Analysing the Role of Public Infrastructure Spending on the Nigerian Economy

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Abstract
This study is an empirical investigation of the role of government infrastructure spending on the Nigerian economy. To achieve this, a model was formulated to empirically analyze the role of government infrastructure spending on the Nigerian economy using Ordinary Least Square (OLS) technique with statistical test of significance. The variables used were Aids and Grants on infrastructure (AGI), Government capital expenditure on infrastructure (GCEX), external debt financing (EXD) and gross fixed capital formation (GFCF) and GDP. The five variables (GDP, CGEXP, RGEXP and GFCF) were subjected to unit root test using the Augmented Dickey-Fuller (ADF) test. As is the case most times, four variables were found to be non-stationary but were stationary after first difference i.e. integrated of order one; I(1). EXD was stationary at level .The cointegration test was done using Engel-Granger and Philips-Oularis cointegration test. Both test are single equation test suitable for this study. Engel-Granger and Philips-Oularis cointegration test indicated the variables are cointegrated at 1% level of significance. This shows that the variables have a long-run equilibrium relationship. The OLS result obtained showed that Aids and Grants on infrastructure (AGI) have a positive impact on GDP, with the impact being statistically insignificant. Government Capital Expenditure (GCEX) have a positive and statistically significant impact on GDP. External Debt Financing (EXD) have a negative and statistically insignificant impact on GDP. Based on the conclusion the study recommends that government should ensure that capital expenditure is properly managed in a manner that it will raise the nation's production capacity and promote infrastructure development.

Keywords: Public, Capital Expenditure, Economic Growth, Nigeria
JEL Classification: E62, O47

1. Introduction

Scholars argue that increase in public capital expenditure on socio-economic and physical infrastructures encourage economic growth. For example, public expenditure on health and education raises the productivity of labour and increases the growth of national output. Similarly, capital expenditure on infrastructure such as roads, communications, power, etc, reduces production costs, increases private sector investment and profitability of firms, thus

fostering economic growth. As observed by Afzal and Abbas (2010), Ajayi (2010), Ekpo (2014) and Fan and Rao (2003) expansion of public capital expenditure contributes positively to economic growth.

In Okojie, (2015), the general view is that public expenditure either recurrent or capital expenditure, notably on social and economic infrastructure can be growth-enhancing. Provision of infrastructure services to meet the demands of business, households, and other users is one of the major challenges of economic development in developing countries like Nigeria. Developing countries invest about $200billion a year in new infrastructure representing four percent of their national output and a fifth of their total investment. The result has been a dramatic increase in infrastructure services-for transport, power, water, sanitation, telecommunications, and irrigation (World Bank Development Report, 2010). Government spending in Nigeria has continued to rise due to the huge receipts from production and sales of crude oil, and the increased demand for public (utilities) goods like roads, communication, power, education and health. There is increasing need to provide both internal and external security for the people and the nation. Available statistics show that total public capital expenditure and its components have continued to rise in the last three decades. For instance, capital expenditure rose from N10, 163.40 million in 1980 to N24, 048.60 million in 1990. Capital expenditure stood at N239,450.90 million and N759, 323.00 million in 2000 and 2007 respectively, while in 2010 it stood at N883,870 million and N1,108,377 billion in 2013 and N1,813,931 in 2015. The various components of capital expenditure have risen between 1980 and 2015.

However, the rising public expenditure may have not translated to meaningful growth and development, as Nigeria is categorized with LDC's among other countries in the world. In addition, many Nigerians have continued to wallow in abject poverty, while more than fifty percent live on less than US$1per day (Omitogun and Ayinla 2017). Moreover, infrastructure like roads, electricity, healthcare, etc reveals that Nigeria has not fared well in the last three decades. It is disturbing to note that public capital expenditure seems to have not replicated same level of economic growth in Nigeria, for instance between 1980 and 1990, while the GDP growth rate was decreasing from 57.15% down to 2.87%, public expenditure growth rate was increasing (23.2% to 41.24%). Thus, there is an inverse relationship between the two periods (Nurudeen and Abdullahi, 2010).

