

Monetary Policy And Economic Growth In Nigeria: Evidence From Nigeria

Uduakobong S. Inam

Department of Economics, Faculty of Social Sciences
University of Uyo, P.M.B. 1017, Uyo, Akwa Ibom State, Nigeria

Blessing Sunday Ime

Department of Economics, Faculty of Social Sciences
University of Uyo, P.M.B. 1017, Uyo, Akwa Ibom State, Nigeria

ABSTRACT

This study investigates the impact of monetary policy on the economic growth of Nigeria using annual data covering the period of 1970 to 2012. Specifically, it seeks to: analyse the relationship between money supply and economic growth in Nigeria; determine the nature and direction of causality between money supply and economic growth. The study employs the Ordinary Least Square (OLS) techniques and the granger causality test. The result indicates a positive and insignificant relationship between money supply and economic growth. Furthermore, it indicates no causality between money supply and economic growth. The study recommends that government and relevant monetary authorities should ensure that money supply levels are effectively and efficiently monitored, managed and controlled so as to enhance, promote and achieve economic growth in Nigeria.

Keywords: Monetary Policy, Money Supply, Economic Growth, OLS, Granger Causality.

INTRODUCTION

One of the key traditional roles of Central Banks of countries in the global economy is the regulation of the supply and cost of money as well as the direction of credit in their respective economies. This is usually actualized through the judicious use of monetary policy (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 (Adigme, Echekeba and Onyeagba (2015); Adesoga, Maku and Atanda (2012); Baghebo and Ebibai (2014); Okwu, Falaiye and Owolabi (2011)). Monetary policy also refers to the credit control measures adopted by the Central Bank of a country. (Jhingan, 2000).

The primary objectives of monetary policy include: general price stability; exchange rate stability; achievement of full employment equilibrium; rapid economic growth and maintenance of balance of payment equilibrium. These objectives are necessary for the attainment of internal and external balance and the promotion of economic growth (Tmoughele, 2014). However, it is pertinent to note that whereas, monetary policy objectives are often times synonymous with the macroeconomic objectives of governments in countries the world over, the application of monetary policy varies across countries. Consequently, the effects of monetary policy measures employed usually differ amongst the developed and developing economies.

Generally, the primary focus of monetary policy is concerned with the application of either expansionary or contractionary monetary policy measures depending on whether the economy is in a recession or a boom. In this regard, the Central Bank determines the amount of money to be supplied that is consistent with the nation's macroeconomic objectives and manipulates the monetary policy instruments at its disposal in order to achieve the stated objectives.

In Nigeria, over the years, diverse monetary policy instruments (such as bank rate, open market operations, changes in reserve ratios and selective credit controls) have been employed to achieve specified government objectives. With money supply, bank credit and interest rates as the usual targets, the overall effect of monetary policy instruments have been minimal as the Nigerian economy is still overwhelmingly beset with the macroeconomic problems of unemployment, low investment and high inflation episodes. The reasons for this apparent ineffectiveness of monetary policy in Nigeria are not usually far-fetched: under-developed financial system; gross mis-match and lack of coordination between monetary policy formulation and implementation; cash-based economy; money hoarding; poor banking habit; weak socio-political and economic institutions, corruption; and a host of other structural factors usually inherent in a developing economy.

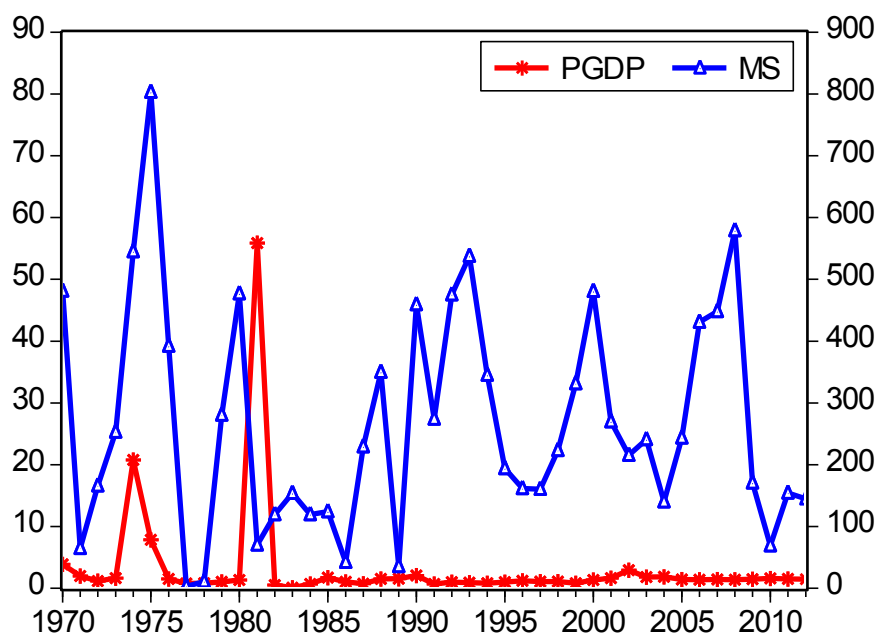


Figure 1: Growth rates of real gross domestic product and real broad money supply in Nigeria.
Source: Central Bank of Nigeria(2010, 2013)

There is a consensus in the literature that there exists a strong correlation between one of the monetary policy targets or indicators – money supply and one of the monetary policy objectives – economic growth. Recall that, monetary policy involves decisions about regulating the supply and cost of money optimally such that certain national objectives (including economic growth) are achieved. This suggests that there exists a relationship between money supply and economic growth in Nigeria. Money supply engenders inflation (a sustained increase in the general price level of goods and services) which creates higher profit margins for producers (due to the wage lag behind the increase in the general price level). This leads to

higher rates of savings, investment and capital accumulation. Thus, generating a higher rate of long-run economic growth.

Available data on the Nigerian economy reveal that the growth rate of Money Supply (MS) and Real Gross Domestic Product (RGDP) have fluctuated actively over the period of 1970 to 2012. Figure 1 shows MS and RGDP with MS increasing from 49.81% in 1970, fluctuating actively to attain an all-time high peak point of 40.77% in 2009, thereafter falling to 19.43% in 2012. Similarly, RGDP fluctuated actively and attained a peak point of 33.74% in 2003.

A close scrutiny of figure 1 reveals that over a few ranges, there appears to be no correlation between these variables. Thus, what is the relationship between money supply and economic growth? Does monetary policy have any effect on output performance in Nigeria? Thus, the major objective of this study is to investigate the relationship between monetary policy and economy growth in Nigeria using annual data spanning the period of 1970 to 2012. Specifically, the study seeks to: analyze the relationship between money supply and economic growth in Nigeria; determine the nature and causality between money supply and economic growth in Nigeria.

