

THE CAUSAL RELATIONSHIP BETWEEN ECONOMIC SERVICES EXPENDITURE AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT: Numerous studies have examined the causal relationship between economic services expenditure and economic growth, but it is difficult to say for sure if the direction of causality is beneficial for economic growth. This study is crucial because prior empirical findings' conclusions have not been universally accepted. The aim of this study, therefore, is to investigate the causal relationship between economic services expenditure and the growth of the Nigerian economy for the period of 1981 to 2022. The study applied VECM, ADF and the Granger causality test using secondary data sourced from the CBN statistical bulletin. The study found that the components of economic services expenditure and the rate of economic growth in Nigeria have long-term correlations, and there is a causal relationship between economic services expenditure and the growth of the Nigerian economy in line with Keynesian theory. The study therefore recommends that the government increase its spending on roads and construction, transport and communication, and the federal government's extra-budgetary allocation to stimulate economic growth. Also, a high degree of transparency and accountability on government spending becomes a prerequisite in all sectors of the economy in order to prevent mismanagement or misappropriation of funds.

Keywords: Economic Services Expenditure, Economic Growth, Granger Causality, Keynesian Theory, Nigeria

INTRODUCTION

The capitalist "laissez-faire" principle oversaw the international economy before the great depression of 1929. Capitalists believe that the invisible hand, which controls economic activity, should let the forces of supply and demand govern economic activity. They also believe that the government should prioritize maintaining law and order and providing security.

Though in 1929, the global economy crashed, making it impossible to apply the principle to allocate resources in an efficient and equitable manner. The failure of laissez-faire to revive the global economy after the financial crisis led the world to accept and adopt John Maynard Keynes' philosophy, which called for the government to spend its way out of the recession by injecting purchasing power into the economy. The world emerges from depression using Keynes' philosophy of consumption. Since that time, the topic of public spending has gained in popularity.

Keynes (1936) also observed that an increase in government spending would spur economic growth by increasing the economy's purchasing power. Jhingan (2000) further emphasized the significance of public spending by claiming that social welfare spending can be utilized to alleviate income inequality, address externalities, and address geographical differences.

According to Balami (2006), government spending includes all costs associated with the public sector's upkeep for the economy's benefit. Nigerian government spending consists of both capital and recurrent costs. These are further broken down into social and community categories, economic services, capital expenditure and transfers.

Economic services expenditure refers to the money the government spends on agriculture, transport and communication, road and construction, and federal government extra-budgetary expenditure, interest payments, both foreign and domestic, etc.

Available statistics from the Central Bank of Nigeria (CBN, 2022) show that average total government services expenditure rose rapidly from ₦1.22 billion for the period 1981-1990 to ₦14.63 billion, ₦33.03 billion and ₦67.74 billion for the periods 1991-95, 1996-2000 and 2001-2005, respectively. It went up further to ₦177.75 billion, ₦182.80 billion, ₦192.90 billion, ₦194.90 billion and ₦198.86 billion for the periods of 2006 to 2008, 2009 to 2011, 2012 to 2014, 2015 to 2017 and 2018 to 2022, respectively.

There are varying opinions regarding the causal relationship between public spending and economic growth. Some scholars found that there is unidirectional causality from government expenditure to economic growth, in line with the Keynesian hypothesis (Ayodele & Gurowa, 2022; Yousuf et al., 2019). The second group of researchers argued that there is a unidirectional causality between economic growth and public spending in line with Wagner's (1983) theory, while the third group, represented by Okere et al. (2019), argued that there is a bidirectional causality between government spending and economic growth. To ascertain the causal link between government expenditure and economic growth in Nigeria, this research aims to address the above gap by examining the nature of causality between economic services expenditure and the growth of the Nigerian economy. The rest of this study is structured as follows: The second section examines theoretical, conceptual and empirical literature. Methodology is the main topic of the third segment. The presentation and analysis of the data are covered in Section 4, and the conclusion and suggestions are covered in Section 5.

