

Impact of Government Sectoral Expenditure on Economic Growth in Nigeria: (1981-2023)

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Abstract

The heavy nature of public expenditure over the years is expected to trigger productivity in all sectors and induce economic growth in Nigeria. The idea of government spending both in human and material resources is to improve the nation's infrastructural facilities, improve social welfare and empowerment packages of the masses, create more jobs, as well as provide enabling environment to enhance the growth of private investment. However, in spite of various government policies to improve the economy, the Nigeria economy is still growing at a very slow pace. It is as result of all these the paper examines the impact of government sectoral expenditure on Nigeria economic growth from 1981-2023 paper main objective is to examine the impact of government sectoral expenditure on Nigeria economic growth from 1981-2023 The variables used were real gross domestic product as the dependent variable while expenditure on industrial sector output, agricultural sector output, transport sector and housing and construction sectors are the independent variables. The Ordinary Least Squares (OLS) estimation technique was used in estimating the values of the parameters. The regression result showed that industrial sector, agricultural sector, housing and construction expenditures all have positive relationship with economic growth, while transportation sector expenditure has no significant impact on economic growth in Nigeria, and that there is a uni-directional causality relationship flowing from RGDP to IND, AGR, HCE between industrial sector output and economic growth in Nigeria. Based on the findings of the study, the paper recommends among others that one of the biggest obstacles for the development of the industrial sector is the issue of electricity. Therefore, improving Nigeria's electricity generating capacity will be an important driver of industrial growth and development. Therefore; the Ministry of power should improve investments and other sources of electricity generation like solar energy and wind energy.

Background to the Study

The goal of every economy is to maintain a high level of employment, stabilize prices, promote rapid growth of gross national product, maintain favourable balance of payments position, promote a free market economy, satisfy collective demands, redistribute income equitably, promote infant industries, encourage balanced population development and promote labour and capital development (Okpabi *et al.*, 2021). These explain why the expenditure' of governments all over the world have maintained consistent upward trends. This continuous increase in the volume of public expenditure is targeted at expanding the functions of government through the direct investment in industrial innovations, public health, education, commercial activities, etc. with a view to achieving growth (Assi *et al.*, 2019). Aluthge *et al.*, 2021) posit that public expenditure is assumed to be the most powerful economic factor of all modern societies. The form and pattern of the output growth of any economy is determined by the structure and size of its public expenditure.

The Nigerian public expenditure structure is generally disaggregated into recurrent expenditure and capital expenditure. The components of the recurrent expenditure include expenditure on administration. (interest on loans and maintenance, salaries and wages) while capital expenditure captures government projects on the generation of electricity, education, telecommunication, airports, roads, and so on (Onuoha & Okoye, 2020). The provision of public amenities has been one of the fundamental bases for public spending. Providing and maintaining these infrastructural amenities cost a huge amount to finance. Hence, investment on infrastructures and productive activities spending is expected to positively contribute to the growth of the economy whereas spending on consumption by the government retard growth. It is argued that the country will benefit socially and economically from government investment (spending) on health, roads, government sectoral expenditure on agriculture, transportation, industrial output, housing and construction, education, health, power etc. are amongst the basic requirement for economic growth. government's spending on agriculture consists of all the expenses made by the government to the sector which include; expenses on policies and programmes, provision of grants and subsidies to farmers, pest control services, inspection services, irrigation and drainage system, crops inspection services, agriculture extension service, etc.

Investing in agriculture by the government via increasing her expenditure is one of the most effective ways of promoting agricultural productivity thereby raising incomes, reducing poverty and food insecurity, as well as environment sustainability (FAO,2020). Agricultural sector in Nigeria was the mainstay of the economy before the advent of the crude oil. Even now it is still the base through which the country's food security and source of raw materials depend on. In 2003, NBS also estimated that 25% of the GDP of Nigeria was comprises the agricultural sector; and 70% of the Nigerian labour force was employed in agriculture (NBS, 2023). Thus, agricultural sector was the major employer of labour of about 70%, as well as the major source of foreign earnings. Some of the major exports were cocoa, groundnut, soya beans and palm oil.

Transportation sector is another important key sector that contribute to the growth and development of an economy. It generally involves the movement of people and goods from one place to another which enhances cultural, economic and social interactions. Transport system includes road, railway, air and water transport. On the other hand, communication is one of the fastest- growing sectors in Nigeria. It comprises myriads of outfits such as television, radio, mobile phones, and internet, amongst others (National Bureau of Statistics [NBS], 2023). Transportation and communication help to increase the size of the market of products by helping to transport products across different countries which help to increase sales in those countries by penetrating new markets (Razi, 2020).

