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PUBLIC INFRASTRUCTURE SPENDING AND ECONOMIC GROWTH IN NIGERIA: AN ERROR CORRECTION MECHANISM (ECM) APPROACH

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ABSTRACT

The aim of this study is to critically analyze the determinants of public infrastructure spending and economic growth in Nigeria, using available time series data from 1970 to 2010. The specific objective of the study with an overriding aim of providing policy-relevant evidence are: to examine the trend in public expenditure on infrastructure in Nigeria between 1970 to 2010; to compare the trend in public expenditure between the military and democratic government in Nigeria between 1970 to 2010; to determine the relationship between expenditure on infrastructure and long-run economic growth; ascertain the factors that influence public expenditure growth in infrastructure; test for the stability of growth in public expenditure on infrastructure over time and derive policy recommendations based on the findings of the study. The model specification is based on the Ordinary Least Squares (OLS) multiple regression. While the estimation procedures is that of the Johansen Maximum Likelihood (JML) and OLS estimators.

Keywords: Economic growth, Infrastructure, Nigeria, Public spending, Vector error correction, Johansen co-integration OLS estimators.

JEL Classification: C32, 013, 021, 054, H53, H54.

1. INTRODUCTION

Economists have acknowledged the importance of infrastructure as an important instrument in the development process. Public infrastructure has remained a central issue in economic development, especially developing countries in Sub-Saharan Africa, whose economies are characterized by structural rigidities, weak support services and institutional framework, declining productivity, high level of corruption as well as policy instability. This situation has led to researches aimed at investigating whether public spending on infrastructure has yielded significant results over time. Certain factors have influenced public spending on infrastructure, that is, rate of urbanization, openness, government revenue, external reserves, population density, and type of government. A good number of studies have been carried out on the impact of public spending on economic growth in the short and long-run in most developed and less developing countries, using cross sectional data of many countries (Edame, 2009; 2010; 2011; 2012).

Main while, government spending varies ranging from education, defense, general administration, health, to water supply, electricity generation and supply, roads,

telecommunications among others., spending on infrastructure has been an issue of importance among scholars the world over. Research has shown that investment in infrastructure has tremendous positive impact on nation's economic growth and development. See Agenor and Dodson (2006), Adenikinju (2005), Edame (2009;2010; 2011) and Edame (2012), Sanchez-Robles (1998), Canning *et al.* (1994).

In Nigeria, several government policies have led to infrastructure decay, which has been characterized by erratic power supply, inefficient telecommunication, poor urban and rural road networks which have resulted in a near stagnant economic performance (Bureau of Public Enterprises (BPE), 2003).

So many research has been carried out to ascertain the direction of association between government spending on infrastructure and economic growth of several developed and developing countries. Among this early studies include Ghali (1997), Baldaci, et al (2004). and Agenor and Dodson (2006). In these studies, they established positive effect of expenditure on infrastructure and economic growth. most recent econometric methods of analysis have been used by Pereira (2000). Findings from most of the studies and results were quite opposite to the previous established one.Therefore, there is no agreement in the position of relationship between infrastructure and economic growth.

However, with lack of infrastructure and poor delivery of social services like transportation, energy, roads, telecommunication, shipping etc,this have resulted to changing of trasaction costs that have hindered trade, hence cutting down on competition with regard to various countries products in market of the world. Furthermore, because of the areas of public expenditure, this have called for the placement of importance of expenditure on growth enhancing sector of the economy of which infrastructure are highly placed and regarded.

According to Edame *et al.* (2010) Investment in infrastructure stimulates or crowds in private investment, reduces cost and opens new markets thereby engendering profits and employment. On the other hand, investment in infrastructure in third world countries has been reported to be suboptimal as reported by (Haller and Diamond, 1990; World Bank, 1994).Following from above, a country that is not developed infrastructurally , has the efficiency of increasing its gross output if its infrastructure on the other hand is developed.

A number of studies that have been carried out on public expenditure in general had concentrated on the growth trend on public expenditure nationally and on state basis in Nigeria include (Phillp, 1971; and Lambo, 1987). Others considered the effect of public expenditure on infrastructure (specifically) on economic growth and obtained positive signs using the Ordinary Least Squares (OLS) technique of estimation which was mostly used and this may not be good enough were data are basically not static as this results in false regressions and long-run economic growth could not be ascertained. (Odedokun, 1997; Odedokun, 2001). Randolph *et al.* (1996), and Chakaravorty and Mazumdar (2006), Though there have been some empirical work on the factors that influence public expenditure on some infrastructure like roads, telecommunication and energy in Nigeria, there is a dearth of published empirical study on the determinants of public infrasturaral sending and economic growth , through Cointegration and

Error Correction approach.Speaking on the important value on infrastructure as regards a nation's economic growth, Cointegration and Error Correction modeling will be use in this study to arrest the disadvantages of the Ordinary Least Squares thereby providing a better established estimates of elasticity that will proffer reliable policy action.

