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The Impact of Fiscal and Monetary Policy on Nigerian Economic Growth

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ABSTRACT

This study investigated the impact of fiscal and monetary policy on Nigerian economic growth from 1981 to 2015, with the interest in exploring which of fiscal or monetary policy has been effective in propelling economic growth in Nigeria and how GDP growth responds to the monetary and fiscal policy shock. The positive impact of these policy tools on economic performance will help the country achieve sustained growth and while reducing economic instability. Time series data were collected from the central bank of Nigeria (CBN), the international monetary fund (IMF) and the World Bank. Firstly, a vector autoregressive model (VAR) was applied, and then the vector error correction (VEC) model. The VAR model revealed that fiscal policy distorted real GDP but died out after one year, while monetary policy had no significant impact on real GDP. Of the total government expenditure, the impact of capital expenditure was found to have a significant impact on real GDP while the impact of recurrent expenditure was insignificant. With the introduction of VEC model, the study found an unexpected shock on money supply, real effective exchange rate and taxes to have a negative permanent effect on real GDP, while an unexpected shock on recurrent expenditure and capital expenditure to have a positive effect on real GDP. Finally, the study recommends fiscal policy leadership and harmonization between the fiscal and monetary authority, with emphasis on channelling resources to where they are most needed.

Keywords: Fiscal Policy, Monetary Policy, Economic Growth

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CONTENTS

STATEMENT OF THE PROBLEM	2
1.1 Aims and Objectives of the study	3
1.2 Justification of the Study	3
LITERATURE REVIEW	5
3.1 The Nigeria experience	5
3.2 Fiscal Policy in Nigeria	6
3.3 Monetary policy in Nigeria	6
3.4 Weakness of fiscal and monetary policy	6
RESEARCH METHODOLOGY	8
3.1 Model Specification	8
3.1.1 The vector Auto-regressive (VAR) Model	8
3.1.2 VAR model and granger causality testing	8
3.2 Procedure	9
3.3 Source of Data	11
DATA ANALYSIS AND PRESENTATION	12
4.1 Estimating vector Auto-regression (VAR) Model	12
4.2 Basic Model	13
4.2.1 Granger causality and impulse response function in the basic model	13
4.2.2: Including Interest rate in the VAR model	13
4.2.3: Var Model with recurrent and capital expenditure	14
4.3 Response of RGDP to capital expenditure and recurrent expenditure	14
4.4 Vector Error Correction (VEC) Model	14
4.4.1 Tests for Cointegration	14
4.4.2: Vector Error Correction model explained	15
4.4.3 Diagnostic Tests	15
SUMMARY, CONCLUSION AND POLICY IMPLICATION	16
5.1 SUMMARY OF FINDINGS	16
5.2 CONCLUSION AND POLICY IMPLICATION	16

I. STATEMENT OF THE PROBLEM

Developing economies all around the world are faced with challenges of growth and stability, aside from struggling to achieve structural transformation to suit the demands of the economies of the twenty-first century. Despite the availability of several growth theories and models, in addition to fiscal and monetary policies in the arsenal of the authorities, these economies have not been able to achieve sustained growth. They still get hurt by external shocks and internal destabilisations. The effect of these fluctuations is massive unemployment, low income, high level of inequality and poverty at a larger scale (Stiglitz, 2001). All these, in sum, depress economic growth or distribute the dividends of growth only to set of individuals readily positioned to accumulate these benefits at the expense of the teeming poor.

The Nigerian economy has been classified as one of the most volatile economies in the world due to its high dependence on oil revenue. Economic instability is witnessed yearly through rising inflation, massive unemployment, low output and dwindling foreign reserves that result to unstable exchange rates especially during the period when the price of oil continues to fall. Nigeria's GDP has contracted from 553 billion USD in the year 2014 to 479 billion USD in the year 2015; over 17.7 million people aged 15-65 were either unemployed or underemployed in the first quarter of 2015, inflation rose from 8.0 percent to 9.6 percent (Nigerian National Bureau of Statistics, 2015).

According to Donald Rutherford (2002), economic growth is an increase in the total, or per capita, the output of an economy, often measured by an increase in real gross national product, and caused by an increase in the supply of factors of production or their productivity. In Nigeria, the major macroeconomic policy tools available to achieve sustained growth are fiscal and monetary policy. Despite the intervention of the monetary authority through the manipulation of money supply and demand through the interest rate, combined with deficit budgets over the past years, the economy is yet to feel its real impact.

