

Impact of Fiscal Policy on the Economic Growth in Nigeria: An Empirical Analysis

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Abstract

The study investigated the impact of fiscal policy on the economic growth in Nigeria, Annual time series data were obtained from the Central Bank of Nigeria Statistical Bulletin for the period 1981 to 2018 on the variables used for the study. Unit root test was conducted using Augmented Dickey-Fuller test technique and the result showed that the variables were stationary though at different levels. Co-integration test was also conducted using Johanssen co-integration test method and the result showed that the variables in the model were co-integrated implying that the variables have a long run relationship. The vector error correction estimate of short run relationship showed that domestic debt, external debt and non-oil revenue have a positive and significant impact on economic growth while recurrent expenditure and capital expenditure have a negative and significant impact on economic growth. The vector error correction estimate of long run relationship revealed that domestic debt and external debt have a negative and insignificant impact on while recurrent expenditure has a negative and significant impact on economic growth. The result showed that capital expenditure has a negative and insignificant impact on economic growth while non-oil revenue has a positive and significant impact on economic growth. The R-squared value showed that about 80.7 percent of the total variations in the dependent variable were explained by changes in the explanatory variables. The error correction result revealed that the speed of adjustment to long run equilibrium is 23.7 percent when any past deviation must be corrected in the present period. Based on the findings, it was recommended that government should ensure greater percentage of its spending goes to the capital expenditure while smaller percentage goes to the recurrent expenditure as this will help to prove adequate infrastructure that will help in stimulating economic growth. Government should also ensure that there is full and honest implementation of the annual budget. Government should equally ensure that ensure that public debts are strictly used for the purpose for which they are meant for.

Keywords: Government expenditure, Government revenue, Government borrowing, Economic growth

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1.1 Introduction

Fiscal policy is a powerful instrument of economic stabilization. It is the use by the government of its revenue collection (taxation), expenditure (spending) and public borrowing to influence economic activity (Dimoju, Atorudibo and Onwuneme (2013).. Okafor and Obasi (2011) defined fiscal policy as government policy measure aimed at achieving her macroeconomic objectives through its receipts and expenditure over a period usually a year. According to Njoku (2009), fiscal policy refers to government actions as they affect government revenue receipts and expenditures, including borrowings of the government. Anyanwu and Oaikhenan (1995) see fiscal policy as that part of government policy concerning the raising of revenue through taxation and other means and deciding on the level and pattern of expenditure for the purpose of influencing economic activities or attaining some desirable macroeconomic goals. According to Okafor and Obasi (2011), there are two types of fiscal policy. They are expansionary fiscal policy and contractionary fiscal policy. Njoku (2009) is of the opinion that the objectives of fiscal policy include: economic growth and development, healthy balance of payments, removing inequality in income distribution, protecting of infant industries, stabilization of the economy, increasing employment opportunities, stable exchange rate and increasing capital formation and investment while Jhingan (2016) argued that the objectives of fiscal policy include: to maintain and achieve full employment, to stabilize the price level, to stabilize the growth rate of the economy, to maintain equilibrium in the balance of payments and to promote the economic development of underdeveloped countries Blanchard (2009) sees defined fiscal policy as the choice of taxes and spending by the government.

1.2 Statement of problem

Different types of fiscal policies have been adopted and applied in Nigeria. Sometimes contractionary fiscal policy has been adopted and at other time expansionary fiscal policy has been adopted. There have been changes in government revenue as a result of changes in tax rates and government borrowing. Moreover, there have also been increases in government expenditure over the years. One of the major reasons for the variations in these fiscal policy variables is to stimulate economic growth but regrettably, a high rapid and sustainable growth has not been achieved in Nigeria despite the various types of fiscal policies that have been adopted and applied in Nigeria. The study therefore investigated the impact of fiscal policy on the economic growth in Nigeria.

1.3 Objectives of the study

The broad objective of the study was to investigate the impact of fiscal policy on the economic growth in Nigeria. The specific objectives of the study were:

- (i) To examine the impact of government domestic debt on the economic growth in Nigeria
- (ii) To investigate the impact of government external debt on the economic growth in Nigeria
- (iii) To examine the impact of government recurrent expenditure on economic growth in Nigeria
- (iv) To investigate the impact of government capital expenditure on the economic growth in Nigeria
- (v) To examine the impact of non-oil revenue on the economic growth in Nigeria.

1.4 Hypothesis of the study:

In order to guide the study, the following null hypotheses were formulated:

HO₁: Government domestic debt does not have any impact on the economic growth in Nigeria.

HO₂: Government external debt does not have any impact on the economic growth in Nigeria.

HO₃: Government recurrent expenditure does not have any impact the on economic growth in Nigeria

HO₄: Government capital expenditure does not have any impact on the economic growth in Nigeria.

HO₅: Non-oil revenue does not have any impact on the economic growth in Nigeria.

2.0 LITERATURE REVIEW

2.1 Theoretical literature

2.1.1: The Keynesian theory: In 1936, the world was suffering through the Great Depression: Unprecedentedly high rates of unemployment have afflicted most of the world's economies for years, and the invisible hand of free markets seemed completely ineffective. From the view point of 1936, the classical theory appeared to be seriously inconsistent with the data, creating a need for a new macroeconomic theory. Keynes provided this theory. Keynes offered an explanation for persistently high unemployment. He based his explanation on assumption about wage and price adjustment that was fundamentally different from classical assumption. Instead of assuming that wages and prices adjust rapidly to achieve equilibrium in each market, as in the classical tradition, Keynes assumed that wages and prices adjust slowly. Slow wage and price adjustment meant that markets could be out of equilibrium – with quantities demanded not equal to quantities supplied – for long periods of time. In the Keynesian theory, unemployment can persist because wages and prices do not adjust quickly enough to equalize the number of people firms want to employ with the number of people who want to work. Keynes's proposed solution to high unemployment was to have the government increase its purchases of goods and services, thus raising the demand for output. Keynes argued that this policy will reduce unemployment because, to meet the higher demands for their products, businesses would have to employ more workers.. in addition, Keynes suggested, the newly hired workers should have more income to spend, creating another source of demand for output that would raise employment further. More generally, in contrast to classical, Keynesians tend to be skeptical about the invisible hand and thus are more willing to advocate a role for government in purchasing macroeconomic performance (Abel and Bernanke, 2005).

2.1.2: The Endogenous growth theory: This theory was developed as a reaction to omissions and deficiencies in the Solow-Swan neoclassical growth model. It is a new theory which explains the long-run growth rate of an economy on the basis of endogenous factors as against exogenous factors of the neoclassical growth theory. The endogenous growth models emphasize technical progress resulting from the rate of investment, the size of the capital stock and the stock of human capital. The new growth theories are based in the following assumptions: (i) there are many firms in the market (ii) knowledge or technological advance is non-rival good (iii) there are increasing returns to scale to all factors taken together and constant returns to a single factor, at least for one (iv) technological advance comes from things people do. This means that technological advance is based on the creation of new idea (v) many individuals and firms have market power and earn profits from their discoveries. This assumption arises from increasing returns to scale in production that leads to imperfect competition (Jhingan, 2016).

