

# 1 Government Spending and Economic Growth in Nigeria 2 (1980-2011)

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## 7 **Abstract**

8 Using time series data of 32years period (1980- 2011), this study investigated the impact of  
9 government spending on the Nigerian economic growth. Employing the ordinary least square  
10 multiple regression analysis to estimate the model specified. Real Gross Domestic Product  
11 (RGDP) was adopted as the dependent variable while government capital expenditure  
12 (GCEXP) and government recurrent expenditure (GREXP) represents the independent  
13 variables. With the application of Granger Causality test, Johansen Cointegration Test and  
14 Error Correction Mechanism, the result shows that there exists a long-run equilibrium  
15 relationship between government spending and economic growth in Nigeria. The short-run  
16 dynamics adjusts to the long-run equilibrium at the rate of 60

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18 **Index terms**— economic growth, government spending, recurrent expenditure, capital expenditure, Nigeria.

## 19 **1 Background of the Study**

20 public expenditure is an important instrument for government to control the economy. It plays an important role  
21 in the functioning of an economy whether developed or underdeveloped. Public expenditure was born out of  
22 revenue allocation which refers to the redistribution of fiscal capacity between the various levels of government  
23 or the disposition of responsibilities between tiers of the government.

24 Broadly speaking, public expenditure affects aggregate resources use together with monetary and exchange  
25 rate. Specifically public expenditure refers to the value of goods and services provided through the public sector.

26 In the Nigerian economy public expenditure can broadly be categorized into capital and recurrent expenditure.  
27 The recurrent expenditure are government expenses on administration such as wages, salaries, interest on loans,  
28 maintenance etc., whereas expenses on capital projects like roads, airports, health, education., telecommunication,  
29 electricity generation etc., are referred to as capital expenditure ??Obinna, 2003).

30 The size of government expenditures and its effect on economic growth, and vice versa, has been an issue of  
31 sustained interest for over decades now. The relationship between government expenditure and economic growth  
32 has continued to generate series of debate among scholars. Government performs two major functions-protection  
33 (and security) and provisions of certain public good (Al-Yousif, 2000).

34 Scholars argue that increase in government expenditure on socio-economic and physical infrastructures  
35 encourage economic growth. For example, government expenditure on health and education raises the  
36 productivity of labour and increase the growth of national output. Similarly, expenditure on infrastructure such as  
37 roads, communications, power, etc, reduces production costs, increases private sector investment and profitability  
38 of firms, thus fostering economic growth. As observed by Al-Yusuf and Couray ??2009), Abdullah (2000), Ranjan,  
39 Sharma, (2008) and Cooray (2009) the expansion of government expenditure contributes positively to economic  
40 growth.

41 In Olukoye (2009) the general view is that public expenditure either recurrent or capital expenditure, notably  
42 on social and economic infrastructure can be growth-enhancing.

43 The provision of infrastructure services to meet the demands of business, households, and other users is one  
44 of the major challenges of economic development in developing countries like Nigeria.

## 5 EMPIRICAL LITERATURE

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45 Developing countries invest about \$200billion a year in new infrastructure representing four percent of their  
46 national output and a fifth of their total investment. The result has been a dramatic increase in infrastructure  
47 services-for transport, power, water, sanitation, telecommunications, and irrigation (World Bank's Development  
48 Report 1994).

49 Government spending in Nigeria has continued to rise due to the huge receipts from production and sales of  
50 crude oil, and the increased demand for public (utilities) goods like roads, communication, power, education and  
51 health. There is increasing need to provide both internal and external security for the people and the nation.  
52 However, the rising government expenditure may have not translated to meaningful growth and development,  
53 as Nigeria ranks among the poorest countries in the world. In addition, many Nigerians have continued to  
54 wallow in abject poverty, while more than fifty percent live on less than US\$1per day. Moreover, macroeconomic  
55 indicators like balance of payments, import obligations, inflation rate, exchange rate, and national savings reveal  
56 that Nigeria has not fared well in the last three decades.

57 It is disturbing to note that government expenditure seems to have not replicated same level of economic  
58 growth in Nigeria, for instance between 1980 and 1990, while the GDP growth rate was decreasing (57.15% down  
59 to 2.87%), government expenditure growth rate was increasing (23.2% to 41.24%). Thus, there is an inverse  
60 relationship between the two periods. However, it is found that the growth rate of government expenditure in  
61 2000 and 2010 was 15.53% and 2.15% respectively, while GDP growth rate witnessed 8.79% and 1.54% in the  
62 same period respectively. Thus, government expenditure growth rate has been greater than GDP growth in the  
63 same period.