LITERATURE REVIEW

Conceptual Review

Government expenditure: Is the money the government spends from its earnings to address various economic demands (Adigwe, Anyanwu & Udeh, 2016). According to Ukwueze (2018), public spending may be broken down or categorized into subheadings like recurrent and capital spending. The cost of stationery, employee pay and salary, fuel, electricity bills, and other monthly costs are examples of recurring expenses. Construction projects that the government undertakes include building roads, bridges, hospitals, schools, military hardware, and other examples of capital

projects. While Economic Growth according to Anyiwe and Oziegbe (2020), denotes an increase in outputs across multiple sectors, the national product, the national income, a higher degree of technology, and the urbanization of the country. Additionally, economic growth refers to a long-term increase in a country's ability to provide its inhabitants with a wider variety of economic commodities. Furthermore, it is a process by which the economy's productive capacity is raised over time to result in an increase in the amount of national output and income. Economic Services Expenditure is costs that the government pays for transportation, communications, road and construction, agriculture, and federal government extra budgetary expenditure, interest payment both foreign and domestic, etc. (CBN, 2022).

Theoretical Literature

Keynesian theory of Government expenditure as an instrument of Fiscal policy

John Maynard Keynes was the first to advocate for using government spending as a tool of fiscal policy in 1936, after the classicalists' postulation that the economy is regulated by market mechanisms and there is no need for government intervention had failed and resulted in the great depression of 1930. The Keynesian (Modern Idea) viewpoint contends that government must act favorably in order to control the economy through spending and taxes in the most effective way. This school of thinking challenges the traditional view that the economy automatically produces full employment and economic growth without external stimulus and that supply creates its own demand. According to Keynes, as income rises, so does the inclination to spend, while it rises and increases the propensity to save. As aggregate consumption (demands) does not increase proportionately with savings when income is rising, this will cause an economic imbalance. In order to counteract the consequences of declining output demand, it is necessary to boost public spending by a similar amount in order to maintain income, employment, and growth. Thus, if unfavourable economic conditions are to be avoided, the difference between income and expenditure must be filled, either by raising the economy's propensity to consume or by raising public spending.

Wagener's Law of Increasing State Activity

According to Wagener's Law of Increasing State Activity, government expenditure on welfare, security, administration, and income redistribution tends to boost the economy. It's interesting to note that government spending on transportation and communication, roads and construction, and agriculture all contribute to economic growth. These broad governmental responsibilities could inevitably result in rapid and steady economic growth.

Empirical Literature

Ayodele and Gurowa (2022) investigated the nexus between public expenditure and economic growth and found out that causality runs from capital expenditure on economic services to economic growth. The author applied generalised least square and granger causality test for Nigerian data for the period of 2004 to 2018.

Olufemi and Oladipo (2021) found that there is an absence of causality between economic services capital expenditure and economic growth, and economic services recurrent expenditure and economic growth in Nigeria. The authors applied Nigerian data from 1981 to 2019 to find out the relationship between public expenditure and economic growth using the ARDL and Granger the causality model.

Ogochukwu and Oruta (2021) conducted research on some components of economic services expenditure in Nigeria and found that there is no causality between road construction expenditure, capital expenditure on economic services and economic growth in Nigeria. The study applied the ECM and the Granger causality test for the period between 1981 and 2020.

Obi (2020) investigated the impact of some chosen government recurrent expenditure on economic growth and found that there is no causality between the variables under study in the short run. The research focused on social and community services, economic services, and transfers as it applied the vector error correction model technique for Nigerian data spanning the years 1980 to 2017.

Stanley (2020) studied the effect of government public expenditures on economic growth for Nigerian data spanning from 1986 to 2016 using VECM and found there is short-run causality running from GDP to expenditures on administrative services, economic services, social and community services and transfers.

Okere et al. (2019) examined the government expenditure and economic growth in Nigeria and found that there is bi-directional causality between economic growth and government expenditure on economic services and government expenditure on administration and economic growth. There is also a unidirectional causality between economic growth and community services. The study applied ECM and Granger causality models to Nigerian data spanning 1981 to 2016.

