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PUBLIC EXPENDITURE AND ECONOMIC GROWTH IN NIGERIA ECONOMY

By

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ABSTRACT

This study examined the impact of public expenditure on economic growth in Nigeria from 1986 to 2023. These data were derived from the World Bank development indicators. The adopted model was capture with four variables: capital expenditure, health expenditure, recurrent expenditure, and education expenditure. The study employed two test method of units root test, ADF-unit root and Phillips-Perron unit root test and all variables were not stationary at level and they are stationary at first difference (1).The Autoregressive distributed lag model (ARDL) is the most appropriately method for this analysis, in the same vein, the F-bounds test indicated a long-term relationship among the variables. Additionally, residual diagnostic tests were conducted to check the reliability of the study's estimates, these tests included normality, serial correlation, and heteroscedasticity test. A model stability test was also conducted using the cumulative sum and sum squared techniques. Empirical findings revealed that two variables, education and recurrent expenditure, are statistically significant and positively impact economic growth. At the same time, health and capital expenditures has adverse significant effect on the economy. In validating Keynesian theory, the Granger causality test demonstrates a unidirectional causality between recurrent spending and economic growth. In line with the above, the study recommends that the government closely monitor the contract awarding process of capital projects to prevent over-estimation of execution costs. This will bring about a significant impact of public investment spending on economic growth. Also, the timely release of budgeted Fund for capital projects should be ensured as this would help in the speedy execution of such projects and enhance their impact on the economy. Similarly, there should be effective channeling of public funds to productive activities, which will significantly impact economic growth. Furthermore, there should be a joint partnership between the government and the private sector to provide essential infrastructural services to promote economic growth and development.

Keywords: Public expenditure, Government spending, Economic growth, Nigeria economy, Fiscal policy.

INTRODUCTION

Government expenditure has remained one of the most important macroeconomic management tools for the controlling of the level of demand and money supply in an Electronic economy. If well managed, it can put an economy on the path of sustainable growth and development. Government has the responsibility to provide essential goods and services (protection and provision of basic infrastructure/amenities) to the citizens who are normally implemented through ministries, departments and agencies (MDA's) (Razzolini & Shughart, 2017). This necessitates each ministry to prepare their estimated revenue and expenditure to be able to perform their responsibilities as expected by citizens. Under the provision of basic infrastructures, the function includes the provision of good health facilities, education, power, agricultural impute, transportation, build bridges and roads. In performing these functions, the government is required to spend huge amount of resources, especially in nations where the level of these infrastructure is low like in Nigeria. The Nigeria government operates a cash budget system where expenditure proposal are anchored on projected revenue. In view of this, Faleti and Myrick (2012) opined that if budget is properly designed, effectively implemented and adequately monitored, it will leads to economic growth. Through budget, government indicates what to spend, determines what to borrow, and sets policy priorities within overall spending limit so as to influence the economy. However, government implementation through disbursing money to different ministries, departments and agencies is of great concern considering its importance to economic growth and development. Increased government spending on socioeconomic and physical infrastructures promotes economic growth. Government spending on education and agriculture, for example, boosts labour productivity and boosts national production growth. Similarly, spending on infrastructure, such as roads, communications, and power, lowers production costs, boosts private sector investment, and boosts firm profitability, all of which contributes positively to economic growt (Wahab, 2016; and Ghali, 2018). Nigerian government expenditure has continued to climb as a result of large income from crude oil production and sales, as well as increased demand for public goods such as roads, agriculture, power, education, security and health. Total government expenditure and its components have continued to climb in the last two decades (Central Bank of Nigeria, 2022). For example, overall government expenditure went from N4,712 billion in 2011 to N4,989 billion in 2015, N12, 081 billion in 2020 and then N14,393 billion in 2022. Nigeria experienced an economic downturn due to dwindling oil revenue within this period, upon which the country relies for it sustenance. Economic growth is defined as an increase in national income or output per capital over a long period of time. Okerekeoti (2022) defined economic growth as a condition in which the rate of increase in national output must outpace the rate of population growth. It entails a gain in Real Gross Domestic Product GDP, which translates to increased national output and wealth. The market capitalization of all products and services produced in a country during a given time period is known as GDP. The gross domestic product of Nigeria shows a declining trend of -1.6% and -1.8% between 2016 and 2020 due to falling oil revenue coupled with COVID-19 pandemic in year 2020 but increased by 3.4% and 3.11% in 2021 and 2022 respectively (Trading Economics, 2022). Despite the dwindling revenue, the need for the creation of enabling and secure environment for human and business to operate is on the increase, this has led to increased spending on infrastructure, agriculture, security and health with a view to achieving steady infrastructure development, human and food security and create conducive environment for capitalist to operate. However, those huge spending has not translated into achievement of steady economic growth in Nigeria (Trading Economics, 2022).The purpose of this research is to examine how public expenditure affected economic growth in Nigeria.

