

Government Capital Expenditure and Economic Growth: The Mediating Role of Corruption in Nigeria

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Abstract

This study investigated the impact of government expenditure on economic growth in Nigeria with the obtained data from 1996 -2022 using ARDL and the Toda Yamamoto causality test. Result shows a negative and significant impact of government capital expenditure on economic growth in the long run at 5% level. The study reveals unidirectional causality between government expenditure on economic growth 5% level of statistical significance. It was concluded that government capital expenditure adversely affect economic growth in Nigeria both in the long run and short run and economic growth negatively respond to the mediating impact of corruption and government expenditure in the long run but not in the short run. The study recommended among others that government should established a body that will be responsible for regular impact assessment of capital projects to enhance the effectiveness and efficiency of capital expenditure in the country.

Keywords: Government Capital Expenditure, Corruption, Economic Growth, ARDL, Nigeria

Introduction

The magnitude of economic growth and the level of development experienced in both developing and developed nations is a major concern among economies in the world. The main macroeconomic goal of every economy is to attain and sustain its economic growth and development (World Bank, 2023). In some developing countries like Nigeria, economic growth is constrained by many structural issues such as infrastructure gaps and unfavourable macroeconomic policy climate which seems to have retarded the development of the country. However, according to Onuoha and Okoye (2020), the level of economic growth of country is determined by several factors such as government spending.

However, it is contested that huge government spending stifles growth because of the high levels of inefficiency associated with government institutions and governance (Mishra & Mohanty, 2021). According to Okoye *et al.* (2019), the relationship between economic growth and government spending is dependent on how government spending is defined.

The importance of government intervention in the economy cannot be over emphasised. However, Public expenditures have been growing continuously over the years. In recent years, Nigeria has metamorphosed from billion to trillions of naira on the expenditure side of the budget (World Bank, 2023). Statistical evidence according to Budget Office of the Federation (BOF) showed that the expenditure side of the budget rise from N894 billion in 2001 to 1.35 trillion in 2005 and to ₦5.39 trillion in 2022, Nigeria (BOF, 2022). Earning revenue is very important, at the same time, channelling the revenue to create the right impact on the economy by achieving desirable macroeconomic goals and objectives is a more paramount matter that needs to be addressed.

The public sector spending has been increasing in geometric term through government various activities and interactions with its Ministries, Departments and Agencies (MDA's), (Onuoha & Okoye, 2020; Buthelezi, 2023.) Public expenditure either recurrent or capital expenditure, notably on social, security and infrastructure can be growth-enhancing. However, the persistent increase in government expenditure in Nigeria is expected to translate into meaningful growth, but unfortunately, according to World Bank (2020) Economic growth remains unstable

and the country is ranked among the poorest countries in the world. Therefore, whether government expenditure in Nigeria has assumed a strong role in achieving economic growth is therefore, an empirical issue that need to be investigated.

Furthermore, According to World Bank (2022) report that the trend of economic variables in Nigeria indicates that the country is still grappling with fluctuating economic imbalances evidenced by inconsistent growth rates, high level of inflation, unemployment, illiteracy and poverty.

In addition, Nwankpa (2022) argued that the rise in government expenditure may not trigger growth due to high rate of corruption in the economy, and consequently, Nigeria is ranked as a high corrupt country (Corruption Perceptions Index 2022). There is therefore an apparent gap between the perceived impacts of corruption on economic growth amidst persistence increase in government expenditure in the country. Although, the assertions that corruption retard economic growth are yet to be agreed upon and does not fully reflect empirical evidence in some studies (Alina, 2022; Essono & Ngouhou, 2021).

Literature Review

Conceptual Literature Review

The conceptual literature attempts to provide explanations about certain important concepts that are included in the research or variables. The considered concepts in this section are government expenditure and economic growth.

The Concept of Government Expenditure

Bhatia (2018) defines government expenditure as the expenses which a government incurs in its maintenance, the society, the economy and helping other countries, through monetary, health, food aid and other forms of partnerships. Government expenditure refers broadly to expenditure made by local, state and national government agencies. It also comprises of government payment on the goods and services acquired and for the works done security contributions, interest payment on domestic and foreign debts, general borrowing expenditure payment expenditure payment resulting from the discount sales of borrowing instruments, economic, financial and social transfers, donations and grants.

