FISCAL DEFICIT IN AN OIL DEPENDENT REVENUE COUNTRY AND SELECTED MACROECONOMIC VARIABLES: A TIME SERIES ANALYSIS FROM NIGERIA (1981-2015)

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Abstract:

In this paper, we determined the effect of fiscal deficit on selected macroeconomic variables in Nigeria by specifically evaluating the effect of fiscal deficit on gross domestic product, money supply and inflation. To achieve these objectives, we employed various econometric techniques such as unit root test, Johansen co-integration, granger causality test in which variations in gross domestic product, money supply and inflation were regressed on fiscal deficit and exchange rate using time series data from 1981 to 2015. Secondary data casing the time frame were collected from Central Bank of Nigeria statistical bulletin. The result of the analysis revealed that fiscal deficit has no significant effect on gross domestic product, money supply and inflation in Nigeria. The finding also shows that there is a positive insignificant relationship between fiscal deficit and gross domestic product. This is in line with the Keynesian postulation of the existence of positive relationship between fiscal deficit and macroeconomic variables. Based on the findings, government should allocate and effectively monitor funds sourced as a result of fiscal deficit to providing critical economic infrastructures such as electricity, access road, health, communication among others to reap the benefits associated with fiscal deficit. Monetary policy should be structured in such a way as to compliment fiscal policy so that the level of inflation

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would be lowered whenever government relies majorly on fiscal deficit as an instrument of fiscal policy.

Keywords: fiscal deficit; gross domestic product; money supply; inflation

JEL: E62, H30, O23, H62, H68

1. Introduction

The relationship between fiscal deficit and macroeconomic fundamentals such as money supply, interest rate, exchange rate, and foreign direct investment shall be evaluated. These have become critical issues in finance literatures. Deficit financing is a bad omen for economy in long term growth (Ramzan, Saleem & Butt, 2013). Chronic government fiscal deficit and escalating government debt have become major concern in both developed and developing countries (Saleh, 2003). In Nigeria, like other developing country face budgetary constraints basically due to low resources attributed to low revenue from taxes, low incomes and savings. With globalization, developing countries lost a historically reliable source of income from tariffs due to trade liberalization, but failed to recover the lost revenue by introducing tax reform in the form of a value added tax (Shetta & Kamaly, 2014). To effectively and efficiently meet the developmental needs of her growing population, more resources from external earnings are required to finance expenditures. With the fall in oil price in international market starting from July 2014, the situation would get worst resulting in chronic fiscal deficit. Fiscal deficit can be financed through a number of ways which include government borrowing domestically (mainly used in countries with developed domestic financial systems), government borrowing from international sources, minting money by the central bank (monetary financing) and through foreign aid from donor governments and agencies (Lwanga & Mawejje, 2014). The effects of these financing options result in increase in the level of money supply in the country and creates inflationary pressure in the economy (Ramzan, Saleem & Butt, 2013). Ramzan, Saleem and Butt (2013) specifically hinted that continuous domestic borrowing by government through sale of short term federal bonds, treasury bills, defence saving certificates etc. increase interest rate, inflation and discourage private investments while external trade imbalance, low gross domestic product, capital flights from the country results in excessive external borrowing. Deficit financing using externally borrowed funds are likely to have adverse effect appreciation of the exchange rate where the inflow of

foreign exchange which will adversely affect the performance of exports (Lwanga & Mawejje, 2014)

The nexus between fiscal deficit and macroeconomic variables are mainly viewed from the neoclassical, Keynesian and Ricardian stand point. From Keynesian perspective, in time of lingering unemployment, fiscal deficits would stabilize aggregate demand, increase private saving and foster investments and economic growth. From the neoclassical point of view, fiscal deficit crowd out private investments and are therefore, damaging to a country's growth prospects, hence they are not ideal policy for governments to adopt. According to the Ricardian postulation, rising budget deficits are matched by an equivalent increase in private saving. The divergent views expressed by these theories on fiscal deficit and macroeconomic fundamental have necessitated an in-depth research in this field of public finance with the objective of ascertaining the most appropriate and applicable theory for both developed and developing countries of the world aided with the application of various time series and cross sectional data of different nations. Nigeria finances her budgets from both external and internal borrowing with external borrowing constituting the largest portion (CBN, 2014). External financing is largely in form loans and grants. Grants come in form of project supports from bilateral and multilateral donor governments and agencies such as World Bank, United Nation and UNICEF among others. Domestic sources are mainly from sale of federal government treasury bills, treasury certificates and development stocks. Domestic borrowing through treasury bills rose from N1, 277.10 billion in 2010 to N2, 815.52 in 2014 compared to N1, 727.91 billion, N2, 122.93 billion and N2, 581.55 billion in 2011, 2012 and 2013 respectively. Financing from federal government bond increased from N2, 901.60 billion in 2010 to N4, 972.28 billion in 2014 with regards to N3, 541.20 billion in 2011, N4, 080.05 billion in 2012 and N4, 222.04 billion in 2013. Treasury bond from N372.90 billion in 2010 to N296.22 billion in 2014 against N353.73 billion in 2011, N334.56 billion in 2012 and N315.39 billion in 2013. Development stock reduced from N3.35 billion in 1981 to N0.22 billion in 2010. From 2011 to 2014 the government has not borrowed domestically via development stock (CBN, 2014). The government of Nigeria incurs expenditure in two categories: recurrent and capital expenditures. Nevertheless, public expenditure falls on administration (general administration, defence, internal security and national assembly), social and community services (education, health and other social and community services), economic services (agriculture, construction, transport and communication and other economic services) and transfer (public debt servicing, pension and gratuities, contingencies/subvention and other CFR charges).