Over time, there has been a rapid increase in money supply compared with government expenditure, although government expenditure has been more volatile and real economic growth has been sluggish. Broad money (M2) has grown faster by about 127,929% from the year 1981 to 2015 compared with government expenditure that has only grown by about 38,082 % for the same period, yet the real GDP has only grown by about 262% in same period. The questions that arise therefore are as follows; Are macroeconomic policies (fiscal and monetary) still relevant in the developing world? What are the transmission mechanisms of these policies to real growth? What policy mix guarantees the stimulation of growth in a developing country?

Therefore, it will be necessary to assess the impact of monetary and fiscal policies and how it can better propel the Nigerian economy to sustained growth, within the context of a developing economy and prescribe the required measures to achieving stability. This is believed to reveal the optimal macroeconomic policies needed to put the economy as well as other economies with a similar structure on the path of growth.

1.1 Aims and Objectives of the study

The general objective of the study is to look at the impact of fiscal and monetary policy on the economic growth of Nigeria. The specific objectives are;

- 1) To examine the relationship between money supply and real economic growth in Nigeria.
- 2) To examine the relationship between interest rate and real economic growth in Nigeria.
- 3) To examine the relationship between government revenue and real economic growth in Nigeria.
- 4) To examine whether monetary or fiscal policies has been more significant in propelling growth in Nigeria economy?
- 5) To assess the causal relationship between the GDP, government expenditure, money supply and interest rate.
- 6) To examine the response of the GDP growth to the monetary and fiscal policy shock.

1.2 Justification of the Study

Using fiscal and monetary policies to stabilise short run fluctuations in order to achieve sustained growth has been one of the major challenges of the developing nations. In addition to low capacity and infrastructure deficient, this has been the main causes of their inability to achieve long-term growth and development, thereby subjecting the economy to severe volatility, unemployment, financial crises, low investment, debts etc., (Bleaney, 1996, Montiel and Servén, 2006, United Nations 2012).

Nigeria as a Nation with abundant resources has great potential for growth. Yet it has been struggling to achieve sustained growth devoid of economic instability. In order to achieve economic growth, policymakers in the past and present administrations have experimented with several nationwide, sectoral, regional and issue-based policies (The World Bank, 1994; Okonjo-Iweala and Osafo-Kwaako, 2007; Ibietan and Ekhosuehi, 2013). For instance, selective credit for the agricultural sector, small and medium enterprises (SMEs) credit etc. It is believed that a better understanding of the peculiarity of this economy would have made these policies more impactful. It is then crucial to

unravelling the growth-inhibiting factors and weakness inherent in its policy instruments, so as to facilitate the design of growth enhancing macroeconomic policies.

More so, an analysis of the fiscal and monetary policies in Nigeria will present an insight into their effects on a developing country. In addition to this, the limitation of these policies as adopted by developing countries will be uncovered and improve upon. So, the weakness and strength of conventional fiscal and monetary policies are ascertained and these tools better enriched. This can be achieved if there is adequate knowledge on the effect of each tool on economic growth. This study will aid policy makers and researchers to establishing policy mix needed to sustain and stabilise long-term growth, as well as protecting economies from undesirable short run fluctuations. Finally, apart from adding to the repertoire of knowledge and catalyst for further studies, we will be able to ascertain effective macroeconomic policies against shocks resulting from either the real, external, fiscal or monetary sector.

II. LITERATURE REVIEW

Economic growth is one of the most researched sub-fields of economics. Its importance to every economy of the world, at one point in time, is due to the favourable impact it tends to have on some macroeconomic variables. Several studies have shown that economic growth, when properly managed can have positive impacts on aggregate income, aggregate saving, per capital income, standards of living etc., (Firebaugh and Beck, 1994; Aslanbeigui and Wick, 1990; DFID, 2008; Todaro and Smith, 2014). Yet the question has been what economic parameter can be manipulated to propel growth? The dominant economic thinking prior to the great recession of the 1930s has been the theory of laissez-faire (Handman et al., 1931) which was challenged by John Maynard Keynes' book titled "the General Theory of Employment, Interest and Money" during the recession in 1936. Since then, the theory of laissez-faire has been abandoned with the establishment of monetary and fiscal institutions, this is because, in a globalised world, national policies still matter for economic performance (Karadimitropoulou and León-Ledesma, 2013). While monetary policy conception is as old as the history of the bank of England established in 1694 and the Federal Reserve in 1913, the use of money supply to stimulate aggregate demand for output was advocated by Milton Friedman (Friedman, 1948, 1972). Since then, policymakers have resorted to fiscal and monetary policy in stimulating the economy whenever the need arises. As these macroeconomic tools (fiscal and monetary tools) have served as stabilisation tools, so have they served as the propeller of growth in countries around the world.