The economy is a large component with lot of diverse and sometimes complex parts; this research work will only look at a particular part of the economy (the fiscal sector). This work cannot cover all the facets that make up the fiscal sector, but will look at government capital expenditure on infrastructure and its impact on development of the Nigerian economy.

The empirical analysis and estimation covers the period between 1970 and 2016. This restriction is to enable us assess the impact of capital expenditure on infrastructure for the development of Nigerian economy from the period of oil boom till date.

2. Literature Review

2.1   Literature Review

There are many studies on the role of government spending in the long-term growth of national economies. However, there exists no consistent evidence for significant relationship between public expenditure and economic growth, in positive or negative direction. Results and evidence about effects of government expenditure or spending on economic growth differ by country or region, analytical method employed and classification of public expenditures. There are various empirical studies on the growth effects of government spending based on the experiences of some developed countries.

Aregbeyen (2010) studied the productivity of government expenditure using data from the 1949 to 1985. Using the production functions, he compared productivity of government expenditure on the military capital, non-military capital and infrastructural expenditure. The study demonstrated that expenditure on non-military stock of capital was more productive than the expenditure on military stock and that government expenditure on infrastructures such as roads, bridges, dams, etc, are economic growth stimulating. Nurudeen and Abdulahi (2010) explored the rational for governments' investments into science and technologies. Gannon posits that "if you want to harvest in autumn, you need to sow in spring. This ancient saying holds true not only for agriculture, but for all economic activities". When we changed the scenario from agriculture to economic growth in terms of employment level, per capita income, export, etc. sowing can be viewed in terms of private and public investments. In the context of the present scenario, sowing refers to investment in research and development as a percentage of the GDP. It is argued that the higher the level of investment in science and technology as the percentage of the GDP, the higher the level of economic growth.

Olopade and Olapade (2010) studied why government expenditure does not stimulate economic growth. In this study, they considered the myth of government spending to stimulate growth. He argued that the more government spending is, the higher the level of taxation from the public and therefore the more transfer payment are made. He argued that increasing productivity requires increasing material capital and human capital. Improved functioning of the market is another important ingredient that stimulates growth and productivity. Omitogun and Ayinla (2017) studied the impact of government expenditure on economic growth. The study made use of the neoclassical production function. It incorporated not only the size of government but the quality of governance. The study used generalized moment method (GMM). The size of the government was measured based on the size of government expenditure. The quality of governance was based on the quality of decision-making paradigm. The study made use of 71 countries. The study demonstrates that both the size and the quality of governance have impact on the level of economic growth. Oyejide (2013) used panel data for 14 developed countries (1970-1990) and applied a method of OLS. 5-year moving average. The study took various functional types of expenditure (health, education, transport, etc) as explanatory variables and found that health, transport and communication have significant positive effect while education and defense have a negative impact on economic growth.

Dikenson (2006) provide empirical evidence on the impact of economy of fiscal policy on long run growth for European economy. Their study required that at least two of the taxation/expenditure/deficit effects must be examined simultaneously and they employed panel and time series econometric techniques, including dealing with the endogeneity of fiscal policy. Their broad conclusions are: Some public investment spending impacts positively on growth and consumption and social security spending have zero or negative growth effects. Mitchell (2005) evaluated the impact of government spending on economic performance in developed countries. He assessed the international evidence, reviewed the latest academic research and cited examples of countries that had significantly reduced government spending as a share of national output and analyzed the economic consequences of these reforms. Regardless of the methodology or model employed, he concluded that a large and growing government is not conducive to better to economic performance. Weil (2009) used cross section data for a larger sample of 115 countries and time-series data (1960-1980) for 17 individual countries to see the effect of government size on economic growth. Estimation was done with OLS and also on the premise of a first-order auto-regressive disturbance term (ART) for some countries from time series data; (4) it is possible that the positive effect of government size on growth is strong in lower income contexts.

