

EFFECT OF FISCAL AND MONETARY POLICIES ON THE ECONOMY OF NIGERIA

By

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Abstract

This study investigated the impact of fiscal and monetary policies on the Nigerian economy from 1981 to 2018. Time series data were collected from the Central Bank of Nigeria (CBN), the International Monetary Fund (IMF) and the World Bank. Multiple linear regression model comprising the dependent variable, real gross domestic product; fiscal variables (i.e., Government tax revenue and government expenditure) and monetary variables (i.e., monetary policy rate and broad money supply) was estimated. The study revealed that monetary policy rate and government expenditure impacted positively on the real GDP while government tax revenue and money supply impacted negatively on real GDP. Monetary policy instruments were not significant while fiscal police instruments were statistically significant in the long run in influencing the Nigerian economy. Monetary and fiscal policies measures however, jointly impacted significantly on the economy of Nigeria in the long-run. The study recommends harmonization between the fiscal and monetary policies by the monetary and fiscal authorities, with emphasis on channelling resources to where they are most needed. It further recommends that, Central Bank of Nigeria should operate moderate monetary policy rate which would force the banks to maintain affordable rate of interest on lending to increase borrowings for investment activities required to spur macroeconomic performance.

Keywords: Monetary policy, Fiscal policy, Nigerian Economy, Multiple Linear Regression analysis
JEL Classification: H30, O40, C32, E63

Introduction

Fiscal policy affects aggregate demand through changes in government spending and taxation. Government expenditure and taxation influences employment and household income, which then impact consumer spending and investments. Monetary policy impacts the money supply in an economy, which influences interest rates and the inflation rate.

According to the Central Bank of Nigeria (2016), Monetary policy refers to as the combination of measures designed to regulate the value supply and cost of money in an economy in consonance with the level of economic activities while fiscal policy elements affects the activities of economic operations in the private and public business domain. The government influences economic and business activities by means of political and legal processes in the society. These political and legal influences include legislation and other policies established by the government through her regulatory agencies.

Parker (2005) explains fiscal policy as a statement of the goals and objectives of an organization in relation to a particular subject. Government uses fiscal policy measures to control the economy. Fiscal policy is undoubtedly one of the most important tolls used by government to achieve macroeconomics stability of the economy in most developing countries (Siyan and Adebayo, 2005). Fiscal policy plays important role in increasing per capital income of individuals in the economy and in reducing regional disparities by the government shifting more expenditure to areas that have less development. This can take the form of development social overheads, creation of infrastructure in the form of transportation, education, communication facilities growth in capital goods etc.

Fiscal policy is a built-in stabilizer in the sense that taxes and government expenditure can be varied at any time the government deems it necessary, so as to suit the economy climate of the country since fiscal policy is goal oriented, it is usually geared towards achieving price stability, full employment, economic growth, income redistribution, fixed and stable exchange rate, favourable balance of payment and aid to friendly countries.

Economic growth on the other hand according to Kindleberfer (2016) is the increase in good and service of a particular country. Sustainable economic growth and development has been the pursuit of nations and formal articulation of how money affects economic aggregates dates back the time of Adam Smith and later championed by the monetary economists. This pursuit is anchored on the use of fiscal and monetary policies that is usually targeted towards the achievement of full-employment equilibrium, rapid economic growth; price stability and external balance.

Statement of the Problem

One of the major objectives of fiscal and monetary policies in Nigeria is the stabilization of economic growth. Despite the increasing emphasis on manipulation of the policies instruments in Nigeria, the problems surrounding their impact on economic growth still persist. Such problems include high unemployment rate, low savings and investment, high rate of inflation, dirt of infrastructure, low capital formation, unfavourable balance of payment, mass poverty and unstable foreign exchange rate (Sunday, 2018). High rate of inflation which has led to high prices of goods and services is ravaging the economy. Cost of living has been very high with the consequences of poor living standard and less savings (Ndifreke, 2017).

With the resent economic recession, Nigerians are yawning for credible fiscal and monetary policies that will fast track the economy and engender sustainable development. This research therefore examines the impact of fiscal and monetary policies on the economy of Nigeria.

Objectives of the Study

The main objective of the study is to examine the effect of fiscal and monetary policies on the economy of Nigeria. The specific objectives are:

- i. To ascertain the impact of monetary policy rate on real gross domestic product in Nigeria.
- ii. To evaluate the impact of broad money supply on real gross domestic product in Nigeria
- iii. To determine the impact of government tax revenue on real gross domestic product in Nigeria
- iv. To examine the impact of government expenditure on real gross domestic product in Nigeria.