2.2 Conceptual literature

The concept of fiscal policy refers to that part of government policy which is concerned with the raising of revenue through taxation and other means and deciding on the level and pattern of expenditure for the purpose of influencing economic activities. That is, it deals with taxation, other revenues, public borrowing and public expenditure aimed at influencing economic activities or the realization of certain desirable national goals (Chinweoke, 2014). 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 for the purpose of influencing economic activities or attaining some desirable macroeconomic goals. Such fiscal policy can be used for allocation, stabilization and distribution (Anyanwu and Oaikhenan, 1995). Likita (1999) defined fiscal policy as the aggregate effect of government expenditure and taxation on income, production, employment and other economic activities.

Mishikin (2007) sees fiscal policy as decisions about government spending and taxation. Likita (1999) also argued that a good fiscal policy is that all necessary ingredients like expenditure, loans transfers, tax revenue, income from property, debt management are kept in balance to attain the desired economic objectives. According to Njoku (2009) fiscal policy refers to changes in taxes, expenditures and borrowings which aim at short-run stability. Dimoji, Atorudibo and Onwuneme (2013) see fiscal policy as the use by the government of its revenue collection (taxation), expenditure (spending) and public borrowing to influence economic activity. Jhingan (2005) sees fiscal policy as the government actions affecting its receipts and expenditures which we ordinarily take as measured by the government's net receipts, its surplus or deficit. Bhatia (2009) defined fiscal policy as that policy which concerns itself with aggregate effects government expenditures and taxation on income, production and employment. According to Anyanwu (2003) fiscal policy is concerned with the manipulation of financial operations of the government with a view to furthering certain economic policy objectives.

Fiscal policy is basically of two types. They are: expansionary and contractionary fiscal policy.

(a) Expansionary fiscal policy. This involves government spending exceeding tax revenue and is usually undertaken during periods of economic recession. In other words, the government operates a budget deficit, allowing more money to be injected into the economy to stimulate economic activities.

(b) Contractionary fiscal policy. This occurs when government expenditure is lower than the revenue otherwise referred as the budget surplus. It is usually undertaken by the government to reduce the money in circulation thereby discouraging economic activities and controlling inflation (Dimoji, Atorudibo and Onwuneme, 2013). According to Likita (1999), fiscal policy can be expansionary or contractionary; during periods of unemployment expansionary fiscal policy is usually adopted. Government would increase its expenditure (through issuing of new bonds, printing money) and reduction in tax rates, so as to increase the purchasing power of consumers thereby increasing aggregate demand. During periods of inflation, government often resorts to contractionary fiscal policy, like reduction in government expenditure (sale of existing bonds, decrease in money supply) to attain budget surplus increase in tax rates so as to reduce the disposable income of consumers which will reduce aggregate demand.

The instruments of fiscal policy according to Jhingan (2016) include: (a) compensatory fiscal policy which aims at continuously compensating the economy against chronic tendencies toward inflation and deflation by manipulating public expenditure and taxes. It, therefore, necessitates the adoption of fiscal measures over the long run rather than once-for-all at a point of time. When there are deflationary tendencies in the economy, the government should increase its expenditure through deficit budgeting and reduction in taxes. This is essential to compensate for the lack in private investment and to raise effective demand, employment, output and income within the economy. On the other hand, when there are inflationary tendencies, the government should reduce its expenditure by having a surplus budget and raising taxes in order to stabilise the economy at the full employment level. The compensatory fiscal policy has two approaches which include built-in-stabilisers which involves the automatic adjustment of expenditure and taxes in relation to cyclical upswings and downswings within the economy without deliberate action on the part of the economy and discretionary fiscal policy which requires deliberate change in the budget by such actions as changing tax rates or government expenditure or both. It may take three forms: (i) changing taxes with government expenditure constant, (ii) changing government expenditure with taxes constant, (iii) variations in both expenditure and taxes simultaneously. (b) Budgetary policies as budgets are the principal instrument of fiscal policy. Budgetary policies exercise control over the size and relationship of government receipts and expenditures. The common budgetary policies include: (i) Budget deficit. Deficit budgeting is an important method of overcoming depression. When government expenditures exceeds receipts, larger amount are put into the stream of national income than they are withdrawn. The deficit represents the net expenditure of the government which increases national income by the multiplier times the increase in net expenditure. (ii) Surplus budget. This occurs when the government revenues exceed expenditures. The policy of surplus budget is followed to control inflationary pressures within the economy. It may be through increase in taxation or reduction in government expenditure or both. This will tend to reduce income and aggregate demand by the multiplier times the reduction in government or/ and private consumption expenditures (as a result of increased taxes). (iii) Balanced budget. In this policy, the increase in taxes and in government expenditure is of an equal amount. This has the impact of increasing net national income. This is because the reduction in consumption resulting from the tax is not equal to the government expenditure.

Njoku (2009) was of the opinion that the objectives of fiscal policy include economic growth and development, healthy balance of payment, removing inequality in income distribution, protecting domestic industries, stabilization of the economy, increasing employment opportunities, stable exchange rate and increasing capital formation and investment. Anyanwu(2002) has argued that the objectives of fiscal policy include price stability, external equilibrium, economic development and growth and income distribution. According to Dimoji, Atorudibo and Onwuneme (2013) the objectives of fiscal policy in a developing country include: increasing the rate of investment, encouraging socially optimal investment, increasing the level of employment by directing government expenditure towards provision of social and economic overheads, promoting economic stability in the

face of external and internal forces, ensuring equal distribution of national income, mobilizing resources for the government and ensure proper resource allocation in the economy, prevention of inflation and achieving of price stability, increasing the rate of capital formation and the development of resources for the private sector including protection of infant industries from unhealthy foreign competition. Jhingan (2016) argued that the objectives of fiscal policy include: maintaining and achieving full employment, stabilizing the price level, stabilizing the growth rate of the economy, maintain equilibrium in the balance of payments and to promoting the economic development of underdeveloped countries. Anyanwu and Oaikhenan (1995) were of the opinion that the objectives of fiscal policy in Nigeria include:

- (i) generation of significant additional revenues,
- (ii) diversification of revenue sources away from the crude oil-based revenues,
- (iii) reduction in the tax burden on individuals and corporate bodies,
- (iv) maintenance of economic equilibrium particularly to contain inflationary pressures, accelerate economic growth reduce balance of payment deficits and generate increased employment
- (v) Guaranteeing effective protection of domestic industries
- (vi) Promotion of self-reliant development
- (vii) Substantial progressive reduction and elimination of government budget deficits
- (viii) Cost recovering by social services and public enterprises, including the streamlining of the process of deregulation
- (ix) Integration of the informal sector of the economy into the economic mainstream
- (x) Improving the effective control of efficiency in government fiscal operations, and hence promote transparency and accountability in the management of public finances
- (xi) Fighting the twin issues of low productivity in agriculture and low capacity utilization in manufacturing
- (xii) Reduction in heavy burden of both internal and external debt
- (xiii) Correction of the distorted patterns of both domestic consumption and production
- (xiv) Administration of existing inequalities in wealth, income and consumption standards which tend to undermine production efficiency.

Likita (2009) noted that some factors act as a limitation to the operations of fiscal policy. Fiscal policy may experience some lags. Lagged responses here refer to the time it takes to work through the economy. In the demand management process, short-run changes in policy do not affect other economic variables immediately. Instead, there are time lags, some of which may be long and difficult to predict. Two types of lag are common: (a) the inside lag: it is a time period between the occurrence of a shock to the economy and the ability of the government to recognize the appropriate policy response to counter the effect. There is a lag in recognizing the problem, formulating and implementing appropriate policy. (b) Outside lag also limits the effectiveness of fiscal policy. It is the time it takes to get approval of a policy formulated and its implementation. During civilian administration, for government to implement any policy, it must be debated at the House of Representatives and the Senate, and this takes a long time. (c) Tax evasion and avoidance: Fiscal policy may not be effective when people avoid paying tax to the government. In Nigeria, the issue of tax evasion has been a problem to the government for a very long time. (d) Political instability may not allow the effective working of fiscal policy because of inconsistencies that will be associated with economic priorities of different administrations. (e) Weak economic structure: there is no strong interdependence among the different sectors of the economy coupled with the undeveloped nature of the financial market, both act as a limitation to the effectiveness of fiscal policy. Government inability to maintain budget discipline is also another limitation to fiscal policy and the rigidity associated with the technology of production. Jhingan (2016) stated that fiscal policy has the following as its limitation:

- (a) Discretionary fiscal policy depends upon proper timing and accurate forecasting. Accurate forecasting is essential to judge the stage of cycle through which the economy is passing. It is only then that appropriate fiscal action can be taken. Wrong forecasting may accentuate rather than moderate the cyclical savings. Economics is not an exact science in correct forecasting. As a result, fiscal actions always follow after the turning points in business cycles.
- (b) There are delays in proper timing of public spending. In fact, discretionary fiscal policy is subject to three time lags. (i) There is the 'decision lag'. The time required in studying the problem and taking the decision. The lag involved in this process may be too long. (ii) Once the decision is taken, there is an 'execution lag'. It involves expenditure which is to be allocated for the execution of the program. (iii) Certain public work projects are so cumbersome that it is not possible to accelerate or slow them for the purpose of raising or reducing spending on them.

2.3 Empirical literature

Makhoba, Kaseeram and Greyling (2019) analysed the impact of fiscal policy on economic growth in South Africa, using the annual time series data from 1960-2017. The study employed Johansen VECM approach to examine the

short-run and long-run relationship between fiscal policy variables and economic growth. The economic variables for empirical investigation include government expenditure, revenues, public debt, gross fixed capital formation, and economic growth. The empirical findings showed that government revenues and gross fixed capital formation have a significant positive long-run impact on economic growth in South Africa. While government expenditure and public debt share a negative long-run relationship with economic growth, the government expenditure has been growing at a higher pace than revenues. The study proposed that policymakers ought to formulate prudent fiscal policies that encourage gross fixed capital formation which would have a direct impact on tax revenues, reduce public deficit and debt, and ultimately improve economic growth.

Nwankwo, Kalu and Chiekezie (2017) investigated the impact of fiscal policy on economic growth in Nigeria from the period of 1970 to 2014. The data used was sourced from Central Bank of Nigeria Statistical Bulletin of various issues and World Bank Development Indicator (WDI) and the Co-integration and Error Correction (ECM) approaches were utilized in analyzing the data. The result of the unit root test showed that government capital expenditure, oil revenue, gross domestic product and tax revenue are stationary at first difference, while government recurrent expenditure is stationary at levels. The co-integration result showed that there are 3 co-integrating equations at 5 per cent level of significance. This showed that there exist a long-run relationship between fiscal policy and economic growth. The estimated ECM has the required negative sign of -0.447 (45%) and lies within the accepted region of less than unity although, government capital and recurrent expenditures at lagged two years was found insignificant and therefore has no impact on economic growth. Based on the findings from the empirical analysis, the study recommended among others, the need for the Nigerian government to invest in productive investment through increase in capital expenditure over and above recurrent expenditure to stimulate economic growth.

Al-masaeed and Tsaregorodtsev (2018) examined the impact of fiscal policy measured by (Government expenditure, Government revenues, internal public debt, external public debt) in addition to exports and inflation factors on the Jordanian GDP growth for the period 1990-2010. The study used multiple linear regression and least squares method (OLS) to test the study hypotheses. The study found that government expenditure, exports and government revenues has a positive and significant impact on the Jordanian GDP growth, and negative and significant impact on the Jordanian GDP growth. The study found that external public debt has a negative but not significant impact on the Jordanian GDP growth. The study recommended among others increasing investment expenditure, decreasing consumption expenditure, and directing these expenditures to improve the infrastructure may attract investments, increase tourists and foreign currency towards a higher economic growth and alleviation of poverty and unemployment.

Cyril (2016) investigated the effect of fiscal policy on economic growth in Nigeria. The main objective of the study was to analysis how various components of fiscal policy have contributed to the growth rate of the Nigerian economy. The study used secondary data which were obtained from the Statistical Bulletin of the Central Bank of Nigeria (CBN) covering the period from 1985 to 2015. Descriptive statistics and the ordinary least square (OLS) multiple regression analytical methods were used for the data analysis after ensuring data stationarity. The results from the analysis revealed that total government expenditures were significantly and positively related to government revenue, with expenditures climaxing faster than revenue. Investment expenditures were much lower than recurrent expenditures evidencing the poor growth in the country's economy. Consequently, it is recommended that government should formulate and implement viable fiscal policy options that will stabilize the economy. This could be achieved through the practice of true fiscal federalism and the decentralization of the various levels of government in Nigeria.

Morakinyo, David and Alao (2018) examined the impact of fiscal policy instrument on economic growth in Nigeria using time series annual data from 1981-2014 which constitutes 34 years observations. The study used secondary data obtained from the CBN annual statistical bulletin. Fiscal policy instrument was proxied with government recurrent expenditure, government capital expenditure, public domestic debt, and public external debt while economic growth was proxied with Gross Domestic Product (GDP). The data were analysed using Ordinary Least Square method and vector error correction mechanism was conducted. The study found that recurrent expenditure and public domestic debt exert negative relationship while the capital expenditure and external debt exert positive relationship in the long run on the economic growth (GDP) and in the short-run the entire variables are having positive influence except REC (recurrent expenditure) on the economic growth (GDP). The study recommended that the government should put in place effective debt management strategies and fight the problem of corruption because without a reduction of the level of corruption in the country, fiscal policy components will not achieve the required level of economic growth in Nigeria.

