Money Supply And Inflation In Nigeria

Pullah Ebipre[1] & Michael A. Amaegberi[2]

[1]Department of Economics, Isaac Jasper Boro College of Education, Sagbama, Bayelsa State, Nigeria
[2]Department of Economics, Niger Delta University, Wilberforce Island, Amasoma, Nigeria

ABSTRACT
The study examined the relationship between money supply and inflation in Nigeria. Time series data of the inflation rate, RGDP growth rate, growth rate of broad money supply and government deficit financing from 1971-2015 were obtained from the World Bank data base and Central Bank Nigeria Statistical Bulletin to provide numerical estimate to the relationship. The unit root test of the variable indicated that ordinary least squares (OLS) method is appropriate to estimate the parameter of the relationship. The result shows that there is a positive relationship between money supply and inflation as well as deficit financing and inflation in Nigeria. More so, the study points to the fact that productivity growth is a potential option of reducing long run inflation in Nigeria. Based on the findings, some recommendations were made which include government commitment to prudent financial management such that government borrowing is channeled to the development of social and economic infrastructures that will enhance productivity and thereby promote price stability in the Nigeria.
Keywords: Money Supply, Inflation, Financial Management and Economic Infrastructure

INTRODUCTION
Inflation is a sustained positive growth of general price level, while money supply is the total amount of money available in the entire economy (Lipsey & Chrystal, 2007). Inflation is the outcome increase in money supply relative to aggregate output (Friedman, 1936). Some economic costs associated with inflation are price distortion, low saving and investment, depreciation of domestic currency and capital flight. Thus, policy makers endeavor to adopt relevant policy options to combat inflation and curb its adverse effects on an economy both in developed and developing countries (Emerenini & Eke 2014).

One of the major macroeconomic problems that Inflation engenders in any economy is the problem of price stability. Inflation reduces the value of money and consequently reduces the standard of living of the citizenry (Odior 2013). Although money functions as a unit of account, a medium of exchange and a store of value, the value of money is measured by the quantity of goods and services that a unit of money can be exchange for in the economy Mankiw & Taylor, (2008). Where the quantity of commodities a given unit of an economy medium of exchange can be exchange for is relatively stable overtime, economists say there is price stability. Price stability is not necessarily the absence of inflation but a low and stable inflation rate. With rising inflation rate, an economy's purchasing power evaporates, uncertainty covers the economic sphere and economic growth is retarded (Emerenini & Eke 2014).

The level of money supply and the stock of goods and services are two crucial factors that determine the level of inflation in an economy. Mankiw & Taylor, (2008) see money as a set of assets in the economy that people regularly use to buy goods and service from other people. As a special asset the amount of money in an economy is determine by the government, Central Bank and the activities of other financial institutions of the monetary system, but the volume of commodities is determine largely by the private sector in an economy. When inflation becomes persistent, the stock of goods and services and the amount of money in circulation become the primary targets of policies (Gbadebo & Mohammed 2015).

The analysis of the non-core inflation in 1989 was 45.04% while annual growth rate of money supply was 12%. In 1990, inflation rate fell to 9.29% while money supply increased to 32.70%. An upward spiral of inflation was experienced in the early 1990s and an all-time high of 113.07% annual rate was reached in 1995. Likewise, there was an upward trend in money supply; 32.70%, 37.38%, 63.26%, 53.75% 34.49% and 19.41% as annual inflation rates for 1990, 1991, 1992, 1993, 1994, and 1995 respectively. However, inflation rate fluctuated from 2006 through 2013. Negative inflation rate was in 1998, 2001, 2004 and 2009; -5.66%, -0.32%, 0.15%, -4.32% respectively, also the years 2000, 2002, 2005, 2010 recorded positive inflation rate; 35.22%, 39.89%, 22.02%, 103.82% respectively. The years dropping to -5.66& in 1998, but increased to 35.22% in 2000, fell to -0.32% in 2001. Meanwhile, annual growth rate of money fluctuate around positive double digit; 22.31% in 1998, 48.06% in 2000, 20.67% in 2004, 13.22% in 2013, and only in 2010 was annual growth rate of money single digit; 6.81%.

