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Public Spending and Economic Growth Nexus: Recent Evidence from Nigeria

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Abstract

This paper utilized annual time series data from 1996 to 2024 to explore the effect of government expenditure and corruption on Nigeria's economic growth. The study employed the Fully Modified Ordinary Least Squares (FMOLS) since our variables recorded higher order of integration. From the result, it was observed that total government expenditure negatively impacted on Nigeria's economic growth insignificantly while corruption exerted a statistically significant negative effect. By disaggregating government expenditure into function (capital and recurrent) components, our result portrayed that while capital expenditure exerted significant positive effect on economic growth, the recurrent component exerted a significant negative effect on economic growth in Nigeria. Further disaggregating the model into sectoral basis portrayed that while expenditure on economic services and that of social and community services are growth-enhancing, government expenditure administration and transfers do not spur growth. In all these disaggregation's, corruption still exerts deleterious significant effect on Nigeria's economic growth. The paper therefore recommended the need to reallocate government expenditure, improve efficiency of government spending and strengthen institutions, prioritize spending, enhance transparency and accountability, and monitor and evaluate public spending.

Keywords:

Government Expenditure, Economic Growth, Corruption, Institutions, FMOLS.

1. Introduction

Economists and policymakers have done considerable work researching the link between public expenditure and economic growth. According to the Keynesian perspective, public expenditure can stimulate economic growth by providing increased aggregate demand and encouraging other economic activity (Keynes, 1936). Public expenditure can therefore be used to mitigate the effects of an economic downturn and to encourage economic recovery. In Nigeria, public expenditure is an important aspect of fiscal policy, as it is utilized to tackle various socio-economic challenges, such as poverty, unemployment, and poor infrastructure (CBN, 2020). Since the economy relies heavily on oil exports (approximately 90% of export revenues) to finance government revenue (OPEC, 2020), this has increased the economy's susceptibility to fluctuations in global oil prices and large boom-and-bust cycles (CBN, 2020).

Government spending in the Nigerian economy fluctuates greatly based on the price of oil; when oil prices are high government spending increases and conversely when oil prices decrease government spending decreases (CBN, 2020). The amount of government spending has increased from ₦4.2 trillion in 2010 to ₦9.7 trillion in 2019, which accounts for a 140% increase in total government spending with a further increase to ₦19.8 trillion in 2023. The increase in government spending has not been accompanied by any significant increase in the rate of economic growth. During the period of 2015 to 2024 the GDP growth rate averaged only 1.74%, while it averaged 7.16% during the early years of the 2000's (World Bank, 2024).

There have been mixed results from empirical studies regarding the extent to which government spending promotes economic growth. Some studies Barro (1990) & Wagner (1893) supports the argument that government spending can stimulate the economy through various aspects such as infrastructure and human capital investments; an example is the work by Asigbuigh (2016) which showed that Nigerian economists agree that investment in infrastructure yields positive results on overall economic growth in Nigeria. Oyinlola & Oyinlola (2011) demonstrate through their research that both education and health expenditures also produce positive results on overall economic growth in Nigeria.

While there are examples of research showing that public spending will impact private investments, potential for negative effects from expanded government spending include limiting available funds for private investments (crowding out) and resulting in excessive government spending through waste. Adebayo (2018) opined that Nigeria's economy has been negatively affected by government spending as a result of potential government and private sector mismanagement. Nigeria's poor infrastructure including roads, electricity, healthcare services (World Bank, 2019) have been cited by the World Bank as hampering Nigeria's growth and development. The type of government spending will also have differing effects on economic growth depending upon what is being purchased. For instance, an investment in infrastructure (roads and/or bridges) is likely to positively impact economic growth by reducing transportation costs and increasing connectivity (Asigbugh, 2016). Conversely, an investment into operating expenses (i.e. salaries) likely has minimal impact on economic growth (Adebayo, 2018).

Corruption, mismanagement and lack of transparency have further complicated the relationship between government expenditure and economic growth in Nigeria due to corruption, mismanagement and lack of transparency (Transparency International, 2024) as shown by the corruption perception index of 26 in 2024. Weak institutions and poor governance have been major constraints to the ability of government to spend effectively (World Bank, 2019). Therefore, it is necessary to evaluate the effect of government expenditures upon economic growth in Nigeria and must be examined within the context of Nigeria's specific situation and challenges. This study intends to make a contribution to the economic literature on the effects of government expenditure upon economic growth in Nigeria by conducting an analysis of the effect of government expenditure upon the economic growth in Nigeria, and by identifying what components of government expenditure promote economic growth. The study used a time series analysis to address the timeframe of 1996 through 2024 and conducts econometric analysis from the available data. The specific objectives are: (a) To examine the effect of total government expenditure on economic growth in Nigeria; (b) To explore the effect of functional government expenditure components on Nigeria's economic growth; (c) To investigate the influence of sectoral government expenditure components on economic growth of Nigeria; and

(d) To determine the effect of corruption in government spending on economic growth of Nigeria.

The remainder of this study includes the following: the subsequent section provides a literature review regarding the relationship between government expenditure and economic growth; the next section discusses the methodology employed; then, results are being provided; and finally, conclusions and policy recommendations are provided.