Yousuf et al. (2019) examined the service sector impact on economic growth in Bangladesh and found that there is a presence of unidirectional causality from the service-related sector to gross domestic product. The study applied ARDL, ECM and Granger causality test for the period of 1973 to 2017.

Munir and Aliy (2019) found out that unidirectional causality flows from GDP to expenditure on current subsidies, social, economic and education services. The study applied Granger causality, Engle and Granger cointegration model for Pakistani data spanning from 1976 to 2015.

Dennis et al. (2017) analyzed the nexus between construction expenditure and economic growth for 33 countries in Sub-Saharan Africa using annual data spanning from 1990 to 2014 and employed a panel autoregressive distributed lag model and Dumitrescu-Hurlin panel causality test. The result revealed a bidirectional nexus between construction expenditure and economic growth, at least for a four-year lag period.

From the above literature, it is observed that the result for the causal relationship between economic services expenditure and growth of the Nigerian economy is mixed and inconclusive and to the best

of the author's knowledge little or no research was conducted on all the components of economic services expenditure in Nigeria, hence, the need for the study.

METHODOLOGY

Sources of Data

In this study, secondary data were used. The data were sourced from the Central Bank of Nigeria (CBN) statistical Bulletin and World Bank Development Indicators for variables such as real gross domestic product, agricultural expenditure, road and construction expenditure, transport and communication expenditure, and federal government extra-budgetary allocation and interest payment, both foreign and domestic. The study covers the period from 1981 to 2022. The choice of 1981 was based on the fact that, in the 1980s, some components of economic services expenditure suffered serious neglect, such as agriculture, as a result of a shift of attention to the oil sector. In addition, the justification for the choice of 2022 is that within the period, the trends of economic services expenditure increases tremendously and there are various reforms in the economy since the introduction of the different programmes like Green Revolution, Structural Adjustment Programme (SAP), Anchor Borrowers' Programme under military regimes and the civilian administration aimed at increasing public spending to improve the economy there by reducing poverty and improving the welfare of citizens.

Model Specification

Functional model

The model for this study is adopted from Okpabi et al (2021), they derives their model from the Keynesian equation $Y=C+I+G+(X-M)$. Their model was specified as:

$$GDP = F(TCE, TRE, GEE, GEH, GEP, GED, TO, TI) \dots \dots \dots (1)$$

The above model has been modified for the purpose of this study as follows:

$$RGDP = F(AGRICEXP, TRANSEXP, COMMEXP, CONSTREXP, FEBIP, \dots \dots \dots (2)$$

Where

AGRICEXP = Public expenditures on the agriculture sector

TRANSEXP = Public expenditures on transport

COMMEXP = Communication expenditure

CONSTREXP = Public expenditures on road and construction

FEBIP = Federal government extra budgetary allocation, interest payment both foreign and domestic

In a linear function, it is represented as follows:

$$GDP_t = \beta_0 + \beta_1 AGRICEXP_t + \beta_2 TRANSEXP_t + \beta_3 COMMEXP_t + \beta_4 CONSTR + \beta_5 FEBIP + \mu_t \dots \dots \dots (3)$$

Where: β_0 = Constant term, β_1 to β_8 = Regression coefficient, t = is the time dimension, $\theta-1$ = error correction term and ε = Stochastic error term.

The log-linear model of equation (4) is presented below

$$\ln GDP_t = \beta_0 + \beta_1 \ln AGRICEXP_t + \beta_2 \ln TRANSEXP_t + \beta_3 \ln COMMEXP_t + \beta_4 \ln CONSTR + \beta_5 \ln FEBIP + \mu_t \dots \dots \dots (4)$$

β_0 is the constant intercept, β_1 - β_8 are the coefficient of explanatory variables to be estimated, t is the time dimension and $\ln AGRICEXP$, $\ln TRANSEXP$, $\ln COMMEXP$, $\ln CONSTREXP$ and $\ln FEBIP$ are the natural logarithms of the variables. U_t is the error term in the model.