The above empirical studies have little relevance in understanding the process by which public expenditure policies shape the prospect of economic growth for developing countries as there are no only a significant difference in the composition of public expenditure between developed and developing countries, but the difference is also profound in the role of public expenditures for growth (World Bank 2010). Thus exclusive focus on developing countries is imperative. Afzel and Abbas (2010) studied the relationship between government expenditure and economic growth in Saudi Arabia. He classified government expenditure into investment (GI), government expenditure (GE) and government consumption (GC). Using the error correction method (VEC model), he demonstrated that both government investment (GI) and government expenditure (GE) have significant impact on economic growth in Saudi Arabia but government consumption expenditure did not have a significant impact on economic growth during the period of 1964 to 1995. Gregoriou and Ghosh (2007) studied the impact of government expenditure growth using heterogeneous panel of developing countries. The method of analysis employed was the Generalized Method of Moment (GMM). The data employed covered the period of 1977 to 1999 and was derived from the Global Development Network Database, compiled by William Easterly. The study demonstrated that in some countries with fast growing economics such as Brazil, the capital expenditure stimulates economic growth than in the less developed countries such as Sudan.

Olopade and Olopade (2010) examined the trends as well as the effects of government spending on the growth rate of real GDP in Nigeria for the period of 1970 - 2008, using the time-series methodology of unit root test, cointegration and ordinary least square (OLS) analysis. The real GDP was used as the dependent variable while government capital and recurrent expenditures were used as independent variables. The results showed that both recurrent and capital expenditures exhibited significant and positive relationship on the real

GDP. Oyinlola (2013) examined empirically the contribution of fiscal policy in achieving sustainable economic growth in Nigeria. The study investigated the impact of deficit finance on the level of economic growth in Nigeria. The result demonstrates that fiscal policy has no impact on economic growth in Nigeria. Medee and Nembee, (2011) estimated the impact of government expenditure on economic growth in developing countries, using a panel data of 17 developing countries, covering a time-series period of 1990-2007, and random effect model. The study establishes that government consumption expenditure significantly depresses economic growth while trade openness and government investment have positive but insignificant effect on economic growth. Oxley (2014) provides further evidence on the relationship between economic growth and government spending. In this study, two different data methods were applied to seven transition economies in the south eastern (SEE) Europe. The results indicated that four out of the five variables used in the estimation, that is, government spending on capital formation, development assistance, private investment and trade openness all have positive and significant effect on economic growth. Population has no effect on economic growth.

Chete and Adeoye, (2016) examined, if the relative size of government (measured as the share of total government expenditure) in GNP could be determined to granger cause the rate of economic growth or if the rate of economic growth could be determined to granger cause the size of government. Bivariate error correction (BEC) model was used within granger causality framework. Unemployment and inflation were used as dependent variables. Using data on Greece, United Kingdom (UK) and Ireland, the analysis showed that government size granger causes economic growth in all countries of the sample in the short-run and in the long-run for Ireland and UK. The analysis also showed that economic growth granger causes increase in the relative size of government in Greece, and, when inflation is included in the UK.

Ajayi (2010) investigated the growth effect of government expenditure on economic growth in Nigeria over the period of 1980-2008, focusing on sectorial expenditures. The sectors included security, health, education, transportation/communication and agriculture. Johanson co-integration technique of regression analysis was used. The result depicts that expenditures on health, national security, transportation/communication were positively related to economic growth. Expenditure on agriculture in the short-run was not significant. Education also showed negative relationship. Ekpo (2014) investigated the impact of public expenditures on economic growth using OLS method for a sample of time series data on Tanzania (for 32 years). They found that increased productive expenditure is associated with lower growth. According to them, this negative relationship suggests the inefficiency associated with the use of public funds and public investments in Tanzania. The negative associate between total government expenditure and growth also seems to indicate the unproductive effect of government investment spending. Consumption expenditure relates negatively to growth, as anticipated, but appears to be associated with increased private consumption. They also found that there is positive link between growth and expenditure on human capital.