Thomas, (2019) maintained that public expenditure refers to the costs borne by public entities, such as the federal, state, and municipal governments, in order to deliver public goods and meet the general socioeconomic needs of the populace. Capital expenditure and recurrent expenditure are the two main categories under which government spending can be divided. Spending on items or projects like roads, airports, schools, telecommunications, and electricity production are examples of capital expenditures. Recurrent expenses, on the other hand, are sums paid by the government for administration, including salaries, interest on loans, maintenance costs, and transfer payments.

Concept of Corruption

According to Dankumo et al, (2020) Corruption is a global issue, not excluding Nigeria. It is menace to economic growth through government spending; it undermines government efforts and policies advanced to secure meaningful well-being for the citizenry. This study provides insights to this challenge by conceptualizing the concept, corruption, evaluating its evolution, causes and forms, and its impacts on the Nigerian economy through public expenditure.

The Keynesian Theory of Public Expenditure

According to the Keynesian theory, an increase in government expenditure leads to an increase in economic growth via an expansionary fiscal policy. When government spending increases, production also increases, and this leads to an increase in aggregate demand, which ultimately leads to an increase in gross domestic product

(GDP). Therefore, if government spending increases, all things being equal, output increases. Drawing on this notion, the researcher expect government expenditure to be positively related to economic growth in Ghana. Theoretically, the Keynesian theory generally argues that government intervention can smooth fluctuations in economic growth. Governments influence the economy by promoting social welfare by implementing appropriate economic, political, social, and legal programs (Jibir et al. 2019a).

Empirical Literature Review

Chinweoke and Chinagorom (2022) examined the impact of government recurrent expenditure on economic growth of Nigeria for the period 1981 – 2020. Vector Error Correction Model (VECM) was used to estimate the short run and the long run analysis of the study. Findings of the study revealed that government recurrent expenditure on administration, health, agriculture and pensions and gratuities had negative and insignificant impacts on economic growth in the short run while government recurrent expenditure on education had a negative and insignificant impact on economic growth of Nigeria in the both the short run and the long run. Government recurrent expenditure on health and agriculture had negative and significant impact on economic growth of Nigeria in the long run but government recurrent expenditure on administration had a positive and significant impact on economic growth in the long run. Government recurrent expenditure on pensions and gratuities had a positive and insignificant impact on economic growth of Nigeria in the long run.

Nworjiet al (2022) studied the effect of public expenditure on economic growth in Nigeria using a disaggregated time series for the period 1970 – 2019. Tool of analysis was ordinary least square (OLS) multiple regression model. Results of the analysis showed that capital and recurrent expenditure on economic services had a negative and insignificant effect on economic growth during the period of the study. Also, capital expenditure on transfers had a positive and insignificant effect on growth. But capital and recurrent expenditures on social and community services and recurrent expenditure on transfers had a positive and significant effect on economic growth.

Ojonugwaet al. (2021) examined the relationship between government expenditure and economic growth in Nigeria for the period 1970 to 2018.

Chinweoke and Chinagorom (2022) as well as Abu and Abdullah (2019) discovered government expenditure adversely affect economic growth. While some scholars such as (Nworji, et al. 2022; Ojonugwa, et al. 2021) reported positive impact of government expenditure on economic growth. However, the studies did not captured the effect of government expenditure using updated data.

The mediating role of corruption in government expenditure and its impact on economic growth in Nigeria has been rarely captured in the previous studies reviewed hence, a gap for further investigation.

Furthermore, Olopade (2020) confirmed the apriori expectation of a positive relationship between government expenditure and economic growth.

Methodology

Research Design

The study uses an ex-post factor research design to study the causes and the effect of relationships between government expenditure and economic growth. The study used secondary data obtained from Central Bank of Nigeria (CBN) Statistical Bulletin, the World Development Indicators of World Bank, and National Bureau of Statistics publication for the following variables: Real gross domestic product, Government capital expenditure, public debt servicing, Openness to trade, Corruption, exchange rate, and inflation for the time period of 1996-2022.

Model specification

RGDP = f (CEX, CORP, OPT, DBTS) -----1

In equation (1), RGDP indicates economic growth, CEXP represent government Capital Expenditure, CORP represent corruption, OPT is openness of trade, DBTS indicates Public Debt Servicing. The stochastic model is written as:

$$RGDP_t = \beta_0 + \beta_1 CEXP_t + \beta_2 CORP_t + \beta_3 OPT_t + \beta_4 DBTS_t + \varepsilon_t \text{-----}2$$

However, some of the variables were converted to natural logarithms, and the log-log model becomes:

$$\ln RGDP_t = \beta_0 + \beta_1 \ln CEXP_t + \beta_2 \ln CORP_t + \beta_3 \ln OPT_t + \beta_4 \ln DBTS_t + \varepsilon_t \text{-----}3$$

Where; α is the intercept, $\beta_1 - \beta_4$ are the coefficients to be estimated and ε_t is the error term.