LITERATURE REVIEW

2.1 Conceptual literature

2.1.1 Public Expenditure

Governments incur costs to sustain themselves financially as an organization while also contributing to the greater good of the economy and society. These expenses increase over time as the economy grows and activities expand. One of the significant types of budget in an economy, as identified by Ogboru (2010), is the recurrent and capital budgets. A revenue budget, also known as an operating budget, covers the recurring expenses of an organization, while the capital budget is used for procuring capital assets. Government spending is a fiscal tool that can be used to control various economic factors such as inflation, unemployment, balance of payment equilibrium, and foreign exchange rate stability, as highlighted by Taiwo (2012). When the government increases expenditure during a recession or jobless time, aggregate demand rises, and so do output and supply.

When the supply of goods and services increases and there is also a rise in demand, it leads to a decrease in unemployment and depression. The federal government in Nigeria spends money in two main ways: capital expenditure and recurrent expenditure. Recurrent expenditure refers to the spending done by the government expenses related to running an organization, such salary and loan interest and maintenance. On the other hand, capital expenditure involves investments in projects that benefit the public, things like transportation (roads, airports, etc.), services (healthcare, education, electricity, telecommunications, water), and utilities (electricity, water, & co. Money spent on equipment significantly impact the economy by creating employment opportunities and increasing income. Government intervention has played a crucial role in bringing stability to the economy. Public expenditure plays a vital role in creating a fair and equal society by providing essential welfare facilities. Capital and recurring expenditures are allocated to each of the four broad areas of public spending: administration, economic services, social and community services, and transfers. This research work employs CBN's definition of government expenditure as a working definition.

2.1.2 Economic growth.

Economic growth, as defined by Potters (2021), is the sustained expansion of an economy's productive capacity. It is the process by which a nation's wealth expands, according to Cornwell (2019). Although the term is often used to discuss short-term economic performance, in economic theory, it generally refers to a sustained increase in wealth over an extended period. A period of increased output of goods and services is referred to as economic expansion. To accurately measure such growth, it's necessary to eliminate the effects of inflation. When businesses experience economic growth, they generate more profit. This, in turn, leads to an increase in stock prices, providing companies with capital to invest in their operations and hire more staff. As more jobs are created, people earn more money, which boosts their purchasing power, enabling them to buy more products and services. This increase in purchases drives higher economic growth.

Every country desires positive economic growth, making it the most closely monitored economic indicator (Michael, 2020). It's important to note that economic growth is different from economic development, which is only applicable to economies that operate at or near subsistence level. Economic growth, on the other hand, is a term used to describe the increase in per capita incomes of economies that are already experiencing growth. According to

Rostow, economic growth starts between the take-off and maturity stages, which Clark refers to as the shift from primary to secondary production. One of the most noticeable features of this development is the significant decrease in the number of workers employed in agriculture (Cornwell, 2019).

Economic growth can be measured using either nominal or real (inflation-adjusted) terms. Typically, GDP or GNP, which stand for Gross National Product, are used to measure aggregate economic growth, although other metrics may also be used. GDP is widely regarded as the most accurate way to measure economic growth. This is because it considers the entire economic output of a country. The To calculate the worth of a nation's economy, economists use a metric called gross domestic product (GDP), which accounts for all final products and services generated by firms and sold inside the country as well as outside. The process takes into account neither the intermediate nor the finished goods, but just the latter. The GDP is calculated with exports included in. since they are produced within the country, while imports are deducted from the economic growth calculation. This way, the GDP provides an accurate picture of the country's overall economic performance (Michael, 2020). Potters (2021) outlines two main ways of generating economic growth. The first is by increasing the amount of physical capital goods in the economy, which enhances the productivity of labor. This is achieved by introducing newer, more advanced, and better tools that allow workers to produce higher output within a given time frame. The second method of producing economic growth is through technological advancements, which can lead to greater efficiency and output. With advancements in technology, workers are now able to produce more output by utilizing the same stock of capital goods in innovative ways that are more productive. The rate of technical growth is highly reliant on the rate of savings and investment, as these funds are essential for research and development (Potters, 2021).

Expanding the labor force is one of the ways to stimulate economic growth. In simple terms, more workers produce a greater amount of goods and services, assuming all other factors remain constant. Another approach is to invest in human capital, which involves improving the skills and expertise of laborers. This can be achieved through various means, such as training programs, learning from mistakes, or simply gaining more experience. Ultimately, enhancing human capital leads to increased productivity and economic growth. There are three reliable and manageable ways to improve one's financial situation: savings, investment, and specialization. The term "human capital" can also encompass social and institutional capital, which refers to our ability to trust and cooperate with one another, as well as innovative political and economic policies that protect property rights. These types of human capital can contribute to greater productivity in the economy (Potters, 2021).

THEORETICAL FRAMEWORK

2.2. Keynes Theory of Government Expenditure

In 1936, an English economist, John Maynard Keynes, proposed government expenditure to stabilize the economy. During the Great Depression of the 1930s, Keynes argued that the economy was not performing at its full potential due to insufficient total demand, causing low output and employment. Keynes believed increasing demand would expand production and employment and restore the economy to its full potential. He suggested that this could be achieved through expansionary fiscal policy, which involved the government increasing its spending, reducing taxes, and shifting its budget towards a deficit during a recession instead of balancing its budget. According to Keynesian economics, the government should increase its spending during a recession to boost total demand.