2.2 Theoretical Framework

Public expenditure theory, traditionally, received only a scanty attention till recently. Partly, this lop-sided interest in the theory of public finance is explained by a general acceptance of the philosophy of laissez-faire and belief in the efficacy of free market mechanism. However, with the advent of welfare economics, the role of the state has expanded especially in the area of infrastructural provision and theory of public expenditure is attracting increasing attention. Therefore, this research work adopts the Peacock and Wiseman theory of public expenditure as its theoretical framework.

Peacock and Wiseman analyze the process of growth of public expenditure in terms of three different but related concepts; displacement, inspection and concentration effects. By the empirical analysis of the data of Britain on public expenditure, they were able to establish the relative growth of public sector expenditure in that country occurred on "step-like" pattern rather than on "continuous growth" pattern. They have discussed this hypothesis under three effects separately.

2.2.1 Displacement Effect

The public expenditure increases and makes the inadequacy of the present revenue. Then a movement must take place so that the older level of expenditure and taxation to a new and higher level is the displacement effect. During the period of emergency or of major social disturbances such as war and depression that most of the upward steps in public expenditure had occurred. Displacement Effect is the process by which the previous lower expenditure levels are displaced by new and higher level of expenditure.

2.2.2 Inspection Effect

The inspection effect refers to the phenomenon where by a direct consequence of the social emergency, public expenditure comes to increase which may be insufficient compared to the revenue of the government, creates the inspection effect. The government and people review the revenue position and to find the solution of the important problems that have come up with gently to attain the new level of tax tolerance. They are now ready to tolerate a greater burden of taxation and, as a result, the general level of expenditure and revenue goes up. In such a way new level of expenditure and revenue come to stabilize at a new level till the new disturbance occurs to cause the displacement effect.

2.2.3 Concentration Effect

The concentration effect also refers to the apparent tendency for central government economic activity to grow faster than that of the state and local level government. This is found fitted there in British economy but it is not needed to verify this to other countries. This concept is the evolution of expenditure undertaken at different levels of government and their tendency to be concentrated in central government. This usually happens when the country is experiencing economic growth.

The main concentration of the Peacock-Wiseman hypothesis is that factors, both endogenous and exogenous to the economic system, exert a force influence on public sector institutions to increase their expenditure over a secular period and this increase occurs on a step-like basis and at a faster rate than the growth in aggregate economic activities.

Peacock and Wiseman's Theory of Expenditure Peacock and Wiseman's study is probably one of the best known analyses of the time pattern of public expenditures. They founded their analyses upon a political theory of public determination namely that government likes to spend more money and citizens do not like to pay taxes, and that government needs to pay some attention to the wishes of its citizens. The duo saw taxation as setting a constraint on government expenditure. As the economy and thus incomes grew, tax revenue at constant tax rate would rise; thereby enabling public expenditure would show a gradual upward trend even though within the economy there might be a divergence between what people regarded as being desirable level of public expenditure and the desirable level of taxation. During the periods of social upheaval however, this gradual upward trend in public expenditure would be disturbed.

These periods would coincide with war, famine or some large-scale social disaster, which would require a rapid increase in public expenditures; the government would be forced to raise taxation levies. The rise of taxation levels would, however, is regarded as acceptable to the people during the period of crisis. Peacock and Wiseman refer to this as the "displacement effect". Public expenditure is displaced upwards and for the period of the crisis displaced private for public expenditure does not however fall to its original level. A war is not paid for from taxation; no nation has such large taxable capacity. Countries therefore borrow and debt charges have to be not after the event. The government therefore expands its scope of services to improve these social conditions and because people perception to tolerable levels of taxation does not return to its former level, the government is able to finance these higher levels of expenditures originating in the expanded scope of government and debt charges.

