

# Government Expenditure on Infrastructure and Economic Growth in Nigeria

<sup>1</sup>S. Aliu, ALA DEJANA

<sup>2</sup>EHINOMEN, C.O (Ph.D)

<sup>1, 2</sup>Department of Economics  
Federal University Oye, Oye-Ekiti.

<sup>3</sup>AKANBI, Mojisola Mercy

Department of Economics  
Samuel Adegboyega University, Ogwa, Edo State, Nigeria.  
Email: [aladejana26@gmail.com](mailto:aladejana26@gmail.com)

## Abstract

*The central objective of this study is to analyse the effect of government expenditure on infrastructure and economic growth in Nigeria for the period 1986 to 2018. This study engaged annual time-series data and the Fully Modified Ordinary Least Squares (FMOLS) estimation techniques. The upshots revealed that governments' expenditure on education and transport & communication services have positive and significant effects on economic growth in Nigeria. Specifically, a unit per cent increase in expenditure on education and transport & communication services will bring about 1049.956 and 296.6 per cent increase in economic growth in Nigeria. The coefficient of government spending on defense is negatively linked and statistically significant at 5% level to economic growth, while expenditure on health is negative and statistically not significant, implying that government has not put sufficient funds on the health sector of Nigerian in line with the requirement of international organizations. The study concludes that economic growth is strongly influenced by education and transport & communication services in Nigeria. The study, hence, recommended that Nigeria government should increase her spending on defense, education, health, and transport & communication services because they represent critical sectors of economy that require enhanced funding for robust economic growth in Nigeria.*

**Keywords:** Government expenditure, Infrastructure, Economic growth, Fully Modified Least Square.

## INTRODUCTION

Government expenditure relate to the operating cost made by the government for its maintenance and for the upkeep of the general public in terms of provision of essential services. Public expenditure has been recognized to have association with economic growth and development thus; this study is deemed for appropriate planning. The structure of government expenditure in developing economies has not been steady over some years. It is often established that there is need to appraise the relative trend in government spending across emerging economies and to assess the possible input of each sector to economic growth as this will boost allocative efficiency. For government expenditure to be able to promote growth and development in any economy there is need for the budgeting process to be significantly evaluated to ensure that resources are allocated based on social, human and infrastructural need in the economy.

The World Bank (2013), ranked Nigeria as the 27<sup>th</sup> largest economy in the world – on par with Poland and Belgium and ahead of Argentina, Austria and Iran, in terms of nominal GDP, and

the 22<sup>nd</sup>-largest in terms of purchasing power parity. Official data for 2013, released by Nigeria's statistics bureau, put the country's GDP at \$503bn (£307bn) – nearly double previous estimates and well ahead of South Africa at around \$350bn. The level of Nigeria economy is by far bigger than the rest of other Africa development community and she still remains their major trading partner. The country has a population of 201,214,136 million people, a GDP (PPP) of \$5315.82 billion, 2.01% annual growth rate, \$2396.30 per capita, unemployment rate of 23.10% and foreign direct inflow of \$1,150.51 billion. Nigeria is African's largest economy and one of the world's largest producers and exporters of crude oil, cocoa, oil seed, fertilizer etc. Mining services, manufacturing and agriculture competes with similar sectors in the developed world.

Hitherto, many Nigerian's are poor, rates of formal sector unemployment and crime are high and the quality of public education is low. Access to infrastructure and basic services is lacking. Allegations of corruption among civil servants persist at all levels despite an excellent anti-corruption regulatory framework. The process for tendering public contract is often politically driven and dense. However, the magnitude and structure of public expenditure will decide the shape and form of growth in production of the economy. The structure of Nigerian public expenditure can broadly be classified into capital and recurrent expenditure. The recurrent expenditure are government spending on administration such as wages, salaries, interest on loans, maintenance etc., whereas spending on capital projects like roads, airports, education, telecommunication, electricity generation etc., known as capital expenditure. One of the main reasons for government expenditure is to provide infrastructural facilities and the maintenance of these facilities requires a substantial amount of capital.

The link between government expenditure on infrastructure and economic growth tends to be an important analysis in developing countries, most of which have experienced increasing levels of public expenditure overtime (World Development Report, 1994). Expenditure on infrastructure investment and productive activities (in State-Owned Enterprises) ought to contribute positively to growth, whereas government consumption spending is anticipated to be growth-retarding (Josaphat and Oliver, 2000).