Omodero, Ihendinihi, Ekwe and Azubuike (2016) empirically examined the impact of fiscal policy on the economy of Nigeria between 1994 and 2014. Secondary method of data collection was used to generate data for the study and the sources of the data included annual reports/accounts and CBN statistical bulletin (2015). Multiple regression of ordinary least square estimation was the tool used to analyse the data in the study. In the model, real GDP (as dependent variable) was regressed on capital expenditure, recurrent expenditure, tax revenue and external

debts. The study revealed that there is no significant relationship between capital expenditure, recurrent expenditure, tax revenue and the real GDP representing the economy. However, the study found a significant negative relationship existing between external debts and the real GDP. This supports the Keynesian view of government active intervention in the economy using appropriate various policy instruments. The study therefore recommended among others that Government should use fiscal policy to complement the adoption of effective monetary policy and maintain the rule of law to promote stability in the Nigerian economy.

Aliyu, Ndagwakwa, Zirra, Salam and Mohammed (2019) empirically examined the impact of fiscal policy on the economy of Nigeria between 1994 and 2014. Secondary method of data collection was used to generate data for this study and the sources of the data included annual reports /accounts and CBN statistical bulletin (2015). The study used multiple regression of ordinary least square estimation to analyse the data. In the model, real GDP (as dependent variable) was regressed on capital expenditure, recurrent expenditure, tax revenue and external debts. The study revealed that there exist no significant relationship between capital expenditure, recurrent expenditure, tax revenue and the real GDP representing the economy. However, the study found a significant negative relationship existing between external debts and the real GDP. This supports the Keynesian view of government active intervention in the economy using appropriate various policy instruments. The study therefore recommended among others that that government should use fiscal policy to complement the adoption of effective monetary policy and maintain the rule of law to promote stability in the Nigerian economy.

3.0 Methodology

Multiple regression analysis was used in the study. Time series data spanning from 1981 to 2018 was sourced from the Central Bank of Nigeria statistical bulletin. The data were analysed using E-views. 7

3.1 Model specification

In order to investigate the impact of fiscal policy on the economic growth of Nigeria, the model for this study was specified thus;

$$GDP = f(DMSDT, EXTDT, REC, CAP, NR) \dots (1)$$

Where:

GDP = Gross Domestic Product (proxy for economic growth)

DMSDT = Government domestic debt

EXTDT = Government external debt

REC = Government recurrent expenditure

CAP = Government capital expenditure

NR = Non-oil revenue

The model in its econometric linear form can be written as:

$$GDP = b_0 + b_1DMSDT + b_2EXTDT + b_3REC + b_4CAP + b_5NR + U \dots (2)$$

U = stochastic or random error term

b_0 = constant intercept

$b_1 - b_5$ = coefficients of associated variables

The model in the log linear form can be expressed as:

$$\text{LogGDP} = b_0 + b_1\text{LogDMSDT} + b_2\text{LogEXTDT} + b_3\text{LogREC} + b_4\text{LogCAP} + b_5\text{LogNR} + U \dots (3)$$

Where:

Log = natural logarithm

The theoretical expectations about the signs of the coefficients of the parameters are as follow: $b_1 > 0$, $b_2 > 0$, $b_3 > 0$, $b_4 > 0$, $b_5 > 0$

Since the data for the analysis is time series, the Augmented Dickey-Fuller (ADF) unit root test was employed to ensure data stationarity and avoid the problem of spurious regression. The Johansen test for co-integration was also employed to investigate whether there is existence of long run relationship among the variables in the model. The stability condition of an estimated VAR was inspected using the Autoregressive (AR) roots test to determine the stability of the VAR model. Vector error correction model was also adopted to determine the rate of adjustment from short run equilibrium to long run equilibrium. The impulse response function was computed to determine the degree of unanticipated shocks between DMSDT, EXTDT, REC CAP, NR, and GDP, over a ten-year horizon

Table 1.1 Result of Augmented Dickey-Fuller unit root test

| Variables | ADF Test statistic | 5% critical value | Order of integration |
|-----------|--------------------|-------------------|----------------------|
| GDP | -9.137707 | -2.948404 | 1(2) |
| DMSDT | -4.196490 | -3.544284 | 1(1) |
| EXTDT | -2.574734 | -1.950394 | 1(1) |
| REC | -4.866497 | -3.540328 | 1(1) |
| CAP | -5.702343 | -2.945842 | 1(1) |
| NR | -3.822886 | -2.945842 | 1(1) |

Table 1.2 Result of Phillips-Perron unit root test

| Variables | PP Test statistic | 5% critical value | Order of integration |
|-----------|-------------------|-------------------|----------------------|
| GDP | -10.65697 | -2.948404 | 1(2) |
| DMSDT | -3.635924 | -2.948404 | 1(2) |
| EXTDT | -2.595593 | -1.950394 | 1(1) |
| REC | -4.844851 | -3.540328 | 1(1) |
| CAP | -5.669513 | -2.945842 | 1(1) |
| NR | -4.811898 | -2.945842 | 1(1) |

The Augmented Dickey-Fuller unit root test result presented on table 1.1 and the Phillips-Perron unit root test result presented on table 1.2 showed that GDP was stationary at second difference. The Augmented Dickey-Fuller unit root test result showed that DMSDT is stationary after the first difference while Phillips-Perron unit test result showed that DMSDT is stationary after the second difference. Augmented-Dickey-Fuller unit test result and Phillips-Perron unit test results showed that REC, CAP and NR were stationary after their first difference. This is because their various ADF test statistic and PP test statistic were greater than their various percent critical values in absolute terms

Table 2: Johansen co-integration test result

Sample (adjusted): 1983 2018

Included observations: 36 after adjustments

Trend assumption: Linear deterministic trend

Series: GDP DMSDT EXTDT REC CAP NR

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 0.05 Critical Value | Prob.** |
|---------------------------|------------|-----------------|---------------------|---------|
| None * | 0.968743 | 281.6869 | 95.75366 | 0.0000 |
| At most 1 * | 0.751530 | 156.9285 | 69.81889 | 0.0000 |
| At most 2 * | 0.723156 | 106.8008 | 47.85613 | 0.0000 |
| At most 3 * | 0.677591 | 60.56601 | 29.79707 | 0.0000 |
| At most 4 * | 0.264710 | 19.81635 | 15.49471 | 0.0105 |
| At most 5 * | 0.215700 | 8.746707 | 3.841466 | 0.0031 |

Trace test indicates 6 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

| Hypothesized No. of CE(s) | Eigenvalue | Max-Eigen Statistic | 0.05 Critical Value | Prob.** |
|---------------------------|------------|---------------------|---------------------|---------|
| None * | 0.968743 | 124.7584 | 40.07757 | 0.0000 |
| At most 1 * | 0.751530 | 50.12766 | 33.87687 | 0.0003 |
| At most 2 * | 0.723156 | 46.23480 | 27.58434 | 0.0001 |
| At most 3 * | 0.677591 | 40.74966 | 21.13162 | 0.0000 |
| At most 4 | 0.264710 | 11.06964 | 14.26460 | 0.1507 |
| At most 5 * | 0.215700 | 8.746707 | 3.841466 | 0.0031 |

Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-val

The trace test indicates that there are 6 co-integrating equations at 0.05 levels while Mac-eigenvalue test also indicates that there are 4 co-integrating equations at 0.05 levels. All these results showed that the variables are co-integrated, that is, GDP has a long run relationship with DMSDT, EXTDT, REC, CAP and NR.

