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RESEARCH ARTICLE

EFFECTS OF MONETARY POLICY ON ECONOMIC GROWTH IN NIGERIA

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ABSTRACT

Despite the various monetary regimes that have been adopted by the Central Bank of Nigeria over the years, inflation remains a major threat to Nigeria's economic growth. This study seeks to examine the relationship between monetary policy and economic growth in Nigeria. Starting from the nature and direction of causation, the Granger pair-wise causality model was used, while a multiple regression model was formulated based on the theoretical background of the study. The error correction mechanism (ECM) method was used to estimate the equation, to evaluate the inherent connectivity between monetary policy and economic growth and also the impact of money supply, interest rate, and exchange rate on the rate of economic growth in Nigeria. The result showed that there is a unidirectional causal relationship between money supply and economic growth in Nigeria. Secondly, interest rates and exchange rates have a negative effect on economic growth, while money supply has a positive effect on economic growth. As a result, the macroeconomic variables that policymakers should regulate in order to reduce inflation and ensure economic growth in Nigeria are the money supply, exchange rate, and interest rate.

KEYWORDS

Bank Policies, Credit Control, Exchange Rate, Expenditure, Inflation

1. INTRODUCTION

Since the establishment of the Central Bank of Nigeria in 1959, it has continued to play the traditional role expected of a central bank, which is the regulation of the stock of money in such a way as to promote social welfare (Ajayi, 1999). This role is anchored on the use of monetary policy that is usually targeted towards the achievement of full employment equilibrium, rapid economic growth, price stability, and external balance. Over the years, the major goals of monetary policy have often been the two latter objectives; thus, inflation targeting and exchange rate policy have dominated the CBN's monetary policy focus based on the assumption that these are essential tools for achieving macro-economic stability. Folawewo and Osinubi describe monetary policy as a combination of measures designed to regulate the value, supply, and cost of money in an economy (Folawewo and Osinubi, 2006).

The objectives of monetary policy include price stability, the maintenance of balance of payments equilibrium, the promotion of employment and output growth, and sustainable development. These objectives are necessary for the attainment of internal and external balance and the promotion of long-term economic growth. Evidence from the Nigerian economy shows that there has been a relationship between the stock of money and economic growth or activity since the 1980s.Over the years, Nigeria has been controlling her economy through variations in her stock of money. Consequent upon the effect of the collapse of oil prices in 1981 and the B.O.P deficit experienced during this period, various methods of stabilization, ranging from fiscal to monetary policies, were used. Interest rates were fixed, and these were said to be beneficial to big borrowers (farmers) (Odedokum, 1998). Thus, the notion that the stock of money varies with economic activity applies to the Nigerian economy.

Tradable economic activities are "special" in developing countries. These activities suffer disproportionately from the institutional and market failures that keep countries poor. Sustained real exchange rate depreciations increase the relative profitability of investing in tradables and act in second-best fashion to alleviate the economic cost of these distortions. That is why episodes of undervaluation are strongly associated with higher economic growth. There exists a unique long-run relationship between interest rates and economic growth. Thus, interest rates are an important determinant of economic growth in Nigeria. However, the deregulation of interest rates in Nigeria may not optimally achieve its goals if those other factors which negatively affect investment in the country are not also removed.

In general terms, monetary policy refers to a combination of measures designed to regulate the value, supply, and cost of money in an economy in consonance with the expected level of economic activity (CBN, 1992). For most economies, the objectives of equilibrium, promotion of employment and output growth, and sustainable development are sufficient (Folawewo and Osinibi, 2006). These objectives are necessary for the attainment of internal and external balance and the promotion of long-term economic growth. The importance of price stability derives from the harmful effects of price volatility, which undermines the ability of policymakers to achieve other laudable macro-economic objectives. There is indeed a general consensus that domestic price fluctuation undermines the role of money as a store of value and frustrates investment and growth. Empirical studies by on inflation, growth, and productivity have confirmed the long-term inverse relationship between inflation and growth (Ajayi and Ojo, 1981; Fisher, 1994). Typically, in periods of high inflation, the time horizon of investors is very short and resources are diverted from long-term investments to those with immediate returns and

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inflation hedges, including real estate and currency speculation. It is against this background that this study would investigate the effectiveness of monetary policy in Nigeria, with a special focus on major growth components.