Effect of fiscal deficit can also depend on type of the sectors the government decides to spend on. For example, fiscal deficits can have positive macroeconomic effect on the long run if it is used to finance extra capital spending that leads to an increase in the stock of national assets. Increased spending on the transport and power infrastructure improve the supply side capacity of the economy: promoting long-run growth; for example, increased government investment in education and health can bring positive effect on labour productivity and employment. That notwithstanding, wasteful spending such as excessive government expenditure on official travels and conferences might not contribute much to economic growth and development (Lwanga & Mawejje, 2014). The Keynesian theory postulated a positive relationship between fiscal and macroeconomic fundamentals. However, from empirical studies on developing countries, this view is not so obvious. The empirical result of Duokit and Ekong (2016), Aslam (2016), Lozano (2008) and Onwioduokit and Bassey (2013) reported that fiscal deficit has a positive effect on economic growth of Sierra Leone, Sri Lanka, Colombia and Gambia respectively. This is however at variance with the views canvassed by Adinervand (2015) and Fatima, Ahmed and Rehman (2011) that fiscal deficit does not enhance economic growth in Iran and Pakistan respectively. Furthermore, Lwanga and Mawejje (2014) asserted that there exists no causal relationship between fiscal deficit and macroeconomic fundamentals in Uganda. In the light of the controversies that have risen in recent times regarding the effect of fiscal deficit on macroeconomic fundamentals, where some authors have found positive relationship between the two variables while others have reported negative relationship, it is germane to empirically ascertain the effect of fiscal deficit on selected macroeconomic fundamentals in Nigeria by using an up-to-date data from 1981-2015. This is to contribute to existing debate on the validity of the theories developed to discuss the nexus between fiscal deficit and macroeconomic variables in Nigeria.

The remainder of this paper is structured as follows: section two reviews the relevant conceptual, theoretical and empirical literatures. Section three delivers the methodology applied. Data analysis and discussion of results of estimations were divulged in section four. In section five, we made our concluding remark and offered some recommendations.

2. Review of Related Literature

2.1 Conceptual Issues

The relationship between fiscal deficit and macroeconomic variables such as gross domestic product, money supply and inflation, among others remain one of the most

widely discussed issues among macroeconomists and policy makers in developed and developing countries (Umeora, 2013). In the face of limited own resources, governments usually incur deficits to finance economic and social infrastructures (Duokit & Ekong, 2016). A couple of different ways to measure the conventional fiscal deficit exists. The most generally accepted measure used by government world-wide to define the fiscal deficit is the resources utilized by the government in a fiscal year that need to be financed after revenues were deducted from the expenditure (Duokit & Ekong, 2016). Fiscal deficit is the difference between total government revenue and expenditure. Fiscal deficit is a situation whereby government expenditure is greater than revenue (Agu, 2010). It is an indication of the total borrowings needed by the government. According to Aslam (2016), fiscal deficit is a serious economic issue in developing countries because, the criticizers of the developing countries argue that the fiscal deficit impact on economic growth negatively. On the other hand the developing thinkers promote and support the fiscal deficit of the countries; they argue that this type of fiscal deficit promotes the economic growth of countries.

Generally, fiscal deficit takes place either due to revenue deficit or a major hike in capital expenditure. A deficit is usually financed through borrowing from the central bank of the country or raising from stock markets by using different instruments like treasury bills and bonds. Governments' primary fiscal deficit have been common to most industrialized economies from the early 1970s to the mid-1990s. Standard economic models cannot explain this fact. If taxes are distortionary, the tax-smoothing motive should prevail: deficits arise in recessions, surpluses in expansions (Lambertini, 2003). The public sector plays a dominant role in the economy of any nation and growth in government spending has often resulted in deficits (Umeora, 2013). Deficit financing for developmental purpose is resorted to mainly because, when the government in a developing country like Nigeria takes up the responsibility of promoting economic growth, it has to compensate for the lack of private investment through expansion of public sector. But, due to paucity of current resources at its disposal, it normally finds it difficult to finance the huge public outlay necessary for accelerating the tempo of growth (Eze & Nwambeke, 2015).

2.2 Relationship between Fiscal Deficit and selected Macroeconomic Variables
A. Fiscal Deficit and Gross Domestic Product
Gross domestic product is the total value of all final goods and services produce in a country in a given year. It is also the market value of all officially recognized final goods and services produced within a country in a given period of time. Fiscal deficit relates to public finance wherein the revenue of the government from taxes,

investments, etc. is less than the expenditure of the government. This means that the expenditure of the government is more than the revenue the government gets and it is called fiscal deficit which is met by borrowing from public or printing currency to meet the deficit. The deficit will affect gross domestic product and if there is more deficit then the gross domestic product will rise as the government might have involved in plan expenditure and if it is non-plan expenditure then it will affect the gross domestic product as this expenditure will not bring benefits to the country (Adesuyi & Falowo, 2013).