64 Due to the mixed feeling on the above the debate has been inconclusive on whether or not increasing government  
65 spending induces economic growth or not. Based on the above this paper attempts to investigate whether  
66 increasing government spending induces economic growth performance in Nigeria.

67 The major objective of this study is therefore, to ascertain whether there is a relationship between government  
68 expenditure and economic growth in Nigeria. The specific objectives are: 1. To ascertain the impact of  
69 government spending on economic growth in Nigeria. 2. To ascertain if there is long-term causal relationship  
70 between government spending and economic growth in Nigeria.

## 71 2 II.

### 72 3 Theoretical Review

73 Economic theory has shown how government spending may either be beneficial or detrimental to economic  
74 growth. In traditional Keynesian macroeconomics, many kinds of public expenditures, can contribute positively  
75 to economic growth through multiplier effects on aggregate demand. On the other hand, government consumption  
76 may crowd out private investment, dampen economic stimulus in the short run and reduce capital accumulation in  
77 the long run. Studies based on endogenous growth models distinguish between distortionary or non-distortionary  
78 taxation and productive or unproductive expenditures. Expenditures are categorized as productive if they are  
79 included as arguments in private production functions and unproductive if they are not (Barro and Sala-I-Martin,  
80 1992).

81 The earliest of all theories of government growth is Wagner's Law of Increasing State Activity. This theory  
82 posits a relationship linking industrialization, urbanization and education to the expansion of the public sector  
83 ??Bird, 1971).

84 Wagners' posits that increases in public goods are a product of increased demands by organized industrial  
85 workers, coming at the costs of growth in the private sector ??Gandhi, 1971; ??offman and Mahar, 1971). Bureau  
86 Voting Theory rejected the role of industrialization and urbanization, suggesting that the main driver of public  
87 sector expansion is an artificial demand for government services created by selfinterested government employees  
88 (Niskanen, 1971).

89 In Fiscal illusion theory which tries to explain government growth by linking convoluted tax systems to the  
90 masking of the costs of public goods. Also, tax systems can hide the costs of public goods and therefore stimulate  
91 their growth (Goetz, 1977). Empirical support for these theories has varied, causing them to loose some of their  
92 impetus.

93 Government spending is usually suggested that the net impact on growth (as measured by aggregate output)  
94 of the crowding-out effect of public expenditure clearly depends on the relative marginal productivity of the  
95 public and private sectors. The externality effect of public expenditure enhances growth by raising private sector  
96 productivity. Here, a higher level of such expenditure could achieve a high growth rate. The opposing natures of  
97 the crowding-out and externality effects rest on the proposition that the structure of public expenditure, rather  
98 than merely its level, would be of considerable importance.

## 99 4 III.

### 100 5 Empirical Literature

101 Researchers have attempted to examine the effect of government spending on economic growth in different  
102 countries and periods. Ram (1986) studied the linkage between government expenditure and economic growth

103 for a group of 115 countries during the period 1950-1980. Using both cross section time series data in his analysis,  
104 and confirmed a positive influence of government expenditure on economic growth.

## 105 **6 Global Journal of Management and Business Research**

106 Volume XIII Issue V Version I Y 2013 ear ( ) 22 Erkin (1988) examined the relationship between government  
107 expenditure and economic growth, by proposing a new framework for New Zealand. The empirical results showed  
108 that higher government expenditure does not hurt consumption, but instead raises private investment that in  
109 turn accelerates economic growth.

110 Foster and Skinner (1992) studied the relationship between government expenditure and economic growth for  
111 a sample of wealthy countries for 1970-95 periods, using various econometric approaches. They submitted that  
112 more meaningful (robust) results are generated, as econometric problems are addressed.

113 Abu-Bader and Abu-Qarn (2003) employed multivariate co-integration and variance decomposition approach  
114 to examine the causal relationship between government expenditures and economic growth for Egypt, Israel,  
115 and Syria. In the bivariate framework, the authors observed a bi-directional (feedback) and long run negative  
116 relationships between government spending and economic growth. Moreover, the causality test within the  
117 trivariate framework (that include share of government civilian expenditures in GDP, military burden, and  
118 economic growth) illustrated that military burden has a negative impact on economic growth in all the countries.  
119 Furthermore, civilian government expenditures have positive effect on economic growth for both Israel and Egypt.

120 Loizides and Vamvoukas (2005) employed the trivariate causality test to examine the relationship between  
121 government expenditure and economic growth, using data set on Greece, United Kingdom and Ireland. The  
122 authors found that government size granger causes economic growth in all the countries they studied. The finding  
123 was true for Ireland and the United Kingdom both in the long run and short run. The results also indicated that  
124 economic growth granger causes public expenditure for Greece and United Kingdom, when inflation is included.