From the analysis, public expenditure has much influence on economic of a country, Nigeria as a case study which might be positive or negative as the outcome maybe.

3. Methodology
This study employs simple regression as a technique to measure the impact of infrastructure spending on the Nigerian economy. The methodology in this study aimed at establishing a quantitative relationship between some macroeconomic variables in Nigeria. To this end, data on these variables were collected from relevant sources and used for the study. The parameters of the various models would be computed and used to test the hypotheses concerning infrastructure spending on the Nigerian economy. The purpose of the study was to know how it assists directly or indirectly in economic and social development, and basic facilities. The existence of an adequate commercial base helped to attract foreign investors into the country. Foreigners would be encouraged to invest in the country since production would be carried out efficiently.

3.1   Model Specification
The models that were be used for the purpose of this research are presented below. These models are formulated based on the hypothesis that was specified in the first chapter of this research. To specify the model appropriately, Peacock and Wiseman's Theory of Expenditure Peacock and Wiseman's model was used as the theoretical foundation due to its

relevance to government expenditures and economic growth. Therefore a Model was adapted from the study of Samimi and Habibian (2011).

The model shows the impact of government capital expenditure, recurrent government expenditure and gross fixed capital formation on gross domestic product because they constitute the formation of the total government expenditure and economic growth in Nigerian economy, however the gross fixed capital formation forms the basis and uniqueness for this study.

MODEL: The model specifies that gross domestic product depends on government capital expenditure, aids and grants on infrastructure development, external debt and gross fixed capital formation depends. It is presented as:

GDP $=$ F (CGEXP, AGI, EXD, GFCF) …………………………………………………...1

$GDP = a_0 + a_1CGEXP + a_2AGI + a_3ED + a_4GFCF + U$ ……………………...…………2

$a_0>0, a_1>0, a_2>0, a_3>0$ and $a_3>0$ ………...……………………………………………3

Where:
GDP = Gross Domestic Product
CGEXP= Government Capital Expenditure on infrastructure
AGI = Aids and Grants on Infrastructure Development
ED = External Debt
GFCF = Gross Fixed Capital Formation
a_0 = Constant intercept
a_1, a_2, a_3 = Slopes of the regressions
U = Error term

3.2   *Analytical Techniques*
This study employs the Ordinary Least Square Regression Technique in the analysis of the secondary data obtained from the Central Bank of Nigeria statistical Bulletin. Various econometric and statistical measures are employed in the analysis of the data. These include the t-ratio, the Coefficient of Determination (R^2), the Adjusted Coefficient of Determination (R^{-2}), F-ratio, and DW statistics. The T-ratio is used to test the significance of the estimates, while the Coefficient of Determination (R^2) is used to measure the explained variation in the dependent variable. The Adjusted Coefficient of Determination (R^{-2}) is also used to measure the explained variation of the dependent variable after taking cognisance of the degree of freedom. The F-ratio is used to test the significance of the Coefficient of Determination (R^2). The Durbin Watson statistics is used to test for presence or absence of autocorrelation in the random variable. To measure the long term and short term relationship, cointegration test would be conducted. Also stationary test would be carried out to test if the individual data is stationary and reliable for prediction and forecasting.

3.4 *Sources of Data*
This research work uses secondary data which were obtained from the Central Bank of Nigeria Statistical Bulletin. The data obtained include; Gross domestic product, Capital government expenditure, recurrent government expenditure and gross fixed capital

formation in Nigeria economy. The data will be collected for a period of thirty five years, i.e. 1990 – 2015.

4.   Data Analysis and Results

4.1   Data Presentation

The data sourced for this study is secondary in nature. They are collected from the CBN statistical bulletin 2016. The scope of the data is from 1970 to 2017. The result presented in this chapter are based on all test stated in the previous chapter. All results to be analysed in this chapter are obtained from e views 9.0 software statistical packages.

