Government Expenditure and the Nigerian Economy Growth Performance

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Abstract: *This study explicitly examined the effects of government expenditure on education, agriculture and manufacturing, on the growth performance of the Nigerian economy from 2000 to 2023, using the ARDL Bounds test approach. Annual data were sourced from the National Bureau of Statistics, Central Bank of Nigeria (CBN) Statistical Bulletin and World Bank Indicators (various issues). The Augmented Dickey Fuller and Phillips Perron unit root tests were used to check the level of stationarity while the ARDL Bounds test to cointegration was used to justify the long-run relationship. It was discovered that a positive relationship exists between government expenditure and the growth performance of the Nigerian economy (proxy by GDP). Therefore, an improved educational sector due to increased budgetary allocation on education positively influence agriculture and ultimately, the manufacturing sector. This is because the output of the education sector are inputs to the agricultural sector and the output of the agricultural sector are inputs to the manufacturing sector. It was therefore recommended that for an improved agricultural and manufacturing sector performance, the government should improve her budgetary allocations to the educational sector. Furthermore, taxes on luxury goods should be increased and the proceeds channeled towards the funding of infrastructural facilities that are capable of boosting the performances of these key sectors. The government should increase her partnership with the private sector in relation to financing public expenditure through Corporate Social Responsibilities (CSR) in their host communities and beyond.*

Keywords: Government expenditure, growth performance, ARDL bounds test, Nigeria.

INTRODUCTION

Government economic activities came to limelight through the Keynesian economics in the 1930s. Most economies of the world have taken it upon themselves as critical and decisive, using the appropriate macroeconomic variables to achieve a desired state.

The market failure of the 1920s was a major factor that led to pre-Keynesian era change, and this change came with one of the worse economic recession in the history of man, because the market could not regulate itself (Aganbegyan, 2022). In sharp contrast to the classical thought, excess production of necessities arose due to declining demand, which led to huge unemployment, causing a massive fall in income and output (Oughton & Tobin, 2023). Thus, the market could not achieve full employment. This phenomenon raised strong questions about the operations of the laissez-faire or "let be" policy that was in existence. There is, therefore, a need for government involvement in the policy formulations and implementation. Harris, Green, & Elshaug, (2017) emphasized that government was able to participate in economic activities due to the failure of the free market economy to equitably and efficiently allocate scarce resources for human welfare. Besides, the core aim of government is to render essential services, for human development, the private sector would not want to render due to little or zero profit margin or huge capital outlay (James, 2017).

Government expenditure is a fiscal tool used in regulating behaviour of the economy. This fiscal instrument can be used to achieve the country's macroeconomic goals. like sustainable economic growth, low unemployment, low inflation, stable exchange rate regime, equitable distribution of income and balance of payment equilibrium. To achieve these goals, the government spends money on the provision of public goods like health care, education, infrastructures, roads, security, power, etc. (Khan and Hassan, 2019). Aminadokiari Samuel and Etim (2016) established that government expenditure can be used as a fiscal tool in the control of high inflation, rising unemployment, disequilibrium in the balance of payments, and fluctuations in the foreign exchange rate. Furthermore, during periods of economic recession and rising unemployment, government spending can be used to raise aggregate demand, and hence, stimulating output and employment (Monacelli, Perotti, & Trigari, 2010). However, it is important to note that government's involvement in the economy does not necessarily bring stability but rather, ameliorate the rate of instability in the economy. For instance, government involvement in economic activities could not avert the financial crisis of 2007, the 2016 Nigerian economic recession, the oil shock of the 1970s or the global economic recession caused by the ravaging COVID-19 , in 2020 (Iwuoha, 2022) .

However, it is much more economically viable for the economy to recover from external and internal shocks when the government is involved through fiscal means. The roles of the government are becoming more important in Nigeria, characterized with low output, falling real income and rising unemployment (Ajakaiye, Jerome, Nabena, and Alaba, 2015). Nigeria is characterized by external and internal macroeconomic instability and imbalances, poor human capital development, lack of social amenities, like health care, education, security and high poverty levels, therefore, making government a veritable agent of ameliorating the country's socio-economic challenges. (Todes and Turok, 2018). Poku, Opoku, and Agyeiwaa Ennin (2022) concluded that Nigerian government has embarked on different expenditure programs

with the aim of achieving economic growth but there has been seemingly no significant effect of government spending on economic growth under the period of study. For example, while the Keynesian economics proposed that government intervention will boost economic activities during recession, Okeke, Alexiou, and Nellis (2021) opined that the Classical school considered government spending, not effective in achieving government macroeconomic objectives, on the basis of crowding-out effects. Hepburn, O'Callaghan, Stern, Stiglitz, and Zenghelis (2020) noted that government intervention might retard the overall economic activities. The authors further stated that government, through fiscal means, can increase borrowing and/or taxes to finance expenditure. Government borrowings discourage posterity by pilling huge debt burden on them, especially when the debt are dead-weight (Ostry, Ghosh, and Espinoza, 2015). Thus, there is a tendency for the government to misallocate resources which can adversely influence economic growth and development (Ali and Asfaw, 2023). With reference to the stages of economic growth, Keynes developed a relationship, based on the short run, between government expenditure and economic growth. However, the long run analysis of the law of increasing state activities by Adolf Wagner, emphasized that rising government expenditure can trigger economic growth (Gallegati and Tamberi, 2022).

Different indicators have shown that the level of government spending on manufacturing, agriculture and education in Nigeria are abysmally low over the years. For instance, agricultural expenditure accounts for just 1.7% of aggregate government expenditure from 2000 to 2023, lower than other vital sectors like health care, water, education and manufacturing. Despite huge government annual revenue from petroleum, the performance of key sectors like manufacturing, education and agriculture has not been positively influenced. Furthermore, the study of Idris (2020) revealed that among the selected 17 sub-Saharan Africa countries under study, agricultural spending in Nigeria was the lowest, when expressed as a share of total public spending. Is the Government of Nigeria spending sufficient enough to trigger the necessary development on agriculture, manufacturing and education?

REVIEW OF RELATED LITERATURE

Conceptual / Theoretical Issues

Government Expenditure

Government expenditure refers to the total amount of money spent by the government on goods, services, and transfers. It plays a vital role in shaping the economy, influencing various sectors, and impacting the lives of citizens. Government expenditure encompasses all outlays made by public authorities, including federal, state, and local governments. It is crucial for providing essential public services, promoting economic growth, and ensuring social welfare. Government expenditure enables the provision of public goods, such as national defense and infrastructure, that are non-

excludable and non-rivalrous. Through taxes and transfer payments, government expenditure aims to redistribute income and reduce inequality. Furthermore, government expenditure can be used to stabilize the economy by stimulating demand during recessions or controlling inflation.

Types of Government Expenditure
Government expenditure can be categorized into different types, each serving a specific purpose. These categories provide insights into the priorities and allocation of public funds.

Current Expenditure
This category includes spending on goods and services that are consumed immediately, such as salaries, wages, and operating costs.

Capital Expenditure
This refers to spending on long-lasting assets, such as infrastructure, buildings, and equipment, which contribute to future economic growth.

Transfer Payments
These are payments made to individuals or businesses without any direct exchange of goods or services. Examples include social security benefits, unemployment insurance, and subsidies.

Factors Influencing Government Expenditure
Several factors influence government expenditure, shaping the priorities and resource allocation decisions made by policymakers. These factors can be internal or external, economic or political, and can vary over time.

Economic Growth
During periods of economic expansion, government revenue tends to increase, allowing for greater spending on public services and infrastructure.

Population Demographics
Aging populations and rising healthcare costs can lead to increased government expenditure on social welfare and healthcare programs.

Political Priorities
Government expenditure often reflects the priorities of the ruling party or government, with different administrations emphasizing different areas of spending.

Global Events
Global events, such as wars, natural disasters, or economic crises, can necessitate increased government spending on emergency response, defense, or economic stabilization measures.

Over the years, economists have investigated the relationship between government expenditure and economic growth (Li and Maskin, 2021). However, there was no model to calculate trend of public spending for a very long time. Adam Smith established a long-term relationship in government spending, but little effort was attempted to develop these findings to a comprehensive model. Central to the scale and structure of government, is the question of government spending in countries with rising inflation and debt. In strategic areas, these expenditures are indicators of public policy making and planning. This is because the growth of government is being justified by the growth occurring within the private and public sectors, especially in a mixed economy like Nigeria. Wagner's law stands as one of the theoretical platform that explains the nexus between economic growth and the public sector size (Irandoust, 2019). This means that rising government spending triggers economic growth. According to Irandoust (2019), Wagner's study remains the first that established a positive relationship between economic progress and the size of the public sector. Wagner established that public spending has been on the rise due to rising inflation, industrialization, urbanization, among others, are some reasons public spending has been on the rise (Jibir and Aluthge 2019).

Trend in Government Expenditure in Nigeria
Government expenditure has exhibited various trends over time, reflecting changing economic conditions, societal priorities, and policy decisions. These trends offer insights into the evolution of government spending patterns. For instance, the global financial crisis of 2008 and the COVID-19 pandemic led to significant increases in government expenditure to stimulate economies and provide relief to individuals and businesses.

The figure below show a trend analysis of government expenditure on education, agriculture and manufacturing from 2000 to 2023.
Figure 1: Government expenditure on education in Nigeria
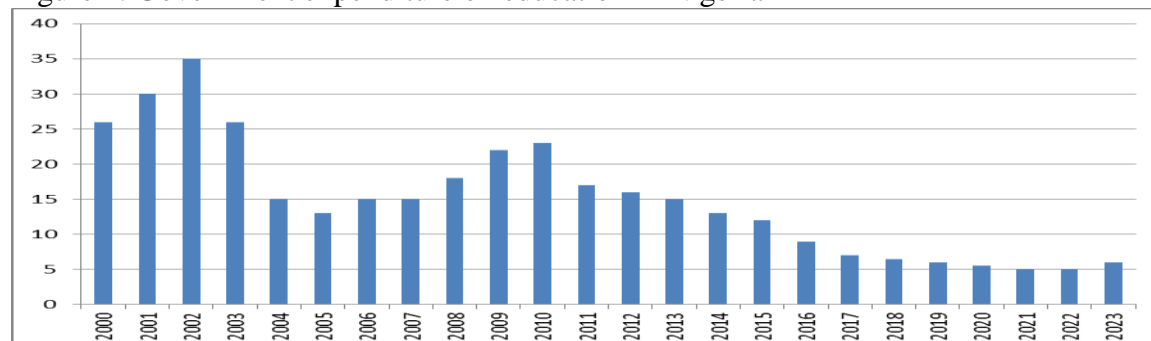
Source: World Bank

From figure 1, it is evident that government expenditure on education increased steadily from 2000 to 2002 due to rising demand for education brought about by the rising level

of population and urbanization. During this period, the country maintained a single digit inflation of an average of 9%. However, the declining value of government expenditure from 2010 can be traceable to the rising inflation rate in the economy in the midst of rising government expenditure to this key sector (Li and Maskin, 2021).

According to Wagner's law, the judicial system, health care, education, and infrastructure, provided by the government, are core determinants of economic growth. Wagner's law established a long-term equilibrium relationship between government expenditure and economic progress overtime (Bazán et al., 2022). Wagner adopted the income elasticity of demand to compute the rise of public spending on education. health, culture and well-being (Hossain, Toufique, Smrity, and Kibria, 2024). He assumed that services of these nature possess high wealth elasticity. Public spending on these services therefore rises in tandem with an increase in the economy's real income. Wagner was able to distinguish the following three primary justifications for government spending:
(1) More public support and regulatory actions are required when social relationships are complex. Furthermore, increased industrialization, urbanization, and division of labor need greater spending on contract fulfillment, law enforcement, and economic performance assurance.
(2) Relative increases in income for cultural and welfare expenditures follow real income growth. Wagner emphasized that the public sector is more effective than the private sector in the areas of culture and education.
(3) The government should assume responsibility for managing natural monopolies to enhance economic performance so as to boost economic and technical progress in sectors which the private sector would not like ti invest in, due to low profit margin or huge capital outlay (Zuobomuador and Ebisine 2022).

Government expenditure on agriculture has been on the rise due to the government's commitment towards making the country food sufficient and alleviate poverty. Figure 2 depicts the trend of agricultural expenditure in Nigeria from 2000 to 2023.

