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Money Supply And Economic Development Of Nigeria, 1986 -2016

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Abstract: ***This Study examined Money Supply and Economic Development of Nigeria (1986-2016). The objective of this study was to examine the Effects of - Broad money supply captured by currency in circulation, demand deposits and quasi money on economic development of Nigeria. The monetarist theory, on which this work was anchored believe that Changes in monetary policy rates should result to direct and proportionate change in Economic Development of a country but some available findings from studies appear to disagree with this proposition. The study used secondary data sourced from World Bank, UNDP, Bureau of Statistics and the Central Bank of Nigeria; The research work selected Nigeria as its sample and used the OLS, Co-integration, Granger-causality and Error Correction model data Analysis techniques, to test the Effect of the independent variables (Currency in circulation, Demand deposits, Quasi money) on the dependent variable, economic development (proxy by Human Development index) and tested at the 5% level of significance. The findings showed that broad money supply components namely, currency in circulation, demand deposits and quasi money all had positive but insignificant effect on economic development in the short-run; Furthermore, all the tested variables showed positive and significant effects in the long-run period on economic development with significant speed of adjustments. The study concludes that money supply components have significant effect on economic development and recommends amongst others the creation of predictable investment-friendly environment by the monetary authorities through the manipulation of appropriate monetary policy instruments, that will stimulate business activities and encourage household consumptions.***

Keyword: ***Broad Money Supply, Currency in circulation, Demand Deposit, Quasi money, Human Development index, Economic development.***

I. INTRODUCTION

Monetary policy is a deliberate action of the monetary authorities to influence the quantity, cost and availability of money credit in order to achieve desired macroeconomic objectives of internal and external balances (CBN, 2011). The action is carried out through changing money supply and/or interest rates with the aim of managing the quantity of money in the economy. The importance of money in economic life has made policy makers and other relevant stakeholders to accord special recognition to the conduct of monetary policy. The Central Bank of Nigeria is the organ that is responsible for the conduct of monetary policy in Nigeria.

According to Onoh (2013), there is need to analyse the monetary policy of an economy to facilitate the design of an appropriate macroeconomic policy framework, which will promote sustainable economic growth, domestic stability and external balance. He further noted that a number of variables are involved in the design of macro-economic policy but the strategic importance of the monetary variables cannot be ignored. Authorities ignored it at the peril of the economy. An important function of monetary authority, such as central bank in most countries is to exercise a firm control over money supply, generally considered the nerve-centre of the economy. The firm control over money supply can only be achieved through information obtained from monetary analyses. Onoh (2013) argued that a monetary authority must be adequately equipped for monetary data collection, storage and retrieval of data for use, where and when necessary.

Monetary policy can either be expansionary or contractionary, depending on the overall policy thrust of the monetary authorities. Monetary policy is expansionary when the policy adopted by the central bank increases the supply of money in the system and contractionary, when the actions

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reduce the quantity of money supply available in the economy or constrains the growth or ability of the deposit money banks to grant further credit (CBN,2011). The primary objective of monetary policy is to ensure monetary and price stability (CBN, 2007). This gives the citizens confidence in the future value of their money, so that they can make sound economic and financial decisions. Low and stable inflation also helps to prevent inflationary boom and bust cycles that could result in a recession and higher unemployment. The major objective of monetary policy for most central banks is the attainment of price stability. An associated objective is stable growth with full employment (accompanied by stable long-term interest and real exchange rates). In pursuit of the objective of price stability and its accompanying objectives, central banks recognize the existence of conflicts amongst the objectives and the need for trade-offs.

Money supply is the amount of money that is available to the economy at any point in time (Okaro, 2013). Similarly, Onoh (2013), stressed that Money supply could be defined both in narrow and broad terms, depending on the ease with which it could be converted into cash. A narrow definition of money supply comprises currency in circulation and demand deposit, while a broader definition would include balances in other deposit accounts. In Nigeria, narrow money (M1) consists of the currency in circulation plus demand deposits while broad money (M2) is made up of narrow money plus savings, time and foreign currency deposits. The definition of what constitutes narrow or broad money depends to a large extent on the level of development of financial infrastructure and its deployment.

Nigeria‘s monetary policy strategy is anchored on the attainment of internal balance and external viability (CBN, 2011). This philosophy has evolved in terms of techniques and instruments. In recent times, the CBN recognized that achieving stable prices would require a continuous reassessment and evaluation of its monetary policy implementation framework to enable it respond to the ever-changing economic and financial environment. Against the requirement for internal and external balance, the CBN announced a new monetary policy framework effective 11th December, 2006. The goal of the new implementation framework was to achieve a stable value of the domestic currency through stability in short-term interest rates around an ―Operating Target‖ - the interest rate, which is determined and operated by the CBN. The ―Operating Target‖ rate i.e. the ―Monetary Policy Rate‖ (MPR), serves as an indicative rate for transaction in the money market as well as other Deposit Money Banks' (DMBs) retail interest rate. According to CBN (2011), the operating principle guiding the new policy is to control the supply of settlement balances of banks and motivate the banking system to target zero balances at the CBN, through an active interbank trading or transfer of balances at the CBN. This is aimed at engendering symmetric treatment of deficits and surpluses in the settlement accounts, so that for any bank, the cost of an overdraft at the CBN would be equal to the opportunity cost of holding a surplus with the Bank. The intervention in the market was to take the form of a standing lending/ standing deposit facilities that ensured an orderly operation of the market.

Monetary policy is one of the macroeconomic instruments with which nations (including Nigeria) use in managing their economy. It entails those actions initiated by the Central Bank which aim at influencing the cost and availability of credits (Nwankwo, 1991). It covers gamut of measures or combination of packages intended to influence or regulate the volume, prices and direction of money in the economy.

The Central Bank of Nigeria (CBN), like other central banks in developing countries, achieves the monetary policy goals through the amount of money supplied. Money supply comprises narrow and broad money. The definition of narrow money (M1) includes currency in circulation with non-bank public and demand deposits or current accounts in the banks. The broad money (M2) includes narrow money plus savings and time deposits, as well as foreign denominated deposits (CBN, 2011).