2. Literature Review

The theoretical foundation of this study is the debt-growth theory. Fiscal policy can materially affect economic growth, according to the fiscal theory of economic growth; thus, the fiscal policy affects the economy via various channels; government spending and taxation on goods/services, redistributing income, providing incentives to invest and innovate, etc. This theory has been tested in numerous studies; many have validated the fiscal theory of economic growth; countries include Easterly & Rebelo (1993) and Kneller et al. (1999). For example, Easterly & Rebelo (1993) determined that fiscal policy materially affects developing nations; yet studies like Levine et al. (1992) argue their findings lack robustness.

Empirical studies on the nexus between government expenditure, institutional quality and economic growth have been explored in diverse studies. The relationship of fiscal expenditure and economic growth of West African emerging economies was studied by Lei et al. (2024). This study draws on the World Bank World Development Indicators for a period of 1999 to 2023 from 10 West African countries to measure the effect of fiscal expenditure on the economic growth of West African emerging economies using the pooled ordinary least squares (OLS) and the generalized method of moments (GMM) analysis of panel data analytical techniques. The study also analyzed the data using the Panel Corrected Standard Errors (PCSE) to verify the robustness and validity of the findings. The results of the study provide support for the Keynesian position that capital expenditures had a positive and statistically significant relationship with the economic growth of the emerging West African economies. Conversely, recurrent expenditures were found to be negatively related to the economic growth of emerging West African economies in pooled OLS and GMM models. As a result, West African policymakers need to reduce wasteful recurrent expenditures such as administrative overhead, while reallocating fiscal resources carefully to the capital investments that are likely to yield a profit, such as infrastructure and technology, to quickly increase production and reduce waste. The combination of these actions with improvements in the productivity of labor and the efficiency of trade could be a catalyst to stimulate economic growth in the region as a whole.

Udonwa and Effiong (2023) investigated how public spending can affect the economy by looking at whether or not recurrent expenditures are neutral or not, as well as determining whether or not the interaction between the two parts of public spending and monetary policy (interest rates) impact on economic growth in Nigeria. The researchers looked at data from 1981 through 2021 and used the ARDL approach to analyze their findings. The results revealed that recurrent expenditures have a positive and statistically significant relationship with economic growth, therefore demonstrating that recurrent expenditures are non-neutral with respect to economic growth. The interaction terms of recurrent expenditure and monetary policy show a negative relationship between recurrent expenditures and economic growth, although the lagged impact of recurrent expenditures on economic growth is positive, statistically significant, and one period after the analysis of the variable in question has ended.

In the long run, recurrent expsenditures will exhibit a positive but statistically insignificant relationship with the macroeconomy demonstrating that recurrent expenditures have not been shown to have a valid relationship to economic growth in the long-run. This is further supported by the results which show that the interaction of recurrent expenditures with monetary policy has a negative and insignificant relationship between the two variables. The policy implications from these results suggest that recurrent expenditures can only be considered to have a non-neutral impact on the macroeconomy in an economic context over the short-term.

A Study of Nguyen & Bui (2022) focused on determining if government expenditure positively or negatively impacts GDP growth in countries with varying levels of corruption control. They examined 16 Asian Emerging Market Developing Economies (EMDE) using 2002-2019 data to determine how much each type of expenditure and their subsequent growth would be affected by their existing state of corruption control before implementing them. They used two methods to estimate their models, namely Generalized Method of Moment (GMM) and Threshold Models of Growth. Their key findings indicate that government expenditures had a negative effect on GDP growth rates while simultaneously increasing the ability for each EMDE to grow, with the exception of those countries with low levels of corruption control (greater than 10%). A significant finding of this research is that by having better levels of both government spending and corruption, countries could potentially benefit more than if either were to be limited in quantity. One intriguing conclusion of this study is that the combination between government spending and corruption control might lessen the degree of these two factors' detrimental effects on economic growth. Therefore, if corruption control is higher than the threshold value of 0.01, EMDEs in Asia can benefit from government spending on economic growth.

The study by Tammar (2021) utilized a dataset containing fifteen developing countries to evaluate the relation between government expenditures and economic growth from 2005-2019. The analysis employed the Pooled Mean Group Estimator (PMG) to estimate the parameters of the study model. Results indicated a substantial and significant relationship exists between government expenditures and economic growth in developing nations in both the short term and long term. The findings are consistent with earlier studies among many other researchers including Keynesian economists who believe that government expenditures are a critical component of overall aggregate demands which positively impact GDP through developing new sources of income for people and in turn increasing productivity and consumption by economic agents.

Effiong and Inyang (2020) investigated how government spending affected the economic growth of fifteen (15) West African nations. The study used the fixed effects least squares dummy variable (LSDV) panel regression technique and the ordinary least squares (OLS) approach to assess how government spending affected West Africa's overall economic development. The study's conclusions showed that all 15 West African nations' economic growth is positively and significantly impacted by government spending. Additionally, the results of the panel regression show that government spending has a positive and considerable impact on economic growth. However, according to the Wald test, the significance's size differs by nation.