Essentially, the broad objective of the present study is to analyze the impact of public infrastructure Spending and economic growth using available time series data in the country from 1970 to 2010.The dearth of empirical information as it bothers on macroeconomic perspective of expenditure on infrastructure in the area under study, makes the study in question quite expedient, especially with the need of investment in infrastructure on the total development of the economy.

The remainder of this paper is organized as follows: theoretical issues on which the model is founded. Next is the empirical results and discussion, while the last section provides policy recommendations and conclusion .

2. THEORETICAL ISSUES

The theoretical and empirical advancement towards public policy and development intervention in providing infrastructural development reflect the community's growing concern with social aspects of development, roads, water supply, electricity, steel-mills, dams and machine building industries have now been displaced from the commanding heights of development strategy, on the other hand, the so-called soft sectors such as education, health, telecommunication and transportation have occupied the centre stage of development (Mundle, 1998). However, certain public goods such as defense, administration, a clean environment, etc that cannot be provided by market, because no consumer can be excluded once these services are provided and hence consumers will not "buy" these services (Mundle, 1998).

3. METHODOLOGY

3.1. The Model

The hypothesized structural relationship between public expenditure growth and the factors that influence it will consist of a number of regression equations with expenditure on the specified infrastructure being the dependent variable. The model for the determinant of expenditure on infrastructure was a modified version of Chakraborty (2003), and Fan and Rao (2003).The structural form of the model is specified as follows: $FYit = \Phi Zit + \beta X it + Uit$ ---------- (3.1)

Where:

FYit = growth of expenditure on the specified infrastructure

Z = Vector of conditioning variables; Zit = Vector of fiscal variables on infrastructure in time t; Φ = Vector of parameters of conditioning variables; β = Vector of parameters of fiscal variables; Uit = error term

Equation 3.1 would be specified as:

$$PE = \beta o + \beta 1\ GREV + \beta 3POPD + \beta 7EXTRES + \beta 9OPN + \beta 10URB + \beta 12PEt\text{-}1 + \beta 13DUM + Ut \ldots\ldots (3.2)$$

Where:

PE = Public expenditure (N million)

GREV = Government revenue (N million) ($\beta 1 > O$)

POPD = Population density ($\beta 3 > O$)

EXTRES=External reserves (N) ($\beta 7 > O$)

OPN = Openness. This is measured as fraction of imports and exports in GDP$(X + M)/GDP$ ($\beta 9 > O$)

URB = Rate of urbanization. This is the annual percentage of total population living in urban areas ($\beta 10 > 0$)

PE_{t-1} = Lagged public expenditure ($\beta 12 < O$)

DUM= Dummy, indicating transition from military to democratic rule between 1970-1983 and 1985-1999(military rule);=1 1979 -1983 and 1999 -2010 (Civilian rule)=2

Ut = Error term, assumed to be distributed as *white noise*.

3.2. Model and Estimation Procedures

The estimation of the model follows the Johnasen procedure in co-integration.

This approach is necessary because it has been found that a large number of time-series data used in econometric analysis are non-stationary which means they have tendency to increase or decrease over time. The consequence of this behaviour is that the asymptotic convergence theorems, which underpin statistical estimation theory, are violated and hence such data cannot be used in regressions, since such regressions yield spurious results (Granger and Newbold, 1974).

3.3. Tests for Stationarity (Unit Root Tests)

To carry out the unit root test for stationarity, the Dickey-Fuller (DF) and Augmented Dickey – Fuller (ADF) tests used to examine each of the variables for the presence of a unit root .

