FBMS Journal of Family Business and Management Studies
Journal of Family Business and Management Studies
ISSN 2821-9643 (online) Volume 17 Number 1, January-June 2025

Government Expenditure and Economic Growth in Nigeria

Received: 19.01.2023
Revised: 29.09.2023
Accepted: 08.12.2023

Nwikpugi, Josephine Barine[1] and Agbana, Zuobomudor Edwin[2]
[1]Ignatus Ajuru University of Education Rivers State
P.M.B. 5047 Rumuolumeni, Port Harcourt,
Rivers State, Nigeria.
[2]International Institute of Tourism and Hospitality,
Yenagoa Bayelsa State, Yenagoa, Nigeria
[1]Josephinebarine8@gmail.com, [2]edwinagbana@gmail.com

Abstract

Before the 19th century, public expenditure was considered tobe a significant government involvement in the economy. In global academic and political debate, the impact of fiscal imbalances on economic growth has been intense. Infrastructural deficits in Nigeria have been shown in recent research, which may have hindered economic growth. As a result, the objective of this research was to determine the long- and short-term effects of Nigerian government spending on economic growth. Central Bank of Nigeria Statistics Bulletin data were used in this study (2020). The research included both descriptive and analytical techniques common to economics. Additional statistical methods were used in the estimation of the model of economic growth, such as the Johansen-Co-integration Test (JCT) and Vector Auto-regression Mechanism (VECM). In the short term, the study found that government spending on education and agriculture had a positive impact on the Real Gross Domestic Product (RGDP), while spending on health, transportation, and debt servicing had a negative impact. Government expenditure on education (GEE), infrastructure (GERC), and debt service (GEPDS) have all been shown to be long-term investments (GEPDS). In light of this, we argue that government spending in Nigeria is a growth-promoting factor. This suggests that there should be an increase in government sectoral allocations for education and agriculture, as well as government regulation and monitoring of implementation processes to ensure that released funds are used for their intended purpose. Government should also carry out a constant review of health sector reforms to reduce the burden of inefficient health care delivery.

Keywords: Government Expenditure, Economic Growth in Nigeria, Johansen Co-integration, Vector Auto-regression Mechanism, the Real Gross Domestic Product.

Introduction

Most countries appear to be experiencing an increase in public expenditure in recent time and the impact of such on economic growth has become topical issues. For instance, Wagner (1893), established the law of expanding state activities which state that increased government spending leads to increased economic growth. The assumption was primarily inspired by Germany's fast industrial and economic expansion in the nineteenth century. The reasoning behind this is that, sectors with high social importance but low rates of return will not attract private investment, necessitating the use of government funding. The government's goal is to improve allocative and distributional equity by distributing more public and quasi-public commodities.

Government involvement might be viewed as an important aspect of public spending aimed at getting the best possible outcomes in terms of public goods supply. In the debate over government spending, there are two schools of thought. The first contends that increased government spending is harmful to the system's efficiency, production, and growth. This viewpoint is based on the fact that the public sector is not sensitive to market signals and has a massive regulatory procedure that raises output costs. The second school of thought contends that, certain goods and services that would not otherwise be provided by the private sector which are required to put the economy on a predetermined growth path should be provided by the government. This exposition was made manifest by Keynes (1936) assertion that government intervention through the provision of most public goods is to grow the economy. With this exposition, we assumed that linear relations in the Keynesians prepositions runs contrary with the classical views. On the contrary, a negative association has been modeled between government expenditure and economic growth by Landau (1986) and Barro (1986). A different perception was encapsulated in the views of Enweze (l973), Longe (l 98l), Ram (1986), and Aschauer (1973) who through a critical empirical exposition discovered a significant relationship.

There is no debate about the pattern of change in Nigerian public spending over the years. However, it is still unclear if these increases in government spending have resulted in the expected economic growth and prosperity for the people. Corruption and mismanagement of public funds have stymied the country's ability to make proper budget appropriations and execute capital projects, leaving the country with massive infrastructure gaps and putting a brake on the country's economic progress. Furthermore, due to the demographic expansion, there have been changes in the dynamics of demand for public services, putting increased strain on the current insufficient social services. While generating revenue is vital, we believe that channeling revenue to have the desired impact on the economy through accomplishing desirable macroeconomic goals and objectives is a more pressing issue that must be addressed. As a result, this study re-examines the effects of government spending on economic growth in the Nigerian economy while taking into account the differing viewpoints in the literature. Furthermore, the study adds to

the government spending-led growth literature, which is based in part on exclusion of debt financing in relation to the economy's private sector spending outcome. These studies used aggregate measures of government expenditure, such as government consumption growth or government consumption as a percentage of GDP and these measures of expenditure are not robust enough to capture the major sectors of the Nigeria economy. Also, the theoretical frameworks upon which some of these studies were built do not have a well-developed approach for incorporating economic theory. There is lack of consensus on the impact of government size on economic growth, also economic theory does not provide a well-developed method of incorporating prudency aimed at achieving optimal outcome with respect to public goods. Over the years, Nigerian have been increasingly voting and spending huge amount of money on operating expenses, over- head cost and infrastructure with an expectation that it would improve and speed up the process of development and social welfare. However the prevailing realities in the country seem to suggest that the economy is not commensuration in the rate of output and productivity, the available statistics suggest that Nigeria's public expenditure as proportion of GDP has a problem. The Nigerian state has been in deficit when it comes to infrastructure that despite the rise in government expenditure, there are still public outcry over decaying of infrastructural facilities regardless of its importance to policy decisions.