4.2.1 Descriptive Statistics

The descriptive statistics as derived through E-Views 9.0 shows the Mean, Median, Maximum, Minimum, Standard Deviation, Skewness, Kurtosis, Jacque-Bera and Probability of each of the variables as presented below:

Table 4.1:   Descriptive Statistics

	GDP	GFCF	GCEX	EXD	AGI
Mean	17145.79	18.16784	302.3772	6.964373	882.2434
Median	1244.690	20.59000	62.71000	1.185000	107.2300
Maximum	95878.35	31.81100	1152.800	41.30000	4859.240
Minimum	128.6100	2.481000	10.92000	0.000000	3.030000
Std. Dev.	30168.29	7.802824	366.7402	12.10457	1332.308
Skewness	1.781272	-0.207813	0.935695	1.817317	1.460325
Kurtosis	4.602264	1.878002	2.391061	4.784328	3.828691
Jarque-Bera	30.51793	2.863250	7.745819	32.78878	18.43386
Probability	0.000000	0.238920	0.020798	0.000000	0.000099
Sum	822998.1	872.0565	14514.11	334.2899	42347.68
Sum Sq. Dev.	4.28E+10	2861.551	6321424.	6886.473	83427089
Observations	48	48	48	48	48

Source: Author's Computation

From Table 4.1, all variables consist of fourth eight (48) observations. The table clearly shows the descriptive statistics of the variables indicating their mean, variance and distribution.

4.2.2   Trend Analysis

Graphically, the trend analyses showed that the variables fluctuates at one point or the other during the period under review. This was attributed to the effects of government policy and economic conditions that would have had attendant effects on some of the variables. These are presented graphically below:
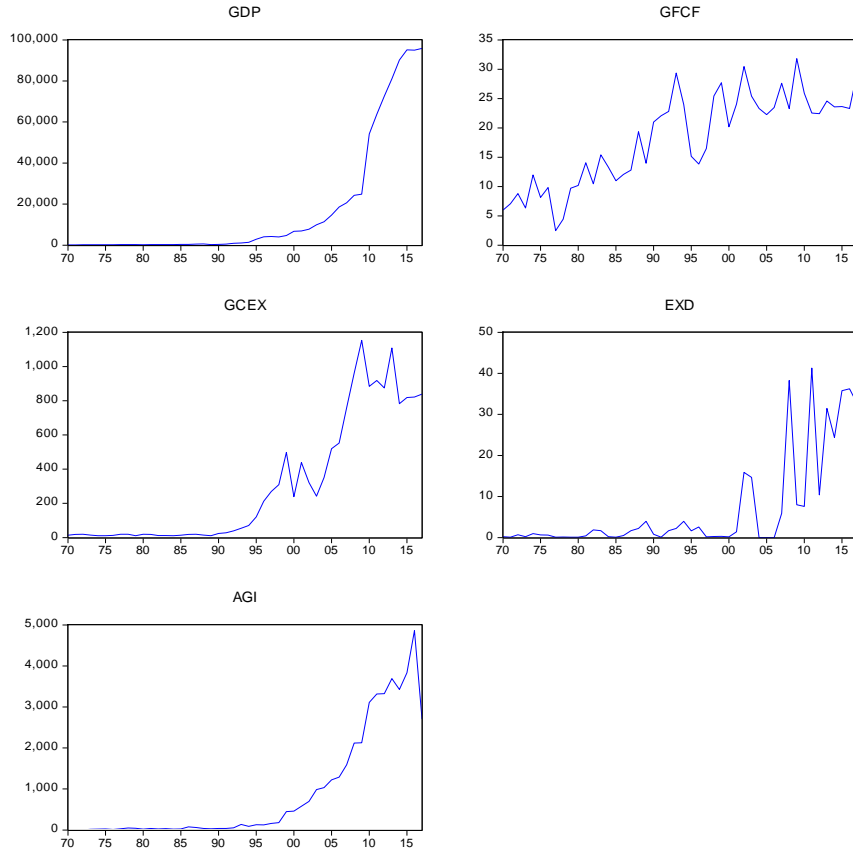
Figure 1.0 Trend Analysis