The failure of the monetary policy to curb price instability has caused growth instability as Nigeria's record of development has been very poor. Thus, the main thrust of this research is to evaluate the effectiveness of the CBN's monetary policy over the years. This would go a long way in assessing the extent to which monetary policies have impacted on the growth in Nigeria using the major objective of monetary policy as a yardstick. The result of this research is crucial in evaluating the performance of monetary policy to adopt appropriate measures that would ensure the achievement of both primary and secondary goals of monetary policy in Nigeria. The significance of the study will also be best appreciated by considering the effectiveness and usefulness of monetary policy measures in regulating the economy. In particular, the finding will help in establishing the extent to which monetary policy has stabilized prices in the Nigerian economy. The study will make suggestions and recommendations that will enable the government, banks, depositors (individual), non-financial institutions and authorities to solve the problems facing monetary policy measures in the Nigerian economy.

2. Theory

In an attempt to link money supply to economic growth, recent contributors to the new economic growth literature have considered the role of financial structure. This implies that the level of money stock drives economic growth. These assertions will strictly depend on several macroeconomic variables. According to the potential effect of financial depth (money in circulation) on economic growth can manifest itself in three ways: (a) improved efficiency of financial intermediation, (b) improved efficiency of capital stock, and (c) increased national savings rate (Motiel, 1995). Bardhan provides a succinct statement of the historical perspective of the issues involved and discusses the various implications of the received interest in monetary aggregates in the determination of the level of economic growth in developing countries (Bardhan, 1996). Prior to the publication of paper "Economic Growth and Income Inequality," "economic development and growth were guided by the belief that the benefits of economic growth would eventually trickle down in such a way as to affect the velocity of the monetary aggregate (Kuznets's, 1995).

Modern macro-economic theories of money and economic development seem to agree that there exists a systematic relationship between money and economic development (Bemanke, 1995). However, empirical researchers have largely focused on addressing two issues: first, to examine if money could forecast output given the predictive power of past values of output. If so, the second issue is to examine if such a relationship is stable over time or not. Some researchers have found evidence of the predictive ability of monetary aggregates (Ekpo and Osakwe, 1991). However, some of these studies argue that such a relationship seems to have changed over time. Using evidence from South African data, a researcher disagrees with the observed causality that runs from money to income (Hum, 1993). He concludes by stating that money supply and financial deepening are strongly related to growth and inequality. In Nigeria, however, the influence of money supply on economic growth can only be taken with a mixed reaction.

However, several studies have confirmed the significance of money supply and economic growth. Between 1971 and 1975, the growth rate of the economy, measured by real GDP, ranged from 21.3% in 1971 to 3.0% in 1975. By 1981, the real GDP was down by 26.8% and remained negative till 1984. A simple variance analysis shows that between 1971 and 1986, the mean spread of the GDP was 108.6. However, between 1986 and 1994, the real GDP was much higher before deregulation, while it fell during and after the deregulation of the economy. Before deregulation in 1986, both M1 and M2 had little correlation with the growth of real GDP. M2 was observed to have a variance of 362.6 and a correlation coefficient of 0.21. The period 1986–94 had a lower correlation of 0.1 between broad money (M2) and the growth of real GDP. The mean spread of M2 was 289.2 as against 108.7 for real GDP. The correlation between M1 and GDP between 1970 and 1986 stood at 0.22, and for 1986–94, it was 0.33. In essence, the above descriptive analysis does not suggest any strong relationship between monetary aggregates and economic growth in Nigeria. while attempting to identify the appropriate definition of money in Nigeria.