The broad money measures the total volume of money supply in the economy. Thus, excess money supply (or liquidity) may arise in the economy when the amount of broad money is over and above the level of total output. The need to regulate money supply is based on the knowledge that there is a stable relationship between the quantity of money supply and economic activity and that if this is not limited to what is required to support productive activities; it will result in undesirable effects such as high prices or inflation (Sanusi, 2009; Soludo, 2009; CBN, 2010).

The CBN derives its mandate from the CBN Act of 2007 (as amended) and in specific terms, part one, section of the CBN Decree No. 24 of 2007 (as amended), stipulates that the principal objects of the Bank shall be to:- Issue legal tender currency in Nigeria; maintain external reserves to safeguard the international value of the legal tender (Naira); ensure monetary stability, promote sound financial system in Nigeria, and act as banker and provider economic financial advice to the Federal Government of Nigeria (CBN, 2012).

Most researchers have been unable to come to a consensus on what should be the exact effect of monetary policy instruments on economic development of a country and there has been array of debates on such outcome. For instance, Sanchita and Rina (2011), Sanusi (2002), Omoke and Ugwuanyi (2010), Okpara and Nwoha (2010), Adofu, Abula and Audu (2010), all agreed that there is a positive and significant relationship between monetary policy instruments such as broad money supply etc and economic growth. While, conversely Olubusoye and Oyaromade (2008), Omofa (1999), Salisu (1993) hold that the relationship is not significant. And more worrisome is the result of the findings of Ditimi (2009) that there is no relationship

This study on Money Supply and Economic Development of Nigeria attempts to reconcile such disagreements by studying the Effect of money Supply on the Economic Development of Nigeria and divides the investigation into five sections, namely: Introduction, Review of Related literature, Methodology, Data Presentation and Analysis, and Recommendations and Conclusions.

II. REVIEW OF RELATED LITERATURE

Onoh (2007) defined money supply as the stock of money in an economy and comprises of Narrow and broad monies, M_1 and M_2 respectively, can be generated either from the liabilities column or assets column of the monetary balance sheet. The M_1 represents the total currency in circulation and demand deposits while the M_2 represents M_1 plus savings deposit, time deposits and other liabilities such as foreign currency deposits.

Money supply policy can either be expansionary or contractionary, depending on the overall policy thrust of the monetary authorities. Money policy is expansionary when the policy adopted by the central bank increases the supply of money in the system and contractionary, when the actions reduce the quantity of money supply available in the economy or constrains the growth or ability of the deposit money banks to grant further credit (CBN,2011).

Onoh (2007) further noted that apart from the monetary assets and monetary liabilities above, there are other variables which directly or indirectly influence the periodic changes in the level of money supply. They include current ratio, demand deposit ratio, reserve ratio, the bank credit multiplier, the level of base money and the degree of monetization of foreign assets by government and the domestic credits extended by banks to both public and private sector. Other factors include inflation rate, interest rates, exchange rates and fiscal operations of government.

Andrezj (2014), observed that money supply influence on prices as well as production and employment in economy has been the elementary issue in the theories of various schools of economics. They fundamentally differ in the evaluation of whether changes in the quantity of money inspire changes only in the sphere of money or also in the real sphere1. The problem of money's neutrality is thus an issue significantly affecting the targets of the monetary policy. The most popular theory on the effects of changes in the money supply is the quantity theory of money. In its basic version, it was presented by I. Fisher from the mathematical perspective. Monetarism is a contemporary school whose theory is based on it. M. Friedman treated the quantity theory as the theory of the demand for money, arguing that previous versions should not be understood differently. In his research, he substituted the velocity of money with the function of the demand for money. According to him, this demand is stable from the real perspective as it depends on the real permanent income. It is determined by the society's income expected in a long term. It does not change as often as the current income. When analysing an increase of inflation and unemployment in the United States in the 1960s and 1970s, the monetarists negated the existence of the Keynesian Philips curve in a long term. They stated that there is no choice between low unemployment and high inflation or *vice versa*. For a long term, prices and wages are flexible, so there is an equilibrium in the labour market with a certain level of unemployment. This is the famous Friedman's natural rate of unemployment where unemployment is voluntary. Short-term deviations of the actual unemployment rate from the natural one determine the deviations of the actual output from the potential level. This means that inflation does not depend on the unemployment rate that will oscillate around the natural level. Economists consider it to be variable and dependent on many factors, e.g. the mobility of labour force.

According to Okaro (2013), an expansionary monetary policy for instance will raise the price of equity (i.e. reduce the yield on equities). It was further noted that the margin between the market valuation and the cost of reproducing the existing capital goods will stimulate new investments in these goods. Tobin and Brainard (1968) noted that the equity rate is the major link between money and the level of economic activity. The non-monetarist school of thought known as the new-Fisherians, comprising of the USA federal reserve-MIT school of thought argue that changes in the quantity of money have direct impact on short-term rate which through the process of portfolio substitution affect long-term interest rates, equity yields and possibly other rates of return on real assets. This process shows that the full effect of monetary policy is subject to long lag since it takes time for monetary policy to be reflected in long-term interest rates, equity yields and components of aggregate demand.

Friedman (1970) begins his analysis of the impact of the changes in the quantity of money on the economy at the moment of long-term balance. Expansionary monetary policy leads to an increase in the global demand. In a short term, it reduces the unemployment rate and increases the inflation rate. However, an increase in prices reduces the actual wages which are more important for an employee in wage-setting behaviour than a nominal wage. It means that an employee will include inflation expectations in his or her demands. In case of monetarists, these expectations are adaptive, i.e. the current inflation and the past inflation are taken into consideration8. An increase in inflation entails greater inflation expectations. Therefore, in their pay negotiations employees will demand an increase in nominal salaries higher than the current inflation. This will result in the increase in the production costs and in the accelerated increase of prices. Inflation higher than the rate of increase of the money supply leads to the reduction of the real quantity of money in circulation. Thus, the production and unemployment rise. This causes greater pressure on salary increase, which suggests lower inflation and decreasing inflation expectations. Adaptation will be continued as long as the inflation rate becomes equal to the rate of increase in the money supply with the natural unemployment rate. Friedman explains that the long-term Philips curve finally takes the shape of a vertical line.