The DF test assumes that the data generating process is a first-order autoregressive (AR1) process, and if this is not, the autocorrelation in the error term biases the test. The ADF is used to avoid such bias in the test since it includes the first difference in lags in such a way that the error term is distributed as white noise. The test formula for the DF and ADF are shown in equations (3.3) and (3.4) respectively.

$$\Delta Yt = \alpha + \rho Yt\text{-}1 + \varepsilon t \quad \ldots\ldots\ldots\ldots\ldots\ldots (3.3)$$

$$\Delta Yt = \alpha + \rho Yt\text{-}1 + \Sigma\gamma\Delta Yt\text{-}j + \varepsilon t \quad \ldots\ldots\ldots\ldots\ldots\ldots (3.4)$$

Here the significance of ρ would be tested against the null that $\rho = 0$. Thus if the hypothesis of non-stationarity cannot be rejected, the variables are differenced until they become stationary, that is until the existence of a unit root is rejected. The co-integration will therefore be tested.

The essence of co-integration test is to determine whether groups of non-stationary series are co- integrated or not. Engle and Granger (1987)pointed out that a linear combination of two

or more a stationary non-stationary series may be stationary. Thus, if such a stationary linear contribution exists, the non-stationary time series are said to be co-integrated. The stationary linear combination is called the co integrated equation and may be interpreted as a long- run equilibrium relationship among variables.

To test for cointegration, we use the ADF and we also consider the vector error correction model in Eq 3.1. Information about the number of co-integrating relationships among the variables in Zt is given by the rank of the Π-matrix: if Π is of reduced rank, the model is subject to a unit root; and if () < r <n, where r is the rank of Π, Π can be decomposed into two (n x r) matrices α and β, such that Π = β' Z t, where β zt is stationary . Here , α is the error correction term and measures the speed of adjustment in Δ zt and β contains r district co integrating vectors, that is relationships between non-stationary variables, as earlier mentioned.

The Johansen method uses the reduced rank regression procedure to estimate a and b and the trace test and maximal-eigen value test statistics were used to test the null hypotheses of at most r cointegrating vectors against the alternative that it is greater than r. Once this is established, the vector error correction model of the form given in Equations D Ln PEt = d10

$$+ \sum_{i=1}^{n} \delta_{11i}\Delta \text{ Ln PE}_{t-i} + \sum_{i=1}^{n} \delta_{12i}\Delta \text{ Ln GREV}_{t-i} + \sum_{i=1}^{n} \delta_{16i}\Delta \text{ Ln EXTRES}_{t-i} + \sum_{i=1}^{n} \delta_{18i}\Delta$$

$$\text{Ln OPN}_{t-i} + \sum_{i=1}^{n} \delta_{19i}\Delta \text{ Ln URB}_{t-i} - \alpha_1(\text{LnPE} - \text{LnGREV} - \text{Ln EXTRES} - \text{Ln OPN} - \text{Ln URB})_{t-i} +$$

$$\text{Ln DUM} + U_{1t} \text{----------} (3.5)$$

$$\Delta \text{ Ln EXTRES}_t = \delta_{20} + \sum_{i=1}^{n} \delta_{31i}\Delta\text{Ln PE}_{t-I} + \sum_{i=1}^{n} \delta_{32i}\Delta\text{LnGREV}_{t-i} + \sum_{i=1}^{n} \delta_{33i}\Delta\text{LnURB}_{t-i} + \sum_{i=1}^{n}$$

$$\delta_{35i}\Delta\text{LnOPN}_{t-i} + \sum_{i=1}^{n} \delta_{36i}\Delta\text{LnPOPD}_{t-i} - \alpha_2 \text{ (LnPE-LnGREV-LnURB-LnOPN-LnPODP-)}_{t-1} +$$

$$\text{LnDUM} + U2_t \text{----------} (3.6)$$

$$\Delta \text{ Ln GREV}_t = \delta_{30} + \sum_{i=1}^{n} \delta_{41i}\Delta\text{LnPE}_{t-i} + \sum_{i=1}^{n} \delta_{42i}\Delta\text{LnOPN}_{t-i} + \sum_{i=1}^{n} \delta_{43i}\Delta\text{LnURB}_{t-i} + \sum_{i=1}^{n} \delta_{44i}$$

$$\Delta\text{LnPOPD}_{t-1} - \alpha_3(\text{LnPE} - \text{LnOPN-LnURB} - \text{LnPOPD})_{t-I} + \text{LnDUM} + U_{3t} \text{----------} (3.7)$$

Where all the variables are as earlier defined and Δ is the first difference operator, δ_{10} to δ_{30} are the constant intercept term, while δ_{11} to δ_{44} are short – run coefficients and α_1 to α_3 are error correction mechanisms that measure the speed of adjustment from short-run disequilibrium to long-run steady – state equilibrium. U_{1t} to U_{3t} are error terms assumed to be distributed as white noise. The standard version of Eviews Econometric software was used for the estimations.