Asogu examined the influence of money supply and government expenditure on gross domestic product (Asogu, 1998). On annual and quarterly time series data from 1960 to 1995, he applied the St. Louis model.He finds money supply and exports to be significant. This finding, according to Asogu, corroborates the earlier work of (Ajayi, 1974). While examining the interaction between money and output in Nigeria between the periods 1960–1995, the model assumed the irrelevance of anticipated monetary policy for short-run deviations of domestic output from its natural level. The result suggests that unanticipated growth in money supply would have a positive effect on output. A clear examination of the above shows that there is no general agreement on the determinant of economic growth in the Nigerian economy. Findings show that there is a clear relationship between money supply and economic growth (Iyoha, 1969). Others in Nigeria who have confirmed a strong relationship between money supply and growth include (Odedokun, 1996; Ojo, 1993; Owofe and Onafowora, 2007).

Adefeso and Mobolaji employed the Jahasen maximum likelihood co-integration procedure to show that there is a long-run relationship between economic growth, degree of openness, government expenditure, and M2 (Adefeso and Mobolaji, 2010). They observed that monetary policy exerts a significant impact on economic activity in Nigeria (Kogar, 1995). They examined the relationship between financial innovations and monetary control and concluded that in a changing financial structure, central banks cannot realize efficient monetary policy without setting new procedures and instruments in the long run, because profit-seeking financial institutions change or create new instruments in order to evade regulations or respond to the economic conditions in the economy. Examining the evolution of monetary policy in Nigeria in the past four decades observed that though monetary management in Nigeria has been relatively more successful during the period of financial sector reform, which is characterized by the use of indirect rather than direct monetary policy tools, the effectiveness of the monetary policy has been undermined by the effects of fiscal dominance, political interference, and the legal environment in which the Central Bank operates (Resheed, 2011).

3. Research Design

This study adopts a quantitative method to evaluate the empirical evidence of the effect of monetary policy on economic growth in Nigeria. The method of analysis has been an econometric technique using a multiple regression model that is derived from the Keynesian IS-LM model, which is the economic theory that this study is based on. In drawing the empirical conclusion based on the specific objectives of this study, we approached the methodology thus:

Objective 1 was analyzed by using the Granger causality test to ascertain the causal relationship between the exchange rate and economic growth in Nigeria. The Granger causality test is a statistical hypothesis test for determining whether one time series is useful in forecasting another. In other words, it is a test to check if the action or performance of one variable has an effect or causes the existence of another.

The long and short-run relationships between monetary policy and economic growth in Nigeria were examined using the error correction mechanism (ECM). In statistics, an error correction model is a dynamical system with the characteristic that the deviation of the current state from its long-run relationship will be fed into its short-run dynamics.

An error correction model is not a model that corrects the errors in another model. Error Correction Models (ECMs) are a category of multiple time series models that directly estimate the speed at which a dependent variable Y returns to equilibrium after a change in an independent variable X. ECMs are a theoretically driven approach useful for estimating both the short-term and long-term effects of one time series on another. Thus, they often mesh well with our theories of political and social processes. ECMs are useful models when dealing with co-integrated data, but they can also be used with stationary data.

The last objective was analyzed by ordinary least squared (OLS) to determine the relationship between monetary policy and the general price level in Nigeria. Ordinary Least Squares (OLS) or Linear Least Squares (LLS) is a method for estimating the unknown parameters in a linear regression model. This method minimizes the sum of squared vertical distances between the observed responses in the dataset and the predicted responses by the linear approximation. The resulting estimator can be expressed by a simple formula, especially in the case of a single regressor on the right-hand side.

The OLS estimator is consistent when the regressors are exogenous and there is no perfect multicollinearity, and optimal in the class of linear unbiased estimators when the errors are homoscedastic and serially uncorrelated. Under these conditions, the method of OLS provides a minimum variance mean unbiased estimation when the errors have finite variances. Under the additional assumption that the errors are normally distributed, OLS is the maximum likelihood estimator and has the best linear unbiased estimator.