By treating inflation as a purely monetary phenomenon, monetarists argue that its level is affected only by the quality of the central bank's monetary policy. A considerably increased money supply in long-term causes an increase in prices as the velocity of money is constant, there is a natural unemployment rate and non-monetary factors are decisive for the level of production capacities. Therefore, Friedman recommends using the monetary policy only to keep the level of the previously assumed inflation. Contrary to the Keynesians, he does not use it to stimulate the economic situation or to reduce unemployment. It is considered that the monetary policy should not have a countercyclical character but be totally passive. The will to constantly stimulate employment requires constant increase of the growth rate of

the money supply. This would lead to a constant increase in the inflation rate and hyperinflation. Another argument against the active role of monetary policy is the problem of delays in disclosing the consequences of the undertaken activities. Monetarists strongly believe in market powers that automatically restore balance in the economy. Fluctuations in the economic situation are only short-term deviations from the long-term trend and depend on many various factors. Thus, the expansionary economic policy aimed at being ahead of the forecast recession may destabilise the economy, leading to the emergence of consequences in the period of prosperity. Then it will be stimulated even further, which may bear the fruit of faster inflation. In order to fight with it, the central bank will push the economy into depression with its restrictive policy. Changes in the economy are too dynamic in order to predict exactly the time when the consequences of the decisions made will appear. Even though the principle of proportionality functions for a long term, monetarists admit that in a short term an expansionary monetary policy affects the unemployment rate. But the problem lies in the fact that the determination of the actual natural unemployment rate in a specific economy is extremely difficult. Even if authorities did this, they should not reduce the monetary policy. They can do it by following the policy of increased economic liberty that will ensure greater functioning of market powers and will improve the functioning of the labour market and enterprises.

A new classical school is more radical than monetarism in the assessment of the consequences of using the money supply in the policy of controlling output. Reasonable expectations, constant balancing of markets and errors in the perception of business entities are hypotheses that enabled new classics to formulate their elementary thesis of the ineffective traditional economic policy, including the monetary policy, even in the short-term. They are the greatest defenders of the quantity theory of money and emphasise that money is super neutral in economy.

When increasing the money supply, the central bank may:

- ✓ inform entities of its activities;
- ✓ surprise entities with its activities.

The new classical school divides the monetary policy into the predictable and unpredictable one. In the former case, rationally functioning entities take this information into account in their expectations and fully predict its consequences. An increase in the supply of money does not lead to increased output as employees who want to maintain the real wage at the constant level demand the increase of wage at the beginning of the next period by the amount of the general increase in prices. The only and immediate effect of stimulating the economic situation with such a monetary policy will be inflation. In the latter case, in turn, the unexpected changes to the quantity of money, so changes which are surprising for private entities, have an influence on the real social product and employment. Increased global demand causes an increase in the prices of goods and services. The erroneous evaluation of the economic situation by businesses (they mistake the increase in the general level of prices with the increase in relative prices) leads to the initial reaction involving greater total supply. The generated output deviates from the potential one while the actual unemployment rate diverges from the natural one. Yet such changes are only temporary. Businesses and employees quickly realise that they have misinterpreted the impulse and they change their expectations. Only the level of prices is increased permanently. Output and unemployment quickly return to their natural levels. Also the level of prices constantly grows. Therefore the central bank should not follow a discretionary monetary policy but rather focus on the stabilisation of prices.

Dynamic incoherence in time and credibility of the central bank are important issues raised by the new classical school. Economists argue that the monetary policy should consider the expectations of business entities in its decisions, so it should not conduct policy other than the declared one. Acting differently, it puts itself in the position of losing credibility which is of key importance to the monetary policy. Short-term benefits resulting from the discretionary policy are much less considerable than losses connected with the costs of inflation and disinflation arising from the lack of rules of conduct. The anti-inflation policy may be credible and as such also effective only when the central bank has full independence.

The best-known critics of the quantity theory of money are the continuators of J.M. Keynes's theory. The new Keynesian school aims at demonstrating that the monetary policy is fit for effective use to influence the level of business activity, i.e. to justify non-neutrality of money in a short- and long-term. By assuming rational expectations and imperfect information, they decide that the economy's deviations from the state of balance constitute a wide-scale market defect. Effective expansionary policy of the central bank relies on sticky prices and wages. Thus, R. Gordon clearly formulated a goal of new Keynesianism: "searching for rigorous and persuasive models of sticky salaries and/or prices based on maximising behaviours and rational expectations".

Some economists of the new Keynesian school concentrate on explaining the rigid prices and nominal pays, while some focus on real ones. An advantage of the new-Keynesian approach is the abandoning of the conditions of perfect competition and the assumption that enterprises function in the conditions of monopoly competition and oligopoly. Nominal sticky prices are explained on the basis of high costs of changes, i.e. menu costs. Enterprises change prices non-simultaneously, according to the Calvo model. But the elementary argument justifying the rigid nominal wages is the conclusion of long-term pay contracts. Even though they increase the instability of the economy, they also reduce losses as constant salary negotiations are costly and time-consuming, and limit the rotation of staff.

Okaro and Onyekwelu (2003) observed the following advantages of money supply as an instrument of monetary policy in an economy to include;

- ✓ It helps to stabilize price and the monetary system in an economy.
- ✓ It is a useful tool in controlling inflation.
- ✓ It assists in keeping unemployment at low level in the economy in the long-run.
- ✓ It also helps to stimulate economic activities.

The duo (Okaro & Onyekwelu, 2003) also identified some disadvantages of money supply as stressed by the Keynesian school of thought as;

- ✓ In the short-run, it may have no powerful effect (insignificant) effect in stimulating economic activities.
- ✓ In the meantime, it may result to slight increase in unemployment in the course of pursuing inflation control policy
- ✓ The lag in the response time of money supply policies can undermine the effectiveness of money supply growth.