3.4 The Data

Secondary time series data was made use of in this study. The data were sourced from various issues of the Central Bank of Nigeria (CBN) Statistical Bulletin, World Bank, the International Financial Statistics (IFS) of the International Monetary Fund (IMF) and the Federal Bureau of Statistics (FBS).

4. RESULTS

The results of the unit root tests are presented in Table 4.1. The null hypothesis of the presence of a unit root (non-stationarity) was tested against the alternative hypothesis of the absence of a unit root (stationarity), PE(public expenditure), GREV (Government Revenue), URB (rate of urbanization and DUM (Dummy – Administration) were not stationary at their levels as shown by the calculated ADF statistics which are lower in absolute terms than the standard critical values. Thus, they were differencedonce each to make them stationary.

On application of the ADF test on their first differences, they all became stationary as indicated by the value of their respective ADF statistic which are both larger (in absolute terms) than the standard critical values, thus leading to the rejection of the null hypothesis. Following from above, it became obvious that the variables are integrated of order 1, that's are differenced once 1(1)

Conversely, POPD (population density), OPN (openness) and EXTRESS (External reserves) were stationary at their levels as the null hypothesis of the presence of a unit root in the series was rejected as shown by the higher values (in absolute terms) of the calculated ADF statistics compared with their respective critical values. In this regard, it is clear that these series are quite integrated of order zero, that is 1(0). We then proceed to discuss the results of the multivariate cointegration analysis. Since the time series are non-stationary, it became necessary to test for cointegration. By using the log-level form of the series, we estimate a multivariate cointegration relationship to establish the existence of a long-man equilibrium relationship.

4.1. Cointegration Tests

From our results, it is evident that one cointegrating equation that there is a unique long-man equilibrium relationship between public expenditure on infrastructure, government revenue, population density, openness, external measures, rate of urbanization and administration.

From the Johanson model which is a form of VECM however, where only one cointegrating vector exists, its parameters can be interpreted as estimates of the long-run cointegrating relationship between the variables concerned . Our cointegration coefficients normalized on public infrastructure Spending and Economic Growth in Nigeria is presented as long-run estimates in Table 4.2.

4.2. Results of Vector Error Correction (VECM) Model

The results of the VECM estimates for the determinants of public expenditure on infrastructure in Nigeria is shown in Table 4.2 below.

Both the long and short-run estimates, the parameter constancy (Chow test) cum diagnostics are presented. From the results, it can be observed that the model fits the observed data fairly well as indicated by the adjusted R^2 (0.9763) and F-statistic (152.3468) of the relevant error correction equation. Moreso, the signs of the coefficients meet *a priori* expectations. Thus, this implies that government revenue population density openness and external reserves jointly explain public expenditure growth on infrastructure during the periods under investigation.The above results seem domineering and faced with some important policy implications.

In the short-run government revenue is inelastic (0.1201) but with the sign conjectured, while in the long-run, government revenue is 0.0909 (inelastic). Clearly, both coefficients are inelastic and suggest that 10% increase in government revenue increases public expenditure by 1.201% in the short-run while less than unity (0.909%) in the long-run . This is an indication that a policy geared towards increasing public expenditure by increasing government revenue may not achieve its purpose, at least in the short-run.

In the same vein, the elasticity of the population density is -0.884 in the long-run, while the short-run estimate is 0.0248 both of which are inelastic and not significant respectively. Albeit the short-run estimate is appropriately signed in contrast to the long-run. This implies that a 10% rise in population density would reduce public expenditure by 0.884% in the long-run, while the same amount of increase in population density would increase public expenditure by 0.248% in the short-run .

Therefore, a rise in population density would evoke a proportionate increase in public expenditure growth in the long-run.By the same token, openness is 0.1461 and 0.0953 and is inelastic respectively for long and short-run estimates though with the signs conjectured. Only the short-run estimates were significant at 10% level. These results indicate that a 10% increase in openness would have a corresponding increase of 1.461% and 0.953% in public expenditure growth for long and short-run respectively.

Thus, this means policy actions to significantly encourage openness in the economy would be meaningful in the long-run compared to the short-run estimates. In addition,the long-run and short-run elesticities of the external reserves are inelastic though not appropriately singed at the long-run. Clearly, the external reserve is more desirable in the short-run than the long-run estimates. Therefore, increasing external reserves by 10%, for example, would increase public expenditure growth by 0.403% in the short-run .