Economists are divided on real effect of government expenditure on national output in unindustrialized and emerging economies. Pragmatic works by (Alm and Embaye, 2010; Menyah and Wolde-Rufael, 2010; Felix and Sabtis, 2014; Alimi, 2014 and Ansari, Gordon and Akuamoah, 2010), among others are not in coherence on the subject matter. The prime view among scholars as well as public policy makers is that government can contribute significantly in improving the level of economic growth via fiscal policy as a necessary tool to condense poverty and inequality in the economy and realize full employment among other macro-economic agenda which is in line with the Keynesian economic thought.

Despite the growing government expenditure on agricultural, health, road construction, power, telecommunication and transportation sectors, the significant issue remains whether public spending translates to the improvement of the lives of the ordinary citizen in Nigeria? And how far does public expenditure affect national productivity in Nigeria? Economists are also divided alongside the ideological lines of Wagner's hypothesis and Keynesian concept and the argument has remained whether public expenditure pave-way to growth or hinder economic growth. There is limited collective research on the expenditure and economic growth connection and the outcome of this few pragmatic research are conflicting, more so the trends of public expenditure and economic growth in Nigeria is not consistent with economic theory just as incidence of poverty in the country does not reflect the consistent rise in government spending, (Alimi, 2014)

Evidence has shown that theoretical beliefs sometimes conflict with economic realities in the country. Taking the case of the Wagner's law; there are instances where the value of government expenditure increased but accompanied by a negative economic growth, (Alimi, 2014). For instance, from 2016, 2017, and 2018, growth rate of GDP were, -1.62%, 0.8% and 1.9% respectively, while public expenditure growth rate were 6.9 percent, 2.4 percent and 2.8 percent for the same period. These evidences imply that the nature of government expenditure at times follow a conflicting trend with national output, (World Development Report, 1994).

The roots of much of the variations in economic growth over time are not well understood. In particular, the effect of government expenditure on infrastructure and economic growth has not been travelled thoroughly. Numerous studies have attempted to explore the channels through which different types of government expenditure can affect growth, but the upshots are inconclusive in the literature. While some studies (Wagner and Weber, 1977; Al-Faris, 2002; Chang, 2002; Aregbeyen, 2006; Omoke, 2009; Abizadeh and Gray, 1985) have found support for the Wagner's Law, some other studies (Ram, 1986; Afxention and Serletis, 1996; Abizadeh and Yousefi, 1998; Burney, 2002; Huang, 2006; Ergun and Tuck, 2006; Babatunde, 2018) have found a non-existence or weak support for the Law.

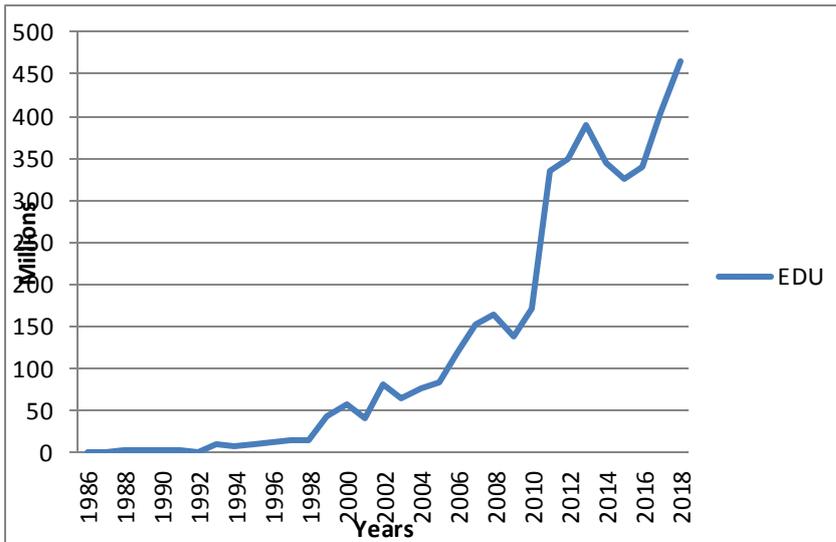
More so, studies like Abu-Bader and Abu-Qarn (2003), Maingi (2017) and Chingoiro and Mbulawa (2016) found bidirectional causality between the public spending and economic growth. Some studies yet found no support for neither Wagner nor Keynes (e.g. Muhlis and Hakan, 2003; Singh and Sahni, 1984; Dakurah, Davies and Sampath, 2001). In addition, the consideration on the sin of the link between government expenditure on infrastructure and economic growth nexus is still on. For instance, studies such as Johnson, 2010; Aregbeniyi and Kolawole, 2015; Babatunde, 2018; and Osundina, Ebere, Chidinma and Osundina, 2014 exhibited positive link. On the other hand, Fasoranti, 2012, Nurudeen and Usman, 2010; Abdul, Davide and Petia, 2015 and Ansar, Flybjerg, Budzier and Lunn, 2016 testified negative link. However, studies such like Edame and Fonta, 2014 and Ikpesu and Okpe, 2019 found no significant between government spending on infrastructure and economic growth nexus. In Nigeria, economic growth has been fluctuating despite the government expenditure increasing over time. The Nigeria government spends substantial amounts of money annually on transport, communication services, education, health care, economic services, public order and national security, defense and general administration. From concept, when there is raped growth in government expenditure in these areas, it is expected that the economy will exhibit a positive economic growth, but this does not seem to happen in the case of developing countries (Nigeria inclusive). This could be due to non-growth-enhancing expenditures that crowd-out outlays that are meant to enhance economic growth. Therefore, the issue of which government expenditure can foster permanent movements in economic growth becomes important.