RESULT AND DISCUSSIONS

Unit Root Test

Table 1: Unit Root Results

SERIES	ADF STAT	5% CRITICAL VALUE	ORDER	REMARK
AGRIC	7.213362	3.533083	I(1)	Stationary
FEBIP	6.750520	3.541145	I(1)	Stationary
LRGDP	3.876850	3.529758	I(1)	Stationary
ROAD CONS	4.930094	3.557759	I(1)	Stationary
TRANS AND COMM	5.230892	3.541145	I(1)	Stationary

Source: Extracted from E-views version 10.

The unit root test was carried out in this study using the Augmented Dickey-Fuller test, and the results are shown in Table 1 to provide appropriate context for the analysis and prevent spurious regression estimates. The unit root test reveals that every variable was integrated to order 1, proving that all of the variables were I(1) variables. The requirement for a co-integration test among the variables is met. Note that the values in the table above are the absolute values of the ADF statistics

Lag Length Selection

This section identifies the appropriate lag length prior to estimating the model,

Table 2: VAR Lag Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	39.2677	NA	0.0118	-1.6034	-1.2622	-1.4810
1	83.3782	67.8622*	0.0013*	-3.8142*	-3.4303*	-3.6765*
2	83.5910	0.3164	0.0013	-3.7738	-3.3473	-3.6208

Source: Extracted from E-views version 10.

**Indicates lag selection by order of criteria*

Table 2 presents the lag length criteria used to determine the optimal lag length for the mode. The results indicate that lag one is selected as the appropriate lag length, as all the criteria favor it.

Co-integration Test

Table 3: Co-integration Test

Hypothesised Equ	Trace Statics	CRITICAL VALUES	Probability	REMARK
None	93.02129	69.81889	0.0003	Co-integrated
Almost 1	54.43073	47.85613	0.0107	Co-integrated
Almost 2	28.40373	29.79707	0.0717	No co-integration
Almost 3	9.509202	15.49471	0.3204	No co-integration
Almost 4	0.112994	3.841466	0.7368	No co-integration

Source: Extracted from E-views version 10.

Cointegration was used to test for the long-run relationship among the variables. The researcher adopted the Johansen co-integration test. In Johansen's method, the trace or the Maximum Eigenvalue can be used to assess the long-run relationship. The researcher employed trace statistics to determine the presence of cointegration. Co-integration exists if the trace statistic exceeds the critical value at the 5% significance level

There are at least two co-integrating equations, according to the Johansen co-integration test. This demonstrates that the components of economic services expenditure and the rate of economic growth in Nigeria have long-term correlations.

Causality Tests

Table 4: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
FEBIP does not Granger Cause AGRIC	40	0.97580	0.3869
AGRIC does not Granger Cause FEBIP		7.48415	0.0020
RGDP does not Granger Cause AGRIC	40	5.72271	0.0071
AGRIC does not Granger Cause RGDP		1.46672	0.2445
ROAD_CONS does not Granger Cause AGRIC	40	3.36472	0.0461
AGRIC does not Granger Cause ROAD_CONS		0.84638	0.4376
TRANSP_AND_COM does not Granger Cause AGRIC	40	0.33564	0.7172
AGRIC does not Granger Cause TRANSP_AND_COM		6.46847	0.0041
RGDP does not Granger Cause FEBIP	40	4.45500	0.0189
FEBIP does not Granger Cause RGDP		0.19869	0.8207
ROAD_CONS does not Granger Cause FEBIP	40	7.27529	0.0023
FEBIP does not Granger Cause ROAD_CONS		19.2061	2.E-06
TRANSP_AND_COM does not Granger Cause FEBIP	40	31.8560	1.E-08
FEBIP does not Granger Cause TRANSP_AND_COM		3.12254	0.0565
ROAD_CONS does not Granger Cause RGDP	40	0.29870	0.7437
RGDP does not Granger Cause ROAD_CONS		4.72241	0.0153
TRANSP_AND_COM does not Granger Cause RGDP	40	3.88178	0.0300
RGDP does not Granger Cause TRANSP_AND_COM		4.22165	0.0228
TRANSP_AND_COM does not Granger Cause ROAD_CONS	40	4.10419	0.0250
ROAD_CONS does not Granger Cause TRANSP_AND_COM		6.21341	0.0049

Source: Extracted from E-views version 10

If the probability value associated with the variable is less than 5%, then there is causation. The outcome of the causality test shows that federal government extra budgetary allocation and interest payment both foreign and domestic (FEBIP) do not Granger-cause government spending on

agriculture (AGRIC) but causality runs from government spending on agriculture (AGRIC) to federal government extra budgetary allocation and interest payment, both foreign and domestic (FEBIP) implying a unidirectional relationship between AGRIC and FEBIP. AGRIC does not granger-cause real gross domestic product (RGDP), but causality runs from RGDP to AGRIC, indicating a unidirectional relationship between RGDP and AGRIC. Similarly, AGRIC does not granger-cause road and construction (ROAD-CONS) while causality runs from (ROAD-CONS) to (AGRIC), signifying a unidirectional relationship between ROAD-CONS and AGRIC. Transport and communication (TRANSP AND COMM) does not granger-cause (AGRIC), but causality runs from AGRIC to TRANSP AND COMM, indicating a unidirectional relationship between TRANSP AND COMM and AGRIC. In the same vein, federal government extra budgetary allocation and interest payments both domestic and foreign (FEBIP) do not granger-cause (RGDP), but causality causality runs from RGDP to FEBIP. This shows that RGDP and FEBIP are correlated in a single direction. FEBIP's relationship with ROAD-CONS shows that causality runs from ROAD-CONS to FEBIP, signifying bidirectional relationship between ROAD-CONS and FEBIP. There is an absence of causality between TRANSP, COMM, and FEBIP. ROAD-CONS does not Granger-cause RGDP, but RGDP Granger-causes ROAD-CONS, and causality runs from RGDP to ROAD-CONS. Indicating a unidirectional relationship between RGDP and ROAD-CONS. There is a bidirectional relationship between TRANSP AND COMM and RGDP and ROAD-CONS and TRANSP and COMM.

As shown by the causality test, all the components of the economic services sector followed Keynesian theory. However, contrary to Adolf Wagner's theory, there was no causal link connecting economic growth (an increase in economic activity) and government spending. The study is in line with Ayodele and Gurowa (2022), and Yousuf et al. (2019), but in contrast to Oladipo and Olufemi (2021), Ogochukwu and Oruta (2021), and Obi (2020).

VECM Results

Table 5: VECM Results

	Coefficient	Std. Error	t-Statistic	Probability
CointEq1	-0.537599	0.142231	-3.779755	0.0003
D(ROAD_CONS(-1))	0.978160	0.281561	3.474062	0.0007
D(ROAD_CONS(-2))	0.216405	0.112967	1.915639	0.0580
D(TRANSP AND COMM(-1))	-0.391693	0.318950	-1.228069	0.2220
D(TRANSP AND COMM(-2))	0.120249	0.430213	0.279510	0.0194
D(AGRIC(-1))	-0.194041	0.374367	-0.518317	0.0018
D(AGRIC(-2))	-1.02564	0.276680	-4.418701	0.0000
D(FEBIP(-1))	0.189112	0.088238	2.143210	0.0343
D(FEBIP(-2))	-0.319257	0.104807	-3.046142	0.0029
C	3.257732	2.545013	1.280046	0.2032
R- squared	0.739597			
Adjusted R- squared	0.700142			
Durbin-Watson stat	1.702348			

Source: Extracted from E-views version 10.

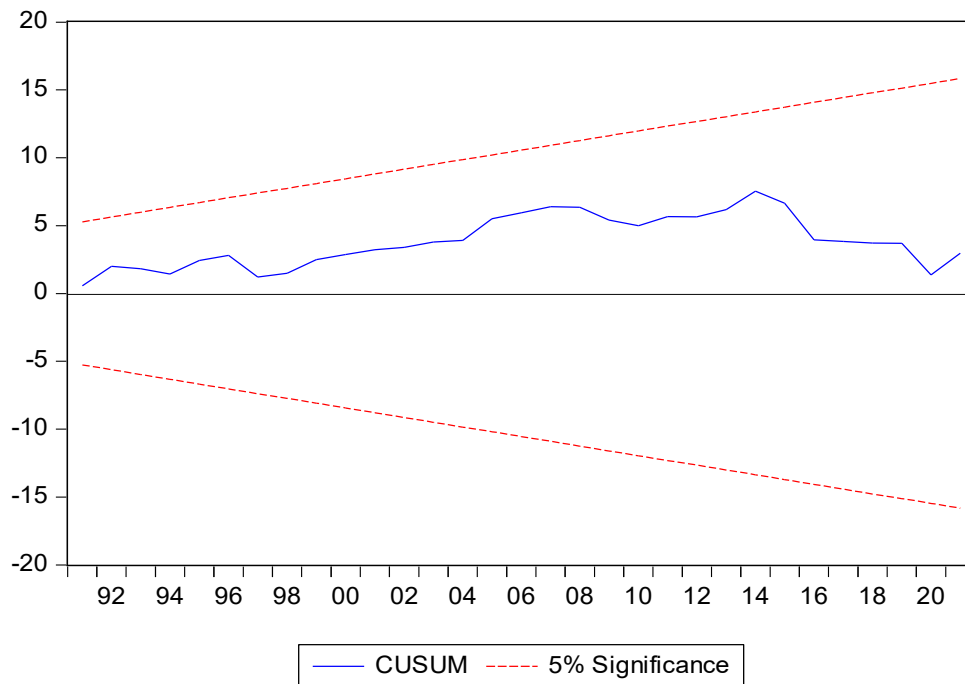
From Table 5 above, the road and construction expenditure, transport and communication expenditure, agricultural expenditure and federal government extra budgetary allocation and interest payment both foreign and domestic were regressed against GDP. The result shows that the coefficient of road and construction in the current year is positive and significant. A percentage change in road and construction expenditure will increase GDP by 97%. The coefficient of road and construction expenditure in the previous year is positive and in significant. The study is in line with Dennis et al. (2017). Similarly, the coefficient of transport and communication in the current year is negative and insignificant. A percentage change in transport and communication expenditure will reduce GDP by 39%, while the coefficient of transport and communication expenditure in the previous year is positive and significant, meaning that a percentage in transport and communication expenditure will increase GDP by 100%. The study is in tandem with Omokaro and Ikperere (2019), Devarajan and Vinay (1993) and Nurudeen and Usman (2010). The coefficient of agricultural expenditure both in the current and previous years are negative and significant. This implies that, a percentage change in agricultural expenditure will reduce GDP by 12% and 19% respectively. The study is in line with Ugochukwu and Oruta (2021) and Loto (2011) but in contrast with Chinonye (2022). In the same vein, the coefficient of federal government extra budgetary allocation and interest payment both foreign and domestic in the current year is positive and significant, which indicates that, a percentage change in federal government extra budgetary allocation and interest payment increases GDP by 18% while in the previous year it reduces GDP by 31%. According to the ECM statistic, the model's error is corrected 53% annually from the short to the long term. Again, based on our empirical findings, the adjusted R-squared (R^2) is 0.700142, indicating that the variables' explanatory power was quite strong.

To determine if the residuals were random, Durbin-Watson statistics (d^*) were used, and the assumption of ordinary least squares was upheld. The notion that there is no relationship between the explanatory variable and the error term. The Durbin-Watson test result (1.702348) at the 5% significance level indicates that the model is free of autocorrelation. This shows that the Ordinary Least Squares estimates' prediction base was effective and impartial.

Diagnostic Test

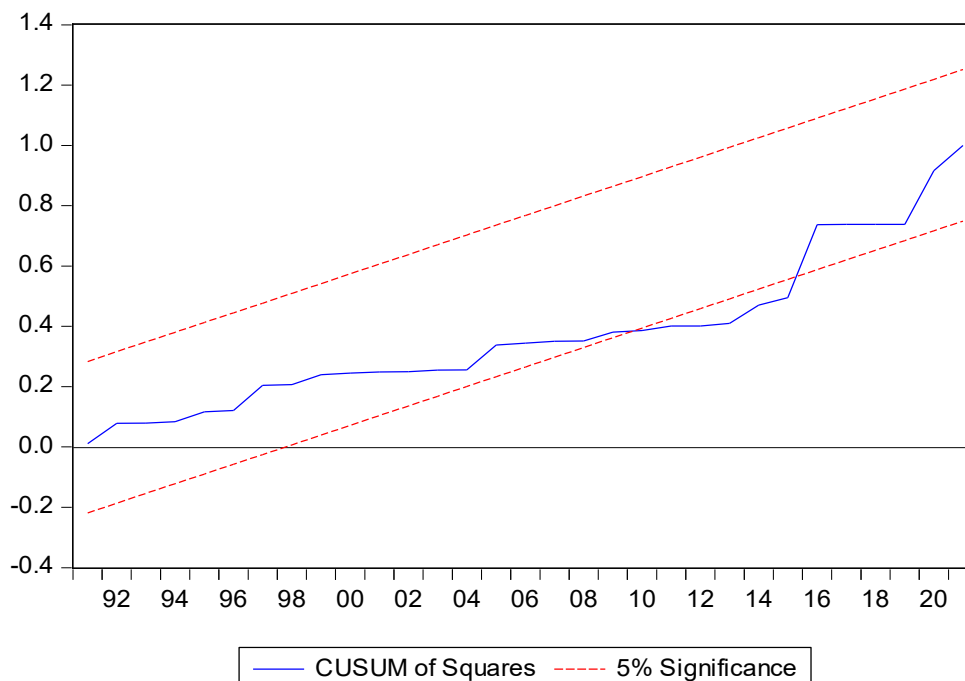
To ascertain how seriously the findings of this research will be accepted, a post-estimation test was conducted. Specifically, the reliability and accuracy of the outcomes that were acquired. To do this, the researcher engaged in stability and serial correlation tests.

Figure 1: Cusum Test



The Cusum test shows that the model is stable because the blue line lies between the two red lines.

Figure 2: Cusum of Squares



The Cusum of Squares in Figure 2 shows that there is a structural break, but ECM has adjusted it.

Table 6: LM Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.296473	Prob. F(2,30)	0.2884
Obs*R-squared	3.102661	Prob. Chi-Square(2)	0.2120

Source: Extracted from E-views version 10.

From the result above, the F-stat of 1.296473 is greater than 0.05 and we conclude that there is no serial correlation in the model.

Conclusion and Policy Recommendation

The study examined the causal relationship between economic services expenditure and the growth of the Nigerian economy between 1981 and 2022. The VECM and Granger causality model, was used to analyze the data. The result found that government expenditure in economic services stimulates economic growth in Nigeria in line with the Keynesian hypothesis.

Consequently, the results show that government spending on economic services is essential for Nigeria's economic growth. The study concludes that government expenditure on roads and construction, transport and communication and federal government extra budgetary allocation impacted positively on GDP, while agricultural expenditure retards economic growth. This may be as a result of poor handling of agricultural policies and mismanagement by government officials. The study therefore, recommends that the government should increase its spending on roads and construction, transport and communication and the federal government's extra budget allocation to stimulate economic growth. Also, a high degree of transparency and accountability on government spending becomes a prerequisite in all sectors of the economy in order to prevent mismanagement or misappropriation of funds.

Limitation of the study

First, it depends on secondary time-series data, whose dependability and accuracy are dependent on the caliber of records supplied by pertinent government entities. Second, other factors that influence economic growth, such as political stability, institutional quality, private investment, inflation, and foreign economic shocks, may not be completely taken into consideration because the study only looks at economic services spending. Lastly, the results may not be immediately applicable to other nations or alternative economic circumstances because they are unique to Nigeria and the chosen analytic period.

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