

Analysis of Government Expenditure and Economic Growth in Nigeria



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ABSTRACT: This study examines the impact of government expenditure on economic growth in Nigeria using time series data spanning from 1980-2020. Variables used includes real gdp, government final consumption expenditure and population growth rate. Augmented Dickey Fuller and Philips-Perron unit root test for stationary of the variable, Johansen Co integration, Vector Error Correction and Granger Causality tests were estimated. Johansen co integration test result indicates the existence of long run relationship while the error corrections model reveals the absence of shot run relation among the variable. Unidirectional causality runs from population growth to economic growth and public expenditure to population growth. Base on the findings, it is recommended that Nigerian government should enhance expenditure on social welfare to improve standard of living of it citizenry

KEYWORDS: GDP, Public Expenditure Population Causality.

1. INTRODUCTION

Government spending has been an impetus for improving economic activities of a nation. This is because it affects the growth rate and the level of production in the private sector. According to Samuel and Oruta (2021) public spending is an important measure in achieving full employment, price stability, improve standard of living, economic growth and other macroeconomic objective Aluthge et.al (2021) described government spending as a vital instrument for development, it manifests itself in all the stages of national growth and development. World bank 2008, Assei et.al 2019, & Vtyunna 2020 stress that a significant number of developed and developing economies rely on public expenditure to influence income distribution, resource allocation and the composition of national income

For the past decade Nigeria government follows an action for development plan programme known as vision 20:2020 targeted at catapulting the economy into among the top 20 economies by the year 2020. This plan by the Nigerian government was happen at the same time with world millennium development goals which Nigeria oblige to partake at the world summit in the year 2000. Nigeria government as at then strategized seven-point economic reform agenda to achieve those two development plans. Among the top issues prioritized by the programme includes power and energy, food security and agriculture, wealth creation and employment, land reforms, security as well as qualitative and functional education. However, the success of this programme may not be guaranteed without a stringent effort by the government in financing the programme. Meanwhile, the plans are not the first of their kind launched in Nigeria, but the past plans yielded no desired results. This created much doubts in the minds of Nigerians. For instance, Okeke (2008) laments that "Over the years, federal budgets in Nigeria, whether under the military or democratic/civilian administration, have turned out to be a mere ritual than the driver of economic growth and development that it ought to be. Consistently, budgetary outcomes have remained far off the mark vis-a-vis the planned targets. Budget implementation monitoring mechanisms are either not put in place or are let to function in a perfunctory manner, leading to the usual below the target outcomes from year to year". Abubakar (2009) however, laments that "poverty in Nigeria increases astronomically, it seems in Nigeria today, the more the country earns and spends money, the higher the level of poverty. To him public expenditure in Nigeria does not help reduce poverty rather it aggravates poverty. For instance, Obi (2007) observed that public spending is the most important and effective means of poverty reduction. To him fiscal policy has to be in place so that government spending would properly be focused on the provision of adequate and affordable goods and services to the poor households.

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However, few studies have empirically examined the relationship between public expenditure and economic growth for specific country. Even those conducted based on specific country were full of limitations. For instance, in Nigeria very few researches using disaggregate data, small sample sizes and inappropriate econometric tools were conducted. Morrissey (2000) concludes that most of empirical studies on the effect of public expenditure on economic growth are cross-sectional, and specific country studies are rare. Therefore, time series country study is more potential and informative, even though the findings cannot be generalized to other countries.

This research however, differs from the researches by Ahmad (2007) and Genevesi (1995) both on Nigerian economy. The study by Ahmad (2007) investigates the effect of education expenditure on economic growth only without consideration to expenditure to other sectors. He used to disaggregate data of education expenditure which is a segment of the total public expenditure. As such his findings cannot be generalized to other sectors of Nigerian economy. In a study by Genevesi (1995), a small sample of twenty-three years was used contrary to central limit theorem which stated that a time sample must not be less than thirty for normality purpose. However, the degree of reliability of his findings is low because of the small sample taken for the research. For instance, Yahaya (2007) stresses that the larger the sample size, the higher the degree of reliability of the research findings. Therefore, this research intends to use aggregate data of total public expenditure in Nigeria and a larger sample size of forty years. In order to investigate the influence of public expenditure on economic growth in Nigeria, a comprehensive empirical research must be undertaken to investigate the relationship between public expenditure and economic growth using time series data for a couple of decades. This study therefore, aims at investigating the relationship between public expenditure and economic growth in Nigeria.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Literature review is an integral part of any meaningful research. It therefore believes to be source of gathering vital and relevant information from previous studies that are similar in nature. The theoretical underpinning of this study is not far away from the expositions of great economists like A. Wagner (1863) and J.M. Keynes (1936). Their theories are the most prevailing economic literature with regard to the relationship between public spending and economic growth.