The Moderating Impact of Government Expenditure and Corruption on Economic Growth in Nigeria

$$RDGP = f(GEXP * CORP, EXR, INFL) \text{-----}5$$

Where;

GEXP*CORP = Interactive term (GEXP and Corruption)

EXR = Exchange rate and

INFL = Inflation

The stochastic model is written as:

$$RDGP_t = \alpha_0 + \alpha_1 (GEXP * CORP)_t + \alpha_2 EXR_t + \alpha_3 INFL_t + \dots + \varepsilon_t \text{-----}6$$

The log transformed model was carried out to make the residual normally distributed thus, the transformed model is:

$$\ln RDGP_t = \alpha_0 + \alpha_1 (\ln GEXP * CORP)_t + \alpha_2 \ln EXR_t + \alpha_3 \ln INFL_t + \varepsilon_t \text{-----}7$$

Where; α_0 is the intercept, $\alpha_1 - \alpha_3$ are the parameters to be estimated and μ_t is the error term.

The transformed model is in log model but other variables in the model were not transform given that they are already in percent or rate.

Result and Discussion

Descriptive Statistics

The descriptive statistics in Table 1.1 provide a summary of the variables under study at a glance. It presents the average, maximum, minimum, skewness, kurtosis and the Jaque-Bera statistics of the variables. These variables include economic growth, government capital expenditure, corruption, openness of trade and debt servicing.

Table 1: Descriptive Statistics

	RGDP	CEXP	CORP	OPT	DBTS
Mean	63378.89	1311.869	11.66852	294.7057	4.806926
Median	43012.51	783.1224	2.400000	281.6979	3.822815
Maximum	199336.0	6335.585	28.00000	574.6175	15.41074
Minimum	4045.322	212.9263	0.690000	66.69289	0.253938
Skewness	0.791357	1.943469	0.387156	0.147621	0.767252
Kurtosis	2.531791	5.855716	1.173916	1.914933	2.309497
Jarque-Bera	3.064726	26.17133	4.425906	1.422606	3.185435
Probability	0.216025	0.000002	0.109377	0.491004	0.203372
Observations	27	27	27	27	27

Source: Author's Compilation from E-views 10

From Table 1 reveals the mean value of ₦63378.89 billion, ₦1311.869 billion and 11.66852 for economic growth (RGDP), government capital expenditure and corruption respectively. The mean value of 294.7057 and 4.806926 were reported for openness of trade and debt servicing during the study period. The corresponding median values of 43012.51, 783.1224, 2.400000, 281.6979 and 3.822815 for economic growth, government capital expenditure,

corruption, openness of trade and debt service indicates that the data for the variables are relatively close to their means, suggesting moderate dispersion.

The maximum value of ₦199336.0 billion was reported for economic growth during the study period, ₦6335.585 billion for government capital expenditure, 28.00000 for corruption, 574.6175 for openness of trade and 15.41074 for debt service. While the minimum value of economic growth was ₦4045.322 billion, ₦212.9263 billion for government capital expenditure, 0.69% for corruption 66.69% for openness of trade as well as 0.253938 for debt service.

On the basis of skewness, the results indicate that economic growth, government capital expenditure, corruption, openness of trade and debt service has positive skewed values. This implied that the data distribution for the variables is tilted towards large values or the distributions lean towards higher values. The Kurtosis which measures the peakedness of the distribution shows the value of 5.855716 for government capital expenditure which is greater than 3 indicating extreme positive kurtosis (leptokurtic shapes). This suggests that the distributions have pronounced peak and heavy tails. However, economic growth, corruption, openness of trade and debt service with 2.531791, 1.173916, 1.914933 and 2.309497 are considered to have Kurtosis values of less than 3 (platykurtic shape), which implies that the distributions are more widely spread around the mean with flatter slopes.

Unit Root Tests Results

The unit root test was conducted to ascertain the stationarity of variables in the model before estimation. The Augmented Dicker-fuller (ADF) and Phillips-Perron (PP) unit root tests were used in this study to validate the stationary of the data. The Augmented Dicker-Fuller test result is presented in Table 2

Table 2: Results of the ADF Unit Root Test

Variable	Level	5% Critical Level	1 st Difference	5% Critical Level	Order of Integration
LNRGDP	-3.284405	-2.998064	-1.289412	-3.004861	I(0)
P-Value	0.0277		0.6155		
LNCEXP	-0.229446	-2.981038	-5.598648	-2.986225	I(1)
P-Value	0.9227		0.0001		
CORP	-0.956266	-2.981038	-5.457127	-2.986225	I(1)
P-Value	0.7532		0.0002		
OPT	-0.718211	-2.981038	-5.300809	-2.986225	I(1)
P-Value	0.8250		0.0002		
DBTS	-2.071226	-1.954414	-5.371946	-1.955681	I(0)
P-Value	0.0389		0.0000		

Source: Extracts from Eviews 10

The ADF unit root results in Table 2 show that the series exhibits different or mixed stationary result. Economic growth and debt service are integrated at level or stationary without differencing while government capital expenditure, corruption and openness of trade became stationary at first difference or integrated at order one. The stationarity properties of the model variables were confirmed by applying PP unit root test as shown in table 1.3.

Impact of Government Capital Expenditure on Economic Growth in Nigeria

Before examining the impact of government capital expenditure on economic growth, the study used ARDL bound test to determine the existence of long-run interaction of the model variables in Nigeria as shown in Table 3

Table 3: Result of ARDL Bounds Test

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.726708	10%	2.68	3.53
K	4	5%	3.05	3.97
		2.5%	3.4	4.36
		1%	3.81	4.92

Source: Extracts from Eviews 10

The AEDL bound test result in table 3 shows a long-run interaction among the variables included in the model. The F-statistic value of 5.726708 is greater than the Pesaran Upper Bound critical value of 3.97 and the asymptotic value of 3.05 at the 5% significance level. Additionally, the upper bound critical value surpasses the lower bound critical value at the 5% significance level. This implies that the model variables are related in the long run therefore, the ARDL long-run estimated coefficients are used for policy purpose.

Long run Impact of Government Capital Expenditure on Economic Growth in Nigeria

The long run coefficients that explains the impact of government capital expenditure on economic growth in Nigeria is shown in table 4

Table 4: ARDL Long run Estimated Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNCEXP	-0.833519	0.117777	-7.077111	0.0000
CORP	-0.028180	0.006051	-4.657019	0.0007
OPT	0.003623	0.000686	5.282605	0.0003
DBTS	-0.008475	0.010444	-0.811432	0.4343
C	0.202286	0.017586	11.50241	0.0000

Source: Extracts from Eviews 10

The long run result in table 4 reveals a negative impact of government capital expenditure on economic growth in the long run and the coefficient of government expenditure is statistically significant at 5% level. The result means a percent increase in government capital expenditure reduces economic growth in long run by 0.83% during the study period, implying failure of government expenditure to promote Nigerian economic growth. The study also found that corruption has negative and statistically significant impact on economic growth at 5% level. The negative impact of corruption on economic growth in Nigeria signifies that a unit increase in corruption reduces economic growth by 2.8% during the study period. In contrast to the above, the impact of openness of trade on economic growth is positive and statistically significant at 5% level. This means that economic growth improves by 0.36% due to a unit increase in the openness of trade during the study period. On the other hand, the study found that economic growth respond adversely to debt service in the long run even though, the coefficient of debt service is not statistically significant at 5% level. The negative but not statistically significant impact of debt service on economic growth may be due to the fact that debt service constitutes linkage and cost to the economy.

Short run Impact of Government Capital Expenditure on Economic Growth in Nigeria

The short run impact of government capital expenditure on economic growth in Nigeria was examined using ARDL Error Correction and the result is presented in Table 5

Table 5: Short run ARDL Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNCEXP)	-0.137188	0.025629	-5.352761	0.0002
D(CORP)	-0.009641	0.002104	-4.581859	0.0008
D(OPT)	0.000556	0.000151	3.679291	0.0036
D(DBTS)	-0.004456	0.002191	-2.033560	0.0668
ECT(-1)	-0.447294	0.063271	-7.069550	0.0000

Source: Eviews Output

The estimated result shows that in the short run, government capital expenditure has negative and statistical impact on economic growth in Nigeria at 5% level. The outcome signifies that a percent increase in government expenditure reduces economic growth by 0.13% in the short run. The coefficient of corruption was negative in the short run. This shows that corruption affect economic growth negatively and statistically significant at 5% level, implying that a unit increase in corruption declines Nigerian economic growth by 0.96%. Contrarily, the impact of openness of trade on economic growth in the short run is positive and significant at 5% level. It indicates that economic growth improves by 0.05% as a result of a unit increase in trade openness in Nigeria. The impact of debt service on economic growth in the short run is negative but the coefficient is not statistically significant at 5% level. The negative impact of debt service insinuates that the debt servicing cost are not r signal to economic progress.