3.1 The Nigeria experience

The Nigerian economy shifted from agrarian-based to oil dependence in the 70s. It can be seen as a period of foreign exchange windfall for the government, as it immediately abandoned agriculture, which had been contributing more than 40 percent of the Pre-1973 GDP and two-thirds of employments (Umaru and Zubairu, 2012), as world demand and price of crude oil continues to head northward. This structural change and heavy reliance on oil with low domestic productive capacity shifted local demands towards imported goods. The consequence of this was stagnant growth and economic recession, corruption, massive unemployment, increased foreign and domestic debt in the 1980s (Odetola and Etumnu, 2013). The need to curb these economic menaces was the main reason for the introduction of the structural adjustment programme (SAP), which focused on achieving a virile economic management in 1986.

3.2 Fiscal Policy in Nigeria

Fiscal policy is the use of government spending and taxation to influence the economy, it is used to promote strong and sustainable growth and reduce poverty (Mark Horton and Asmaa El-Ganainy, 2009). Fiscal policy in Nigeria is operated by the central government through the budget office, ministries, parastatals and agencies, with legal backing from the legislature. Since the 70s, it has been built around revenue from oil (Baunsgaard, 2003). Before independence, the British played several roles in the fiscal policies of Nigeria, this is by instituting a central government and setting the stage from which the new government will earn revenue through cash crops (Shokpeka and Nwaokocha, 2009). The oil windfall that follows some few years after independence shifted focus on the oil sector as principal sources of revenue for the government, with weak taxation from other sources. Since then, the fiscal policy has tended to fluctuate with the price of oil at the international market.

3.3 Monetary policy in Nigeria

Monetary policy influences the money supply through adjustments of the interest rates, bank reserve requirements, and the sale of government securities and foreign exchange (Mark Horton and Asmaa El-Ganainy, 2009). Monetary policy can either be contractionary, expansionary, neutral or accommodative. Contractionary monetary policy is the use of monetary tools to reduce money supply or to raise the interest rate, while expansionary aim at increasing the money supply. Accommodative policy tends to lower the cost of capital in order to stimulate economic activities and engender economic growth, while monetary policy is neutral when such policy is not targeting the expansion of economic activities nor reducing inflation. The Central bank of Nigeria (CBN), founded in 1958, through its activities and the monetary policy committee (MPC) is responsible for monetary and credit policy in Nigeria. From inception till date, its monetary policy has seen two major regimes categorised as the direct control (pre-1986) and the indirect controls post-1986. While the former focused on direct monetary controls, the later uses market mechanism approach (known as indirect controls), using several monetary instruments (Central Bank of Nigeria, 1986, Ikhide, 1996).

3.4 Weakness of fiscal and monetary policy

Several arguments on the effectiveness of the two policies stance vary across countries and across time. With Keynes emphasising on the use of fiscal as against Friedman preference for monetary policy, Wong (2000), using the VAR model with 3 lags, chosen by the Hannan-Quinn criterion, argues that monetary policy appears effective on output when monetary shocks are negative and are related to some gradual changes in the economy, but non-effective in the long-run. This view was upheld by

Kirsanova, Leith, and Wren-Lewis (2009) that monetary policy beyond its effect on output, dominates fiscal policy as a means of controlling inflation, but no evidence was found for the other way round. This tends to confirm the position of the monetarist on the crowding-out effect of fiscal policy, although no literature has shown the total abolition of fiscal policy in favour of the monetary policy. Chung, Davig, and Leeper (2007) confirmed the efficacy of monetary policy in producing wealth effect if agents' decision rules embed the probability that policies will change in the future, while Park (1970) sees the effectiveness of monetary and fiscal policy as a function of the substitution-complementarity relationships between assets. For Tower (1972), when capital is perfectly mobile, in the short run and under fixed exchange rates, fiscal policy has a greater impact on output and is more effective compared to monetary policy.