Figure 2: Government Expenditure on Agriculture
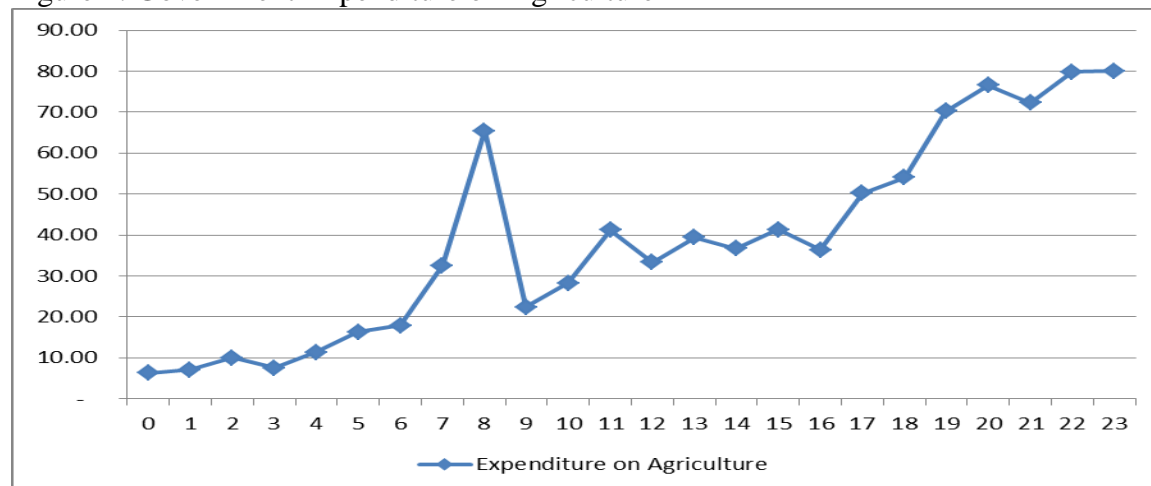
Source: World Bank, 2024

The rising government expenditure on agriculture are mainly classified into two broad categories: Capital and recurrent. The former are meant for developmental purposes while the latter are further classified into wages and non-wages overhead costs. Studies have shown that high a greater percentage of capital expenditure on agriculture in Nigeria has been allocated to crops -related activities (97%), while a small percentage (3%), to fisheries and livestock farming (Mogue et al, 2008a).

Figure 3: Composition of Government Expenditure in Agriculture
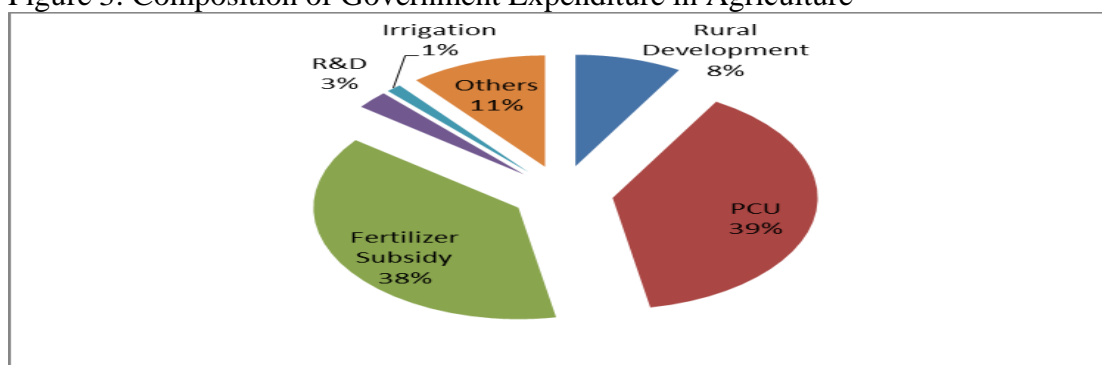
Source: World Bank, 2024

When analyzed based on projects and activities, government agricultural capital expenditures in Nigeria were dominated by Fertilizer Market Stabilization (subsidy) and Project Coordinating Unit (PCU). Due priorities were not given to core functional components of agricultural expenditure in Nigeria, like agricultural extension and education, research and development, irrigation and rural development. This has adversely influence the growth rate of the Nigerian economy.

Empirical Review

The study of Babatunde (2018) examined the connection between government spending on basic infrastructures and economic growth in Nigeria, and established a positive relationship between inflation rate, defense, transportation, communication spending, defense spending and economic growth. Onifade, Çevik, Erdoğan, Asongu and Bekun (2020) examined a linear relationship, using the OLS method, between government expenditure and economic growth. The study revealed that a positive long run relationship exist between government expenditure and the growth process. The study of Cantu (2017) investigated the long run relationship between economic and public expenditure and discovered that a change in the expenditure composition triggered a higher strategy-state growth rate. The study further revealed that a rise in share capital spending positively and statistically influence the growth process. The study of Islam, Alsaif and Alsaif (2022) empirically analyzed the nexus between government spending and per capita output in Saudi Arabia, and discovered that a fiscal strategy is required to control the country's deficit budget, cutting back on government spending within all