B. Fiscal Deficit and Money Supply

The supply of money is a stock of money at a particular point in time, though it conveys the idea of a flow over time. The term money supply refers to the amount of money in the hands of the non-bank public at a point in time and the balances in commercial banks (Okeowo, 2008). The Central Bank of Nigeria (CBN) as well as public and private analysts show interest in the growth of money supply because of the impact it is believed to have on real economic activities and the general price level. The growth in money supply will lead to inflation if demand for money is stable, and if increase in money supply is not met by equal increase in demand (Umeora, 2010). According to the Ricardian view, the fiscal deficits have no impact on money supply in the long run but according to the Neoclassicals and Keynesians views, there is significant and positive relationship between fiscal deficit and money supply in the short run (Saad & Kalakech, 2009). Other researchers and economists believe that supply deficit is necessary to satisfy demand for savings in excess of what can be satisfied by private investments (Pavlina, 2007). So, it is required to create the money supply which can lead to a credit bubble and a financial crisis.

C. Fiscal Deficit and Inflation

Inflation is the creation of money that visibly rises prices of goods and lowers the purchasing power of naira (Oleka, 2006). The relationship between government fiscal deficit and inflation has attracted enormous debate over the years. The major channels of interaction between fiscal deficit and inflation are: first, direct impact through aggregate demand, an increase in aggregate demand leads to inflation. Secondly, direct impact through the money supply, large fiscal deficit lead to increase in the money supply which in turn increases the price level. Thirdly, an impact through interest rates, increase in fiscal deficit lead to higher interest rates which crowds out private investments, and hence reduce aggregate supply, which leads to price increases and finally, higher inflation expectations lead to higher real interest rates and higher debt-service costs which leads to increases in fiscal deficits (Barro, 1979). The inflationary effect of fiscal deficit depends upon the means by which the deficit is financed and the

impact of the deficit on aggregate demand. If the government attempts to finance fiscal deficits through bond issues, it could lead to inflation if tight monetary policy is used and otherwise. If seigniorage revenue is used to finance deficit, the implication is that fiscal deficit will lead to inflation.

D. Macroeconomic Implications of Fiscal Deficit

No issue in fiscal policy has generated more debate over the past decades than the effects of fiscal deficit. Many economists share the view that fiscal deficit are harmful and perhaps, even disastrous (Ball & Mankiw, 1995). When economists and policy makers decry deficit, they cite diverse reasons. Thus, despite almost unanimous concern over deficit, there is considerable controversy about the effect of deficit on the economy. Ball and Mankiw (1995) argue that fiscal deficit have many effects but they all follow from a single initial effect: deficit reduce national saving. National saving is the sum of private saving (the after tax income that households save rather than consume) and public saving (the tax revenue that the government saves rather than spends). When the government runs a fiscal deficit, public saving is negative, which reduces national saving below private saving. The effect of a fiscal deficit on national saving is most likely less than one –for-one, for a decrease in public saving produces a partially offsetting increase in private savings. To the extent that fiscal deficits increase the trade deficit (that is reducing net exports), another effect follows immediately: fiscal deficits create a flow of assets abroad. This fact follows from the equality of the current account and the capital account. When a country imports more than it exports, it does not receive these extra goods and services for free; instead it gives up assets in return. Initially, these assets may be the local currency, but foreigners quickly use this money to buy corporate or government bonds, equity or real estate. In any case, when a fiscal deficit turns a country into a net importer of goods and services, the country also becomes a net exporter of assets (Aslam, 2016).

A decline in national saving reduces the supply of loans available to private borrowers which pushes up interest rates. Faced with a higher interest rate, households and firms choose to reduce investments. Higher interest rates also affect the flow of capital across national boundaries. When domestic assets pay higher returns, they are more attractive to investors both at home and abroad. The increased demand for domestic assets affects the market for foreign currency: if a foreigner wants to buy a domestic bond, he must first acquire the domestic currency. Thus, a rise in interest rates increases the demand for the domestic currency in the market for foreign exchange, causing the currency to appreciate (Umeora, 2013). The appreciation of the currency in turn affects trade in goods and services. With a stronger currency, domestic goods are more expensive for foreigners, and foreign goods are cheaper for domestic residents.

Exports fall, imports rise, and the trade balance moves towards deficit. In summary, government fiscal deficit reduces national savings, reduce investments, reduce net exports, and create a corresponding flow of assets overseas. These effects occur because deficit also raise interest rates and the value of the currency in the market for foreign exchange.

2.3 Theoretical Consideration

Several theories have tried to analyse the relationship between fiscal deficit and macroeconomic variables such as gross domestic product, money supply, inflation, and so on which include: Neoclassical school theory, Keynesian school theory and Ricardian school theory. This study is anchored on the Keynesian theory. From the neoclassical perspective, fiscal deficit is negatively associated with economic growth and development. Government expenditure in excess of revenue, which is fiscal deficit raises interest rate and reduces private investments. The crowding out of private investment deters long term growth of the economy. The neoclassical economists argue that in a situation where government finance deficit through commercial papers, treasury bills or bond as against taxes, there is bound to be a fall in national savings thus lack of funds for private investments. Contrary to the neoclassical theory is the Keynesian theory which is of the assertion that fiscal deficit by government is a way to enhancing economic growth and development as government spending in excess of revenue will result in fall in unemployment, poverty and standard of living citizens. The Keynesian theory is hinged on three basic assumptions. First, the level of employment in the economy is not at the required level, secondly, the economy is faced with a lot of liquidity constraint which could be eased by fiscal deficit and thirdly, consumption level of the economy is dependent on income earned by citizens. The economy would achieve a considerable and stable level of growth and development through fiscal deficit by amalgamation of these three assumptions. Fiscal deficit according to Keynesian theory is predominantly valid for governments of developing countries in order to realize a targeted level of development. The third school of thought is the Ricardian equivalence theory which argues that fiscal deficit does not in any away affect the growth and development of an economy. The Ricardian economists believed that no matter the magnitude of money pumped into an economy by the government, citizens' consumptions will never be influenced. Put differently, increase in government expenditure through increase in taxes results in decline in savings by citizens, which will have no effect on the national savings. Government financing of deficit through increase in taxation, domestic or external borrowing makes no difference in aggregate demand as individuals are rational and are aware of their

current and future tax obligation thus the need for them to alter their present consumption is completely out of place.

