# ECONOMETRIC ANALYSIS OF GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH IN NIGERIA

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#### ABSTRACT

This study examined government expenditures and economic growth in Nigeria. Government expenditure was proxied by government capital expenditure and government recurrent expenditure while inflation rate was used as a check variable in the study. On the other hand, economic growth was measured using real gross domestic product. Relevant data were extracted from the annual Statistical Bulletin of the Central Bank of Nigeria. Unit root test was conducted using Augmented Dickey Fuller method which revealed that the variables were integrated at first difference except for inflation rate which was integrated at level. Cointegration test was also conducted to determine long run relationship. More so, the ARDL ECM test was carried out to ascertain the relationship among the variables. The results revealed that a significant relationship exist between government capital expenditure and economic growth; government recurrent expenditure and economic growth; inflation and economic growth. Based on the findings of the study, the study recommends amongst others, that wasteful spending should be minimized. More so, proper accounting and blocking of leakages is a necessity for economic improvement.

Keywords: Government expenditures; economic growth; capital expenditure; recurrent expenditure; gross domestic product.

#### INTRODUCTION

Nigeria's effectiveness in economic management has been a frontline discourse due to suboptimal public sector performance since independence. The role of government in economic growth and development is established in literature (Igwe & Ateke, 2019). The government of a nation is saddled with the responsibility of stimulating full employment, economic growth, price stability, improved standard of living and poverty

reduction. Economic growth - the annual rate of increase in a nations real GDP - is taken as a key objective for defeating persistent poverty and offering hope for the possible improvement of society (Kakar, 2011).

Government expenditures play important roles in the functioning of developed, developing economies and underdeveloped economies alike. It reduces negative impact of market failure on the economy. Government spend money in an economy to supply goods and services that the private sector would fail to do, such as public goods, defense, roads and bridges; merit goods, such as hospitals and schools; and welfare payments and benefits, including unemployment and disability benefit and also train needed manpower to drive smooth economic operations and enhance productivity that births economic growth and development (Onifade et al., 2020).

Over the years, the Nigerian government in its efforts to drive economic growth and development has employed diverse macroeconomic policy options (both monetary and fiscal policies), to put the economy on the path of stable growth. A detailed look at the trend of economic variables in Nigeria reveals that the country is still grappling with fluctuating economic imbalances evidenced by inconsistent growth rates, high level of inflation, unemployment, illiteracy and poverty amongst others.

Central Bank of Nigeria (CBN, 2020) shows that government expenditure (capital and recurrent) has been on the increase in the last three decades. However, while government expenditure has continued to increase, due to increased demand for public utilities, it is quite unfortunate that these expenditures have not translated to meaningful growth and development, as Nigeria is ranked among the poorest countries in the world. Nigeria human development index (PCI) value of 0.534 for 2018 puts the country in the low human development category, positioning it at 158 out of 189 countries and territories, and the economy is defined by lack of infrastructure, poor access to medical facilities, low standard of living, low level of education, among others. Also, macroeconomic indicators like balance of payments, import obligations, inflation rate, national savings, and exchange rate reveal that Nigeria has not fared well in the last couple of years (Olugbenga & Owoye, 2007).

It is expected that increase in government expenditure on socio-economic and physical infrastructure promote economic growth. For example, expenditure on infrastructure such as roads, communications, power, etc., will reduce production costs, increase private sector investment and profitability of firms, thus accelerate economic growth. However, there is no consistent scholarly position on the effect of government expenditure on economic growth and developments. Nnamdi (2013) found positive impact of government expenditure on economic growth; while Egbetunde and Fasanya (2013) found negative relationship between public spending and economic growth. Okoro (2013) and Udoffia and Godson (2010) on their part, concluded that government expenditure has a positive and significant effect on economic growth. Maku (2014) argued that government expenditure has positive, but insignificant effect on economic growth.

In lieu of these contested claims, this study opts to further investigate whether or not increased public spending influence economic growth. The study focuses on Nigeria, and closely examined government expenditure and indicators of economic growth for a period of 40 years (1981-2021). The study formulated the following null hypotheses to guide data collection, analyses and interpretation.

- Ho1: There is no significant relationship between government recurrent expenditure (GREX) and real gross domestic product (RGDP) in Nigeria.
- Ho<sub>2</sub>: There is no significant relationship between government capital expenditure (GCEX) and real gross domestic product (RGDP) in Nigeria.
- **Ho3:** There is no significant relationship between inflation rate (INFR) and real gross domestic product (RGDP) in Nigeria.