A. COMPONENTS OF MONEY SUPPLY

The component parts of money supply studied in this research work includes;

- ✓ Currency in Circulation: Currency in circulation refers to total money in circulation outside the banking system. Statistics of currency in circulation are readily available on a month to month basis. They are computed from the monthly returns of commercial banks. Since currency holding reflects a community's demand for transaction balances, its magnitude will fluctuate with business peaks and troughs. The identification of the currency peaks and troughs periods as well as the periodic variations respectively are important for monetary policy decisions. Deposit-money banks' deposits with the central bank and the currency in circulation constitute the reserve money which the central bank must provide at all times.
- ✓ Demand Deposits: In Nigeria, demand deposit is defined to mean the aggregation of deposits of state, local government and parastatals at the CBN, and at the deposit-money banks plus the deposits of the private sector and non-financial public companies at the deposit money banks (Onoh, 2013). Currency and demand deposit liabilities are important monetary aggregates, which feature prominently in money supply equations. Demand deposit is a unique liability of the commercial banks, which is operated through the use of cheques. In many countries it attracts no interest payment or it earns at best a token interest. It is unique because it is the platform upon which commercial banks stand, in the process of multiple expansion of credit money. Onoh (2013) stressed that in the process of multiple credit money creation, the banking system leverages many fold on the initial aggregate deposit monies of the banking system using the bank credit multiplier process.
- ✓ Quasi Money: Savings and time deposits constitutes *quasi-money* or near money. In Nigeria's monetary statistics, quasi money is defined to consist of savings, time deposits and foreign currency deposits of commercial banks and merchant banks, excluding takings from Discount Houses. Savings deposits unlike demand deposits receive market determined interest income. They attract the lowest market rates. Many banks are reluctant to accept small savers because of the high costs of administering those accounts. Time deposits are also called fixed deposits and are placed with the deposit-money banks for a period ranging from 30 days to 360 days or longer. The interest rate is negotiable and fixed. Savings and Time deposits, which are quasi money are important components of the broad money supply, M_2.

B. MONETARY POLICY AND ECONOMIC DEVELOPMENT

Monetary policy is one of key drivers of economic growth through its impact on economic variables. Economic growth is essential in an economy as it reduces poverty as well as improving livelihoods. The growing importance of monetary policy has made its effectiveness in influencing economic growth a priority to most governments (Ajisafe and Folorunso, 2002; Khabo, 2002; Dornbusch et al, 1998; Mankiw, 2002; Cittadino et al, 2007).

Despite the lack of consensus among economists on how monetary policy actually works and on the magnitude of its effect on the economy, there is a remarkable strong agreement that it has some measure of effects on the economy (Nkoro, 2005) Monetary policy as 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 (Folawewo and Osinubi, 2006). For most economies, the objectives of monetary policy include price stability, maintenance of balance of payments equilibrium, promotion of employment and output growth, and sustainable development. The pursuit of price stability invariably implies the indirect pursuit of other objectives such as economic growth, which can only take place under conditions of price stability and allocative efficiency of the financial markets. Monetary policy aims at ensuring that money supply is at a level that is consistent with the growth target of real income, such that non-inflationary growth will be ensured. Monetary policy is used as inflation is generally considered as purely a monetary phenomenon. Monetary policy influences economic growth through aggregate spending, changes in money supply and interest rates influence consumer spending as well as investment decisions. Consequently, aggregate demand changes in response to monetary policy adjustments.

C. ECONOMIC DEVELOPMENT MEASUREMENT INDICATORS

Human development is considered as one of the core areas of interest in development economics. There are several ways in which we can define human development. It is difficult to find a single coherent definition. However, the best way to explain it can be found in Sen's book 'development as freedom'. It says that human development can be regarded as expansion in people real freedoms that they enjoy. Focusing on human freedoms contrasts sharply with narrower views of development, such as identifying development with the growth of Gross National Product (GNP), with the rise in personal incomes, industrialization, with technological advance, or with social modernization. Sen (1999, p.1) said that, it is surely not a purpose to debilitate the contribution of these variables in accentuating welfare. Rather, it is simply argued that these variables are not sufficient conditions for development. We need to consider other dimensions too such as reach to fresh water, social and economic rights, or access to clothing and shelter etc. Similarly, Wilson and Woods (1982) also realized the importance of multi-dimension indices and measured to analyze the increasingly complex modern society on economic and social front. Having discussed the

complexity of defining development, it is even more challenging to measure human development. Several ways have been formulated and utilized to serve the purpose over the course history. Among the beginners, GDP per capita was a main variable as a proxy for human development. However, it was highly debated to use a measure of income as an alternative to human development. Consequently, we witnessed numerous other composite indices by various social scientists that were more credible and appropriate to measure development such as Child Development Index by 'Save the Children' NGO and Gender related Development Index (GDI) by UNDP. However, one of the most important indices among them is Human development index or HDI. It was proposed by Mahboob-ul-Haq in early 1990s on the basis of developmental concepts presented by Amartya Sen. It was from first UNDP's Human Development Report (HDR) that it started getting reported annually.

Since its construct, there has been found immense amount of economic literature relating to the motive, construct and reliability of HDI index. We found cases both for and against HDI index. Though, there may exist immense critic relating to the construct and form of the HDI; it is almost firmly accepted that it does provide with 'something more' than simple income approach such as GDP or GDP per capita.

Sagar and Najam (1999) evaluated the performance of HDI since its introduction in 1990s. They declare HDI to be a fruitful index, as it is a good step forward from unilateral income based approach. Booysen (2002) also discussed in detail why the multi-dimensional indices such as HDI are still considered a progress in explaining the development despite having issues with their constructs and statistical shortcomings. It is argued that though we can point out problems; these indices are useful in that they simplify complex measurement constructs and appeal for an attention for the variables included.

D. THE MONETARIST THEORY

The monetarists, following the Quantity Theory of Money (QTM), have propounded that the quantity of money is the main determinant of the price level, or the value of money, such that any change in the quantity of money produces an exactly direct and proportionate change in the price level (Friedman, 1970; Thomas, 2006; Handa, 2009). The QTM is traceable to Irving Fisher's famous equation of exchange;

$$MV = PQ \quad \ldots\ldots(1)$$

Where M stands for the stock of money; V the velocity of circulation; Q the volume of transactions which take place within the given period; while P stands for the general price level in the economy. Transforming the equation by substituting Y (total amount of goods and services exchanged for money) for Q, the equation of exchange becomes

$$MV = PY \quad \ldots\ldots(1)$$

The Introduction of Y provides the linkage between the monetary and the real side of the economy. In this framework however, P, V and Y are endogenously determined by the monetary authorities. The monetarists emphasised that any change in the quantity of money affect only the price level or the monetary side of the economy, with the real sector of the economy totally insulated. This indicates that changes in the supply of money do not affect the real output of goods and services, but their values or the prices at which they are exchanged only (ECB, 2013; Doherty, 1995; Ip Greg and Whitehouse, 2006; Cunningham and Ronald, 1990). An essential feature of the monetarist model is its focus on the long-run supply-side properties of the economy as opposed to the short run dynamics (Philips, 1987).