125 Komain and Brahmasrene (2007) examined the association between government expenditures and economic  
126 growth in Thailand, by employing the Granger Causality Test. The results revealed that government expenditures  
127 and economic growth are not cointegrated. Moreover, the results indicated a unidirectional relationship, as  
128 causality runs from government expenditures to growth. Lastly, the results illustrated a significant positive effect  
129 of government spending on economic growth.

130 Olugbenga and Owoye (2007) investigated the relationships between government expenditure and economic  
131 growth for a group of 30 OECD countries during the period 1970-2005. The regression results showed the existence  
132 of a long-run relationship between government expenditure and economic growth. In addition, the authors  
133 observed a unidirectional causality from government expenditure to growth for 16 out of the countries, thus  
134 supporting the Keynesian hypothesis. However, causality runs from economic growth to government expenditure  
135 in 10 out of the countries, confirming the Wagner's law. Finally, the authors found the existence of feedback  
136 relationship between government expenditure and economic growth for a group of four countries.

137 Liu and Hsu and Younis (2008) examined the causal relationship between GDP and public expenditure for  
138 the US data during the period 1947-2002. The causality results revealed that total government expenditure  
139 causes growth of GDP. On the other hand, growth of GDP does not cause expansion of government expenditure.  
140 Moreover, the estimation results indicated that public expenditure raises the US economic growth. The authors  
141 concluded that, judging from the causality test Keynesian hypothesis exerts more influence than the Wagner's  
142 law in US.

143 In Nigeria, many authors have also attempted to examine government expenditure -economic growth  
144 relationship. Oyinlola (1993) examined the relationship between the Nigeria's defence sector and economic  
145 development, and reported a positive impact of defence expenditure on economic growth.

146 Fajingbesi and Odusola (1999) empirically investigated the relationship between government expenditure and  
147 economic growth in Nigeria. The econometric results indicated that real government capital expenditure has  
148 a significant positive influence on real output. However, the results showed that real government recurrent  
149 expenditure affects growth only by little. Also, study by Ogiogio (1995) revealed a long-term relationship between  
150 government expenditure and economic growth. Moreover, the author's findings showed that recurrent expenditure  
151 exerts more influence than capital expenditure on growth.

152 Akpan (2005) used a disaggregated approach to determine the components (that include capital, recurrent,  
153 administrative, economic service, social and community service, and transfers) of government expenditure that  
154 enhances growth, and those that do not. The author concluded that there was no significant association between  
155 most components of government expenditure and economic growth in Nigeria. results inferred that in the short run  
156 expenditures on agricultures and education were negatively related to economic growth. However, expenditures  
157 on health, national security, transportation, and communication were positively related to economic growth,  
158 though the impacts were not statistically significant.

159 Studies in Nigeria, like Nurudeen and Usman (2010) showed mixed results.

160 Therefore, this study is an improvement on the previous studies on economic growth and government  
161 expenditure relationship in Nigeria. It considers government spending only in two categories -capital and recurrent  
162 expenditure as important variables that affects economic growth. Secondly, it extends the study period to 2011  
163 and finally employed the Error Correction Mechanism (ECM) in the study.

164 7 IV.

165 **8 Methodology**

166 To empirically examine the impact of government expenditure on the economic growth in Nigeria, the researcher  
167 subjected the data collected to Unit Root, Cointegration, and Error Correction test. The ADF test is used to  
168 test whether the variables are non stationary (unit root). If the results indicate that all series are stationary in  
169 the first difference or all series are generated by 1(1) process, condition of stationarity is established or confirmed  
170 ??Gujarati, 2004). An Error Correction Mechanism is employed to ascertain the speed of adjustment from the  
171 short run equilibrium to the long run equilibrium state.

172 V.

173 **9 Data Sources**

174 To investigate how government spending could affect economic growth in Nigeria, a number of variables have  
175 been taken into consideration in this study. These variables consist of Real Gross Domestic Product (RGDP),  
176 Government recurrent expenditure (GREXP) Government capital expenditure (GCEXP) for the period of 1980-  
177 2011 and are defined in our model specification. All the variables were sourced from Central Bank of Nigeria's  
178 (CBN) statistical bulletin for various years. And are all expressed in million Naira.

179 **10 VI.**

180 **11 Model Specification**

181 This study is aimed at establishing the dynamics properties of the relationship between government spending  
182 and RGDP in Nigeria over the years . The functional form, on which our model was based, employed a multiple  
183 regression equation in the analysis of this work.

