

THE IMPACT OF FISCAL POLICY ON NIGERIA'S ECONOMIC GROWTH

(1970 – 2013)

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Abstract.

The research is aimed at evaluating the relationship between fiscal policy and economic growth in Nigeria. The research employed the co-integration error correction mechanism (ECM). . The result revealed that there exist a long-run equilibrium relationship between economic growth and fiscal policy variables in Nigeria. However, the outcome of our analysis shows that the effects of fiscal variables on economic growth are positive but statistically insignificant. An increase in government expenditure and fiscal deficit as well as tax revenue will lead to an enhancement in economic stability. The study recommended that government should endeavor to formulate and implement viable fiscal policy mix as well as diversifying the nation's economic base. This could be achieved through the practice of true fiscal federalism and consistent macroeconomic policies implementation in the non-oil sectors of the economy by providing conducive environment for investors in the agricultural and manufacturing sectors in Nigeria

Keywords: Fiscal policy and Economic growth

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1. Introduction

Fiscal policy is the means by which government are concerned with the raising of revenue through taxation and other means and deciding on the level pattern of expenditure for the purpose of influencing economic activities (Anyanwu 1993). It is used simultaneously with monetary policy which the central bank uses to influence money supply in a nation. The aim of these policies are to achieve macroeconomic goals in a nation, which include full employment, price stability, reduction of poverty levels, high and sustainable economic growth, favorable balance of payment and reduction in a nation's debt.

Despite the lofty place of fiscal policies in the management of the economy, the Nigeria economy has continually witness several challenges over the years.

Researchers have identified some of these challenges as sited in (Ogbole, Amadi and Essi 2011) as: gross management/ misappropriation of public funds (Okemini and Uranta 2008); corruption and ineffective economic policies (Gbosi, 2007); lack of integration of macroeconomic plans and absence of harmonization and coordination of fiscal policies (Onoh, 2007); inappropriate and ineffective policies (Anyanwu, 2007); imprudent public spending and weak sectoral linkages and other socio-economic maladies constitute the bane of rapid economic growth and development (Amadi et al, 2006). Ogbole et al (2011) added inability to efficiently manage her enormous human and material endowment. Despite these challenges successive governments have done enough to put the nation's resources to effective productive use as to bring growth and development to the nation.

The question is what kind of fiscal policy rules will excel in reducing unemployment, debt accumulation as well as improving economic growth and price stability in Nigeria? the solutions to these question are the concern of this work for proper economic management in Nigeria, the main aim of this paper is to empirically investigate the impact of fiscal policy on Nigerian's economic growth between 1970 and 2013.

2 Theoretical and Empirical Literature

Different researchers have written in various aspects of fiscal policy especially as it relates and affects the macroeconomics of the economy. Reem (2009) defined fiscal policy as the means by which a government adjusts its level of spending in order to monitor and influence a nation's economy. According to Reem (2009), fiscal policy is based on the theories of a British economist John Maynard Keynes whose theory basically states that governments can influence macroeconomic productivity levels by increasing or decreasing tax levels and public spending. This influence in turn, curbs inflation, increase employment

and maintains a healthy value of money. Various researchers have written on different aspects of fiscal policy especially as it relates to macroeconomic productivity level.

The studies of the effects of public expenditure on the economy that has showed a positive relationship Barro (1991); Ram (1996); Komain et al (2007); Easterly and Rebelo (1993); Otani and Villanvera (1990); Coorey (2009), Nworji et al (2012); Ndari et al (2012); Mohsen et al (2014), while others like Laudua (1986), Abu-bader and Abu- Qarn (2003) found negative relationship.

Agu et al (2014) wrote on fiscal policy and economic growth in Nigeria. their major aim was to determine the extent to which Nigeria fiscal policy has impacted on the economy of Nigeria with emphasis on the impact of various component of public expenditure on the economy. Their result showed a positive correlation between government expenditure on economic services and economic growth.

In the same token, Medee and Nenbee (2011) investigated the impact of fiscal policy variables on Nigerian economic growth using annual data from 1970 – 2009. The vector Auto Regression (VAR) and error correction mechanism were employed to analyze the data. The result revealed that there exist a long-run equilibrium relationship between economic growth and fiscal variables in Nigeria.