E. EMPERICAL REVIEW

Studies by various researchers on this subject have produced conflicting outcomes over the years in different continents. Some of these include:

Canova (2005) established that a US monetary shock has a strong impact on macroeconomic development in US. Owing to a US contractionary monetary policy shock, interest rates are found to rise, which attracts capital inflows and pushes aggregate demand up and down.

Chuku (2009) used a structural vector auto regressive model with quarterly data from 1986:1 to 2008:4 to measure the effects of monetary policy innovations in Nigeria. Variables used in his model were: real Gross Domestic Product (GDP), Consumer Price Index (CPI), broad money (M_2), Minimum Rediscount Rate (MRR) and Real Effective Exchange Rate (REER). His study discovered that monetary policy innovations carried out on the price-based nominal anchors (MRR and REER) had neutral and fleeting effects on output. While the quantity-based nominal anchor (M_2) had modest effects on output and prices with a very fast speed of adjustment implying that the quantity of money (M_2) in the economy is the most influential instrument for monetary policy implementation in Nigeria.

Salisu (1993) using OLS to investigate the role of interest rate in the determination of the demand real cash balances, concluded that there existed no significant relationship between the duo, and that any attempt by the policy makers of the Nigerian Economy to influence this kind of money demand through the use of interest rate will not yield any positive result.

Omofa (1999) using the Quantity Theory of Money (QTM) established a positive but not significant relationship between money supply and price level. This means that though money supply contributes to price determination in Nigeria, it is not the major causal factor. Other variables of significance are price level lagged and exchange rate. They are both positively related to current price level and their coefficients are both high and significant.

Moreover, Nkoro (2005) on a topic "monetary policy and macroeconomic instability in Nigeria (1980 – 2000)" concluded that factors responsible for excess liquidity and inflationary pressure in Nigeria included: instability of the financial sector, which was attributed to bank distress and lack of managerial efficiency, resulting to financial institution failures, non-harmonization of fiscal and monetary policies and increase in government expenditure.

Folawewo and Osinubi (2006) used rational expectation approach to conclude that the effort of Monetary Authority in Nigeria at using its credit and reserves as monetary tools in checking inflation and the rate of exchange has affected the volatility of the two variables over the years. Thus monetary

policy, if not well targeted could yield negative results. This is because the speculations of the private agents may frustrate monetary effort (Berg and Pattillo, 1999), just as improper inflation targeting could affect real exchange rate volatility (Amato and Gerlach, 2002) and exchange rate intervention induce inflation (Galati, 2000). Thus monetary policy should be set in such as way that the objective it set to achieve is well defined, in a way that effort at stabilizing exchanging rate will not generate inflation and vice versa.

Additionally, several studies (Idowu, 2010; Uchendu, 2009 and Nkoro, 2005) have established that huge public spending has constrained the efficacy of monetary policy in Nigeria. They buttressed that huge public spending by the three tiers of government, over the years, had hampered monetary management resulting in the missing of monetary targets by wide margins, while inducing serious pressure on the general price level. Moreover, the poor state of economic infrastructure, resulting from past neglect, influence monetary management adversely.

Suleman, Wasti, Lal and Hussaini (2009) in their study of money supply, output and prices in Pakistan found out that M_2 positively impact on prices in the economy.

III. DATA AND METHODOLOGY

A. SOURCE AND NATURE OF DATA

The study made use of data mainly from secondary sources, particularly published data from research work of monetary policy department of CBN, the World Bank and the United Nations Development Project (UNDP). Secondary data will be obtained from the statistical bulletin of the Central Bank of Nigeria and will be used for the analysis of the study. We will equally use data from the published works in CBN official websites, Statistical Bulletins, monthly journals, financial reviews as well as Annual Reports and various communiqués of the monetary policy committee meetings. Another source of data for the study will include statistics and published materials by the National Bureau of Statistics (NBS), Nigerian Economic Society, Newspapers, Magazines, Journals, Seminar papers as well as my previous lecture notes and similar studies conducted in this direction. The data obtained was analysed using Econometrics text kit (Software) called E-view –Version 9.

The data used for this study are those relating to:

✓ Human Development Index (HDI) - Dependent Variable

Broad Money Supply (M_2); Currency in circulation (CC), Demand Deposit (DD) and Quasi Money (QM) - Independent variables.

B. MODEL SPECIFICATION AND VALIDITY

This research work adopted the model of Onyeiwu (2012) with slight modifications (for example replacement of gross domestic product (GDP) with Human development index (HDI) and the use of inflation as a moderating variable due to its strong effect on price levels and money supply);

$GDP = a_0 + a_1 lr + a_2 M_2 + a_3 Cr + Ui$ (1) (Onyeiwu, 2012)

Where GDP - Gross Domestic Product

Lr - Liquidity ratio

M_2 - Broad Money Supply

Cr - Cash ratio

A_0, a_1, a_2 and a_3 - Parameters

Ui - Error term

Adjusting above model after our work, we have;

HDI =f(M2), ... (2)

Transforming to multiple linear relationship;

$HDI = a_0 + a_1 CC + a_2 DD + a_3 QM + a_4 INFR + u$ ..... (3)