2.4 Empirical Studies

2.4.1 Related Studies on Fiscal Deficit and Gross Domestic Product

The relationship that exists between the government deficit spending and selected macroeconomic variables such as Gross Domestic Product (GDP), exchange rate, inflation, money supply and lending interest rate was investigated by Umeora (2013). The period covered was 1970 (when the civil war ended) and 2011. Ordinary Least Squares (OLS) technique was adopted to analyse the relationships. The study concluded that government deficit spending has positive significant relationship with GDP. Government deficit spending also has positive significant relationship with exchange rate, inflation, and money supply. Government deficit has negative significant relationship with lending interest rate and most likely crowd-out the private sector by raising the cost of funds. Deficit spending has been known to have adverse effects on the economy and government is advised to curtail excessive deficit spending. In Sri Lanka from 1959 to 2013, Aslam (2016) tested the dynamic relationship between the fiscal deficit and the economic growth. In his bid to realize his objective, the fiscal deficit of Sri Lanka was used as main independent variable and the gross domestic product in constant price was utilized as dependent variable. The exports earnings, exchange rate, inflation rate were used as supportive independent variables. The Johansen co-integration technique and Vector Error Correction Model were employed to test the long and short - run dynamic relationship between fiscal deficit and the economic growth of Sri Lanka. This study found that fiscal deficit and economic growth of Sri Lanka had preserved a long- run dynamic relationship during the study period but no short- run dynamic relationship. In addition, the fiscal deficit had positive relationship with economic growth of Sri Lanka. The debate regarding the impact of fiscal deficit on economic growth in literature is essentially inconclusive. To this effect, Duokit and Ekong (2016) explored the relationship between fiscal deficit and economic growth in Sierra Leone. The study employed time series data for over a 30 years period using OLS method to estimate the relationship between deficit and growth in Sierra Leone. The study found positive relationship between fiscal deficit and economic growth, in agreement with the Keynesians assertion and hence proposes prudent fiscal management so as not to crowd-in private sector investments and thus amplified economic growth in Sierra Leone. Okpara and Odionye (2013) examined the relationship between fiscal deficit and macroeconomic variables in Nigeria for the quarterly period of 1970 -2011. The study employed the augmented Granger causality

test approach developed by Toda & Yamamoto (1995). The result showed a strong unidirectional causality from fiscal deficit to macroeconomic variables in Nigeria. The result supported the Keynesian proposition. Also the evidence from Johansen co-integration result indicated that there is a positive long run relationship between fiscal deficit and macroeconomic variables.

Bhoir and Dayre (2015) studied the impact of fiscal deficit on economic growth in the Indian context covering a time period from 1991-92 to 2013-14. Coefficient of determination, F test and Durbin Watson test are adopted in order to examine the objectives of this study. The study found that there is no significant relationship between fiscal deficit and economic growth in Indian economic perspective. They concluded that government of India should focus on human development indicators such as health, education and infrastructure development so that it will enhance the productivity of human and physical capital, which will increase the per capita income of people. Nkalu (2015) assessed the effect of fiscal deficit on selected macroeconomic variables in Nigeria and Ghana using annual time-series data of both economies covering from 1970 to 2013 within the methodological framework of Seemingly Unrelated Regression (SUR) model and Two-Stage Least Squares (2SLS). The study employed Eagle-Granger Cointegration test, Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests in estimating the systems equations. Data sourced from World Bank, IMF - World Economic Outlook, Central Bank of Nigeria, Bank of Ghana were analysed using SUR model. The empirical findings demonstrated that fiscal deficit has statistically negative effect on interest rate, inflation, and economic growth thereby supporting the neoclassical argument in the literature that fiscal deficit slows down the growth of the economy through resources crowding-out. Samirkas (2014) determined the effect of fiscal deficit on inflation, economic growth and interest rates during the years 1980-2013 in Turkey. Long-term co-integration correlation between fiscal deficit and inflation, fiscal deficit and GDP, and fiscal deficit and interest rates were tested by using Johansen co-integration test. Acquired results did not indicate any significant long-term co-integration correlation between fiscal deficit and inflation, GDP, and interest rate. Causality correlation was tested by Granger Causality Test. From the results of this test, a casual correlation was found between fiscal deficit and interest rates and the direction of such correlation was from interest rate toward fiscal deficit, meaning, interest rate has significant effect on fiscal deficit.