This study on government expenditure on infrastructure and economic growth nexus is particularly important to provide further pragmatic proof to Nigeria economy and it is estimated that the upshots obtained in the context of Nigeria could be of relevance to other unindustrialized countries, or at least to those with comparable economic structures or size.

The rest of the articles are structured as follows. Section 2 provides an overview of trends in government expenditure on infrastructure on economic growth indicators in Nigeria while the theoretical frame work, methodology used in study and data sourced is brief considered in Section 3. Also, Section 4 provides empirical findings of the existence of such a relationship in Nigeria over long periods (1986-2018). Section 5 provides conclusion and recommendation.

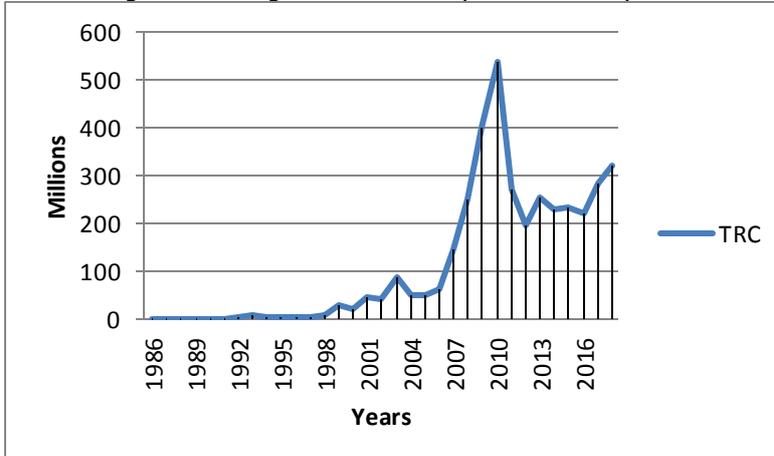
### **Government Expenditure on Infrastructure on Economic Growth Trends in Nigeria**

Government expenditures on education, transport & communication services, health and defense components are chosen as an indicator of the priorities of Nigerian government over the years. According to CBN (2015), expenditures are defined as an outflow of resources from government to other sectors of the economy whether required or unrequired. It is divided into recurrent and capital expenditures. While recurrent expenditures are payments from salaries and overheads, capital expenditures are payments from non-financial assets.



**Figure1: Trend of Government Expenditure on Education in Nigeria, 1986-2018**  
 Source: Data, CBN, NBS and IFS, 2020

Figure 1 provides evidence on the trend of education. The trend of education has been cyclical in nature over the years. It was revealed that between 1986 to 1999, expenditure on education increased steadily from 0.23% to 13.59% between 1999 to 2009, and stood between 43.61% to 137.12% in 2010 to 2012. More so, spending increased steadily from 170.8% to 348.4% but within the period of 2013 to 2016 and later reduced a bit. Between 2017 to date, the trend experienced an upward slope in Nigeria. This study, thus, reveals that expenditure on education increased steadily from one period to the other, and therefore contributed significantly to economic growth in Nigeria within the period of study.



**Figure2: Trend of Government Expenditure on transport & communication services in Nigeria, 1986-2018**  
 Source: Data, CBN, NBS and IFS, 2020

Figure 2 shows the trend of government expenditure on transport & communication services between 1986 to 2007, there was an up-down slope which implies that spending on transport & communication services was poor while, spending between 2008 to 2011 shows a high level of improvement on transport & communication services development in Nigeria. However, from 2012 to 2016, there was a decline. The study reveals that expenditure on transport & communication services was a bit fair and stable between 2017 to date and shows a significance effect on economic growth in Nigeria.