184 In an attempt to capture our essence of this study, and based on previous studies. The Real Gross Domestic  
185 Product (RGDP), Government recurrent expenditure (GREXP), Government capital expenditure (GCEXP)  
186 were used to formulate our model. Thus, the model is represented in a functional form shown below:RGDP = F  
187 (GCEXP, GREXP) ?(1)

188 Where RGDP = Real Gross Domestic Product (Dependent variable) GCEXP = Government Capital  
189 Expenditure (Independent variable) GREXP = Government Recurrent Expenditure (Independent variable)

190 In a linear function, it is represented as follows:RGDP = ? 0 + ? 1 GCEXP + ? 2 GREXP + U t ?(2)

191 Where: ? 0 = Constant term, ? 1 = Regression coefficient of GCEXP, ? 2 = Regression coefficient of GREXP  
192 and U t = Error Term.

193 For usual statistical reasons the above model will be transformed into log linear model as specified  
194 below:LRGDP = ? 0 + ? 1 LGCEXP + ? 2 LGREXP + U t . . . (3) VII.

195 **12 Results and Discussion**

196 **13 a) Unit Root Test**

197 Considering the ADF and PP test statistics at 5% and10% critical values, it is observed that test statistics are  
198 greater than the critical values. Thus, the series are said to be stationary at that level. The unit root test shows  
199 that the variables-RGDP, GCEXP and GREXP are integrated of order one. They are integrated of the same  
200 order; 1 (1). The level of their integrations indicates the number of time series have to be differenced before their  
201 stationarity is induced. From the tables (see appendix), it was found that both ADF and PP Test with trend and  
202 intercept indicated that time series are integrated of the same order. The linear combination of series integrated  
203 of the same order are said to be cointegrated.

204 **14 b) Co-integration Test**

205 The result shows that there is a long run relationship between the RGDP and the explanatory variables; GCEXP  
206 and GREXP. The Johansen Cointegration Test is shown in the appendix. The model with lag 1 was chosen with  
207 the linear deterministic test assumption. Johansen cointegration test for the series; D(RGDP,1),D(GCEXP,1)  
208 and D(GREXP,1).

209 Under the Johansen Cointegration Test, there is one cointegrated vectors. In Johansen's Method, the trace  
210 statistic is used to determine whether cointegrated variables exist. The trace statistics are found as 0.837326,  
211 0.211942 and 0.043031. The critical values of RGDP, GCEXP and GREXP at both 5% level of significance are  
212 29.79, 15.49 and 3.84 respectively. The trace test indicates one cointegrating equation. In other words, the null  
213 hypothesis of no cointegration among the variables is rejected. The test result shows the existence of a long-run  
214 equilibrium relationship in equations at 5% significance level. The normalized cointegrating coefficients for one  
215 cointegrating equation given by the long-run relationship is RGDP = 0.6104 GCEXP + 1.316 GREXP.

216 From the above equation, it is found that N1 increase in government capital expenditure (GCEXP), on  
217 the average will lead to increase by N0.61k in the gross domestic product (RGDP). More so, N1 increase in the

218 government recurrent expenditure (GREXP) on the average, will lead to increase by N1.32k in the gross domestic  
219 product (RGDP).

220 The computed coefficient of multiple determination ( $R^2 = 0.82460$ ) shows that 93.46% of the total variation  
221 in Gross Domestic Product (RGDP) is accounted for, by the independent variables; Government Capital  
222 Expenditure (GCEXP) and Government Recurrent Expenditure (GREXP) while 6.54% of the total variation  
223 is attributable to the influence of other factors which are not included in the regression function. The value of  
224 Durbin Watson (DW) is 0.78. Using 5% level of significance, and  $k = 2$  (two) and  $N = 31$  degrees of freedom,  
225 the tabulated lower ( $d_L$ ) and upper limits of Durbin Watson statistics are 1.297 and 1.570 respectively. Since the  
226 computed Durbin Watson statistics (0.86) is less than the lower limit (1.297), there is evidence of autocorrelation  
227 in the model.

## 228 **15 c) Granger Causality Results**

229 In examining the pair-wise (bi-directional) relationship among the variables, 5% level of significance and 2 and  
230 25 degrees of freedom, the ftabulated value is 3.39. Considering the f-calculated value of GCEXP and RGDP,  
231 the p-value is 0.0017 while the p-value for RGDP/GCEXP is 0.0476. in this case, there is one way causation  
232 between GCEXP and RGDP. This implies that the causality runs from GCEXP to RGDP and not from RGDP  
233 to GCEXP. The same is applicable to GREXP and RGDP. The causality runs from GREXP to RGDP too.  
234 This result is in conformity with the Keynesian theory on government expenditure which stipulates that Gross  
235 Domestic Product is a function of government expenditure.