Onwioduokit and Bassey (2013) empirically ascertained whether fiscal deficit enhance or retard economic growth in Gambia between the period 1980 and 2009. The empirical results obtained from the estimation exercise are fairly robust and satisfactory, in that the variables conformed largely to a priori expectation in terms of

statistical significance. The empirical results show that fiscal deficit affects the real economic growth positively and significantly with a lag of one year. The sign of the parameter estimate conforms to the presumptive expectation, given that the fiscal deficit in the Gambia was essentially used in financing economic and social infrastructures during the study period. Thus, the result supported the Keynesian assertion that fiscal deficits have positive impacts on economic growth. Wosowei (2013) determined the relationship between fiscal deficit and macroeconomic performance in Nigeria over the period 1980 to 2010. The study employed the ordinary least square in estimating the equation. Preliminary test of stationarity and co integration of variables using the Augmented Dickey Fuller (ADF) test and the co integration test using the Engle Granger procedure were conducted respectively. However, the empirical findings showed that fiscal deficit even though that it met the economic a priori expectation in terms of its negative coefficients yet, did not significantly affect macroeconomic output. The result also show a bilateral causality relationship between government deficit and gross domestic product, government tax, and unemployment, while there is an independent relationship between government deficit and government expenditure and inflation. Adesuyi and Falowo (2013) examined the relationship between fiscal deficit and the Nigerian economy; the overall objective being to assess and investigate the impact fiscal deficit has on the economy given some variables. The result showed that fiscal deficit has made a significant contribution to GDP and economic growth of Nigeria. Awe and Funlayo (2014) investigated the short and long run implications of fiscal deficit on economic growth in Nigeria. The sample study comprises of time-series data covering the period of 1980-2011. Regression analysis was conducted to ascertain and affirm the impact of fiscal deficit on economic growth in Nigeria. The result from the regression analysis indicated that a negative relationship exists between fiscal deficit and economic growth. Johansen co-integration technique was used to investigate the long run effect of fiscal deficit. It was found that there is a significant long-run relationship between fiscal deficit and economic growth in Nigeria. The error correction model revealed that fiscal deficit shows a negative relationship with gross domestic product while gross capital formation (investment) shows a positive relationship with GDP.

2.4.2 Related Studies on Fiscal Deficit and Money Supply

Conventional notion suggests that persistently high fiscal deficit gives rise to inflation, which monetary policy on its own is powerless to prevent. However, empirical evidence does not provide convincing support for such a hypothesis. Mukhtar and Zakaria (2010) re-examined this issue in the case of Pakistan using Johansen co-

integration analysis. The empirical results suggest that in the long-run inflation is not related to fiscal deficit but only to supply of money, and supply of money has no causal connection with fiscal deficit. Hence, the findings imply that the hard government deficit constraint does not find empirical support for Pakistan. Umeora and Ikeora (2016) investigated the effect of government fiscal deficits on money supply in Nigeria. Secondary data set for 1970 – 2014 were obtained from CBN Statistical Bulletin. The method of analysis was Error Correction Model (ECM) and Pairwise Granger Causality. The regression results showed that government fiscal deficit has significant and negative effect on money supply and that inflation does not contribute significantly to money supply and fiscal deficit. Pairwise Granger Causality showed that money supply granger cause fiscal deficit. Bakare and Adesanya (2014) critically evaluated the long term relationship between fiscal deficit, money supply and inflation in Nigeria between 1975 and 2012. The paper employed quantitative methodological framework and specifically draws on econometric technique to find the relationship between inflation rate, growth rate of money supply, growth of fiscal deficit/GDP and growth of external debt/GDP. Stationarity test conducted using Augmented Dickey-Fuller (ADF) revealed that the variables used were stationary at levels. The Johansen co-integration test suggests that there are at least three co-integrating vectors among these variables. The estimated coefficient of the ECM revealed that about 13.2% of the errors in the short run are corrected in the long run. The overall result between inflation rate and growth of money supply, growth of BD/GDP and growth of ED/GDP indicate that the specified model is statistically significant at 5% level. Maji, Bagaji, Etila and Sule (2012) investigated the relationship between fiscal deficit, economic growth and money supply in Nigeria for the period 1970 to 2009. Granger causality test was conducted to see whether fiscal deficit granger cause economic growth and money supply or economic growth and money supply granger cause fiscal deficit. The results showed that fiscal deficit granger causes economic growth and broad money supply in Nigeria. This implies that fiscal deficits positively affect economic growth and money supply in Nigeria.

Koyuncu (2014) used time-series approach to investigate the impact of fiscal deficit and money supply on inflation in Turkey for the period of 1987-2013. Causality test was performed in order to determine the direction of the long-term relationship between the variables in the model. According to the finding so brained in the period examined; it was seen that there is a bi-directional causality towards the fiscal deficit to inflation and vice versa. Bi-directional causality between fiscal deficits and inflation indicates that inflation can only be dropped by reducing the fiscal deficits. In addition, while there is not any relation from inflation towards the money supply; it has been

found that there is causality from money supply towards inflation. A continuous increase in the supply of money will lead to an increase in inflation at the same rate. Khrawish, Khasawneh and Khrisat (2012) examined the effect of the fiscal deficit on money demand in Jordan during the period of 1992-2010 using multiple linear regression, co-integration and vector error correction models. The authors also controlled for other macroeconomic variables such as real GDP, consumer price index, real government expenditure and interest rate. The co-integration and the multivariate analyses revealed significant and positive long-run relationship between real money supply and real GDP, real fiscal deficits, real internal debt, and real external debt, and negative long-run relationship between money supply and consumer price index, real government expenditure and deposit rate. The vector error correction model reports positive dynamic short-run relationship between real money supply and all explanatory variables except deposit rate and external debt which is negative.