In the long-run, the elasticity of rate of urbanization is – 2.0409 and the short-run estimates is – 0.0772 though with the expected signs, and not significant respectively.This implies that, a 10% rise in rate of urbanization would reduce public expenditure growth by 20.409% in the long-run, while the short-run changes is 0.772% based on *a priori* consideration. In the theoretical sense, a 10% rise in the rate of urbanization, evokes a greater than proportionate (about 20%) increase in public expenditure growth, at least in the long-run while a 0.772% could be achieved in the short-run during the prescribed periods.

The dummy (Military – Civilian Administration) showed an inverse relationship, but significant at the 1% level and explain changes in public expenditure growth.

This result indicates that the administration (Military/Civilian) impacted negatively though significantly on the growth in public expenditure during the periods under investigation. The speed of adjustment towards long-run equilibrium carries the expected negative sign and it is very significant at the 1% level.

The coefficient indicates a feedback of about 99.38% of the previous year's disequilibrium from the long-run elasticity of government revenue, population density, openness, external reserves and rate of urbanization.

This implies that the speed with which government revenue, population density, openness, external reserves and rate of urbanization adjust from short-run disequilibrium to changes in public expenditure growth in order to attain long-run equilibrium is 99. 38% within one year.

Table-4.1. Unit root tests Results

Variable level	ADF Statistic	Critical level 1%	Variable First Difference	ADF Statistic	Critical level 1%	Order of integration
PE	3.5845	-3.6892	Δ PE	-4.6481	-3.6998	1
GREV	-2.3444	-3.6268	Δ GREV	-4.8918	-3.7115	1
POPD	-4.4254	-3.6268	-	-	-	0
OPN	-6.3313	-3.6268	-	-	-	0
EXTRES	9.4235	-6892	-	-	-	0
URB	-3.0973	-3.6268	Δ URB	-5.1239	-3.6329	1
DUM	-1.4141	-3.6268	Δ DUM	-4.1228	-3.6329	1

Critical values of ADF tests is based on one-sided p-value.

The strong significance of the ECM support cointegrating and suggest the existence of a long-runequilibrium relationship between public expenditure growth on infrastructure and the aforementioned variables, which determines it.

These facts suggest that short-run changes in government revenue population density openness, external reserves and rate of urbanization remarkably shaped public expenditure growth in Nigeria from 1970 to 2010.

Table-4.2. Estimates of Long and Short-run Vector Error Correction Model (VECM) on Public Expenditure on infrastructure in Nigeria

Regressor	Coefficient			Standard error		t-statistic
			LONG-RUN ESTIMATES			
Ln PE (1)	1.000					
Ln GREV (1)	0.0909			0.0683		
Ln POPD (1)	-0.0884			0.0474		-1.8655
Ln OPN (1)	0.1461			0.0305		4.7868***
Ln EXTRES (1)	-0.1749			0.0457		-3.8256***
Ln URB (1)	-2.0409			0.6988		-2.9205***
Constant	-0.2983		**SHORT-RUN ESTIMATES**			
Error correction:	ΔLnPE	ln GREV	Ln POPD	Ln OPN	Ln EXTRES	Ln URB
Coint,Eq.1(ECM(-1))	-0.9938***	-0.1998	-0.0498	-0.3861	0.1168	0.0027
ΔLnPE (-1)	(0.0609)	(0.1726)	(0.2033)	(0/3540)	(0.2059)	(0.0077)
	-0.0354	0.2211	0.0326	0.0271	-0.0723	-0.0027
ΔLn GREV(-1)	(0.0405)	(0.1150)	(0.1354)	(0.2358)	(0.1372)	(0.0051)
	0.1201***	-0.7038	0.2371	0.4384	0.1289	0.0083
Ln POPD (-1)	(0.0557)	(0.1580)	(0.1860)	.3240)	0.1884)	(0.0070)
	***	0.0208	-0.5549	0.3686	0.0527	2.07E-
	0.0248					05
Ln OPN (-1)	(0.0437)	(0.1240)	(0.1461)	(0.2544)	(0.1480)	0.0055)
	0.9537	-0.0045	-0.0057	-0.5349	0.0422	0.0008
Ln EXTRES(-1)	(0.0211)	(0.0598)	(0.0704)	(0.1226)	(0.0713)	(0.0026)
	0.0403*	-0.0558	0.0341	-0.6982	-0.2802	-0.1442
ΔLn URB (-1)	(0.0571)	(0.1618)	(0.1906)	(0.3320)	(0.1931)	(0.0072)
	-0.772*	-3.0728	10.6926	-6.6791	1.7168	-0.3899
Constant	(1.1309)***	(3.2057)	(3.7756)	(6.5742)	(3.8240)	(0.1430)
	0.2085	0.0285	0.0004	0.0093	0.0050	-0.0058
Ln DUM	(0.0520)	(0.1474)	(0.1736)	(0.3022)	(0.1758)	(0.0065)
	-7.2893***	-0.9417	0.2909	1.0942	0.0816	0.0419
Diagnostics:	(0.3243)	(0.9192)	(1.0827)	(1.8852)	(1.0965)	(0.0413)
R^2	0.9827	0.5523	0..5478	0.7122	0.1817	0.4322
Adjusted R^2	09763	0.3845	0.3783	0.6043	-0.1251	0.2192
S.E equation	0.2982	0.8454	0.9958	1.7338	1.0085	0.0377
F-statistic	152.3468	3.2906	3.2315	6.6019	0.5922	2.0298
Log Likelihood	-1.1927	-36.6162	-42.1796	-61.0353	-42.612	69.1033
Akaike AIC	0.6583	2.7421	3.0693	4.1785	3.0948	-3.4766
Schwarz Criteria (Sc)	1.1073	3.1910	3.5183	4.6274	3.5437	-3.0277
Chow F(27,11)	1.8214					