$\mu = Error\ term$

$ao = Intercept$

$a_1 - a_4 = parameters / coefficients$

Where HDI = Human Development Index

M_2 = Money Supply

CC = Currency in Circulation

DD = Demand Deposit

QM = Quasi Money

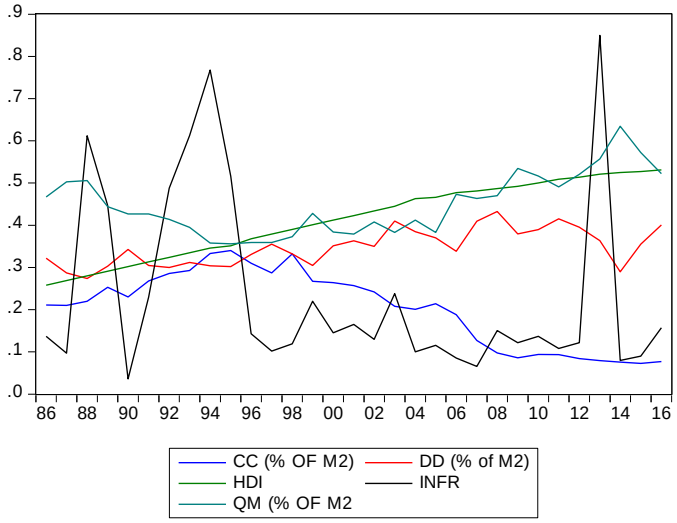
Apiriori expectation: M_2 , CC, DD, QM > 0 (positive and significant)

IV. DATA PRESENTATION AND ANALYSIS

Year	CC (% OF M2)	DD (% of M2)	HDI	QM (% OF M2)
1986	0.211	0.322	0.258	0.467
1987	0.210	0.287	0.269	0.503
1988	0.220	0.274	0.280	0.506
1989	0.253	0.303	0.291	0.444
1990	0.230	0.343	0.302	0.427
1991	0.268	0.305	0.313	0.427
1992	0.286	0.300	0.324	0.414
1993	0.293	0.312	0.335	0.395
1994	0.333	0.304	0.346	0.358
1995	0.340	0.302	0.351	0.356
1996	0.310	0.331	0.368	0.359
1997	0.287	0.355	0.379	0.359
1998	0.332	0.332	0.390	0.373
1999	0.267	0.305	0.401	0.428
2000	0.264	0.351	0.412	0.384
2001	0.257	0.363	0.423	0.379
2002	0.242	0.350	0.434	0.408
2003	0.208	0.410	0.445	0.383
2004	0.201	0.385	0.463	0.412
2005	0.214	0.370	0.466	0.383
2006	0.1880	0.3386	0.477	0.4734
2007	0.1270	0.4094	0.481	0.4636
2008	0.0974	0.4325	0.487	0.4701
2009	0.0860	0.3794	0.492	0.5346
2010	0.0939	0.3895	0.500	0.5166
2011	0.0936	0.4154	0.509	0.4910
2012	0.0841	0.3952	0.514	0.5207
2013	0.0793	0.3635	0.521	0.5572
2014	0.0760	0.2896	0.525	0.6344
2015	0.0726	0.3553	0.527	0.5721
2016	0.0772	0.4006	0.531	0.5222

Source: CBN, NBS and UNDP (2017)
Where: CBN = Centra Bank of Nigeria.
NBS = National Bureau of Statistics
UNDP = United Nations Development Projects
CC = Currency in Circulation
DD = Demand Deposit
QM = Quasi Money
HDI = Human Development Index

Table 4.1: Data for Selected Variables



Source: Computation by author using E-view 7

Figure 1: Graphical Illustration

Figure 4.1, shows HDI (Dependent variable) has maintained a consistent linear growth indicating that the various oscillating independent variables such as CC, DD and QM (All as percentage of M2) as well as INFR have had a positive effect on the Economic development of Nigeria measured by HDI. Hence, despite the volatility in the macroeconomic environment, which has occasioned the rise and fall of the monetary policy variables under study, the economic managers have been able to manipulate these elements to effectively ginger developments in the economy.

A. DIAGNOSTIC TESTS

The aim here is to carry out various diagnostic tests to ensure that our data and model used in this research work conforms to the basic assumptions of the classical linear regression. This will ensure that the output of this process is not error prone and is reliable.

a. TEST FOR STATIONARITY

The test for stationerity requires that the variables in the series model must be stationery at a given level and p-value must be significant at that level. Stationerity is attained where the test statistics is most negative and greater than the critical value of the chosen level of significance.

Variables	ADF Test Statistics	Critical Values @5%	P-value	Order of Integration
CC	**-5.1125**	**-2.9678**	**0.0003**	**I(1)**
DD	**-6.6260**	**-2.9719**	**0.0000**	**I(1)**
QM	**-5.6764**	**-2.9678**	**0.0001**	**I(1)**

Table 4.2: Unit Root Tests

Table 4.2 shows that all the variables are stationery at level one (1) at the 5% chosen level of significance and are positive and significant.

b. TEST FOR SERIAL CORRELATION – BREUSCH-GODFREY (BG) TESTS

The Breusch-Godfrey tests is used to test for the presence or absence of serial or autocorrelations in the model with the Null hypothesis stating that there is No autocorrelation. This holds if p-value is greater than the chosen level of significance otherwise reject.

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.427802	Prob. F(2,6)	0.6704
Obs*R-squared	2.371267	Prob. Chi-Square(2)	0.3056

Source: Author's E-view 7 computations

Table 4.3: Breusch-Godfrey Serial Correlation Test

From table 4.3, the p-value is greater than the chosen level of significance of 5%, indicating the absence of autocorrelation in the model. This is further enhanced with a Durbin-Watson statistics of 1.90. Hence, we do not suspect any violation of the assumptions of classical linear regression. The applicable treatment was to led the variables by 5 periods (CC, DD, QM) while the moderating variable (INFR) was led by 3 periods.

c. TEST FOR HETEROSKEDASTICITY (ARCH)

The assumption of the classical linear regression that the variance of the errors is constant is known as *Homoskedastycity*. If the variance of the errors is not constant, this would be known as *Heteroskedasticity.* Hence, we test for the presence of heteroskedasticity with the intention of treating same if found. The treatment method adopted here is the Autoregressive conditionally Heteroscedastic test known as ARCH. The Null hypothesis states that there is no Heteroscedasticity if the p-value is greater than the level of significance (Brooks, 2014).

Heteroskedasticity Test: ARCH			
F-statistic	0.699348	Prob. F(1,19)	0.4134
Obs*R-squared	0.745523	Prob. Chi-Square(1)	0.3879

Source: Author's E-views computation

Table 4.3: Heteroskedasticity – Arch Test

The null hypothesis states that there is No heteroskedasticity if p-value is not significant and is greater than the chosen level of significance of 5%. Hence, in this case we accept the Null hypothesis that there is no evidence of heteroskedasticity since p-value is greater than 5% significance level.

B. TEST OF HYPOTHESIS

Ho_1: There is no significant relationship between Broad money supply (M_2) represented by Currency in Circulation (CC), Demand Deposit (DD) and Quasi Money (QM), and economic development of Nigeria.

H_{i1}: There is significant relationship between Broad money supply (M_2) represented by Currency in Circulation (CC), Demand Deposit (DD) and Quasi Money (QM), and economic development of Nigeria.

OLS Regression Test For Short-Run Effect

Dependent Variable: HDI				
Method: Least Squares				
Date: 03/26/18 Time: 20:32				
Sample (adjusted): 1987 2014				
Included observations: 28 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	-0.050057	0.064118	-0.780699	0.4433
CC(2)	0.079348	0.063497	1.249633	0.2246
DD(2)	0.049352	0.067178	0.734644	0.4703
QM(2)	0.052002	0.063228	0.822447	0.4196
INFR(2)	0.000154	0.003034	0.050804	0.9599
HDI(-1)	1.007411	0.015713	64.11364	0.0000
R-squared	0.998823	Mean dependent var		0.410643
Adjusted R-squared	0.998555	S.D. dependent var		0.081689
S.E. of regression	0.003105	Akaike info criterion		-8.524257
Sum squared resid	0.000212	Schwarz criterion		-8.238785
Log likelihood	125.3396	Hannan-Quinn criter.		-8.436985
F-statistic	3733.445	Durbin-Watson stat		2.364472
Prob(F-statistic)	0.000000			

Source: Author's computer generated Eviews result

Table 4.4: Regression Result for Broad Money Supply (M2) Components

In table 4.4, the R^2 and Adjusted R^2 both showed 99.88% and 99.86% respectively. This shows that the chosen regression model best fits the data. Hence, the goodness of fit regression model is 99.88% and implies that chosen explainatory variables explains variations in the dependent variables to the tune of 99.88%. Also, with a high Adjusted R^2 (99.86%) implies that the model can take on more variables conveniently without the R^2 falling beyond 99.86%, which is very commendable. F-statistics of 3733.445 is considered very good being positive and significantly large enough and it shows that there is significant positive relationship between the dependent and explanatory variables. The overall probability (F-statistics) of 0.0000 is rightly signed and very significant and displays a Durbin-Watson of 2.364, which is considered good as it shows little or no effect of autocorrelation on the chosen data.

Hence, from table 4.4, the CC(2) at led 2, has a t-statistic value of 1.2496 and a p-value of 0.2246, was found to have a positive effect on HDI and this effect is statistically insignificant at 5% level since its p-value is greater than 0.05. Also, DD(2) at led 2, has a t-statistic value of 0.7346 and a p-value of 0.4703, was found to have a positive and insignificant effect on HDI. Similarly, Also, QM(2) at led 2, has a t-statistic value of 0.8224 and a p-value of 0.4196, was found to have a positive and insignificant effect on HDI. Therefore, we accept null hypothesis to reject the alternative that components of Broad money supply, M2 all have positive and insignificant effect on human development index. However, the INFR(2) at led 2, has a t-statistic value of 0.0508 and p-value of 0.9599 and this effect is positive and statistically not significant at the 5% level. The INFR is to act as a moderator to the outcome of both the dependent and independent variable. The implication of this result is that a 1% increase in M2 components (namely – CC, DD and QM) will result to a 0.0794%, 0.04935 and 0.05200 increases in HDI respectively and the coefficient of the future levels of CC, DD and QM variables have a positive sign and is positive at the 5% significance level. This supports the view that the future levels of CC, DD and QM in Nigeria positively but insignificantly affects Human Development Index (HDI).

Co-Integration Test For Long-Run Effect

Date: 03/27/18 Time: 05:33				
Sample (adjusted): 1988 2016				
Included observations: 29 after adjustments				
Trend assumption: Linear deterministic trend				
Series: CC DD HDI QM INFR				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.667405	95.56292	69.81889	0.0001
At most 1 *	0.590204	63.63882	47.85613	0.0009
At most 2 *	0.417325	37.76805	29.79707	0.0049
At most 3 *	0.388904	22.10443	15.49471	0.0044
At most 4 *	0.236407	7.821877	3.841466	0.0052
Trace test indicates 5 cointegrating eqn(s) at the 0.05 level				

Source: Author's E-views computation

Table 4.5: Co-integration result

The Johansen Co-integration test (Trace) reveal the existence of 5-co-integrating vector in our model one as seen in table 4.5, with a p-values of 0.0001, 0.0009, 0.0049, 0.0044 and 0.0052 respectively between HDI and broad money supply components (CC, DD, QM) and the control variable, INFR. We thus confirm that M2 as captured by its component variables have a co-integration effect (long-run) on HDI (Human Development Index).

DECISION RULE: We reject null hypothesis of the co-integration relationship to accept the alternative that there is Co-integration. We thus, conclude that broad money supply as represented by currency in circulation, Demand deposits and Quasi money have a long-run effect on Economic development proxied by HDI (Human Development index).