4.2.3   Stationarity Test

The Augmented Dickey-Fuller test was used to test for unit root. All the variables were regressed on trend and intercept to determine if they have trend, it was discovered that the five variables have trend and intercept, hence the unit root test involve trend and intercept. The result is presented:

Table 4.2: Unit Root Stationarity Results

Time Series	ADF Statistics	Critical Value	Stationary Status
GDP	-7.929852	-4.3943 (1%) -3.6121 (5%) -2.2431 (10%)	I(1)
GCEX	-6.590658	-4.3743 (1%) -3.6032 (5%) -3.2380 (10%)	I(1)

Time Series	ADF Statistics	Critical Value	Stationary Status
AGI	-5.860210	-4.5743 (1%) -3.6920 (5%) -3.2856 (10%)	I(1)
GFCF	-5.034500	-3.7379 (1%) -2.9919 (5%) -2.6356 (10%)	I(1)
EXD	-5.078812	-4.3561 (1%) -3.5950 (5%) -3.2335 (10%)	I(0)

The critical values for rejection of hypothesis of unit root were from MacKinnon (1991) as reported in eviews; Source: Author's Computation

The five variables (GDP, CGEXP, RGEXP and GFCF) were subjected to unit root test using the Augmented Dickey-Fuller (ADF) test. As is the case most times, all four variables were found to be non-stationary with different orders of integration. GDP was stationary after first difference i.e. integrated of order one; I(1), EXD was stationary at level while the remaining (GFCF, GREX and GCEX) were stationary after first difference i.e. integrated of order one; I(1).

4.3   Co-Integration test
The cointegration test was done using Engel-Granger and Philips-Oularis cointegration test. Both test are single equation test suitable for this study. The test result in presented in table 4.3.

Table 4.3:   Cointegration Result

Dependent Variable: GDP

Independent Variables: GREX AGI EXD GFCF
 Null hypothesis: Series are not cointegrated

Engel-Granger Cointegration Result				Philips-Oularis Cointegration Result			
Tau-statistics	P-Value	z-statistics	P-Value	Tau-Statistics	P-Value	z-statistics	P-Value
-4.6073	0.0076	-33.2906	0.0036	-4.73005	0.0016	-44.06015	0.0005

Source: E-views Results Output, 2019

From the result both the Engel-Granger and Philips-Oularis cointegration test indicated the variables are cointegrated at 1% level of significance. The P-Value for the Tau and Z statistics are less than 0.01 (1% level of significance) for both Engel-Granger and Philips-Oularis cointegration test indicating that the series are cointegrated with GDP as the dependent variable and GREX, GCEX, EXD and GFCF as the independent variables. This shows that the variables have a long-run equilibrium relationship.

4.4 Analysis of Results

Table 4.4 Regression Result
Dependent Variable: d(GDP)

Independent Variables	Coefficient	Standard Error	t-Statistic	P-Value
Constant Intercept	10340.20	1083.343	9.544715	0.0000
d(AGI)	26.44429	1.918438	13.78429	0.0000
d(GCEX)	21.20720	6.559507	3.233047	0.0038
EXD	-26.52384	52.78403	-0.502497	0.6203
d(GFCF)	470.8071	147.6066	3.189608	0.0042
R^2	0.655613	F Statistic	118.4105	0.00000
Adjusted R^2	0.647543	D-W Statistic	1.769175	

