

## Impact of Money Supply on Inflation Rate in Nigeria

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### ABSTRACT

This study aims to explain the relationship between the money supply and inflation rate in the Nigeria's economy. In order to contribute to a deeper understanding of the critical economic relationship between money supply and the country's inflation rate, this study sought to elucidate the impact of these fluctuations. The data utilized for this analysis consisted of annual time series data spanning from 1990 to 2022, sourced from the CBN Statistical Bulletin. The Autoregressive Distributed Lag (ARDL) model of analysis was employed. The empirical findings revealed that the various components of the money supply collectively contribute to the inflation rate, while the individual indicators of the money supply exhibit distinct consequences. Broad money supply and exchange rate demonstrate a negative relationship, albeit with weak significance in determining the inflation rate in Nigeria. On the other hand, interest rate has a positive effect on inflation rate. Based on these results, several policy implications can be derived. It is crucial for the government, when formulating monetary policy, to recognize that an increase in the money supply tends to have a more favorable response from the inflation rate. Additionally, the government must be mindful of the relationship between the interest rate and inflation rate. Therefore, this study recommends that the Central Bank of Nigeria comprehends the role of money supply in enhancing inflation rate adjustments and devises monetary policies that would facilitate the proper functioning of the economy, ultimately leading to a stable price level.

**KEYWORDS:** Money Supply, Broad Money, Economic Growth, Development, Economy

### INTRODUCTION

Inflation is a macroeconomic variable that poses significant challenges to economies worldwide. It refers to a consistent and substantial increase in the overall price level within an economy (Jhinghan, 2002). Many economists argue that inflation is primarily a result of monetary factors, occurring when the growth rate of the money supply surpasses the growth rate of the economy (Akçay et al., 1996). This phenomenon is particularly prevalent in developing nations in Africa, including Nigeria. According to Oladipo and Akinbobolo (2013), some African countries have experienced an average annual inflation rate of over 15 percent, with certain countries even reaching rates of 20 percent or higher. Although prices have been on the rise in these countries, they have not yet reached the hyperinflation levels witnessed in some Latin American nations. Furthermore, several factors contribute to the sustained and persistent inflation rates in many developing countries. These factors include high public sector budget deficits, the monetization of these

deficits, excessive military expenditure, inadequate rainfall, populist policies implemented prior to elections, the persistent inflationary expectations of economic agents, an increase in the money supply, rising costs of imported raw materials, inputs, and manufactured goods, escalating interest rates resulting from the crowding-out effect of government borrowing, and unstable exchange rates both before and after the adoption of IMF/World Bank adjustment programs

Kumpayi et al., (2012), observed that high inflation in Nigeria has led to a decline in investment yield and has negatively impacted government policy objectives. As inflation rises, the real size of the budget shrinks, which hampers economic growth. The causes of inflation are a subject of controversy, with various economists and finance experts attributing different factors as the main causes. These factors include money supply, exchange rates, interest rates, government deficit budget, and others. Developing countries, such as Nigeria, are particularly affected by inflation. Money supply is considered a crucial variable that determines the pace of economic activities. Its expansion or contraction influences investment growth and output. Therefore, understanding the factors contributing to inflation is essential for formulating and implementing appropriate macroeconomic policies. The monetarists, led by Milton Friedman, believe that inflation is always and everywhere a monetary phenomenon.

The monetary perspective presented in this text is based on Fisher's quantity theory of money (1948), which states that changes in the growth of money supply are accompanied by equal and proportional changes in inflation. However, Nyong (2001) argues that inflation is positively related to the growth of money supply, all else being equal, and negatively related to the growth of real income or output. Ogun and Adenikinju (1995) discovered that during Nigeria's oil boom period, characterized by rapid monetary growth, the country experienced double-digit inflation.

In the last decade, inflation in Nigeria has been a cause for concern, with its value increasing from single digits to double digits in the third quarter of 2008, reaching a rate of 11.5 according to the IMF's 2011 World Economic Outlook. However, there have been specific time periods in Nigeria's economic history when inflation has been more prominent. For example, inflation rose from 9.0% in the fourth quarter of 2015 to 18.3% in the first quarter of 2017, resulting in a 100% increase in the prices of goods and services, as reported by FSDH (2016). This has placed economic agents, including the private sector, households, and the government, at a disadvantage as their real incomes decline due to rising prices. The situation worsens when inflation is accompanied by high levels of uncertainty, leading to a higher cost of living (Greenridge et al., 2009). On the other hand, money supply refers to the notes and coins in circulation outside the central bank. An increase in money supply is considered a direct monetary transmission mechanism, meaning that when money supply increases, people in the economy tend to spend more of that money, causing demand to exceed supply (Ragan, 2014). Therefore, economists are interested in understanding the relationship between different economic variables, as reflected in the commonly used economic slogan.

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the media, indicating their impact on the economy and individual income. In Nigeria, the national media plays a crucial role in educating the public about the importance of this economic indicator, as published by the National Bureau of Statistics (NBS) and the Central Bank of Nigeria (CBN) on a monthly and quarterly basis. Understanding the sources of inflation is essential for determining effective economic policies to combat inflationary pressures. Based on the above, this paper aims to empirically investigate the impact of money supply and inflation rate in Nigeria from 1973 to 2013. Unlike previous studies that focused on either the impact of money supply on economic growth or inflation on economic growth in Nigeria, this study takes a different approach by examining the impact of both monetary policy variables (money supply and inflation) within a single framework. Furthermore, earlier empirical studies have primarily focused on short-term impacts, overlooking the long-term behavior of these variables.

As a result, it should be investigated for policy development and implications in order to maintain it within bounds. Because of the positive influence on various income earning groups, creeping inflation is acceptable in the speed of economic expansion. Some economists feel that a low and constant inflation rate of 3 % carries a minor economic cost (Makinwa, 2011).

## **Literature Review**

### **Conceptual Framework**

#### **Broad Money Supply (MS2)**

Broad Money Supply (MS2) refers to a comprehensive measure of the quantity of money within an economy. It encompasses various components such as M1 (physical currency and coins), savings and small-time deposits, overnight commercial bank deposits, and non-institutional money market accounts (CBN, 2018). Omodero (2019) emphasizes the significance of money supply as a monetary policy instrument that greatly influences a nation's economic development. All components of M2 are highly liquid, and even the non-cash elements can be easily converted into cash. Broad money includes physical notes and coins, along with savings accounts and deposits. Additionally, Treasury Bills and gilts can be considered as "near money." In economics, broad money (MS2) serves as a measure of the money supply that extends beyond physical currency. It encompasses commercial bank demand deposits and any money held in easily accessible accounts. The interpretation of broad money may vary depending on the specific context, but it is generally designed to be the most useful indicator in a given situation. It is important to note that the term "broad money" primarily refers to the least liquid form of money and does not have a fixed meaning in all cases. In Nigeria, the broad money (as a percentage of GDP) was 23.53 in 2018. Its highest recorded value in the past 58 years was 28.63 in 1980, while the lowest value was 9.06 in 1996.

#### **Interest Rate**

Moving on to interest rates, they play a crucial role in economics, particularly in monetary theory. However, it is surprising that a consensus has not yet been reached regarding the existence and determinants of interest rates. According to Trading Economics (2020), the real interest rate is the lending interest rate adjusted for inflation, as measured by the GDP deflator. It is important to note that the terms and conditions associated with lending rates vary across countries, limiting their comparability. In Nigeria, the real interest rate was reported at 4.5222% in 2019 (World Bank, 2020).

## **Theoretical Framework**

### **Classical Quantity Theory**

Classical Quantity Theory, in its original form, suggests a direct and proportionate relationship between the quantity of money and the general price level. According to this theory, if the money supply increases by 10%, then general prices will also increase by 10%. This principle was first attributed to the French economist Jean Bodin in 1668. However, David Hume provided a more refined explanation of the quantity theory of money in 1752. The crude hypothesis may be put forward as follows:

$P = KM$  Where  $P$  = General price index

$K$  = Constant Proportionality,

$M$  = Money supply

Where  $K = v/y$   $V$  = Velocity of money;  $Y$  = real output

### **Keynesian Monetary Theory**

Keynesian Monetary Theory, on the other hand, is based on different assumptions. Keynes believed that as long as there is unemployment, all factors of production are in a perfectly elastic supply state. He also assumed that the unemployed factors are homogeneous, perfectly divisible, and interchangeable. Additionally, Keynes argued that as long as prices do not change with output, there will be constant returns to scale. Finally, he believed that effective demand and the quantity of money change in the same direction as long as there are unemployed resources. Keynesians reject the classical notion that the relationship between money and prices is direct and proportional. Instead, they argue that it is indirect and influenced by the rate of interest. They integrate monetary theory with value theory, unlike the classical economists who treat them as separate concepts.

### **Monetarist theory**

In 1956, Professor Milton Friedman presented a modern restatement of the quantity theory, known as Monetarist theory. Friedman aimed to show that the velocity or demand for money is a stable function of a limited number of other important factors. This new version of the quantity theory allowed for empirical testing and was considered more sophisticated than the classical theory. The monetarists argue that any changes in money income can be attributed to changes in the supply or demand for money (Odumisor, 2015). The main principles of monetarism can be summarized as follows:

a) The supply of money directly and significantly affects national income and expenditure.

b) Interest rates have no impact on the supply and demand for money. The demand for money is the demand for transactions, which is determined by the level of income.

c) Changes in the general price level are primarily caused by monetary factors and determined externally by the monetary authorities.

### **The neo-classical theory**

Another version of the classical theory of inflation was developed by Cambridge economists. While the classical theory of inflation considers an increase in the money supply as the cause of inflation, the Cambridge version recognizes an increase in the demand for money as the cause of inflation. The Cambridge version of the quantity theory of money is represented by the equation  $MD = KRP$  (where  $MD$  = amount of money demanded;  $R$  = real output;  $P$  = general level of price;  $K$  = a constant proportion of total income people want to hold in the form of money). The Cambridge equation yields the price level equation

as PMD/KR. This implies that the general level of prices increases in proportion to an increase in the demand for money, given K and R (Okoroafor, 2012).

### **The institutional theory of inflation**

Supporters of the institutional theory of inflation largely agree with the quantity theory; money and inflation are closely related. According to the quantity theory of money, changes in the money supply lead to changes in the price level. However, institutional theorists see the causation in the opposite direction. Increases in prices compel the government to increase the money supply or result in unemployment. The direction of causation goes from right to left;  $MV \rightarrow PQ$ . According to the institutional theory of inflation, the source of inflation lies in the price-setting process of firms.

Firms and individuals often find it more convenient to raise prices rather than lower them when determining their pricing strategies. Unfortunately, they tend to overlook the impact of these decisions on the overall price level. It is important to note that all income ultimately goes to the individual owners of the factors of production. The revenue earned by firms is then distributed among profits, wages, and rent. Firms act as intermediaries between the owners of the factors of production and the consumers. In order to maintain harmony with their employees and other owners, it is easier for firms to increase wages, profits, and rents rather than trying to control these costs. Consequently, firms compensate for these increases by raising the prices they charge consumers. To counterbalance the rising price level, the government intervenes by increasing the money supply. This ensures that there is enough demand to purchase goods at the higher prices. This study adopts the quantity theory of money, which explains the relationship between money supply and inflation. This theory is chosen because it aligns with the subject matter of the study and can be used to test our hypotheses (Rasmussen, et al., 2007).

### **Empirical Literature Review**

Bashir and Sam-Siso (2020) conducted a study on the relationship between monetary policy and macroeconomic performance in Nigeria from 1981 to 2018. They examined the stochastic properties of the time series data using both conventional and unit root tests, taking into account structural breaks caused by shift dummies in the series. Their findings indicated that the series exhibited a combination of both  $I(0)$  and  $I(1)$  specifications, which led to the use of ARDL. The results revealed that in the short run, a lagged increase in the inflation rate, appreciation of the exchange rate, and unexpected appreciation (represented by the shift dummy) could reduce the inflation rate. On the other hand, a lower Monetary Policy Rate (MPR) and a high volume of money in circulation could stimulate inflation. Additionally, a lagged increase in the unemployment rate, high MPR, and depreciation of the exchange rate significantly stimulated the unemployment rate, while unexpected appreciation reduced it. In a separate study.

Onwuteaka, Okoye, and Molokwu (2019) examined the impact of monetary policy on economic growth in Nigeria using secondary data from the Central Bank of Nigeria statistical bulletin for the period 1980-2017. They employed a multiple econometric model of ordinary least squares to estimate the effects of money supply, credit in the economy, interest rate on credit, infrastructure, inflation rate, external debt, and price index on Nigerian development. The findings revealed that money supply, interest rate on credit, infrastructure, and external debt were statistically significant in explaining their impact on economic development. However, the other variables used in the analysis were found to be statistically insignificant in explaining the growth rate of the Nigerian economy. In a similar vein.

Ayodeji and Oluwole (2018) analyzed the effect of monetary policy on economic growth in Nigeria by developing a model that could investigate how government monetary policy influenced economic growth



through a multi-variable regression study. They implemented an Error Correction Model to provide a parsimonious model for their analysis.

Ufoeze, Odimgbe, Ezeabalisi, and Alajekwu (2018) conducted a study on the impact of monetary policy on economic growth in Nigeria. They analyzed various monetary policy variables such as monetary policy rate, money supply, exchange rate, lending rate, and market-controlled investment. The research utilized the Ordinary Least Squares technique and performed root and co-integration tests. The findings of the analysis revealed a long-term relationship between the variables. Notably, the study demonstrated that monetary policy rates, interest rates, and investment significantly contribute to Nigeria's economic development.

Srithilat and Sun (2017) investigated the effect of monetary policy on economic growth using annual time series data from 1989 to 2016. They employed the Error Correction Model to assess the relationship between variables. The results indicated that money supply, interest rate, and inflation rate have a negative impact on real GDP per capita in the long run, while the real exchange rate has a positive effect. Furthermore, the error correction model suggested a short-term causality between money supply, real exchange rate, and real GDP per capita.

Yien et al. (2017) examined the dynamic relationship between monetary policy and economic growth in Malaysia from 1980 to 2015. They utilized the VAR Granger Causality method and found that interest rate granger caused growth per capita, money supply, inflation, unemployment, and foreign direct investment. Furthermore, the research demonstrates that the implementation of a different approach to monetary policy in Malaysia, specifically shifting from monetary targeting to interest rates targeting, has proven to be a successful strategy. Additionally, the study revealed a two-way causal relationship between unemployment and per capita growth in Malaysia.

Essien et al. (2016), utilized a Vector Autoregressive (VAR) framework and incorporated the impact of structural breakpoints as dummy variables in their analysis for the period from 1983q1 to 2014q1. Their findings indicated that an increase in the policy rate leads to a rise in unemployment over a period of ten quarters. In the context of promoting inclusive growth in Nigeria.

Nwosa (2016) employed the Ordinary Least Squares (OLS) technique to examine the impact of monetary, fiscal, and foreign exchange policies on unemployment and poverty rates from 1980 to 2013. The analysis revealed that the unemployment rate is primarily influenced by the exchange rate (monetary policy), while the poverty rate is influenced by fiscal policy.

### **Methodology**

The work attempts to estimate the parameters of relationship between money supply and inflation in Nigeria. Towards this end, the relationship between relevant variables (inflation rate, money supply, interest rate and exchange rate) is examined over time and answers proffered to specific questions. Thus, the work is quantitative.

### **Theoretical Framework**

Although monetary theory of inflation portrays the strong link between money supply and inflation, to the monetarists, the money supply is the “dominate, though not exclusive” determinant of both the level of output and prices in the short run, and of the level of prices in the long run. The long-run level of output is not influenced by the money supply. (Friedman, 1987). Since the work is explanatory, the monetary theory

of inflation is employed to explore the relationship between moneysupply and inflation in Nigeria. This will enable the consideration of other determinants (interest rate and exchange rate) on inflation in Nigeria.

### Model Specification

To study the relationship between inflation and money supply, the variables are expressed in a functional, mathematical and econometrical forms of the models are expressed in equation 3.1, 3.2 and 3.3 respectively. The model is specified to determine the effects of moneysupply, interest rate, nominal exchange rate on inflation in Nigeria.

$$\text{INFR} = f(\text{MS2}, \text{ITR}, \text{EXR}) \quad 3.1$$

$$\text{INFR} = a_0 + a_1\text{MS2} + a_2\text{ITR} + a_3\text{EXR} \quad 3.2$$

$$\text{INFR} = a_0 + a_1\text{MS2} + a_2\text{ITR} + a_3\text{EXR} + U_t \quad 3.3$$

Where;

INFR = Inflation rate

MS2 = Broad money Supply

ITR = Interest rate

EXR = Exchange rate

$a_0$  = intercept

$a_1 - a_3$  = the slopes

$U_t$  = the error term

### Data and Estimation

Time series inflation rate, money supply, interest rate and nominal exchange rate of Nigeria from 1990-2022 will be obtain from the Central Bank Nigeria Statistical Bulletin. The time series properties of the variables are examined using unit root

### Variable Measurements

Data used in this paper are annual figures which spans from 1990 - 2022 and include consumer price index (headline consumer price index), money supply(narrow money), interest rate and nominal exchange rate respectively are sourced from National Bureau of Statistics and Central Bank of Nigeria statistics bulletin. All of which were measured in naira except the rates. CPI was used to proxy inflation due to the fact that quantity theory of money though, accepted but criticized on the ground that there are different drivers of prices in an economy. The volatile nature of the naira to dollar exchange rate serves as the nominal exchange rate, monetary policy rate was used to proxy money market rate of interest. Lastly, the money supply data is proxy by narrow money and is in billions of naira.

### Data Analysis, Results and Discussion

#### Unit Root Test: Dickey-Fuller Unit Root Test Result of the Series

Table 4.1 presents the Augmented Dickey-Fuller (ADF) unit root test. The unit root test was presented in form of intercept model in order to deduce the order of integration of the variables at 5% level of significance. According to the results, MS2, ITR and EXR are integrated of order zero. That is the series (MS2, ITR and EXR) does not have unit root problem at level. However, both INFR has unit root problem at level, but after the first difference, the series becomes stationary. Hence, INFR is integrated of order one. In summary, there is mixed stationary series in the model, therefore the auto regressive distributed lag model (ARDL) is applicable.

Table 4.1 Augmented Dickey-Fuller Unit Root Test

Variables	At Level		At First difference		Order of Integration
	ADF Value	5% Critical Values	ADF Value	5% Critical Values	
INFR	-1.744332	-1.946996	-4.744332	-1.946996	I(1)
MS2	-2.529664	-1.946996			I(0)
ITR	-7.552345	-1.947119			I(0)
EXR	-4.518347	-1.946996			I(0)

Source: author’s computation using Microsoft software

**Bound F-test for co integration**

The empirical analysis of this study involves the determination of order of integration of the variables in question. This would enable the study to use either ARDL model or not. After achieving stationarity, the next step is to conduct the bound F-test in order to establish a long-run relationship among the variables.

Table 4.2: Results of bound F-test for co integration

Dependent variable	Function	F-statistics
INFR	FINF(INF/MS1/MS2/ITR/EXR)	4.3814**
MS2	FMS2(MS2/INF/ITR/EXR)	-----
ITR	FITR(ITR/MS2/INF/EXR)	1.5769
EXR	FEXR(EXR/ITR/MS2/INF)	93406
Asymptotic critical value	5%	10%
Lower bound	2.5046	2.0353
Upper bound	3.8786	3.2694

Source: author’s computation using Microsoft software

**Interpretation of the results of bound F-test for co integration**

The result of the bound test for co integration in Table 4.2 above indicates that cointegration is present when INFR is treated as dependant variable. This is because the computed F-inf (INFR/MS2/ITR/EXR) is 4.3814 which is higher than the upperbound critical value at both 5% and 10% that is 2.5046 and 3.8786 respectively. It implies that there is only one single long run relationship between inflation and other explanatory variables such as broad money supply (MS2), interest rate, and exchange rate in Nigeria for the period under study.

**Estimated long run coefficient using ARDL approach**

Since the co integration between the variables has been established, ADRL was employed in the determination of long run relationship between inflation and money supply growth in Nigeria (1980 – 2012).

Table 4.3: Estimated long run coefficient base on ARDL model

Regressor	Coefficient	Standard Error	T-ratio	P-value
Dependant variable:				



INFR				
MS2	074288	.63606	.11679	.908
ITR	.31409	.75061	.41844	.679
EXR	-.088564	.074654	-1.1863	.247

Source: author’s computation using Microsoft software

**Interpretation of the estimated long run coefficient base on ARDL approach**

The result of long run coefficient is presented in Table 4.3 above. Long run elasticities ofinflation are positive with the exception of exchange rate. Thecoefficients of money supply growth (MS2) is positive and statistically notsignificant is represented by .074288. Interest Rate (ITR) has a coefficient of.31409 is also positive but statistically not significant. Exchange Rate contradict the a-priory expectation with negative long run elasticities of (-0.088564). The implication of this result is that a 1% increase in exchange rate will lead to 0.10% decrease in inflation.

**Error correction representation for the selected ADRL model**

The short run relationship of the macroeconomic variables was determined in Table 4 below using ADRL approach.

Table 4.4: Short run error correction results

Regressor	Coefficient	StandardError	T-ratio	P-value
Dependant variable: INFR				
MS2	-.41455	.36994	-1.1206	.273
ITR	.19332	.48881	.39549	.696
EXR	-.054510	.051164	-1.0654	.296
ECM (-1)	-.61550	.14637	-4.2051	.000

Source: author’s computation using Microsoft software

**Interpretation of estimated error correction based on ARDL model**

The short run analyses in Table 4.4 above indicates the present of short run relationshipbecause the ECM is correctly signed (negative) and statistically significant as indicated by 1percent critical p-value. The coefficient of broad money supply growth (MS2) and exchangerate have negative signs as (-0.41455 and -0.054510) respectively. While the coefficient of interest rate (.19332)shows positive but not statistically significant. The coefficient of ECM suggests the speed ofadjustment of the model. It implies that in the current period 61% of the disequilibriumcan be removed from the system.

**Properties of ARDL Estimate: R-Squared, F-statistics, DW-statistics and Pvalue**

Table 4.5: Properties of ARDL Estimate

R-Squared	0.578
F-statistics	6.581
DW-statistics	2.232
P-value	0.000

Source: author’s computation using Microsoft software

### **Interpretations of the Properties of ARDL Estimate**

The Table 4.5 above shows the values of regression statistics for broad money supply (MS2), interest rate, exchange rate and fiscal deficit. The value of R-squared is 0.578 which indicates that 57.8 percent variation in inflation is due to money supply growth, interest rate and exchange rate. F-statistics result suggests that the model is significant at 1% level of significance because its p-value is 0.000. F-statistics is the ratio of the regression mean square and error mean square. It is used to determine the significance of the overall regression model in regression analyses. The value of F-statistics in above model is 6.581 which shows the significance indicating adequacy of the model. Durbin Watson statistics 2.232 implies the absence of serial correlation between variables.