2.4.3 Related Studies on Fiscal Deficit and Inflation

Oladipo and Akinbobola (2011) investigated the nature and direction of causality among fiscal deficit and inflation. This is with a view to providing empirical evidence on fiscal deficit operation in stimulating economic growth through inflation in Nigeria. Data on inflation rate, exchange rate, Gross Domestic Product (GDP) and fiscal deficit were collected from statistical Bulletin and Annual Report and Statement of Account published by the Central Bank of Nigeria (CBN) and the International Financial Statistics (IFS) published by International Monetary Fund (IMF). Granger Causality pair wise test was conducted in determining the causal relationship among the variables. The result showed that there was no causal relationship from inflation to fiscal deficit ($F = 0.9$, $P > 0.005$), while the causal relationship from fiscal deficit to inflation was significant ($F = 3.6$, $P < 0.05$). This implies that a unidirectional causality from fiscal deficit to inflation exist in Nigeria. Furthermore, the result showed that fiscal deficit affects inflation directly and indirectly through fluctuations in exchange rate in the Nigerian economy. Ozurumba (2012) examined the causal relationship between inflation and fiscal deficit in Nigeria, covering the period 1970-2009. This was carried out by way of developing an estimation model of inflation and fiscal deficit, with a view to testing causes and effects as well as the relationship between them. The estimation technique used was the autoregressive distributed lag (ARDL) model and the Granger-causality test. The result of the Granger-causality test showed that fiscal deficit/GDP causes inflation. The result from the ARDL test confirms a significant negative relationship between growth in fiscal deficit (% of GDP) and inflation. Orji, Onyeze and Edeh (2014) assessed the causal relationship between inflation and fiscal deficit in

Nigeria from 1970 to 2010. It was empirically continued that although fiscal deficit causes inflation, there was no feedback between inflation and fiscal deficit deflated by the GDP. The structural model of inflation revealed that, it takes about two years for the fiscal deficit to impact on inflation in Nigeria. Dockery, Ezeabasili and Herbert (2012) using a modelling approach that incorporates the theory of co-integration and its implied vector error correction model, determined the long term relationship between fiscal deficit and inflation for Nigeria. The empirical results showed that there is a positive but insignificant relationship between fiscal deficit and inflation. The analysis of the Nigerian data also indicates a tenuous link to previous levels of fiscal deficits with inflation and provide, moreover, evidence of a positive long-run relationship between money supply growth and inflation, suggesting therefore, that money supply growth is procyclical and tends to grow at a faster rate than the rate of inflation. Finally, from the impulse response and variance decomposition analysis, the study finds that the length of inflation is an important determinant of the ability of the system to return to its long-run equilibrium following a shock.

Ekanayake (2012) evaluated the validity of the hypothesis that suggests there is a link between fiscal deficit and inflation in developing countries and further explores this link in the absence of public sector wage expenditure. Sri Lanka, a developing country with a persistent fiscal deficit, a large public sector and increasing inflation was chosen for the empirical study. An auto-regressive distributed lag (ARDL) model was employed in the analysis, using annual data from 1959 to 2008. The results suggest that, in the long run, a one percentage point increase in the ratio of the fiscal deficit to narrow money is associated with about an 11 percentage point increase in inflation. This link becomes weaker in the absence of the public sector wage expenditure. The overall inference is that inflation is not only a monetary phenomenon in Sri Lanka and public sector wage expenditure is a key factor in explaining the deficit-inflation relationship. Zonuzi, Pourvaladi and Faraji (2011) re-investigated the deficit-inflation nexus in the Iranian economy by using quarterly data for the period of 1990:1-2007:4. To carry out a test of no structural break against an unknown number of breaks in the Iranian macroeconomic variables, they used the endogenously determined multiple break test developed by Bai and Perron (2003). As there is a structural break in the time series date, they used Perron (1990) unit root test to test of stationarity. They employed Bounds test approach to co-integration proposed by Pesaran et al. (2001) to investigate the long-run relationship between fiscal deficit and inflation. The key findings indicated strong evidence towards supporting a significant and positive relationship between fiscal deficit and inflation in Iran.

3. Methodological Approach

We adopted an ex-post facto research design an in order to evaluate the effect of fiscal deficit on selected macroeconomic variables in Nigeria for a period of thirty five years from 1981 to 2015. Secondary data were sourced from Central Bank of Nigeria (CBN) and National Bureau of Statistic (NBS) official reports. Fiscal Deficit (FD) is the independent variable. The dependent variables represent the macroeconomic variables chosen for this study. There are Gross Domestic Product (GDP), Money Supply (MS) and Inflation (INF). Exchange rate was included as control variable in the model as it is capable of influencing the level of inflation. Gujarati (2004) stated that the inclusion of control variables in a model helps to avoid simultaneous bias in a regression. Furthermore, Ezeabasili, Mojekwu and Herbert (2012) while acknowledging Romer (1993) and Lane (1995) noted that the currency depreciation resulting from the monetary expansion will raise domestic inflation more than in a closed economy hence, the higher the depreciation rate, the higher the relationship between exchange rate depreciation and inflation.

3.1 Empirical Model Specification

We adopted the model of Aslam (2016) for a study in Sri Lanka with slight modifications. In their model, the researcher expressed fiscal deficit and macroeconomic variables relationship as:

$$Y_t = \beta_0 + \beta_n \sum_{i=1}^{n} x_{nt} + u_t -------------------------equ.\,(1)$$

To examine the effect of fiscal deficit on selected macroeconomic variables in Nigeria, the multivariate models below were estimated.

$$GDP = f(FD, EXDEP) \; ------------------------------ equ.\,(2)$$

$$MS = f(FD, EXDEP) \; ------------------------------equ.\,(3)$$

$$INF = f(FD, EXDEP) \; ------------------------------ equ.\,(4)$$

The models were represented in a log-linear econometric format to obtain the coefficients of the elasticity of the variables, while reducing the possible impact that any outlier may have. Thus:

Model 1

$$LogGDP_t = a_0 + a_1 LogFD_t + a_2 LogEXDEP_t + \varepsilon_t \;-------------\; equ.(5)$$

Model 2

$$LogMS_t = a_0 + a_1 LogFD_t + a_2 LogEXDEP_t + \varepsilon_t \;--------------\; equ.(6)$$

Model 3

$$LogINF_t = a_0 + a_1 LogFD_t + a_2 LogEXDEP_t + \varepsilon_t \;------------\; equ.(7)$$

3.2 Description of Variables

GDP is gross domestic product: This is the monetary value of all finished goods and services produced in a within a country's borders in a specific time period. Although GDP is calculated on an annual basis, it includes all private and public consumption, government outlays, investments and exports less imports that occur within a defined territory. Inam (2014), Al-khedir (1996) and Nwodo (2001) applied this indicator.

MS is money supply: This is the entire stock of currency and other liquid instruments in a country's economy as of a particular time. The money supply includes cash, coins and balances held in checking and saving accounts. Ezeabasili, Mojekwu and Herbert (2012), Chimobi and Igwe (2011) and Onwioduokit and Bassey (2013) used this proxy in their studies.

INF is Inflation: Inflation is the rate at which the general level of prices of goods and services is rising and subsequently purchasing power is falling. Central banks measures to stop severe inflation along with severe deflation are an attempt to keep the excessive growth of prices to a minimum. Sanusi and Akinlo (2016), Anfofum, Yahaya and Suleman (2015) and Osuka and Achinihu (2014) applied this variable.

FD is fiscal deficit: Fiscal deficit occurs when a country total expenditure is higher than revenue that it generates, excluding money from borrowing. A fiscal deficit is regarded by some as a positive economic event. John Keynes believes that fiscal deficit helps countries to climb out of economic recession. Ezeabasili, Mojekwu and Herbert (2012), Inam (2014) and Ozurumba (2012) utilized this index in their works.

EXDEP is exchange rate depreciation: This is the price of Naira in terms of other currencies such as US dollars, British pounds sterling, European Euros, Japanese Yen, etc. Exchange rate in this work is the exchange rate of the Nigerian Naira against the

United States of America dollar. Ezeabasili, Mojekwu and Herbert (2012) applied this as control variable.

4. Data Analysis and Discussion of Results

4.1 Trends in Variables

A. Gross Domestic Product

The real Gross Domestic Product (GDP) was ₦12,258,000 million in 1981, which had risen by ₦42,354,260 million by the end of 2010 to settle at ₦54,612,260 million. The real GDP has continued to appreciate from 2010 to 2014. From 1981 to 2000, as shown in Fig. 1, real gross domestic product gradually rose from ₦12,258,000 million in 1981 to ₦23,688,280 million in 2000, an increase of 48.25%. The exception was in 1983 and 1984 when it fell by 8.20% and 0.51% from previous year, to ₦13,849,730 million and 13,779,260 million respectively. The gross domestic product has been on steady rise from ₦25,267,540 million in 2001 to ₦69,023,930 million in 2015.
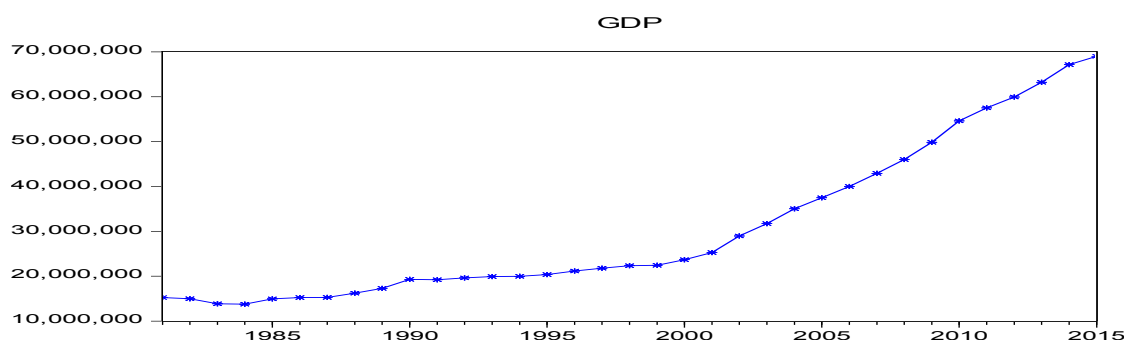
Figure 1: Trend in Real Gross Domestic Product 1981 to 2015
Source: National Bureau of Statistic, 2015.
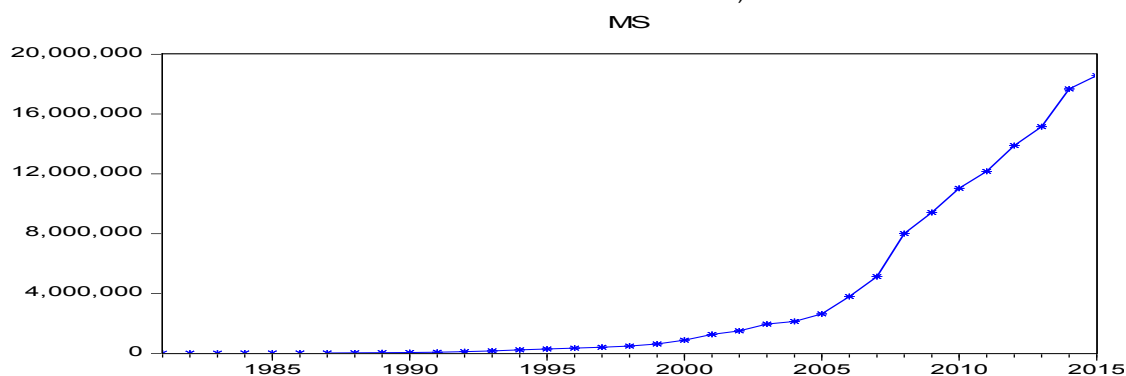
Figure 2: Trend in Money Supply 1981 to 2015
Source: Central Bank of Nigeria, 2015.