Research Questions

1. To what extent does monetary policy rate influence real gross domestic product in Nigeria?
2. How does broad money supply affect real gross domestic product in Nigeria?
3. To what extent does government tax revenue affect real gross domestic product in Nigeria?
4. In what ways has government expenditure impacted on real gross domestic product in Nigeria?

Research Hypotheses

The study tested the hypotheses stated in null form that:

Monetary policy rate; Money supply; Government tax revenue; and Government expenditure has no significant impact on the real gross domestic product in Nigeria.

Literature Review

Conceptual Framework

Monetary policy is a major economic stabilization weapon which involves measures designed to regulate and control the volume, cost, availability and direction of money and credit in an economy to achieve some specified macroeconomic policy objectives. That is, it is a deliberate effort by the money authorities (or Central Bank) to control the money supply and credit conditions for the purpose of achieving certain broad economic objectives.

In Nigeria, central Bank of Nigeria (CBN) ensures that monetary policy is designed to attain price stability, balance of payment equilibrium and high rate of economic growth. Monetary policy is therefore applied to influence the availability and cost of credit in order to control the money supply policy. The Central Bank Nigeria therefore uses tools instruments at its disposal to influence monetary conditions in particular, the quantity and supply of money in the macro-economy.

Fiscal policy refers to that part of government policy which the government uses its expenditure and revenue programmes to produce desirable effects on national income, production and employment. This is usually in the form of deliberate spending and taxation undertaken to achieve price stability, reduce the swings in business cycles, and improve national output and employment to the desired levels (Jhingan, 2014). Fiscal policy may be discretionary or non-discretionary. The discretionary fiscal policy is active and it involves the conscious changes in government spending and taxes to create expansionary or contractionary effects. The non-discretionary fiscal policy is passive, which relies on automatic built-in stabilizers to keep the economy on course. Federal government taxation and spending policies are designed to level the business cycle and achieve full employment, price stability and sustained growth of the economy.

The theory of Keynes advocates the use of fiscal policy to offset imbalances in the economy. According to Keynes, a government should use fiscal policy to stimulate an economy slowed down by recession through deficit, that is, by spending more than it collect from taxes. On the other hand, to slow down an economy that is threatened by inflationary pressures, there should be increase in taxes or cutting spending to create a budget surplus that would act as a drag on the economy. Stabilization policy requires that policy makers can determine feasible targets, have a reasonable knowledge of the workings of instrumental variables and can effectively control the instrumental variables, the targets of those variable for which the government seek desirable values (Jhingan, 2014).

Theoretical Framework

This study on the effect of Fiscal policy and monetary policies on the Nigeria economy is rooted on Keynesian theory and the monetarist theory.

Keynesian Theory:

Keynesian theory was propounded by John Maynard Keyne in 1930. The Keynesian theory states that government spending enhances economic growth. According to Okpanachi & Abimiku (2007), budget deficit stimulates economic activities in the short run by making households feel wealthier, hence raising total private expenditure. Also, that budget deficit has a positive effect on macroeconomic activity, therefore stimulating savings and capital formation. The Keynesian macro economy brought into focus the issue of output rather than prices as being responsible for changing economic conditions.

Monetarist Theory:

The monetarist theory was propounded by Friedman. The monetarist theory states that money supply is the key factor affecting the wellbeing of the economy. Thus, in order to promote steady growth rate, the

money supply should grow at a fixed rate, instead of being regulated and altered by the monetary authorities. Friedman equally argued that since money supply is substitutive not just for bonds but also for many goods and services, changes in money supply will therefore have both direct and indirect effects on spending and investment respectively such that demand for money will depend upon the relative rates of return available or different competing assets in which wealth can be placed. The monetarist essentially adopted Fisher's equation of exchange to illustrate their theory, as a theory of demand for money and not a theory of output price and money income.

Empirical Review

Morakinyo, F. O., Olusegun, D. J. & Alao, J. A. (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).

Chiekezie, M. O., Nwankwo, D. A. & Kalu, C. U. (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 shows that government capital expenditure, oil revenue, gross domestic product and tax revenue are stationary at first difference $I(1)$, while government recurrent expenditure is stationary at levels at levels $I(0)$. The co-integration result shows that there are 3 co integrating equations at 5 per cent level of significance. This shows 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.