Nathan (2012) wrote on the impact of fiscal policy on the Nigeria economy, using annual data from 1970 – 2010. He employed the co-integration error correction mechanism (ECM). The result showed that there is a significant causal relationship between gross domestic products (GDP) and variables used in the research.

Ogbole, Amadi and Essi (2011) wrote on fiscal policy: its impact on economic growth in Nigeria between 1970 – 2006. The study involves comparative analysis the impact of fiscal policy on economic growth in Nigeria during regulation and deregulation period. Econometric analysis of time series data from central Bank of Nigeria was conducted. Results showed that there is a difference in the effectiveness of fiscal policy in stimulating economic growth during and after regulation period. They recommended appropriate policy mix, prudent public spending, setting of achievable fiscal policy targets and diversification of the nation economic base among others.

In the same vein, Adefeso and Mobalaji (2010) wrote on the fiscal- monetary policy and economic growth in Nigeria. their major objective was to re-examine the relative effectiveness of fiscal and monetary policies on economic growth in Nigeria using annual data from 1970 -2007. The error correction mechanism and co-integration technique were adopted to analyze the data. There result showed that the effect of monetary policy is much

more stronger than fiscal policy. They suggested that there should be more emphasis and reliance on monetary policy for the purpose of economic stabilization in Nigeria.

Olawunmi and Ayinka (2007) examined the contribution of fiscal policy in the achievement of sustainable economic growth in Nigeria using the Slow growth model estimated with the use of ordinary least square method. It was found that fiscal policy has been effective in the area of promoting sustainable economic growth in Nigeria. they however, stated that factor such as wasteful spending, poor policy implementation and lack of feedback mechanism for

implemented policy evident in Nigeria which are indeed capable of hampering the effectiveness of fiscal policy have made it impossible to come up with such conclusion.

Mueller (2011) investigated economic political and institutional constraints to fiscal implementation in sub-Sahara Africa. It was found that planned fiscal adjustment or expansions are less likely to be implemented. The larger they are, the more inaccurate the growth forecast they are based on.

Adeoye (2011) examined the impact of fiscal policy on economic growth in Nigeria in 1970 – 2002. The finding shows that public investment negatively affects output growth implying that public expenditure has a crowding out effect on private investment.

3 Methodology

This paper uses the co-integration and error correction methods to analyze the relationship between fiscal policy and economic growth. An econometric model was used to test the long run relationship between fiscal policy and economic growth. We used government expenditure, fiscal deficit and tax revenue to measure fiscal policy while the gross domestic product (GDP) was used as index of economic growth. We use annual time series from 1970 to 2013. The sources of data are from the national bureau for statistics (NBS) and CBN statistical bulletin. Therefore, after estimating the multiple regression models, the paper shall test for the stationary, cointegration and causality so as to know the long run reliability of the model. The paper adopted a model used by (Medee and Nenbee (2011) who did a similar work. Thus, this paper specifies the following multiple regression equation.

$$GDP = f(GEX \text{ FCD } TRE)$$

GDP_t = Gross domestic product (Economic growth)

GEX_t = Government expenditure

FCD_t = Fiscal deficit

TRE_t = Tax revenue.

Expressing the relationship in linear form using the variables in natural log in order to minimize the scale effect of number, we arrive at the following estimating equation.

$$\log\text{GDP}_t = X_0 + X_1\log\text{GEX}_t + X_2\log\text{FCD}_t + X_3\log\text{TRE}_t + U_t$$

4 Empirical Result.

We begin our empirical analysis by showing the degree of association between fiscal policy variables (as measured by real government expenditure (GEX), real fiscal deficit (FCD) and real tax revenue (TRE) and economic growth through the multiple regression analysis. Table one depicts the result of the OLS and it shows that statistically significant positive relation exist between economic growths (GDP) government expenditure, fiscal deficit as well as tax revenue. This means that the more the government raise her tax revenue, expenditure and increase her foreign and domestic debt, the higher would be the level of economic growth in the country, although that of government expenditure is statistically insignificant.

Table 1: Multiple Regression Result.