Table 3.1: VAR stability test

Roots of Characteristic Polynomial

Endogenous variables: LOG(GDP) LOG(NR) LOG(DMSDT) LOG(EXTDT) LOG(REC) LOG(CAP)

Exogenous variables:

Lag specification: 1 2

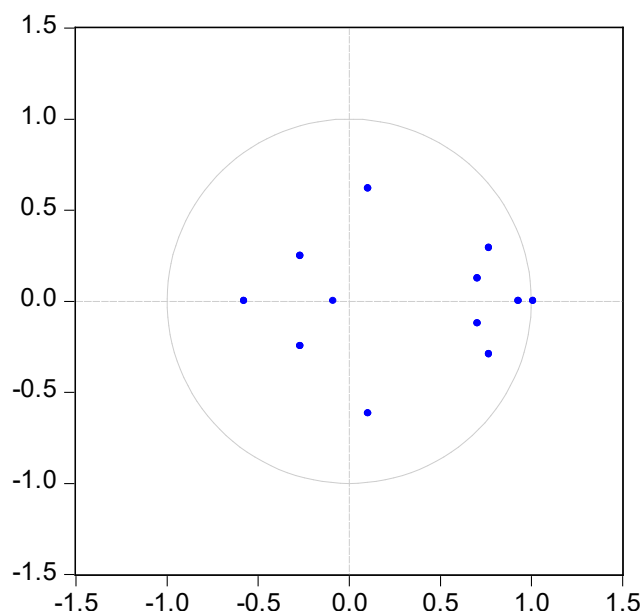
| Root | Modulus |
|-----------------------|----------|
| 1.012221 | 1.012221 |
| 0.930384 | 0.930384 |
| 0.769116 - 0.292283i | 0.822781 |
| 0.769116 + 0.292283i | 0.822781 |
| 0.704684 - 0.124244i | 0.715553 |
| 0.704684 + 0.124244i | 0.715553 |
| 0.105387 - 0.618189i | 0.627108 |
| 0.105387 + 0.618189i | 0.627108 |
| -0.575988 | 0.575988 |
| -0.267391 - 0.247639i | 0.364449 |
| -0.267391 + 0.247639i | 0.364449 |
| -0.084838 | 0.084838 |

Warning: At least one root outside the unit circle.

VAR does not satisfy the stability condition.

Table 3.2: Inverse roots of AR characteristic polynomial

Inverse Roots of AR Characteristic Polynomial



Tables 3.1 and 3.2 showed results of the VEC stability condition check with the inverse roots of the AR characteristics polynomial. The stability condition of the estimated VAR was inspected using the Autoregressive (AR) roots test to determine the stability of the VAR model. The result showed that at least one eigenvalue lies outside the unit circle, which implies that the VAR does not satisfy stability condition. The highest modulus of 1.00 indicates that the VAR is not stable, and thus the VECM model is the appropriate technique to be applied to estimate the long-run relationships consistent with the short run dynamic adjustments between fiscal policy variables and the growth of Nigerian economy.

Table 4: Vector Error Correction Estimate (Long run Relationship Coefficients)

| Variable | Coefficient | Standard error | T-statistics |
|----------------|-------------|----------------|--------------|
| LOG(GDP(-1)) | 1.00000 | | |
| LOG(DMSDT(-1)) | -0.323524 | 0.11084 | -2.91885 |
| LOG(EXTDT(-1)) | -0.104745 | 0.03752 | -2.79143 |
| LOG(REC(-1)) | -2.382010 | 0.22475 | -10.5984 |
| LOG(CAP(-1)) | -0.40906 | 0.09354 | -5.40906 |
| LOG(NR(-1)) | 2.109021 | 0.284031 | -5.40906 |

Source: Researcher computation from E-views output

From the result presented on table 4, domestic debt, external debt, government recurrent expenditure and government capital expenditure have a negative relationship with economic growth (GDP) while non-oil revenue has a positive relationship with economic growth. All the explanatory variables (domestic debt, external debt, government recurrent expenditure, government capital expenditure and non-oil revenue) are statistically significant. The coefficient of domestic debt which is -0.323524 showed that 1 percent increase in domestic debt will to 0.323524 percent fall in economic growth while the coefficient of external debt shows that 1 percent increase in external debt will lead to 0.104745 percent fall in economic growth and these are not in conformity to the apriori expectation. The result also showed the coefficient of government recurrent expenditure as -2.382010 and this implied that 1percent increase in government recurrent expenditure will lead to 2.382010 percent fall in economic growth while the result also showed that 1 percent increase in government capital expenditure will lead to 0.40906 percent fall in economic growth and these are not in conformity to the apriori expectation. From the result, 1 percent increase in non-oil revenue will lead to 2.109021 percent increase in economic growth and this is in conformity to the apriori expectation

Table 5: Vector Error Correction Estimate (Short run Relationship Coefficients)

| Variable | Coefficient | Standard error | T-statistics |
|------------------|-------------|----------------|--------------|
| D(LOG(GDP(-1))) | -0.188926 | 0.18122 | -1.04253 |
| D(LOG(GDP(-2))) | 0.228247 | 0.14643 | 1.55870 |
| LOG(DMSDBT(-1))) | 0.063252 | 0.07459 | 0.84804 |
| LOG(DMSDBT(-2))) | -0.042815 | 0.07624 | -0.56157 |
| LOG(EXTDBT(-1))) | 0.024922 | 0.2257 | 1.10401 |
| LOG(EXTDBT(-2)) | 0.014379 | 0.02367 | 0.60749 |
| LOG(REC(-1)) | -0.381343 | 0.12761 | -2.98840 |
| LOG(REC(-2)) | -0.321265 | 0.11592 | -2.77150 |
| LOG(CAP(-1)) | -0.074529 | 0.05040 | -1.47878 |
| LOG(CAP(-2)) | -0.104914 | 0.04344 | -2.41520 |
| LOG(NR(-1)) | 0.208417 | 0.06781 | 3.07337 |
| LOG(NR(-2)) | 0.150463 | 0.05630 | 2.67259 |
| ECM | -0.236840 | 0.05373 | -4.40826 |
| R-squared | 0.807904 | | |
| Adj. R-squared | 0.688987 | | |
| F-statistic | 6.763868 | | |