Numerous studies have looked at the indirect effects of corruption control on economic growth through government spending in addition to those that assess the direct impact of corruption control on economic growth. In actuality, corrupt government officials frequently spend money on initiatives that allow them to conceal and receive bribes. Accordingly, corruption may result

in wasteful government spending (Dzhumashev, 2014; Keefer and Knack, 2007). Therefore, it seems sense that reducing corruption indirectly affects economic growth through government spending. Numerous empirical research also finds this influence. For instance, Hodge et al. (2011) contended that by lowering government consumer spending, corruption can stimulate economic growth in 81 nations. Additionally, by decreasing investment in both human and physical capital, corruption can impede economic progress in these nations.

Ugur (2014) discovered that corruption may impede economic growth through public financing after synthesizing the findings of 29 other research. Furthermore, corruption can impact the government's spending structure and skew budget income. More specifically, d'Agostino et al. (2016) found a strong correlation between corruption and government spending in 106 nations. Even if these two elements have detrimental effects on economic growth, effective corruption control can lessen the degree to which government spending has a detrimental effect. According to Nan's (2022) study, nations should more effectively execute both government spending allocation and corruption control since these two aspects may be strongly associated. From an alternative perspective, Alfada (2019) pointed out that the relationship between government spending and corruption has no effect on Indonesia's economic growth. Overall, several prior studies have shown that government spending and the fight against corruption directly affect economic growth.

Nonetheless, there are still a lot of divergent opinion in this research, particularly over the degree to which government spending and corruption control affect economic growth. Additionally, research by Hodge et al. (2011) and d'Agostino et al. (2016) suggested that corruption control might indirectly impact economic growth through government spending. Therefore, d'Agostino et al. (2016) showed that controlling corruption can lessen the degree to which government spending has a detrimental effect on economic growth.

The empirical studies have reported mixed results on the nexus between public expenditure on economic growth, and how corruption affects growth. This creates a research gap which this study intends to utilize recent data from 1996 to 2024 to explore how public spending and corruption influences Nigeria’s economic growth.

3. Research Methodology

3.1 The Model

The model for this study is adopted from empirical works by Effiong and Inyang (2020) for the aggregated model, and Udonwa and Effiong (2023) for the disaggregated model. The aggregated model which aims at evaluating the effect of government expenditure on Nigeria’s economic growth is presented as follows:

To examine the effect of total government expenditure on economic growth in Nigeria notional functional form of the model is given as,

$$RGDPG_t = f(TEXP_t, CPI_t, INTR_t, INFR_t, GFCF_t, EXC_t) \quad (1)$$

Where RGDP is the growth rate of real gross domestic product (measuring economic growth), TEXT is the total government expenditure (% of GDP), CPI is corruption perception index (a measure of institutional quality), INTR is the interest rate (%), INFR is inflation rate (%), GFCF

is the gross fixed capital formation (% of GDP, a measure of capital stock), and EXC is the average naira-dollar exchange rate. By econometric transformation of Equation (1) we have

$$RGDPG_t = \alpha_0 + \alpha_1 TEXP_t + \alpha_2 CPI_t + \alpha_3 INTR_t + \alpha_4 INFR_t + \alpha_5 GFCF_t + \alpha_6 EXC_t + e_t \quad (2)$$

Where α_0 is the intercept of the regression model, α_1 to α_6 are the partial slope coefficient of the regressors, and e is the stochastic term. It is expected that $\alpha_1 > 0$ to portray that total government expenditure exerts positive effect on economic growth.

To examine the disaggregated effect of government expenditure on economic growth, we first disaggregate total government expenditure into capital and recurrent expenditures. The notional functional form of the model is given as follows

$$RGDPG_t = f(\text{GCEX}_t, \text{GREX}_t, CPI_t, INTR_t, INFR_t, GFCF_t, EXC_t) \quad (3)$$

In which GCEX is the government capital expenditure (% of GDP), GREX is the government recurrent expenditure (% of GDP) and other variables are as earlier defined. The econometric form of the model is given as follows

$$RGDPG_t = \beta_0 + \beta_1 GCEX_t + \beta_2 GREX_t + \beta_3 CPI_t + \beta_4 INTR_t + \alpha_5 INFR_t + \alpha_6 GFCF_t + \alpha_7 EXC_t + e_t \quad (4)$$

Given Equation (4), it is expected that while $\beta_1 > 0$ to show that increased capital expenditure is growth-enhancing, it is rather expected that $\beta_2 < 0$ to portray that increased recurrent expenditure could be growth-inhibiting.

Finally, we disaggregated government expenditure on sectoral basis into expenditure on administration, expenditure on economic services, expenditure on social and community services, and transfers. The notional functional form of the model is presented as follows

$$RGDPG_t = f(GXAD_t, GXES_t, GXSC_t, GXTR_t, CPI_t, INTR_t, INFR_t, GFCF_t, EXC_t) \quad (5)$$

Where GXAD is expenditure on administration (% of GDP), GXES is expenditure on economic services (% of GDP), GXSC is expenditure on social and community services (% of GDP), and GXTR is expenditure on transfers (% of GDP). By econometric transformation, the empirical model therefore becomes

$$RGDPG_t = f(GXAD_t, GXES_t, GXSC_t, GXTR_t, CPI_t, INTR_t, INFR_t, GFCF_t, EXC_t) \quad (5)$$

$$RGDPG_t = \gamma_0 + \gamma_1 GXAD_t + \gamma_2 GXES_t + \gamma_3 GXSC_t + \gamma_4 GXTR_t + \gamma_5 CPI_t + \gamma_6 INTR_t + \gamma_7 INFR_t + \gamma_8 GFCF_t + \gamma_9 EXC_t + e_t \quad (6)$$

Based on Equation (6), it is expected that $\gamma_1 < 0, \gamma_2 > 0, \gamma_3 > 0, and\ \gamma_4 < 0$. The implication of this is that public expenditure on productive sectors of the economy will enhance economic growth.