## LITERATURE REVIEW

#### **Government Expenditure**

Government expenditure describes resources (mostly financial) spent by the government to provide and maintain public institutions, the economy and the society. Government expenditure usually tend to increase with time as the economy becomes large and more developed or as a result of increase in its scope of activities. Government capital and recurrent budget in classified as one of the major types of budgets in an economy. It is sometimes referred to as revenue budget and it covers recurrent items or expenditure.

According to Murtala and Taiwo (2011), government spending is a fiscal instrument which serves a useful purpose in the process of controlling inflation, unemployment, balance of payment disequilibrium, and depression. Government spending increases aggregate demand. Production and supply of goods and services flow in the same direction. Owing to this fact, increase in supply of goods and services coupled with a rise in aggregate demand exerts a downward pressure on unemployment and depression. In Nigeria, the federal government's expenditure is categorically divided into capital and recurrent expenditures.

Recurrent expenditure consists government expenditure on administration such as wages, salaries, interest on loan, maintenance, etc.; while capital expenditure goes to projects like roads, airport, health, education, electricity generation, water etc. capital expenditures are investments with multiplier effects on the economy in terms of public benefits government expenditure is therefore an important tool that brings about egalitarian, society through the provision of welfare facilities (Ogba, 1999).

#### **Economic Growth**

In simple terms, economic growth refers to increase in aggregate production in an economy that leads to increase in income, improve consumers' purchasing power, and raise quality of life. Result in improved quality of life and ensures that everyone has access to their basic requirement; and also have opportunity to make choices (Igwe & Ateke, 2019). Economic growth is measured by increase in a country's total output or real GDP. GDP of a country is the total value of all final goods and services produced within a country over a period of time. Therefore, an increase in GDP is the increase in a country's production. Most developed economies experience slower economic growth as compared to developing countries.

## **Government Expenditure and Economic Growth**

Over the years, the size, structure and growth of government expenditure have increased immensely and has become more complex. Modern political developments continue to instigate expenditure growth, thus the challenge of raising additional and identifying alternative sources of revenue to meet the ever-increasing needs of governance have made it more imperative to take a more focused look at government activities, especially its expenditures. Economic growth is an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. Economic growth is an important macro-economic objective because it enables increased living standards, improved tax revenues and helps to create new jobs (Olanrewaju & Funlayo, 2021).

Over the years, government expenditure has come to be regarded as an important policy tool for restoring equilibrium in an economy after disturbances. If an economy is undergoing deflationary pressures government expenditure serve as a fiscal tool to reduce such pressure. Deflation is a situation whereby an economy operate below full employment of resources. That is, aggregate demand is less than output produced at full employment level. When there is a deflation, consumers' expenses fall, and this leads to a fall in price level. Hence, a fall in the investible fund by organizations (Felicia & Charles, 2020).

Deflation usually leads to loss of employment since in efforts to reduce wastage of resource, firms cut down on their production and lay workers off. To remedy deflationary pressures, governments apply expansionary fiscal policy such as increasing public investment and expenditure or reduce tax through the central bank.

Government also implement expansionary monetary policies such as reducing the rate of interest which provides an incentive for companies to obtain loanable funds and discourage savings. The reduction in tax coupled with increase in government expenditure close deflationary gap in the economy and bring it up to operate at full employment level (Mahara, 2021).

Government expenditure can also be used to remedy inflation. An economy is said to be experiencing inflationary pressure when aggregate demand is more than output produced at full employment. During inflation there is rise in general price level. To correct this position, government usually apply contractionary fiscal policies. This may be done directly by decreasing its expenditure or indirectly by increasing taxes. Increase in tax reduce consumers' purchases or reduces aggregate demand so that there is a balance between demand and supply of commodities (Egbelonu & Ubechu, 2018).

Previous studies provide conflicting reports on the influence of government expenditure on economic growth. For example, Mahara (2021) investigated money supply, inflation, capital expenditure and economic growth in Nepal and report that money supply, inflation, and capital expenditure are major issues of consideration for policymakers in developing countries given the need to spark internal demand and to counter government's massive fiscal obligations to alleviate poverty and achieve sustainable economic growth. The empirical findings of the study show that there is a significant long-run positive relationship between money supply, capital expenditure, and economic growth.

Olanrewaju and Funlayo (2021) examined government expenditure and economic growth in Nigeria and Angola. The study reported that the three main government expenditure components (Health expenditure, education expenditure, and capital investment expenditure) affect economic growth in Nigeria and Angola, but found no evidence of long-run relationships between government expenditure and economic growth. The study also reveals the validation of Wagner's theory between economic growth and expenditure on health in both Nigeria and Angola. The study confirmed that government expenditure stimulate economic growth in both Nigeria and Angola.

In the study of Felicia and Charles (2020) on impact of government expenditure, savings, and FDI on economic growth in Nigeria from 1995 to 2018, it was found that government expenditure, savings, FDI significantly impact economic growth. Onifade et al. (2020) on their part examined impact of government expenditure on economic growth with respect to capital expenditure, recurrent expenditure and the government fiscal expansion in line with support for budgetary allocations to various sectors in the context of the Nigerian economy. The study found a level relationship between public spending and economic growth in Nigeria. Incisively, recurrent expenditure of government was found to have significantly negative impact on economic growth while the positive impact of public capital expenditure on economic growth over the period of the study was not significant.

Similarly, Lawrence (2019) submitted that a negative relationship exists between government expenditure and economic growth which means that unguided consumptions and spending of public funds could diminish the capacity for productive investment thereby impeding growth. Further, Egbelonu and Ubechu (2018) examined the relationship between government expenditure and Nigeria's economic growth using time series data collected from 1970 to 2015. The variables considered in the study are GDP, total expenditure on Administration, total expenditure on economic services, total expenditure on social and community services, and total expenditure on transfers. The results of the analysis showed that all the variables of government expenditure had positive significant relationship with GDP, while the joint test showed that all the variables had positive significant impact on GDP; and bi-directional causality between government expenditure and GDP.

## **Theoretical Framework**

The foundational theory of this study is theory of government expenditure (TGE). TGE was propounded by English economists, John Maynard Keynes who popularized the use of government expenditure as a stabilization tool. Keynes (1930) argue insufficient total demand brings input and employment below their potential levels; and that if demand could be increased, output and employment could be expended and the economy would return to fall employment. Keynes (1930) believe this could be achieved with expansionary fiscal policy.

TGE argues that rather than balancing its budget during deflation, government should increase spending, reduce taxes, and shift its budget towards a deficit. Thus, higher levels of government spending would directly increase total demand. Also, lower taxes would increase after-tax income of households, and increase their purchasing power, which would in turn, stimulate total demand. Thus, the Keynesian prescription to cure a recession was a larger budget deficit.

In contrast, if an economy is experiencing inflation during an economic boom, TGE call for restrictive fiscal policy to temper excessive demand. In this case, reductions in government spending, higher taxes, and shifting the budget toward a surplus would reduce total demand and help to fight inflation. Thus, TGE reject the view that government budget should be balanced. Instead, it argue that appropriate budgetary policy depend on economic conditions.

In furtherance of TGE, Musgrave (). observe change in income elasticity of demand for public service in three ranges of per capita income, and posits that at low levels of per capita income, demand for public services tends to be very low, in developing countries because such income is devoted to satisfying primary needs (food, clothing and shelter). In the view of Musgrave (), when per capita income starts to rise above the levels of low income, demand for service supplied by the public sector such as health, education and transport starts to rise, thereby forcing government to increase expenditures on them. Finally, at a high level of per capita income in developed countries, the rate of public sector growth tends to fall as more basic wants are satisfied.

## METHODOLOGY

The ex-post-facto research design is adopted in this study. Ex-post-facto research is one in which groups with qualities that already exist are compared on some dependent variable (Nachmias & Nachmias, 1976). Secondary data were used and sourced from the CBN's (CBN) statistical bulletin. The independent variable in the study is government expenditure. It is proxied by government capital expenditure (GCE), government recurrent expenditure (GRE) and inflation rate (INFR). The dependent variable in the study is economic growth. It is measured using real gross domestic product (RGDP).

## **Model Specification**

Building on existing theoretical and empirical literature, this study perceives a causal relationship between government expenditure and economic growth in Nigeria, hence, a multiple regression model is specified to forge a link between the dependent (RGDP) and the independent variables (GCE, GRE and INFR) for the period of 1981-2021. The model expressed economic growth as a function of GCE, GRE and INFR. The model is represented below in econometric form to make the equation sufficient for empirical analysis. RGDP =  $\beta_0 + \beta_1 GCEX + \beta_2 GREX + \beta_3 INFR + U_t$  ......(1) Where: Real GDP = Real Gross Domestic Product

Real GDP = Real Gross Domestic Product GCEX = Government Capital Expenditure GREX = Government Recurrent Expenditure INFR = Inflation Rate  $\beta_0$  = Constant Parameter  $\beta_{1}, \beta_{2}, \beta_{3}$  = Estimates  $U_t$  = Error term In this study, inflation rate is used as a check variable.

#### A priori Expectations

A priori expectation involves an examination of the signs and magnitude of the estimated parameters to determine other conformity with theoretical expectations (Egbetunde & Fasanya, 2013). Theoretically, increase in government expenditure should lead to a corresponding rise in economic growth. Thus, the parameters  $\beta_1$ ,  $\beta_2$  and  $\beta_3$  are expected to be positively related to RGDP. In other words, government capital expenditure, government recurrent expenditure and inflation rate (check variable) are expected to have a positive effect on real Gross Domestic Product (RGDP). i.e.  $\beta_1$ ,  $\beta_2$  and  $\beta_3 > 0$ .

According to Baridam (2001), the use of a wrong data analysis tool will most likely lead to wrong interpretation and drawing invalid conclusions. Hence, to empirically carry out the analysis, Unit root test, cointegration test and ARDL ECM tests were carried out. Time series data were subjected to the regression analysis to test for the relationship between the variables of the study.

## DATA ANALYSIS AND RESULTS

**Table 1:** Time series data on real gross domestic product, government's capital expenditure, government's recurrent expenditure and inflation rate for the period 1981 – 2021.

Year	RGDP (₦'B)	GCE (₦'B)	GCE (₦'B) GRE ((₦'B)	
1981	15,258.00	6.6	4.8	9.97
1982	14,985.08	6.4	5.5	20.81
1983	13,849.73	4.9	4.8	7.70
1984	13,779.26	4.1	5.8	23.21
1985	14,953.91	5.5	7.6	17.82
1986	15,237.99	8.5	7.7	7.44
1987	15,263.93	6.4	15.6	5.72
1988	16,215.37	8.3	19.4	11.29
1989	17,294.68	15.0	26.0	54.51
1990	19,305.63	24.0	36.2	50.47
1991	19,199.06	28.3	38.2	7.36
1992	19,620.19	39.8	53.0	13.01
1993	19,927.99	54.5	136.7	44.59
1994	19,979.12	70.9	90.0	57.17
1995	20,353.20	121.1	127.6	57.03
1996	21,177.92	212.9	124.3	72.84
1997	21,789.10	269.7	158.6	29.27
1998	22,332.87	309.0	178.1	8.53
1999	22,449.41	498.0	449.7	10.00
2000	23,688.28	239.5	461.6	6.62
2001	25,267.54	438.7	579.3	6.93
2002	28,957.71	321.4	696.8	18.87
2003	31,709.45	241.7	984.3	12.88
2004	35,020.55	351.3	1,110.8	14.03
2005	37,474.95	519.5	1,321.3	15.00
2006	39,995.50	552.4	1,390.2	17.86
2007	42,922.41	759.3	1,589.3	8.23
2008	46,012.52	960.9	2,117.4	5.39
2009	49,856.10	1,152.8	2,128.0	11.58
2010	54,612.26	883.9	3,109.4	12.56
2011	57,511.04	918.5	3,314.5	13.72
2012	59,929.89	874.7	3,325.2	10.84
2013	63,218.72	1,108.4	3,689.1	12.22
2014	67,152.79	783.1	3,426.9	8.48
2015	69,023.93	818.4	3,831.9	8.06
2016	72,799.56	653.6	4,160.1	9.01

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2017	75,952.86	1,242.3	4,780.0	15.68	
2018	65,068.49	1,682.1	5,675.2	16.52	
2019	66,751.92	2,289.0	6,997.2	12.09	
2020	68,435.36	1,614.9	8,188.8	11.40	
2021	70,118.79	2,522.5	9,145.2	13.25	

Source: CBN Statistical Bulletin (2021)

#### **Unit Root Tests**

The unit root tests test for the stationarity of the variables employed. Any issue of non-stationarity of any variable is corrected before being used for the analysis to avoid spurious regression results. This test is carried out using Augmented Dickey Fuller (ADF) Unit Root Test.

)ie	le 2: Augmented Dickey Fuller (ADF) Unit Koot Results						
	Coefficient	At levels (Prob)	First Difference (Prob)	Remarks			
	RGDP	0.9913	0.0001	I(1) Stationary			
	GCE	0.9993	0.0000	I(1)Stationary			
	GRE	1.0000	0.0038	I(1)Stationary			
	INFR	0.0130		I(0) Stationary			
	<b>F</b> ' <b>O</b>	(0000)					

## Table 2: Augmented Dickey Fuller (ADF) Unit Root Results

Source: E views Output (2023).