Another sector which is a key driver of economic growth is industrial sector, it is one of the backbones of a country's economic growth and development. It brings about an increased volume and varieties of manufactured goods resulting in increased employment and improved standard of living of the people. Industrialization is the process of building up of a nation's capacity to convert raw materials and other input into finished goods either for further production or for final consumption (Ndiyo & Ebong, 2020). However, the economy of Nigeria has had numerous boom cycles since the country gained independence in 1960. The nation has historically been a significant oil exporter, and oil exports are significant source of revenue and foreign currency for the government. From N1.015 million in 1969 to N22.329 million in 1975, N8,107 million in 1986, and N106,155 million in 1993, oil exports have fluctuated significantly (Kabir, 2014). It was N390 billion in 2005, and it was N2.602 trillion in the second quarter of 2014. According to research, Nigeria's development has been gradual and marked by both rising and decreasing trends in its economic development indicators since the 1960s. This is a result of macroeconomic volatility, which has hampered economic growth by deterring investment, promoting capital flight, and generating negative economic output. The Gross Domestic Product (GDP) increased by 3.1% every year between 1960 and 1970. The then-oil boom helped the GDP grow by an average of 6.2% between 1970 and 1978. The early 1980s crude oil price fall, however, caused GDP to increase at a negative pace during that decade. GDP increased favourably in response to economic adjustment policies throughout the period of structural adjustment and economic liberalization, which lasted from 1988 to 1997. GDP decreased after the structural adjustment programme, from 8.3% in 1990 to 1.3% and 2.2%, respectively, in 1994 and 1995. The GDP has increased by an average of 6.3% since 1999. But there hasn't been any observable expansion or improvement as a result.

Also, there are empirical evidences on the effect of public expenditure on output growth especially for developing economies like Nigeria, present two opposing views, some suggesting that public expenditure has negative effect on output growth as noted by (Akpan 2020, Gukat & Ogboru, 2017, Saidu & Ibrahim, 2019). In contrast, other studies established that public expenditure promotes output growth and development of a country as pointed out by (Odubuasi *et al.* 2020 Nyarko-Asomani, *et al.*, 2019; Ahuja & Pandit, 2020). More disturbing are the claims that persistent increases in Nigeria's public debts are geared towards augmenting the budget, as this can be seen in Nigeria's current

debt portfolio which stood at N97.34 trillion in the 4th quarter of 2023 (CBN, 2024) and was expected to reach N107.38 trillion in 2024 following the recent approval by the National Assembly for government to contract additional loans for infrastructural facilities in the first quarter of 2024, this effort seems not to reflect on the available infrastructures on ground and have not been able to answer the question of budgeting for infrastructural and employment generation needs of the country. In light of all these, this research work attempts to investigate and determine whether increasing government spending has induced economic growth in Nigeria in the period under review.

Therefore, the broad objective of this paper is to assess the effects of government expenditure on economic growth in Nigeria between the period 1981 and 2023. While specific objectives are to:

- i. Analyzes the effect of government agriculture expenditures on economic growth
- ii. Examine the influence of government expenditures housing and construction on economic growth.
- iii. Assess the effect of government industrial sector expenditures on economic growth
- iv. Assess the effect of government transportation sector expenditures on economic growth.

Also, the following hypotheses are to be tested

- H_{01} : Government expenditure on agricultural sector has no significant effect on economic growth
- H_{02} : Government expenditure on housing and construction has no significant influence on economic growth
- H_{03} : Government expenditure on industries has no significant effect on economic growth
- H_{04} : Government expenditure on transportation has no significant effect on economic growth

Literature Review

Conceptual Review

Public Expenditure

Generally, public expenditure is defined as the spending by a government on collective needs and wants such as wages and salaries, infrastructure and basic human needs that assist economic agents in making a living (Tuffour, 2016). Specifically, the definition for the concept of public expenditure can be divided into two categories – narrow definition and broader definition. On the narrow definition, public expenditure is seen as the act of providing goods and services to individuals in the country. The broader definition also entails the narrow definition in addition to public sector induced expenditures. Thus, it includes government rules and regulations to internalize externalities and by so doing forces the private sector to spend on the economy. Public expenditure includes public expenditures on all sectors of the economy such as defense, education, health, sports and so on (Urhie, 2014).

On the other hand, capital expenditure refers to the expenditure on fixed assets, infrastructure and commodities that have a long-term effect on the economy. Expenditures such as the building of schools, construction of roads, setting up of hospital, establishment of factories and the likes are examples of government capital expenditure. Thus, these kinds of expenditure are done on goods that have lasting impact on the economy and help provide a more efficient productive economy (Modebe *et al.*, 2012). Aluthge *et al.* (2021) defined capital expenditure as the funds used by a government to acquire or upgrade physical assets such as property or investments by a government. These funds are sometimes used to increase the scope of a physical asset or prolong the useful life of an existing capital asset. While, recurrent expenditure refers to all payments other than for capital assets, made on goods and services which include wages and salaries, employer contributions, interest payments, subsidies and transfers (Akpan, 2005). Government recurrent expenditure on goods and services is expenditure, which does not result in the creation or acquisition of fixed assets (new or second-hand). It consists mainly of expenditure on wages, salaries, purchases of goods and services and consumption of fixed capital (Sahid *et al.*, 2013). So government recurrent expenditures or Government final consumption expenditure on goods and services for current use are to directly satisfy individual or collective needs of the members of the community (Aluthge *et al.*, 2021).

Economic Growth

Generally, the concept of economic growth is semantically the mixture of “economic” and “growth”. Economic growth is the increase in the inflation-adjusted market value of the goods and services produced by an economy over time; it is measured as the percentage rate of increase in the real gross domestic product (IMF, 2012). In the same vein the World Bank (2018), identified economic growth as more rapid output and productivity in growth; and by growth, it, therefore, implies the expansion of a country's potential GDP. Kimberly (2019), defines economic growth as an increase in the productive capacity of a state in terms of production of goods and services over a specific period. The economic growth of a nation or state can be measured using gross domestic product. This measure takes into account the country's productive capacity and output. The gross domestic product uses all goods and services that are produced in the country. Maingi (2017) opined that economic growth is caused by many factors, however, they are more associated with higher rate of investment by the private or government sector than on other factors like; consumption spending, higher school enrollment rates, and greater political stability.

Empirical Review

Several related empirical studies have been done with respect to government expenditure and economic growth across nations and within Nigeria among them is the work of Asiagwu *et al.* (2023) who investigated public expenditure and economic development of Nigeria using a disaggregated analysis approach using relevant data spanning from 1981-2021. Descriptive statistics, Augmented Dickey Fuller (ADF), Unit root test, Granger causality and Ordinary Least Square (OLS) regression were the analytical tools for the

study. The results show that all the variables were normally distributed according to the descriptive analysis, the regression plane is statistically significant and there exists a statistically significant relationship among the variables employed in the analysis. The study recommended that Government spending if properly managed will raise the nation's production capacity and employment, which in turn increase economic growth in Nigeria. In another study, Okonkwo *et al.*, (2023) examined the effects of government capital expenditure on Nigeria's economic growth rate from 1981 to 2021. The error correction model showed a strong and positive association between administrative and economic services and the rate of economic growth in Nigeria. Furthermore, the empirical evidence that government capital spending in administrative services and economic services have positive and significant effects on economic growth rates in the long-run and short run, while deficit spending by the government only has positive, significant effects on the real gross domestic product (RGDP) over the long term.

Also, Yusuf *et al.*, (2023) analysed an empirical investigation of government expenditure on economic growth. The sample size is the 5 oil and gas foreign investors. The paper employs the Autoregressive distributed lag (ARDL) model for data analysis. The results revealed that public spending indicators are significantly related to economic growth and that government capital expenditure has a positive and significant impact on economic growth both in the short and long run. Hence, the study recommended that government should increase the share of capital expenditure on meaningful projects that directly affect the citizens' welfare. While, Duruechi & Chigbu (2022) investigated the government capital expenditures and economic development paradigm in Nigeria. The ordinary least square (OLS) statistical technique was used for data analysis. Results from the individual statistical tests revealed that except for government capital expenditure on social and community services, government capital expenditure on economic services, administration and transfers have insignificant negative and positive effects respectively on per capita income in Nigeria. However, the result of the global statistics as shown by the F-test revealed that government capital expenditure on economic services, social and community services, transfers and administrations collectively have a significant effect on the economic development of Nigeria.

In another study, Ikubor *et al.*, (2022) examined the impact of government capital expenditure in the economic services' sector on Nigeria's economic growth between 1981 and 2020, using ARDL model. The results of the findings reveal that both AGEX and MGEX have positive relationship with GDP and at the 5% significant level, are statistically significant. The study therefore recommends that since spending in the areas of infrastructural facilities is a good determinant of output growth, the government should ensure that basic infrastructural facilities needed in these sectors (agriculture and manufacturing, mining and quarrying) such as good roads, storage facilities stable electricity and so on, are provided. While, Okpabi *et al.*, (2021) examined the impact of public expenditure on economic growth in Nigeria for the period, 1984-2015. The study employed Johansen co-integration and Error Correction Model. The empirical results showed that public (recurrent and capital) expenditure had significant and positive

impact on the growth of the economy in the long run and an insignificant and negative impact on the Nigerian economy in the short run. The study recommended that the Nigerian government should readjust spending priority to accommodate more capital expenditure and channel of increases in expenditure into some critical sectors of the economy such as health, power, education, and general infrastructure in maximizing public expenditure.

In another study, Aluthge *et al.* (2021) investigated the impact of Nigerian public expenditure (disaggregated into capital and recurrent) on economic growth using time series data for the period 1970-2019. The study employed the Autoregressive Distributed Lag (ARDL) model to ensure the robustness of results, Findings from the study revealed that capital expenditure had positive and significant impact on economic growth both in the short run and long run, while recurrent expenditure did not have significant impact on economic growth both in the short run and long run. The study recommended that the government should improve on the spending patterns of recurrent expenditure through careful reallocation of resources toward productive activities that would enhance human resource development in the country. While, Aladejana *et al.*, (2021) applied Fully-Modified OLS on annual time series data in Nigeria from 1986 to 2018 to analyze the effect of government expenditure on infrastructure and economic growth. They found a positive and significant relationship between government spending on education, transport and communication, and economic growth, while expenditure on defence was negatively related to GDP. However, spending on health was negative and not significantly related to growth.

In another study, Olonite *et al.*, (2021) examined the relationship between public spending and economic growth in Nigeria. The study used the secondary data from CBN 2018. A multiple regression model was employed for the study and analyzed using the Generalized Least Squares (GLSs) with the aid of the E-Views 11 statistical program. The results of the study indicated that Capital Spending on Economic Services had a positive and significant impact on Economic Growth while Spending on Transfers had a negative and insignificant impact on Economic Growth. The study recommended that Capital Spending on Economic Services should be maintained and increased, and Spending on Transfer should be made Zero. Also, the government should develop the refineries to start mass production to nullify the negative effect of transfers (subsidy payment on oil import and price equalization). While, Efuntade *et al.*, (2020) examined the relationship among capital expenditure, taxation and economic growth in Nigeria. The Study adopted the descriptive analysis, regression, ARDL Cointegration test and error correction model. The results confirmed the existence of relationship among capital expenditure, PPT, CIT, VAT and real gross domestic product. The result indicated that in the long run capital expenditure and PPT had positive significant effect on economic growth while CIT and VAT had negative relationship with economic growth. It is recommended that government should enhance fiscal synchronization, that is, decisions about capital expenditure and taxation should be made simultaneously to enhance economic growth.

Using the analysis of variance (ANOVA) Bureau (2020) examined the effect of government expenditure on the economic growth of Nigeria. Multiple Linear regression model was adopted for analysis. Recurrent expenditure and capital expenditure were the independent variables while the gross domestic product rate was used as the dependent variable. The findings from this study revealed that while Capital expenditure has no significant impact on Gross Domestic Product in Nigeria, however, recurrent expenditure has a significant impact on Gross Domestic Product in Nigeria, thus buttressing the need for encouragement as well as an increase in the private sector investment. While, Odubuasi *et al.*, (2020) conducted a study on the effect of public expenditure on economic growth in Nigeria. Autoregressive Distributed Lagged (ARDL) testing technique and Error Correction Model-based, Granger Causality, unit root test, and cointegration were used to examine the long run causal relationship that exists between public expenditure and economic growth in Nigeria. The results revealed that public expenditure on highway, and expenditure on safety had positive and significant effect on economic growth in Nigeria at 5% and 1% levels respectively, and government recurrent expenditure had positive yet statistically insignificant effect on economic growth, while public expenditure on education has negative and no significant effect on economic growth in Nigeria. The study recommended among others that Government should increase its expenditure on capital project as this will provide the needed infrastructure that can enhance private sector productivity thereby improving economic growth.

In another study, Ahuja and Pandit (2020) examined the relationship between public expenditure and economic growth using more copious panel data set covering 59 countries in 1990-2019. Our empirical results confirm the unidirectional causality between economic growth and government expenditure where the causation runs between public spending and GDP growth. The analysis revealed 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. Evidence from the regression estimates further displays that trade openness encourages evolution in developing countries. However, population growth and unemployment have a detrimental effect on economic growth. While, Chijoke & Amadi (2020) used the Johansen cointegration test to investigate the long-term relationship between disaggregated government capital expenditure and economic growth in Nigeria. They found that government expenditure on health, transport and communication, education, agriculture, and natural resources significantly influence economic growth positively.

Finally, Uzoka (2016) investigated the implications of government capital expenditure on the manufacturing sector output in Nigeria. The study used quantitative time series data and multiple regression techniques in the analysis. The result of the co-integration test indicates long run relationship between dependent and independent variables. It also reveals that capital expenditure on road infrastructure and telecommunication affects the manufacturing sector output in Nigeria significantly while government capital expenditure on power has an insignificant effect on the manufacturing sector in Nigeria.

As the results showed, road infrastructure capital expenditure has the greatest impact in the long run on manufacturing sector output in Nigeria.

Theoretical Framework

Keynes has been the most formidable and astute theorist of public expenditure. Among all economists, the work of Lord Maynard Keynes is distinct and applauded because of his obvious differentiating perspective on the relationship. To Keynes, public expenditure is an exogenous component that is applicable as policy instrument to advance and accelerate economic growth. The Keynesian theory emphasized that public expenditure can contribute emphatically toward economic growth and advancement. Along these lines, a rise in government consumption is at the risk of inciting a rise in economic variables such as investment, employment, productivity and profitability through a multiplier effect on total aggregate demand. Based on this government utilizes and improves total interest, which affects and extends general output subject to expenditure multipliers (Keynes, 1936).

The reviewed theories and models are characterized with some major drawbacks. First, is the fact that instead of discussing and providing insights or explanations into the causal factors, they tend to describe and place their discussions on observed situations. Secondly, they all take into cognition changes in the level of economic development but did not take their time to discuss what caused the changes. On a more realistic note, it will be unrealistic to emphasize natural factors as causes of increased government expenditure knowing fully well that nature does not create things evenly. Those assumptions do not tell us the reason(s) that make one country grow faster than the other. Even, if we take into cognition the role of nature, or natural factors, as well as efficiency in the management of public expenditure, the question remains of which of the theories and models discussed suits the import of the natural environment or where the natural environment comes into force.

Methodology

Research Design, Sources and the Nature of Data

The research design for this study is *ex-post facto* research and the secondary annual time series data from 1981 to 2022 was sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin December 2023. The paper presents economic growth which was represented by real gross domestic product as the dependent variable and the sectoral government expenditure indicators which are agricultural sector expenditure, transportation sector expenditure, industrial sector expenditure and housing and construction expenditure are the independent variables used in this paper.

Model Specification and Apriori Expectation

The study adopted and used Dynamic Ordinary Least Squares (DOLS). Model specification for the study is based on the Keynesian theoretical framework, the study also follows the model specified by Ugochukwu & Oruta (2021), who studied the impact of macroeconomic variables on human capital development in Nigerian using the vector

autoregressive approach:

$$RGDP = f(AGR, TRT, IND, HCE) \dots \dots \dots (1)$$

Equation (1) was modified and specified to follow the study objectives and hypotheses of the study and the implicit model was stated as:

$$RGDP = \alpha_0 + \alpha_1 AGR + \alpha_2 TRT + \alpha_3 IND + \alpha_4 HCE + \mu_t$$

Where: RGDP = value of Real Gross Domestic Product, AGR = value of Agricultural sector expenditure, TRT = value of transportation sector expenditure, IND = value of industrial sector expenditure and HCE= value of housing and construction expenditure. Also, a_0 tells us the expected value of GDP when all the explanatory variables have zero effect; a_1 is the effect of a change in AGR on GDP while holding all explanatory variables constant; a_2 is the effect of a change in TRT on GDP while holding all explanatory variables constant; a_3 is the effect of a change in IND on GDP while holding all explanatory variables constant; a_4 is the effect of a change in HCE on GDP while holding all explanatory variables constant and ut is the stochastic or error term with all the standard attributes. It captures the effect of other variables that may affect GDP but which are not included in the model. However, to establish the relationship and the impact the government sectoral expenditure indicators on economic growth in Nigeria using Dynamic Ordinary Least Squares (DOLS), equation (3) will be formulated as:

$$\begin{aligned}
 \Delta rgdp_t = & \lambda_0 + \lambda_1 \Delta agr_t + \lambda_2 \Delta trt_t + \lambda_3 \Delta ind_t + \lambda_4 \Delta hce_t + \sum_{i=1}^m \lambda_5^i \Delta agr_{t-i} + \sum_{i=1}^n \lambda_6^i \Delta trt_{t-i} + \sum_{i=1}^o \lambda_7^i \Delta ind_{t-i} + \sum_{i=1}^p \lambda_8^i \Delta hce_t + \sum_{i=1}^q \lambda_9^i \Delta trt_{t+i} \\
 & + \sum_{i=1}^r \lambda_{10}^i \Delta ind_{t-i} + \sum_{i=1}^s \lambda_{11}^i \Delta hce_t + \sum_{i=1}^t \lambda_{12}^i \Delta hce_{t+i} + \sum_{i=1}^u \lambda_{13}^i \Delta ind_{t-i} + \sum_{i=1}^v \lambda_{14}^i \Delta hce_t + \sum_{i=1}^w \lambda_{15}^i \Delta hce_{t+i} + \sum_{i=1}^x \lambda_{16}^i \Delta hce_{t-i} + \mu_t
 \end{aligned} \quad (4)$$

Equation 4 presents the Dynamic Ordinary Least Square (DOLS) which shows the current and lagged relationship between government sectoral expenditure indicators and economic growth in Nigeria. The a priori expectation is that $\beta_1, \beta_2, \beta_3,$ and $\beta_4 \geq 0$ indicating a positive relationship between the dependent and independent variables, that is, increase in government sectoral expenditure indicators like agricultural sector expenditure, transportation sector expenditure, industrial sector expenditure and housing and construction expenditure will lead to increase in economic growth in Nigeria.

Method of Analysis

The study employed the Dynamic OLS (DOLS) model, which was proposed by Stock and Watson (1993) and eliminates the feedback in the co-integrating system by augmenting the co-integrating regression with lags and leads of the differenced values of the explanatory variables so that the resulting co-integrating equation error term is orthogonal to the entire history of the stochastic regressor innovations (or trend). DOLS is a valuable tool for analyzing time series data and estimating the long-run relationships between variables while considering their dynamic properties and potential endogeneity.

Descriptive Analysis and Summary Statistic of the Variables

Table 1: Descriptive Summary

	RGDP	AGR	TRT	IND	HCE
Mean	42446.11	9679.001	717.7346	11205.29	2238.990
Maximum	202365.0	47944.00	4291.390	62278.99	18696.81
Minimum	139.3000	17.10000	5.760000	50.33000	5.660000
Skewness	1.297331	1.434164	1.858597	1.723272	2.613773
Kurtosis	3.588910	4.230233	5.810841	5.302786	9.225305
Jarque-Bera	12.09344	16.64049	37.10220	29.35170	112.8895
Probability	0.002366	0.000244	0.000000	0.000000	0.000000
Observations	41	41	41	41	41

Source: Researcher's Computation Using EViews-12 (2024)

Table 1 revealed that the average value of the real gross domestic product in Nigeria between 1981-2022 is ₦42446.11 billion, the maximum is ₦202365.0 billion and the minimum is ₦139.3 billion. The average value of the agricultural sector expenditure is ₦9679.001 billion, the maximum is ₦47944.0 billion, and the minimum is ₦17.1 billion. The average value of transportation sector expenditure is ₦717.7346 billion, the maximum is ₦4291.39 billion and the minimum is ₦5.76 billion. The average rate of industrial sector expenditure is ₦11205.29 billion, the maximum is ₦62278.99 billion and the minimum is ₦50.33 billion. The average value of housing and construction expenditure is ₦2238.99 billion, the maximum is ₦18696.81 billion and the minimum is ₦5.66 billion. All the variables used in this paper have a skewness close to zero, which suggests their distributions are relatively symmetrical. They also have a kurtosis close to 3, which suggests they have tails that are similar to a normal distribution. Also, the Jarque-Bera test statistic rejects the null hypothesis of normality at the 5% significance level for the variables. This means that we can be fairly certain that these variables are not normally distributed. There is not enough evidence to say that these variables are not normally distributed.

Stationary Tests (Unit Root Tests)

This part shows the unit root of the variables using the Augmented Dickey-Fuller (ADF) Test to check the stationary at a 5 percent level of significance.

Table 2: Unit Root Test Result

Variable	Augmented Dickey-Fuller (ADF) Test		
	ADF	Critical Value@ 5%	Status
RGDP	-4.364501	-3.562882	1(1)
AGR	-7.026428	-3.562882	1(1)
TRT	-4.636905	-3.562882	1(1)
IND	-5.977566	-1.954414	1(1)
HCE	-9.266487	-2.960411	1(1)

Source: Researcher's Computation Using EViews-12 (2024)

Table 2 presents the stationary test of the variables used in this paper and the results revealed that all the variables were integrated at order one 1(1). This implies that they were not stationary at the level until they were differenced once and they were said to be integrated of order one 1(1). Given the result, as shown by ADF tests and the order of integration of the variables there is no long-run relationship among the economic variables which are the real gross domestic product, the agricultural sector expenditure, transportation sector expenditure, industrial sector expenditure and housing and construction expenditure. Therefore, the paper went ahead to test for the long-run relationship by testing the co-integration using the Engle and Granger (Residual Based) Co-integration Test

Co-integration Test Results

This section presents the Engle-Granger residual-based co-integration test and this shows whether or not the variables tend to move together over time, suggesting a stable long-term relationship. That is to establish a long-term relationship between real gross domestic product and the sectoral government expenditure indicators.

Table 3: Results of Engle and Granger (Residual Based) Co-integration Test

Variable	ADF Test Statistic	95% Critical ADF Value	Remarks
Residual	-4.866702	-3.536601**	Co-integrated

*Note: ** significant at 5%*

Source: Author's Computation Using EViews-12 (2024)

Table 3 presents the Engle and Granger (Residual Based) co-integration test and the variable under consideration the residual from a long-run equilibrium equation estimated with the variables of interest exhibits an Augmented Dickey-Fuller (ADF) test statistic of -4.866702. This value is more negative than the provided 95% critical ADF value of -3.536601, which is significant at the 5% level. This indicates that the null hypothesis of no co-integration can be rejected, and thus, the paper can conclude that the variables used in the estimated equation are co-integrated. This implied that there is a long-term relationship between real gross domestic product and the sectoral government expenditure indicators.

Presentation and Interpretation of Results

Dynamic OLS (DOLS) Regression Results

This part presents the long-run DOLS regression analysis involving the real gross domestic product, the agricultural sector expenditure, transportation sector expenditure, industrial sector expenditure and housing and construction expenditure.

Table 4: Dynamic OLS (DOLS) Model Results

Dependent Variable: RGDP				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGR	3.459331	0.560138	6.175855	0.0000
TRT	-5.012295	8.648453	-0.579560	0.5684
IND	1.094198	0.380381	2.876589	0.0090
HCE	5.108238	1.954304	2.613840	0.0162
C	-352.0374	300.9138	-1.169895	0.2552
R-squared	0.999699			
Adjusted R-squared	0.999469			

Source: Author's Computation, using E-views 12, (2024)

The DOLS results, as reflected in Table 4, exhibit the coefficients and their corresponding t-statistics and probability values for each sectoral government expenditure indicator. Agricultural sector expenditure shows a positive coefficient of 3.46, with a t-statistic of 6.176, which indicates a significant and positive impact on economic growth in Nigeria at the 5% level (Prob. 0.000). This suggests that an increase in agricultural sector expenditure tends to have a favourable impact on the economic growth in Nigeria, possibly through enhanced effective utilization of agricultural sector expenditure that will increase the economic output and thereby increasing the economic growth in Nigeria. On the other hand, the transportation sector expenditure in Nigeria has a negative coefficient value of -5.012, accompanied by a t-statistic of -0.58, signalling an insignificant negative relationship with economic growth in Nigeria at the 5% level (Prob. 0.57). This low coefficient and the negative impact on economic growth in Nigeria underlines the fact the transportation sector expenditure has no significant impact on economic growth in Nigeria which was also confirmed by the probability at 5 percent level of significance.

Also, the industrial sector expenditure presents an even more pronounced effect with a coefficient of 1.094 and an impressive t-statistic of 2.877, which is highly significant (Prob. 0.0090) and exerts a positive impact on economic growth in Nigeria. The result reveals that every 1% increase in the industrial sector expenditure will increase economic growth in Nigeria by 1.094 units. This implies a high industrial sector expenditure and underscores that a large number of the population and the productive labour force are engaged in industrial activities which is the major component of real gross domestic product in Nigeria. Finally, Nigeria's housing and construction expenditure has a positive coefficient of 5.11 with a t-statistic of 2.61, which is significant at the 5% level (Prob. 0.0162). The significant result as shown by the low probability level shows that an increase in housing and construction expenditure in Nigeria does have a positive and significant impact on economic growth in Nigeria.

The R-squared value of 0.99 indicates that the model explains a very high proportion of the variation in economic growth in Nigeria. The adjusted R-squared value of 0.99 is also quite high, suggesting that the model fits the data well while accounting for 99% of the number of explanatory variables included. Furthermore, the hypothesis that stated H_{01} :

agricultural sector expenditure has no significant impact on economic growth in Nigeria is rejected given that the value of 0.0008 is less than 5 percent level of significance. This implies that the agricultural sector expenditure has a positive and significant impact on the economic growth in Nigeria. On the contrary, the hypothesis that stated H_{02} : transportation sector expenditure has no significant impact on economic growth in Nigeria is accepted given that the value of 0.5684 is greater than 5 percent level of significance. This implies that the transportation sector expenditure has a negative and insignificant impact on the economic growth in Nigeria. However, hypothesis that stated H_{03} : the industrial sector expenditure has no significant impact on economic growth in Nigeria is rejected at a 5 percent level of significance given that the value of 0.0090 is less than 5 percent level of significance. This implies that the industrial sector expenditure has a positive and significant impact on the economic growth in Nigeria. Finally, the hypothesis that stated H_{04} : housing and construction expenditure has no significant impact on economic growth in Nigeria is rejected at a 5 percent level of significance given that the p-value of 0.0162 is less than the 5 percent level of significance. This implies that the housing and construction expenditure has a positive but significant impact on the economic growth in Nigeria.

Post-Estimation Checks (DOLS Diagnostic Test)

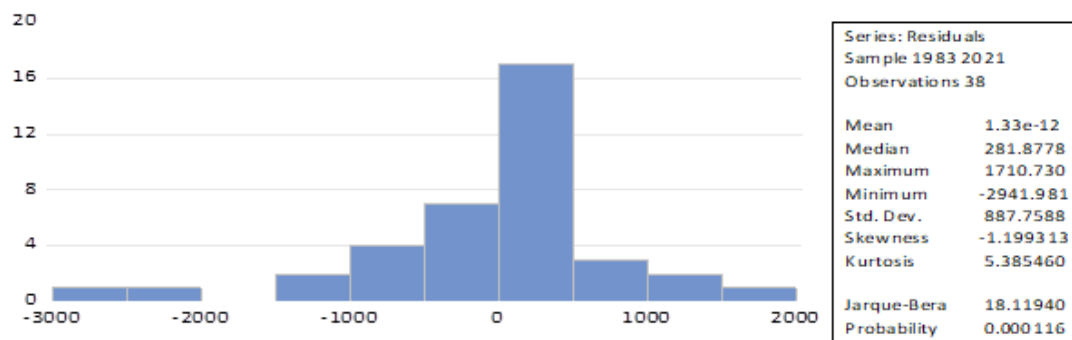


Figure 1: Normality Test

The Normality Test, specifically the Jarque-Bera test, is employed to determine whether the residuals of the model are normally distributed. The Jarque-Bera statistic is 18.11940 with a probability of 0.000116, which indicates that the residuals are not normally distributed. With a low p-value, the null hypothesis that the residuals are normal is rejected and this means that residuals are not normally distributed which justifies the use of the Dynamic OLS (DOLS) model.

Discussion of Findings

The study focuses on the impact of government sectoral expenditure indicators on economic growth in Nigeria. The R-squared revealed that the government sectoral expenditure indicators model has a good fit in explaining the variation in economic growth in Nigeria. Based on the specific objectives of the findings of the study,

agricultural sector expenditure was found to have a positive and significant impact on economic growth in Nigeria and this finding agreed with the work of Chijoke & Amadi (2020). In contrast, the coefficient of transportation sector expenditure was found to be negative but was statistically insignificant on economic growth in Nigeria and this is because the transportation system in Nigeria has been poorly managed and has not supported the productive sector in improving economic growth in Nigeria and this finding was supported by the work of Asiagwu *et al.* (2023)

Also, industrial sector expenditure showed a positive and significant impact on economic growth in Nigeria, which suggests that an increase in the industrial sector expenditure is associated with an increase in economic activities in Nigeria and this is because industrial sector expenditure improves the productive sectors through the provision of industrial goods for other economic productions and utilization of productive resources which main determinants of economic growth in Nigeria and this finding was supported by the work of Uzoka (2016). Finally, the housing and construction expenditure coefficient showed a positive and significant impact on economic growth in Nigeria and this implies that housing and construction expenditure has great potential to increase the economic activities in Nigeria because housing and construction expenditures are essential spending for the government to increase the productive of economic agents and this finding agreed with the work of Kimberly (2019).