3.1 Description Of the Model

In this section, we postulate a model that seeks to examine the effects of some selected monetary policy variables on economic growth in Nigeria. Our specification of a growth model is routed through the Keynesian IS-LM model, a macroeconomic model that graphically represents two intersecting curves, called the IS and LM curves. The investment/saving (IS) curve is a variation of the income expenditure model incorporating market interest rates (demand for this model), while the liquidity preference/money supply equilibrium (LM) curve represents the amount of money available for investing (supply for this model). The model attempts to explain the investing decisions made by investors given the amount of money they have available and the interest rate they will receive. Equilibrium occurs when the amount of money invested equals the amount of money available for investing. The IS curve tells you all combinations of Y and r that equilibrate the output market, given that firms are willing to supply any amount that's demanded. That is, the IS is the set of all Y and r combinations that satisfy the output market equilibrium condition that total demand, given income Y and the cost of borrowing r, must equal total supply.

$$Y^d(Y, r) = Y \quad (1)$$

Notice the Y on the left-hand side stands for income (because consumption demand depends on income), while the Y on the right-hand side stands for total supply. We are justified in using the same symbol for both things because, according to the basic national income accounting identity, whatever quantity is supplied creates income of the same amount. In turn, total demand (Y^d) can be broken up into the sum of consumption demand, investment demand, government demand, and net foreign demand:

$$Y^d(Y, r) = C^d + I^d + G^d + NX^d \quad (2)$$

Where NX stands for net exports (that is, exports minus imports), how much more do foreign countries demand from us than we demand from them? I stand for planned investment, and G stands for government spending.

The LM curve tells you all combinations of Y and r that equilibrate the money market, given the economy's nominal money supply M and price level P. That is, the LM curve is the set of all Y and r combinations that satisfy the money market equilibrium condition. Real money demand must equal the given real money supply.

$$M^d(Y, r) = M/P \quad (3)$$

Notice that the real money supply on the right-hand side is fixed when drawing the LM. Any change in the real money supply shifts the entire curve. Assuming real money demand depends positively on the amount of real transacting Y and negatively on the opportunity cost of holding money r, the LM is an upward-sloping curve, with steepness depending on how sensitive real money demand is to changes in r. In the model, consumption, C, is determined by the level of income (money supply), investment by the cost of capital and interest rate, and government spending is determined by the exchange rate.

Therefore, we specify our models as;

$$Y = f(M2, INT, GEX, EXCH, INFL) \quad (4)$$

Where Y = national income measured by Gross Domestic Product (GDP), GEX = government expenditure, MS = money supply measured by broad money M2, INT = Interest rate, EXCH = exchange rate, INFL = inflation rate.

In the log form we have;

$$\log GDP = \alpha_1 \log GEX + \alpha_2 \log MS + \alpha_3 INT + \alpha_4 EXCH + \alpha_5 INFL \quad (5)$$

For estimation procedure equation (5) will be written as

$$GDP = \alpha_0 + \alpha_1 GEXIF + \alpha_2 MS + \alpha_3 INT + \alpha_4 EXCH + \alpha_5 INFL + \mu \quad (6)$$

Where GDP = Gross Domestic Product, GEX = government expenditure, MS = money supply measured by broad money M2, INT = interest rate, EXCH = exchange rate, INFL = inflation rate, μ = error term, α_0 to α_5 = parameter estimators (coefficient).

Also, to examine the impact of monetary policy on the general price level in Nigeria, we formulated the second model base on the equation of money thus

$$INF = \beta_0 + \beta_1 GEX + \beta_2 MS + \beta_3 INT + \beta_4 EXCH + \mu_2 \quad (7)$$

Where INF = inflation rate, GEX = government expenditure, μ_2 = error term, β_0 to β_4 = parameter estimator (coefficient)

3.2 Data

The data used in this study is a secondary annual time series covering 1980–2019. The basic data for this analysis are GDP, money supply, government infrastructure spending, labor force, interest rates, and exchange rates. These data were collected from the statistical bulletin, a publication of the Central Bank of Nigeria.