Turnovsky and Kingston (1977) using dynamic macroeconomic model under flexible exchange rates and perfect capital mobility confirmed that the effects of monetary expansion depend critically on the magnitude of the interest elasticity of the demand for money. Of course, it might be tempting to believe that interest elasticity of the demand for money increases as money supply increase. But without investment opportunities and an investor-friendly environment, increased money supply may only lead to inflation. So there seems to be a thin line between the effect of money supply on income and it resulting in inflation. More so, Leith and Wren-Lewis (2000) showed that when monetary policy seeks to raise real interest rates in response to excess inflation, a self-stabilising fiscal policy is required, suggesting an interaction and synergy of the two policies, which corroborate Benigno and Woodford (2003) that monetary authority should take account of the consequences of its actions for the government budget. This collaboration with too much a conservative monetary authority will yield a Nash equilibrium level of lower output with a higher price than the ideal points of both authorities (Dixit and Lambertini, 2003; Nordhaus, Schultze, and Fischer, 1994;). They went on to suggest that fiscal policy leadership, joint commitment, or identical targets for the two policy authorities will produce socially optimal output and appropriate price level.

However, in using this synergy appropriately, Schabert (2004) states that fiscal impulses have the capacity to raise real economic activity as long as monetary policy is not too aggressively aimed at stabilising the economy. Although monetary and fiscal policies do not have equal impacts due to demographic and institutional difference within and between countries (Abell 1991; Clark and Hallerberg, 2000), Friedman (1972) had long discovered that these policies have the tendencies of making the economy more unstable rather than more stable. He therefore, advised the subjecting of fiscal and monetary policies to a fairly rigid rule, like constitutional provisions, determined by long-run consideration rather than cyclical considerations.

III. RESEARCH METHODOLOGY

The methodology employed in this research work involves the use of secondary data that will be collected from reliable monetary and fiscal authorities, and analysed using the multiple regression analysis, the vector autoregressive (VAR) model in addition to hypothesis testing. Also, the general-purpose statistical software package STATA, as an electronic econometric package will be adopted for this research analyses.

3.1 Model Specification

3.1.1 The vector Auto-regressive (VAR) Model

This is used in determining the linear interdependencies among multiple time series. The interest in the vector auto-regression (VAR) model is to examine the causality among the following macroeconomic variables; Real gross domestic products(RGDP), Surplus/Deficit Budget, Broad money (M2), Interest Rate. This will enable us assess the causality relationship between the real sector, government sector and money sector, as well as provide a platform for policy recommendation. More so, VAR employs the uses of lag variable which makes it suitable for this study as drawn from Friedman's postulation that, there is much evidence that monetary changes have their effect only after a considerable lag and over a long period and that the lag is rather variable (Friedman, 2008). A reduced form model using real GDP, government expenditure, broad money supply and the exchange rate will be estimated, then different variables in replace of the base model will be included to know their individual effect on economic growth; namely Interest rate, capital expenditure, recurrent expenditure and government revenue.

3.1.2 VAR model and granger causality testing

$$GDP_t = \beta_0 + \sum_{i=1}^n \beta_{1i} GDP_{t-i} + \sum_{i=1}^n \beta_{2i} GovtExp_{t-i} + \sum_{i=1}^n \beta_{3i} Tax + \sum_{i=1}^n \beta_{4i} M2_{t-i} + \sum_{i=1}^n \beta_{5i} ExchRate_{t-i} + \varepsilon_i$$

$$GovtExp_t = \beta_0 + \sum_{i=1}^n \beta_{1i} GDP_{t-i} + \sum_{i=1}^n \beta_{2i} GovtExp_{t-i} + \sum_{i=1}^n \beta_{3i} Tax + \sum_{i=1}^n \beta_{4i} M2_{t-i} + \sum_{i=1}^n \beta_{5i} ExchRate_{t-i} + \varepsilon_i$$

$$M2_t = \beta_0 + \sum_{i=1}^n \beta_{1i} GDP_{t-i} + \sum_{i=1}^n \beta_{2i} GovtExp_{t-i} + \sum_{i=1}^n \beta_{3i} Tax + \sum_{i=1}^n \beta_{4i} M2_{t-i} + \sum_{i=1}^n \beta_{5i} ExchRate_{t-i} + \varepsilon_i$$