The foremost is what we called Wagner's hypothesis and the latter is Keynesian hypothesis. These two hypothesis sees the working relationship between those variables under a divergent view. According to Wagner (1863) with higher level of economic development, there is long-run propensity for the scope of government to increase. The theory is otherwise known as "law of increasing state activities. Therefore, this law affirms that the portion of public sector in the economy will shoot up as economic growth proceeds, due to the intensification of real activities and extension of new ones. Moreover, this law confirms that the direction of causality is running from economic growth to public spending.

Furthermore, the rise in level of state activities, as opined by Wagner in the work of Hany and Ahmed (2019), is as a result of increase in administrative and protective functions of governments towards ensuring demand and supply equilibrium of the market in the course of industrialization, public services provision which are income elastic like welfare expenditure, cultural events, health care facilities and education. Thus, there are ever increasing demand for such services which culminate into allocation of larger percent of public resources especially in modern industrial society. Lastly, technological improvement demands large-scale investment for which private sector have limited resource. In this regards, the Governments have to take part in such project and provide social and merit goods through budgetary mean

In another development, Keynesian are of the view that economic growth would take place as a result of increasing public spending and is regarded as self-standing exogenous variable affecting economic growth. Keynesian theory believe that the causality is running from public spending to economic growth. Keynes (1936) cited in Hany and Ahmed (2019) suggested that government intervention in an economy is a stimulant to aggregate demand particularly during economic recession as a short run solution. As such, aggregate demand component comprises government spending therefore an increase in public expenditure eventually lead to rise in aggregate demand thereby through multiplier effect more employment and output will be achieved. Keynes disputed that government expenditure is a component of fiscal policy and can be used as a policy instrument to influence growth. Therefore, he considered public expenditure to be exogenous. In a similar citation Ahmad (2007) observe government spending as policy tool to trigger economic growth. He explained the relationship between public spending and economic growth in his Macroeconomic theory. Consequently, Wagner's and Keynesian theories are primarily different due to the causal relationship between economic growth and public spending

Conclusively, this study intends to adopt Keynesian theory because it is the theory among all other theories of economic growth and expenditure that regards public expenditure as an exogenous variable which can be utilized as policy instrument to stimulate

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economic growth. Unlike in the case of Wagner's law which sees public expenditure as an indigenous variable. Most of the empirical literature reviewed in this research is in favor of Keynesian theory while some of the findings confirmed Wagner's law.

Empirical Literature

Grier and Hulloch (1989) Investigate the relationship between economic growth and other macroeconomic variables using panel data regression on 113 countries. The results of their findings reveals long run relationship among the variables. This shows that Government spending has significant effect on economic growth. Davarajan et. Al. (1996) examine the impact of current public expenditure on economic growth among forty-three (43) emerging economies. Their findings indicate that current public spending influences economic growth for the period under review. In the same vein Abu-Bader and Abu-Qarn (2003) employ granger causality technique in determining the direction of causality between public spending and economic growth for Syria, Israel and Egypt. Causality test result reveals feedback for Syria, and Israel in the long run while short run unidirectional causality running from economic growth to government expenditure in Egypt. Similar studies on the effect of public expenditure on defense and economic growth using causality and cointegration analyses was carried out by Kalyoncu and Yucl (2006) in Turkey and Greece. The results showed unidirectional causality from economic growth to expenditure on defense in Turkey. However, there exist cointegrating relation between expenditure on defense and economic growth in those countries. Abubakar, A.B, (2016) investigate Public expenditure and economic growth nexus in Nigeria using co integration and vector error correction model. Finding of the study shows both long and short run relationship among the variable. and that of Mobolaji et al (2011), explore Public spending and Economic Growth in Nigeria through Vector Error Correction model. Their Findings reveals evidence of a long run relationship between economic growth and public spending in Nigeria.