Obadeyi, Okhiria & Afolabi (2016) examined the impact of monetary policy on the growth of emerging economy: Nigerian experience. The study covers between 1990 and 2012, the scope is considered because it fell within the era of market-based monetary period. Automated Statistical Package Technique (ASPT) was used to analyse the model. The Ordinary Least Square (OLS) technique was adopted in the study in order to assess the relationship among the economic variables. The paper concludes that the major problem of monetary policy was as a result of the CBN's inability to control the money supply and bank credits, which were very essential for measuring and proffering solution to the substantial credit spreads between short-term central bank policy rates and the rates facing households and firms in the economy.

Anowor & Okorie (2016) conducted a study on the impact of monetary policy on economic growth of Nigeria adopting the Error Correction Model approach. It utilized time series secondary data spanning between 1982 and 2013. The result showed that a unit increase in Cash Reserve Ratio (CRR) led to approximately seven units increase in economic growth in Nigeria. The result was in consonance with economic literature as monetary policy among other objectives is geared towards achieving the macroeconomic objectives of sustained economic growth and price stability.

Udude (2016) investigated the impact of monetary policy on the growth of Nigeria economy between the period of 1981 and 2012 with the objective of finding out the impact of various monetary policy instruments (money supply, interest rate, exchange rate and liquidity ratio) in enhancing economic growth of the country within the period considered. The result of the vector error correction mechanism (VECM) test indicates that only exchange rate exerted significant impact on economic growth in Nigeria while other variables did not. Money supply though statistically insignificant possessed the expected sign while others contradicted expectation. The study concluded that monetary policy did not impact significantly on economic growth of Nigeria within the period under review and that the inability of monetary policies to effectively maximize its policy objective most times is as a result of the shortcomings of the policy instruments used in Nigeria as such limits its contribution to growth.

Ismail; Adegbelemi & Onakoya (2014) conducted a study on the impact of monetary policy on economic growth in Nigeria. The study uses time-series data covering the range of 1975 to 2010. The effects of stochastic shocks of each of the endogenous variables are explored using Error Correction Model (ECM). The study shows that Long run relationship exists among the variables. Also, the core finding of this study shows that inflation rate, exchange rate and external reserve are significant monetary policy instruments that drive growth in Nigeria.

Adigwe, Echekeba & Justus (2014) conducted a study on the impact of monetary policy on the Nigerian economy. In doing this, the Ordinary Least Square Method (OLS) is used to analyse the data between 1980 and 2010. The result of the analysis shows that monetary policy represented by money supply exerts a positive impact on GDP growth but negative impact on the rate of inflation.

Okwo(2012) examined the effect of monetary policy outcomes on macroeconomic stability in Nigeria. Data was gathered for a time frame of 1985 to 2010 from the CBN statistical bulletin. A simplified ordinary least squared technique stated in multiple forms was applied to the data after ensuring data stationarity. At 5% significant level, none of the variables are statistically significant. The insignificant statistics between monetary policy, gross domestic product, credit to the private sector, net credit to the government and inflation in Nigeria, suggest that monetary policy as a policy option may have been inactive in influencing price stability. These considerations suggest that sound fiscal policies will be an important component of the policy mix if the move to price stability is to be sustained and credible.

Omankhanlen (2010) investigated the Effectiveness of Monetary policy in achieving Economic Growth: The case of Nigeria for the period 1980-2009. Monetary policy has become a major tool in economic management in Nigeria because of the dominance of the financial sector in its economic activities. This study employed the Ordinary Least square method in carrying out the research. From the various test carried out, it was find out that monetary policy rate (MPR) (formerly minimum rediscount rate (MRR)), exchange rate and treasury bill investment have negative impact on GDP. Also it is seen that during the period under review that the manipulation of monetary policy instruments have not proven to be effective in achieving economic growth.

Chuku (2010) researched on the effects of monetary policy innovations as tools for good policy making. The study in a controlled experiment used a structural vector autoregression (SVAR) model to trace the effects of monetary policy shocks on output and prices in Nigeria. This places a recursive restriction on the disturbances of the SVAR. The experiment was conducted using three alternative policy instruments i.e. broad money (M2), Minimum Rediscount Rate (MRR) and the real effective exchange rate (REER). It was found that monetary policy innovations carried out on the quantity-based nominal anchor (M2) has modest effects on output and prices with a very fast speed of adjustment. While, innovations on the price-based nominal anchors (MRR and REER) have neutral and fleeting effects on output and concluded that the manipulation of the quantity of money (M2) in the economy is the most influential instrument for monetary policy implementation.