Additionally, reducing taxes would increase households' after-tax incomes, leading to increased spending and higher demand. Conversely, in the event of inflation during an economic boom, Keynesian analysis calls for restrictive fiscal policies such as reducing government spending, raising taxes, and shifting the budget to a surplus to temper excessive demand. In this way, the government can minimize total need and curb inflation. Keynesian economics refutes the notion that the government's budget should always be balanced. The appropriate budgetary policy depends on economic conditions, as many experts argue. According to the Keynesian view, governments should run budget deficits during recessions and surpluses during periods of inflation caused by excessive demand. The question remains: Can fiscal policy be used to reduce economic instability? The Keynesian view of fiscal policy became widely accepted by policymakers and economists in the 1960s, as it was believed that it could help smooth out the ups and downs of the business cycle. However, as Omoke (2009) points out, this is more difficult than initially perceived, and proper timing of fiscal changes is crucial for them to have a stabilizing impact on the economy. The challenge lies in timing these changes correctly, especially regarding the production and distribution of goods and services.

Several theories explain the connection between public expenditure and economic expansion, including Keynesian, Adolph Wagner's, Musgrave's, and Peacock & Wiseman's theories. The study is adapting the Keynesian theory of government expenditure. Nigeria is still a developing country, and its financial system is in its early stages of development, making it difficult to obtain sufficient funds to support its growth and development. The Keynesian theory posits that the private sector alone cannot maximize productivity for the benefit of the economy as a whole. This theory is relevant in any system that is neither purely private or state-run, as it provides a balanced approach. When the economy slows down, the government increases expenditure, per the Keynesian fiscal policy theory. In theory, job creation requires a concept known as a multiplier. This argument suggests that if the government invests in job creation, the increase in employment will result in more spending power for workers. Keynes, an economist, believed that active government policy could successfully control the economy. He argued that uneven government spending should not be considered incorrect and that the government should address issues now rather than leaving them to be resolved by market forces, as we will all die in the long term.

Nwamuo (2020) investigated the “impact of fiscal policy on the economic growth in Nigeria using time series data from 1981 to 2018. Government domestic debt, government external debt, government recurrent expenditure, government capital expenditure, and non-oil revenue were employed as the explanatory variables, while gross domestic product was employed as a proxy for economic growth. Augmented Dickey-Fuller test technique, Johanssen cointegration test, and vector error correction were employed in analyzing the data. Augmented Dickey-Fuller test results showed that the variables were stationary though at different levels. Johanssen's cointegration test result showed that the variables in the model were co-integrated, implying that the variables have a long-run relationship. The vector error correction estimate of the short-run relationship showed that domestic debt, external debt, and non-oil revenue have a positive and significant impact on economic growth, while recurrent expenditure and capital expenditure have a negative and significant impact on economic growth. The vector error correction estimate of the long-run relationship revealed that domestic debt and external debt have a negative and insignificant impact, while recurrent expenditure has a negative and significant impact on economic growth. The result showed that capital expenditure has a negative and insignificant impact on economic growth, while non-oil revenue has a positive and significant impact on economic growth”.

EMPIRICAL REVIEW

Onifade, Çevik, Erdoğan, Asongu, and Bekun (2020) carried out an empirical retrospect of the impacts of government expenditures on economic growth in Nigeria from 1981 to 2017. The independent variable was the percentage of GDP spent on government recurrent expenditures, the percentage of GDP spent on government capital expenditures, the percentage of GDP owed by the government as a percentage of GDP, the percentage of GDP spent on private consumption, and the percentage of GDP created each year through gross capital formation. The dependent variable was real GDP. The data was analysed using the Granger Causality Test, the ADF and PP unit root tests, the ARDL method developed by Pesaran, and the ADF and PP augmented unit root tests. According to the data, government recurring expenditures have a large negative effect on GDP growth, whereas public capital expenditures have a little positive effect. Based on the results of the Granger Causality Test, it is clear that public spending and domestic investment are directly and powerfully caused by government fiscal expansion funded by debt, which in turn is a Granger cause of real economic growth.

Uffie and Aghanenu (2019) investigated "fiscal policy and manufacturing sector output in Nigeria from 1981 to 2016. Government expenditure and tax on company income were employed as the exogenous variables, while manufacturing output was employed as the endogenous variable. Augmented Dickey-Fuller unit root test and Autoregressive Distributed Lag (ARDL) Bounds test were employed in analyzing the data. It established that government expenditure upwardly drove manufacturing output, which can be underscored by increased government expenditure on capital infrastructure while company income tax dampened output owing to multiplicity of taxes.