Variables	Coefficient	Prob.	R2 = 0.8499
C	6.2743	0.0000	Adj R2 = 0.8386
LOG(TRE)	0.0273	0.0249	F-Stat =75.51534
LOG(FCD)	0.4037	0.0000	Prob.(F-Stat = 0.0000
LOG(GEX)	0.0420	0.7257	D. Watson = 0.3318

From the above table, the degree of responsiveness of economic growth to tax revenue, fiscal deficit as well as government expenditure is 0.0273, 0.4037 and 0.0420 respectively. This is such that for every 1 percent increase in tax revenue, fiscal deficit as well as government expenditure there will be about 0.03 percent, 0.40 percent and 0.04 percent increase in economic growth respectively.

The coefficient of determination (R2) indicates that about 84 percent of changes in the level of economic growth in the country are explained by the level of fiscal policies. The joint significance of the model, F- statistic, which is 75.51534, shows that the model is statistically significant and can real explain the reason for the changes in the level of economic growth in Nigeria.

Given this results, it is necessary to test its reliability, this is, whether it is not a spurious regression. This we have done through the Augmented Dickey-Fuller (ADF) stationarity test.

Table 2: ADF Test

Variable	t. stat	Prob.	Integration order
GDP	-2.933	0.0001	1(1)
TRE	-2.943	0.0000	1(1)
FCD	-2.933	0.0010	1(1)
GEX	-2.951	0.0210	1(1)

Table 2 above shows that all the time series that were used in this study are stationary at their first difference that is they are integrated of order one, i.e, 1(1) variable. Thus given the fact that all the variables are 1(1) variables, we need to know whether using them together in the model would yield reliable result through the cointegration test.

Table 3 below shows the result of the Johansen cointegration test. It shows that the value of trace statistic is more is equal or more than the critical value at 5% in two of the four null hypotheses, which indicate two cointegrating vectors. Since the variables are cointegration, then, there would be no loss of information, implying that there exist a long run relationship between fiscal policy and economic growth.

Table 3: Johansen's Cointegration Test

Hypothesis	Trace Test Statistic			
	Eigne value	Statistic	Critical value 5%	Prob.
None	0.5007	58.834	47.856	0.0034
At most 1	0.3959	29.668	29.597	0.0517
At most 2	0.1733	8.495	15.495	0.4141
At most 3	0.0118	0.500	3.844	0.4795

Table 4 below shows the parsimonious result, which shows that the short run changes in LogGEX, LogTRE and LogFCD have statistically insignificant positive effect on economic growth as measure by LogGDP. Thus the coefficient of ECM(-1) that is the degree of adjustment shows that about 20 percent of the differences between the actual and the long run, or the equilibrium value of economic is eliminated or adjusted each period. Thus, the speed of adjustment from the short run disequilibrium to equilibrium in the present period is 20 percent and it is statistically significant, which justify the use of the error correction model in the study.

Table 4: Parsimonious ECM

Variable	Coefficient	T.statistics	Prob. At 5%
C	0.06206	0.8156	0.4201
D(LOG(FCD(-1)))	0.0380	0.1883	0.8517
D(LOG(TRE(-1)))	0.0077	0.1812	0.8572
D(LOG(GEX(-2)))	0.2382	1.6942	0.0988
ECM(-1)	-0.1998	0.2427	0.0417

Furthermore, it is appropriate to know the direction of causality between fiscal policy and economic growth. The Granger causality test result shed light on this, by using the lag specification as obtained from the EVIEWS.

Table 5: Pairwise Granger Causality Test

Null Hypothesis	obs	F. statistic	Prob. 5%	Decision	Direction
TRE does not Granger cause GDP	42	0.13965	0.8701	Accept	No Causality
GDP does not Granger Cause TRE		3.46592	0.0417	Reject	Causality
FCD does not Granger Cause GDP	42	1.56438	0.2227	Accept	No Causality
GDP does not Granger Cause FCD		3.27074	0.0492	Reject	Causality
GEX does not Granger Cause GDP	42	0.18041	0.8357	Accept	No Causality
GDP does not Granger Cause GEX		3.03455	0.0502	Reject	Causality
FCD does not Granger Cause TRE	42	4.66450	0.0156	Reject	Causality
TRE does not Granger Cause FCD		2.51478	0.0946	Accept	No Causality
GEX does not Granger Cause TRE	42	10.6568	0.0002	Reject	Causality
TRE does not Granger Cause GEX		43.2437	2.E-10	Accept	No Causality
GEX does not Granger Cause FCD	42	2.57348	0.0899	Accept	No Causality
FCD does not Granger Cause GEX		0.42992	0.6538	Accept	No Causality