## DATA AND METHODS

### Theoretical framework and Model Specification

Hypothetically, this study build on modified version of Ram (1986) model and it based on endogenous growth theory. This study examined government expenditure on infrastructure and economic growth nexus in Nigeria using fully modified ordinary least (FM-OLS) estimation techniques in order to analyses the effect(s) of government expenditure on infrastructure and economic growth in Nigeria for the period of 1986-2018. This will facilitate us to induce flexibility by contributing the dynamics significance of the variables on economic growth in a unified manner for the period of the study. The data used for this study include real gross domestic product, education, infrastructure, health, defense and inflation.

This study modified the model of Kambua (2014) in Kenya with little modification. According to him, real gross domestic product is a function of education, transport & communication services, health, defense and inflation, and they are sourced from the Central Bank of Nigeria statistical bulletin for the period of 1986-2018.

Mathematically, therefore, the equation (i) is modified and presented thus: -

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \epsilon \text{----- (i)}$$

$$RGDP = \beta_0 + \beta_1EDU_t + \beta_2TRC_t + \beta_3HELT_t + \beta_4DEF_t + \beta_5INFL_t + \epsilon \text{----- (ii)}$$

Where:- Y = RGDP, X<sub>1</sub>= Education, X<sub>2</sub>=Transport & communication services, X<sub>3</sub>=Health, X<sub>4</sub>= Defense, X<sub>5</sub>= Inflation rate

$\beta_0$  = Constant,  $\beta_1$  = Coefficient for Education,  $\beta_2$  = Coefficient for Infrastructure  $\beta_3$  = Coefficient for health,  $\beta_4$  = Coefficient for Defense and  $\beta_5$ = Coefficient for Inflation rate

The theoretical expectations about the signs of the coefficients of the parameters are as follow:

$$\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0 \beta_5 > 0$$

All things being equal, a *priori* intercept and the slope of the coefficients are projected to have positive signs. The numerical values of the parameters are estimated by the use of fully modify ordinary least square (FMOLS) techniques based on econometric (e- view) computation.

### Data and Sources

This study is based on annual Nigeria country-level data obtained from Central Bank of Nigeria (CBN) Statistical Bulletin, International Financial Statistics of the International Monetary Fund (IMF) and Fact Sheet of the National Bureau of Statistics (NBS) various issues. This study used an annual data series covering long historical sample in the context of Nigeria (1986 - 2018). The real GDP growth is calculated from GDP used as dependent variable, while education, transport & communication services, health, defense and inflation used as the explanatory variables in the model.

### Preliminary Test

**Table1: Descriptive Statistics Of Variables**

	RGDP	DEF	EDU	HELT	INFL	TRC
<b>Mean</b>	213194.6	109.3864	127.7197	75.18182	35.69545	113.8540
<b>Median</b>	157434.0	53.16000	64.78000	33.27000	16.50000	45.94400
<b>Maximum</b>	416417.0	442.1500	465.3000	296.4400	103.8200	534.5400
<b>Minimum</b>	32180.22	0.000000	0.230000	0.040000	5.380000	0.260000
<b>Std.Dev</b>	110725.5	136.1407	148.9307	93.25835	32.80652	141.0407
<b>Skewness</b>	0.271054	1.110866	0.950342	1.039088	0.883366	1.187858
<b>Kurtosis</b>	1.761816	2.764338	2.397401	2.628988	2.345536	3.646186

<b>Jarque-Bera</b>	2.512096	6.863486	5.466624	6.127636	4.880791	8.334674
<b>Probability</b>	0.284777	0.032331	0.065004	0.046709	0.087126	0.015493
<b>Sum</b>	7035423.	3609.750	4214.750	2481.000	1177.950	3757.182
<b>Sum Sq.Dev.</b>	3.92E+11	593097.7	709771.4	278307.8	34440.57	636559.3
<b>Observations</b>	33	33	33	33	33	33

**Source: Researcher's Computation, using E-view 9.**

In Table 1 the descriptive statistics of the data are presented. The mean value for RGDP variable is 213194.6 with standard deviation of 110725.5. Whereas, the defense (DEF), education (EDU), health (HELT), inflation rate (INFL) and transport & communication service (TRC) have the mean of 109.3864, 127.7197, 75.18182, 35.69545 and 113.8540 the standard deviation of 110725.5, 136.1407, 148.9307, 93.25835, 32.80652 and 141.0407 respectively. From the means values of the descriptive statistics of the explanatory variables of the education (EDU) has the highest mean values (127.7197), followed by the defense (DEF) the mean value (109.3864), then the transport & communication services (TRC) with the mean value of (113.8540), health (HELT) has the mean value of (75.18182) and the inflation rate (INFL) has the mean value of (35.69545).