Granger-Causality Test

Pairwise Granger Causality Tests			
Date: 03/27/18 Time: 05:54			
Sample: 1986 2016			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
DD does not Granger Cause CC	29	1.11720	0.3436
CC does not Granger Cause DD		2.41398	0.1109
HDI does not Granger Cause CC	29	4.90866	0.0163
CC does not Granger Cause HDI		3.79665	0.0369
QM does not Granger Cause CC	29	1.60572	0.2216
CC does not Granger Cause QM		8.68076	0.0015
HDI does not Granger Cause DD	29	5.61735	0.0100
DD does not Granger Cause HDI		1.64605	0.2138
QM does not Granger Cause DD	29	2.85337	0.0773
DD does not Granger Cause QM		8.20289	0.0019
QM does not Granger Cause HDI	29	5.21112	0.0132
HDI does not Granger Cause QM		4.03411	0.0309

Source: Author's E-views computation

Table 4.6: Granger-Causality Result

The result in table 4.6 shows that broad money supply components such as currency in circulation (CC) granger-causes HDI with a p-value of 0.0369 and HDI granger-causes currency in circulation (CC) with a significantly positive p-value of 0.0163 at the 5% level of significance; we thus document a bi-directional causal relationship between CC and HDI. Also, we observed a positive causal relationship between HDI and Demand deposit with a significant p-value of 0.0100 but on the reverse demand deposit (DD) does not granger-cause HDI since its p-value is greater than the 5% chosen level of significance. Hence, we document a uni-directional causal relationship. Further observations reveal that quasi money (QM) granger-causes HDI with a significantly positive p-value of 0.0132 and HDI granger-causes quasi money (QM) with significant p-value of 0.0309, indicating another bi-directional relationship between this broad money supply component (QM) and economic development effectively proxied by HDI.

Error Correction Term

Var	ADF stat	Critic.value@5%	P-value	Order of Integ
ECT 1	-6.0162	-2.9862	0.0000	I(0)

Source: Author's E-views computation

Table 4.7: Residual Unit Root test

Table 4.7 shows that the residual unit root is stationery at levels and well co-integrated with significant p-value.

d(hdi) = c + d(cc(2)) + d(dd(1) + d(qm(1)) + d(hdi(-1)) + d(infr) + ect(-1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004053	0.003147	1.287737	0.2141
D(CC(2))	0.014076	0.034968	0.402527	0.6920
D(DD(1))	-0.027206	0.032028	-0.849423	0.4068
D(QM(1))	-0.031129	0.031959	-0.974026	0.3430
D(INFR)	0.000210	0.003135	0.066846	0.9474
ECT1(-1)	-0.920860	0.411891	-2.235688	0.0383
D(HDI(-1))	0.594572	0.322457	1.843877	0.0817

Source: Author's Eviews computation

Table 4.8: Error Correction Model

This section presents the result of the ECM for the model. The model of the ECM is on the table 4.8 and the estimates of the short-run and long-run movements, as well as the error correction term, which proxies speed of adjustment, are provided in the table 4.8. The table shows useful long-run information. The equilibrium adjustment coefficient 92.09% enters with a correct sign "negative". This suggests that broad money supply captured by its various components such as currency in circulation (CC), Demand Deposit (DD) and Quasi Money (QM) and economic development proxied by Human Development index (HDI) converges to long-run equilibrium ; it can also be observed that ECT(-1) coefficient tends to one, indicating that the speed of adjustment to equilibrium is fast. It shows that 92.09% of the deviation from the equilibrium path is corrected on a yearly basis. The ECM result therefore confirm the long-run relationship between broad money supply components and economic development (HDI) from the residual unit root test and the co-integration tests respectively.

C. DISCUSSION OF FINDINGS

The result of the data regression analysis showed that broad money supply represented by currency in circulation (CC), Demand deposit (DD), and Quasi money (QM), all have a positive and insignificant effect on economic development of Nigeria. The study showed that future levels of these broad money supply components have a positive (t-statistic; 1.2496, 0.7346, 0.8225 respectively) and insignificant effect (p-value; 0.2246, 0.4703, 0.4196 respectively) on economic development (HDI) at the 5% level of significance. The coefficients of the future levels of currency in circulation, demand deposit and quasi money have a positive sign (0.07935, 0.04935 and 0.05200 respectively) at the chosen level of significance. This implies that a 1% increase in future levels of CC for instance, will result to a 7.935% rise in economic development, 1% rise in future levels of DD will result to 4.9% rise in economic development while a 1% rise in future levels of QM will result to a 5.200% growth in economic development . The result of this study is consistent with the findings of Mohammed and Ahmed (1995) and Dotimi (2009), who also found a positive and insignificant effect of broad money supply on economic growth. This outcome is however at variance with the theoretical foundation of the monetarist theory and our apriori expectation of a positive and significant effect. However, the Granger-causality tests reveal a positive and significant Bi-directional relationship effect between HDI and currency in circulation (p-value of 0.0163 and 0.0369 respectively); a positive and significant Uni-directional relationship effect of HDI on DD (p-value- 0.0100) while the tests further show a positive and significant Bi-directional relationship effect between QM and HDI (p-value- 0.0309 and 0.0132). A plausible direct interpretation of this result is that the governments' policies on broad money supply components in Nigeria are not sound enough and effective in regulating the money in circulation. We advise that necessary policy adjustments be made to ensure significant effects in broad money supply component policies of government. The diagnostic tests revealed that the variables were stationery at first difference and there were strong evidence of cointegration between the variables with the speed of adjustments to long-run convergences being highly significant at 92.06%. This findings are also in line with the outcome of Olubosoye and Oyaromade (2008) on negative and significant long-run effect between economic growth and monetary policy instruments.

V. CONCLUSION AND RECOMMENDATION

The finding from our objective for this study shows that broad money supply components measured by currency in circulation, demend deposits and quasi money, had positive and insignificant effect on economic development of Nigeria in the short-run but positive and significant effect in the long-run periods.

A. CONCLUSION

This research work studied the effect of money supply on the economic development of Nigeria following largely from the work as postulated by Friedman and the monetarist theory that the quantity of money is the main determinant of the price level, or the value of money, such that any change in the quantity of money produces an exactly direct and proportionate change in the price level. They largely held that the economy grows with proper and appropriate monetary policies.

B. RECOMMENDATIONS

In line with the objective of this study, we recommend that;

- ✓ Monetary policies should be used to create favourable investment climate by ensuring the availability of optimum level of money supply in the economy for development and consumption purposes. A framework should be developed to regulate stock of money in circulation at all times, thereby curbing inflation and ensuring adequate demand deposits in the financial system to prevent its distress.
- ✓ There should be adequate development and availability of financial and near financial instruments within the system, this will ensure development and stability of the financial system.
- ✓ CBN should minimize the issuances of emergency policies that are usually short lived as effective policies require ample gestation time for objective achievement and consolidation.

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