Imide (2019) carried out an empirical review of the impact of fiscal policy on the manufacturing sector of the Nigerian economy from 1980 to 2017. The index of the manufacturing sector was employed as the dependent variable, while government expenditure, company income tax rate, and federal government domestic debt outstanding were employed as the explanatory variables. Ordinary least square techniques were employed in analyzing the data. The results reveal that the Government expenditure and company income tax rate have a positive relationship with the Index of the manufacturing sector, while the federal government domestic debt outstanding has a negative linear relationship with the Index of the Manufacturing Sector.

Salam and Murtala (2019) carried out an analysis of the effect of government expenditure on per capita income in Nigeria from 1986 to 2017. This analysis utilised per capita income as the dependent variable and government recurrent spending, gross fixed capital creation, and population as the explanatory variables. The data was analysed using the Parsimonious Vector Error Correction Model (VECM), the Parsimonious Cointegration Test (CECT), and the Unit Root Test. The results show that in both periods, Government Expenditure has a negative association with per capita income. Between 1981 and 2016,

Aliyu, Ndagwakwa, Zirra, Salam, and Mohammed (2019) investigated how fiscal policy affected economic growth in Nigeria. Gross capital formation (a proxy for investment) and the employment rate (a proxy for labour supply) were included into a model that predicts economic growth (proxy for economic performance). The data was analysed using the Error Correction model estimate, the cointegration test, and the Augmented Dickey-Fuller test. Economic growth (a proxy for economic performance) in Nigeria between 1981 and 2016 was shown to be partly attributable to the country's fiscal strategy.

Dikeogu and Itode (2018) carried "out an empirical analysis of fiscal policy and macroeconomic performance in Nigeria from 1970 to 2017. The fiscal policy variables covered in this study include government capital expenditure, government recurrent expenditure, and Total Government revenue. Three models were formulated for the study. The fiscal policy variables were regressed against gross domestic product growth, inflation rate, and unemployment rate. The study adopts the ARDL, Engle-Granger Cointegration, and Error Correction Modeling techniques for the analysis. The results indicate that government capital expenditure has a positive insignificant effect on unemployment, government capital expenditure has a negative insignificant effect on unemployment, and government recurrent expenditure has a negative insignificant effect on unemployment. The study further revealed that government capital expenditure negatively impacted the gross domestic product growth rate, government recurrent expenditure has a negative insignificant effect on the gross domestic product growth rate, while TGR has a positive impact on the gross domestic product growth rate.

Adeyemi and Odetayo (2017) carried out a study on fiscal policy sustainability and economic growth in Nigeria from 1980 to 2015. Government revenue, government expenditure, and fiscal deficit were employed as the independent variable, while economic growth proxied by real gross domestic product was employed as the dependent variable. Augmented Dickey-Fuller and Philips-Perron statistics, Autoregressive Distributed Lag (ARDL), and Error Correction Model (ECM) were employed in analyzing the data. The results of the study showed that government revenue, government expenditure, and fiscal deficit increased tremendously during the period covered. The results of ARDL, which were further subjected to the Wald test, revealed that fiscal policy was weakly sustainable in Nigeria during the period". Furthermore, the findings demonstrated that fiscal policy factors do in fact affect economic development in Nigeria over the long term.

Bashir, Hamza, and Rafiat (2017) "investigated the impact of government expenditure on economic growth in Nigeria from 1981 to 2014. The analysis uses gross domestic Product (GDP) as the dependent variable, and the independent variables are labor, human capital, physical capital, government capital expenditure, and government recurrent expenditure. Ordinary Least Square (OLS) method was employed in analyzing the data. The result indicates that there is a negative and insignificant relationship between human capital and GDP, a positive but insignificant relationship between physical capital and GDP, and a positive but insignificant relationship between government capital expenditure and GDP. Furthermore, the result of the Granger causality test shows that government expenditure Granger caused GDP, but GDP did not Granger cause government expenditure. The study concludes that government expenditure has an impact on economic growth.

Nnenna, Stanley, and Ijeoma (2017) investigated the effect of government expenditure on human capital development in Nigeria using time series data from 1986 to 2015 obtained from the Central Bank of Nigeria (CBN) statistical bulletin. The study employed the Vector Autoregression (VAR) analysis as its method of analysis. The result of the VAR model shows that the Human Development Index (HDI) is significant in the current year but tends to converge insignificantly in the previous years. What influences human capital development in Nigeria is the nature, pattern, and level of governmental expenditure in education and health, and government policy in the sector could be targeted in these areas".

Adekoya (2017) "evaluated the impact of fiscal fundamentals on unemployment in Nigeria from 1981 to 2015. Government expenditure, government revenue, interest rate, and public debt were employed as the independent variable, while the unemployment rate was employed

as the dependent variable. Ordinary least square was employed in analyzing the data. The results indicate that government expenditure and interest rate exert a significant positive impact on the unemployment rate in Nigeria, whereas government revenue and public debt have an insignificant positive impact on the unemployment rate. The result equally shows that unemployment granger cause government expenditure and government revenue in Nigeria.

Arikpo, Ogar, and Ojong (2017) investigated the impact of fiscal policy on the performance of the manufacturing sector in Nigeria from 1982 to 2014. Manufacturing output was employed as the endogenous variable, while government revenue and government expenditure were employed as the independent variable. Ordinary least square multiple regression was employed in analyzing the data. The study found no significant relationship between government revenue and manufacturing sector output in Nigeria". Additionally, the research discovered a statistically significant correlation between federal spending and industrial production in Nigeria.

Onakoya, Afintinni and Ogundajo (2017) examined taxation revenue and economic growth in Africa using time series data from 2004 to 2013. The data was analysed using a method called regression. Tax income was shown to have a positive correlation with GDP and to foster economic expansion in Africa. The 5% threshold of significance was met. The research found that tax income significantly contributed to GDP growth.

Okafor, Ogbonna, and Okeke (2017) "investigated the effect of government expenditure on human capital development in Nigeria from 1986 to 2015. Governmental expenditure in education and government expenditure on health were employed as the independent variables, while the human development index was employed as the dependent variable. Augmented Dickey-Fuller Unit root Test and Vector Autoregression Test were employed in analyzing the data. The findings show no direct relationship between Human Development Index and Government expenditure in education and health. The study has also shown that an inverse relationship exists between the human development index and government expenditure on education and government expenditure on health in the previous years. Human development index was also observed to be positively related to government expenditure in education and health in the current year.

RESEARCH METHODOLOGY

3.1 Research Design

. The research is expo facto research design which is used to obtain relevant secondary data. Examining how government expenditure affects GDP growth in Nigeria is the focus of this research.

3.2 Kinds of Data

This study relied only on secondary data sources, which are sourced from the publications of the CBN, NBS, and other sources. It relied on time series data on all the variables in the model from 1986 to 2021. Specifically, data on Real gross domestic product (RGDP), Capital Expenditure (CE), recurrent expenditure (RE), Health Expenditure (HE)) and education expenditure (EE) is required to estimate the relationship.

3.3 Sources of Data

Data is the most essential material for any economic research or analysis and is indispensable to econometrics. Indeed, Gujuranti (2003) asserted that the success of any econometric

analysis ultimately depends on the availability of appropriate and accurate data. In other words, the researcher should keep in mind that the research results are only as good as the data quality.

Using Annual Time Series data, this study runs from 1983-2021, covering 38 years. Secondary data obtained from the Central Bank of Nigeria (CBN) statistical bulletin, National Bureau of Statistics (NBS) various issues, Central Bank of Nigeria (CBN) Annual Report, and Statement of Account were used in the course of the study.

3.4 Method of Data Analysis

3.4.1 Descriptive Statistics

Descriptive statistics will be used to collect information on each variable's unique properties. What this demonstrates is the mean, median, maximum, and minimum values, standard deviation, skewness, kurtosis, Jarque-Bera, and probability. It also measures the normality or otherwise of the data used in the analysis.

Decision Rule: Decision rule is to reject when p. value is less than 0.05 level of significance

3.5 Specification of the Model

Since this study is set out to model the relationship among a given set of time-series variables, it is pertinent to carry out some pre-test on the variables of interest so as to be appropriately guided in the model specification. The variables of interest are briefly described as follows; real gross domestic product (RGDP), Capital Expenditure (CE), recurrent expenditure (RE), health expenditure (HE) education expenditure (EE). The model has been adopted from Dikeogu (2016) and has been modified to be:

RGDP = f (CE, RE, HE, EE)----------(3.1)

Equation 3.1 can be stated econometrically to include the stochastic random element as follows:

$RGDP = \beta_0 + \beta_{1CE} + \beta_{2RE} + \beta_{3HE} + \beta_{4EE} + \mu$---------- (3.2)

Where

RGDP = Real Gross Domestic Product

CE = Capital Expenditure

RE = Recurrent Expenditure

HE = Health Expenditure

EE = Education Expenditure

μ = Stochastic Error Term

CE, RE, HE and EE are expected to be positively related to the RGDP on *a priori* expectation.

The Bs are coefficients to be estimated and their a-priori signs indicated that all the coefficients are positively related to RGDP. While μ is the random error, with mean zero and constant variance.

DATA PRESENTATION AND ANALYSIS

4.1 Data Presentation

The data used for this study are contained in Appendix I. They include Real Gross Domestic Product (RGDP) capital expenditure (CE), recurrent expenditure (RE), education expenditure (EE), and health expenditure (HE). The descriptive analysis forms the starting point of this research analysis for the purpose of ascertaining the nature and behaviours of the series adopted in the model. Furthermore, the study embarked on unit root testing through the Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) approaches to ascertain the stationarity of data.

4.2 Descriptive Statistics

The summary of descriptive statistics is given in Table 4.1. It can be deduced from the Table that the mean GDP value is ₦39469.49 billion, which is indicative of a robust economy having potentials for future growth. While the average capital expenditure is ₦611.826 billion which is lower than the mean recurrent expenditure of ₦1982.131 billion. Thus, suggesting that more recurrent spending has been the focus of the Federal government than capital spending which is the most critical for economic growth. The mean Education expenditure for the study period was ₦166.90 billion, and the health expenditure was ₦225.50 billion. Both values for such growth enhancing sectors can be regarded as inadequate given the population size of the country.