To this end therefore, a gap in the literature existed and to fill that gap, this study investigated the effect of government expenditure on economic growth in Nigeria. Economic growth in the context of this study was estimated with real gross domestic product (RGDP).

The paper is organized into five sections. Following the introduction, Section II provides a brief literature review. Section Ill deals with data analysis, and the analytical framework, IV. Looked at results and discussion while section V. summaries the study and recommendation.

Literature review

Conceptual clarification

Government expenditure

The term Government Expenditure refers to the deliberate purchases of goods and services by the government. This includes public consumption and public investment, as well as transfer payments, (pension, social benefits) and capital transfers. This money is spent in the hopes of supplying goods and services for human consumption and satisfaction. Government expenditure is defined in this study as those government spending that complement the structural deficit, such as expenditures on education, health, agriculture, road and construction, and debt servicing payments. According to the theory, an increase in government spending will result in increased economic growth.

Economic growth

Todaro (2003) defined economic growth as a long-term sustainable increase in capacity to supply diverse economic goods to the population's growing capacity. The three determinants of

economic growth according to the definition above are; sustained rise in the national output as the manifestations of economic growth; the ability to provide a wide range of goods and services like the sign of economic maturity; and the advancement in technology which provides the basis or precondition for continuous economic growth. In economics literature, there has been this distinction between long-term and short-term economic growth. The concept of short-term economic growth refers to the business cycle while the concept of long-term economic growth refers to productivity growth over a given time. Thus; economic growth increases the maximum capacity of a given economy, involving both the supply and demand-side expansion but does not require a change in the rate of inflation. This study relied on long term economic growth which has to do with productivity. Economic growth in this research is defined as the continuous increase in the country's output over a given period of time and it will be measured with Real Gross Domestic Product (RGDP).

Theoretical literature

The classical theory/ Keynesian approach;

The classical believed that government intervention bring moreharm than good to the economy and that private sector should carry out most of the activities. In his welfare of nations, Adam Smith (1779) advocated much on the laissez-faire economy and minimal government involvement in delivering public goods, law and order especially in providing those investments that the private sector cannot adequately offer due to their high risk or unprofitable nature (Jibir & Aluthge, 2019b). In this dichotomy, the objective is certainly not growth. This philosophy ruled the global economy until the Great Depression of the 1930s, which exposed the classical system's failure and it became universal issues.

John Maynard Keynes (1936), on the other hand, advocated for the use of government expenditure to promote growth and development by encouraging aggregate demand, particularly during economic downturns that needed intervention as short run cure, government spending is the multiplier effect that gives individual purchasing power, and producers will in turn produce more creating more employment showing causality from expenditure to national income. This is the most cogent reason for the government's involvement in economic operations in modern times. To Keynes, government spending is an exogenous variable that can generate economic growth instead of an endogenous phenomenon hence he believed the role of government is crucial to avoid depression and bring stability in the short run but should be done with caution to strike a balance between inflationary situations and unemployment in the economy. This is because the government is required to address short-term economic distortions (Jibir & Aluthge, 2019b; Singh & Sahni, 1984) as well as to construct a socially optimal path for a country's growth and development (Ram, 1986). The government also exists to provide essential services like health, education, communication, and transportation, among others, through expenditures that have an impact on residents' well-being and the private sector's business climate (Aladejare, 2019; Jibir & Aluthge,

2019b; Ukwueze, 2015). Long-run or steady-state economic growth is primarily influenced by discount factors, according to the premises of neoclassical growth models of Solow (1956), Cass (1965). According to the theory, the change can only be visible through a massive change in the: rates of capital depreciation, population growth, and technical progress. Although distortionary taxation and productive government expenditures may have an impact on human or physical investment propensities, these changes only affect the steady-state factor ratios, not the rate of economic growth, because the rate of economic growth changes and resets at an old or new steady-state (Bleany, Gemmell & Kneller, 2001).

By inference, neoclassical growth models indicate that government expenditure has only a short-term impact on economic growth. In contrast, endogenous growth models such as those proposed by Barro (1990; 1991) and King and Rebelo (1990), claim that distortionary taxation and expenditures will have a significant impact on both long-run level output path and growth rate with a change in the distortionary tax rate, while it will increase with an increase in government spending. Hence, non-distortionary taxation and unproductive government expenditures do not affect the steady-state growth rate, according to endogenous growth models (Sala-i-Martin &Barro, 1995).