236 In any case, the existence of a long-run cointegrating equilibrium also provides for short-term fluctuations.  
237 In order to straighten out or absolve these fluctuations, an attempt was made to apply the Error Correction  
238 Mechanism (ECM).

## 239 **16 VIII.**

## 240 **17 The VECM Result**

241 As noted, the VECM is meant to tie the short-run dynamics of the cointegrating equations to their longrun  
242 static dispositions. In order to absolve the short-run dynamics of the relationships, the Vector Error Correction  
243 Mechanism was adopted. Comparing the result of the OLS, government capital expenditure was bearing a  
244 negative sign. However, introducing VECM, it became positive. On the hand, government recurrent expenditure  
245 was positive while in this model, it became negative. This result implies that there is a change from the short  
246 run dynamics to their long run dispositions. In the long run equilibrium, should the disequilibrium is corrected,  
247 Real Gross Domestic Product (RGDP) will increase by 78kobo owing to N1 increase in Government Capital  
248 Expenditure (GCEXP) while N1 increase in Government Recurrent Expenditure (GREXP) will bring about  
249 decrease by 26kobo in RGDP.

250 The total variation of 96.03% in Gross Domestic Product is accounted for by the changes in Government  
251 Capital Expenditure (GCEXP) and Government Recurrent Expenditure (GREXP). The joint influence of the  
252 explanatory variables on the dependent variables is statistically significant.

## 253 **18 IX.**

## 254 **19 Summary/ Conclusion**

255 This research work investigates the impact of public spending on economic growth in Nigeria from 1980 to  
256 2011. None of the variables was stationary at zero level. This means they all have unit roots. The three variables  
257 became stationary at first difference by ADF and PP application. There exists a long-run equilibrium relationship  
258 between government spending and economic growth in Nigeria; The VECM model negates the OLS model which  
259 indicates a change from the short run dynamics to their long run dispositions.

260 The co-integration test employed revealed that there is a long run relationship between the Real Gross Domestic  
261 Product (RGDP) and the explanatory variables; Government Capital Expenditure (GCEXP) and Government  
262 Recurrent Expenditure (GREXP). The normalized cointegrating coefficients for one cointegrating equation given  
263 by the long-run relationship indicated that the constant value is negative which means that the proportion in  
264 the real gross domestic product (RGDP) in Nigeria tends to decrease, keeping other variables constant in the  
265 long-run. It is found that N1 increase in government capital expenditure (GCEXP), on the average will lead  
266 to increase by N0.19k in the gross domestic product (RGDP) while N1 increase in the government recurrent  
267 expenditure (GREXP) on the average, will lead to increase by N0.31k in the gross domestic product (RGDP).  
268 In the long run equilibrium, capital expenditure will contribute more to the economic growth of Nigeria.

## 269 **20 X.**

## 270 **21 Recommendations**

271 Based on the findings, the following recommendations are suggested;

272 ? Government capital spending in industries and agriculture if properly managed will raise the nation's  
273 production capacity and employment, which in turn will increase economic growth in Nigeria.

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276 ? Government should increase its expenditure on rural roads and electricity as this will accelerate the  
productive sectors as well as raise the standard of living of poor citizens in Nigeria. <sup>1 2 3 4</sup>



Figure 1:

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government expenditure (capital and recurrent) and its components have continued to rise in the last three decades. For instance, government total recurrent expenditure increased from N4, 805.20 million in 1980 to N36,219.60 million in 1990 and further to N1, 589,270.00 2007. On the other hand government 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. The various components of capital expenditure have risen between 1980 and 2011.

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Figure 2:

Government Spending and Economic Growth in Nigeria (1980-2011)	
Variable	Vector Error Correlation Coefficient
C D(GCE(-1)) Series D(GRE(-1)) RGDP GCEXP GREXP	R 2 = 0.86027
Series RGDP GCEXP GREXP	Hypothesized No. of CE(s)
None	At most 1
YEAR	YEAR
	PP
	Test
	Statistic
	-
	9.532332
	-
	5.457266
	-
	7.020660
	Eigenvalue
	0.837326
	0.211942
	At most 2
	0.043031

RGDPFace test indicates 1 cointegrating equation(s) at 5% significance. Normalized Cointegrating Coefficient

Source : Eviews' Output

R 2 = 0.82460  
 F-Stat = 201.08  
 Durbin Watson (0.68)

Figure 3:

