

FISCAL POLICY MEASURES AND ECONOMIC DEVELOPMENT IN NIGERIA: A COINTEGRATION ANALYSIS

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ABSTRACT

This paper examined the relationship between fiscal policy and economic growth in Nigeria. The data were collected from the secondary sources mainly the Central Bank of Nigeria (CBN) from the period of 1981 to 2015. The paper adopted the ordinary least square (OLS) of regression analysis for the estimation of the model. The analysis carried out revealed that government recurrent expenditure (GREX) and money supply (MS) showed positive relationship with economic growth. On the other hand, government capital expenditure (GCEX), budget deficit (BDF) and non-oil revenue (NORV) indicated negative relationship with economic growth. The result shows that all the variables are not statistically significant in Nigeria. It is on this premise that this paper recommends that the government should step up its spending and create an enabling macroeconomic environment that will increase and sustain economic growth in Nigeria.

KEYWORDS: Fiscal Policy, Economic Growth, Unit Root, Cointegration, ECM

INTRODUCTION

Economic activities in an economy cannot be exclusively perform by the market mechanism; and as such macroeconomic policies are needed to guide, correct and supplement the market forces in order to achieve specific objectives for the economy. The policy packages most times contain policy instruments from the monetary or fiscal arena or both. Often times, interventionist and institutional policies are used to support these two major policies.

Fiscal policies are generally formulated in the context of the annual budget cast in terms of projects and programmes to be executed by the government and this is mostly down within the framework of the annual budget. Fiscal policy refers to that part of government policy concerning the raising of revenue through taxation and other means and deciding on the level and pattern of expenditure aimed at influencing economic activities or achievement of certain desirable economics goals (Anyanwu, 1993). These objectives include: full employment, general price stability, external equilibrium, economic growth as well as equitable distribution of income and wealth.

Economic growth implies a sustained yearly increase in the output of goods and services. The objective of achieving and/or sustaining high rate of economic growth is that, a greater availability of goods and services means an improvement in the material wellbeing and standard of living of the people. (Anyanwu, 1993). Therefore, for fiscal policy to impact on economic growth, the management of the fiscal instruments will be directed to affect each or some of the drivers of growth. An increase in government spending through deficit budgeting and reduction in taxes will positively affect aggregate demand, employment, output and

income within the economy at that particular time. This is referred to as expansionary fiscal policy. On the other hand, if government wishes to reduce aggregate demand, the above measure would be reserved. This is called contractionary fiscal policy.

The efficacy of fiscal policy in macroeconomic management has been a subject of controversy. While the Keynesians are of the view that fiscal policy is quite effective, the monetarists hold the counter view that it is monetary policy (and not fiscal policy) that is effective. Furthermore, it has been argued that the efficacy of fiscal policy depends on the stage of development of the economy. For instance, many economists believe that fiscal policy will be less effective in the LDCs (including Nigeria) as a result of the high level of corruption and other structural rigidities inherent in the system.

From the foregoing, it is clear that from both the theoretical and empirical points of view, there is no agreement as to the role of fiscal policy in stimulating economic growth in Nigeria. It is against this backdrop that this study is designed. This study therefore will examine the impact of fiscal policy measures, such as: Government capital expenditure, Government recurrent expenditure and Budget deficits. The rest of the study will be organized as follows: Section two will contain the theoretical framework and review of empirical literature. The section three will have the methodology. Section four will take care of presentation and discussion of estimated regression results and finally section five will take the conclusions and recommendations.

THEORETICAL FRAMEWORK AND REVIEW OF RELATED EMPIRICAL LITERATURE

Theoretical framework

As noted earlier, the effect of fiscal policies on economic growth in general has been a subject of long debate among policy makers and scholars. This debate has culminated in what has been termed the Great Debates between the Keynesians or the fiscalists and the Monetarists (Anyanwu, 1993). A brief major propositions of these two schools of thought are examined below.

Keynesianism or Fiscalism

Keynesianism is a term used to describe the theories and policies of those economists who claim to have inherited and further developed the ideas of the great English economist, John Maynard Keynes (1993-1946). Keynesianism becomes associated with increased level of government intervention in the economy through fiscal policies to manage aggregate demand in an attempt to achieve optimum policy performances. They see the economy as inherently unstable and needs to be stabilized through active government intervention and/or appropriate fiscal measures. To them, deficit financing and other fiscal measures are important tools to achieve the level of aggregate demand consistent with full employment. According to the Keynesian theory, an increase in government spending and other fiscal measures, cause an upward shift in the aggregate demand curve (Dewett, 2009).

Thus, the basic proposition of the Keynesian theory is that money does not matter in the short-run. Money supply transmission mechanism, they argue, is an indirect process working through the cost of capital channel. Hence, the monetarist transmission channel between money supply and income seems incorrect, rather the reverse channel which runs from change in income level to money supply, appears to be the correct one (Anyanwu, 1993). In summary,

to the Keynesians, money and indeed monetary policy do not matter in stimulating aggregate demand, price and output while they believe that it is fiscal policy that matters.

Monetarism

Monetarism refers to the follower of Prof. Milton Friedman of the Chicago University, U.S.A. and other prominent economists who hold that “only money matters”, and as such monetary policy is a more content instrument than fiscal policy in economic stabilization. They assign a high degree of importance to variations in the quantity of money as the main determinant of economic activities and therefore, economic conditions (Akpapkan, 1999). They see the economy as inherently stable and therefore do not need to be stabilized by government intervention through fiscal policies. The monetarists assign causal role to money and since they see the quantity of money (money supply) as exogenously determined, it is believe to control instability in the system by manipulating the money supply and hence, money matters. To them, fiscal policy is very cumbersome and difficult to implement in a speedy manner. They equally argue that an increase in government spending (especially when financed by debt) increased the interest rate and crowds out private sector investments. Crowding-out effect is a concept that is used to describe a situation whereby an increase in government expenditure leads to a corresponding decrease in the level of investment in private sector. This phenomenon, according to the monetarists, will lower economic growth, create inflationary rise in prices, and aggregate unemployment.

The monetarists therefore, are of the view that using fiscal measures will led to poor economic performance and that monetary policy will be more effective in macroeconomic management and stabilization.

In recent times, the debate between monetarists and the Keynesians has been redirected at the question of changing aggregate demand (i.e. $C+I+G+X-M$) by monetary or fiscal policies while the Keynesians are of the view that only fiscal policy measures can change aggregate demand and thereby, influence income and employment, the monetarists argue that only monetary policy can change the level of income and employment by changing aggregate demand.

Economic growth and fiscal policy

The potential impacts of fiscal policy on long-term growth have also generated substantial debate (Tanzi and Zee, 1996). The emergence of the endogenous growth theory which holds that investment in human capital, innovation and knowledge are significant contributors to economic growth. To them, fiscal policy promotes growth as investments in human and physical capital are affected by taxation and government expenditure.

Economic growth represents the expansion of a country’s GDP or output. For instance, if the social rate of return on investment exceeds the private return, than tax policies that encourage can raise the growth rate and levels of utility. Growth models that incorporate public service, optimal tax policy lingers on the characteristic of services (Olopade and Olopade, 2010). Economic growth has provide insight into why state growth at different rates over time, and this influence government in her choice of tax rates and expenditure levels that will influence the growth rates.

Dar Atui and Amirkhalkhali (2002) carried out a work on the endogenous growth model of fiscal policy and concluded that in the endogenous growth model of fiscal policy

(government expenditure and income) is very crucial in predicting future economic growth. Abuduliah (2000) look at the relationship between government expenditure and economic growth and found that the size of government expenditure is very important in determining the performance of the economy. He further advised that, government should not only support and encourage the private sector to accelerate economic growth, but should also increase its budgetary provision on infrastructure, social and economic activities.

In line with the foregoing arguments between the monetarists and keynesians, this study will examine the impact of fiscal policy in accelerating economic growth in Nigeria, using the following fiscal measure: Government capital expenditure, Government recurrent expenditure and Budget deficits.

Review of Empirical Literature

The impact of fiscal policy on growth has generated large volume of empirical studies with mixed findings using cross sectorial, time series and panel data. Some of these studies are those of Mansouri (2008) who studied the relationship between fiscal policy and economic growth in Egypt, Morocco and Tunisia. The spans of data for each country are 1975-2002, 1970-2002 and 1972 – 2002 respectively. The empirical results showed that 1 percent increase in public spending raised the real GDP by 1.26 percent in Morocco, 1.15 percent in Tunisia and 0.56 percent in Egypt. The results also indicated existence of long-run relationships for all the three countries.

Chowdhury (1986) applied the ordinary least square (OLS) technique on the St. Louis equation to test the impacts of fiscal and monetary policies on economic activities in Bangladesh. The result indicated that fiscal policy actions exert greater influence on economic activities than monetary policy actions. Kaur and Kaur (2008) investigated the effectiveness of monetary and fiscal policies in India. Annual data for the period 1980-2005 were used. The period covered by the study was divided into two sub-periods, namely 1980-1991 for pre-reform period and 1992-2005 for post-reform period. Utilizing the vector autoregressive (VAR) model and Granger causality test, the findings show that fiscal policy was more effective in the pre-form period while monetary policy was more effective in the post-reform period.

In the same vein, Mutuku and Koech (2014) tested the efficacy of fiscal versus monetary policies in influencing economic growth in Kenya. Using (VAR). The results show that fiscal policy has significant positive impact on output growth while the impact of monetary policy is insignificant. Gregonou and Ghosh (2007) on the impact of government expenditure on growth, using panel data and discovered that countries with large-government expenditure in term of budgetary provision tend to experience higher economic growth, but the effect varies from one country to another.

Abdullah (2000) in his paper titled "The relationship between government expenditure and economic growth in Saudi Arabia" discovered that the size of government is an important determinant of the performance of the economy. Therefore, he concluded that government should increase its spending on infrastructure, social and economic activities as well as encourage and support the private sector to accelerate economic growth.

Foster and Henieksen (2001) in their study on growth effects of government expenditure and taxation in rich countries, using different econometric approaches confined that more meaningful results are generated.

In related manner, Liu et al (2008) examined the causal relationship between GDP and public expenditure for U.S data between 1947 and 2002, the result revealed that total government expenditure causes growth of GDP while growth of GDDP does not cause expansion of government expenditure. Thus, they concluded that judging from Causality test, Keynesian hypothesis has more influence compared to Wagner's law. Economic growth also investigated by Ogiogio (1995) showed a long-term effect of government expenditure on economic growth. He equally found out that recurrent expenditure has more influence than capital expenditure.

In Nigeria Audu (2012) examined the causal relationship between fiscal policy measure and economic growth in Nigeria. The fiscal policy measure used was fiscal deficit. Applying cointegration and error correction mechanism on annual time series data for the period 1970 to 2010, he revealed a significant causal relationship between fiscal deficits and economic growth.

Osuala and Jones (2014) investigated the impact of fiscal policy on economic growth in Nigeria. They which applied ADF unit root test, multivariable cointegration test and effort correction modeling on annual time series data from 1986 to 2010). The findings showed that government recurrent and capital expenditures have significant and positive impact on economic growth while non-oil taxes and government total debts have no significant impact on real GDP a proxy for economic growth.

Ekpo (1994) studied the contributions of public expenditure to economic growth in Nigeria over the periods 1960-1992. The findings from the study provided support for fiscal policy – led growth through crowd-in private investment resulting from government expenditure on infrastructure.

Nurudeen and Usman (2010) analyzed the impact of government expenditure on economic growth in Nigeria over the period 1970-2008. The findings revealed that government expenditures on health, transport and communication are growth enhancing. On the other hand, Oyinlola (1993) investigated the impact of budgetary expenditure on the defense sector on economic development of Nigeria and discovered that defense expenditure extent significance positive influence on economic growth. Babalola and Aminu (2011) in their study of fiscal policy and economic growth relationship in Nigeria (1977-2009) using the Engle-Grauga approach to co-integration test, stated that productive expenditure was found to be statistically significant.

In like manners, Appah (2010) in his study of the relationship between fiscal policy and economic growth in Nigeria (1991-2005) using multiple regression analysis, adopting gross domestic product as proxy for economic growth and tax revenue, government debt, government recurrent expenditure, government capital expenditure, government recurrent expenditure budget and government capital expenditure budget as the explanatory variables, he argued that significant relationship exist between fiscal policy variables jointly and economic growth and that the specific variables contributing to the GDP are government recurrent and capital expenditures.

Similarly, Medee and Nendee (2011) in their study on econometric analysis of the impact of fiscal variables on Nigeria's economic growth (1970-2009) using gross domestic product as the dependent variable and federal government expenditure, federal government revenue, inflation rate and capital inflow as the regressors and by adopting arcane method of vector auto-regression and error correction mechanism techniques argued that there exists long run equilibrium relationship between fiscal policy variables and economic growth in Nigeria.

Adeniyi and Bashir (2011) found that government spendings on agriculture, education, defense and internal security services as well as structural adjustment programme are significant factors that influence economic growth in Nigeria.

Usman et al (2011) investigated the effect of federal government expenditure on economic growth in Nigeria by specifying an augmental Solow model in Cobb-Douglas form with public capital as one of the factors. Results of the regression show that in the short-run public spending has no impact on growth. However, cointegration and VEC results show that there is long run relationship between public expenditure and growth.

Model Specification and Estimation Procedure

Model Specification

This paper specifies its model in the following equations thus:

$$RGDP = f(GREX, GCEX, BDF, MS, NORV) \dots \dots \dots . 3.1$$

The OLS form of the equation is expressed as:

$$RGDP = a_0 + a_1GREX + a_2GCEX + a_3BDF + a_4MS + a_5NORV + e_t \dots \dots \dots 3.2$$

The log transformed form of the equation is specified as:

$$\log RGDP = a_0 + a_1 \log GREX + a_2 \log GCEX + a_3 \log BDF + a_4 \log MS + a_5 \log NORV + e_t \dots \dots \dots 3.3$$

$$a_1 > 0, a_2 < 0, a_3 < 0, a_4 > 0, a_5 > 0$$

Where: RGDP = Economic growth

GREX = Government recurrent expenditure

GCEX = Government capital expenditure

BDF = Budget deficit

MS = Money supply

NORV = Non-oil revenue

a_0 = Constant

$a_1 - a_5$ = Coefficient of the variables

e_t = Error term

Estimation Procedure

The paper collected data from secondary sources such as Central Bank of Nigeria (CBN) statistical bulletin. Preliminary tests such as Philips-Perron (PP) unit root test, Johansen cointegration and error correction mechanism were carried out. Also, the ordinary least square (OLS) of multiple regression analysis was used for the model estimation. Other tests carried out are: R^2 , Adjusted R^2 , T-test, F- test and Durbin-Watson (DW) test. An econometric software package known as E-views 8.0 was used to facilitate the processes of estimation.

Estimated Regression Models

The various models that established relationship between fiscal policy and economic growth in Nigeria were estimated as follows:

Table 4.1: Regression Estimates

Variables	Coefficient	T-Statistic	Prob.
C	6.663139	3.212721	0.0032
LOG(GREX)	0.130839	0.333547	0.7411
LOG(GCEX)	-0.088863	-0.315547	0.7546
LOG(BDF)	-0.080707	-0.665536	0.5110
LOG(MS)	0.404268	1.022212	0.3151
LOG(NORV)	-0.137405	-0.359610	0.7217

$R^2 = 0.496113$, Adjusted $R^2 = 0.409236$, F-Statistic = 5.710509, DW-Statistic= 2.283992

Source: E-Views Output, 2017

From the results in table 4.1, R^2 is 0.496113. This means that about 49% of the variation in the dependent variable economic growth (RGDP) is as a result of the variations in the explanatory variables. The remaining 51% may be attributed to the variables that are not included in the model. The F-statistic of 5.710509 indicates that the overall model is statistically significant at 5 percent (%). The result of DW-statistic of 2.283992 shows absence of autocorrelation of the error term. This means that the estimates based on OLS is not spurious. On apriori grounds, government recurrent expenditure (GREX) and money supply (MS) showed positive relationship with economic growth which is in conformity to economic theory. On the other hand, government capital expenditure (GCEX), budget deficit (BDF) and non-oil revenue (NORV) indicated negative relationship with economic growth and did not conform to theoretical expectations. The result shows that all the variables are not statistically significant.

Unit Root Analysis

The results of the PP unit root test are presented and discussed in table 4.1 as follows:

Table 4.2: Results of PP Unit Root Test

Variables	PP Statistic	1% Critical Value	5% Critical Value	Order of Integration
D(RGDP)	-5.839075	-3.639407	-2.951125	I(0)
D(GREX)	-7.605156	-3.646342	-2.954021	I(1)
D(GCEX)	-7.711413	-3.646342	-2.954021	I(1)
D(BDF)	-5.522930	-3.646342	-2.954021	I(1)
D(MS)	-6.637698	-3.653730	-2.957110	I(2)
D(NORV)	-5.542624	-3.646342	-2.954021	I(1)

Source: E-views Output, 2017

From the results in table 4.2, real gross domestic product (RGDP) is integrated of order zero I(0) at 1% level of significance. Government recurrent expenditure (GREX), government capital expenditure(GCEX) and budget deficit finance (BDF) and non-oil revenue are integrated of order one I(1) at 1% level of significance. Money supply is integrated of order two I(2). This means that the time series data collected on the variables are stationary.

Cointegration Test

In order to ascertain whether a longrun equilibrium relationship exist between the dependent and explanatory variables, Johansen cointegration test was carried out. The result is in table 4.3.

Table 4.3: Johansen Cointegration Test

Hypothesized No. of CE(s)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob.	Max- Eigen Statistic	0.05 Critical Value	Prob.
None*	0.931385	249.3754	95.75366	0.0000	88.41507	40.07757	0.0000
At Most 1*	0.863865	160.9604	69.81889	0.0000	65.80558	33.87687	0.0000
At Most 2*	0.839555	95.15479	47.85613	0.0000	60.38348	27.58434	0.0000
At Most 3*	0.511985	34.77131	29.79707	0.0123	23.67448	21.13162	0.0214
At Most 4	0.284537	11.09683	15.49471	0.2056	11.04922	14.26460	0.1518
At Most 5	0.001442	0.047611	3.841466	0.8272	0.047611	3.841466	0.8272

Source: E-views output, 2017

From the result in table 4.3, trace and max-eigen statistics indicate 4cointegrating equations. This shows that a longrun equilibrium relationship exist between the dependent and explanatory variables.

Estimation of Error Correction Model (ECM)

In order to adjust for the short-run dynamics, this study conducted parsimonious error correction mechanism (ECM). The result is presented in table 4.4.

Table 4.4: Parsimonious Error correction mechanism

Variables	Coefficient	T-statistic	Prob.
C	-25.72137	-0.000756	0.9994
D(GREX)	104.2611	1.038119	0.3084
D(GCEX)	-106.4092	-0.548254	0.5880
D(BDF)	-179.3941	-1.140237	0.2642
D(MS)	0.014585	0.467967	0.6436
D(NORV)	-0.135279	-1.143294	0.2630
ECM(-1)	-0.156954	-6.050503	0.0000

$R^2 = 0.597661$, Adjusted $R^2 = 0.508252$, F-statistic =6.684594, DW-statistic =1.845787

Source: E-views Computation, 2017

The result of the parsimonious error correction mechanism for education index showed that R^2 is 0.597661. This means that about 59% of the variation in economic growth is caused by the changes in explanatory variables. The remaining 41% may be due to the variables that are not included in the model. The F- statistic of 6.684594 indicates that the overall model is statistically significant. Onapriori grounds, government recurrent expenditure (GREX) and money supply (MS) showed positive relationship with economic growth which is in conformity to economic theory. On the other hand, government capital expenditure (GCEX), budget deficit (BDF) and non-oil revenue (NORV) indicated negative relationship with economic growth and did not conform to theoretical expectations. The result shows that all the variables are not

statistically significant. The ECM co-efficient of -0.156954 indicates 15% speed of adjustment to the short-run dynamics.

Granger Causality Test

In order to determine the direction of relationship between the dependent variable and the explanatory variables, the granger causality test was conducted. The results of pair wise granger causality test is presented in table 4.5.

Table 4.5: The Result of pair wise Granger Causality Test

Null Hypothesis	Obs	F-Statistic	Probability	Decision
GREX does not Granger cause RGDP	33	0.25375	0.7776	Accept H ₀
RGDP does not Granger cause GREX		1.43416	0.2553	Accept H ₀
GCEX does not Granger cause RGDP	33	1.75083	0.1921	Accept H ₀
RGDP does not Granger cause GCEX		2.73703	0.0821	Accept H ₀
BDF does not Granger cause RGDP	33	0.16075	0.8523	Accept H ₀
RGDP does not Granger cause BDF		0.81675	0.4521	Accept H ₀
MS does not Granger cause RGDP	33	0.92115	0.4098	Accept H ₀
RGDP does not Granger cause MS		1.28922	0.2913	Accept H ₀
NORV does not Granger cause RGDP	33	1.29927	0.2887	Accept H ₀
RGDP does not Granger cause NORV		1.39304	0.2650	Accept H ₀

Source: E-Views Computation, 2017

The result of the pair wise granger causality test in Table 4.5 indicate that there is independent causation between the dependent variable and the explanatory variables.

Conclusion and Recommendations

One of the objectives of government fiscal policy is to achieve rapid and sustained increase in economic growth. This paper examined the impact of fiscal policy on economic growth in Nigeria. The analysis carried out revealed that government recurrent expenditure (GREX) and money supply (MS) showed positive relationship with economic growth. On the other hand, government capital expenditure (GCEX), budget deficit (BDF) and non-oil revenue (NORV) indicated negative relationship with economic growth. The result shows that all the variables are not statistically significant in Nigeria.

It is on this premise that this paper recommends that the government should step up its spending and create an enabling macroeconomic environment that will increase and sustain economic growth in Nigeria.

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