Managing inflationary pressures is one of the major objectives of monetary policy, because inflation is one the foremost macroeconomic variables that can distort economic activities in both developed and developing countries (Muhammad & Mubarak, 2013). However, monetary policy makers encounter different kind of problem trying to control inflation, because they have to establish the precise fraction of the changes in aggregate prices level that could be attributed to the growth in money supply; domestic and foreign currencies. Moreover, other sources of inflation include budget deficit and the excess of actual GDP over potential GDP (Jhingan, 2002).

Many economic agents, notably, fixed income earners worried over the fear of evaporating purchasing power with rising inflation rates. Consequently, policymakers deploy multiple variants of decelerators to ensure price stability. There are quite a few therapy among which is the reduction of the growth of money supply. However, the major challenge of monetary policy makers is the determination of inflation that is consequent upon growth in money and the potency of monetary instrument that will be deployed (Mbutor; 2013).

According to Soludo, (2009) inflation is a monetary phenomenon in the sense that it cannot be sustained without an accommodating increase in money supply. If money supply rises beyond the absorptive capacity of the economy, domestic prices will increase. In theory, 'optimal' inflation rate has to be greater than zero. But determining the 'right 'rate for a particular economy at any point in time is a complicated issue. In practice, low inflation of 2-3% has been the norm for developed countries and 5-7% for developing countries. Conversely, high level of inflation promotes uncertainty, discourages savings and investment. Excessively low inflation, and tends to cause cyclical downturns that last unnecessarily longer. A little inflation may make it easier for firms to reduce real wages necessary to maintain employment during economic (Soludo, 2009).

Meanwhile, Ayuba (2013), provide empirical evidence from Tanzania that inflation is not necessarily a monetary phenomenon but is determine by other factors and the level of development of the financial sector. "...the overall empirical results revealed that money supply is not the key source of inflation in Tanzania. According to the findings, all the estimated variables are found to play a vital role in fueling inflation in the economy. In comparison, money supply is found to be among the variables with the smallest share, especially in the short run, while inflation tended to be more sensitive to shocks in real GDP both in short and long term. Therefore, this study concludes that inflation in Tanzania is more of a real factor than a monetary phenomenon. These findings could be supported by the under development nature of the country's financial sector such that any shock in this sector may not have such big impact on the economy", (Ayuba, 2013). Thus, the critical issue that requires investigation is the relationship between money supply and inflation in Nigeria.

The study seeks to examine the relationship between money supply and inflation in Nigeria. To achieve this, some distinct objectives are investigated; ascertain whether inflation is to a large extent a monetary phenomenon in Nigeria, highlight the link between real GDP growth and inflation in Nigeria and to determine whether government deficit financing is a key determinant of inflation Nigeria.

This study will provide empirical evidence and contribute to the body of knowledge as regard money supply and inflation dynamics in Nigeria and through this provide evidence as regards the relationship between money supply and inflation in Nigeria. This will provide workable options for policy makers,

academia and other stakeholders in the economy. This paper consists of five sections; introduction, literature review, methodology and analysis of data, empirical result and conclusion.

Literature Review
The Classical Quantity Theory of Inflation
The classical theory of inflation attributes sustained price inflation to excessive growth in the quantity of money in circulation. For this reason, the classical theory is sometimes called the "quantity theory of money," even though it is a theory of inflation, not a theory of money (Ireland, 2014). According to the classical quantity theory, the velocity of money circulation is constant and as such the money supply determines the total money value of transaction in the economy at a given period of time (Jhingan, 2005). According to the classical theory, money is a veil and it plays a neutral role in the economy. Like the Say's Law of markets, the classical theory of money assume that money does not have any utility of its own except the utility of the goods and services it is used to buy and so it is not necessarily wanted (Obafemi & Ifere, 2015). To this school of thought, people only demand for money because of its function as a medium if exchange, if money supply changes without changes in aggregate output, the prices of goods and services would rise proportionate to the change in money supply.

They further explain that, if the supply of money changes, the real wages, employment and output will not be affected based on the view of the neutrality of money. Such changes in money supply will only affect the general price level and the money wage. That is, if money supply increase, effectively, it means increase in the total money supply and with velocity being constant, and no corresponding increase in goods and services, people will want to spend the excess money on the same quantity of goods and services available since people are not expected to hoard money. This will cause prices of goods and services to go up and the increase in the general price level would make the additional aggregate money spending equal to the total effective increase in money supply. Fisher's equation of exchange is used to explain the classical money theory
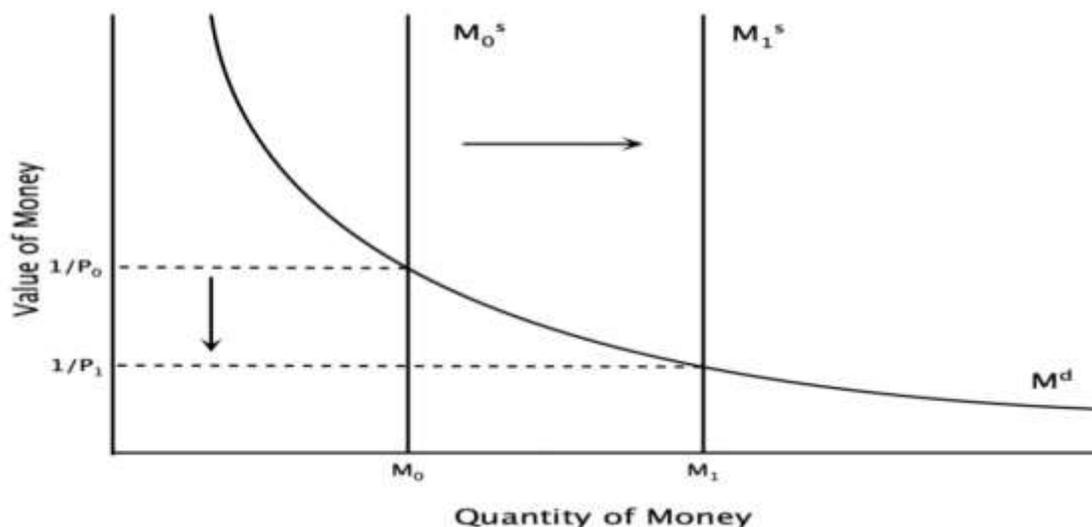
$MV = PT \ldots (1)$
Where: M = Supply of money
V = Velocity of money in circulation
P = Price of goods and services and
T = the transaction (output)

Figure 2.1 Quantity theory of toney

The classical theory of inflation associates an increase in the supply of money with a decrease in the value of money which implies that money growth causes inflation.

Monetary theory of inflation

Monetarism refers to the followers of M. Friedman who hold that "only money matters", and as such monetary policy is a more potent instrument than fiscal Policy in economic stabilization. According to the monetarists, the money supply is the "dominate, though not exclusive" determinant of both the level of output and prices

The long- run level of output is not influenced by the money supply. The monetarists emphasized the role of money. Modern quantity theory led by Milton Friedman holds that "inflation is always and everywhere a monetary phenomenon that arises from a more rapid expansion in the quantity of money than in total output. Its earliest explanation was to be found

in the simple quantity theory of money. The monetarists employed the familiar identity of exchange equation of Fisher.

Demand Pull Theory of Inflation

John Maynard Keynes and his followers emphasized the increase in aggregate demand as the source of demand-pull inflation. The aggregate demand comprises consumption, investment and government expenditure when the value of aggregate demand exceeds the value of aggregate supply at the full employment level, the inflationary gap arises. The larger the gap between aggregate demand and aggregate supply, the more rapid is the inflation. Keynesian (Keynes and his followers) do not deny this fact that even before reaching full employment production factors and various appearing constraint can cause increase in public price. This inflation constraint that appears quickly during prosperity is originally resulting from non-proportioned section, branches and or various economic resources that are accounted from natural properties of discipline based on market. Therefore, in one period of prosperity it is completely natural. According to demand pull inflation theory of Keynes, policy that causes decrease in each component of total demand is effective in reduction of pressure demand and inflation. One of the reductions in government expenditure is tax increase and to control volume of money alone or together, can be effective in reducing effective demand and inflation control. In difficult conditions, e.g. hyperinflation during war that control of volume of money or decrease in general expenditure may not be practical increase in tax can get along with direct action for control on demand(Keynes, 1936)

The costs push school

The cost push school suggests that inflation arises from increase in the cost of production, rise in wages from trade union activities and embodies a socio-political view (Alpanda, et al; 2010). The cost push views attribute inflation to a host of non-monetary supply oriented influences of shocks that raise costs and consequently price.

The Structuralist

The structuralists, according to Ezirim, et al (2012) explains the long run inflationary trend in developing countries in terms of structural rigidities, market imperfection and social tension, relative inelasticity of food supply, foreign exchange, contracts protective measures, rise in demand for food, fall in export earnings, hording import substations, industrialization, political instabilities.

Empirical review

Babatunde M. A. & Shuaibu, (2011), discovered empirical evidence about a positive relationship between money supply capital formation and economic growth but a negative relationship between inflation and economic growth in Nigeria. Ngerebo, (2016) also identified positive relationship money supply and inflation rate in Nigeria. Gbadebo Mohammed (2015), found evidence between money supply and inflation and stress the role of government and monetary policy maker in mitigating the money supply inflation dynamics in Nigeria. Emerenini & Eke (2014) highlighted the need for relevant policy options in curbing the effect of money supply on inflation. The authors showed that expected inflation, money supply and exchange rate had influence on inflation within the period under consideration. Olorunfemi & Adeleke (2013) also find a positive relation-ship between money supply and inflation in Nigeria. There result showed that "inflation in Nigeria seems to find explanation in money supply. As a result, the government of Nigeria should put in place serious reforms that will ensure that more of the money in the

circulation is in the productive sector. From the study too, interest rates have an important impact on monetary expansion in the economy." (Olorunfemi & Adeleke 2013)

Odior, (2013) highlighted key monetary policy variables that engender inflation in the Nigerian economy. The research identified net domestic credit and currency outside banks as the most important variable in determining inflation in the short run in Nigeria. Raymond (2014), highlighted the effect of some monetary policy variables and monetary aggregates on consumer price index in Nigeria. These are increase in prime lending rate, minimum rediscount rate, consumer price index, and money supply. however money supply was found to be most significant. Fatukasi (2013) study revealed that there are many determinants inflation in Nigeria. According to the author the determinants of inflation in the Nigerian economy are multidimensional and dynamic. Therefore, the government should pursue with vigour, policies that will enhance the reduction of the general price level but enhance increased productivity of goods and services (Fatukasi 2013). Umoru1 & Oseme (2013) identified prime lending rate as a key a determinant of inflation in Nigeria. "…results of empirical study indicate that the effect of interest rate variation on expected inflation in Nigeria is negative and significant. The upshot is that variation in prime lending is a determining factor of inflation expectations in Nigeria."

Ayuba (2013), discovered that that the influence of money supply on inflation in Tanzania is relatively small. The author argued that the overall empirical results revealed that money supply is not the key source of inflation in Tanzania. According to the findings, all the estimated variables are found to play a vital role in fueling inflation in the economy. In comparison, money supply is found to be among the variables with the smallest share, especially in the short run, inflation tended to be more sensitive to shocks in real GDP both in short and long term. Therefore, this study concludes that inflation in Tanzania is more of a real factor than a monetary phenomenon (Ayuba 2013).

METHODOLOGY AND ANALYSIS OF DATA

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 examine over time and answers proffered to specific questions. Thus, the work is both descriptive and explanatory.

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 both descriptive and explanatory, the monetary theory of inflation is employed to explore the relationship between money supply and inflation in Nigeria. This will enable the consideration of other determinants (exchange rate, output, supply-side factors) inflation in Nigeria.

Specification of the model

To study the relationship between inflation and money supply, the variables are expressed in a mathematical form- specification of the model. The model is specified to determine the effects of money supply, interest rate, nominal exchange rate and fiscal deficit on inflation in Nigeria.

Mathematical model

INFR = f (M2, GDPR, BUDGFR FD)

Where;

INFR = Inflation rate

M2 = Broad money Supply

GDPR = GDP growth rate

BUDGFR = budget deficit growth rate

Data and Estimation

Time series inflation rate, interest rate, money supply, nominal exchange rate and fiscal deficit of Nigeria from 1989-2013 will be obtain from the Central Bank Nigeria Statistical Bulletin. The time series properties of the variables is examined using unit root

RESULTS AND DISCUSSION
Unit Root Test
Table 1: Dicky-Fuller Unit Root Test Result of the Series

VARIABLE	LEVEL		FIRST DIFFERENCE		ORDER OF INTEGRATION
	ADF	5% C V	ADF	5% C V	
BUGDFR	-7.552345	-1.947119			I(0)
GDPR	-4.518347	-1.946996			I(0)
INFR	-4.744332	-1.946996			I(0)
M2R	-2.529664	-1.946996			I(0)

The null hypothesis of the unit root test is that the individual series has unit root I (1) against the alternative that the series are stationary I (0). Using the Augmented Dickey-Fuller (ADF) unit root test, if the ADF test statistics is greater than the critical value of the tau statistics at 5 percent level of significance, the null hypothesis is rejected, indicating that the series are stationary at level. The results of the unit root test of the variable at level in Table 4.1 show that the ADF statistics is greater the tau statistics for the entire variables. This indicates that the entire variable is stationary at level-the order of integration of the variables is I (0).

The test result implies that ordinary least squares estimation method is appropriate to obtain efficient, consistent and unbiased estimates of the relationship between the variable and provide numerical values towards the end of achieving research objectives.

Model Specification

$INFR = \beta_0 + \beta_1 BUGDFR + \beta_2 GDPR + \beta_3 M2R + \epsilon$ (4.1) 3.5 A Priori expectation

If inflation is a monetary phenomenon in Nigeria, β_1 β_3 will be positive and significant but if otherwise, there could be other determinants of inflation in Nigeria. More so in inflation in Nigeria is as a result of more money going after fewer goods and services, β_2 will be negative.

OLS Result   INFR =   10.57 + 0.009 BUGDFR - 0.40GDPR + 0.33M2R   SE   (5.16)
(0.005311)   (0.396425)   (0.170632)   t   1.98   2.04   1.817833
-1.014204   Prob.   0.0526   0.0458   0.0751   0.3154
DW 2.028   R2   0.135051

The result shows that if broad money supply growth rate increase2 percent,, inflation rate will increase by about 33 percent in the average and it is significant at about 5 percent level of significant, judging by the probability value for broad money growth rate. More so, government deficit financing is positively related to inflation rate in the period under study. The result show that if deficit financing growth rate increase by 100, inflation will increase by 0.9 percent in the average and the result is significant at 10 percent level of significance. Although the result also shows that increase productivity has the potential of reducing inflation; the inverse relationship between GDP is not statistically significant. The Durbin-Watson value (2.02) shows that the model is free from the problem of autocorrelation. Meanwhile, the R2 value of 0.13 indicates that the model explain only about 13 percent change of inflation rate in Nigeria in the period under consideration.

The result shows that the growth rate of broad money supply is a major determinant of inflation in Nigeria. That is, in the period under consideration, monetary authority and various governments' expansionary monetary and fiscal policy- borrowing money from domestic and foreign sources to finance government projects is the major driver of long run inflation in Nigeria. In addition the work also reveal that real output growth in inversely related to inflation, meaning increase productivity is a viable means of combating long run inflation in Nigeria.

CONCLUSION

Inflation is one of the major macroeconomic problems in the Nigeria economy. In this research we examine the determinant of inflation in Nigeria. This study shows that there is a positive relationship between money supply and inflation as well as deficit financing and inflation in Nigeria. More so the study points to the fact that productivity growth is a viable option of reducing long run inflation in Nigeria. Based on the findings of the study, the following conclusions were reached; Inflation is a monetary phenomenon in Nigeria, inflation in Nigeria is a result of faster growth rate of money supply relative to slower growth rate of GDP, government deficit financing through borrowing or currency printing is also a determinant of inflation in Nigeria and productivity growth is the sure way of checking long run inflation in Nigeria. Although sustained positive growth of general price level is unavailable with sustained growth in money supply, the work shows that productivity growth is a viable option in the drive to achieve price stability in Nigeria. This implies that government investment in social and economic infrastructure; road network, energy infrastructure, hospitals, national security will be more relevant in maintaining price stability in Nigeria. Based on the findings of the study, the following recommendations are put forward; government should be committed to prudent financial management such that that government borrowing is channeled to capital ventures that will enhance productivity in the country, monetary authority government should only consider expansionary monetary policy when it is obvious that there are lesser quantity of money in circulation relative to output of goods and services, both monetary authority and government should work hand in hand in combating long run inflation in Nigeria.

REFERENCES

Adepoju, T. L.& Oluchukwu, E. E.(2011), A Study of Secondary School Students' Academic Performance at the Senior School Certificate Examinations and Implications for Educational Planning and Policy in Nigeria. *An International Multidisciplinary Journal, Ethiopia*,. 5 (6), 5-10.

Albuquerque, C. Portugal, M.S. (2004) Pass-through from exchange Rate to Prices in Brazil: an Analysis Using Time-varying Parameters for the 1980-2002 Period; In: Latin American Meeting of the Econometric Society (Lames),

Amaefula C. G, (2016), Long-Run Relationship between Interest Rate and Inflation: Evidence from Nigeria, *IOSR Journal of Economics and Finance, Volume 7,* Issue 3.PP 24-28. and Inflation Targeting Revisited, Working Paper 12163, National Bureau of Economic Research, Massachusetts, Cambridge.

Babalola, O. O. Danladi, J. D. Akomolafe, K. J. Ajiboye O.P. (2051) Inflation, Interest Rates and Economic Growth in Nigeria, *European Journal of Business and Management,* Vol.7, No.30, 2015 pp 91-102.

Babatunde M. A. and Shuaibu M. I. (2011), Money Supply, Inflation and Economic Growth in Nigeria, *Asian-African Journal of Economics and Econometrics*, Vol. 11, No. 1 : 147163.

Ebiringa, O. T. and Anyaogu, N. B. (2014), Exchange Rate, Inflation and Interest Rates Relationships: AnAutoregressive Distributed Lag Analysis, *Journal of Economics and Development Studies* Vol. 2, No. 2, pp. 263-279

Emerenini, F. M. and Eke C. N. (2014), The Impact of Monetary Policy Rate on Inflation in Nigeria, *Journal of Economics and Sustainable Development*, Vol.5, No.28.

Ernest S. O. (2013), Monetary Policy, Bank Lending and Inflation in Nigerian: VAR Approach, Kashere *Journal of Humanities, Management and Social Science*, Vol. 1, No. 1&2, Page 134-149

Fatukasi B. (2013), Determinants of Inflation in Nigeria, *International Journal of Humanities and Social Science* Vol. 1 No. 18 www.ijhssnet.com 262

Gbadebo A. D. and Mohammed, N. (2015), Monetary Policy and Inflation Control in Nigeria, *Journal of Economics and Sustainable Development*, Vol.6, No.8.

Hitlar I. (2015), The Impact of Interest Rate Liberalization on Investment in Nigeria, *M.Sc Dissertation submitted to the Department of Economics Faculty of the Social Sciences, University of Nigeria,*

Nsukka Hossain T. and Islam N. (2013), An Economic Analysis of the Determinants of Inflation in Bangladesh, *The International Journal of Social Sciences* Vol 11 no 1 P 29-36

Isakova A. (2007), Modeling and Forecasting Inflation in Developing Countries: the Case of Economies in Central Asia, CERGE-EI Discussion Paper Series. No. 2007 . 174

Lipsey R. G. and Chrystal K. A.(2007), Economics 11TH Edition, Oxford University Press Mbutor O. M. (2014), Inflation in Nigeria: How much is the function of money *? Journal of Economics and International Finance,* Vol. 6(1), pp. 21-27.

Muhammad Z. B. and Mubarak A. S. (2013) Reationship between Inflation, Money Supply, Interest Rate and Income Growth (Rgdp) in Nigeria 1980-2010. *An Empirical Investigation.* Vol.4, No.8

Olayungbo D. O. and K. T. Ajuwon (2015), Dollarization, Inflation and Interest Rate in Nigeria. *CBN Journal of Applied Statistics* Vol. 6 No. 1

Olorunfemi S. Adeleke P. (2013), Money Supply and Inflation in Nigeria: Implications for National Development, *http://dx.doi.org/10.4236/me.2013.43018 (http://www.scirp.org/journal/me), 161-170.*

Raymond A. R. (2014), An Econometric Analysis of Effect of Changes in Interest Rates on Inflation in Nigeria, *International Journal of Economics, Commerce and Management.* Vol. 2. No10.

Saymeh A. F. Orabi M. M. A. (2013), The Effect of Interest Rate, Inflation Rate, GDP, on Real Economic Growth Rate in Jordan, *Asian Economic and Financial Review*, 3(3):341-354

Sebastian E. (2006), The Relationship Between Exchange Rates

Soludo C. C. (2009), The Challenges of Ensuring Appropriate Inflation, Exchange Rate and Interest Rate Regimes in Nigeria., Central Bank of Nigeria

T. A. Ngerebo (2016), Monetary Policy and Inflation in Nigeria, *International Journal of Finance and Accounting.* Vol 5 No1 67-76.

Umoru1. D. and Oseme A. S. (2013), Inflation Expectations and Interest Rate Variation in Nigeria: an Econometric Assessment of the Evidence. *International Journal of Development and Economic Sustainability* Vol. 1 No. 2, pp 1-12

Appendix 1
Data Presentation

	M2R	GDPR	INFR	BUGDFR		M2R	GDPR	INFR	BUGDFR
1961	8.695652	0.191795	6.257169	NA	1988	32.9132	7.542522	22.92167	106.4774
1962	10.93333	4.102993	5.565301	419.1098	1989	12.928	6.467191	45.04047	24.45378
1963	8.683894	8.578619	-3.09475	1.434466	1990	32.70103	12.76601	9.290849	46.12843
1964	19.10423	4.950489	2.427809	6.165198	1991	37.38021	-0.61785	17.60477	61.67046
1965	8.751161	4.884977	0.864445	25.09953	1992	63.26025	0.433725	68.06319	10.56434
1966	10.94984	-4.25051	13.19287	-14.3999	1993	53.75797	2.090378	26.1324	64.82059
1967	-12.6587	-15.7436	-3.00671	10.78716	1994	34.49514	0.909763	31.00914	7.846962
1968	15	-1.24836	1.220547	-44.5815	1995	19.41171	-0.30747	113.0764	-101.423
1969	26.91055	24.19738	2.706307	-9.05118	1996	16.17816	4.993706	32.72709	3104.94
1970	47.79656	25.00724	51.27848	-327.823	1997	16.039	2.802256	1.013132	-115.601
1971	6.392321	14.23753	1.348034	-137.706	1998	22.31776	2.71564	-5.66569	0
1972	15.57731	3.364262	2.892868	-134.266	1999	33.12106	0.474238	17.05014	2567.786
1973	13.77678	5.39276	5.346837	-382.483	2000	48.06752	5.318093	35.22953	113.7388
1974	89.19787	11.16067	43.94637	981.5172	2001	26.3768	4.411065	-0.32262	-63.6003
1975	55.66314	-5.22775	23.50079	-123.82	2002	18.8211	3.784648	39.89666	113.0031
1976	41.45127	9.042352	14.35319	154.9194	2003	13.51137	10.35418	11.14094	36.35064
1977	34.47273	6.024118	10.71375	-28.3645	2004	20.67703	33.73578	-0.15775	-32.7393
1978	-2.01035	-5.76416	13.91455	261.1339	2005	22.60363	3.444667	22.0244	-14.8593
1979	30.95067	6.759431	11.48876	-151.798	2006	36.35072	8.210965	17.33778	-6.48605
1980	46.10816	4.204831	12.41966	-235.13	2007	64.92465	6.828398	4.770742	-37.1787
1981	5.899972	-13.1279	18.45904	97.55468	2008	58.53445	6.270264	10.8353	15.62129
1982	9.545308	-1.05319	4.82934	56.43115	2009	17.21458	6.934416	-4.32057	-59.5875
1983	14.02163	-5.05045	13.76747	-44.8813	2010	6.816272	7.839739	103.8228	1609.614
1984	11.6028	-2.02154	13.26743	-20.9273	2011	12.99923	4.887387	9.510096	36.46788
1985	8.992736	8.32283	5.542339	14.25725	2012	16.78592	4.279277	9.271245	4.805231
1986	1.953095	-8.75418	11.63	171.5498	2013	12.44962	5.394416	5.873296	-15.7818
1987	22.41116	-10.7517	67.39822	-28.6469	2014	5.006336	6.309718	4.662624	18.22386