In economics literature, a German political economist, Adolph Wagner (1835-1917) offered a theory of government expenditure (1883). According to him, as a country's real per capita income rises, so does its proportion of gross domestic product, the share in aggregate increases and result in pressure for social progress. To put it in another way, as per capita income rises as a result of industrialization, the government is encouraged to boost spending on social cultural welfare services and also technological advancement such as education, health, retirement assurance, environmental protection etc.), which in turn pushes the industry to create more goods and services as aggregate demand rises. Increased industrial output eventually leads to an increase in total output in other d, economic growth is a function of increased industrialization and development. Since the publication of Wagner's (1883) law, there has been theoretical and empirical dispute on the impact of government expenditure on economic growth. The implication of these theories to the study on the effect of government expenditure on economic growth is premised on the fact that the Nigeria state has been in deficit when it comes to infrastructure. Government expenditures in Nigeria seem not to have attained it desired objective as projected by the Keynesian theory and Wagner's law despite the huge sum of money expended on providing public goods and service. Hence, this theory is relevant and timely as its understanding will strengthen our perception of government function and the state of economic growth in Nigeria.

Empirical literature

Samuel and Oruta (2021) examined the effect of various components of Government Expenditures on Economic Growth in Nigeria for periods between 1981 and 2020 using time series data. The study adopted the Error Correction model and Granger Causality Test. The

short-run model revealed that the components of government expenditures like recurrent expenditures on agriculture, health and education have an insignificant negative impact on economic growth. Recurrent expenditure on debt servicing and road and construction indicated a positive and negligible impact on economic growth. Concerning capital expenditures, government capital expenditures on social services were shown to have a negative and significant impact on economic growth. In contrast, government capital expenditures on economic services indicated a positive and insignificant impact on economic growth in Nigeria. In the long run, all the components of government expenditures employed showed a significant effect on economic growth. The research finding establishes no clear conclusion about whether Keynesian or Adolf Wagner's law is operational in Nigeria. The study concludes that the Nigerian economy is on the wrong path to sustainable growth and development. The study recommends that the government should increase its allocations to priority sectors like health, education, agriculture and infrastructures. Furthermore, the government should stimulate investment and output using monetary and fiscal policies to increase internally generated revenue and reduce government borrowing. Lastly, the study emphasizes the need to improve government spending efficiencies, transparency in budgetary processes.

Fölster and Henrekson (2001) have noted that a proper address of the methodological process helps in providing a better understanding of the relationship between public expenditure and economic growth. Thus, this present study re-examines the subject matter by considering the divergent opinions from the existing literature within a framework that allows more dynamic adjustment in estimation procedures, in contrast to the methodological approaches that have been used in extant studies.

Guseh (1997) obtained a result that is an indication of the case where government spending can negatively affect economic growth in an empirical study that was carried out on some middle-income countries. Growing public expenditures on some specific sectors of an economy may also serve as a disincentive to economic growth.

Onifade, Çevik, Erdoğan, Asongu and Bekun (2020) investigated the impacts of public expenditures on economic growth. The study employed Pesaran's ARDL approach with annual time-series data from 1981 to 2017. Empirical findings support the existence of a level relationship between public spending indicators and economic growth in Nigeria. Incisively, recurrent expenditures of government were found to be significantly impacting on economic growth in a negative way while the positive impacts of public capital expenditures were not significant to economic growth over the period of the study. Further results from the Granger Causality Test reveal that fiscal expansion of the government that is hinged on debt financing is strongly granger causing public expenditures and domestic investment with the latter also Granger causing real growth in the economy. We, therefore, provide some important policy recommendations following the results of the empirical analysis.

Aluthge, Jibir, and Abdu (2021) investigated the impact of Nigerian

government expenditure (disaggregated into capital and recurrent) on economic growth using time series data for the period 1970-2019. The paper employs Autoregressive Distributed Lag (ARDL) model. To ensure robustness of results, the study accounts for structural breaks in the unit root test and the co-integration analysis. The key findings of the study are that capital expenditure has positive and significant impact on economic growth both in the short run and long run while recurrent expenditure does not have significant impact on economic growth both in the short run and long run. The study recommends that government should increase the share of the capital expenditure especially on meaningful projects that have direct bearing on the citizen's welfare. Government should also improve the spending patterns of recurrent expenditure through careful reallocation of resources toward productive activities that would enhance human development in the country.

Ebipre and Eniekezimene (2020) investigated the impact of government expenditure on economic growth in Nigeria between 1981 and 2016. Data were collected from CBN (2016) statistical bulletin. Real Gross domestic Product (RGDP) was proxy for economic growth while Government capital Expenditure (GCE), Government Recurrent Expenditure (GRE) and Credit to the Private Sector (CPS) were proxies of government expenditure. Employing the Johansen Co-integration and Error Correction Mechanism, the study revealed the existence of long-run relationship among the variables and that GCE was inversely related to RGDP both in short run and in the long run. GRE was positively related to RGDP both in the long run and in the short run and there was inverse relationship between CPS and RGDP both in the short run and in the long run. The study thus recommended that the government should re-evaluate her capital expenditure component to ensure that funds are utilized on projects with socio-economic impact on the economy.

Onuoha and Okoye (2020) explored the effects of aggregate public expenditure, recurrent government expenditure and capital government expenditure on economic growth, and the effect of economic growth on aggregate public expenditure. Using a time series data set from Nigerian context for the period between 1981 and 2018 and analyzing same with OLS regression model after a pre-estimation unit root test, an impressive results emerged. First, the study found that whereas aggregate public expenditure positively affects economic growth, recurrent government expenditure and capital government expenditure have insignificant effects on economic growth. Second, the study found that economic growth positively affects government spending. These results offer an insight that would enable fiscal policy makers to insist on improved government spending.

Ahuja and Pandit (2020), re-examines the relationship between public expenditure and economic growth using more copious panel data set covering 59 countries in 1990 to 2019. The empirical results confirm the unidirectional causality between economic growth and government expenditure where the causation runs between public spending and GDP growth. The results at large support the Keynesian framework that asserts the importance of government

expenditure in stimulating economic growth. Further, the analysis reveals that, after considering all the control variables such as trade accessibility, investment and inflation public spending positively affects economic growth. With regards to control variables, it was found that investment has a significant and positive bearing on economic growth.

Nurudeen and Usman (2010) in a disaggregated analysis of the effect of government expenditure on economic growth found that growing government expenditure has not translated to substantial progress, since Nigeria remains one of the world's poorest countries. Government total capital expenditures (TCAP), total recurrent expenditures (TREC), and government education expenditures (EDU) all have a detrimental impact on economic growth, according to the study. Increasing government spending on transportation and communication (TRACO) and health (HEA), on the other hand, leads to increased economic growth. Hence, the study's recommendations were: that the government should enhance both capital and recurring spending, including education spending, as well as ensure that money allocated for these sectors' development is appropriately handled, the government should expand its investment in the development of transportation and communication to foster a business-friendly environment, the government should increase its spending on healthcare development since it will boost labor productivity and economic growth. Finally, to combat the high level of corruption in government, the government should support and enhance financing for anti-corruption institutions.

Between 1970 and 2009, Peter and Simeon (2011) evaluated the impact of fiscal policy variables on Nigeria's economic growth. Vector Auto Regression (VAR) and error correction mechanism techniques were used in the research in Nigeria. The analysis discovered a long-run equilibrium relationship between economic growth and fiscal policy factors. As a result, it was suggested that the government develop and implement realistic fiscal policy choices that would help to stabilize the economy. This might be accomplished in Nigeria by implementing true fiscal federalism and decentralizing the various levels of government. It also recommended that macroeconomic policies in non-oil sectors of the economy be implemented consistently, with appropriate incentives provided to foreigners interested in investing in Nigeria's agricultural and manufacturing sectors. More crucially, the right macroeconomic policy mix should be used to manage the economy.

Onuorah and Akujuobi (2012) investigated the trend and empirical analysis of public expenditure in Nigeria, as well as its impact on economic growth. The researchers used Johansen Co-integration and VEC to discover that RGPE has a long-term association with RGDP. Finally, there is no statistical correlation between public spending measures and Nigerian economic growth. According to the report, the government should engage in a realistic policy implementation process with true fiscal and monetary policies in place that can monitor and aid in the long-term sustainability of Nigeria's amazing growth.

Nworji, et al. (2012) looked at the impact of government spending on the economy in Nigeria from 1970 to 2009. The study used an OLS multiple regression model based on Nigerian time series data on GDP and other components of government expenditure to examine the impact of public government expenditures on economic growth and government expenditure in Nigeria. During the study period, capital and recurrent expenditure on economic services had a negligible negative impact on economic growth, according to the findings. In addition, capital spending on transfers had a little beneficial impact on growth. However, capital and recurrent spending on social and community services, as well as recurrent spending on transfers, all had a considerable beneficial impact on economic growth.

Research methodology

Research design

As opined by Onwumere (2009), research design outlines the blueprint of an investigation, as it sheds light on type of data, source of data and the estimation technique to be employed. For the purpose of this investigation, the study exclusively adopts Ex-post facto research design. The decision to make use or adopt this dimension of design approach hinges on the variables being past evolution series of government expenditure and growth trajectory.

Source of data

The model uses annual data from 1970 - 2020. These were obtained from the Statistical Bulletin and Annual Report and Statement of Accounts of the Central Bank of Nigeria.

Model specification

The research on the effect of government expenditure here adopts the modified version of Olasunkanmi (2013) version of endogenous growth model framework in line with Barro (1990) and Barro and Sala-i-Martin (1991, 1992) using Aik model. Their estimated model from where the made abstraction is stated thus:

The functional form:

Mathematically, $EG = f(TGEx, CEx, REx)$ 1

$EG = a1 + a2TGEx + a3CEx + a4Rex$ 2

$EG = a1 + a2TGEx + a3CEx + a4REx + U$ 3

Where:

EG = Economic Growth (proxied with gross domestic product)

TGEx = Total or Aggregate Government Expenditure

CEx = Total Capital Expenditure

REx = Total Recurrent Expenditure

U = The error term

While the functional form of our model is expressed as follows:

$RGDP = F(GEE, GEH, GEA, GERC, GEPDS)$ 4

Mathematically, the equation will be expressed as:

$RGDP = \alpha 0 + \beta 1GEE + \beta 2GEH + \beta 3GEA + \beta 4GERC + \beta 5GEPDS$ 5

Econometrically, the model will be transformed to:

$$LOG(RGDPt)=\alpha0+\beta1LOG(GEEt)+\beta2log(GEHt)+\beta3log(GEAt)+\beta4log(GERCt)+\beta5log(GEPDSt)+\mu t \quad \ldots\ldots 6$$

Where:
RGDP= Real Gross Domestic Product
GEE= Government Expenditure on Education
GEH= Government Expenditure on Health
GEA= Government Expenditure on Agriculture
GEPDS= Government Expenditure on Public Debt Services
α= constant term
β= unknown parameters

Description of variables

Based on economic theories and empirical evidence, we establish the following a priori expectations;

Dependent variable

Real Gross Domestic Product (RGDP): Real gross domestic product (real GDP) is an inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year (expressed in base-year prices) and is often referred to as "constant-price," "inflation-corrected", or "constant dollar" GDP.

Independent variables

Government Expenditure on Education (GEE): Assesses all government expenditures on education as a percentage of national output in this study (GDP). Any increase in average education spending should result in a rise in real gross domestic product, according to conventional wisdom (RGDP).

Government Expenditure on Health (GEH): Analyzes all government health spending as a percentage of national production (GDP). According to conventional thinking, any increase in average health spending should increase real gross domestic product (RGDP).

Government Expenditure on Agriculture (GEA): Measures all government expenditures on agriculture as a percentage of gross domestic product (GDP). Any increase in average agricultural investment should result in a rise in the real gross domestic product, according to conventional wisdom (RGDP).

Government Expenditure on Road Construction (GERC): government expenditure on roads and construction is measured by all government expenditures on road and construction as a percentage of Gross Domestic Product (GDP). It is expected that an increase in government expenditure in road and construction services will increase real gross domestic product, according to conventional wisdom (RGDP).

Government Expenditure on Public Debt Servicing (GEPDS): All expenses incurred to either service an existing loan or refund the capital are included in the government's debt payment expenditure. An increase in government debt repayment spending is predicted to have a detrimental impact on economic growth.

Techniques of study

According to Box and Jenkins (1970), time series data are not always stationary and to normalizes them, you need to difference the series. Hence, the series were subjected into stationarity test with a procedure proposed by Augment Dickey Fuller. The outcome of the unit root test indicates the presence of series of different order of integration and that justified the adoption of Johansen cointegration test. Finally, the analytical part of the work was estimated with vector error correction mechanism (VECM) due to the presence of one cointegration equation predicted by the trace statistics and the max-eigen statistics**.** Stationarity and co-integration pre-tests was used to avoid spurious regression and give reliable data a chance (Gujarati, 2013). Johanson co-integration and the vector error correction model (VECM) were used to examine government expenditure on economic growth. To estimate this model, it is necessary to specify whether the variables are integrated at their levels, or whether the first and second differences are integrated. The VECM technique is used to achieve two critical goals. First, it can be used to see if any of the explanatory factors have a long-term or short-term effect. If answers are only significant in the short run, then changes in any of the explanatory variables will only have a transient effect. However, if the reaction is significant in both the short and long run, the explanatory factors' changes are considered to be permanent. The error term (ECM) gives information on the rate of adjustment in response to a departure from the long-run equilibrium, which can be important in policy research. Econometric View 10.0 is used to carry out the estimating technique (E-View, 10.0).

Table 1 Descriptive statistics

	LOG(RGDP)	LOG(GEE)	LOG(GEH)	LOG(GEA)	LOG(GERC)	LOG(GEPDS)
Mean	10.31497	2.957111	2.172751	1.004492	1.825068	4.441340
Median	10.10501	3.917498	3.005659	1.987480	1.991433	4.960835
Maximum	11.20351	6.385934	5.961951	4.252410	5.277604	8.091160
Minimum	9.530920	-1.819208	-3.186541	-4.360665	-2.356494	0.007053
Std. Dev.	0.583176	2.820483	2.999667	2.960060	2.602923	2.402474
Skewness	0.255142	-0.515297	-0.377548	-0.645670	-0.185313	-0.480162
Kurtosis	1.531581	1.842913	1.683018	1.984134	1.612174	2.194796
Jarque-Bera	4.027741	4.001626	3.841020	4.499237	3.439040	2.617627
Probability	0.133471	0.135225	0.146532	0.105439	0.179152	0.270140
Sum	412.5989	118.2845	86.91005	40.17970	73.00270	177.6536
Sum Sq. Dev.	13.26370	310.2498	350.9222	341.7163	264.2331	225.1033
Observations	40	40	40	40	40	40

The mean values for the distributions LOG (RGDP), LOG(GEE), LOG(GEH), LOG(GEA), LOG(GERC) and LOG(GEPDS) are 10.31497, 2.957111, 2.172751, 1.004492, 1.825068 and 4.441340 while the median values are 10.10501, 3.917498, 3.005659, 1.987480, 1.991433 and 4.960835. The median values of the distribution are close to mean values. This implies that the series under examination tends to withstand external shocks in the nearest future. The skewness values of 0.255142 for the RGDP series imply that it has a long right tail while others with values of -0.515297, -0.377548, -0.645670, -0.185313, and -0.480162 indicated the existence of a long-left tail. Regrettably, all the series with kurtosis values of 1.531581, 1.531581, 1.842913, 1.683018, 1.984134, 1.612174, and 2.194796 has flat belle (platykurtic) relative to the normal. Finally, the Jarque-Bera statistics and its probability values of 0.133471, 0.135225, 0.146532, 0.105439, 0.179152, and 0.270140 indicate that the distribution followed a normal distribution.

Table 2 Unit root test (ADF)

Variables	Level		Ist Differencing		Order of Integrations
	t-statistics	%5 critical value	t-statistics	%5 critical value	
LOG(RGDP)	-0.131958	-2.941145	-3.481083	-2.941145	I (1)
LOG(GEE)	-2.275225	-2.948404	-7.885918	-2.941145	I (1)
LOG(GEA)	-2.123580	-2.943427	-8.687790	-2.941145	I (1)
LOG(GEH)	-1.676415	-2.948404	-10.25949	-2.941145	I (1)
LOG(GERC)	-1.336444	-2.945842	-6.202670	-2.945842	I (1)
LOG(GEPDS)	-1.184054	-2.941145	-3.184054	-2.941145	I (1)

A close look at the stationarity test conducted with the help of a unit root test proposed by Augment Dickey-Fuller (1981) shows that all the series in the model of economic growth proxied with the real gross domestic product (RGDP) became stationary after first differencing. This corroborates the assertion of Box and Jenkin's (1969) opinion that non-stationary time series data will be made stationary by differencing. Therefore, we conclude that the null hypothesis that the series has a unit root after first differencing is rejected while the alternative hypotheses are accepted. This justified the estimation of the Johansen co-integration test to ascertain the presence of a long-run co-integrating relationship among the series in the model.

Table 3 Johansen co-integration test result

Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value	Max-Eigen Statistic	0.05 Critical Value
None *	104.3178	95.75366	41.93203	40.07757
At most 1	62.38580	69.81889	21.65093	33.87687
At most 2	40.73487	47.85613	19.12867	27.58434
At most 3	21.60621	29.79707	13.36948	21.13162
At most 4	8.236730	15.49471	6.569213	14.26460
At most 5	1.667517	3.841466	1.667517	3.841466

The Johansen co--integration result above indicates the presence of one co-integrating equation. This causation is premised on the fact that, both the trace statistics and max-eigen statistics were greater than their critical values at 5%. A close look at the first hypothesis shows that, the trace statistics is 104.3178 while the critical is 95.75366. Themax-eigen value is 41.93203 while it critical value is 40.07757. This implies that, in the long run, there will be convergence. These justified the application of vector error correction mechanism. Vector error correction mechanism is mostly used when there is one co-integrating equation.

Table 4 Normalized co-integration result (Long Run)

LOG(RGDP)	LOG(GEE)	LOG(GEH)	LOG(GEA)	LOG(GERC)	LOG(GEPDS)
1.000000	-0.159678	0.103762	0.239873	-0.327921	-0.117156
	(0.05777)	(0.05546)	(0.02476)	(0.02901)	(0.02461)
	2.764029	1.870934	0.968792	11.30372	4.760503
	0.0209	0.0296	0.0255	0.0025	0.00051

The t-statistics value of 2.764029 is more than the threshold two, indicating that government education spending has a long-term positive impact on real GDP (gross domestic product). An increase in government spending on education would lead to a 27 percent rise in long-term economic growth, according to this study. Economic theory and a priori expectations support this causality. According to Aluthge, Jibre and Abdu (2021); Ebipre and Eniekezimene (2001), this finding is in line with previous research (2020). Government spending on health and agriculture, on the other hand, had a negative impact on long-term real gross domestic product (RGDP). However, the estimated t-statistic values of 1.870934 and 0.968792 were less than the 2. Threshold, therefore they are not statistically significant. Contrary to conventional economic wisdom, this presentation presents a divergence from established facts. It's possible that the industries above are suffering from these problems because money has been diverted and substandard infrastructure has been purchased. According to Nurudeen and Usman's research, this is the case (2010).

There is a long-term positive effect on GDP from government spending on roads and building, and the t-statistics estimated above the threshold of 2 for statistical significance. If other things are equal, a 32 percent increase in government spending on road and building will have a positive impact on economic development through these channels. According to Samuel and Oruta (2021), as well as Onuoha and Akujuobi (2001), (2012). Last but not least, the GEPDS coefficient will dramatically boost Nigeria's real gross domestic product (RGDP) by 11% annually. Debt servicing is a burden on the economy, and this assumption is not consistent with theoretical apriori and logical understanding.

Table 5 Vector error correction mechanism

Variables	Coefficient	Standard error	t-statistics	P. values
C	0.057367	0.01162	4.93569	0.00235
D(LOG(RGDP(-1)))	0.301109	0.14253	2.11262	0.06746
D(LOG(RGDP(-2)))	-0.023964	0.14051	-0.17055	0.8238
D(LOG(GEE(-1)))	0.468247	0.19805	2.36429	0.08376
D(LOG(GEE(-2)))	-0.018000	0.01862	-0.96676	0.01926
D(LOG(GEH(-1)))	-0.683035	0.24800	-2.75419	0.09004
D(LOG(GEH(-2)))	0.022410	0.01966	1.13972	0.01724
D(LOG(GEA(-1)))	0.982745	0.31367	3.13305	0.10011
D(LOG(GEA(-2)))	-0.012096	0.01170	-1.03383	0.01131
D(LOG(GERC(-1)))	-0.060690	0.02144	-2.83100	0.00391
D(LOG(GERC(-2)))	-0.027155	0.01461	-1.85856	0.0078
D(LOG(GEPDS(-1)))	-0.023281	0.01593	-1.46139	0.0109
D(LOG(GEPDS(-2)))	-0.018594	0.01464	-1.26975	0.0115
ECM (-1)	-0.321807	0.08440	-3.81282	0.0221
R-squared	0.603186			
Adj. R-squared	0.378899			
Sum sq. resids	0.018512			
S.E. equation	0.028370			
F-statistic	2.689355			
Log likelihood	88.10441			
Akaike AIC	-4.005644			
Schwarz SC	-3.396107			
Mean dependent	0.045067			
S.D. dependent	0.035998			

Source: authors compilation from E-Views.

Findings

The occurrence of a long-run cointegrating relationship on at least one occasion necessitates the design of an error correcting system. The R square score of 0.603186 demonstrates that the model has a decent fit while the adjusted R-square value of 0.378899 reveals the proportions of variation in the dependent variable which is connected with the changes in variables included in the model. Precisely, 67 percent of the changes in Real Gross Domestic Products are related with the combined effect of variables in the model while the remaining 33 percent were reflected in the error term. The error correction term appeared with the normal sign (-) and it is statistically significant at 5 percent. Therefore, the historical disequilibrium will be adjusted at the speed of 32 percent yearly and it will take an average of three years and one month to restore full equilibrium.

The past realization of the dependent variable D(LOG(RGDP(-1))) has a positive influence on RGDP and it is statistically significant at 5 percent as the t-statistic value of 2.11262 is larger than the threshold of 2 in absolute terms. This means that a rise in the historical values of Real Gross Domestic Product (RGDP) will correspond to an increase in its present value at around 30 percent yearly. This clarification is in accordance with theoretical predictions in both the short and long run. Relatively, a growth in the one-year past value of government expenditure on education D(LOG(GEE(-1))) has a positive influence on Real Gross Domestic Product (RGDP), and it's statistically significant provided that the t-statistics value of 2.36429 is bigger than the threshold 2 in absolute term. This suggests that increasing investment in education will emit 23 percent of the variance in the real gross domestic product in Nigeria in line with economic theory.

On the other hand, the coefficient of the historical value of government expenditure on health D(LOG(GEH(-1))) hurts real gross domestic product (RGDP) in Nigeria and its statistically significant as the t-statistic value of -2.75419 is more than the threshold of 2 in absolute terms. Therefore, an increase in government expenditure on health will produce a loss in the real gross domestic product (RGDP) of -0.68 percent. This assumption is not compatible with economic theory and may be caused by variables such as low quality of health staff, bad working environment and lack of motivation, low quality of health infrastructure, and heavy political meddling in the overall health architecture. These will amount to a detrimental influence on human capital and will result in low productivity. In a related view, the coefficient of D(LOG(GEA(-1))) has a positive influence on Real Gross Domestic Product (RGDP), and its statistically significant provided that the t- statistics value of 3.13305 is more than the threshold 2 in absolute terms. This means that a rise in the historical levels of Government expenditure in Agriculture will lead to a 0.98 percent increase in Real Gross Domestic Product (RGDP) in Nigeria. These reinforced the well-known truth that agriculture is the center of economic growth before the advent of oil exploration in Nigeria. Finally, conclusions taken from the test results demonstrate that the previous value of Government Expenditure on Road

Construction forecasts economic development negatively through its influence on Real Gross Domestic Product (RGDP) (RGDP). For an increase in government investment on road building to affect Real Gross Domestic Product (RGDP) to the tone of 6 percent, it suggests that majority of the roads created in Nigeria are neither lasting or sustainable. These situations are worsened by corruption and ethnoreligious sensitivities in Nigeria. Contracts for the constructions of important infrastructures are granted to brothers and political allies of the politicians at the top.

Summary and recommendations

Research on the influence of government expenditure on economic growth in Nigeria followed a well-structured pattern. The analysis was grounded on the classical theory, the Keynesian approach, and Wagner's law of government expenditure. The model of economic growth was estimated with Johansen Cointegration process and Vector Error Correction Mechanism (VECM) due to the stationarity status of the time series observation ranging from 1981 to 2020. In the long term, it was proven that government expenditure on education (GEE), government expenditure on road and building (GERC), and government expenditure on payment of debts services (GEPDS) are significant indicators of economic growth in Nigeria. To these purposes, we argue that government spending are growth enhancing factors in Nigeria. This analysis corroborates with the Keynesian (1936) argument that government engagement in the provision of socio-economic infrastructure enhances economic growth.

Recommendations

Drawing from the study, the following recommendations were abstracted.

i) There should be an improvement in government sectorial allocation to Education and Agriculture to boost economic growth.

ii) Government to regulate and monitor the implementation processes to ensure that the released funds are effectively used for the purpose it was released in the first place.

iii) Government should carry out a constant review of the health sector reforms to reduce the burden emanating from efficiency in health care delivery in Nigeria.

iv) The award of construction contracts for roads and other physical structures should be given to a competent hand with proven integrity in Nigeria. This will reduce the constant building collapse and road breakdown, especially in southern Nigeria.

References

Ahuja, D. & Pandit, D. (2020). Public expenditure and economic growth: Evidence from the developing countries. *FIIB Business Review*, 2319714520938901.

Aluthge, C., Jibir, A. & Abdu, M. (2021). Impact of government expenditure on economic growth in Nigeria, 1970-2019, *CBN Journal of Applied Statistics*, 12 (1),139-174, https://www.cbn.gov.ng/out/2021/std/139-174.

Aschauer, D. A. (1973). Is public expenditure productive? *Journal of Monetary Economics*, 23, 177-200.

Barro, R. J. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98(5), 103-125.

Barro, R. J. (1991). Economic growth in a cross section of countries. *Quarterly Journal of Economics*, 106, 407-443.

Barro, R. S. (1990). Government spending in a simple model of endogenous growth. *Journal of Political Economy*, 98, 103-125.

Bleaney, M., Gemmell, N. F. & Kneller, R. (2001). Testing the endogenous growth model: public expenditure, taxation, and growth over long run. *Canadian Journal of Economics*, 34(1), 36-57.

Cass, D. (1965). Optimum growth in an aggregative model of capital accumulation. *Review of Economic Studies*, 32(3), 233-240.

Central Bank of Nigeria (CBN) (2020). Central Bank of Nigeria Statistical Bulletin. Abuja: CBN.

Ebipre, P. & Eniekezimene, F. (2020). Government expenditure and economic growth in Nigeria. *International Journal of Business & Law Research* 8(3), 63-71, www.seahipaj.org

Enweze, C. (1973). Structure of public expenditure in selected developing countries: A time series study. *The Manchester School of Economic and Social Studies.*

Jibir, A. & Aluthge, C. (2019b). *Fiscal policy operation in Nigeria: Trends, magnitude and challenges*. KSP Book Publishers.

Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of Economics*, 3(2), 23-56.

Johansen, S. & Juselius, K. (1990). Maximum likelihood estimation and inference on co-integration—with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, 52(2), 169-210.

Keynes, J.M. (1936). *The general theory of employment, interest and money*. Harcourt, Brace & Co.

King, R. & Rebelo, S. (1990). Public policy and economic growth; developing neoclassical implications. *Journal of Political Economy*, 98, S126-S1511.

Landau, D. (1986). Government and economic growth in the less developed countries: An empirical study for 1960-1980. *Economic Development and Cultural Change*, 35 (4), 35-75.

Longe, J.B. (1981). The growth and structure of federal government expenditure in Nigeria" The *Nigerian Journal of Economic and Social Studies*. 26, (1), Ibadan.

Nurudeen, A. & Usman, A. (2010). Government expenditure and economic growth in Nigeria 1970-2008. A disaggregated analysis. *Business and Economic Journal*, 4(3), 63- 82.

Nworji I. D., Okwu A. T., Obiwuru T. C. & Nworji L. O. (2012). Effects of public expenditure on economic growth in Nigeria: A disaggregated time series analysis. *International Journal of Management Sciences and Business Research*, 1, (7).

Onuoha, N. E. & Okoye, G. O. (2020). Public expenditure and economic growth relationship: Further Evidence from Nigerian context. *International Journal of Academic Research in Business and Social Sciences*, 10(11), 616-627.

Onuorah, A.C. & Akujuobi, L.E. (2012). Empirical analysis of public expenditure and economic growth in Nigeria. *Arabian Journal of Business and Management Review*, 1(11), 46-59.

Peter, N. M. & Simeon, G. N. (2011). Econometric analysis of the impact of fiscal policy variables on Nigeria's economic growth. *International Journal of Economic Development Research and Investment*, 2(1), 171-183.

Phillips, P. & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrica*, 75(2), 335-346.

Ram, R. (1986). Government size and economic growth: A new framework and some evidence from cross-section and time series data. *American Economic Review, 76* (1), 191-203.

Sala-i-Martin, X., & Barro, R. J. (1995). Technological diffusion, convergence and growth. Centre for economic policy research, London (United Kingdom). NBER Working Paper, Cambridge, 16.

Samuel, U. D. & Oruta, I. L. (2021). Government expenditure and economic growth in Nigeria: A disaggregated analysis: *International Electronic Scientific Journal* https://pathofscience.org/index.php/ps/article/view/1074, 7(11), 79-79.

Singh, B. & Sahni, B. S. (1984). Causality between public expenditure and national income. *The Review of Economics and Statistics*, 66, 630-644.

Smith, D. (1776). Public consumption and economic performance. *National Westminster Bank Quarterly Review*, 17-30.

Solow, R. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 71, 65-94.

Todaro, P. M. & Smith, S. C. (2003). *Economic development* (8th ed.). Pearson Education Press.

Wagner, A. (1883). Finanzwissenschaft, 1883. Leipzig, partially translated in Musgrave and Peacock.

World Bank (2008). *Public expenditure management handbook*. The World Bank Group.