This study is significant in that it will serve as a veritable guide to the government and monetary authorities for effective monetary management in Nigeria. It will equally provide useful insights to students and researchers alike. The study is organized into five sections. Section 1 is the introduction while section 2 reviews related literature. Section 3 explains in detail the methodology of research while section 4 presents the empirical results and their discussions. Section 5 embodies the summary, conclusions and recommendations of the study.

LITERATURE REVIEW

Theoretical Framework

Monetary theory has undergone a vast and complex evolution since the study of the economic phenomenon first came into limelight (Jhingan, 2000). It has drawn the attention of many researchers with different views on the role of money in attaining macro-economic objectives.

The Classical Monetary Theory

The classical school evolved through concerted efforts and contributions of economists like Jean Baptist say, Adam Smith, David Ricardo, Pigou and others who shared the same beliefs (Onyeiwu, 2012). The classical model attempts to explain the determination of savings and investment with respect to money. Amacher and Ulbrich, 1986 in Udude (2014) wrote that the classical economists believe that the economy automatically tends towards full employment level by laying emphasis on price level and on how best to eliminate inflation. According to Imoughele (2014), the theory shows how money affects the economy. It may be considered in terms of the "equation of exchange". This equation implies that changes in the price level can be changes in the stock of money. Thus:

$$MV = PY \dots\dots\dots(1)$$

Where:

M = Stock of money

P = General Price level

V = Income velocity of money

Y = The flow of real goods and services

'MV' measures the total value of transactions within a given period of time (total expenditure), while 'PY' measures the value of goods currently produced and sold (total product in value GNP).

The Quantity Theory of Money

The quantity theory of money states that the quantity of money is the main determinant of the price level or the value of money (Jhingan, 2009). Any change in the quantity of money produces an exactly proportionate change in the price level. Thus, the quantity theory of money says that the level of prices varies directly with quantity of money (Ahuja, 2011). Two very similar "quantity of money" formulations were used to explain the level of price viz; the transaction formulation and the Cambridge equation (Jhingan, 2009). In the transaction version – associated with an American economist, Irving Fisher - quantity theory of money expressed the relationship between the quantity of money and the price in the form of an equation called "an equation of exchange" (Ahuja, 2011). This is:

$$PT = MV \dots\dots\dots(2)$$

Where:

P =Average price level

T =Total amount of transactions

M =Quantity of money

V =Transactions velocity of circulation of money

Thus, T and V are considered constant. The quantity theory of money here shows that the level of price is a function of the supply of money (Balogun, 2007).

The Cambridge version – associated with Walras, Marshall, Wicksell and Pigou (the Classical school) can be expressed as:

$$M = KPY \dots\dots\dots(3)$$

Where:

K =Fraction of income

M =Quantity of money

P =Price level

Y =Value of goods and services.

The 'K' in this equation is related to velocity of circulation of money 'V' in Fisher's transactions approach (Ahuja, 2011). This version directs attention to the determinants of demand of money, rather than the effects of changes in the supply of money (Anyanwu, 1993).

The Keynesian Theory

Keynesian's monetary theory explains the effect of variation in money supply on the level of economic activity through its effect on the rate of interest which determines investment in the economy (Ahuja, 2011). Keynes does not agree with the older quantity theorists that there is a direct and proportional relationship between quantity of money and prices, rather to him, the effect of a change in the quantity of money on prices is indirect and non-proportional (Jhingan, 2009). According to Khabo (2002), the Keynesians propose that "money does not matter", hence unable to impact on economic growth. They proposed that the link between the monetary sector and the real sector of the economy is very weak and therefore suggest that there is an indirect link. To Ahuja (2011), Keynes believed that velocity of circulation was

volatile and there often existed underemployment of resources due to recessionary conditions in the economy.

The Monetarist Theory

The Monetarist theory (a restatement of the quantity theory of money) is associated with Milton Friedman. Friedman asserts that “the quantity of money theory is a theory of the demand for money and not a theory of output, or of money income, or of the price level” (Jhingan, 2009). Monetarists emphasized money supply as the key factor affecting the wellbeing of the economy (Friedman, 1963). According to Ahuja (2011), the monetarists argue that money has significant effect on price level or inflation in the economy in the long run and have real effects on output and employment in the short run. Monetarists believe that “money matter” therefore there is a direct link between monetary sector and the real sector of the economy (Khabo, 2002). Friedman equally argued that changes in money supply will therefore have both direct and indirect effect on spending and investment respectively since money supply is substitutive not just for bonds but also for many goods and services (Friedman, 1963).

EMPIRICAL LITERATURE REVIEW

Relationship between Money Supply and Economic Growth

Nouri and Samimi (2011) examined the impact of Monetary Policy on economic growth in Iraq adopting ordinary least square (OLS) technique and data covering the period 1974-2008. A positive and significant relationship between money supply and economic growth was established in the study. Similarly, Mohammed *et al* (2009) examined the long-run relationship among M_2 , inflation, government spending and economic growth in Pakistan by using annual time series data from 1977 – 2007. Co-integration results show that public expenditure and inflation has significant and negative effect while M_2 has significant and positive effect on economic growth in the long-run.

Dele (2007) employed the generalized least square (GLS) method in his study of monetary policy and economic performance of West African Monetary Zone Countries (Gambia, Ghana, Guinea, Nigeria and Sierra Leone) from 1991-2004. Using the variables money supply (M_2), minimum rediscount rate, banking system credit to private sector, banking system credit to central government and exchange rate of the national currency to the US dollar, findings of the study indicate that monetary policy was a source of stagnation as it hurts real domestic output of these countries. Friedman and Kutner (1992) study money and output relationship for the period (1960 – 1990) of USA, they argue that the relationship between the amount of money and output becomes less strong with increasing time period. On the other hand, they find that the explanatory power of the interest rate has stronger impact than the amount of money in the interpretation of change in output.

El-Seoud (2014) tests the relationship between money supply and GDP in Bahrain between 2000 and 2003. By applying co-integration test, the result shows that real money supply had neutral effect on the real GDP growth in Bahrain during the study period. Abbas (1991) tests the causal relationship between money and output in some Asian countries, and he finds out there is mutual relationship between money and income in Pakistan, Malaysia and Thailand. Daniela and Mihali (2010) tried to study the relationship between money supply and GDP in order to construct a function which would explicit this connection for Romania, depending on the data of money supply (M_s) and of GDP over ten years through the ADF, they find out that both series are non-stationary, and when they apply the Engle-Granger co-integration method, they conclude that there is co-integration between two series.

Khabo (2002) evaluated the impact of monetary policy on a small and open economy in the case of the South Africa for the period 1960 – 1997. He used M_3 to measure monetary policy. The Ordinary Least Square (OLS) method was employed as well as the augmented Dickey fuller test to check for stationarity. Results of the study indicate that economic growth is significantly influenced by money supply. Abdul-Raziq and others (2003) test the impact of real GDP, government spending, price level, and international reserve on the money supply in Qatar. They find significant relationship between real GDP and money supply, this means that the change in GDP in Qatar help in explaining the change in money supply and not the opposite.

