of ECM (-0.774053) which is negative and the probability (0.0000) indicates that there is a long run relationship among the variables or even though there is not convergence at the short run but they converge at the long run.

The adjusted R-square which measure the goodness of fit is 88% which means that 88% of the variation in the RGDP is as a result of CEX, GEXT and INTR, while DW is 1.5 meaning that there

is no serial auto correlation and F. Statistics (50.92862) which measure joint significant of the parameter is statistically significant with the probability of (0.000000) meaning that the explanatory variables are jointly significant in influencing RGDP.

SUMMARY AND CONCLUSION

This research work investigates the impact of government expenditure on transportation sector and economic growth in Nigeria. Time series data spanning from 1980 to 2016 is used for analysis being the time series data, the regression analysis require a preliminary test on the possibility of spurious regression. For that reason unit root test is conducted to ascertain the stationarity condition of the variables. The result revealed all the variables are integrated of order one I(1), which permitted the forms of cointegration, granger causality test and ECM. The findings of the study show that continuous increase in government expenditure on transportation will increase the gross domestic product. Based on the findings there researchers also conclude that there is no short run relationship between government expenditure on transportation sector and economic growth, but there is a long run relationship. Meaning that is statistically significant to economic growth in the long run. It is therefore recommended that government should ensure that capital expenditure and recurrent expenditure are properly managed in a manner that it will raise the nation's production capacity and accelerate economic growth. Similarly government should also increase its investment in transport and communication sectors, since it would reduce the cost of doing business as well as raise the profitability of firms that will lead to economic growth.

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