Source: E-views Results Output, 2019

From the above estimated regression result there exists a positive relationship between Gross Domestic product and all the independent variables except EXD. These relationships conform with the A'priori.The estimated model has a positive intercept. The result shows that a unit increase in Aids and Grants on Infrastructure (AGI) on the average will result in a 26.44429 increase in gross domestic product (GDP) holding other variables constant. A unit increase in Government capital expenditure (GCEX) on the average will lead to 21.20720 increase in GDP holding other variables constant. A unit increase in External Debt Financing (EXD) on the average will lead to 26.52384 decrease in GDP holding other variables constant. Also, a unit increase in Gross Fixed Capital Formation (GFCF) on the average will lead to 470.8071 unit increase in GDP holding other variables constant. This shows that about 65% of variations in the dependent variable (GDP) were explained by changes in the explanatory variables of the estimated model therefore the estimated model exhibits good fit. It further shows that 35% of the fluctuations in GDP is caused by a random disturbances or exogenous variables outside the regression therefore R^2 is significant.

The high value of the f-statistics (ie. F^c = 118.4105) indicates that the parameters of the estimated model are jointly a simultaneously statistically significant. This implies that the estimated model is good for forecasting, predicting policy formulated and analysis purposes.

The theoretical t-value at 5% level of significance with forty four (44) degree of freedom is 2.064 which is less than the calculated t-values for GREX (13.78429), GCEX (3.233047) and GFCF (3.189608). We shall therefore reject the null hypothesis and accept the alternative hypothesis. This implies that the parameter estimates β_1, β_2 and β_4 (i.e GREX, GCEX and GRCF) are statistically significant hence, they are relevant variables that affects the Nigeria economic growth. However EXD is insignificant since its t statistic (0.502497) is less than the critical value 2.064.

4.5   Chow Test for Structural break

Table 4.5: Chow Breakpoint Test

Chow Breakpoint Test: 1985			
Null Hypothesis: No breaks at specified breakpoints			
Varying regressors: All equation variables			
Equation Sample: 1970 2017			
F-statistic	0.250078	Prob. F(2,43)	0.7799
Log likelihood ratio	0.543528	Prob. Chi-Square(2)	0.7620
Wald Statistic	0.500157	Prob. Chi-Square(2)	0.7787

Source: Author's Computation

From the result in Table 4.5, The f statistics is given as 0.250078 and its probability value is 0.7799. the probability value of the f statistics is higher than 0.05 (0.7799 > 0.05) thus we accept the null hypothesis of no structural break between the period 1970-1985 and 1986-2017.

5. Conclusion and Recommendations

5.1 Conclusion

From the summary, it is very evident that government infrastructure spending affects economic growth significantly. It is therefore concluded that government's spending and fiscal stance should be based on transparency and integrity to bring about inclusive growth. In countries like Nigeria, where public spending occupies a larger share of the economy, increase in spending will almost by definition increase the major component of output, and this may well produce financing for both public and private sector. This study has shown that government expenditure components such as capital expenditure, aids and grants on infrastructure and gross fixed capital formation, all have significant and positive impact on economic growth. However, external debt financing has a negative but insignificant impact on economic growth. On the whole government expenditure is vital for the growth and development of Nigeria.

5.2 Recommendations

Based on the conclusion, the study recommends the following:

a.   Government should ensure that capital expenditure is properly managed in a manner that it will raise the nation's production capacity and promote infrastructure development.

b.   Government should direct its expenditure towards the productive sectors like manufacturing and industry as it would increase production and output as well as raise the living standard of the poor the country.

c.   Effort should be made to increase government funding on education and health to curtail the level of strike in our education sector and as well increase funding on anti-graft or anticorruption agencies like the Economic and Financial Crime Commission (EFCC), and the Independent Corrupt Practices Commission (ICPC) in order to arrest and penalize those who divert and embezzle public funds.

d.   A proper suivelliance on capital spending is required in order to boost both human and social capital; experiences from the emerging markets see human capital has widely

adjuded as the engine of growth while social capital is the lubricants. Capital spending monitoring and outcome qualification are urgently required as these areas have been grossly neglected, which has resulted in fund misappropriation, white elephant and abandoned projects.

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