Table 2 shows that the variables have mixed results of stationarity at levels and first difference thereby meeting the required condition to use the ARDL method of analysis in testing the hypotheses of the research study.

# Table 3: Results of Bounds Tests for Cointegration Model: RGDP

			Asymptotic: n=1000	
F-statistic	8.001427	10%	3.47	4.45
Κ	3	5%	4.01	5.07
		2.5%	4.52	5.62
		1%	5.17	6.36

Source: E views Output (2023).

The bounds tests for cointegration ascertains whether there is a long-term relationship between the variables used in the model. As shown in Table 3, the results for the model show that there is a long-term relationship between the dependent and the independent variables. This is confirmed with the f-stat is higher than the lower and upper bounds of the results.

Table 4: ARI	ble 4: ARDL ECM Results						
	ARDL Error Correction Regression						
	Dependent Variable: D(RGDP)						
	Selected Model: ARDL(1, 0, 0, 0)						
	Case 5: Unrestricted Constant and Unrestricted Trend						
	Date: 03/03/23 Time: 21:08						
	Sample: 1981 2021						
	Included observations: 40 ECM Regression						
	Case 5: Unrestricted Constant and Unrestricted Trend						
	Variable	Coefficient	Std. Error	t-Statistic	Prob.		
	С	483.5741	711.7048	0.679459	0.5014		
	GRE	78.99327	24.93342	3.168168	0.0000		
	INFR	47.15741	21.43048	2.200483	0.0004		
	GCE	116.1899	42.17046	2.755243	0.0000		
	@TREND	307.9229	93.10598	3.307230	0.0022		
	CointEq(-1)*	-0.110932	0.037583	-2.951625	0.0057		
	R-squared	0.232901	Mean depe	endent var	1371.520		
	Adjusted R-squared	0.191436	S.D. dependent var Akaike info criterion Schwarz criterion Hannan-Quinn criter. Durbin-Watson stat		2453.554		
	S.E. of regression	2206.240			18.30801		
	Sum squared resid	1.80E+08			18.43467		
	Log likelihood	-363.1601			18.35380		
	F-statistic	5.616831			2.077794		
	Prob(F-statistic)	0.007409					
	* p-value incompatible with t-Bounds distribution.						

Source: E views Output (2023).

The results of the analysis show that the goodness-of-fit (R-Square) is 0.23. This means that 23% of the changes in the dependent variable is explained by the changes in the independent variables whilst 77% is taken care of by the stochastic term (all other variables that affect the dependent variable but were not included in the model). The model is also statistically significant based on the probability value of f-stat which is 0.007409.

Table 4 showing result of the analysis using the ECM indicates that RGDP is positively related to GRE. As GRE increases by a unit, RGDP increases by 78.99 and vice versa. GRE is shown to be statistically significant at 5% level of significance. We therefore reject the null hypothesis and conclude that there is a significant relationship between GRE and RGDP over the period of study. Table 4 also indicates that RGDP is positively related to GCE. As GCE increases by a unit, RGDP increases by 116.18 and vice versa. GCE is shown to be statistically significant at 5% level of significance. We therefore reject the null hypothesis and conclude that there is a significant relationship between GCE and RGDP over the period of study. Further, Table 4 shows positive relationship between RGDP and INFR. The analysis reveals that as INFR increases by a unit, RGDP increases by 47.15 and vice versa. INFR is statistically significant at 5% level of significance. We therefore reject the null hypothesis and conclude that there is a Significant relationship between RGDP and INFR. The analysis reveals that as INFR increases by a unit, RGDP increases by 47.15 and vice versa. INFR is statistically significant at 5% level of significance. We therefore reject the null hypothesis and conclude that there is a significant relationship between the INFR and RGDP over the period of study.

#### CONCLUSIONS AND RECOMMENDATIONS

This study examined the effect of government expenditure on Nigeria's economic growth from 1981-2021. It explored the trends of RGDP, GCE, GRE and INFR over the period and their impact on Nigeria's

economic growth. We employed the unit root test, cointegration test and the ARDL ECM model of analysis to analyze the collected time series data. Based on the results of the analysis, the study concludes that there is a positive significant relationship between aggregate public expenditure and Nigeria's economic growth over the period of study. Thus, we recommends that policy makers should increase and sustain capital expenditures so as to improve the economy in the long run; policy makers should study recurrent expenditures in order to cut down on wasteful spending, since they impact the economy significantly. This may require proper accounting and blocking of leakages that drain the economy. The study also recommends that monetary authorities must ensure that inflation rate is managed in ways that makes it contribute positively to the economy.

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