Ifarajimi and Ola (2017) conducted empirical analysis of the nexus between government spending and economic growth in Nigeria for the period 1981 to 2015. Time series data were estimated using DOLS and two-step Engle-Granger residual test. findings reveal long run Dynamic relationship among public expenditure on administration, economic services and nominal exchange rate were significant and had the expected signs except government spending on economic services. Adewara and Oloni (2012) examine the impact of public expenditure on economic growth through vector Autoregressive models (VAR). result of their finding showed that expenditure on education has no significant influence on economic growth for the period under investigation. furthermore, Nwadiubu and Onuka (2015) following the same analytical pattern discovered that public spending has a negative effect on economic growth. But Nwadiubu and Onuka (2015) in their analysis however, proved that increase in public spending resulting in rising economic growth.

Gukat and Ogboru (2017) conducted a study on public expenditure and economic growth in Nigeria. The study uses time series econometric data running from 1981 -2016. Two different model used in testing the impact of government recurrent and capital expenditures. Data use for the study were social service, economic service and administration which were estimated using ols. cointegration and error correction techniques. Findings reveals that social service and economic service have a negative influence and administration has a positive impact on economic growth. Other finding indicates that coefficients of administration and social services were negative and insignificant while economic services was positive

3. METHODOLOGY

The study examines public expenditure and economic growth nexus in Nigeria. Time series data spanning 1980 to 2020 was used. On the sample size, Ogonna (1994) argues that it is often difficult to study the entire population especially when it is large. This is the major reason why samples have to be taken from the total population, thereby reducing the data to manageable proportion. Therefore, in the course of this time series research, the sample covered a period of thirty-nine (40) years, between 1980 to 2020. However, another reason for selecting thirty-nine years is to adhere to central limit theorem that time sample size must not be less than thirty for normality purpose. Yahaya (2007) stressed that the larger the size of a sample, the greater the degree of reliability of research findings.

Variables for the study includes total Gross Domestic Product (GDP) as dependent variable, public expenditure and population growth rate are independent variables. Data for these variables are from major sources like the Central Bank of Nigeria (CBN) Statistical Bulletin, National Bureau of Statistics and African Development Bank (ADB) selected statistics on African countries.

Model Specification

The identified relationship between public expenditure and economic growth has been investigated using theoretical univariate regression model as follows:

$$ydt = \beta_0 + \beta_1x_1 + \beta_2z_2 + u_t \dots \dots \dots (1)$$

Where ydt = Gross domestic product (gdp)

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β_0	=	Constant Parameter
x_t	=	Public Expenditure (final consumption expenditure)
z_t	=	Vector of other factors influencing growth (Population)
β_1	=	Coefficient of public expenditure
β_2	=	Coefficient of Vector of other factors influencing growth
μ_t	=	Error term

The Dickey-Fuller Generalized Least Square (DF- GLS)) unit root test model is given as follows:

$$\Delta y_{dt} = \beta_0 + \beta_1 y_{1-t-1} + \alpha_i \Sigma \Delta y_{t-1} + u_t \dots \dots \dots (2)$$

Where Δy_{dt}	=	Differenced value of a given variable
β_0	=	Constant parameter
β_1	=	Coefficient of the first lag value of a given variable
y_{t-1}	=	first level lag value of a series variable
α_i	=	Coefficient of the lag values of the differenced time series variable
Δy_{t-1}	=	Lag values of the differenced time series variable
μ_t	=	Estimated error term

To test for the long run relationship, we tested for Johansen test for cointegrating rank, in the absence of cointegration, and then we applied the vector error correction model. To do this, we subject the residuals estimated from the co-integration regression to differencing and regress the difference value of the residuals on the estimated lagged value of the residuals using Augmented Dickey-Fuller Generalized Least- Square unit root test. If the TS < CV, then the residual is stationary, that is there is no unit root and the series are co- integrated and therefore, long run relationship exists (Garba and Abdullahi 2009).

vector error correction model.

$$\Delta y_{dt} = \alpha_0 + \alpha_1 \Delta y_{1-t-1} + \alpha_2 \Delta x_{t-1} \Sigma \alpha_i \Delta x_{2t-1} + \alpha_4 u_{t-1} + \epsilon_t \dots \dots \dots (3)$$

Where Δy_{dt} and Δx_t = the differenced values of public expenditure and proxy for economic growth respectively.

α_0	=	Constant parameter
α_1	=	Coefficient of the lag value of a proxy for economic growth
Δy_{dt-1}	=	First lag value of the differenced value GDP
α_2	=	Coefficient of the lag value of the differenced value of public expenditure
$\Sigma \alpha_i$	=	Vector of the coefficient of other determinants of GDP in the model
Δx_{1t-1}	=	First lag value of the differenced value of public expenditure
Δx_{2t-1}	=	Lag values of the differenced values of other determinants of GDP.
α_4	=	The coefficient of the first level lag values of the error correction term
μ_{t-1}	=	First lag value of the estimated residual.

VAR Model

$$y_{dt} = \beta_0 + \beta_1 y_{dt-i} + \beta_2 x_{t-i} + u_{t1} \dots \dots \dots (4)$$

$$x_t = \alpha_0 + \alpha_1 x_{t-i} + \alpha_2 y_{dt-i} + u_{t2} \dots \dots \dots (5)$$

Where: y_{dt}	=	The dependent variable GDP in equation (4)
β_0	=	Constant parameter
y_{dt-i}	=	Lag values of GDP
β_1	=	Coefficient of the lag values of GDP in equation (4)
x_{t-i}	=	Lag values of public expenditure
β_2	=	Coefficient of the lag values of public expenditure in equation (4)
x_t	=	The dependent variable public expenditure in equation (5)
α_0	=	Constant parameter
α_1	=	coefficient of the lag values of public expenditure in equation (5)
α_2	=	coefficient of the lag values of GDP in equation (5)
μ_{t1}	=	error term in equation (4)
μ_{t2}	=	error term in equation (5)

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4. DATA ANALYSIS

Table 1. Results of Dickey- Fuller Generalized Least Square Unit Root Test

Variables	Level Value	Difference Value	Conclusion
Real GDP	-2.016(8)	-3574(1)**	1(1)
Public Expenditure	-3.001(7)	-4.070(1)***	1(1)
Population Growth Rate	-3.206(1)	-6.612(1)***	1(1)

Source: author's calculation using STATA software

Note: **, *** indicates levels of significance at 5% and 1% respectively. Figures in parenthesis indicates the number of lags.

4.1 Interpretation of Dickey- Fuller Generalized Least Square Unit Root Test Results

As stated earlier in chapter three, time series analysis always begins with unit root testing using Augmented Dickey-Fuller unit root test, Dickey- Fuller Generalized Least Square (DF- GLS) unit root test and others. Therefore, the above table 1 shows the results of Dickey- Fuller Generalized Least Square test for stationarity of the variables both at level and differenced values. The summary of the results reveals that none of the variable attained stationary at 1% level of significance at level value. However, the results of the test show that all the variables attained stationary at first differences at 5% and 1% level of significance. The insinuation of the above results is that even though the variables are not stationary at their level values, they are integrated of the same order at the differenced values. Base on Eagle and Granger (1987) criteria for conducting cointegration analysis, variables under review must be integrated of the same order. Therefore, cointegration test is applicable in this study.

Table 2. Results of Johansen Co Integration Tests

Maximum rank	Parms	LL	Eigenvalue	Trace Statistics	5% Critical Value
0	40	87.418624	-----	44.0081	29.68
1	45	103.76546	0.60706	11.3144*	15.41
2	48	107.71175	0.20188	3.4219	3.76
3	49	109.42267	0.09314	-----	-----

Source: author's calculation using STATA software

Note: * Indicates the corresponding number of Co integrating rank.

4.2. Interpretation of Results of Johansen Co integration Tests

Table 2 presented Johansen Co integration tests Results for the number of co integration ranks on public spending, rate of population growth and economic growth in Nigeria. The results of the test reveals that there is co integration among the variables. This can be seen from the value of the trace statistic (44.008) which is higher than the critical value (29.68) at significance level of 5%. In addition, the results indicate the presence of one co integrating vector. The trace statistics of 11.3144 is lower than its corresponding critical value of 15.41 at 5% level, this has made the us to accept the null hypothesis of more than one co integrating vector. To this effect we run vector error correction model.

Table 3. Error Correction Model Results

Independent Variables	Dependent Variable Difference of Lag Value of Real GDP
Lag of Difference of Public Expenditure	-0.071 (-3.54)***
Lag of Difference of Population Growth Rate	-2.915 (-6.60)***
Lag of Error Correction Term	-4.096

Source: author's calculation using STATA software

Note: *** Indicates significant statistical value at 1% level.

$$ECT = \text{lrgdp} - 4.096 - 0.071\text{pubexp} - 2.915\text{popgrr}$$

Thus: lrgdp normalized as the dependent variable

$$\text{lrgdp} = 4.096 + 0.071\text{pubexp} + 2.915\text{popgrr} + \mu_t$$

4.3: Interpretation of the Vector Error Correction Model Results

Since there is evidence of co-integrating vector, we applied vector error correction model (VEC) to ascertain the short- run and long- run relationship. The summary of the vector error correction regression results on the models of, population growth public

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spending and economic growth is presented in Table 3. The VEC results in shows that there is no short-run relationship between population growth, public spending and economic growth. The results further discovered the evidence of long-run relationship among population growth, public spending and economic growth. Therefore, the null hypothesis of no long-run relationship is rejected. The significant negative coefficient of error term indicates the presence of a long-run relationship among the variables.

Table 4. Granger Causality Result

Independent Variables		Dependent Variables		
Lag of Diff of the log of Public Exp	Lag of Diff of the log of PoP Growth Rate	First Diff of the lag of Real GDP		
-0.015 (-0.47)	0.193 (1.80)**			
Lag of Diff of the log of Real GDP	Lag of Diff of the log of PoP Growth Rate	First Diff of the lag of Public Exp		
0.076 (0.09)	-0.0160 (-0.29)			
Lag of Diff of the log of Real GDP	Lag of Diff of the log of Public Exp	First Diff Of The Lag Of PoP Growth rate		
0.291 (1.11)	0.099 (1.98)			
		First Diff of Real GDP	First Diff of Public Exp	First Diff of PoP Growth Rate
χ^2		4.411	2.687	5.706

Source: author's calculation using STATA software

Note: significant at 10% (*) and 1% (***), and the figures in parentheses are the Z calculated values.

4.4 Interpretation: Granger Causality Test

Table 4 above presents the causality test results between public expenditure, population growth rate and economic growth. From the results it is discovered that the direction causality is running from population growth to economic growth and from public expenditure to population growth. This can observe from the significant results of the differenced lag values of population growth rate in equation one, and that of public expenditure in equation three.

DISCUSSIONS OF FINDINGS

The data used for the research were analyzed and interpreted. Findings indicate the absence of short-run relationship among, public expenditure, population growth and economic growth. However, the results reveal the existence of long-run equilibrium relationship among economic growth public expenditure, rate the of population growth and in Nigeria. Causal relation test result however reveals the existence of causality from the rate of population growth to economic growth and from public expenditure to the rate of population growth. This results concurred with the findings of Khan (1990), Nagarajan and Spears (1990), Islam and Nazemzadeh (2001). The findings however are opposed to the findings of Pluta (1979) and Ahmad (2007). Furthermore, the findings of this study are contrary to the findings of Jackson et, al (1990), Park (1996) and Abu-Qarn (2003) However, the coefficient of the error correction term shows a significant long-run relationship among public expenditure, population growth and economic growth in Nigeria. These findings are in tandem with the findings of Davarajan (1996), Mahn and Suruga (2005), Certen, (2004) and Grier and Hulloch (1989) who found no short-run relationship between public spending and economic growth. Furthermore, the findings confirm with those of (1995), and Oyinlola (1993) who found long- run relationship between public expenditure and economic growth. The findings contradict the findings of Kormendi and Miguire (1985) and Ramin (2005) who found significant negative short-run relationship between population growth and economic growth. The findings however, are in conformity with the findings of Yin et.al, (1999) and Simon (1981) who found significant positive relationship between population growth and economic growth.

CONCLUSION

In consonant with review of literature and findings of this paper, the following conclusions have been drawn: Firstly, there is no short-run relationship among public expenditure, economic growth and population growth rate in Nigeria. Secondly, A significant

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long-run relationship exist among the rate population growth, public expenditure, and economic growth in Nigeria Thirdly, in Nigerian case, the causality runs from rate population growth to economic growth and from public expenditure to rate population growth. Therefore, from the findings, it is recommended that Nigerian government should enhance expenditure on social welfare to improve living standard of it citizenry

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