### **Discussion of Results**

The aim of this research is to investigate the relationship between money supply and inflation rate in Nigeria for the period from 1990 to 2022. Findings of our OLS estimation reveal that the coefficient of broad money supply indicates that inflation is a decreasing function of broad money supply (i.e. a unit change in MS2 will lead to about 60% change in inflation in Nigeria within the period under study). This result is in line with the study conducted by Emmanuel (2000) and contradicts the work of Emmanuel (2012), Ajakaiye (2005) who studied the determinants of inflation in Nigeria. Furthermore, the estimated coefficient of interest rate has a positive sign indicating positive influence on inflation. Therefore, such result is in line with studies carried out by Omoke, *et al.*, (2009), Bakere (2011), Hossain and Islam (2013), Oyejide (1972). Moreover, our findings show that exchange rate in Nigeria was inversely related to inflation within the study period which is in conformity with Akinbobola (2012), Emmanuel (2010) who found similar negative relationship in their works, but contradicts the work of Muhammadu and Phillip (2003). The results of findings using Autoregressive Distributed Lag (ARDL) bound F-test for cointegration reveals that there is an existence of co-integration among the variables when inflation is treated as dependent variable. This is indicated by the value of computed F-statistics 4.3814 which is higher than the upper bound critical value at both 5% and 10% respectively. This implies long run relationship between inflation, money supply growth, interest rate and exchange rate. This result is in line with findings of Kesavarajah and Amirthalingam (2010) and contrary to the work of Omeke and Ugwuanyi (2010).

Money supply growth in Nigeria based on ARDL bound F-test approach can be viewed as a long run forcing variable in explaining inflation. This finding is in tandem with the work of Ghazali *et al.*, (2008), Muktar and Zakaria (2010), Busari (2007), Okoroafor (2012) Muhammadu and Phillip (2003) Emmanuel (2010) who all found long run relationship between money supply and inflation. On the other hand, findings of this study contradict the work of Wray (2000) Dlamini and Nxumalo's (2001). Moreover, our findings based on ARDL reveals the existence of long run positive relationship between inflation, interest rate in Nigeria for the period under study. These results are concomitant with the study conducted by Hossein and Islam (2013) on the determinants of inflation. Exchange rate in Nigeria found to be negatively related to inflation in the long run. This shows that the result of findings based on ARDL reveals that a unit increase in exchange rate would have a decreasing effect on inflation within the period under investigation. This finding is in tune with the findings of Emmanuel (2010) and inconsistent with Ajakaiye (2005).

### **Summary, Conclusions and Recommendations**

Based on the findings of this study the following conclusions are drawn.

1. Money supply growth increases inflation in the long run. Therefore, in order to curtail inflation in Nigeria there is need to reduce money supply growth.

3. Exchange rate negatively influence inflation. On the other hand, increase in interest rate increases inflation in Nigeria within the study period.

Having identified a positive long run relationship between money supply growth and inflation rate, this study recommends that efforts should be geared towards improving stabilization programs particularly open market operations to control excess money in circulation which will curtail inflation. Governments should streamline its policy on interest rate. Interest rate plays a pivotal role in explaining inflationary process. Many productive investments are not explored in Nigeria due to high rate of interest. Investors may find it difficult to accept higher rate, but moderate rate of interest may attract more borrowers and more investment opportunities which would subsequently lead to higher productivity and moderate inflation rate in the economy.

Though exchange rate may not be the most important factor in inflation determination in Nigeria, the fact that it influences inflation negatively, suggests that exchange rate stability is a necessary condition for stable domestic prices. Increase output production and diversifying the economy from import based economic activity to export based activity will increase output supply.

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