4. Presentation of Empirical Result

To test for hypothesis one which states that there is no causal relationship between exchange rate and economic growth in Nigeria, we use the Granger pair-wise causality test. The result is shown below:

Table 1: Granger causality test result

Null Hypothesis	Obs	F-Statistics	Probability
INTR does not Granger cause GDP	36	0.06579	0.93649
GDP does not Granger cause INTR		1.56636	0.22861
M2 does not Granger cause GDP	36	232.192	0.00000
GDP does not Granger cause M2		1.20401	0.31680
EXCH does not Granger cause GDP	36	1.64485	0.21325
GDP does not Granger cause EXCH		0.18802	0.82976
INFL does not Granger cause GDP	36	0.27213	0.76398
GDP does not Granger cause INFL		0.22946	0.79662
GEX does not Granger cause GDP	36	12.4508	0.00018
GDP does not Granger cause GEX		12760.1	0.00000
M2 does not Granger cause INTR	36	1.41625	0.26143
INTR does not Granger cause M2		0.14578	0.86508
EXCH does not Granger cause INTR	36	5.85800	0.00820
INTR does not Granger cause EXCH		1.28405	0.29455
INFL does not Granger cause INTR	36	0.91985	0.41165
INTR does not Granger cause INFL		1.68080	0.20659
GEX does not Granger cause INTR	36	1.09904	0.34876
INTR does not Granger cause GEX		0.00918	0.99087
EXCH does not Granger cause M2	36	0.54347	0.58744
M2 does not Granger cause EXCH		2.90401	0.07344
INFL does not Granger cause M2	36	0.27990	0.75820
M2 does not Granger cause INFL		0.66487	0.52320
GEX does not Granger cause M2	36	3.21390	0.05726
M2 does not Granger cause GEX		15.5731	0.00004
INFL does not Granger cause EXCH	36	0.73105	0.49141
EXCH does not Granger cause INFL		2.53461	0.09948
GEX does not Granger cause EXCH	36	4.46592	0.02196
EXCH does not Granger cause GEX		0.07309	0.92971
GEX does not Granger cause INFL	36	1.01911	0.37542
INFL does not Granger cause GEX		0.22252	0.80207

The Granger causality test, as shown in table 1, reveals that there is a bidirectional relationship between government expenditure and money supply in the Nigerian economy. This implies that the level of government expenditure influences the level of money supply and vice versa. For Gross

Domestic Product (GDP) and money supply, there is a unidirectional effect from money supply to GDP, but GDP does not cause money supply in the model. This implies that monetary policy in Nigeria has a causal relationship with economic growth. It is observed from the result that there is no causal relationship between the exchange rate and GDP in the Nigerian economy, while money supply has a unidirectional relationship with the exchange rate. In other words, the money supply's cause, the exchange rate, is a leakage to our economy as we import more than we export in the international market.

Also, the result shows that the exchange rate causes inflation in our economy while government expenditure causes the exchange rate. Hence, there is a unidirectional effect between government expenditure and the exchange rate; while the exchange rate does not cause government expenditure, there is a unidirectional effect from the exchange rate on inflation. Other pairwise comparisons show that the money supply does not influence interest rates in the economy. Therefore, we accept the null hypothesis, which states that there is no significant causal relationship between the exchange rate and economic growth in Nigeria. The second hypothesis of the study is tested using the Error Correction Model (ECM) to determine the impact of monetary policy on the Nigerian economy. The result is depicted below,

Table 2: Results of Error Correction Model (ECM)

Dependent Variable: log (GDP)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-0.657338	0.492976	-1.333408	0.1990
INFL	0.008515	0.004969	1.713474	0.1038
Log (GEX)	0.297813	0.221009	1.347515	0.1945
Log (M2(-1))	-1.241171	0.698962	-1.775736	0.0927
INTR (-1)	0.018520	0.015525	1.192925	0.2484
INFL (-1)	-0.005459	0.005440	-1.003390	0.3290
Log (GEX (-1))	-0.776171	0.195963	-3.960803	0.0009
Log (M2(-2))	2.909359	0.775236	3.752870	0.0015
INFL (-2)	0.005115	0.004461	1.146727	0.2665
EXCH (-2)	-0.005414	0.001833	-2.954011	0.0085
ECM1 (-1)	-0.183569	0.304554	-0.602747	0.5542
R-squared	0.988826	Mean dependent var		14.74559
Adjusted R-squared	0.982619	S.D. dependent var		2.387577
S.E. of regression	0.314771	Akaike info criterion		0.807755
Sum squared resid.	1.783457	Schwarz criterion		1.326385
Log likelihood	-0.712453	F-statistic		159.2953
Durbin-Watson stat	2.118644	Prob (F-statistic)		0.000000