The error correction coefficient (ECT) in Table 5 is negative and statistically significant at 5% level. This implies that deviation in the long run path will revert back to the equilibrium with an adjusted speed of 44% within the shortest possible time.

Short Run Moderating Impact of Corruption and Government Expenditure on Economic Growth

The study further examined the nature of the moderating impact of corruption and government expenditure on economic growth as presented below.

Table 6: Short run Moderating Estimated Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LN(CEXP*CORP)	0.097137	0.294900	0.329390	0.7453
D(EXR)	-0.001035	0.000494	-2.094377	0.0506
D(INFL)	-0.038923	0.010934	-3.559879	0.0020
ECT(-1)	-0.268448	0.049209	-5.455207	0.0001

Source: Eviews 10 Extract

The short run result shows that the coefficient of the mediating impact of corruption and government expenditure is positive but not statistically significance at 5% level. That is the positive response of economic growth to the interactive impact of corruption and government expenditure implies that the influence of the variables may not be long lasting. The study however unveils a negative and significant impact of exchange rate on economic growth during the study period. It implies that in the short run, economic growth improves as a result of decrease in exchange rate in Nigeria. The impact of inflation on economic growth in the short run was negative and significant at 5% level. Thus, economic growth decreases by 3.8% due to a unit increase in inflation rate in Nigeria.

The Causal Relationship between Government Expenditure and Economic Growth in Nigeria

The causal relationship between government expenditure and economic growth was investigated using Toda Yamamoto (TY) causality test as the result is in table 1.14.

Table 7. Causality Result

Dependent variable: LNRGDP			
Excluded	Chi-sq	df	Prob.
LNCEXP	5.895290	2	0.0425
CORP	1.591852	2	0.4512
OPT	1.393340	2	0.4982
DBTS	4.469111	2	0.1070
All	15.78530	8	0.0456
Dependent variable: LNCEXP			
Excluded	Chi-sq	df	Prob.
LNRGDP	4.940602	2	0.0846
CORP	2.166818	2	0.3384
OPT	8.790392	2	0.0123
DBTS	0.149249	2	0.9281
All	10.61035	8	0.2248

Source: Extract from Eviews 10

The Toda Yamamoto (TY) causality result in table 1.14 reveals unidirectional causality between government expenditure on economic growth 5% level of statistical significance. The causality runs from government expenditure to economic growth. It implies that government expenditure contains vital information that are capable of predicting the future values of economic growth in Nigeria. The study also found a unidirectional causality between openness of trade and government expenditure at 5% level of statistical significance. This means openness of trade can be used to predict economic growth in Nigeria.

Discussion of Findings

Findings of the study shows a negative impact of government capital expenditure on economic growth in the long run and the coefficient of government expenditure is statistically significant at 5% level. The result means a percent increase in government capital expenditure reduces economic growth in long run, implying failure of government capital expenditure to promote Nigerian economic growth. The implication of this finding is that persistence rise in government capital expenditure has not been fully utilized efficiently on projects to trigger economic growth during the study period. The result is not in line with theoretical expectation but affirmed with the study of Devajaran, *et al.* (2017). However, this finding disagrees with empirical result of Ojonugwa, *et al.* (2021) who found positive effect of government capital expenditure on economic growth. The study also found that corruption has negative and statistically significant impact on economic growth at 5% level. The negative impact of corruption on economic growth in Nigeria affirmed with the a priori expectation and it signifies that as corruption increase by one percent, economic growth declines during the study period. The implication of the result is that high rate of corruption practices is detrimental to the growth of the country and the finding is in line with the study of Nwankpa (2022).

Conclusion

This study examined the impact of government expenditure on economic growth in Nigeria with the obtained data from 1996 -2022 using ARDL and the Toda Yamamoto test estimation. Based on the findings, the study concluded that government capital expenditure adversely affect economic growth in Nigeria both in the long run and short run. Also, the economic growth negatively responds to the mediating impact of corruption on government expenditure.

Recommendations

- i. Government should establish a body that will be responsible for regular impact assessment of capital projects to mitigate the negative impact on economic growth.

- ii. Study recommends that government should improve on her efforts to reduce corruption in the country. This can be achieved through adopting more transparent processes of governance, monitoring funds allocated to capital expenditure as well as implementing life imprisonment for people that are found guilty for corrupt practices as it is done in advanced countries.
- iii. Government should prioritize expenditure on capital projects since it can predict future trend of economic growth in Nigeria.

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