sectors. Lee, Won and Jei (2019) investigated the relationship between government spending, money supply and economic growth, in a trivariate framework. The findings revealed the existence of a bidirectional causality between economic growth and government spending in South Korea. The study further established that money supply is a potent determinant of South Korea's economic growth process. The results corroborate the Wagnerian hypothesis, which stipulates that government expenditure is caused by national revenue and the traditional Keynesian paradigm, which stipulates that government expenditure is positively correlated to national income. Kim and Park (2022) highlighted the roles of government policies and activities on economic growth. They assumed that government spending on productive projects has more influence on growth, than on unproductive projects. The study revealed that one of the major factors influencing growth is the component and amount of government spending. However, there appears to be a direct relationship between economic growth and budget strategy in relation to tax policy (Corlet, Walker, Druckman and Jackson, 2021). The Nigerian tax structure may have a huge impact on growth. However, there has been inconsistent empirical data in relation to how tax policies influence economic growth in Nigeria. According to the study of Prichard, Salardi and Segal (2018), a major setback in dis-aggregating the effect of taxes on economic growth include the lack of relevant non-tax variables, such as public spending. The study of Anderson, D'Orey, Duvendack and Esposito (2018) examined ways in which public funding can be effectively used to combat poverty. In this background, the study examined the relationship between growth, public investment and poverty alleviation. The study was able to filter variables with micro and macro effects on economic growth. Kutasi and Marton (2020) conducted a study on 30 OECD countries to investigate the relationship between government spending and economic growth and found that a long-run relationship exist between economic growth and government spending. Further findings revealed that a unidirectional causality exist, for 16 of the OECD counties, from government spending to growth for 16 of the total countries exists which supports the Keynesian hypothesis; while in 10 of the countries, it was discovered that government spending was directly related to economic growth, validating Wagner's law. The study of Goh and Mohd Aznan (2023) employed annual data to examine the direction of causality between government expenditure (GE) and national income (NI) in Nigeria from 1970 to 2005 and found that there was no correlation between national income and government spending. The study concluded that government spending is a potent determinant influencing economic growth in Nigeria within the period of study. In their study, Duramany-Lakkoh, Jalloh and Abu (2022) explained how public spending is employed as a proxy for public capital for different sectors. This makes it possible to differentiate their individual effects on economic growth. The study revealed that public spending do not have any effect on growth in the short run. However, the co-integration and VEC studies exhibited a long run relationship between public spending and economic growth. Although Onabote, Ohwofasa and Ogunjumo (2023) employed a growth model to investigate the effects of fiscal policy on economic growth in Nigeria, during the deregulation and regulation eras. The findings revealed a significant difference in the

efficacy of fiscal policy during and after deregulation, in terms of stimulating economic growth. The Keynesian postulation that higher government spending enhances economic growth is supported by the fact that government spending drives economic growth at a bivariate level. Using annual data from 1975 to 2008, Rumawir (2019) study evaluated the contribution of government spending on sustainable growth. The Harrod-Domar growth model was examined and multiple regression using Ordinary Least Squares (OLS). Findings from the study revealed that increasing government spending has little effect on sustainable growth and development. Zamir, Abbasi, Yu, Sohail and Yang (2023) investigated the co-integration analysis of public spending on economic growth, education and primary school enrollment. The findings revealed that recurrent public spending on education and economic growth are directly related in both directions. There was no significant link between growth and capital investment in education.

Theoretical Framework
This study expanded the Wagner's models of public expenditure in some regard. The specified models used are variants from the Wagner's models of public expenditure by the dis-aggregated inclusion of government expenditure on education (EDU), government expenditure on agriculture (AGR), government expenditure on manufacturing (MUF) and inflation rate (INF) as explanatory variables and Real Gross Domestic Product (RGDP) as the dependent variable.
Hence, the Wagner's hypothesis is specified as:
$$RGDP = b_o + b_1\, INF + b_2\, EDU + b_3\, AGR + b_4\, MUF + u_t \qquad (5)$$

Where INF = Inflation rate; AGR = Government expenditure in Agriculture;
MUF = Government expenditure on Manufacturing; u= error term.
As a modification to the Wagner's hypothesis, this study has made Inflation rate (INF), Government expenditure on education (EDU), Government expenditure on agriculture (AGR) and Government expenditure on manufacturing (MUF) as explanatory variables to the growth performance of the Nigerian economy (proxy by RGDP). As a vacuum, Wagner's theory neglected the functions of government expenditure on key sectors like Agriculture, Education and Manufacturing as they influence the growth process, in a developing economy like Nigeria, which this research work adequately captures. This is because resources are scarce and investment (government expenditure) on key sectors like agriculture, education and manufacturing, will generate resources that can be used to developed other sectors in the Nigerian economy (Unbalance Growth Theory).

MATERIALS AND METHODS

Research Design
This study adopted the *ex post facto* research method. This method is most suitable because it can be used to test hypothesis about cause and effect relationships. It is less time consuming and the researcher's opinion is much relevant to the study.

Nature and Sources of Data

Time series data on public debt (DBT), inflation (INF), interest rate (INT), Gross Domestic Product (GDP), government expenditure on education (EDU), agriculture (AGR) and manufacturing (MAN) sectors were sourced from the UNESCO Institute for Statistics, Central Bank of Nigeria Statistical Bulletin (various issues), and National Bureau of Statistics (NBS) for the period under review. Government spending on agriculture, education and manufacturing (capital, current and transfers) were used as percentages of total government expenditure on all sectors.

Model Specification

In order to capture the individual effect of government expenditure on agriculture, manufacturing and education on real GDP, three models were specified and functionally expressed as:

Model 1: Gross Domestic Product - Government Expenditure on Education

$$GDP_{it} = f(INF_{it}, DBT_{it}, INT_{it}, EDU_{it}) \qquad (1)$$

Explicit form of equation (1) can be stated as;

$$GDP_{it} = a_o + a_1 INF_{it} + a_2 DBT_{it} + a_3 INT_{it} + a_4 EDU_{it} + \varepsilon_{it} \qquad (2)$$

Model 2: Gross Domestic Product - Government Expenditure on Agriculture

$$GDP_{it} = f(INF_{it}, DBT_{it}, INT_{it}, AGR_{it}) \qquad (3)$$

Explicit form of equation (3) can be stated as;

$$GDP_{it} = \beta_0 + \beta_1 INF_{it} + \beta_2 DBT_{it} + \beta_3 INT_{it} + \beta_4 AGR_{it} + \varepsilon_{it} \qquad (4)$$

Model 3: Gross Domestic Product - Government Expenditure on Manufacturing

$$GDP_{it} = f(INF_{it}, DBT_{it}, INT_{it}, MAN_{it}) \qquad (5)$$

Explicit form of equation (5) can be stated as;

$$GDP_{it} = \alpha_0 + \alpha_1 INF_{it} + \alpha_2 DBT_{it} + \alpha_3 INT_{it} + \alpha_4 MAN_{it} + \varepsilon_{it} \qquad (6)$$

Estimating equations (2, 4 & 6), we can state the following:

$$GDP = B_o + B_1 EDU + B_2 INF + B_3 AGR + B_4 INT + B_5 DBT + B_6 MAN + e_t \qquad (7)$$

Where B_o represents the drift component and B_1 to B_6 represent the model's coefficients, while E_t represents the error term. This study adopts a double-log functional specification of the ARDL Bounds Test Approach to cointegration.