Source: Researcher computation from E-views 7 output

The result showed that the entire lagged values of government recurrent expenditure (REC), government capital expenditure (CAP) and two lag periods of domestic debt (DMSDT) have a negative relationship with economic growth while the entire lagged values of non oil revenue (NR) and the one period lag of domestic debt have positive relationship with economic growth. The result also showed that all the variables are statistically significant except one period lag and two period lag of domestic debt; one period lag; two lag periods of external debt and one period lag of capital expenditure. The result also showed that 1 percent increase in domestic debt will immediately bring about 0.063252 percent increase in economic growth while 1 percent increase in external debt will immediately bring about 0.014379 percent increase in economic growth. The result also showed that 1 percent increase in government recurrent expenditure will immediately bring about 0.381343 percent fall in economic growth while 1 percent increase in government capital expenditure will lead to 0.074529 percent fall in economic growth. The result equally showed that 1 percent increase in non-oil revenue will lead to 0.208417 percent increase in economic growth. The error correction term, ECM (-1) is correctly specified. It is negative and statistically significant. This implies that it will be effective to correct any deviation from the long run equilibrium.. Again, the

negative and statistically significant of the ECM (-) confirm that the variables in the model are co-integrated. The coefficient of the ECM(-1) which has a value of -0.236840 means that the speed of adjustment to long run equilibrium is 23.68 percent when any past deviation must be corrected in the present. The coefficient of determination (R^2) is 0.807904. This means that about 80.79 percent of the total variations in the dependent variable are explained jointly by changes in the explanatory variables in the model while its adjusted which is 0.688987 showed that about 68.9 percent of the total variation in the dependent variable is explained jointly by changes in the explanatory variables. The F-statistic of 6.793868 is statistically significant given that its value is more than 4. This implies that that the explanatory variables in the model are jointly significant.

Table 6: Variance decomposition analysis

| VARIANCE DECOMPOSITION OF LOG (GDP) | | | | | | | |
|-------------------------------------|----------|----------|------------|------------|----------|----------|----------|
| Period | S.E. | LOG(GDP) | LOG(DMSDT) | LOG(EXTDT) | LOG(REC) | LOG(CAP) | LOG(NR) |
| 1 | 0.059069 | 100.0000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 2 | 0.122848 | 74.69994 | 6.705711 | 0.458671 | 4.162092 | 0.225884 | 13.74770 |
| 3 | 0.199356 | 67.45442 | 3.995051 | 0.438073 | 11.62059 | 0.763130 | 15.72873 |
| 4 | 0.293625 | 62.43935 | 2.679004 | 0.216332 | 15.48824 | 3.537182 | 15.63989 |
| 5 | 0.371225 | 59.87029 | 2.173271 | 0.137876 | 14.90417 | 6.426173 | 16.48821 |
| 6 | 0.437686 | 58.53106 | 2.049077 | 0.149434 | 14.46934 | 7.871692 | 16.92940 |
| 7 | 0.494956 | 58.02700 | 2.026076 | 0.160851 | 13.83893 | 8.442390 | 17.50475 |
| 8 | 0.547111 | 57.49443 | 2.013842 | 0.161862 | 13.50241 | 8.876206 | 17.95125 |
| 9 | 0.594789 | 57.35088 | 1.984468 | 0.159013 | 13.22021 | 9.099170 | 18.18626 |
| 10 | 0.640699 | 57.11757 | 1.987224 | 0.152166 | 13.08409 | 9.245280 | 18.41367 |

| VARIANCE DECOMPOSITION OF LOG(DMSDT) | | | | | | | |
|--------------------------------------|----------|----------|------------|------------|----------|----------|----------|
| Period | S.E. | LOG(GDP) | LOG(DMSDT) | LOG(EXTDT) | LOG(REC) | LOG(CAP) | LOG(NR) |
| 1 | 0.181363 | 0.889356 | 99.11064 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 2 | 0.246682 | 1.087949 | 78.23760 | 2.990410 | 12.28416 | 0.032025 | 5.367852 |
| 3 | 0.301233 | 1.326388 | 61.89519 | 2.379324 | 17.10644 | 13.30701 | 3.985646 |
| 4 | 0.350883 | 1.301821 | 54.29337 | 1.912142 | 14.84959 | 22.60774 | 5.035339 |
| 5 | 0.400692 | 1.658534 | 49.70994 | 2.433488 | 15.75199 | 26.06476 | 4.381282 |
| 6 | 0.440556 | 2.315178 | 48.13479 | 2.365713 | 15.36780 | 27.04093 | 4.775584 |
| 7 | 0.482437 | 2.292084 | 45.72943 | 2.167389 | 15.01029 | 29.75400 | 5.046810 |
| 8 | 0.514748 | 2.555638 | 44.47913 | 2.143481 | 14.69879 | 31.13519 | 4.987773 |
| 9 | 0.551620 | 2.875143 | 43.46925 | 1.996243 | 14.64965 | 31.68017 | 5.329537 |
| 10 | 0.583687 | 3.066810 | 42.57220 | 1.993642 | 14.65225 | 32.30857 | 5.406525 |

| VARIANCE DECOMPOSITION OF LOG(EXTDT) | | | | | | | |
|--------------------------------------|----------|----------|------------|------------|----------|----------|----------|
| Period | S.E. | LOG(GDP) | LOG(DMSDT) | LOG(EXTDT) | LOG(REC) | LOG(CAP) | LOG(NR) |
| 1 | 0.616493 | 0.641078 | 32.88063 | 66.47830 | 0.000000 | 0.000000 | 0.000000 |
| 2 | 0.878658 | 1.538436 | 26.98365 | 63.99246 | 7.201510 | 0.158802 | 0.125140 |
| 3 | 1.138999 | 1.731910 | 22.76967 | 55.83224 | 11.26572 | 0.095005 | 8.305446 |
| 4 | 1.375653 | 5.978958 | 20.04959 | 55.60224 | 8.967991 | 0.180215 | 9.221002 |
| 5 | 1.582448 | 10.38463 | 17.25937 | 50.61357 | 7.863799 | 0.249000 | 13.62963 |
| 6 | 1.762435 | 12.57665 | 15.73255 | 49.06213 | 6.646310 | 0.206342 | 15.77602 |
| 7 | 1.929546 | 14.72242 | 14.77047 | 47.61513 | 5.952330 | 0.178685 | 16.76097 |
| 8 | 2.081313 | 16.05448 | 13.84057 | 46.29003 | 5.364829 | 0.168105 | 18.28198 |
| 9 | 2.224346 | 16.95021 | 13.36301 | 45.77173 | 4.992049 | 0.149004 | 18.77400 |
| 10 | 2.357781 | 17.78529 | 12.83753 | 45.05019 | 4.681770 | 0.136385 | 19.50885 |

VARIANCE DECOMPOSITION OF LOG(REC)

| Period | S.E. | LOG(GDP) | LOG(DMSDT) | LOG(EXTDT) | LOG(REC) | LOG(CAP) | LOG(NR) |
|--------|----------|----------|------------|------------|----------|----------|----------|
| 1 | 0.254773 | 20.69892 | 3.582765 | 0.029293 | 75.68903 | 0.000000 | 0.000000 |
| 2 | 0.341499 | 27.98998 | 2.686083 | 4.674194 | 60.04925 | 4.592318 | 0.008177 |
| 3 | 0.421393 | 24.27945 | 1.969726 | 3.625013 | 61.97044 | 7.728561 | 0.426811 |
| 4 | 0.468053 | 24.83182 | 2.180834 | 2.982038 | 60.86879 | 8.410985 | 0.725526 |
| 5 | 0.509839 | 23.74020 | 1.998431 | 3.106916 | 60.34042 | 10.08669 | 0.727350 |
| 6 | 0.540800 | 23.19615 | 2.392009 | 2.857412 | 59.89413 | 10.82593 | 0.834367 |
| 7 | 0.574160 | 23.32446 | 2.294193 | 2.848985 | 59.91765 | 10.87426 | 0.740450 |
| 8 | 0.604652 | 23.13951 | 2.322173 | 2.741065 | 60.04870 | 11.07486 | 0.673690 |
| 9 | 0.635936 | 23.05813 | 2.322536 | 2.655941 | 60.15732 | 11.18474 | 0.621333 |
| 10 | 0.664485 | 22.97269 | 2.330244 | 2.633522 | 60.08989 | 11.40116 | 0.572492 |