$$ExchRate_t = \beta_0 + \sum_{i=1}^n \beta_{1i} GDP_{t-i} + \sum_{i=1}^n \beta_{2i} GovtExp_{t-i} + \sum_{i=1}^n \beta_{3i} Tax + \sum_{i=1}^n \beta_{4i} M2_{t-i} + \sum_{i=1}^n \beta_{5i} ExchRate_{t-i} + \varepsilon_i$$

$$Tax_t = \beta_0 + \sum_{i=1}^n \beta_{1i} GDP_{t-i} + \sum_{i=1}^n \beta_{2i} GovtExp_{t-i} + \sum_{i=1}^n \beta_{3i} Tax + \sum_{i=1}^n \beta_{4i} M2_{t-i} + \sum_{i=1}^n \beta_{5i} ExchRate_{t-i} + \varepsilon_i$$

Where GDP is gross domestic product

$M2_t$ is broad money supply, measured in billions of Nigerian Naira

$GovtExp_t$ is government expenditure

$ExchRate_t$ is exchange rate and Tax is taxation

3.2 Procedure

i. Stationarity Testing: Augmented Dickey Fuller (ADF) Test

The ADF test is used to tests the null hypothesis of whether a unit root is present in a time series sample. The stationarity or non-stationarity of series to be used in VAR model is very important. If the series is non-stationarity, we go on to test if it is trend stationary or difference stationary. The ADF test serves as a formal test that superseded the auto-correlation function (ACF). Although the ACF is also useful in detecting whether a series is stationary or non-stationary, its assessment is informal (An ACF that reaches zero within a reasonable number of lags is indicative of a stationary series; an ACF that takes a long time to reach zero is indicative of a non-stationary series.). The ADF is based on regression model

$$y_t = a_1 y_{t-1} + e_t \quad \text{Eqn 1}$$

Subtracting y_{t-1} from both sides, we have

$$y_t - y_{t-1} = a_1 y_{t-1} - y_{t-1} + e_t \quad \text{Eqn 2}$$

$$\Delta y_t = (a_1 - 1) y_{t-1} + e_t \quad \text{Eqn 3}$$

$$\Delta y_t = \Upsilon y_{t-1} + e_t \quad \text{Eqn 4}$$

Where Υ is $(a_1 - 1)$,

We then test the null hypothesis $H_0: \Upsilon = 0$ against the alternative that $H_1: \Upsilon < 1$. If we accept $H_0: \Upsilon = 0$, we may conclude that the series y is DS. If we reject $H_0: \Upsilon = 0$ in favour of $H_1: \Upsilon < 1$, we conclude that the series y is stationary, using t-test and Dickey and Fuller's critical values (Dickey and Fuller, 1981).

ii. Lag Length Selection

The estimation of precise lag length is crucial for the estimated of VAR model, as this tends to have an impact on the impulse response function and make the model inconsistent (Ivanov and Kilian, 2005; Nickelsburg 1985; Lütkepohl 1985). The criteria used in selecting lag order are the Schwarz Information Criterion (SIC), the Hannan-Quinn Criterion (HQC), the Akaike Information Criterion (AIC), the general-to-specific sequential Likelihood Ratio test (LR), a small-sample correction to that test (SLR) and the specific-to-general sequential Portmanteau test, also interpreted as a Lagrange Multiplier (LM) test of a given VAR model for zero coefficient restrictions at higher-order lags; where

the AIC was found to be more suitable for monthly data, HQC suitable for quarterly data as long as the sample size is above 120, otherwise the SIC should be used. (Ivanov and Kilian, 2005). Although Akaike's information criterion (AIC) and final prediction error (FPE) are superior to the other criteria under study in the case of small sample (60 observations and below), AIC is more suitable for monthly data (Liew, 2004). The lag structure that generates the minimum AIC or SIC is selected as the optimal lag structure (Ozcicek and McMillin, 1999). In this study, the sample size is 34 and the series is yearly data, therefore, the final prediction error (SIC) criterion will be suitable.

iii. Granger Causality and the Granger test.