RESULTS AND DISCUSSION

Unit Root Test

The results of the unit root tests at level, and first difference, are reported in tables 4.1a, 4.1b and 4.1c.

Table 4.1a: Augmented Dickey Fuller (ADF) summary of Unit Root Test result

Variables	ADF Test	Mackinnon Critical Values	Prob. (value)	Remark

	Statistics (At level)					
		1%	5%	10%		
MAN	-1.647	-4.297	-3.569	-3.219	0.750	Not Stationary
DBT	-1.631	-4.297	-3.569	-3.219	0.757	Not Stationary
AGR	-2.788	-4.340	-3.588	-3.230	0.214	Not Stationary
INF	-2.902	-4.417	-3.623	-3.249	0.181	Not Stationary
INT	-3.601	-4.297	-3.569	-3.219	0.047	Stationary
GDP	-2.072	-4.310	-3.575	-3.222	-0.540	Not Stationary
EDU	1.861	-4.297	-3.569	-3.219	1.001	Not Stationary

Source: Author's Computation

The unit root test as identified in the Augmented Dickey Fuller Test result in tables 4.1a shows that government expenditure on manufacturing, public debt, government expenditure on agriculture, inflation rate, interest rate, gross domestic product and government expenditure on education are not stationary at level, implying the presence of unit root in the stated variables. However, interest rate is stationary at level. Due to the presence of unit root on the series of government expenditure on manufacturing, public debt, government expenditure on agriculture, inflation rate, gross domestic product and government expenditure on education, the first difference is conducted as shown in table 4.1b

Table 4.1b: Unit Root Test Result Summary

Variables	ADF Test Statistics (At first difference)	Mackinnon Critical Values			Prob. (value)	Remark
		1%	5%	10%		
MAN	-5.244	-4.309	-3.574	-3.221	0.001	Stationary
DBT	-3.645	-4.309	-3.574	-3.221	0.043	Stationary
AGR	-3.553	-4.374	-3.603	-3.238	0.055	Stationary
INF	-3.622	-4.375	-3.604	-3.239	0.049	Stationary
INT	-6.236	-4.310	-3.575	-3.222	0.001	Stationary
GDP	-4.256	-4.375	-3.604	-3.239	0.013	Stationary
EDU	-11.155	-4.324	-3.581	-3.226	0.001	Stationary

Source: Author's Computation

Therefore, from table 4.1b, government expenditure on manufacturing, public debt, government expenditure on agriculture, inflation rate, gross domestic product and government expenditure on education are stationary at first difference, *I(1)*.

It is shown in Tables 4.1a and 4.1b that the variables have unit roots under the null hypothesis, quite different from the alternative hypothesis of no unit root. As suggested

by Pesaran et al. (2001), however, we must ensure that no variable is integrated of order 2, *I(2)*. Based on the results, interest rate is stationary at level, *I(0)* while others are stationary after first difference, *I(1)* and none is integrated at second difference, *I(2)*. The p-values are less than 0.05 at 1%, 5% and 10% level of significance implying that all the variables are stationary and statistically significant.

Table 4.1c: Summary of Phillips Perron (PP) Unit Root Test result

Variables	PP Test Statistics (At first difference)	Mackinnon Critical Values			Prob. (value)	Remark
		1%	**5%**	**10%**		
MAN	-5.276	-4.310	-3.575	-3.222	0.002	Stationary
DBT	-3.634	-4.310	-3.575	-3.222	0.045	Stationary
AGR	-6.614	-4.310	-3.575	-3.222	0.001	Stationary
INF	-6.407	-4.310	-3.575	-3.222	0.001	Stationary
INT	-6.249	-4.310	-3.575	-3.222	0.001	Stationary
GDP	-3.497	-4.310	-3.575	-3.222	0.059	Stationary
EDU	-4.217	-3.575	-3.222	-3.219	0.013	Stationary

Source: Author's Computation

The results show that government expenditure on manufacturing, public debt, government expenditure on agriculture, inflation rate, interest rate, gross domestic product and government expenditure on education, have unit roots at level but were however stationary after first difference as shown in table 4.1c.

The orders of lags are selected using the Akaike Information Criterion (AIC) and Schwarz Information Criterion (SIC), commonly used in ARDL literature estimation (see Ozturk and Acaravci, 2011 and Pesaran et al., 2001).

Diagnostic Test

Table 4.3 shows the diagnostic check results of the specified ARDL model.

Table 4.2:   Diagnostic Checks results

	F-Statistics	Probability
Normality Test	0.050	0.976
Breusch-Pagan-Godfrey Heteroscedasticity Test	0.684	0.757

Source: Author's Computation

Results from table 4.2 show that the model is heteroskedasticity free , consistent and suitable in explaining the efficacy of government expenditure on the growth performance of the Nigerian economy and the series are normally distributed.

Table 4.3: Autoregressive Distributed Lag Estimates for Model 1

Dependent Variable: LNGDP
Method: Least Squares
Selection Model: ARDL (4, 2, 3, 4, 4)

Variables	Coefficient	Std. Error	t-Statistic	Prob.	
LNGDP(-1)	0.398	0.337	1.183	0.291	
LNGDP(-2)	-1.285	0.314	-4.094	0.010	
LNGDP(-3)	0.129	0.228	0.569	0.595	
LNEDU	1.027	0.340	3.020	0.030	
LNEDU(-1)	-0.806	0.460	-1.754	0.140	
LNEDU(-2)	0.424	0.273	1.554	0.182	
LNINT	-0.082	0.017	-4.861	0.005	
LNINT(-1)	-0.014	0.012	-1.163	0.298	
LNINT(-2)	-0.008	0.014	-0.542	0.612	
LNINT(-3)	-0.040	0.019	-2.140	0.086	
INF	0.009	0.004	2.412	0.061	
INF(-1)	0.006	0.004	1.754	0.140	
INF(-2)	-0.004	0.004	-0.946	0.388	
INF(-3)	0.003	0.004	0.806	0.458	
DBT	-0.003	0.003	-0.936	0.393	
DBT(-1)	-0.0003	0.004	-0.069	0.949	
DBT(-2)	-0.0008	0.004	-0.252	0.812	
DBT(-3)	0.019	0.005	4.159	0.009	
C	6.689	1.526	4.384	0.008	