Within the Nigeria context, there have been several attempts to empirically determine the relationship between money supply and economic growth. Ogunmuyiwa and Ekone (2010) investigate the impact of money supply on economic growth in Nigeria between 1980 and 2006. Applying economic technique - ordinary least square, causality test and error correction mechanism to time series data, the results revealed that although money supply is positively related to growth but the result is however insignificant in the cause of GDP growth rates on the choice between contractionary and expansionary money supply. Onyeiwu (2012) examines the impact of monetary policy on the Nigeria economy between 1981 and 2008 using the ordinary least square method (OLS) to analyze data. The result of the analysis shows that monetary policy presented by money supply exerts a positive impact on GDP growth and balance of payment but negative impact on rate of inflation. Furthermore, the finding of the study supports the money-price-output hypothesis for Nigerian economy.

Udude (2014) examined the impact of monetary policy on the growth of Nigeria economy between the period of 1981 and 2012. Applying co-integration test, the result shows that there is a positive relationship between money supply and economic growth though not statistically insignificant. Similarly, Asogun (1998) examined the influence of money supply and government expenditure on GDP, He adopted the Saint Louis model on annual and quarterly time series data from 1960 – 1995. He finds money supply and export as being significant on the determinant of economic growth in the Nigerian economy. The result indicated that unanticipated growth in money supply would have positive effect on output.

Aziakpono (2003) presents and tests a model to determine either or both anticipated and unanticipated money affect real output and growth in Nigeria. The evidence reveals that while anticipated money supply affect real output and growth in Nigeria, the unanticipated money supply does not. Nwaobi (1999) examine the interaction between money and output in Nigeria between the period 1960-1995. The model assumed the irrelevance of anticipated monetary policy for short run deviations of domestic output from its natural level. The result indicated that unanticipated growth in money supply would have positive effect on output

Amassoma *et al* (2011) examined the effect of monetary policy on macroeconomic variables in Nigeria for the period 1986-2009 by adopting a simplified ordinary least square technique found that monetary policy had a significant effect on exchange rate and money supply while monetary policy have an insignificant influence on price instability. Hameed *et al* (2012) presented a review on how the decision of monetary authorities influences the macro variables like GDP, money supply, interest rates, exchange rate and inflation. The method of least square OLS explained the relationship between the variables under study. Tight monetary policy in terms of increase interest rate has significant negative impact on output. Money supply has strong positive impact on output that is positive inflation and output is negatively correlated, exchange rates also have negative impact on output.

Causality between Money Supply and Economic Growth

Hussain (2005) studies the causal relationship between money growth, inflation, currency devaluation and economic growth in Indonesia during the period (1954 – 2002). He finds out that there is short-run bi-directional causality between money supply growth and inflation and between currency devaluation and inflation. Sims (1972) study was the first study to apply the Granger causality approach, to determine the relationship between amount of money and the output in USA, He finds that the amount of money help in the interpretation of output and not the opposite, which means that there is causality direction from the amount of money to GDP, this result is consistent with Friedman and the Monetarist's point of view.

Abbas (1991) performed a causality test between money and income for Asian countries and identified that bi-directional causality between money and income and unidirectional causality between money and income in Pakistan, Malaysia and Thailand. Obaid (2007) tests the causality relationship between money supply (M3) and real GDP in Egypt during the period (1970-2006), by using Granger test. He concludes that there is no causality between the nominal money supply and nominal GDP during the study period, while when he used the real money supply and real GDP, he finds that there is mutual causality relationship between real money supply and real GDP in Egypt (non-neutral money), and thus the monetary policy is an effective policy on the real GDP in Egypt. The mutual causality relationship could help to forecast the GDP behavior within assumed volume of money supply by the economics policy making in Egypt.

Hussein and Abbas (2000) tested the causal relationship between money, income and prices in Pakistan, they find unidirectional relationship from income to money and not the opposite which indicates that the real factors, but not nominal play effective role in the growth of national income in Pakistan. El-Seoud (2014) tested the relationship between money supply and GDP in Bahrain between 2000 and 2013 using Error Correction model and Granger causality techniques. The result shows that there is a unidirectional causality running from real GDP to real money supply in the short-run as well as in the long-run.

Tan and Baharumshah (1999) examine the causal relationship between money, output and prices in Malaysia; they find that money is non-neutral in the short-run, which means that there is a unidirectional relationship from money to output and not the opposite. Lee and Li (1983) examined causality among money, income and prices in Singapore and concluded bi-dimensional causality between income and money and unidirectional causality from money to prices.

Ahmed and Suliman (2011) examined the long-run relationship between three macroeconomic variables, real Gross Domestic Product (GDP), Money Supply (MS) and Price Level (CPI) for the Sudan economy using annual data over the period 1960 to 2005. Granger causality test has been applied and in order to investigate the existence of long-run relationship, co-integration analysis has been employed. The result shows no causality between real GDP and money supply in the cause of Sudan during the period 1960 – 2005.

Within the Nigerian context, Adesoye (2012) test price, money and output in Nigeria between the periods of 1970 – 2009 using the Johansen co-integration test. The result shows presence of one co-integrating vector and causality is found to significantly run from money supply to price.

Omoke and Ugwuancy (2010) examined the causality between money, price and output in Nigeria between 1970 and 2005 and employed co-integration and Granger causality test analysis. Their analysis revealed that no existence of a co-integrating vector in the series used. Money supply was seen to Granger cause both output and inflation.

Chimobi and Uche (2010) test the empirical relationship between money, prices and output in Nigeria. The results revealed that money supply was seen to Granger cause both output and prices, and money supply (M2) to have a strong causal effect on the real output and prices. Olusanya and Akinade (2012) look at analysis of causality between Monetary Policy and Economic Growth in pre-and post-deregulated Nigeria economy between 1970 – 2009, Granger causality analysis was used in order to test the causality between money supply and economic growth. The result showed causality relationship from economic growth (GDP) to money supply (MS) in the pre-deregulation era while in the post-deregulation era; there is no causality relationship between economic growth (GDP) and money supply (M2). Hence, there is a one-way relationship between money supply and economic growth.

RESEARCH METHODOLOGY

Nature and Sources of Data

The study employed secondary data from sources such as: Central Bank of Nigeria (CBN), Statistical Bulletin; Central Bank of Nigeria (CBN) Annual Report Statement of Account; Central Bank of Nigeria (CBN) Economic and Financial Review; and National Bureau of Statistical (NBS). The estimation covered the period between 1970 and 2012.