After generating the VAR model, the Granger test will be adopted to find out the direction of causality among the variables. Given VAR (m) model;

$$Y_t = \alpha_0 + \sum_{i=1}^m \alpha_i Y_{t-i} + \sum_{j=1}^m \beta_j X_{t-j} + u_t$$

$$X_t = \gamma_0 + \sum_{i=1}^m \gamma_i X_{t-i} + \sum_{j=1}^m \delta_j Y_{t-j} + v_t$$

The causality may be unidirectional; i.e. X Granger-causes Y or Y Granger-causes X. It could be bilateral causality where both are Granger-causing each other. On the other hand, it could also be independence such that all elasticities are zero, i.e. there is no significant causality effect between the variables.

iv. Test for Autocorrelation

This is essential to assess non-randomness and ensure that series does not correlation with their past value at lag order. Using the Lagrange-multiplier test, we therefore test the hypothesis at 5 percent level of significance;

H_0 : There is no autocorrelation at lag order

H_1 : There is autocorrelation at lag order

v. Impulse Response function (IRF)

Due to the difficulty in interpreting the coefficients from a VAR model, to establish the direction and magnitude of change of one variable in response to another variable (Abell, 1991), impulse response functions will be estimated from the set of equation. The policy implication of the impulse response function is one of the strengths the VAR Model. The impulse response function gives the response of

one variable to an impulse in another variable in the system of equation, thereby assessing the impact of external shocks.

Given the model; $y_t = \alpha + \rho y_{t-1} + \beta \delta_t + \varepsilon_t$

Subtract ρy_{t-1} from both sides; $(1 - \rho L)y_t = \alpha + \beta \delta_t + \varepsilon_t$

Where L is the lag operator; $L y_t = y_{t-1}$

Divide both sides by $(1 - \rho L)$; $y_t = \frac{\alpha}{(1 - \rho L)} + \frac{\beta \delta_t}{(1 - \rho L)} + \frac{\varepsilon_t}{(1 - \rho L)}$

Expanding $\frac{\delta_t}{(1 - \rho L)}$ as a series; we derive sequences of the impact of external shock of δ_t on y_t

$$y_t = \frac{\alpha}{(1 - \rho L)} + \beta(1 + \rho L + \rho^2 L^2 + \rho^3 L^3 + \dots)\delta_t + \frac{\varepsilon_t}{(1 - \rho L)}$$

Therefore, the impulse response function is the sequence of changes in y_t given a change in δ_t ; which are $\beta, \beta\rho, \beta\rho^2, \beta\rho^3, \dots$

Using the system of equation specified for this study, the impulse response function of the monetary policy and fiscal policy shock on GDP growth will be estimated.

3.3 Source of Data

Data for this study are secondary data, it spans from 1981 to 2015. They are collected from reliable monetary authorities. In particular, Data on Money supply (M2), government revenue and expenditure were collected from the central bank of Nigeria (CBN) statistical bulletin volume 25, December 2014 and the regulatory bank online database, while the World bank provided Nigerian data on real gross domestic product (GDP), Inflation and real interest rate.

IV. DATA ANALYSIS AND PRESENTATION

This section consists of descriptive and inferential results using information drawn from the world bank's world development index and the central bank of Nigeria's database. The vector auto-regression (VAR) model and vector error correction (VEC) model were used, as well as the impulse response function.

4.1 Estimating vector Auto-regression (VAR) Model

In estimating the VAR model, two categories of models were used; the basic model that consist of variables such real GDP, government expenditure, taxation, money supply and real effective exchange rate. Then the money supply was replaced with the interest rate in order to assess its impact as well.

All variables were logged apart from the lending rate, since it is already in percentage. the stationarity test using the Dickey-Fuller test for unit root revealed that the series are difference stationary, i.e. stationary only after the first difference was taken. This was expected as the level data were all trending, while the first difference seems to be mean reverting over time. This means the variables will be used in their first difference for the regression model.

The Likelihood Ratio test (LR), the Akaike Information Criterion (AIC) and the Hannan-Quinn Criterion (HQIC) suggested four (4) as the optimal number of lag, while the Final Prediction Error (FPE) selected two (2), the Schwarz' Bayesian Information Criterion (SBIC) found the optimal number of lag to be one. When the maximum number of lag was reduced to 3, the Likelihood Ratio test (LR), the Akaike Information Criterion (AIC) and the Hannan-Quinn Criterion (HQIC) and the Final Prediction Error (FPE) suggested 3 lags, while the Schwarz' Bayesian Information Criterion (SBIC) remained one lag. More so, when the maximum number of lag was reduced to 2, the Likelihood Ratio test (LR), the Akaike Information Criterion (AIC) and the Hannan-Quinn Criterion (HQIC) and the Final Prediction Error (FPE) suggested 2 lags, while the Schwarz' Bayesian Information Criterion (SBIC) remained one lag. The SBIC has remained the same despite the change in the maximum number of lags. According to theory, the idea is to use more lags and ensure there is no autocorrelation at lag order. More so, it is advisable to use the lag where AIC or SIC is at a minimum (Ozcicek and McMillin, 1999). The series used in this study is annual data, due to the paucity of quarterly data for fiscal policy. More so, the minimal number of lags sufficient enough to reduce the time lag between the policy action and response should be used. In addition, as argued in lag selection procedure in section 4.1.2 above, the Schwarz' Bayesian Information Criterion (SBIC) criterion is selected.

4.2 Basic Model

The basic model is the VAR which consists of real GDP, government expenditure, taxes, money supply and real effective exchange rate. The result as presented in appendix 1 was also diagnosed for autocorrelation in appendix 2. The diagnosis found no autocorrelation at lag order at 5 percent significant level. Since, this is a VAR model (appendix 1); variables which feature as independent variables are also used as dependent variables.

4.2.1 Granger causality and impulse response function in the basic model

From the granger causality result, none of the variables granger causes real GDP, thereby indicating that government expenditure, taxes, money supply and real effective exchange rate have not been effective in stimulating real GDP over the period studied. More so, none of the variables have granger causes government expenditure as well. Whereas, government expenditure and money supply individually granger causes taxation. In like manner, all the variables jointly granger cause taxes at 5 percent level of significance. In addition, none of the variables except real effective exchange rate granger causes money supply at 5 percent level of significance, while real effective exchange rate was not granger caused by any of the variables.

The increase in government expenditure has been shown to have no significant impact on RGDP, although it distorts RGDP in the short run. The distortion was not significant and it died out after one year. This indicates that government expenditure has no effect on real GDP over the years under study, thereby confirming Kirsanova, Leith, and Wren-Lewis (2009) on the weakness of fiscal policy on economic growth. while the real GDP responded positively to an increase in money supply in the short run, although the response was not significant at 5 percent level. The responds died out within a year, revealing an insignificant impact on the effect of money supply on real GDP. The impact of taxes on RGDP is insignificant, although it appears to distort RGDP in the short term, this distortion was not significant and it died out immediately. A depreciation of the real effective exchange rate lead to a sharp fall in GDP in the short term. Subsequently, the negative effect fades out. Overall, the impact of REER on RGDP is not significant at 5 percent level.

4.2.2: Including Interest rate in the VAR model

This model replaced money supply with interest rate in addition to all previous variables in the basic model. It consists of real GDP, government expenditure, interest rate and real effective exchange rate. The result shows no autocorrelation at lag order as revealed in appendix 5 at 5 percent level of significance. With inclusion of the interest rate, the optimal number of lag as suggested by the AIC

was 4, while HQIC suggested 4 lags, while and SBIC selected 1 lag, The LR still suggested 4 lags. In accordance with the argument in the basic model, the SBIC will be followed; one lag will be used.

The granger causality test indicated that either independently nor jointly, government expenditure, taxes, interest rate and real effective exchange rate did not granger caused real GDP at 5 percent level of significance. More so, government expenditure was not granger caused by any of the variable. But individually, interest rate granger causes government expenditure at 5 percent level. More so, none of the variable granger causes the taxation, whereas interest rate was granger caused by all the variables jointly and individually by government expenditure and real effective exchange rate. In addition, none of the variables granger causes real effective exchange rate at 5 percent level.

4.2.3: Var Model with recurrent and capital expenditure

The total expenditure was decomposed into recurrent and capital expenditure so as to estimate the component impact on RGDP. On the optimal number of lags to be used, the AIC, LR and HQIC suggested 3 lags, the FPE gave 4 lags while the SBIC suggested 1 lag. In same manner as the previous models, the SBIC criterion is followed. With the inclusion of the recurrent and capital expenditure, the test for granger causality shows that capital expenditure granger causes RGDP. Jointly, all the variables granger cause capital expenditure, but individually, none granger causes capital expenditure. Also, none of the variables aside from real effective exchange rate granger causes recurrent expenditure at 5 percent level of significance. Changes in taxation was not granger caused by the variables jointly, but individually, only recurrent expenditure and money supply granger causes taxation at 5 percent level of significance. In addition, none of the variable granger causes money supply aside from real effective exchange rate, while none of the variable granger causes real effective exchange rate.