R^2=**0.929**
Adjusted R^2=**0.940**
Prob.(F-statistics) **0.001**
F-Statistics = **338.059**
Durbin-Watson Stat.: **2.595**

Source: Author's Computation

According to the estimates in table 4.3, the lag of public debt, government expenditure on education at the current period and interest rate are statistically significant in explaining gross domestic product. The result means that fiscal actions on government expenditure on education and public debt by monetary authorities can influence gross domestic product in Nigeria. The interest rate coefficient is negative, implying that increase in the interest rates will cause adverse decline in investment, which influences GDP. However, an increase in government expenditure in education, inflation and public debt will lead to an increase in GDP. Conversely, reduction in public debt DBT(-1) reduces economic growth arising from high cost of technology in Nigeria. The study of Omolade and Ngalawa (2014) reaffirmed that economic growth is influenced by public debt, due to declining export profile. In general, the findings have reaffirmed that government expenditure is a potent determinant in influencing economic growth in Nigeria. These findings agree with Fasanya et al. (2013), that government expenditure are pivotal in influencing China's growth process. Therefore, it is important that policymakers closely track outcomes of their policies when working towards achieving sustainable economic growth.

Table 4.4: ARDL Bound Testing for Cointegration

Asymptotic critical values				
T Statistics	Value	Signif.	I(0)	I(1)
F-statistics	5.768	10%	2.10	3.08
K	4	5%	2.55	3.48

Source: Author's Computation

Table 4.4 shows the presence of cointegration among the variables under study, since the calculated Fstatistic of 5.768 exceeded the critical values threshold at 10% and 5% levels of significance. Therefore, we reject the null hypotheses and confirmed the existence of cointegration between the variables.

Table 4.5: Diagnostic Checks Results

	F-Statistics	Probability
Normality Test	0.597	0.741
Breusch-Pagan-Godfrey Heteroscedasticity Test	1.257	0.332

Source: Author's Computation

Table 4.5 reveals that the model is free from heteroskedasticity. These results have shown that the model is consistent and favorable in analyzing government expenditure and the growth performance in Nigeria and it is normally distributed.

Table 4.6: Autoregressive Distributed Lag Estimates for Model 2

Dependent Variable: LNGDP
Method: Least Squares
Selection Model: ARDL (3, 1, 0, 3, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.	
LNGDP(-1)	0.699	0.227	3.087	0.008	
LNGDP(-2)	-0.274	0.229	-1.197	0.251	
LNGDP(-3)	0.333	0.159	2.098	0.054	
LNAGR	-0.020	0.174	-0.115	0.911	
LNAGR(-1)	0.234	0.177	1.318	0.208	
INF	0.005	0.002	2.838	0.013	
LNMAN	0.018	0.033	0.541	0.598	
LNMAN(-1)	0.009	0.048	0.178	0.862	
LNMAN(-2)	-0.118	0.039	-3.093	0.008	
LNMAN(-3)	0.081	0.048	1.694	0.112	
C	0.705	0.262	2.694	0.017	

R^2=**0.932**
Adjusted R^2=**0.916**
Prob.(F-statistics) **0.000**
F-Statistics = **465.447**
Durbin-Watson Stat.: **2.011**

Source: Author's Computation

From the estimates in table 4.6, the lag of inflation rate, government expenditure on education at the current period and government expenditure on manufacturing are statistically significant in explaining the growth performance of the Nigerian economy. Overall, the finding has revealed that government expenditure is observed to exert a significant impact on the growth performance of the Nigerian economy during the period of study.

Table 4.7: ARDL Bound Testing for cointegration

Asymptotic critical values				
T- Statistics	Value	Signif.	I(0)	I(1)
F- Statistics	9.123	10%	2.3	3.08
K	4	5%	2.6	3.50

Source: Author's Computation

The results from table 4.7, show the presence of cointegration among the variables, since the calculated F-statistic of 9.123 is greater than the critical values threshold of 10 % and 5% levels of significance. Therefore, we reject the null hypotheses to confirm the presence of cointegration between the variables.

CONCLUSION AND RECOMMENDATIONS

The ARDL Bounds Test results are quite meaningful. The empirical results affirmed the existence of a positive short-run relationship between the lag of public debt, government expenditure on education at the current period and GDP. This implies that the continuous rise in government expenditure has positive and significant influence on Nigeria's growth performance. However, interest rate exhibits negative relationship with GDP because a higher interest rate discourages investment. These findings are in agreement with Mwafaq (2011), Sikiru and Umaru (2011), Muritala and Taiwo (2011), which confirmed that government spendings are positively correlated with economic growth. However, due priorities are not given to core functional components of education, manufacturing and agricultural spending which have adversely influenced the growth performance of the Nigerian economy.

This study has reaffirmed the reasons why government expenditure on education, agriculture and manufacturing have contributed significantly to growth in Nigeria. Successive governments with increased private sector partnerships, have channeled public funds, although insignificant, to these key sectors for meaningful development, knowing too well the interrelationships between and amongst these sectors. Furthermore, this study adequately captures the interrelationships between these key sectors. Increased investment in education produces quality and skilled manpower needed both in the agricultural and manufacturing sectors. Again, quality output from the agricultural sector can be used as quality inputs for the manufacturing sector. This

level of sectoral interdependence is paramount in the growth performance of the Nigerian economy.

The study recommends the following that;
i. government, at all levels, should consider the influence of expenditure policies on one sector as they relate to other sectors of the economy.
ii. the government can boost its revenue base by increasing taxes on luxury goods and channel such revenue towards augmenting funds budgeted for infrastructural facilities. These facilities are capable of boosting the growth performance of these key sectors.
iii. Increased public-private partnership, encouraging firms to carry out their Corporate Social Responsibilities among others, will increase the volume of expenditure on these key sectors without the government bearing much of the burden.
iv. Greater percentage of government spending should be on capital component with a more efficient implementation of capital expenditure policies rather than recurrent spending.

References

Aganbegyan, A. G. (2022). The two main macroeconomic theories of keynes and friedman and their use in the economic policy of the world's major countries and russia. *Studies on Russian Economic Development*, *33*(5), 471–479. https://doi.org/10.1134/S1075700722050021

Ajakaiye, O., Jerome, A. T., Nabena, D., & Alaba, O. A. (2015). *Understanding the relationship between growth and employment in Nigeria*. UNU-WIDER. https://doi.org/10.35188/UNU-WIDER/2015/013-3

Ali, A. K., & Asfaw, D. M. (2023). Nexus between inflation, income inequality, and economic growth in Ethiopia. *PLOS ONE*, *18*(11), e0294454. https://doi.org/10.1371/journal.pone.0294454

Aminadokiari Samuel, W., & Etim, E. (2016). An empirical analysis of fiscal policy measures and unemployment in nigeria. *Journal of Social Sciences and Public Policy*, *8*(2), 108–126. Retrieved from www.cenresinpub.org

Anderson, E., D'Orey, M. A. J., Duvendack, M., & Esposito, L. (2018). Does government spending affect income poverty? a meta-regression analysis. *World Development*, *103*, 60–71. https://doi.org/10.1016/j.worlddev.2017.10.006

Babatunde, S. A. (2018). Government spending on infrastructure and economic growth in Nigeria. *Economic Research-Ekonomska Istraživanja*, *31*(1), 997–1014. https://doi.org/10.1080/1331677X.2018.1436453

Balasundharam, V. (2023). Inflation indexation in public finances: a global dataset on current practices. *IMF Working Papers*, *2023*(264), 1. https://doi.org/10.5089/9798400261466.001

Bazán, C., Álvarez-Quiroz, V. J., & Morales Olivares, Y. (2022). Wagner's law vs. keynesian hypothesis: dynamic impacts. *Sustainability*, *14*(16), 10431. https://doi.org/10.3390/su141610431

Cantu, C. (2017). Mexico's economic infrastructure: international benchmark and its impact on growth. *Journal of Economic Structures*, *6*(1), 33. https://doi.org/10.1186/s40008-017-0092-9

Chih-hung Liu, L. Hsu, C.E., & Younis, M.F. (2008). The association between government expenditures and economic growth: granger causality test of US data, 1947-2002, *Journal of public budgeting, accounting and financial management, 20*(4), 439-452.

Christiano, L. J., Eichenbaum, M., and Evans, C. (1996). The effects of monetary policy shocks: evidence from the flow of funds . The Review of Economics and Statistics . Vol. 78(1). 16-34.

Corlet Walker, C., Druckman, A., & Jackson, T. (2021). Welfare systems without economic growth: A review of the challenges and next steps for the field. *Ecological Economics*, *186*, 107066. https://doi.org/10.1016/j.ecolecon.2021.107066

Demetriades, P. and Fielding, D. (2012). Information, institutions, and banking sector development in West Africa. *Economic Inquiry*, 50(3), 739-753.

Duramany-Lakkoh, E. K., Jalloh, H., & Abu, A.-M. (2022). A granger causality test on the impact of public debt on the economic growth of Sierra Leone. *Modern Economy*, *13*(07), 952–976. https://doi.org/10.4236/me.2022.137051

Fasanya, I., and Egbetunde, T., (2013). Public expenditure and economic growth in Nigeria: evidence from auto-regressive distributed lag specification. Zagreb International Review of Economics and Business. Vol. 16(1). 79-92.

Gallegati, M., & Tamberi, M. (2022). Long swings in the growth of government expenditure: an international historical perspective. *Public Choice*, *192*(3–4), 227–248. https://doi.org/10.1007/s11127-022-00979-1

Goh, H.-H., & Mohd Aznan, M. S. Bin. (2023). The optimal government size and economic growth: A comparative study between Malaysia and South Korea. *Heliyon*, *9*(12), e22834. https://doi.org/10.1016/j.heliyon.2023.e22834

Harris, C., Green, S., & Elshaug, A. G. (2017). Sustainability in health care by allocating resources effectively (SHARE) 10: operationalising disinvestment in a conceptual framework for resource allocation. *BMC Health Services Research*, *17*(1), 632. https://doi.org/10.1186/s12913-017-2506-7

Hepburn, C., O'Callaghan, B., Stern, N., Stiglitz, J., & Zenghelis, D. (2020). Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change? *Oxford Review of Economic Policy*, *36*(Supplement_1), S359–S381. https://doi.org/10.1093/oxrep/graa015

Hossain, M. A., Toufique, M. M. K., Smrity, D. Y., & Kibria, M. G. (2024). Testing the validity of Wagner's law in four income groups: A dynamic panel data analysis. *Heliyon*, *10*(2), e24317. https://doi.org/10.1016/j.heliyon.2024.e24317

Idris, M. (2020). Understanding agricultural productivity growth in sub-Saharan africa: an analysis of the Nigerian economy. *International Journal of Economics and*

Financial Research, (67), 147–158. https://doi.org/10.32861/ijefr.67.147.158

Irandoust, M. (2019). Wagner on government spending and national income: A new look at an old relationship. *Journal of Policy Modeling*, *41*(4), 636–646. https://doi.org/10.1016/j.jpolmod.2019.02.003

Ishibashi, S. (2012). The segmentation of loan interest rates by regional financial institutions: a panel cointegration analysis. *International review of business research papers*, 8(5), 95-110.

Islam, M. S., Alsaif, S. S., & Alsaif, T. (2022). Trade openness, government consumption, and economic growth nexus in Saudi Arabia: ARDL Cointegration Approach. *SAGE Open*, *12*(2), 215824402210966. https://doi.org/10.1177/21582440221096661

Iwuoha, V. C. (2022). Global oil crisis and early COVID-19 strategic containment responses in africa: the Nigerian experience. *India Quarterly: A Journal of International Affairs*, *78*(1), 47–67. https://doi.org/10.1177/09749284211068471

James, O. (2017). *The fiscal crisis of the state*. routledge. https://doi.org/10.4324/9781315132044

Jibir, A., & Aluthge, C. (2019). Modelling the determinants of government expenditure in Nigeria. *Cogent Economics & Finance*, *7*(1), 1620154. https://doi.org/10.1080/23322039.2019.1620154

Khan, F., & Hassan, M. K. (2019). Financing the sustainable development goals (SDGs): the socio-economic role of awqaf (Endowments) in Bangladesh. In *Revitalization of Waqf for Socio-Economic Development, Volume II* (pp. 35–65). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-18449-0_3

Kim, D., & Park, Y.-J. (2022). Nonlinear causality between energy consumption and economic growth by timescale. *Energy Strategy Reviews*, *44*, 100949. https://doi.org/10.1016/j.esr.2022.100949

Kutasi, G., & Marton, Á. (2020). The long-term impact of public expenditures on GDP-growth. *Society and Economy*, *42*(4), 403–419. https://doi.org/10.1556/204.2020.00018

Lee, J. C., Won, Y. J., & Jei, S. Y. (2019). Study of the relationship between government expenditures and economic growth for China and Korea. *Sustainability*, *11*(22), 6344. https://doi.org/10.3390/su11226344

Li, D. D., & Maskin, E. S. (2021). Government and economics: An emerging field of study. *Journal of Government and Economics*, *1*, 100005. https://doi.org/10.1016/j.jge.2021.100005

Mogues, T., M. Morris, L. Freinkman, A. Adubi and S. Ehui (2008a). Agricultural public spending in Nigeria. IFPRI Discussion Paper 00789. International Food Policy Research Institute (IFPRI), Washington, D.C, USA.

Monacelli, T., Perotti, R., & Trigari, A. (2010). Unemployment fiscal multipliers. *Journal of Monetary Economics*, *57*(5), 531–553. https://doi.org/10.1016/j.jmoneco.2010.05.009

Moon, H., and Perron, B., (2004). Testing for a unit root in panels with dynamic factors. *Journals of Econometrics.* Vol. 12(2), 81-126.

Mwafaq, M. D. (2011). Government expenditures and economic growth in Jordan, *2011 International Conference on Economics and Finance Research* IPEDR 4 (2011).

Njoku, A. C, Okezie, A., & Ngozi, I. (2014). Is government capital expenditure productive? evidence from Nigerian manufacturing sector (1971-2012), *Journal of Educational and Social Research*, *4*(5)

Okeke, A., Alexiou, C., & Nellis, J. (2021). Austerity effects on national output and income Iinequality: a systematic literature review. *Review of Economics*, *72*(2), 97–148. https://doi.org/10.1515/roe-2021-0012

Olayungbo, D. O., & Olayemi, O. F. (2018). Dynamic relationships among non-oil revenue, government spending and economic growth in an oil producing country: Evidence from Nigeria. *Future Business Journal*, *4*(2), 246–260. https://doi.org/10.1016/j.fbj.2018.07.002

Omolade, A., and Ngalawa, H., (2014). Oil revenue and manufacturing sector growth in Africa's oil exporting countries. *Journal of Economic and Financial Sciences.* Vol. 7(3).

Onabote, A. A., Ohwofasa, B. O., & Ogunjumo, R. A. (2023). Government sectoral spending and human development in Nigeria: Is there a link? *Heliyon*, *9*(7), e17545. https://doi.org/10.1016/j.heliyon.2023.e17545

Onifade, S. T., Çevik, S., Erdoğan, S., Asongu, S., & Bekun, F. V. (2020). An empirical retrospect of the impacts of government expenditures on economic growth: new evidence from the Nigerian economy. *Journal of Economic Structures*, *9*(1), 6. https://doi.org/10.1186/s40008-020-0186-

Ostry, J., Ghosh, A., & Espinoza, R. (2015). When should public debt be reduced? *Staff Discussion Notes*, *15*(10), 1. https://doi.org/10.5089/9781498379205.006

Oughton, C., & Tobin, D. (2023). Joan Robinson: early endogenous growth theorist. *Cambridge Journal of Economics*, *47*(5), 943–964. https://doi.org/10.1093/cje/bead032

Ozturk, I., and Acaravci, E., (2011). CO_2 emissions, energy consumption and economic growth in Turkey. Renewable and Sustainable Energy Review. Vol. 14(9), 3220-3225.

Pesaran, M. H., Shin, Y., and Smith, R. J., (2001). Bounds testing approaches to the analysis of level relationships . *Journal of Applied Econometrics.* Vol. 16(3), 289-326.

Poku, K., Opoku, E., & Agyeiwaa Ennin, P. (2022). The influence of government expenditure on economic growth in Ghana: An Ardl approach. *Cogent Economics & Finance*, *10*(1). https://doi.org/10.1080/23322039.2022.2160036

Prichard, W., Salardi, P., & Segal, P. (2018). Taxation, non-tax revenue and democracy: New evidence using new cross-country data. *World Development*, *109*, 295–312. https://doi.org/10.1016/j.worlddev.2018.05.01

Rumawir, J. (2019). The implementation of harrod-domar economic growth model in

North Sulawesi, Indonesia. *International Journal of Applied Business and International Management*, *4*(1), 19–30. https://doi.org/10.32535/ijabim.v4i1.379

Sharifi-Renani, H., and Mirfatah, M., (2012). The impact of exchange rate volatility on foreign direct investment in Iran. *Journal of Trade Bulletin.* Vol. 1(3). 365-373.

Sikiru, J. B., & Umaru, A. (2011). Fiscal policy and economic growth relationship in Nigeria, *International Journal of Business Social sciences*, *2*(17), 244-249

Todes, A., & Turok, I. (2018). Spatial inequalities and policies in South Africa: Place based or people-centred? *Progress in Planning*, *123*, 1–31. https://doi.org/10.1016/j.progress.2017.03.001

World Bank (2024). World Development Report 2008. Washington, D.C, USA

Zamir, S., Abbasi, B. N., Yu, L., Sohail, A., & Yang, C. (2023). Transformative role of educational funding in shaping national development across SAARC countries in the 21st century: A panel NARDL approach. *Heliyon*, *9*(10), e20417. https://doi.org/10.1016/j.heliyon.2023.e20417

Zuobomuador, E., & Ebisine, L. (2022). Available online at Agbana, Edwin Zuobomudor & Lubo Ebisine. *Journal of Good Governance and Sustainable Development in Africa (JGGSDA)*, *7*(2), 47–60. Retrieved from http://journals.rcmss.com/index.php/jggsda.CoveredinScopedatabase-https://sdbindex.com/Sourceid/00000431,googlescholar,etc.