3.2 Data Sources and Estimation Technique

The data for this study covers the period 1996 to 2024 (a total of 29 observations) with the study scope selected based on data availability on key variables of interest. Data on real GDP, government expenditure, interest rate, gross fixed capital formation, and exchange rate were obtained from the Central Bank of Nigeria (2024) statistical bulletin, whereas data on corruption perception index was obtained from Transparency International.

The estimation technique of this paper follows the Fully Modified Ordinary Least Squares (FMOLS) approach. The choice of the technique is based on the order of integration of the variables as reported by the Augmented Dickey-Fuller (ADF) unit root test. The test reported stationarity of the time series variables at higher order of first difference and second difference. This higher order of integration therefore makes the FMOLS to be the appropriate technique to be deployed in order to obtain consistent and unbiased estimates of the models.

4. Empirical Findings

4.1 Trend Analysis

The trend analysis depicted in Figure 1 shows how real GDP growth and government expenditure (% of GDP) have been moving over the years.

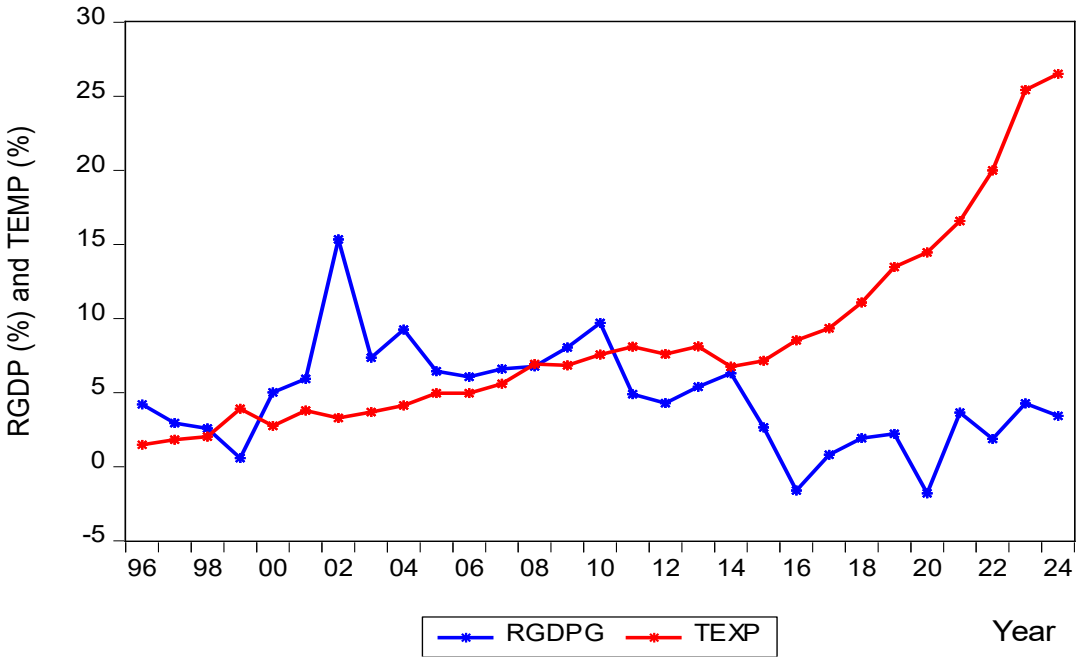

Figure 1: Trends of Real GDP growth and government expenditure, 1996 – 2024

The trend shows that government expenditure (% of GDP) has exhibited persistent increase (rising trend) over the years from 1.48% in 1996 to 7.56% in 2010. A further increase to 11.08% and 26.51% were recorded in 2018 and 2024 respectively. It could have been expected that the rising government expenditure should be accompanied by rising output growth however, such increase has been accompanied by periods of fluctuations in real GDP. For example, the period 2015 to 2024 was marked with rising trend of government spending (% of GDP) but the economy recorded fluctuating real GDP growth rate from 2.65% in 2015 to 1.92% in 2018 before recording the negative growth rate of -1.79% in 2020 due to the Covid-19 pandemic. The economy thereafter recovered to 3.65% growth rate in 2021, fluctuating to 1.87% in 2022 before reaching the peak (between 2015 to 2024) of 4.26% in 2023 with an accompanied fluctuation to 3.43% in 2024.

4.2 Descriptive Analysis

The measures of central tendency and measures of dispersion are calculated, and Table 1 presents the result.

Table 1: Descriptive statistics of the variables

	RGDPG	TEXP	CPI	EXC	GFCF	INFR	INTR
Mean	4.655	8.508	21.637	236.64	20.252	13.886	24.545
Median	4.279	6.924	24.00	150.29	16.555	12.537	23.787
Maximum	15.326	26.518	28.00	1478.96	35.378	33.242	30.600
Minimum	-1.794	1.479	6.900	21.88	13.666	5.388	18.362
Std. Dev.	3.512	6.554	5.789	275.30	7.606	6.490	3.874
Skewness	0.679	1.455	-0.988	3.396	0.986	1.360	0.015
Kurtosis	4.443	4.422	2.911	15.587	2.433	4.721	1.701
Observations	29	29	29	29	29	29	29

Source: Researcher Computation.

As observed from Table 1, the growth rate of real GDP recorded a mean value of 4.66% with maximum and minimum values of 15.33% and -1.79% respectively. The variable is positively skewed (skewness coefficient = +0.679) and leptokurtic (coefficient of kurtosis = 4.443 > 3). Likewise, the total government expenditure (% of GDP) averaged 8.51% with its maximum and minimum values being 26.52% and 1.48% respectively. The variable is also positively skewed (skewness coefficient = +1.455) and leptokurtic (coefficient of kurtosis = 4.422 > 3). Core importance can be made for corruption perception index which averaged 21.64, indicting high corruption, with the maximum and minimum values being 28 and 6.9 respectively.

4.3 Correlation Study

To establish the correlation between variables of interest, the Pearson correlation coefficient was computed, and Table 2 presents the findings.

Table 2: Correlation result

	RGDPG	TEXP	CPI	EXC	GFCF	INFR	INTR
RGDPG	1						
TEXP	-0.327	1					
CPI	-0.305	0.550	1				
EXC	-0.230	0.468	0.380	1			
GFCF	0.116	-0.642	-0.821	-0.445	1		
INFR	-0.070	0.550	-0.118	0.655	-0.177	1	
INTR	-0.367	0.587	0.402	0.505	-0.400	0.229	1

Source: Researcher Computation.

The result in Table 2 shows that economic growth (real GDP growth) have weak negative correlation with total government expenditure (r = -0.327), corruption perception index (r = -0.305), exchange rate (r = -0.230), inflation rate (r = -0.070), and interest rate (r = -0.367); where a weak positive correlation exists between RGDP and gross fixed capital formation (r = 0.116). These weak correlations should not be interpreted to mean that these variables do not have strong relationships since correlation does not imply causation. The correlation coefficients between the regressors are also observed to be less than 0.80 thereby portraying that there is no possibility of multicollinearity in the models to be estimated.

4.4 Stationarity Test

The stationarity test (unit root test) is conducted using the ADF test, and the result is presented in Table 3 where I (1) imply that the variable is stationary at first difference, and I (2) indicates stationarity at second difference.

Table 3: Augmented Dickey-Fuller unit root test result

Variables	ADF Statistic	5% Critical Value	p-value	Order of Integration
RGDPG	-7.5418	-3.5875	0.0000	I(1)
TEXP	-4.4203	-3.5875	0.0083	I(1)
CPI	-5.6110	-3.6220	0.0008	I(2)
EXC	-8.9747	-3.6220	0.0000	I(2)
GFCF	-7.9429	-3.5950	0.0000	I(1)
INFR	-4.0180	-3.5950	0.0209	I(1)
INTR	-7.7362	-3.5875	0.0000	I(1)

Source: Researcher Computation.

Given the result in Table 3, the rejection of the null hypothesis is predicated upon the significance of the ADF statistic at the 5% level. It therefore follows that the ADF statistics must be more negative than the 5% critical value. The result therefore shows that our variables exhibit stationarity at I(1) and I(2), with CPI and EXC being stationary at second difference and the other variables are stationary at first difference. With this order of integration, the OLS technique becomes inadequate to provide robust estimates for the models. Thus, we resort to the use of the Fully Modified Ordinary Least Squares (FMOLS) in the estimation which is suitable when the time series variables exhibit higher order of integration.

4.5 Cointegration Analysis

To check for the existence of cointegration (long run relationship) in the model, we resort to the use of Phillips-Ouliaris cointegration test technique since it is suitable when the variables exhibit higher order of integration. The results for each of the models are presented in Table 4.

Table 4: Phillips-Ouliaris cointegration test results

Model 1 Specification: RGDPG TEXP CPI INTR INFR GFCF EXC C			
Cointegrating equation deterministics: C			
Null hypothesis: Series are not cointegrated			
Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)			
		Value	Probability
Phillips-Ouliaris tau-statistic		-15.0122	0.0438
Phillips-Ouliaris z-statistic		-25.791	0.0106
Model 2 Specification: RGDPG GCEX GREX CPI INTR INFR GFCF EXC C			
Cointegrating equation deterministics: C			
Null hypothesis: Series are not cointegrated			

Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)			
		Value	Probability
Phillips-Ouliaris tau-statistic		-15.5856	0.0041
Phillips-Ouliaris z-statistic		-29.9673	0.0093
Model 3 Specification: RGDPG GXAD GXES GXSC GXTR CPI INTR INFR GFCF EXC			
Cointegrating equation deterministics: C			
Null hypothesis: Series are not cointegrated			
Long-run variance estimate (Bartlett kernel, Newey-West fixed bandwidth = 4.0000)			
		Value	Probability
Phillips-Ouliaris tau-statistic		-16.0681	0.0011
Phillips-Ouliaris z-statistic		-32.0017	0.0001

Source: Researcher Computation.

Given the result in table 4, it is observed that in all the three models, both the tau-statistics and the z-statistics are statistically significant, thereby warranting that the null hypothesis be rejected. Consequently, the conclusion that follows is that there are cointegrating relationships in the models. We therefore utilize the cointegrating regression analysis (the FMOLS) to estimate the parameters of the models.

4.6 Fully Modified Ordinary Least Squares (FMOLS) Estimation

Our analysis follows estimating the three models independently and the results are given in Table 5 for Model 1, Table 6 for Model 2, and Table 7 for Model 3.

Table 5: Fully Modified OLS estimates for Model 1

Dependent Variable: RGDPG				
Variable	Coefficient	Std. Error	t-Statistic	Probability
TEXP	-0.2296	0.1850	-1.2408	0.2284
CPI	-0.4907	0.1892	-2.5934	0.0170
INTR	-0.3149	0.1116	-2.8208	0.0114
INFR	-0.1557	0.1748	-0.8905	0.3833
GFCF	0.3667	0.1352	2.7120	0.0131
EXC	-0.0059	0.0045	1.3286	0.1983
C	32.7417	8.2142	3.9860	0.0007
R-squared	0.6168	Mean dependent var		4.6715
Adjusted R-squared	0.5915	S.D. dependent var		3.5758
S.E. of regression	3.3515	Sum squared resid		235.8810
Long-run variance	6.1669			

Source: Researcher Computation.

In Table 5, we present the empirical result on the effect of total government expenditure on economic growth in Nigeria. Our result negates the Keynesian postulation of a positive effect of government expenditure on economic performance. The result shows that government expenditure exerts an insignificant negative effect on economic growth. Possible reason to this

can be linked to high corruption and mismanagement of public resources by the government of Nigeria. This is evident in the significant negative effect of corruption on economic growth. The estimate implies that a 1% increase in CPI will lead to about 0.4907% decrease in economic growth. The established finding resonates with the result from Ugur (2014), d'Agostino et al. (2016), Nan (2022), and Nguyen & Bui (2022). Therefore, corruption is deleterious to the economic prosperity of Nigeria.

The result further shows that interest rates exert significant negative effects on economic growth whereas inflation has an insignificant negative effect. Thus, a 1% increase in interest rate reduces economic growth by about 0.3149% on average. This resonates with the fact that contractionary monetary policy stifles borrowing and investment which therefore pose a deleterious impact on the overall economic growth. Also, while gross fixed capital formation put forth a significant positive effect on economic growth, exchange rate possesses an insignificant negative effect. Consequently, a 1% increase in gross fixed capital formation prompts approximately 0.3667% increase in economic growth. The R^2 indicates that the regressors account for approximately 61.68% of the total changes in economic growth in Nigeria.

In Table 6, we present the empirical result of the effect of government capital and recurrent expenditure on Nigeria's economic growth. The result offers an impressive insight into the component of government expenditure that is growth-inducing or growth-inhibiting.

Table 6: Fully Modified OLS estimates for Model 2

Dependent Variable: RGDPG				
Variable	Coefficient	Std. Error	t-Statistic	Probability
GCEX	2.3319	0.8788	2.6535	0.0152
GREX	-1.1098	0.3397	-3.2673	0.0039
CPI	-0.5746	0.1495	-3.8436	0.0010
INTR	-0.1731	0.1242	-1.3940	0.1786
INFR	-0.2046	0.1379	-1.4837	0.1535
GFCF	0.5521	0.1242	4.4457	0.0002
EXC	-0.0081	0.0037	-2.1647	0.0427
C	35.3342	6.5243	5.4158	0.0000
R-squared	0.6816	Mean dependent var		4.6715
Adjusted R-squared	0.6651	S.D. dependent var		3.5758
S.E. of regression	3.2673	Sum squared resid		213.5040
Long-run variance	3.7995			

Source: Researcher Computation.

Our findings show that government capital expenditure is growth-inducing whereas the recurrent expenditure component is growth-inhibiting. This is because the capital expenditure component exerts significant positive effect on RGDP while the effect of the recurrent expenditure component was negative and significant. It therefore follows that a 1% increase in capital expenditure increases RGDP by about 2.3319% where a 1% increase in recurrent expenditure component stifles economic growth by about 1.1098% on average. This established finding justifies why our first model reported a negative effect of total government spending on economic growth since the government often allocates greater share of her expenditure to

recurrent components. Our finding supports the result obtained from the empirical work by Udonwa and Effiong (2023) where it was observed that the recurrent expenditure is not neutral on its effects on the economy.

Other findings are consistent with a priori expectations where corruption and exchange rate has significant negative effect on economic growth while interest rate and inflation have insignificant negative effect, but gross fixed capital formation has significant positive effect on economic growth. It follows that a 1% increase in corruption will lead to about 0.5746% decrease in economic growth in Nigeria, and a 1% increase in exchange rate results to about 0.0081% decrease in Nigeria's economic growth. On the contrary, a 1% increase in gross fixed capital formation results to about 0.5521% increase in economic growth in Nigeria. The R^2 shows that capital and recurrent expenditure along with the control variables account for roughly 68.16% of the overall variations in economic growth in Nigeria during the study period.

In Table 7, we further disaggregate government expenditure into four components – administration, economic services, social and community services, and transfers – to see the components that are growth-enhancing.

Table 7: Fully Modified OLS estimates for Model 3

Dependent Variable: RGDPG				
Variable	Coefficient	Std. Error	t-Statistic	Probability
GXAD	-1.3714	2.5564	-0.5365	0.5982
GXES	6.5279	2.5627	2.5472	0.0202
GXSC	6.7037	3.5945	1.8650	0.0786
GXTR	0.5536	0.3819	1.4497	0.1643
CPI	-0.5551	0.1395	-3.9804	0.0009
INTR	0.0859	0.1514	0.5672	0.5776
INFR	-0.2418	0.1566	-1.5436	0.1401
GFCF	-0.5774	0.1320	-4.3751	0.0004
EXC	-0.0054	0.0031	-1.7473	0.0976
C	32.9001	6.8929	4.7730	0.0002
R-squared	0.8021	Mean dependent var		4.6715
Adjusted R-squared	0.7731	S.D. dependent var		3.5758
S.E. of regression	3.0903	Sum squared resid		171.8974
Long-run variance	3.2344			

Source: Researcher Computation.

The result in Table 7 shows that while government expenditure on administration exerts an insignificant positive effect on economic growth, expenditure on transfers has an insignificant positive effect. Conversely, government expenditure on economic services and government expenditure on social and community services both exerted significant positive effect on economic growth in Nigeria. It therefore follows that expenditure on administration and on transfers are growth-inhibiting while those on economic services and social and community services are growth-enhancing. From the estimated parameters, a 1% increase in GXES will prompt Nigeria's economic growth to increase by about 6.5279% on average; while a 1% increase in GXCS will culminate to approximately 6.7037% increase in economic growth in Nigeria. The result further points out that the prevalent corruption in Nigeria negatively

impacted on Nigeria's economic growth with a 1% increase in CPI leading to about 0.5551% decrease in Nigeria's economic growth.

The estimates of other control variables in the model show that while the effect of interest rate on economic growth is positive but insignificant, inflation exerted an insignificant negative effect. Further, gross fixed capital formation exerted a significant positive effect on economic growth whereas the effect of exchange rate was negative and significant. It follows that a 1% increase in GFCF and EXC will lead to 0.5774%/0.0054% increase/decrease in Nigeria's economic growth. The R2 indicated that the explanatory variables jointly explain a total of 80.21% of the total variation in Nigeria's economic growth during the study period.

4.7 Diagnostic Test

We explored the diagnostic test using the Variance Inflation Factors (VIF) to check possibility of multicollinearity in the estimated models. The problem of multicollinearity surfaces when the centered VIF is greater than 5 or 10.

Table 8: Variance Inflation Factors (VIF) for Model 1

Variable	Coefficient Variance	Centered VIF
TEXP	0.032434	4.395415
CPI	0.033910	4.142177
INTR	0.021785	1.514667
INFR	0.028957	4.632877
GFCF	0.017322	4.274118
EXC	1.88E-05	4.671276
C	63.91760	NA

Source: Researcher Computation.

Table 9: Variance Inflation Factors (VIF) for Model 2

Variable	Coefficient Variance	Centered VIF
GCEX	0.772263	2.747257
GREX	0.115381	2.04102
CPI	0.022351	4.197965
INTR	0.015417	1.648088
INFR	0.019023	4.679535
GFCF	0.015421	3.850562
EXC	1.39E-05	2.588454
C	42.56640	NA

Source: Researcher Computation.

Table 10: Variance Inflation Factors (VIF) for Model 3

Variable	Coefficient Variance	Centered VIF
GXAD	0.535380	4.83187
GXES	0.567507	3.787319
GXSC	0.92014	3.13903
GXTR	0.145845	1.829027
CPI	0.019452	4.291684
INTR	0.022923	2.878672
INFR	0.024532	4.089021
GFCF	0.017416	3.762069
EXC	9.46E-06	3.067101
C	47.51219	NA

Source: Researcher Computation.

From Table 8 to Table 10 where the VIF results for the three models are presented, it can be noticed that none of the VIFs are greater than 5 or 10. Consequently, we conclude that our estimated models are free from multicollinearity and the estimated parameters present their unique individual effect on economic growth. Therefore, our parameter estimates are valid and reliable for drawing inferences.

4.8 Discussion of Findings

The empirical analysis has brought forward key findings that will guide our recommendations. They are discussed as follows.

a) Total government spending exerts an insignificant negative effect on economic growth in Nigeria: The lack of substantive negative consequences of total government spending on economic growth could result from the countervailing influences of various styles of spending. By example, capital purchases may yield more advantages than deficits associated with consistent or ongoing expenditures so that the net balance has no meaningful impact (Devarajan et al. 1996). Similar results were reported by Egbetunde & Fasanya (2013) and Okoro (2013), both of whom concluded that total government spending does not have a measurable effect upon GDP growth in Nigeria.

b) Government capital expenditures cause statistically significant positive impacts on GDP growth while recurrent expenditures have a significantly negative effect on GDP growth in Nigeria: For example, capital investment, such as investment in new infrastructure, will improve productivity and stimulate GDP growth (Barro, 1990). Conversely, recurrent expenditures such as payroll may not improve productivity and can create waste for the economy (Alesina & Wacziarg, 1998). Other authors, Asigbugh (2016) and Oyinlola & Oyinlola (2011) have both verified that the government's capital expenditure will have a measurable impact on Nigeria's GDP growth, while the measure of recurrent expenditures yield a significantly negative effect on GDP.

c) Nigeria's governmental spending on economic services has a significant positive effect on economic growth in Nigeria: Spending on items like transport and communication by the

government directly correlates to how much an economy grows and how productive it is (Devarajan et al, 1996). Bose et al (2007) and Ghosh and Gregoriou (2008) find that countries with governments that spend more on economically supporting services have significantly greater overall economic growth than those with governments that do not spend as much on these same services.

d) Expenditures on social and community services significantly influence Nigeria's economic growth positively: Social and community-based spending includes spending on education or health care: both of these service areas can lead to the creation of new, productive, highly skilled and qualified human capital - thereby leading to an increase in an economy's overall growth rate (Baldacci et al, 2008). Both Oyinlola and Oyinlola (2011) and Baldacci et al (2008) find that the effect of government expenditures on social and community services had a significant, positive effect on underdeveloped and developed countries economic growth rates.

e) In Nigeria, the effect of government spending for administrative purposes and the effect of government spending for transfer payments have very little effect on economic growth. This is because both of these types of spending do not impact on productivity or therefore economic growth directly, (Alesina & Wacziarg, 1998). For example, the studies of Egbetunde and Fasanya (2013) and Okoro (2013) indicate that government administrative spending and government transfer payments do not have a significant impact on economic growth in Nigeria.

f) The relationship of corruption and economic growth in Nigeria is negatively and significantly related: Corruption can create inefficiencies that decrease the efficiency of the use of government spending; thereby limiting the potential economic growth (Mauro, 1995). Two recent studies by Adebayo (2018) and Nwosu et al. (2016) have demonstrated that corruption is negatively related to the rate of economic growth (development) in Nigeria.

5. Conclusion and Recommendations

The nexus between public spending and economic growth centers around targeted spending on critical sectors of the economy such as agriculture, education, health, infrastructure, among others. This paper examined how total and disaggregated government expenditure influences Nigeria's economic growth while taking corruption into consideration. Our result has shown that while corruption tends to negatively impact on Nigeria's economic growth, government capital expenditure, government expenditure on economic services, and government expenditure on social and community services all positively impacted on economic growth in Nigeria. Recurrent expenditure, expenditure on administration, and expenditure on transfers were all negatively related with economic growth in Nigeria. The conclusion drawn from the above analyses is that the type of government expenditure is important in regard to the level of economic growth in Nigeria. The type of government expenditures (i.e., capital spending, spending for economic services, and social/community spending will provide a positive impact), whereas recurrent spending and spending associated with corruption will provide a negative impact. It is within this that our paper recommends the following:

1. Reallocate government expenditure

Recommendation: Shift focus from recurrent expenditure to capital expenditure. Increase allocation to economic services and social and community services.

Responsible institutions:

(a) Ministry of Finance, Budget and National Planning (MFB&NP): responsible for budget preparation and allocation.

(b) National Assembly: responsible for approving and overseeing budget implementation.

(c) Federal Ministry of Economic Development: responsible for coordinating economic development plans.

2. Improve efficiency of government spending and strengthen institutions

Recommendation: Address corruption and inefficiencies in government spending. Strengthening institutions responsible for budget implementation and monitoring.

Responsible institutions:

(a) Economic and Financial Crimes Commission (EFCC): responsible for investigating and prosecuting corruption cases.

(b) Independent Corrupt Practices and Other Related Offences Commission (ICPC): responsible for investigating and prosecuting corruption cases.

(c) Office of the Auditor-General: responsible for auditing government accounts and identifying inefficiencies.

(d) National Assembly: responsible for overseeing budget implementation.

(e) Ministry of Finance, Budget and National Planning (MFB&NP): responsible for budget implementation and monitoring.

3. Targeted investments

Recommendation: Prioritize investments in infrastructure, education, and health.

Responsible institutions:

(a) Federal Ministry of Works and Housing: responsible for infrastructure development.

(b) Federal Ministry of Education: responsible for education sector development.

(c) Federal Ministry of Health: responsible for health sector development.

4. Enhance transparency and accountability

Recommendation: Improve transparency and accountability in government spending.

Responsible institutions:

(a) Ministry of Finance, Budget and National Planning (MFB&NP): responsible for publishing budget information and ensuring transparency.

(b) National Assembly: responsible for overseeing budget implementation and ensuring accountability.

(c) Civil Society Organizations (CSOs): responsible for advocating transparency and accountability.

5. Monitor and Evaluate

Recommendation: Regularly monitor and evaluate the impact of government expenditure on economic growth.

Responsible institutions:

(a) Ministry of Finance, Budget and National Planning (MFB&NP): responsible for monitoring and evaluating budget implementation.

(b) National Bureau of Statistics (NBS): responsible for collecting and analyzing data on economic growth.

(c) Independent research institutions: responsible for conducting independent evaluations and research.

These institutions should work together to implement these recommendations and promote economic growth in Nigeria.

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