Methodology
Model Specification

The researcher adopted the econometric model by Tony (2014) as stated below:

$$RGDP = F (MS, EXR, INR) \dots\dots\dots 3.1$$

$$RGDP = \beta_0 + \beta_1 MPR + \beta_2 MOS + \beta_3 GTR + \beta_4 GEX + u \dots\dots\dots 3.2$$

Where;

RGDP = Real gross domestic product

MS = Money supply

EXR = Exchange rate

INR = interest rate

β_0 = intercept

$\beta_1 - \beta_4$ = parameter estimate

ut = stochastic variables

To capture the fiscal and monetary variables in this study Tong (2014) was modified and the model for this study is stated as follows;

$$RGDP = F (MPR, MOS, GTR, GEX) \dots\dots\dots 3.3$$

The functional equation above is transformed to the econometric model: thus

$$RGDP = \beta_0 + \beta_1 MPR + \beta_2 MOS + \beta_3 GTR + \beta_4 GEX + u \dots\dots\dots 3.4$$

Where:

RGDP = Real gross domestic product

MOS = Broad money supply

MPR = Monetary policy rate

GTR = Total tax revenue

GEX = Government expenditure

β_0 = intercept

$\beta_1 - \beta_4$ = parameter estimates

ut = error terms

Description of Research Model Variables

Real Gross Domestic Product

The gross domestic product is one of the measures of national income and output for product for a given country’s economy at a given period of time. The definition of gross domestic product is based on the total market value of all final goods and services produced within a country in a given period of time (normally one year). The evaluation process also involves the sum of value added at every stage of production (the intermediation stages) of all final commodities (goods and services) produced with a country in a given period of time monetarily. Real gross domestic product is used in this study to remove the effect of inflation value of goods and services.

Broad Money Supply (MOS)

Broad Money supply is the amount of money within a specific economy available for purchasing goods and services. The broad definition of money supply (MS+) is adopted which includes currency in circulation, demand deposits quasi money and foreign currency deposits. Currency in circulation is made up of coins and notes, while demand deposits or current account are those obligations which are not related with any interest payment and accepted by the public as a means of exchange drawn without notice by means of cheque. There are two criteria employed in measuring money supply. The first criteria

define the stock of narrow money (usually designated by M1) as currencies and coins in circulation in the hands of the non-banking public and the demand deposit (of the non-banking public) with commercial bank. Money supply also called Money Stock could be used to refer to the amount of money in the hands of the non-bank public at a point in time and the some balances in commercial banks. There are several ways of measuring such an amount (also called Money Aggregates) but each includes Currency in Circulation (C) plus demand Deposits (DD). Demand deposit refer to balances in current accounts of customers withdraw able by cheque.

Monetary Policy Rate

The monetary policy rate is an anchor rate that influences other money market interest rate. Thus, an increase in the MPR signifies the desire of the monetary authorities to pursue a restrictive monetary policy, while a decrease implies a more accommodating or expansionary monetary policy. A change in the MPR has implications for the money market interbank interest rate, growth in credit and price developments in the economy. The Monetary Policy Committee of the Central Bank of Nigeria introduced MPR to replace the MRR which from past experience had not been sufficiently responsive to CBN’s policy initiatives, especially in tackling the problem of excess liquidity in the system. MPR hinges on an interest rate corridor, provides for the CBN lending facility as well as the acceptance of overnight deposit from operators (Discount Houses and Deposit Money Banks), that are in need of funds to meet liquidity shortages and those with excess liquidity could deposit the funds overnight.

Government Tax Revenue

Total tax revenue is defined as total revenue accrued from direct and indirect tax revenue in a particular in year in a particular country.

Government Expenditure

Government expenditure is the expenses of the government for its own maintenance for the benefits of the society, the economy, external bodies and for other countries. These are further broken down into their compositions. For instance, recurrent expenditure is composed of administration/defence, general administration, internal security, economic services (agriculture, construction, transportation and communication and others) social and community services such as education, health and others.