4.3 Response of RGDP to capital expenditure and recurrent expenditure

capital expenditure has a significant negative impact on RGDP in the short run, but later became positive and died out over time, while recurrent expenditure has a positive impact on RGDP, although not significant at 5 percent level. This impact died out within one year.

4.4 Vector Error Correction (VEC) Model

4.4.1 Tests for Cointegration

In order to generate the vector error correction model, the determining the number of co-integrating relationship is essential. Having confirmed that the optimal of lag is 1 using the SBIC, the number of co-integrating relationships was ascertained using the Johansen tests for co-integration. The trace statistics (starred in the fifth column) that there are two co-integrating relationship.

4.4.2: Vector Error Correction model explained

According to the model, there is a long-run relationship between real GDP and recurrent expenditure, significant at 5 percent level of significance. It also revealed a negative relationship between taxation and real GDP in the long-run as shown in appendix 8. In addition, the second long-run relationship shows a negative long-run relationship between capital expenditure and recurrent expenditure, a positive long-run relationship between capital expenditure and taxation, and a positive long-run relationship between capital expenditure and money supply, all significant at 5 percent level. From the impulse response function, an unexpected shock on money supply, real effective exchange rate and taxes will have a negative permanent effect on real GDP, while an unexpected shock on recurrent expenditure and capital expenditure will have a positive effect on real GDP.

4.4.3 Diagnostic Tests

The diagnostic test used the autocorrelation test, test for stability and tests of normality. The result shows there is no serial correlation at lag order. The graph of the eigenvalues shows that none of the remaining eigenvalues appear close to the unit circle. The stability check does not indicate that our model is mis-specified. The vector error correction model satisfies stability condition. The normality test in appendix 11 indicates that we can strongly reject the null hypothesis of normally distributed errors.

V. SUMMARY, CONCLUSION AND POLICY IMPLICATION

This study was carried out to assess the impact of fiscal and monetary policy on economic growth of the Nigerian economy. The Nigerian fiscal and monetary policy landscape were analysed and diagnosed using information collected from the central bank of Nigeria and the world bank, based on data from 1981 to 2015. Most of the results conform to a priori expectation, but not significant, aside from money supply and real effective exchange rate. The result is as below.

5.1 SUMMARY OF FINDINGS

The study shows that monetary policy and fiscal policies had no significant impact on Nigeria real GDP, although monetary policy lead to short run distortion, it was not significant. The basic VAR model shows government expenditure and money supply individually granger causes taxation.

The introduction of interest rate in the model had no impact on economic growth both jointly and individually, but all the variable jointly granger causes the interest rate, with only real effective exchange rate (REER) having an individual impact on the interest rate.

With the decomposition of government expenditure, the result shows that capital expenditure granger causes RGDP. More so, all variable granger causes capital expenditure. Both capital and recurrent expenditure distorted real GDP in the short run, only the distortion of capital expenditure was significant, confirming the study of Schabert (2004) on the capacity of fiscal policy to raise real economic activity. Also, the distortion of capital expenditure was negative initially and later became slightly positive within a year, while that of recurrent expenditure was positive. In addition, the VEC model confirmed that an unexpected shock on money supply, taxation and the real effective exchange rate will have a transitory effect on real GDP compared with an unexpected shock on capital and recurrent expenditure which have a permanent effect on real GDP. This emphasises the effectiveness of fiscal policy, especially recurrent expenditure in stimulating growth in Nigeria.

5.2 CONCLUSION AND POLICY IMPLICATION

According to this study, fiscal policy, especially expansion of capital expenditure had been the most effective tools in stimulating economic growth in Nigeria from the year 1981 to 2015. This is an indication that Nigerian economy has been responding positively to infrastructural development and it has been public sector driven. The government had focused more on fiscal policy, with deficit budget consistently, aside from the year 1995 and 1996 when budget surplus of 0.03 and 0.79 percent of GDP were recorded respectively. It is recommended that policy makers ensure balance budget, work more

closely with the monetary authority without jeopardising their independence. This ensures that both fiscal and monetary policy tools are harmonised to achieve the joint aim of economic growth as suggested in Benigno and Woodford (2003). The monetary authority should focus more on regulating money supply through the open market operation and selective credit, so that resources is channelled to where they are needed most, in particular, the agricultural and manufacturing sectors. This will help defuse the dependence on the oil sector. More so, the private sector needs to be enhanced and developed, productivity and increased capacity utilisation should be pursued. These will empower the economy and boost exportation when the real effective exchange rate is favourable.

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