VARIANCE DECOMPOSITION OF LOG(CAP)

| Period | S.E. | LOG(GDP) | LOG(DMSDT) | LOG(EXTDT) | LOG(REC) | LOG(CAP) | LOG(NR) |
|--------|----------|----------|------------|------------|----------|----------|----------|
| 1 | 0.335262 | 1.018736 | 0.151803 | 9.137756 | 0.344457 | 89.34725 | 0.000000 |
| 2 | 0.463961 | 0.676917 | 0.741850 | 7.097099 | 1.330995 | 89.82618 | 0.326961 |
| 3 | 0.585186 | 2.793656 | 1.019742 | 5.279792 | 1.985724 | 87.17185 | 1.749237 |
| 4 | 0.703424 | 4.829874 | 0.762118 | 3.792035 | 2.439772 | 85.23080 | 2.945400 |
| 5 | 0.839917 | 6.189331 | 0.612683 | 2.945155 | 2.739058 | 83.76357 | 3.750203 |
| 6 | 0.955635 | 6.998695 | 0.507779 | 2.469182 | 2.452404 | 83.16449 | 4.407450 |
| 7 | 1.062686 | 7.871134 | 0.514394 | 2.091239 | 2.531347 | 81.95968 | 5.032202 |
| 8 | 1.157762 | 8.527247 | 0.501209 | 1.847149 | 2.479863 | 81.14370 | 5.500828 |
| 9 | 1.250207 | 8.946314 | 0.497265 | 1.675709 | 2.509376 | 80.50616 | 5.865177 |
| 10 | 1.334511 | 9.330977 | 0.482798 | 1.546186 | 2.487190 | 80.05588 | 6.096968 |

VARIANCE DECOMPOSITION OF LOG(NR)

| Period | S.E. | LOG(GDP) | LOG(DMSDT) | LOG(EXTDT) | LOG(REC) | LOG(CAP) | LOG(NR) |
|--------|----------|----------|------------|------------|----------|----------|----------|
| 1 | 0.211558 | 23.39211 | 0.206311 | 12.82083 | 7.038424 | 1.911095 | 54.63123 |
| 2 | 0.274570 | 20.60592 | 1.089758 | 29.77924 | 5.357059 | 1.179120 | 41.98890 |
| 3 | 0.418395 | 10.72640 | 0.488367 | 15.02482 | 47.39035 | 6.525624 | 19.84444 |
| 4 | 0.495823 | 10.01527 | 0.646927 | 13.32673 | 47.67314 | 12.72971 | 15.60823 |
| 5 | 0.579607 | 7.573845 | 0.478018 | 11.54586 | 46.46488 | 22.39648 | 11.54092 |
| 6 | 0.622918 | 6.732758 | 0.739079 | 10.52651 | 44.85191 | 25.82473 | 11.32502 |
| 7 | 0.669529 | 6.171799 | 0.639904 | 10.26003 | 44.80588 | 28.21932 | 9.903061 |
| 8 | 0.706835 | 5.741999 | 0.674921 | 9.825019 | 44.60295 | 29.81657 | 9.338533 |
| 9 | 0.749005 | 5.534238 | 0.611615 | 9.599208 | 44.91808 | 30.82568 | 8.511179 |
| 10 | 0.786899 | 5.315294 | 0.589470 | 9.395110 | 44.90289 | 31.87870 | 7.918537 |

Cholesky Ordering: LOG(GDP) LOG(DMSDT) LOG(EXTDT) LOG(REC) LOG(CAP) LOG(NR)

The variance decomposition measures how much the percentage of "forecast error variance" of each of the variable can be explained by exogenous shocks to the other variables. The forecast error variance were 0.06 percent, 0.18 percent, 0.62 percent, 0.26 percent, 0.36 percent and 0.21 percent for GDP, DMSDT, EXTD, REC, CAP and NR respectively in the first period while in the 5th period, the forecast error variance increased to 0.37 percent, 0.40 percent, 1.58 percent, 0.51 percent, 0.84 percent and 0.58 percent for GDP, DMSDT, EXTD, REC, CAP

and NR respectively. In the 10th period the forecast error variance further increased to 0.64 percent, 0.58 percent, 2.36 percent, 0.67 percent, 1.34 percent and 0.79 percent for GDP, DMSDT, EXTDT, REC, CAP and NR respectively. To ensure that both the short and the long term responses are captured, 10 years period for one standard shock was considered. In the variance decomposition model results as shown in table 6, in the first period (short term) GDP (100 percent) is fully explained by its own innovation which indicates the exogenous nature. By the 5th period (medium term), it is reduced to 59.87 percent, DMSDT (2.17 percent), EXTDT (0.14 percent), REC (14.9 percent), CAP (6.43 percent) and NR (16.49 percent) while in the 10th period (long term), 57.12 percent innovation is explained by itself, 1.99 percent by DMSDT, 0.15 percent by EXTDT, 13.08 percent by REC, 9.24 percent CAP and 18.41 percent by NR. Decomposition of DMSDT indicates (99.11 percent) effect of its own innovation and GDP 0.89 percent in the first period (short term). By the fifth period (medium term), 49.71 percent innovation is explained by itself, 1.66 percent by GDP, 2.43 percent by EXTDT, 15.75 percent by REC, 26.06 percent by CAP and 4.38 percent by NR. In the 10th period (long term), DMSDT indicates 42.57 percent effect on its own innovation, 3.06 percent by GDP, 1.99 percent by EXTDT, 14.65 percent by REC 32.31 percent by CAP and 5.41 percent by NR. Decomposition of EXTDT indicates 66.48 percent effect of its own innovation and GDP (0.64 percent), DMSDT (32.88 percent) in the first period (short term). By the fifth period (medium term) 50.61 percent innovation is explained by itself, 10.38 percent by GDP, 17.25 percent by DMSDT, 7.86 percent by REC, 0.25 percent by CAP and 13.633 percent by NR. In the 10th period (long term), 45.05 percent is explained by itself, 17.79 percent by GDP, 12.84 percent by DMSDT, 4.68 percent by REC, 0.14 percent by CAP and 19.51 percent by NR. Decomposition of REC indicates (75.69 percent) effect of its own innovation, 20.7 percent by GDP, 3.58 percent by DMSDT, and 0.03 percent by EXTDT in the first period (short term). By the fifth period (medium term), 60.34 percent innovation is explained by itself, 23.74 percent by GDP, 1.99 percent by DMSDT, 3.11 percent by EXTDT, 10.09 percent by CAP and 0.73 percent by NR. In the 10th period (long term), REC indicates 60.09 percent effect on its own innovation, 22.97 percent by GDP, 2.33 percent by DMSDT, 2.63 percent by EXTDT, 11.40 percent by CAP and 0.57 percent by NR. Decomposition of CAP indicates (89.34 percent) effect of its own innovation, 1.02 percent by GDP, 0.15 percent by DMSDT, and 9.14 percent by EXTDT and 0.34 percent by REC in the first period (short term). By the fifth period (medium term), 83.76 percent innovation is explained by itself, 6.99 percent by GDP, 0.51 percent by DMSDT, 2.47 percent by EXTDT, 2.49 percent by REC, and 6.09 percent by NR. In the 10th period (long term), CAP indicates 80.06 percent effect on its own innovation, 9.33 percent by GDP, 0.48 percent by DMSDT, 1.55 percent by EXTDBT, 2.49 percent by REC and 6.09 percent by NR. Decomposition of NR indicates 54.63 percent effect of its own innovation, 23.39 percent by GDP, 0.21 percent by DMSDT, and 12.82 percent by EXTDT, 7.04 percent REC and 1.91 percent by CAP in the first period (short term). By the fifth period (medium term), 11.54 percent innovation is explained by itself, 7.57 percent by GDP, 0.48 percent by DMSDT, 11.55 percent by EXTDT, 46.46 percent by REC, and 22.39 percent by CAP. In the 10th period (long term), NR indicates 7.92 percent effect on its own innovation, 5.32 percent by GDP, 0.59 percent by DMSDT, 4.39 percent by EXTDT, 44.90 percent by REC and 31.88 percent by CAP.