Techniques for Data Analysis

The analytical technique for the study is multiple regression technique of ordinary least squares (OLS). Multiple regression models are used to estimate the hypothesis. The analysis was conducted using E-view statistical software package 8.0.

Results and Discussions

Descriptive Statistics

The basic features of the time series data were analysed and presented in Table 4. 1as follows:

Table 4.1: Descriptive statistics

	RGDP	MPR	MOS	GTR	GEX
Mean	32749.95	13.02189	4967.403	858.1708	1708.498
Median	22449.41	13.00000	628.9500	224.7700	701.0500

Maximum	69023.93	26.00000	24140.63	3275.030	8302.100
Minimum	13779.26	6.000000	14.47000	2.980000	9.640000
Std. Dev.	18889.20	4.143095	7496.523	1124.285	2138.095
Skewness	0.801592	0.694749	1.388606	1.118241	1.237259
Kurtosis	2.141006	4.201309	3.517647	2.722097	3.673133
Sum	1211748.	481.8100	183793.9	31752.32	63214.41
Sum Sq. Dev.	1.28E+10	617.9484	2.02E+09	45504627	1.65E+08
Observations	37	37	37	37	37

Source: E-Views Computations (2019)

From the descriptive analysis in Table 4.1 above, the average RGDP of Nigeria for the period was ₦32,749.95 billion. The year with maximum RGDP was 2015 when the RGDP was ₦69,023.93 billion while the year with the minimum RGDP was 1984 when the figure dropped to ₦13,779.26 billion. The standard deviation in RGDP for the period of this study was 18889.20 which are indicative of the fact that the changes in RGDP over the period were not much. As revealed by the skewness, there was a positive skewness (0.801592) indicating that the degree of departure from the mean of the distribution is positive revealing that overall there was a consistent, but slow increase in RGDP of Nigeria from 1981 to 2017. As indicated by the Kurtosis which was $2.141006 < 3$ which is the normal value, this indicates that the degree of peakedness within the period of this study was normally distributed as most of the values hover around the mean. MPR emerged with an average value of 13.02% over the period, while its maximum and minimum values were 26.00% and 6.00% which were reflected in 1993 and 1981 respectively. The standard deviation (4.143095) shows that there was somewhat increase in MPR as confirmed by the positive value of the skewness (0.694749). As indicated by the Kurtosis which was $4.201309 > 3$ the degree of peakedness within the period of this study was not normally distributed as most of the values did not move around the mean value of 13.02%.

The mean of money supply (MOS) in Nigeria for the period was ₦4,967.403 billion. The year with maximum (MOS) was 2017 when money supply was ₦24,140.63 billion while the year with the minimum MOS was 1981 when money supply was ₦14.470 billion. The standard deviation in MOS for the period of this study was 7496.523. As revealed by the skewness, there was a positive skewness (1.388606) indicating that the degree of departure from the mean of the distribution is positive revealing that overall there was a consistent increase in money supply from 1981 to 2017. As indicated by the Kurtosis which was $3.517647 > 3$ indicates that the degree of peakedness within the period of this study was not normally distributed as most of the values did not move around the mean value.

The mean of government tax revenue represented by GTR in Nigeria for the period was ₦858.1708 billion. The year with maximum GTR was 2014 when government tax revenue reached ₦3,275.030 billion while the year with the minimum GTR was 1984 when government revenue was ₦2.980000 billion. The standard deviation in government tax revenue for the period of this study was 1,124.285. As revealed by the skewness, there was a positive skewness (1.118241) indicating that the degree of departure from the mean of the distribution is positive revealing that overall there was a positive change in government tax revenue from 1981 to 2017. As indicated by the Kurtosis which was $2.722097 < 3$ which is the normal value, this indicates that the degree of peakedness within the period of this study was normally distributed as most of the values hover around the mean.

The mean of total government expenditure (GEX) in Nigeria for the period was ₦1,708.498 billion. The year with maximum GEX was 2017 when total government expenditure was ₦8,302.100 million while the year with the minimum total GEX was 1983 when total government expenditure was ₦9.640000 billion. The standard deviation of GEX for the period of this study was 2138.095. As revealed by the skewness, there was a positive skewness (0.73) indicating that the degree of departure from the

mean of the distribution is positive revealing that overall there was a positive change in total government expenditure from 1981 to 2017. As indicated by the Kurtosis which was $3.673133 > 3$ indicates that the degree of peakedness within the period of this study was not normally distributed as most of the values did hover around the mean.

Consequently, the data series was transformed into logarithm form to obtain residuals that are approximately symmetrically distributed (about zero, of course), to remove that systematic change in spread, achieving approximate “homoscedasticity” and to linearize the relationship.

Unit Root Test

The test for stationarity of the data was carried out based on the Augmented Dickey Fuller (ADF) unit root technique to ensure that none of series is integrated beyond order one i.e. I(1). The results obtained from the unit root are as follows:

Table 4.2: Summary of ADF Test Results

Variable	ADF @ Level: I(0)		ADF @ First difference: I(1)		Order of integration
	t-Statistic	P-value	t-Statistic	P-value	
RGDP	-2.421319	0.3629	-3.659336	0.0499***	I(1)
MPR	-3.049932	0.1335	-7.294235	0.0000***	I(1)
MOS	-0.826345	0.9535	-3.626601	0.0458***	I(1)
GTR	-2.001761	0.5807	-7.342644	0.0000***	I(1)
GEX	-0.514146	0.9780	-7.339260	0.0000***	I(1)
ADF critical values:	1% = -	4.243644			
	5% = -	3.544284			

Source: EViews computations, (2019).

The results of the ADF test revealed that all the series were integration of order one i.e. I(1). For instance, the ADF test results showed that the series were not stationary at level, but became stationary at first difference value i.e. I(1). This is because, in absolute term, their actual values (t-Statistic) are greater than their respective critical values, which indicates that; null hypothesis which stipulates that, the series are not stationary is rejected. Consequently, with the integration of order one, the Johansen co-integration and vector error correction mechanism can be applied.

Johansen co-integration analysis

Under the Johansen co-integration test, co-integration exists when the Trace Statistic and Max-Eigen values are greater than the 0.05 critical values. The results obtained from the Johansen approach to co-integration were captured in Table 4.3.

Table 4.3: Johansen co-integration Test Results
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.703956	81.96611	69.81889	0.0039

At most 1	0.508336	39.36243	47.85613	0.2461
At most 2	0.223706	14.51382	29.79707	0.8106
At most 3	0.096526	5.650957	15.49471	0.7363
At most 4	0.058186	2.098175	3.841466	0.1475

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.703956	42.60368	33.87687	0.0036
At most 1	0.508336	24.84861	27.58434	0.1077
At most 2	0.223706	8.862859	21.13162	0.8433
At most 3	0.096526	3.552783	14.26460	0.9033
At most 4	0.058186	2.098175	3.841466	0.1475

Source: EViews computations, (2019).

Table 4.3 captures the trace and the maxi-Eigenvalue statistics for the model. The null hypothesis of the absence of a co-integrating relationship among the variables was rejected at the 5% level for both statistics. The trace and maxi-Eigen statistics indicated that there was at least one co-integrating equation in the model. The existence of co-integration is indicative of a long run relationship between monetary policy, fiscal policy and economic growth in Nigeria.

The normalized co-integrating equation that reflects the long-run coefficient estimates of the independent variables was captured in equation one (1) below:

$$\begin{array}{ccccc}
 \text{LOG(RGDP)} & \text{LOG(MPR)} & \text{LOG(MOS)} & \text{LOG(GTR)} & \text{LOG(GEX)} & \\
 1.000000 & \mathbf{0.414361} & \mathbf{-0.382177} & \mathbf{-2.216090} & \mathbf{2.549410} & \text{Eqn. 4.1} \\
 & (0.24583) & (0.21315) & (0.31648) & (0.35060) & \\
 & \{1.68555\} & \{-1.79299\} & \{-7.00230\}^{***} & \{7.27156\}^{***} &
 \end{array}$$

Note: Figures in bold are long-run coefficients

Figures in () and { } are standard errors and t-Statistics respectively

Based on the figures obtained for the long-run coefficient estimates, it was found that MPR (monetary policy rate) caused economic growth (proxied by RGDP) to increase by 0.414361, while a 1% increase in MOS resulted to 0.382177 decrease in economic growth. It was also revealed that an increase in GTR resulted to 2.216090 decreases in economic growth, while an increase in GEX caused economic growth to increase by 2.549410.

To test for the significance of the long-run coefficients, the 2t rule of thumb was applied. Hence, since the t-Statistics of MPR (1.68555) and MOS (-1.79299) are less than 2, their respective impact on RGDP (proxy for economic growth) was adjudged insignificant in the long-run. On the other hand, the t-Statistics associated with the coefficients of GTR (-7.00230) and GEX (7.27156) were greater than 2. As such, it was concluded that fiscal policy (measured by GTR and GEX) was more potent in influencing economic growth in Nigeria than monetary policy.

Vector Error Correction Mechanism (VECM)

Having carried out the co-integration test to find that a long-run relationship exists in model, the vector error correction was carried out. The result obtained from the VECM analysis was presented in Table 4.4 as shown below:

Table 4.4: Vector Error Correction Mechanism (VECM) Results

	Coefficient	Std. Error	t-Statistic	Prob.
ECM(1)	-0.174387	0.067249	-2.593171	0.0152
D(LOG(RGDP(-1)))	0.544170	0.149365	3.643209	0.0011
D(LOG(MPR(-1)))	0.008425	0.027736	0.303740	0.7637
D(LOG(MOS(-1)))	0.087562	0.057539	1.521778	0.1397
D(LOG(GTR(-1)))	0.017891	0.021964	0.814545	0.4225
D(LOG(GEX(-1)))	0.023932	0.046807	0.511294	0.6133
C	-0.005985	0.013295	-0.450191	0.6562
R-squared	0.551720			
Adjusted R-squared	0.435499			
F-statistic	4.747164			
Prob(F-statistic)	0.001403			
Durbin-Watson stat	2.037818			

Source: EViews computations, (2019).

Table 4.4 above shows that the error correction mechanism (ECM) is negatively (-0.174387) signed with a probability value (p-value) of 0.0152 which suggested significance at 1% level. The significance of error correction mechanism (ECM) indicated the velocity of adjustment to the long-run equilibrium after a short-run shock. The coefficient (-0.174387) of the ECM shows that about 17.43% of the discrepancies in economic growth (proxied by RGDP) are corrected in each period. This speed of adjustment is very low, meaning that the adjustment process to restore equilibrium after disturbance is slow, thus takes a long period. To find how long it takes for equilibrium to be restored, one (1) is divided by the ECM, i.e. $1/-0.174387 = 5.7343$. Hence, it will take 5.73 years to correct the discrepancies in economic growth.

The goodness of fit of the model as indicated by the R -squared (0.551720) showed that the model fits the data well; the total variation in the observed behaviour of RGDP was jointly explained by the variation in the components of monetary and fiscal policy up to 55.17%. The overall significance of the model was also tested using the F-statistic. Here, the significance of the F-statistic value of did not occur by chance, it actually confirmed that the model fitted the data well such that the collective effect of monetary policy and fiscal policy on economic growth was confirmed significant. The Durbin-Watson value 2.037818 is approximately 2 which are indicative of the absence of serious autocorrelation in the VECM mechanism.

The one period lag of RGDP showed that last periods increase in RGDP caused current years' RGDP to increase by 0.544170 (54.41%). The differenced and lagged values of the VECM coefficients denote the short-run coefficients of the regression model. The short-run coefficients reveal that the effect of monetary policy and fiscal policy was not strong following the small size of the coefficients and high probability values ($p > 0.05$). For instance, 1% increase in MPR only accounted for 0.008425 (0.8%) increases in RGDP. Similarly, 1% increase in MOS explained approximately 0.087562 (8.75%) of the increase in RGDP. Also, 1% increase in GTR brought about 0.017891 (1.78%) increase in RGDP, while GEX explained just 0.023932 (2.39%) increase in RGDP in the short-run.

Diagnostic tests for the VECM model

The residuals of the VECM model were diagnosed for serial correlation, heteroskedasticity and normality. The results were summarized as presented in Table 4.5:

Table 4.5: Diagnostic Test Results for VECM Model

Test	Result	Prob.
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Normality test	0.254281	0.7209
Breusch-Godfrey Serial Correlation LM Test:	1.949098	0.2124
Heteroskedasticity Test: Breusch-Pagan-Godfrey	1.115217	0.4551

Source: Computed using EViews 9.0 Econometric Software

As observed from Table 4.5, the VECM model passed all the diagnostic tests for serial correlation (Breusch-Godfrey test), heteroskedasticity, and normality test. The absence of serial correlation, heteroskedasticity and abnormal distribution of the residuals was confirmed by the p-values of the tests which were less than 0.05. Hence, the null hypothesis of no serial correlation, no heteroskedasticity and no abnormality of distribution was accepted.

Discussion of Findings

The study found that a long-run relationship existed between monetary policy, fiscal policy and economic growth in the long-run and that the collective impact of monetary policy and fiscal policy was significant on economic growth. This is in line with ample evidence from the literature that monetary and fiscal policy play significant role in achieving macroeconomic objectives in both developed and developing countries (Folawewo & Osinubi, 2016, Chuku, 2010, Chukwu, 2014). This is due to the fact that both monetary policy and fiscal policy interact to influence the economy. For instance, fiscal effect spills over through high fiscal deficit, with which monetary policy may be forced to monetize the deficit. This, in turn, induces an expansionary monetary policy, raises inflation expectations and disturbs the exchange rate which affects domestic productivity. According to Kindleberger (2016), even if the fiscal deficit is not monetized but financed through the market, the crowding-out effect weakens economic growth and development. Also, fiscal policy influences monetary policy by affecting aggregate demand through alteration in tax levels that affects consumption and investment decisions. In addition, high government debt could influence the yield curve through raising the long-term real interest (Chuku, 2010).

On the other hand, the study found that fiscal policy components (GTR and GEX) were more potent in affecting RGDP than the components of monetary policy (MPR and MOS) in the long-run. However, the coefficient of GTR was negative in the long-run which is indicative of the effect of increased taxes. Also, the positive coefficient of GEX could be attributed to the effect that increased government expenditure leads to flow of funds into the economy through payment of salaries, infrastructural expansions, etc. which in turn increases consumption and domestic productivity. On the other hand, the coefficients of MPR and MOS failed the significance test in support of the findings by prior studies that fiscal policy is more potent, and that monetary policy should not be considered in isolation of fiscal policy. However, the findings of this study is in contrast with those of Tony (2014), Obadeyi, Okhiria & Afolabi (2016) that monetary policy is more potent tool due to the fiscal irresponsibility of government.

Summary Conclusion and Recommendations

Summary

Based on the specific objectives of this study and the result of the hypotheses tested, the findings of this study are summarized below:

- 1) The collective impact of monetary policy and fiscal policy on economic growth was significant in the long-run.
- 2) Monetary policy rate as a component of monetary policy had positive and insignificant impact on economic growth in the long-run.
- 3) The impact of money supply on economic growth was found to be negative but insignificant in the long-run.

- 4) Government tax revenue as a fiscal policy component had negative and significant impact on economic growth in the long-run.
- 5) In the long-run, the impact of government expenditure as a component of fiscal policy on economic growth was positive and significant.

Conclusion

The findings confirmed that fiscal policy measures exert greater impact than monetary policy measures on the level of economic development in Nigeria. In addition, monetary policy rate and money supply impacted positively and negatively on the real GDP respectively but government tax revenue and government expenditure impacted on real GDP negatively and positively respectively. Monetary and fiscal policies measures are jointly statistically significant to level of economic growth in Nigeria. The R-squared value reveals that variation in real GDP can be explained by 55.17% variation in monetary and fiscal policies. Therefore there should be effective strategic policies that enhance better fiscal policy implementation in Nigeria that will in the long run contribute to the national economic growth and also more robust and viable monetary policy measure should be made to achieve sound economic growth in Nigeria.

Recommendations

This study recommends the following in line with the objectives of this study:

- 1) To achieve effective monetary-fiscal policy coordination, Nigeria is encouraged to strengthen contacts between the monetary and fiscal authorities to decide jointly on aspects relating to policy design and implementation that soothes the present economic need of the country.
- 2) It is expedient that, Central Bank of Nigeria operate with moderate monetary policy rate which would force the banks to maintain affordable rate of interest on lending. Maintenance of moderate interest rate would lead to increased borrowings for investment activities required to spur economic growth.
- 3) The Central Bank should apply an effective monetary policy by manipulating instruments like the liquidity ratio, legal reserve requirements, bank rate, open market operation, selective credit control in order to control the money in circulation to be in consonance with the economic need of the country.
- 4) To boost economic growth in Nigeria, government should ensure that the citizens willingly comply with tax laws. To achieve this, the government should provide the necessary welfare needs of the citizens. As such, they will find reasons to pay their taxes due to the services they enjoy from the government.
- 5) Government should put in place adequate control measures or techniques to ensure that funds allocated to the different sectors of the economy are judiciously used for the projects for which they are allocated.

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