Method of Analysis/Model Specification

Based on the specific objectives of this Study, the analytical techniques employed include:

Objective 1:

In order to estimate the relationship between money supply and economic growth in Nigeria. We employed the Ordinary Least Square (OLS) technique to ascertain the nature of relationship between the variables of interest. Thus, the study proposed a framework based on the neoclassical aggregate production function, where output is a function of labour (L) and capital (K)

$$Y=f(L, K) \dots\dots\dots(4)$$

For the purpose of this study, we introduce Money Supply (M) and the function becomes:

$$Y=f(L, K, M) \dots\dots\dots(5)$$

In order that the growth equation is not under-specified, other factors apart from money supply which have been identified in relevant literature as determinants of output growth are introduced in the model. These variables are: inflation rate, interest rate, government expenditure, exchange rate, growth rate of investment, population growth rate. Thus, the output model specified for the purpose of this study is stated:

$$RGDP_t = f (MS_t \text{ INFR } GEXP_t \text{ INTR } EXCR \text{ POP}_t \text{ INV}_t) \dots\dots\dots(6)$$

(+)' (-)' (+)' (-)' (-)' (+)' (+)

Where:

RGDP_t = Growth Rate of Real Gross Domestic Product

- MS_t = Growth Rate of Real Broad Money Supply (%)
- INFR = Inflation Rate (%)
- GEXP_t = Growth Rate of Government Expenditure (as a % of GDP)
- INTR = Interest Rate (%) (i.e., Prime Lending Rate)
- EXCR = Real Exchange Rate (%)
- INV_t = Growth Rate of Investment (%)
- POP_t = Population Growth Rate (%)

A Priori Expectation

The figures in parenthesis represent a priori expectations about the signs of the coefficient.

Objective 2:

In order to investigate the nature and direction of causality between money supply and economic growth in Nigeria, Granger causality test is employed. As noted by Gujarati and Porter (2009), X (Granger) causes Y, then changes in X should precede change in Y. thus, in a regression of Y on other variables (including its past values), if lagged values of X are included and it significantly improves the prediction of Y, then it can be inferred that X (Granger) causes Y, if Y (Granger) cause X, the same condition apply.

Thus, the Granger causality equations for this study are specified as follows:

$$RGDP_t = \sum_{i=1}^n \alpha_i MS_{t-1} + \sum_{j=1}^n \alpha_j RGDP_{t-1} + \mu_t \dots\dots\dots (7)$$

$$MS_t = \sum_{i=1}^n \beta_i RGDP_{t-1} + \sum_{j=1}^n \beta_j MS_{t-1} + \mu_t \dots\dots\dots (8)$$

Where:

- RGDP_t = Growth Rate of Real GDP
- MS_t = Growth Rate of Real Broad Money Supply
- RGDP_{t-1} = Lagged GDP
- MS_{t-1} = Lagged Money Supply
- μ_t = Stochastic Error Terms
- t = time period

If the estimated coefficient of X_{t-1} are statistically significant while those of Y_{t-1} are not, then it can be established that X (Granger) causes Y, and the same goes for Y, if there is only one directional relationship, it can be called a unidirectional causality, but if non Granger causes each other they can be said to be independent (although related).

Diagnostic Tests

Unit Root Test such as Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) Tests will be conducted on the variables. Other diagnostic tests which will be conducted on the results of the OLS will include: the test of goodness of fit (R²). Auto Regressive Conditional Heteroscedasticity Test (Arch Test); Serial Correlation Test such as Breausch-Godfrey Test (BG Test) also called the Lagrange Multiplier Test (L M Test); Specification Error Test such as Ramsey Regression Equation Specification Error Test (RESET); and Normality Test such as Jarque-Bera Test (JB Test).

Unit Root Test

In other to evaluate the properties of the time series data employed for our estimation, we check for unit root (that is, for non-stationarity) in the variables. This is done in order to avoid spurious regression, which results from running a non-stationary variable on another non-stationary variable. To check for unit root, we employ the ADF test on the regression below. To run the unit root test, we specify the equation

$$\Delta X_t = B_0 + B_1 X_{t-1} + M_1 \dots \dots \dots (9)$$

The Null hypothesis (H_0) and the Alternative hypothesis (H_1) for the existence of unit root in the variable X_t is $H_0 : B_2 = 0$ (there is unit root); and $H_1 : B_2 < 0$ (there is no unit root)

The Phillips-Perron (PP) test is a modification of the (ADF Test) and it considers the less restrictive of the error process. $H_0 : B_2 = 0$ (there is a unit root or the time series is non-stationary or it has a stochastic trend).

Auto Regressive Conditional Heteroscedaticity (ARCH) Test

This test model is employed to characterize and model observed time series in econometrics. They are put to use when the error terms will have a characteristic size or variance. This model assumes the variance of the current error term to be a function of the actual size of the previous time periods error term; where the variance is related to the squares of the previous innovation (Gujarati and Porter, 2009). The null hypothesis of the ARCH test shows that there is no autocorrelation in the error variance. ($H_0 : \alpha_1 = \alpha_2 = \dots \dots \dots = \alpha_p = 0$)

Serial Correlation Test

This is associated with the relationship between a given set of variables and itself at given time intervals. Serial correlation is often or usually found in repeating form when the level of variable affects its future level (Engel and Granger, 1991). One of the examples of Serial Correlation Test is Lagrange Multiplier Test (LM Test), The LM Test is employed to assess the validity of some of the modeling assumptions found in applying regression. Examples of serial correlation test are models to observed data series (Engel, 1982). The null hypothesis of the LM test shows that there is no serial correlation of any order. ($H_0 : B_1 = B_2 = \dots \dots \dots = B_n = 0$)

Specification Error Test

This is the first step or stage in every regression analysis and it involved the selecting of an appropriate functional form for the mode and then determine the variables which will be included in the model. An estimated model will be considered biased and inconsistent, when the model is specified wrongly (Gujarati and Porter, 2009). Thus, Ramsey Regression Equation, Specification Error Test (RESET) is a general specification test for the Linear Regression Model; it helps to test the Non-Linear relationship between variables. The null hypothesis for reset test shows that the equation is mis-specified.

Normality Test

This is used to examine whether the error term corresponding to the different observation or regression model are normally distributed, to meet or fulfill the OLS assumption. Normality test is important due to the fact that the test of significance is based on the assumption that the error term is normally distributed. On the other hand, the test is not normally distributed because the mean of the error term can be appropriated to be zero (Balogun, 2007). The Jarque-Bera test is a goodness of fit test of whether sample data have the skewness and kurtosis matching a normal distribution. The chi-square approximation for the JB statistics

distribution is only used for a large sample size. The null hypothesis of the normality test implies that the residual are normally distributed i.e., if the p value is greater than 0.05 (Gujarati & Porter, 2009).

The Test of Goodness of Fit (R^2)

The R^2 (multiple coefficient of determination) is carried out to test the strength of the independent variables in explaining the changes in the dependent variables. It is a statistical model whose main purpose is either the prediction of future outcomes or the test of hypothesis, on the basis of other related information. R^2 is a statistics that will give some information about the goodness of fit of a model. The null hypothesis of R^2 indicates that there is collinearity present in the data on the explanatory variables. ($H_0: y_1 = y_2 \dots = y_n$)

PRESENTATION OF RESULTS AND DISCUSSIONS

This section presents the result of the empirical analysis and their interpretations. Time series data covering the period 1970 to 2012 was used for analysis. The empirical results were generated using E-view 7.2 econometrics software.

Unit Root Test Results

Table 4.1 and Table 4.1b present the unit root test carried out using Augmented Dickey Fuller (ADF) and Philips-Perron (PP) tests. The results from the tables above shows that growth rate of real GDP (RGDP), Money Supply (MS) and Government Expenditure (GEX) are stationary at level at 5% level of significance for both (ADF) and (PP) tests, while Inflation Rate (INF), Exchange Rate (EXR) and Interest rate (INR) are stationary and at first difference at 5% level of significance for both (ADF) and (PP) tests. However, population growth rate (POP) is stationary at second difference for both ADF and PP tests.

Table 4.1a: Augmented Dickey Fuller Unit Root Test Result

Variables	ADF Statistics	Critical Value 1%	Critical Value 5%	Critical Value 10%	Order of Integration
RGDP	-5.64	-3.60	-2.93	-2.60	I(0)
MS	-4.20	-3.60	-2.93	-2.60	I(0)
INF	-6.33	-3.60	-2.93	-2.60	I(1)
INR	-7.17	-3.60	-2.93	-2.60	I(1)
EXR	-5.70	-3.60	-2.93	-2.60	I(1)
POP	-3.93	-3.86	-3.04	-2.66	I(2)
GEX	-7.43	-3.60	-2.93	-2.60	I(0)

Note: variables are as defined in section 3

Table 4.Ib: Philips- Perron Unit Root Test Result

Variables	ADF Statistics	Critical Value 1%	Critical Value 5%	Critical Value 10%	Order of Integration
RGDP	-5.64	-3.60	-2.93	-2.60	I(0)
MS	-4.71	-3.60	-2.93	-2.60	I(0)
INF	-6.76	-3.60	-2.93	-2.60	I(1)
INR	-7.17	-3.60	-2.93	-2.60	I(1)
EXR	-5.70	-3.60	-2.93	-2.60	I(1)
POP	-391.08	-3.62	-2.95	-2.61	I(2)
GEX	-7.43	-3.60	-2.93	-2.60	I(0)

Note: variables are as defined in section 3

Ordinary Least Square (OLS) Result

Table 4.2 presents the OLS results of the macroeconomic variables that influence output. We experimented with the different functional forms of an equation viz: Linear function, exponential function, double log function and semi log function. The OLS result for the output model as specified in equation (6) was generated using E-view 7.2 econometrics software.

Table 4.2: Ordinary Least Square Results. Dependent Variable: RGDP

Variables	Double Jog Model	Exponential Model	Semi log Model	Linear model
C	-4.16(0.41)	22.12(0.30)	-2.02 (0.72)	45.35 (0.07)*
MS	0.42 (0.39)	3.13(0.13)	0.83(0.13)	0.07 (0.2880)
INF	-0.54 (0.26)	-3.51 (0.08)	-0.83(0.12)	-0.07 (0.4957)
INR	0.17(0.91)	-1.14(0.85)	-0.39 (0.82)	0.11 (0.7071)
EXR	0.22 (0.56)	0.87 (0.59)	0.40(0.36)	0.04(0.9115)
POP	0.68 (0.92)	-9.69 (0.72)	3.38 (0.64)	-11.39(0.2111)
GEX	1.60 (0.0006***)	1.53 (0.39)	0.02(0.18)	0.01 (0.9030)

R ²	0.44	0.29	0.22	0.21
Adjusted R ²	0.34	0.17	0.09	0.08
F-Statistics	4.38	2.34	1.68	1.58
Prob (F-Stat)	(0.002314)	(0.05)	(0.16)	(1.83)
DW	1.94	1.77	1.95	1.70
AIC	4.17	7.04	4.46	7.13
SIC	4.47	7.33	4.76	7.42

Diagnostic Tests

Test	Double log	Exponential	Semi log	Linear Model
ARCH Test	0.01 (0.92)	0.0004 (0.98)	0.01 (0.92)	(002708858)
LM Test	4.52(0.12)	1.85(0.17)	1.47(0.25)	1.03(0.3668)
Reset Test	92.70(0.0000***)	0.53 (0.47)	32.21(0.00***)	0.73 (0.3991)
Normality Test	156.03 (0.0000***)	33.80 (0.0000***)	794.04 (0.000***)	18.38(0.0000)***

Note:

1. Variables are as defined in chapter 3: C = Intercept; R^2 = Coefficient of determination; DW = Durbin Watson Statistics; AIC = Akaike Information Criterion; SIC = Schwartz Information Criterion; ARCH = Autoregressive Conditional Heteroscedasticity; LM = Lagrange Multiplier Test.
2. Asterisks *, ** and *** denotes 10%, 5%, and 1% level of significance respectively.
3. Values in parenthesis are the probability value

Given the result presented in Table 4.2, we adopt the double log function as our “lead model” since it has the highest explanatory power (Coefficient of Determination R^2) and the least or smallest value of AIC and SIC. According to Gujarati and Porter (2009), the function with the least or smallest AIC and SIC values is preferable compared to the other function. Thus, our analysis is based on the double log model results.

The OLS results indicate that R^2 which is the coefficient of determination is 0.44 This implies that 44% of the change or variation in RGDP is caused by the explanatory variables (MS, INF, INR, EXR, POP and GEX) while 56% of the total variation is by variables outside model (error term), In order words, the R^2 shows the goodness of fit and goes further to explain the percentage variation in the dependent variable caused by the independent variables or factors. Furthermore, the F-statistics for our model shows that the independent variables are jointly significant at 5% level of significance in explaining the variation in the dependent variable (RGDP). The F-statistics is used to show if the independent variables in the model are jointly significant in explaining the variation in the dependent variables. The Durbin Watson of our lead model is 1.94, indicating the present of no autocorrelation. Thus, we can conclude that there is no autocorrelation.

The double log function results in table 4.2 above, reveals that the coefficient of MS 0.42 is positive and statistically insignificant. By implication, there exists a direct relationship between Money Supply (MS) and output growth (RGDP). Thus, this corroborates with the works of Ogunmuyiwa and Ekone (2010), Udude (2014) and Rader (2010) among others and also conforms to our stated a priori expectation. The result also shows that on the average a 1% increase in Money Supply (MS) will bring about 0.42% unit increase in economic growth (RGDP) given the value of the coefficient for MS as 0.42.

The estimated coefficient of inflation (INF) (-0.54) is negative and not significant. This means that there exist an inverse relationship between INF and RGDP. Indicating that on the average a 1% increase in inflation will lead to a 0.54% unit decrease in output growth rate (RGDP). This does conforms to the a priori expectation and also Okun’s law which shows a one-to-one negative relationship between inflation and output. The coefficient of INR - 0.17 is negative and insignificant. This implies the there exists a negative relationship between INR and RGDP. This

shows that on the average, a 1 % increase in interest rate will lead to a 0.17% decrease in economic growth (RGDP). This satisfies our stated a priori expectation.

Given our estimated coefficient of EXR as 0.22, this indicates a positive and statistically insignificant relationship. This implies that there exist a direct relationship between exchange rate and output growth rate. This does not conform to our a priori expectation. The coefficient of POP is 0.68 and it shows that there exists a positive and insignificant relationship between population growth rate and economic growth indicating on the average that a 1% increase in Population Growth Rate (POP) will bring about 0.65% unit increase in Output Growth Rate (RGDP). This conformed to the a priori expectation.

Furthermore, the coefficient of government expenditure is 1.60. This shows that there exists a direct and statistically significant relationship between government expenditure (GEX) and output growth rate (RGDP). Thus, this conforms to a priori condition. Furthermore, this indicates on the average that a 1% increase in government expenditure will lead to a 1.60% unit increase in economy growth. In relation to our research hypothesis, given the result from table 4.4 which identify a positive and insignificant relationship between growth rate of money supply and economic growth as shown by the lead model.

The diagnostic test conducted on our lead model (double Jog function) shows that the distribution of our model is not normally distributed given the Jacque-Bera statistics of 156 and the probability of 0.00000. The Reset test of 92.70 and the probability value of 0.00000 shows that there is mis-specification problem. The ARCH test shows that our model is homoscedastic and thus, the variance of the error term is constant given the value as 0.01 and probability value as 0.92.

Pair-Wise Granger Causality Results

The granger causality test was used to determine the nature and direction of causality between money supply and economic growth in Nigeria. Table 4.3 presents the granger causality result.

Table 4.3: Pair-Wise Granger Causality Result

Null hypothesis	Ob	F-statistics	Probability
Ms does not Granger cause RGDP RGDP does not Granger cause MS	41	1.11068 0.72019	0.3404 0.4935
INF does not Granger cause RGDP RGDP does not Granger cause INF	41	0.25800 1.44878	0.7740 0.2482
INR does not Granger cause RGDP RGDP does not Granger cause INR	41	1.30306 0.90727	0.2842 0.4127
EXR does not Granger cause RGDP RGDP does not Granger cause EXR	41	3.98273 0.09354	0.0274** 0.9109
POP does not Granger cause RGDP RGDP does not Granger cause POP	38	2.35020 0.72092	0.1111 0.4938
GEX does not Granger cause RGDP RGDP does not Granger cause GER	41	0.22129 0.74489	0.8026 0.4820

The results indicate a unidirectional causality between real exchange rate (EXR) and output growth (RGDP) with causality running from real exchange rate to output growth. While money supply, inflation rate, interest rate, population growth rate and growth rate of Government expenditure do not granger cause economic growth and vice versa. Thus, the granger causality test revealed that growth rate of money supply does not granger cause economic growth and economic growth does not granger cause money supply.

FINDINGS AND DISCUSSION

The regression coefficient of our result revealed that there exist a positive and non-significant relationship between growth rate of money supply and real GDP. In other words, there exist a direct relationship between money supply and economic growth; this implies that an increase in money supply will on the average bring about a corresponding increase in output growth rate. Furthermore, given our regression coefficient of money supply as 0.42, this shows that a 1% increase in money supply will bring about 0.42% increase in output growth; from the regression output in our model, we found that increase in money supply act as an injection and thus boost investment which tends to increase the level of output production, thus, increasing economic growth in Nigeria within the period under review.

The estimated coefficient for INF (inflation rate) shows the existence of a negative and statistically insignificant relationship between inflation rate and economic growth. In other words, the result revealed that there exist an inverse relationship between inflation rate and real GDP, meaning that increase in inflation will lead to a decrease in output growth. However, this actually conforms with our a priori expectation. Given our estimation, 1% increase in INF will lead to a 0.52% unit decrease in RGDP in Nigeria during the period under review. Furthermore, The coefficient for interest rate shows a negative and insignificant relationship between interest rate and economic growth, meaning that increasing interest rate will have a decreasing effect on output growth in Nigeria within the period under review. Hence it conforms to a priori expectation. Since our estimated coefficient for interest rate (INR) is -0.17, it shows that a 1% increase in interest rate on the average will lead to a 0.17% decrease in output growth rate in Nigeria.

The estimated coefficient for exchange rate (EXR) shows that there exist a positive relationship between real exchange rate and economic growth, meaning that increase in real exchange will make economic growth to increase. Since the coefficient of real exchange rate is 0.22, this implies that a 1 % increase in real exchange rate will on the average lead to a 0.22% unit increase in output growth in Nigeria. However, this does not meet the a priori conditions. Furthermore, The estimated coefficient for population growth rate shows a positive and statistically insignificant relationship between population growth rate and economic growth. Given the coefficient of population growth rate as 0.65, this implies that a 1% increase in population growth rate will on the average lead to a 0.65% unit of output growth in Nigeria. This actually conformed with the stated a priori condition.

The estimated coefficient for government expenditure, it shows the existence of positive and statistically significant relationship between growth rate of government expenditure and economic growth in Nigeria. Given our estimated coefficient of GEX as 1.60, it shows that a 1% increase in government expenditure will bring about a 1.60% unit increase in output growth rate in Nigeria on the average. This regression output actually conformed to our stated a priori expectation.

POLICY IMPLICATION OF FINDINGS

Based on the empirical findings of this study, the policy implications are discernible. There exists a positive and insignificant relationship between money supply and economic growth in Nigeria using annual data covering the period 1970 to 2012. The result shows that increase in money supply leads to increase in output growth rate. It is evident that there was monetary discipline that regulated the quantity and availability of money in circulation, thus leading to an increase in economic growth. This is due to the fact that increase in money supply acts as an injection that raises the level of domestic investment and export which tend to make the economy have a favourable balance of payment equilibrium in the international market, thereby leading to the attainment or achievement of the desire growth objectives. Therefore, it is pertinent for both government and the relevant monetary authorities to monitor, manage and maintain money stock at growth-friendly levels so as to achieve and maintain the desired growth objectives.

The estimated result of our model shows that inflation rate has a negative relationship with economic growth. This reflects the true impact of inflation on investment capital and output level. This implies that, as inflation increases, it leads to a fall or reduction in the value of money which leads to an increase in the cost of investment capital, thereby leading to a fall in investment funds, which implies a fall in actual investment and output, thereby resulting in a decrease or fall in economic growth and development. This is the true picture or situation in Nigeria since the advent of oil, the value of Nigeria currency (Naira) kept falling with rising inflation rate and high unemployment rate, with both low capital and human productivity which transmitted to a drop in output growth rate. Therefore, government at all levels should strive to reduce and stabilize the inflation rate so as to increase productivity, investment, output and thus leading to economic growth in Nigeria.

The empirical results also show that there exist a negative and insignificant relationship between interest rate and economic growth. By implication, when there is a fall in interest rate (cost of investment capital) it will transmit into increase in investment funds. Furthermore, leading to increase in actual investment, and also increase the level of employment, thus bringing an incremental effect on income and output level, all of these will now transmit through the multiplier effect into economic growth and development. Therefore, it is pertinent for the relevant monetary authorities to formulate effective monetary policies that will reduce and maintain interest rate, specifically the lending rate, so as to induce investment and output growth.

Furthermore, the results also show that there exists a positive and insignificant relationship between real exchange rate and economic growth. The Granger Causality test also shows that real exchange rate Granger-cause economic growth. This implies that if exchange rate rises, our local currency will appreciate in value, thus leading to an increase in investment which will boost local or domestic output that will induce economic growth in Nigeria.

The estimated coefficient for population growth rate revealed that there exist a positive and insignificant relationship between population growth and economic growth. This implies that increase in population rate will have an incremental effect on labour force thereby increasing labour productivity which invariably causes economic growth. Therefore, it is appropriate for the government to ensure increase in productive population that will help to achieve the predetermined growth objective.

SUMMARY, POLICY RECOMMENDATIONS AND CONCLUSION

This study sought to investigate the relationship between monetary policy and economic growth in Nigeria using data spanning through the period of 1970 and 2012. Specifically, it sought to: analyze the relationship between money supply and economic growth in Nigeria; and also to determine the nature and direction of causality between money supply and economic growth in Nigeria. Employing the Ordinary Least Squares (OLS) procedures and the granger causality technique, we found that: There exists a positive and insignificant relationship between money supply and economic growth in Nigeria; there is no causality between money supply and economic growth in Nigeria. Therefore, this study recommends that government and relevant monetary authorities should ensure that money supply levels are effectively and efficiently monitored, managed and controlled as to enhance, promote and achieve economic growth in Nigeria.

This study has contributed significantly to the existing body of knowledge through its findings which revealed that money supply is positively related to economic growth in Nigeria, implying that money supply is necessary for economic growth. Furthermore, this work and its findings serves as a framework for further research to be carried out so as to find out what level of money supply can actually induce growth. In conclusion, it is important to note that since money supply induces growth as revealed by this study, government and relevant monetary authorities should strengthen and enhance effective fiscal and monetary discipline at all levels for sustainable growth and development of the Nigerian economy.

References

- Abbas, K. (1991). Causality Test between Money and Income: A Case Study of Selected Developing Asian Countries (1960 - 1988). *The Pakistan Development Review*.
- Abdul, Razig, B. (2003). Money Supply in Qatar: An Empirical Investigation. *Journal of Economic and Administrative Sciences*, 18(2): 25 - 40.
- Adeoye, B. and Odekunle, L. A. (2014). Monetary Policy Framework in Nigerians: A Missing Ring. *British Journal of Arts and Social Sciences*, 17(1): 14-32.
- Adesoye, A. B. (2012). Price, Money and Output in Nigeria: A Cointegration-causality Analysis. *African Journal of Scientific Research*, 8(1): 60 - 72.
- Adesoye, A. B, Maku, O. E. and Atunda, A. A. (2012), Is Monetary Policy a Growth Stimulant in Nigeria? A Vector Autoregressive Approach. *Munich Personal RePEc Archive (MPRA)*. Paper No. 35844, pp 1-24.
- Adigwe, P. K, Ehekoba, F. N. and Onyeagba, J. B. C. (2015), Monetary Policy and Economic Growth in Nigeria: A Critical Evaluation. *Journal of Business Management*, 17(2): 110-119.
- Afolabi, L. (1991). *Monetary Economics*. Innerways Publications, Lagos.
- Ahmed, E. M. and Suliman, S. Z. (2011). The Long-Run relationship between Money Supply, Real GDP on Price Level: Empirical Evidence from Sudan. *International Journal of Economics, Commerce and Management*, 5(2): 40 - 68.
- Ahuja, H. L. (2010). *Managerial Economics*, 4th Revised Edition. S. Chand and Company Ltd, New York.
- Ahuja, H. L. (2011). *Macroeconomics Theory and Policy*, 7th Revised Edition. S. Chand. & Company Ltd, New York.
- Ajayi, S. I. (1974). An Economic case study of the Relative Importance of Monetary and Fiscal Policy in Nigeria. *Bangladesh Economic Review*, 2: 559 - 576.
- Ajisafe, R. A. and Folorunso, B. A. (2002). The relative effectiveness of fiscal and monetary policy in macroeconomic management in Nigeria *The African Economic and Business Review*, 3(1): 225-250.
- Akuyuobi, L. E. (2010). Monetary Policy and Nigeria's Economic Development. *African Research Review*, 4(17): 15-30.

- Amassoma, D, Nwosa, P. I. and Olaiya, S. A. (2011). An Appraisal of Monetary Policy and its Effect on Macroeconomic Stabilization in Nigeria. *Journal of Emerging Trends in Economic and Management Sciences*, 2 (3): 232 - 237.
- Anyanwu, J. C. (1993). *Monetary Economics: Theory, Policy and Institutions*. Onitsha: Hybrid Publishers.
- Asogu, J. O. (1998). An Economic Analysis of Relative Potency of Monetary Policy in Nigeria. *Economic Financial Review*, 30-63.
- Aziakpono, M. J. (2003). Money, Output & Price Level in Nigeria: A Test of the Monetary Neutrality Proposition. *African Journal of Finance & Management*, 11(2): 50 - 72.
- Baghebo, M. and Ebiba; T. S. (2014), Monetary Policy and Economic Growth in Nigeria (1980-2011). *Asian Economic and Financial Review*, 4 (1): 20-32.
- Balogun, E. D. (2007). *Monetary Policy and Economic Performance of West African Monetary Zone Countries. MPRA Paper*. University of Munich, Germany.
- CBN (1993). *Perspectives of Economic Policy Reforms in Nigeria*. Research Department, CBN, Lagos.
- Central Bank of Nigeria, CBN (1979). *Twenty Years of Central Banking in Nigeria*, Lagos, Research Department of CBN.
- Chimobi, O. P. and Uche, U. C. (2010). Money, Price and Output: A causality test for Nigeria. *American Journal of Scientific Research*, 8: 78-87.
- Chuku, C. A. (2013). *Conflicts of Monetary Policy Objectives in: Applied Monetary Economics*. Lecture Notes. Daniela, Z. and Mihai, L. (2010). Linking Money Supply with Gross Domestic Product in Romania. *Annales Economic Review*, 12(1): 14 -20.
- Dele, B. E. (2007). "Monetary Policy and Economic Performance of West African Monetary Zone Countries". University of Lagos, Nigeria.
- Ebiringa, O. T., Onuorah, A.C. and Obi, H. K. (2014). "Behavioural Pattern of Monetary Policy Variables and Effects on Economic Growth: An Econometric Investigation of Nigeria". *Journal of economics and Sustainable Development*, 5(1): 11 -20.
- El-Seoud, M. S. (2014). Testing the Relationship between Money Supply and GDP in Bahrain. *International Journal of Economics, Commerce and Management*, 2: 18-25.
- Engel, R. F. (1982). A General Approach to Lagrange Multiplier Model Diagnostics. *Journal of Econometrics*, 20: 83 - 104.
- Engel, R. F. and Granger, C. W. J. (1987). Co-integration and Error Correction : Representation, Estimation and Testing. *Econometrica*, 55; 1 - 87.
- Folawewo, A. O. and Osinubi, T. S. (2006). "Monetary Policy and Macroeconomic Instability in Nigeria: A Rational Expectation Approach". *Journal of Social Science*, 12(2): 93-100.
- Freidman, M. (1968). The Role of Monetary Policy. *America Economic Review*, 58: 1-17.
- Friedman, B. M. and Kutuner, K. N. (1992). Money, Income, Prices and Interest rates. *American Economic Review*, 82(3): 75 - 90.
- Gujarati, D. N. and Porter, D. C. (2009). *Basic Econometrics*. (5th ed.). Singapore: McGraw- Hill.
- Hameed G., Khalid, M. and Sabit R. (2012). Linkage between Monetary Instruments and Economic Growth. *Universal Journal of Management and Social Sciences*, 2(5): 20 - 32.
- Hussain, A. (2005). Granger causality between Inflation, Money Growth, currency Devaluation and Economic Growth. *International Journey of Applied Econometrics and Quantitatives Studies*, 2(3): 95 - 110.
- Hussain, F. and Abbas, K. (2000). Money, Income, Prices, and Causality in Pakistan: A Trivariate Analysis. *The Pakistan Development Review*; 378.
- Imoughele, L. E. (2014). "Empirical Investigation of the Impact of Monetary Policy on Manufacturing Sector Performance in Nigeria (1986-2012)". *International Journal of Education and Research*, 2(1): 1-20.
- Inam, U. S. (2013). *Money Supply and Inflation Dynamics in the Nigerian Economy: An Empirical Analysis of Causal Relationships (1970 - 2010)*. A Thesis Proposal (Presented in Partial Fulfillment of the Requirements for the Award of a Ph.D Degree in Economics).

- Jhingan, M. L. (2000). Monetary and Banking International Trade. Vrinda publications (P) Ltd, Delhi.
- Jhingan, M. L. (2000). *Money and Banking* Delhi: Vrinda Publications (P) Ltd.
- Jhingan, M. L. (2004). Money, Banking, International Trade and Public Finance (7th Ed). Vrinda Publications (p) Ltd., Delhi.
- Jhingan, M. L. (2009). Principles of Economics (3rd Edition). Vrinda Publications (P) Ltd, Dehli.
- Khabo, V. S. (2002). "The Impact of Monetary Policy of the Economic Growth of a Small and Open Economy: The Case of South Africa". Department of Economics, University of Pretoria.
- Koutsoyianis, A. (2006). Theory of Econometrics: An Introductory Exposition of Econometric Methods (2nd ed.). Palgrave Publishers Ltd, India.
- Lee, S. and Li, W. (1983). Money, Income and Prices and their Lead-Lag Relationship in Singapore, *Singapore Economic Review*, 73 - 87.
- McConnell, C. R. and Brue, S. L. (2005). Economics (Principles, Problems and Policies). Sixteenth Edition. McGraw-Hill, New York.
- Muhammed et al. (2009). Monetary - Fiscal Policy and Economic Growth in Pakistan. *International Journal of Economic and Financial Issues*, 1(3): 133-138.
- Nouri, M. & Samimi, A. J. (2011). "The Impact of Monetary Policy on Economic Growth in Iran". *Middle-East Journal of Scientific Research*, 9(6): 740-743.
- Nwakwo, G. E. (2007). Concept of Money and Monetary Policy. CBN Bullion. *Journal of Nigeria Economic*, 7(2): 15-20.
- Nwaobi, G. C. (1999). Money and Output interaction in Nigeria. *CBN Economic Financial Review*, 37: 44-76.
- Obaid, G. (2007). Money Supply - Output Causality in Egypt. *Egypt Economic Review*, 3(1): 62 -70.
- Ogunmuyiwa, M. S. and Ekone, A. F. (2010). Money Supply - Economic Growth Nexus in Nigeria; *Journal of Social Sciences*, 22(3): 199 - 204.
- Okafor, P. N. (2009). Monetary Policy Framework in Nigeria: Issues and Challenges. *CBN Bullion*, 33(2): 23 - 29.
- Okwu, A. T, Obiakor, R. T, Falaiye, O. B. and Owolabi, S. A. (2011). Empirical Analysis of the Effects of Monetary Policy Innovations of Stabilization of Commodity Prices in Nigeria *European Journal of Economics, Finance and Administrative Sciences*, 32: 64-79.
- Olusanya, S. O. and Akinade, O. M. (2012). Analysis of Causality between Monetary Policy and Economic Growth in Pre- & Post - Deregulated Nigeria Economy (1970 - 2009). *Journal of Humanities and Social Studies*, 5(5): 88-98.
- Omoke, P. C. and Ugwuanyi, C. U. (2011). Money, Price and Output: A Causality test for Nigeria. *American Journal of Science Research*, 8: 38-47.
- Onwioduokit, E. A.(2015). The Concept and Role of Money in: Monetary Theory and Policy. Lecture Notes.
- Onyeiwu, C. (2012). Monetary Policy and Economic Growth of Nigeria. *Journal of Economics and Sustainable Development*, 3(5): 62-70.
- Precious, C. and Palesa, M. (2014): Impact of Monetary Policy on Economic Growth: A Case Study of South Africa. *Mediterranean Journal of Social Sciences*, 5(15): 54-12.
- Samuelson, P. A. (1980). *Economics*. McGraw-Hill, New York.
- Sims, C. (1972). Money, Income, and Causality. *American Economic Review*. Tan, S. and Baharumshah, U. (1999). Linkage between Money and Prices: A Causality Analysis for Malaysia. *International Business Research*, 1(4): 82 - 87.
- Todaro, M. P. and Smith, S. C. (2011). Economic Development. Pearson Education Limited, England.
- Uchendu, O.A, (2009). An overview of Monetary Policy in Nigeria. CBN Bullion, 30(2): 10-15.
- Udude , C.C. (2014). Monetary Policy and Economic Growth in Nigeria (1981-2012). *Journal of Policy and Development Studies*, 9(1): 235 -242.
- Umoh, J. C. (1986). Economics: An African Perspective. John West Publications Ltd, Ikeja.
- Wrightsmann, D. (1976). An Introduction to Monetary Theory and Policy. New York: the Free Press.