Conclusion and Recommendations

In conclusion, the study revealed through the analysis of the Dynamic Ordinary Least Squares results on the impact of government sectoral expenditure indicators on economic growth in Nigeria and given the impact of government sectoral expenditure indicators on economic growth in Nigeria the result revealed that agricultural sector expenditure, industrial sector expenditure and housing and construction expenditure have a positive and significant impact on economic growth in Nigeria implying that these government sectoral expenditure indicators have the great potentials in advancing the activities of economic growth in Nigeria. On the other hand, transportation sector expenditure adversely affects economic growth in Nigeria. This is because the increase in this government sectoral expenditure indicator reduces economic growth in Nigeria. Therefore, the following recommendations arise from the study's findings.

- i. It is recommended that the government, through the Ministry of Agriculture should formulate and implement robust policies aimed at diversifying the economy and fostering growth in non-oil sectors, with a specific focus on increasing investment in the agricultural sector. Furthermore, proactive measures should be taken to engage the private sector, especially the financial industry, in allocating annual funds for agricultural financing to complement government initiatives. Government agencies should also play a role in educating farmers about the availability of such financial assistance programs.
- ii. Similarly, the Federal Government of Nigeria, through the Ministry of Transport, is should prioritize the transport sector by allocating increased resources to enhance transportation infrastructure, which includes the development of

- efficient transportation systems such as railways, roads, and waterways, along with the establishment of incubation hubs to support economic growth.
- iii. Moreso, in line with recommendations, the government, under the Ministry of Trade and Industry, should focus on bolstering infrastructure development, including power supply and road network improvement, to support the agricultural sector's growth and ensure a sustainable supply chain for industries.
 - iv. Finally, concerted efforts should be made by the Federal Government, mortgage banks, and other stakeholders to advocate for the simplification of housing loan access procedures and the removal of stringent conditions for citizens seeking housing finance. Collaboration with the Federal Ministry of Works and Housing is essential to review existing policies, such as the Land Use Act of 1978, and implement effective strategies to facilitate the construction of affordable mass housing units yearly to spur national development.

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APPENDIX 1

Table 1: Data Used for Regression

YEAR	GDP	AGR	TRT	IND	H&C
1981	139.3	17.1	5.76	54.69	10.24
1982	149.1	20.1	5.92	51.88	9.18
1983	158.7	23.8	5.81	54.16	8.33
1984	165.8	30.3	5.85	50.33	7.04
1985	187.8	34.2	7.28	62.86	5.66
1986	198.1	35.7	7.48	65.05	7.09
1987	244.6	50.2	7.50	80.47	8.03
1988	315'6	73.7	7.89	102.95	9.11
1989	414.3	88.2	7.96	146.83	14.23
1990	494.5	105.6	8.94	175.15	16.06
1991	590.0	123.2	9.85	218.12	18.09
1992	906.0	184.1	13.54	341.66	22.55
1993	1257.2	295.3	21.29	417.06	29.60
1994	1768.8	445.2	41.10	553.96	38.11
1995	3100.2	780.1	62.17	1132.84	50.88
1996	4086.1	1070.5	79.70	1530.05	59.22
1997	4418.7	1211.4	92.04	1557.54	69.31
1998	4805.2	1341.0	116.87	1379.20	90.83
1999	5482.4	1426.9	138.31	1609.82	101.62
2000	7062.8	1508.4	154.39	2388.83	112.97
2001	8234.5	2015.4	173.06	2328.41	150.40
2002	11501.5	4251.5	216.48	2650.03	177.13
2003	13557.0	4585.9	268.65	3525.14	217.44
2004	18124.1	4935.2	428.43	5145.43	613.07
2005	23121.9	6032.3	452.56	6520.74	796.56
2006	30375.2	7513.3	519.93	7822.11	924.08
2007	34675.9	8551.9	558.98	8441.76	983.63
2008	39954.2	10100.3	565.86	9874.38	1131.72
2009	43461.5	11625.7	599.50	9225.81	1283.47
2010	55489.4	13048.8	694.77	13826.43	1570.97
2011	63713.4	14037.8	779.35	17853.11	1905.57
2012	72599.6	15816.0	917.32	19587.72	2188.72
2013	81010.0	16815.5	1051.22	20853.85	2676.28
2014	90137.0	18018.6	1197.55	22213.01	3188.82
2015	95177.7	19636.9	1361.07	19188.58	3472.26
2016	102575.4	21523.1	1573.52	18641.17	3606.56
2017	114899.2	23952.55	1787.49	25639.90	4281.78
2018	130269.2	27371.3	2128.37	33218.33	6031.06
2019	145639.1	31904.1	3052.57	39879.69	8996.90
2020	154252.30	37241.6	2639.77	43530.78	11639.48
2021	173527.70	41126.0	3377.52	55300.97	16586.83
2022	202365.00	47944.0	4291.39	62278.99	18696.81

Source: CBN Statistical Bulletin, 2022