The Jarque-Bera statistics for the variables shows that with the exception of GDP which is the only variable shown to be normally distributed; capital, recurrent, health, and education expenditures were all revealed not to be normally distributed. Consequently, this suggests that the research series may exhibit non-stationarity and for this reason, a unit root test on each variable is significantly justified.

Table 4.1: Descriptive Statistics Result

	GDP	CE	RE	EE	HE
Mean	39469.49	611.8261	1982.131	166.8989	225.5079
Std.Dev.	20883.23	593.0993	2331.438	193.5188	423.6715
Jarque-Bera	4.215344	7.563021	9.067970	6.037875	36.72456
Probability	0.121521	0.022788	0.010738	0.048853	0.000000
Observations	37	37	37	37	37

Source: Author estimated output.

4.3 Unit Root Test

Two test methods were employed in this analysis for stationarity testing and they are the ADF and PP unit root techniques. Their output is given in Table 4.2 and 4.3 for interpretation and verification on each of the variable used. The test involved three criteria including unit root test with only a constant, with constant and trend, and without constant and trend.

As a necessity when carrying out economic analysis, it is very important to as a matter of primary concern determine the stationary state of the data being employed. The essence for this is grounded on the reasoning that a beforehand knowledge of the stationarity of the research variables will critically aid in guiding any empirical submission. One traditional notion with standard econometric analysis is the premise of stationarity in the time series, when in the real sense variables are more likely to be non-stationary. Consequently, the usual statistical test ends up producing spurious outputs, while the derived submissions from the analysis are prone to be misleading and inaccurate.

Represented in Tables 4.2 and 4.3 are the unit root results conducted on the study data. Specifically, presented in Table 4.2 is the ADF unit root test, while Table 4.3 captures the PP unit root output. Common to both Tables is the fact that all the variables were not level stationary judging from the insignificance of their probability values. However, further unit root testing at the first difference level attested to the stationarity of the variables at the level. Hence, the conclusion that GDP, CE, RE, EE, and HE are first difference stationary variables as given by the ADF and PP tests outputs.

Table 4.2: ADF unit root test

	ADF Test at Level			**ADF Test at 1st Difference**			**Order of Integration**
	With Constant	With Constant & Trend	Without Constant & Trend	With Constant	With Constant & Trend	Without Constant & Trend	
	-1.176	-1.280	2.274	-3.056**	-3.110	-1.781*	
Prob.	0.674	0.88	0.99	0.04	0.12	0.07	1(1)
	-1.912	-1.656	2.040	-6.540***	-7.217***	-5.228***	
Prob.	0.3233	0.75	0.988	0.000	0.000	0.000	1(1)
	-2.583	-2.196	3.233	-8.053***	-9.038***	-2.599**	
Prob	0.1060	0.477	0.999	0.000	0.000	0.000	1(1)
	-2.836*	-0.307	0.432	-7.502***	-7.737***	-1.558	
Prob.	0.07	0.99	0.802	0.000	0.000	0.1102	1(1)
	-1.200	-4.468***	0.527	-10.545**	-10.686**	-0.447	
Prob.	0.66	0.006	0.825	0.000	0.000	0.5123	1(1)

Where *, **, *** indicates significance at 10%, 5%, and 1% respectively, and *l* is the logarithm operator.

Source: Author estimated output.

Table 4.3: PP unit root test

	PP Test at Level			PP Test at 1st Difference			Order of Integration
	With Constant	With Constant & Trend	Without Constant & Trend	With Constant	With Constant & Trend	Without Constant & Trend	
	-0.647	-1.395	4.269	-3.056**	-3.110**	-1.642*	
Prob.	0.847	0.845	1.000	0.04	0.120	0.09	1(1)
	-2.107	-1.566	1.942	-6.492***	-7.217***	-5.382***	
Prob	0.243	0.55	0.99	0.000	0.000	0.000	1(1)
LogRE	-6.848***	-2.059	3.039	-8.095***	-14.747**	-5.360***	
Prob	0.000	0.55	0.99	0.000	0.000	0.000	1(1)
	-2.656*	-3.157	-0.552	-9.109***	-16.457**	-6.864***	
Prob	0.09	0.1095	0.8305	0.000	0.000	0.000	1(1)
	-1.198	-4.444***	1.111	-14.725**	-28.975**	-8.223***	
Prob	0.6643	0.0061	0.9277	0.000	0.000	0.000	1(1)

Where *, **, *** indicates significance at 10%, 5%, and 1% respectively, and *l* is the logarithm operator.

Source: Author estimated output.

4.4 ARDL bounds cointegration test result

After ascertaining the stationarity of the series, the long-term nexus between the variables are determined and presented using the ARDL bounds test for cointegration approach. The bounds cointegration test was employed to derive the long-run association between the resear regressors and the output is captured in Table 4.4.