The third hypothesis which has to do with the impact of monetary policy on the general price level was tested using the estimated model below:

Table 3: Ordinary Least Square Estimate Result

Dependent Variable: log (GDP)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	28.86857	18.43460	1.565999	0.1330
D (EXCH)	0.189814	0.177176	1.071327	0.2968
Log (GEX)	2.541168	1.943255	1.307686	0.2058
D (INTR)	-1.794114	0.829351	-2.163274	0.0428
Log (M2)	-8.036912	3.074447	-2.614100	0.0166
Log (D(GDP))	4.185209	2.360196	1.773246	0.0914
R-squared	0.739536	Mean dependent var		20.54840
Adjusted R-squared	0.674420	S.D. dependent var		18.78603
S.E. of regression	17.06925	Akaike info criterion		8.711609
Sum squared resid.	5827.188	Schwarz criterion		9.001939
Log likelihood	-107.2509	F-statistic		32.05635
Durbin-Watson stat	1.969644	Prob (F-statistic)		0.003942

From the result above, it is discovered that there is a negative impact between monetary policy instruments and the general price level in Nigeria from 1980 to 2019, except for the exchange rate. Therefore, we accept alternative hypothesis 3, which states that there is a significant impact between monetary policy and the general price level in Nigeria.

4.1 Diagnostic Test Results

We conducted different diagnostic tests to ascertain the statistical quality of our variables and the estimated model. Some of these tests include:

1. Unit root test of stationary, the table below shows the result

Table 4: Unit Root Test

Variable	**ADF**	**Level**	**PP**	**Level**
GDPG	-7.33665	I (0)	-3.60201*	I (I)
M2G	-5.8601	I (I)	-8.62759	I (0)
GEXFG	-5.81261	I (I)	-3.85946	I (0)
INFLG	-18.4497	I (I)	-3.48784*	I (I)
EXCHG	-7.71683	I (0)	-3.87965	I (0)
INTRG	-5.90558	I (0)	-6.853481	I (0)
Critical Value: 1% level -3.646342 5% level -2.954021 10% level -2.615817 *at 5% level			Critical Value: 1% level -3.596616 5% level -2.933158 10% level -2.604867	

The result of the unit root test of stationary shown in table 4 above shows that all the variables are not integrated at the same level of I(0). Hence, the variables are not stable, and for this reason, we cannot use the Johansen co-integration test for the variables in the model. Therefore, we will use the Engle Granger two-stage procedure to test for co-integration in order to check if there exists a long-run relationship among the variables in the model. In other words, the error correction mechanism is the method that is suitable for this study.

2. Serial correlation test: Using Breusch Godfrey LM we tested for serial correlation of the variables in the model. The table below depicts the result,

Table 5: Result of serial correlation

F-statistic = 0.005302 **Obs*R-squared = 0.005998**		**Probability = 0.942338** **Probability = 0.93267**		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.829086	44698868	-0.063292	0.9499
GEXFG	1.296847	19.79454	0.065515	0.9481
EXCHG	-1.350669	41.71004	-0.032382	0.9743
M2G	0.264183	15.12504	0.017467	0.9862
RESID (-1)	0.087434	1.200818	0.072812	0.9423
R-squared = 0.000139 Adjusted R-squared = -0.105109 S.E. of regression = 4.0184066 Sum squared resid = 6.14E=16 Log likelihood = -811.2428 Durbin-Watson = 1.966578		Mean dependent var = 8.66E -09 S.D. dependent var = 3.822533 Akaike info criterion = 37.96478 Schwarz criterion = 38.16957 F-statistic = 0.001325 Prob (F-statistic) = 0.99996		

In table 5, the top part of the output presents the test statistic and associated probability values. The test regression used to carry out the test is reported below the statistics. The statistic labeled "Obs*R-squared" is the LM test statistic for the null hypothesis of no serial correlation. The approximately one probability value in the auto-regressive conditional heteroscedasticity LM test, whose result is shown in table 6, strongly indicates that there is no presence of heteroskedasticity in the residuals.