Figures in parenthesis are standard errors: Chow (27, 11); critical value at 5% = 2.580; ***= 1% significant

The strong significance of the ECM support cointegrating and suggest the existence of a long-run equilibrium relationship between public expenditure growth on infrastructure and the aforementioned variables, which determines it. These facts suggest that short-run changes in government revenue, population density, openness, external reserves and rate of urbanization remarkably shaped public expenditure on economic growth in Nigeria from 1970 to 2010.

5. CONCLUSIONS AND RECOMMENDATIONS

One interesting thing about this study is that it attempt to compare methodological empirics of studies conducted by early researchers to the present one, which made use of the vector error correction approach. The study analyzed the macroeconomic impact of public expenditure on infrastructure and economic growth in Nigeria from 1970 to 2010 using cointegration and error correction mechanism approach. (ECM)

Results indicate that the response of rate of urbanization, openness, government revenue, external reserves, population density and type of government to public expenditure is high, particularly in the short-run and with a higher adjustment toward long-run static equilibrium. Thus, short-run changes in rate of urbanization, openness, government revenue, external reserves, population density and type of government (administration), remarkably shaped growth on public expenditure in Nigeria. On the contrary, the Vector Error Correction (VEC) show that the level of public infrastructure (road construction, water supply, electricity supply, transport/ telecommunication and housing/ environment is very low, particularly in the short-run and with a weak adjustment toward long-run static equilibrium. This result is very informative as it clearly shows the deterioration in our public utilities, which suggests that expenditure in the aforementioned infrastructure, has not yielded positive results over time.

The results of the error correction mechanism (ECM) indicates a feedback of about 99.38% of previous year's disequilibrium from long-run elasticity of rate of urbanization, openness, government revenue, external reserves, population density and type of government.

The analysis further revealed that public expenditure on infrastructure in Nigeria has been stable between 1970 and 2010 based on the Chow test results and the switching regression test. This indicates that public expenditure have been having predictable effect on the variables which influence it.

The study has shown that rate of urbanization, government revenue, population density, external reserves and type of government jointly or individually influence public expenditure on infrastructure in Nigeria, as indicated by their inclusion in the parsimonious model. Based on this analysis and the results earlier discussed, it is concluded that although expenditure on infrastructure has significantly influenced its growth. It is pertinent too, to investigate whether huge public expenditure truly influences development.

The study recommends the need for government and it agencies to monitor the expenditure on infrastructure, adhere strictly to *dueprocess* in accordance with the enabling fiscal policy and the Millennium Development Goal (MDG) blue prints. Specifically, these can be achieved via the following media;

(a) Government should adhered strictly on *dueprocess* as a pre-condition for the released of funds for execution of contracts in the affected areas,

(b) Government should appraise the state of infrastructure and include same in the annual budget with a view to monitoring the implementation after disbursing funds to the affected ones.

(c) A project (infrastructure) policy should be evolved to guide prospective contractors on the need to utilize funds meant for project on public utilities

(d) As a matter of policy, the presidency in collaboration with states government should legislate against liquidity not spent on budgeted projects and retired same to the government treasury on specific interval of time. This will guide against corruption and facilitate swift implementation of projects as specified by the "white paper" empowering such project.

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