From Table 4.4, the bounds test for cointegration revealed that there is long-run association or cointegration nexus between CE, RE, EE, and HE. This outcome is informed by the computed F-statistic (12.233) exceeding the upper bounds values at the 1% (4.37), 2.5% (3.87), 5%(3.49), and at 10%(3.09) levels. Thus, the null hypothesis of absence of cointegrating relationship between the regressor is significantly invalidated at all the significant levels. Stated otherwise, the presence of long run association between capital expenditure, recurrent expenditure, education expenditure, and health expenditure is valid and it significantly affects the Nigeria economic growth.

Table 4.4: ARDL F-Bound Test Result for Long-run Equilibrium

Equation	Test statistic	Value of F-Statistic	K	Sign.	I(0)	I(1)
	Sample size (n) = 37	12.233	4	10%	2.2	3.09
				5%	2.56	3.49
				2.5%	2.88	3.87
				1%	3.29	4.37

Source: Authors estimated output.

4.5 ARDL Long-run outcomes

The output in Table 4.5 demonstrates a significant adverse effect of capital spending on economic growth. Precisely, it was deduced from Table 4.5 that a percentage climb in capital expenditure will lead to a significant 0.311% fall in economic growth. This outputs significance is adjudged using the derived probability value which falls within the 5% significance level. In contrast, recurrent expenditure has a significant positive effect on economic growth. The outcome expressed that a percentage increase in recurrent government spending will yield a 0.481% rise in economic growth. The significance of this relationship is based on its probability value falling within the 1% significance level.

Similarly, the coefficient of educational expenditure which is 0.332%, demonstrates a significant enhancing effect on the Nigerian economy. That is, with a percentage increase in education expenditure, the economy is anticipated to grow significantly by 0.332%. Also, the relevance of the association is based on the probability coefficient aligning within the 10% significance level. In contrast, health expenditure of -0.235% reveals an insignificant adverse effect on Nigeria's economic growth. The result indicates that a percentage climb in health outlay will produce an insignificant decline of 0.235% in the growth of the Nigerian economy.

Table 4.5: ARDL long-run estimates for Public expenditure and economic growth in Nigeria

Variables	Coefficient	Std. Error	t- statistics	Prob.
	-0.311	0.113	-2.749	0.011**
	0.481	0.160	3.014	0.006***
	0.332	0.175	1.905	0.068*
	-0.235	0.158	-1.494	0.147
Intercept	8.889	0.638	13.943	0.000***

Note: *, **, and *** denotes significant at 10%, 5%, and 1% levels.

Source: Author estimated result.

4.6 ARDL Short-run Results

Similar to the long-run result in Table 4.5, Table 4.6 demonstrates that public capital outlay has an adverse short-run effect on economic growth. However, the effect is revealed to be insignificant. The regression shows that with a percentage increase in capital expenditure, economic growth will retrogress by 0.01%. However, this effect is insignificance based on its probability value being above the 1%, 5%, and 10% significance levels. In contrast, the coefficient of education spending which is -0.028, expressed a significant positive short-run effect on the Nigerian economy. Based on the coefficient, a percentage climb in education outlay will produce a 0.028% enhancing effect for Nigeria's economic growth. The probability value for this outcome shows its significance at the 1% level.

Furthermore, Table 4.6 reveals the error correction mechanism (ECM) which is the indicator that captures the speed of adjustment in ARDL modelling from short to long-term equilibrium. The minus sign of the ECM coefficient and its 1% significance aligns with a priori anticipation of its characteristic nature in ARDL regression. Its coefficient of -0.126 indicates that about 13% of short-run distortion is being corrected for annually for long-run equilibrium restoration to be attained. Stated differently, in the event of short-term disequilibrium in the association between capital expenditure, recurrent expenditure, education expenditure, and health expenditure, about 13% of the disequilibrium will be corrected for annually for long-term growth path restoration in the Nigerian economy.

Table 4.6 further expressed the R^2 as 0.62 or 62% approximately, indicating that the linear relationship between the variables to about 62%. In order words, the study series are linearly related by 62%. Furthermore, the adjusted R^2 is 0.59 or 59% approximately, which suggest that all the variables adopted in this research model can account for 59% variation in economic growth, while other exogenous factors explain the remaining 41%.

Table 4.6: ARDL short-run estimated outcome for public expenditure and economic growth in Nigeria

Variables	Coefficient	Std. Error	t- statistics	Prob.
	-0.009	0.015	-0.615	0.544
	-0.028	0.007	4.198	0.000***
	-0.126	0.014	-9.327	0.000***
	0.62			
	0.59			

Note: *, **, and *** are Significance at 10%, 5%, and 1%.

Source*:* Author's Estimated result.

4.7 Causality Test output

Table 4.7 captures the causal association between public expenditure and economic growth variables used in the study. In the first panel, the causality between capital expenditure and economic growth was revealed to be insignificant, given the high probability values for both hypotheses. Hence, no causal relationship existed between government capital outlay and economic growth. However, the second panel indicates a unidirectional causal nexus from

recurrent public outlay to economic growth which is significant at the 1% significance level. A reverse causal impact from economic growth to recurrent spending is expressed to be insignificant. Represented in the third panel is the causal impact between education spending and economic growth. The outcome suggested a bidirectional nexus between both variables, and while the causal effect from government education outlay was significant at the 5% level, the reverse causality from economic growth to government education expenditure was relevant at the 10% significance level.