Table 7: Impulse response of GDP to one standard deviation innovations

| Period | RESPONSE OF LOG(GDP) | | | | | |
|--------|----------------------|------------|------------|----------|----------|-----------|
| | LOG(GDP) | LOG(DMSDT) | LOG(EXTDT) | LOG(REC) | LOG(CAP) | LOG(NR) |
| 1 | 0.059069 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 2 | 0.088229 | 0.031812 | 0.008320 | 0.025063 | 0.005839 | -0.045550 |
| 3 | 0.124639 | 0.023995 | -0.010241 | 0.063168 | 0.016407 | -0.064624 |
| 4 | 0.164390 | 0.026870 | -0.003523 | 0.093461 | 0.052405 | -0.085047 |
| 5 | 0.169333 | 0.026177 | -0.001869 | 0.084770 | 0.076198 | -0.096115 |
| 6 | 0.172108 | 0.030503 | -0.009811 | 0.084733 | 0.078892 | -0.098536 |
| 7 | 0.173286 | 0.032220 | -0.010382 | 0.078639 | 0.074850 | -0.102235 |
| 8 | 0.173040 | 0.032627 | -0.009510 | 0.080709 | 0.076726 | -0.104164 |
| 9 | 0.175482 | 0.031504 | -0.008834 | 0.079704 | 0.074975 | -0.102979 |
| 10 | 0.177687 | 0.033719 | -0.007880 | 0.083306 | 0.075901 | -0.106062 |

The Response of LOG(GDP) to One Standard Deviation LOG(DMSDT) shock

GDP rises to 0.031812 percent in the second period as a result of giving one standard deviation DMSDT shock and thereafter falls to 0.026177 percent in the next fifth period and latter rise to 0.033719 percent in next tenth period.

The Response of LOG(GDP) to One Standard Deviation LOG(EXTDT) shock

A positive EXTDBT shock causes a rise of 0.008320 percent in GDP in the second period, then it falls to 0.001869

percent in the next fifth period, after that it continues to fall to 0.007880 percent in the next tenth period.

The Response of LOG(GDP) to One Standard Deviation LOG(REC) shock

GDP rises to 0.025063 percent in the second period as a result of giving one standard deviation REC shock, then it increases further with a value of 0.084770 percent in the next fifth period, after that it falls to 0.083306 percent in the next tenth period.

The Response of LOG(GDP) to One Standard Deviation LOG(CAP) shock

GDP rises to 0.005839 percent in the second period as a result of giving one standard deviation CAP shock, then it increases further with a value of 0.076198 percent in the next fifth period, after that it falls slightly to 0.075901 percent in the next tenth period.

The Response of LOG(GDP) to One Standard Deviation LOG(NR) shock

GDP falls to 0.045550 percent in the second period as a result of giving one standard deviation REC shock, thereafter it falls continuously to 0.096115 percent in the fifth period and then rises to 0.106062 percent in the next tenth period.

4.1 Summary

The study examined the impact of fiscal policy on the economic growth of Nigeria for the period 1981–2018. The coefficients of vector error correction estimate for long run relationship showed that the fiscal policy variables (DMSDT, EXTDT, REC, CAP and NR) were all statistically significant. The result showed that DMSDT, EXTDT, REC and CAP have a negative impact on GDP while NR has a positive impact on the GDP. The result of the vector error estimate for short run relationship showed that one period lag of DMSDT has a positive impact on GDP while and two periods lag of DMSDT has a negative impact on GDP. The result also showed that one period lag and two periods lag of EXTDT have a positive impact on GDP. The result equally revealed that one period lag and two periods lag of REC, one period lag and two periods lag of CAP all have a negative impact on GDP while one period lag and two periods lag of NR have a negative impact on GDP. The result also showed that one period lag and two periods lag of DMSDT, one period lag and two periods lag of EXTDT including one period lag of CAP are not statistically significant while one period lag and two periods lag of REC, one period lag and two periods lag of NR including two lag periods of CAP are all statistically significant. The coefficient of the ECM(-1) shows that the speed of adjustment to long run equilibrium is 23.68 percent when any past deviation must be corrected in the present. The F-statistic is statistically significant and this implies that the explanatory variables in the model are jointly significant implying that these variables were considered important variables in explaining changes in economic growth proxied by GDP in Nigeria within the period of study. The modeled and operationalized framework of analysis exhibited a very high explanatory power, thereby providing supporting evidence that the explanatory variables included in the model were relevant in explaining changes in economic growth (GDP) in Nigeria within the period of study.

4.2 Conclusion: Given that the joint effect of the explanatory variables on the dependent variable were statistically significant, the study concludes that the fiscal policy variables considered in this study were important variables in explaining economic growth in Nigeria within the period of study.

4.3 Recommendations

Based on the findings, the study recommends the following:

Government should ensure greater percentage of its spending goes to the capital expenditure while smaller percentage goes to the recurrent expenditure as this will help to provide adequate infrastructure that will help in stimulating economic growth.

Government should ensure that there is full and honest implementation of the annual budget.

Government should encourage the diversification of the economy so as to ensure that the economy does not solely depend on oil revenue.

Government should ensure that public debts are strictly used for the purpose for which they are meant for.

Government should put in place policies that will fight against corruption during the implementation of the budget.

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