Table 6: Arch result

F-statistic = 0.016317 **Obs*R-squared = 0.017126**		**Probability = 0.898995** **Probability = 0.895880**		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.49E+15	1.30E+15	1.140989	0.2607
$RESID^2$ (-1)	-0.020188	0.158039	-0.127740	0.8990
R-squared = 0.000408 Adjusted R-squared = -0.024582 S.E. of regression = 8.31E+15 Sum squared resid = 2.76E+33 Log likelihood = -1598.121 Durbin-Watson = 1.999608		Mean dependent var = 1.46E+15 S.D. dependent var = 8.21E+15 Akaike info criterion = 76.19625 Schwarz criterion = 76.27899 F-statistic = 0.016317 Prob (F-statistic) = 0.898995		

5. Discussion

The regression analysis was conducted to check the effect of monetary policy on economic growth in Nigeria. As a result, using an error correlation mechanism, money supply in the second lag year promotes economic growth. This indicates that the growth of the money supply contributes to economic growth. On the other hand, monetary policy instituted by the monetary authorities is yielding good fruit for the economy. The interest rate, as one of the monetary instruments, is not promoting economic growth. This implies that an increase in the interest rate will cause the cost of capital for investment to be costly and hence reduce the level of domestic investment in the economy, which in turn reduces economic growth and slows down the level of economic activity. Also, the exchange rate in the result inversely affects the growth of the economy in the country.

This could be attributed to the fact that Nigeria's economy is facing a balance of payment deficit in the international market, which has caused a high exchange rate as our currency depreciates as a result of the unfavorable balance of trade. This invariably affects the growth of our economy adversely. Though this macroeconomic variable is not statistically significant in our estimated model, it captures the reality of our Nigerian economy. It is quite unfortunate to note from the result that the growth of government expenditure in the lagged year in the economy does not promote economic growth in Nigeria. But it promotes economic growth in the current year. Interestingly, the growth of the inflation rate in the country promotes the growth of the economy in the second lagged year.

This macroeconomic variable is also significant at a 5% level of significance. Lastly, the error correction variable, which measures the speed of adjustment in the system, shows that any disequilibrium in the system will be corrected by 18.4% in the following year, and it will have the correct negative sign. The coefficient of determination shows that 98.2% of the variation in the Nigerian economy is explained by the model, while only 1.8% of the variation in the economy is explained by variables outside the model (error term). This is a good goodness-of-fit for the model. Moreover, the Durbin-Watson statistic in the results shows that there is no serial correlation in the model given in the results.

6. Conclusion

This study sought to appraise the relationship between monetary policy and economic growth in Nigeria, spanning 1980–2019. Three research hypotheses were formulated in order to give this study a direction. Relevant literature was reviewed based on the theories explaining the subject matter and determining the major variables of the study. The research design used for this study was an exploratory and quantitative research design. Econometric techniques were the quantitative tools used to conduct the empirical analysis in Nigeria's context. Starting from the nature and direction of causation, the Granger pair-wise causality model was used, while a multiple regression model was formulated based on the theoretical background of the study. An Error Correction Mechanism (ECM) method was used to estimate the equation to evaluate the inherent connectivity between monetary policy and economic growth.

In particular, it undertakes and approaches to identify the determinants of Nigeria's economic growth, the influence of macroeconomic variables or monetary policy instruments, and the investment effect on growth. Firstly, there is a unidirectional effect or relationship between money supply and economic growth in Nigeria. Secondly, interest rates have a negative effect

on economic growth. The coefficient of determination shows that 98.2% of the changes in Nigeria's economy are in the model, while only 1.8% of the variation in the economy is caused by variables outside the model (error term). The proportion shows that the model has goodness-of-fit and strong explanatory power. Thirdly, government expenditure has a positive effect on economic growth and is statistically significant at a 5% level of significance.

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