In table 5 above, the result shows that for the Granger Causality between TRE and GDP, the causality run from GDP to TRE, that is tax revenue does not Granger cause economic growth, but it is economic growth that Granger cause tax revenue. The second hypothesis test shows that fiscal deficit does not Granger cause economic growth (GDP), while economic does Granger cause fiscal deficit. This means that there is a unidirectional causality from GDP to FCD. The Granger causality between GEX and GDP indicates that there is bidirectional causality from GEX to GDP. This means that both GEX and GDP Granger cause each other. While for the causality between GEX and FCD, We found that is independent causality among them. This indicates that as government expenditure (GEX) does not Granger cause fiscal deficit (FCD) so also fiscal deficit does not Granger cause government expenditure.

5: conclusion and policy implications

This paper examined the effect of fiscal policy on the level of economic growth in Nigeria. Econometric techniques have been applied in other to determine this relationship. The literature shows that different arguments have been put forward on the impact of fiscal policy on the level of economic growth. Some believe that the relationship is positive while others argued that it is negative. There are also inconclusive findings in some studies.

Based on the econometric analysis used in this study, we found that fiscal policy been effective in the level of economic growth in Nigeria. The result reveal there exist a long-run equilibrium relationship between economic growth and fiscal policy variables in Nigeria. However, the outcome of our analysis shows that the effects of fiscal variables on economic growth are insignificant. Hence there is some evidence of positive relationship between economic growth and fiscal variables. An increase in government expenditure and fiscal deficit as well as tax revenue will lead to an enhancement in economic stability. The study recommended that government should endeavor to formulate and implement viable fiscal policy mix as well as diversifying the nation's economic base. This could be achieved through the practice of true fiscal federalism and consistent macroeconomic policies implementation in the non-oil sectors of the economy by providing conducive environment for investor in the agricultural and manufacturing sectors in Nigeria.

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Appendix

Year	FCD	GDP	TRE	GEX
1970	1266	4219	634	187.8
1971	1405.5	4715.5	1169	173.6
1972	1252.9	4892.8	1405	451.3
1973	1334.1	5310	1695	565.7
1974	1584.8	15919.7	4537	1223.5
1975	2025.4	27172	5515	3207.7
1976	3001.5	29146.5	6766	4041.3
1977	3771.8	31520.3	8042	5004.6
1978	6065.8	29212.4	7371	5200
1979	8825.5	29948	10912.4	4219.5
1980	10082.4	31546.8	15233.5	10163.3
1981	13523.8	205222.1	13290.5	6567
1982	23827	199685.3	11433.7	6417.2
1983	32799.1	185598.1	10508.7	4885.7
1984	40480.8	183563	11253.3	4100.1
1985	45249.7	201036.3	15050.4	5464.7
1986	69891.1	205971.4	12595.8	8526.8
1987	137578.2	204806.5	25380.6	6372.5
1988	180985.9	219875.6	27596.7	8340.1
1989	287443.3	236729.6	53870.4	15034.1
1990	382707.5	267550	98102.4	24048.6
1991	444652	265379.1	100991.6	28340.9
1992	722225.8	271365.5	190453.2	39763.3
1993	906980.8	274833.3	192769.4	54501.8
1994	1056396	275450.6	201910.8	70918.3
1995	1194600	281407.4	459987.3	121138.3
1996	1037296	293745.4	523597	212926.3
1997	1097683	302022.5	582811.1	269651.7
1998	1193847	310890.1	463608.8	309015.6
1999	3372181	312183.5	949187.9	498027.6
2000	3995638	329178.7	190600.2	239450.9
2001	4193265	356994.3	2231.6	438696.5
2002	5098886	433203.6	1521066.7	321378.1
2003	5735449	477533	1681909.8	241688.3

2004	6188035	527576	1842752.9	351300
2005	3970149	561931.4	5547000.5	519500
2006	2533469	595821.6	5965000.1	552385.8
2007	3369872	634251.1	5715000.6	759323
2008	2813490.2	674889	7866590.1	1123456
2009	3818471.1	716949.7	4057499.2	1325019
2010	5241657.5	776332.2	7303671.55	4194577
2011	6519649.6	834000.8	11116900	4712062
2012	7564440.2	888893	10654724.87	4605320
2013	8135653.3	926541	11527654	4986543

SOURCE: cbn statistical bulletin.