### Test of Stationarity

**Table 2: Results of Unit Root Test at Level using ADF**

<b>Variables</b>	<b>Test Statistics</b>	<b>5% Critical Value</b>	<b>S/NS</b>
RGDP	(1.035499)	(2.963972)	NS
DEF	(1.235224)	(2.957110)	NS
EDU	(1.069465)	(2.957110)	NS
HELT	(1.979068)	(2.963972)	NS
INFL	(2.468275)	(2.957110)	NS
TRC	(1.097321)	(2.957110)	NS

**Source: Researcher's Computation, using E-view 9.**

Where: S = Significance; NS = not significance; and, 1(0) = level

The upshots from Table 2 above reveal that the real gross domestic product (RGDP), defense (DEF) education (EDU), health (HELT) inflation rate (INFL) and transport & communication services (TRC) were not stationary at levels. This is derived by comparing the test statistics, in absolute terms, of both the ADF test statistics with the critical values, also in absolute terms, at the 5% Level of Significance.

**Table 3: Results of Unit Root Test at 1<sup>st</sup> Difference**

<b>Variables</b>	<b>Test Statistics</b>	<b>5% Critical Value</b>	<b>S/NS</b>
RGDP	(3.950715)	(2.963972)	S
DEF	(5.132097)	(2.960411)	S
EDU	(4.632600)	(2.960411)	S
HELT	(6.104579)	(2.693972)	S
INFL	(5.746949)	(2.960411)	S
TRC	(4.666842)	(2.960411)	S

**Source: Researcher's Computation, using E-view 9.**

1(1) = 1<sup>st</sup>Difference

The upshots from Table 3 show that real gross domestic product (RGDP), defense (DEF), education (EDU), health (HELT), inflation rate (INFL) and transport & communication services (TRC) were all stationary at 1<sup>st</sup> difference in the estimated model. This can be seen by comparing the test statistics, in absolute terms, of both the ADF test statistics with the critical values, also in absolute terms, at the 5% Level of Significance. Thus, there is need to test whether the

variables were co-integrated and such there is need for a long confirmation within the variables in the model.

### Results for Cointegration Tests

**Table 4: Test for Johansen Co-Integration Result from the Model**

Variables	Trace Statistic	0.05 Critical Value	Hypothesized No of CE(S)	Prob**
RGDP	207.2567	95.75366	None *	0.0000
DEF	121.9572	69.81889	At most 1 *	0.0000
EDU	73.92178	47.85613	At most 2 *	0.0000
HELT	33.06314	29.79707	At most 3 *	0.0203
INFL	15.52305	15.49471	At most 4 *	0.0495
TRC	2.324978	3.841466	At most 5	0.1273

**Source: Researcher's Computation, using E-view 9.**

\* (\*\*) denotes rejection of the Hypothesis at 5% significance level long run (LR) test indicates 6 co-integrating equation (s) at 5% significance-level.

The Table 4 above revealed real gross domestic product (RGDP), defense (DEF), education (EDU), health (HELT), inflation rate (INFL) and transport & communication services (TRC) in Nigeria were co-integrated in the model using unrestricted co-integration rank test (trace), with the values of unrestricted co-integration test-trace is greater than the value of critical value at 5% level of significance. The test statistics indicates that the Hypothesis of no co-integration among the variables is be rejected. Thus, the variables were co-integrated in the model for the period of study in Nigeria.