Similarly, Table 4.6 demonstrated a bidirectional causal association between public health spending and economic growth; and while Granger causality from public health expenditure to economic growth was significant at 10% level, Granger causality from the latter to the former was significant at 5% level.

Table 4.7: Granger causality result

Null hypothesis	Obs.	F-stat.	Prob.
Log(CE) does not Granger cause log(GDP)	37	2.203	0.148
Log(GDP) does not Granger cause log(CE)		0.393	0.535
Log(RE) does not Granger cause log(GDP)	37	7.600	0.0096***
Log(GDP) does not Granger cause log(GDP)		0.802	0.377
Log(EE) does not Granger cause log(GDP)	37	6.456	0.016**
Log(GDP) does not Granger cause log(EE)		3.425	0.073*
Log(HE) does not Granger cause log(GDP)	37	2.979	0.094*
Log(GDP) does not Granger cause log(HE)		4.683	0.038**

Note: *, **, and *** are Significance at 10%, 5%, and 1%.

Source*:* Author's Estimated result.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

This study aimed to explore the correlation between public expenditure and economic growth in Nigeria between 1986 and 2021. The research considered four theories: human capital and endogenous growth model, Peacock and Wiseman's view of expenditure, Adolph Wagner's idea of public expenditure, and Keynes's theory of government expenditure. The study used several indicators, including actual gross domestic product, public capital expenditure, public recurrent expenditure, public education expenditure, and public health expenditure. The data was collected from the World Bank development indicators and analyzed for unit root presence using Augmented Dickey-Fuller and Phillip-Perron's unit root test techniques.

The study used the bounds cointegration method to establish long-term association and the Autoregressive Distributed Lag method to draw research inferences. To ensure the accuracy of the estimates, residual diagnostic tests were conducted for normality, serial correlation, and heteroscedasticity. In addition, the model stability test was carried out using the cumulative

sum and cumulative sum squared techniques. The results confirmed that the model is a good fit and reliable for policy recommendations.

5.2 Conclusion

Based on the empirical findings in this study, it is concluded that a significant relationship exists between public expenditure and the Nigerian economy. This conclusion validates Keynes' theory of government spending, which supports government intervention in the economy through fiscal policy measures to aid or achieve economic growth.

In addition, this research concludes that public capital outlay could have been more efficient in promoting economic growth in Nigeria, given its empirical significant adverse effect on the economy. However, government recurrent spending significantly and positively enhanced economic development within the study period. As previously noted, the Nigerian government's use of subsidy payments in different sectors of the economy to redistribute income and wealth has proved beneficial for economic growth in this study. Likewise, education expenditure has had a significant positive effect on the economy's growth. Thus, this suggests that the various fiscal interventions in the Nigerian educational sector are justified since they enhanced the economy's development within the study period.

However, public health outlay has not significantly cause by inadequate sector funding by successive governments within the study period. Hence, the rise in medical tourism and the country's poor state of population health. Nevertheless, while recurrent spending can impact economic growth and not vice versa, there is a symbiotic nexus between government education outlay and economic development, as well as public health expenditure and economic growth in Nigeria.

5.3 Recommendations

For the various components of government expenditure, such as capital, recurrent, In order for investments in education and health care to contribute significantly to economic growth, the following policy options are recommended:

The government should closely monitor the contract awarding process of capital projects to prevent overestimating execution costs. The public response to this will be substantial investment spending on economic growth. Also, the timely release of budgeted sums for capital projects should be ensured as this would help in the speedy execution of such projects and enhance their impact on the economy.

Directing government spending towards productive purposes is crucial to fostering economic growth. Specifically, it is not out of place for the government to subsidize manufacturing and service provision that significantly impact the purchasing power of the majority of the citizenry and, by extension, the economy's growth.

Furthermore, It's important for businesses and the government to work together. to provide services that are fundamental to the functioning of the economy's infrastructure.

The Nigerian government should offer incentives to the private sector through tax holidays to encourage the growth of public-private partnerships in the country for the economy's good. For instance, the current Federal Government Road Infrastructure Tax Credit policy targeted at the private sector is meant to develop physical infrastructure in the country; such policy should be sustained, and the scope should be widened to encourage the private sector's participation in health and education sector infrastructural upgrades. This measure will

complement the government's efforts in these sectors and boost their contributions to the economy's growth.

It is also vital that all arms of government should coordinate government consumption spending to prevent the "crowding out" impact on public spending.

In order to prevent public monies from being diverted to government officials' personal accounts, there should be a high degree of openness and accountability on government expenditure in many areas of the economy. The Economic and Financial Crimes Commission (EFCC) and the Independent Corrupt Practises Commission (ICPC) are two examples of anti-graft or anti-corruption agencies that might benefit from an increase in government budget to better track down and punish corrupt officials.

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