### Long Run Coefficients Estimates

**Table 6: The Empirical Results of FM-OLS Technique**

Dependent Variable: RGDP Method: Fully Modified Least Square (FMOLS)			
Variable	Coefficient	Std. Error	Prob.
DEF	-677.5824	351.9588	0.0652*
EDU	1049.956	393.1546	0.0129*
HELT	-98.76898	639.3017	0.8784
INFL	440.9817	334.0541	0.1983
TRC	296.5999	108.8512	0.0114*
C	109115.9	15744.86	0.0000
R-Square	0.857502		
Durbin Watson stat			

**Source: Researcher's Computation, using E-view 9.**

Table 6 shows the estimated result of fully modified least square economic growth (RGDP) and its determinants. Interestingly, all the coefficients in the model are statistically significant except health and inflation variable. The adjusted coefficient of determination  $R^2$  of the model shows that the explanatory variables jointly account for approximately 85 per cent change in economic growth. This means that unit per cent variability in the real GDP is accounted for by defense, education, health, inflation and transport & communication services over the period of 1986 to 2018. The upshot obtained from the above are fairly robust and satisfactory, such that the variables in the estimation model conform largely to *a priori* expectations in terms of statistical significance, with the exception of health and inflation variables. The result reveals that the coefficient of defense is negatively related and statistically significant at 5% level to economic growth (RGDP). This suggests that, if government expenditure on defense increases by one per cent, economic growth will decrease by about -677.5824 in Nigeria.

Furthermore, the coefficients of the explanatory variables show that government expenditure on education has a positive and significant relationship with economic growth. Precisely, if other variables are held constant, a unit increase in education will bring about more proportionate increase in economic growth by about 1049.956 per cent in Nigeria. This upshot is in line with Amos, Jaga, Okello and Joseph, (2017) in Rwandan; Kosimbei, *et. al.*, (2013) in Kenya; Afzal and Abbas (2010) in Pakistan; Sefa, Siew and Mehmet, (2015) in Australia; Chude and Chude, (2013); Edame and Eturoma, ((2014) and Babatunde, (2018) that government expenditure on education has positive relationship with Nigeria economic growth. Government spending on transport & communication services is positive and statistically significant at 5% level, this means that transport & communication services exerts a positive effect on economic growth (RGDP), a unit per cent increase in transport & communication services (TRC) led to about 296.6 increases in economic growth (RGDP). The result is in agreement with the *a priori* expectation and in line with Kambua, (2014) in Kenyan; Loto, (2011) and Ihenacho, (2016) that transport & communication services have positive relationship with economic growth in Nigeria. The upshot however reveals that health and the inflation rate are not significant at 5% level; this means that both health and inflation does not significant in explaining economic growth in Nigeria for the period 1986 to 2018. However, if all the explanatory variables excluded from the estimated model, the value of the constant value is revealed at 109115.9 positive. This means that the intercept value ( $\alpha_0$ ) is still positive in the model over the estimated years 1986 to 2018.

### Post- Diagnostic Test

**Table 7: Wald Test**

Test Statistic	Value	df	Prob.
F-statistic	101.6835	(6,26)	0.0000
Chi-square	610.1013	6	0.0000

**Source: Researcher's Computation, using E-view 9.**

The Wald Test is introduced to check if the independent variables jointly influenced the dependent variable. The F Statistic is 101.6835 and its probability value is 0.000; which showed that the probability value (0.000) is less than the 0.005 level of significance. It can be concluded that independent variables jointly influenced the dependent variable.

**Figure 6: Normality Test**

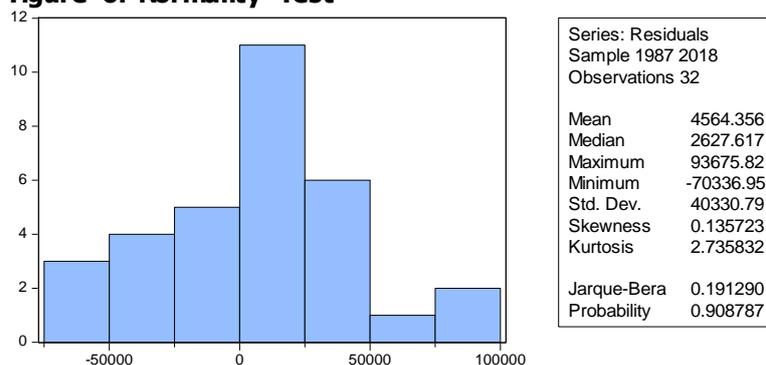


Figure 6 showed that normally test for the model. The Jarque – Bera is 0.191290 and the corresponding p- value is 0.908. Since the p- value is greater than the 0.05 level of significance, it is therefore concluded that there is no problem of normality in the residual.

### CONCLUSION AND POLICY IMPLICATIONS

This study fundamentally observed the effect(s) of government expenditure on infrastructure on economic growth in Nigeria during the period 1986-2018 and engaged the co-integration test and fully modified ordinary least square (FM-OLS) estimation techniques. The co-

integration test outcome revealed that there is a long run relationship between government expenditure on infrastructure and economic growth during the study period. The estimation results of the regression evaluates shows that health (HELT) is negative and statistically not significant while inflation rate (INFL) also shows a positive but not significant at 5% level to economic growth (RGDP) during the study period. It was established that government expenditure on education has a negative and significant relationship with economic growth (RGDP). The findings were in upkeep with previous studies, like Amos, *et. al*, (2017) in Rwandan; Kosimbei, *et. al* (2013) in Kenya; Afzal and Abbas (2010) in Pakistan; and Chude and Chude, (2013); and Edame and Eturoma, ((2014) in Nigeria. Also transport & communication services show a positive and statistically significant; this means that transport & communication services exert a positive impact on economic growth (RGDP). The upshot is in contract with the *a priori* expectation and in line with Kambua, (2014) in Kenyan; Loto, (2011) and Ihenacho, (2016) that transport & communication services has positive relationship with economic growth in Nigeria. Therefore, policies that will increase level of education (EDU) and that of transport & communication services (TRC) will also increase economic growth (RGDP) and vice versa. Lastly, the study, therefore, recommended that Nigeria government should increase her spending on defense, education, health, and transport & communication services because they represent critical sectors of the economy that require enhanced funding for robust economic growth in Nigeria.

#### REFERENCES

- Abdul, A., Davide F., & Petia, T. (2010). The macroeconomic effects of public investment: Evidence from advanced economies, *IMF Working Paper*, vol. WP/15/95, May 2015.
- Abizadeh, S. & J. Gray (1985). Wagner's law: A pooled time-series cross-section comparison. *National Tax Journal*, 88: 25-35.
- Abizadeh, S., & M. Yousefi. (1988). An empirical examination of Wagner's law, *Economics Letters*, 26:169-73.
- Abu-bader, S. & Abu-Qarn, A. (2003). Government expenditures, military spending and economic growth: Causality evidence from Egypt, Israel and Syria. *MPRA paper no.* 1115. <http://mpra.ub.uni-muenchen.de/1115/>
- Afzal, M. & Abbas, Q. (2010). Wagner's Law in Pakistan: Another look", *Journal of Economics and International Finance*, 2(1):12-19.
- Afxentiou, P. C., & Serlitis, A. (1996). Government expenditure in European Union: Do they converge or follow Wagner's Law. *International Economic Journal*, 10: 33-47.
- Al-faris, A.F. (2002). Public expenditure and economic growth in the gulf cooperation council countries. *Applied Economics*, 34(9):1187-1195.
- Alm, J., & Embaye, A. (2010). Explaining the growth of government spending in South Africa, economic society of South Africa. *South African Journal of Economics*, 78-92.
- Alimi, R.S (2014). A time services and panel analysis of government spending and national income. *MIRA Paper* 56994. *PDF*.
- Amadi, K. Chijoke & Alolote I.A, (2020). Government expenditure on infrastructure as a driver for economic growth in Nigeria, *Journal of International Business Research and Marketing* 5(2): 2020, 20-26.
- Amos, O., Jaga, S., Okello, J.P & Joseph, O. (2017). Effect of government expenditure on economic growth. *International Journal of Economics, Commerce and Management United Kingdom*, 5(10):108-149.
- Ansari, M.I., Gordon, D.V., Akuamuah, C. (2010). Keynes vs. Wagner public expenditure and national income for the three African Countries. *Applied Economics*, 29:543-550.
- Aregbeyen, O. (2006). Public expenditure and economic growth, *African Journal of Economic Policy*, Ibadan (Nigeria), 1 (1):65-74.
- Aregbeyen, O., & Kolawole, B. O. (2015). Oil revenue, public spending and economic growth relationships in Nigeria. *Journal of Sustainable Development*, 8(3):114-123.
- Babatunde, S.A. (2018). Government spending on infrastructure and economic growth in Nigeria, *Economic Research-Ekonomska Istraživanja*, 31(1):997-1014.
- Burney, Nadeem, A. (2002). Wagner's hypothesis: Evidence from Kuwait using Cointegration test. *Applied Economics*, 34:49-57
- CBN (2015). Central Bank of Nigeria. Annual report and statement of account, Abuja, Nigeria.
- Chang, T., W. (2002). A re-examination of Wagner's Law for ten countries based on co-integration and error-correction modeling techniques, *Applied Financial Economics*, 14: 577-589.
- Chingoiro, S., & Mbulawa, S. (2016). Economic growth and infrastructure expenditure in Kenya: A Granger-Causality approach. *International Journal of Social Science Studies*, 4(9):1-9.
- Chude, N. P., & Chude, D. I. (2013). Impact of government expenditure on economic growth in Nigeria. *International Journal of Business and Management Review*, 4(1):64-71.
- Dakurah, H., Davies, S. & Sampath, R. (2001). Defense spending and economic growth in developing countries: A causality analysis. *Journal of Policy Modeling*, 23(6):651-658.

- Edame, G.E & Eturoma, A.D (2014). The determinants of public expenditure on educational infrastructural facilities and economic growth in Nigeria. *E3 Journal of Business Management and Economics*, 5(6):152-161.
- Edame, G.E & Fonta, W.M (2014). The impact of government expenditure on infrastructure in Nigeria: A co-integration & error correction specification. *International Journal of African and Asian Studies*, 3:50-63.
- Ergun, & Tuck, C. (2006). Government expenditure and national income: Causality tests for five South East Asian Countries. *International Business and Research Journal*, 5(10):49-58.
- Fasoranti, M.M. (2012). The effect of government expenditure on infrastructure on economics growth of the Nigerian economy, 1977-2009. *International journal of Economic and Financial Issue* 2(4):513-518.
- Felix, O., & Sabtis A (2014). Government spending and national income: A time series and panel analysis for Nigeria, Ghana and South Africa. *Research Journal of Finance and Accounting*, 5(14), 105-125.
- Josaphat, P. K & Oliver, M. (2000). Government spending and economic growth in Tanzania, 1965-996: *CREDIT Research Paper*.
- Huang, C.J. (2006). Government expenditures in China and Taiwan: Do they follow Wagner's Law? *Journal of Economics Development*, 31(2):56-68.
- Idenyi, O.S., Igberi, C.O., Udude, C. C & Chukwu, B. C (2016). Public expenditure and economic growth in South Africa: Long run and causality approach: *Asian Journal of Economics, Business and Accounting*, 1(2):1-17.
- Iheanacho, E. (2016). The contribution of government expenditure on economic growth of Nigeria disaggregated approach. *International Journal of Economics and Management Sciences*, 5(2):369-378.
- Kambau, N.I (2014). Effects of government spending on economic growth on Kenya. A research project submitted to the school of business in partial fulfillment of the requirements for the award of degree of masters of Science in finance, University of Nairobi.1-65.
- Kosimbei, G. (2013). The Impact of public expenditure components on economic growth in Kenya. *International Journal of Business and Social Sciences*, 5(3):120-135.
- Loto, M. A. (2011). Impact of government sectoral expenditure on economic growth. *Journal of Economics and International Finance*, 3(11):646-652.
- Maingi, J.N (2017). The impact of government expenditure on economic growth in Kenya: 1963- 2008: *Advances in Economics and Business*, 5(12):635-662.
- Menyah, K., & Wolde-Rufael Y. (2010). Wagner's law revisited: A note from South Africa. *South African Journal of Economics*. 80(2):200–208.
- Muhlis, B & Hakam, C. (2003). Causality between public expenditure and economic growth: The Turkish case. *Journal of Economic and Social Research*, 6(1):53-72.
- Omoke, P., (2009). "Government expenditure and national income: A Causality test for Nigeria", *European Journal of Economics and Political Studies*, 2(2):1-11.
- Osundina, C.K, Ebere, C & Osundina, O.A (2014). Disaggregated government spending on infrastructure and poverty reduction in Nigeria. *Global Journal of Human –Social Science*: 14(5):2-8.
- Sefa, A. C., Siew, L. Y & Mehmet, U. (2015). Effects of government education and health expenditures on economic growth: A Meta-analysis. Department of Economics, Monash University, VIC 3800, Australia.
- Singh, B., & Sahni, B. (1984). Causality between Public expenditure and national income. *The Review of Economics and Statistics*, 66: 630-644.
- Ram, R. (1986). Government size and economic growth: A new framework and some evidence from cross-section and time-series. *American Economic review*, 76:191-203.
- Wagner, R.E & W.E. Weber (1977). Wagner's Law, fiscal institutions and the growth of government. *National Tax Journal*, 30:59-68.
- World Bank, (2013). Washington, D.C.; available at <http://data.worldbank.org/data-catalog/> world-development-indicators
- World Development Report, (1994). Washington, D.C.; available world-development-indicators, Washington, D.C