B. Money Supply

The stock of currency in Nigeria has increased tremendously over the years. From ₦14,470 million in 1981, it rose to reach ₦413,280.0 at the end of 1997 then continued to appreciate closing at ₦878,460.0 in 2000. Between 2000 and 2015 money supply rose from ₦878,460.0 to ₦18,579,418.0. Fig. 2 illustrates the trend in money supply over the period reviewed.

C. Inflation

The inflation rate was 21.40% in 1981, which had declined by 9.60% at the end of 2010 to settle at 11.80%. The inflation fluctuated marginally from 2010 to 2015, declining to 9.60% in 2015 compared to 11.80% in 2010. From 1981 to 2015, as shown in Fig. 3, inflation rate gradually declined from 21.40% in 1981 to 9.60 in 2015.
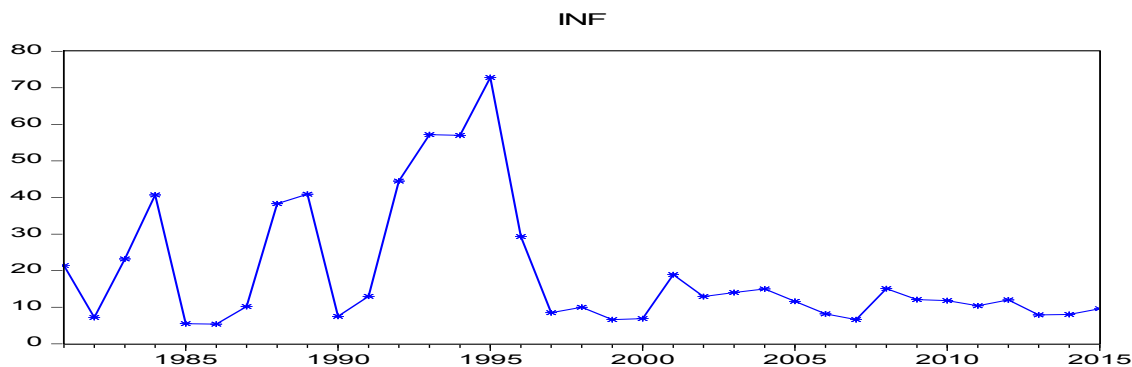
Figure 3: Trend in Inflation 1981 to 2015

Source: Central Bank of Nigeria (CBN) Statistical Bulletin 2015.

D. Fiscal Deficit

Fiscal in 2009 was -810.01 as a percentage of GDP, a rise of over 9,419% from the -47.38 as a percentage of GDP. In 2012, fiscal deficit decline by 18.74% to -975.7 as a percentage of GDP. As can be seen from Fig. 4, between 1981 and 1994, fiscal deficit rose tremendously, however, with sharp decline from -3,902.1 as a percentage of GDP in 1981 to 1,000 as a percentage of GDP in 1995. In 2010, fiscal deficit was -1,105.4 as a percentage of GDP, a rise of 26.71% compared to -810.10 as a percentage of GDP of 2009. It continued to fluctuate from -1,153.5 in 2013 to -1,557.79 as a percentage of GDP in 2015
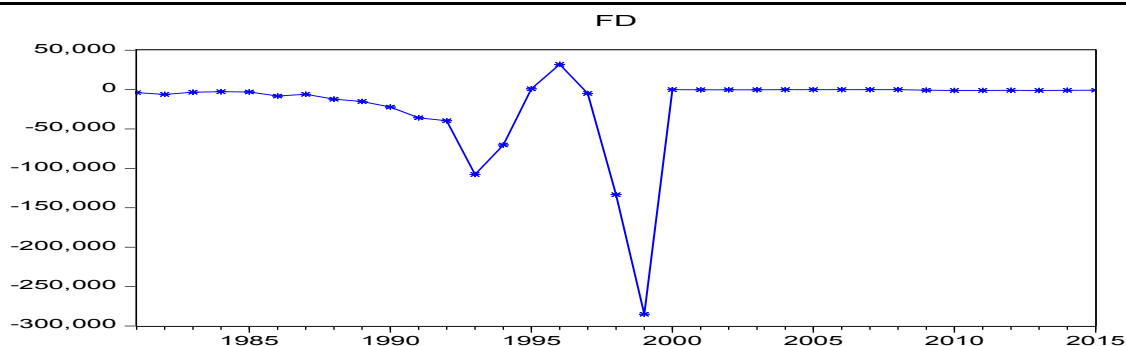
Figure 4: Trend in Fiscal Deficit 1981 to 2015
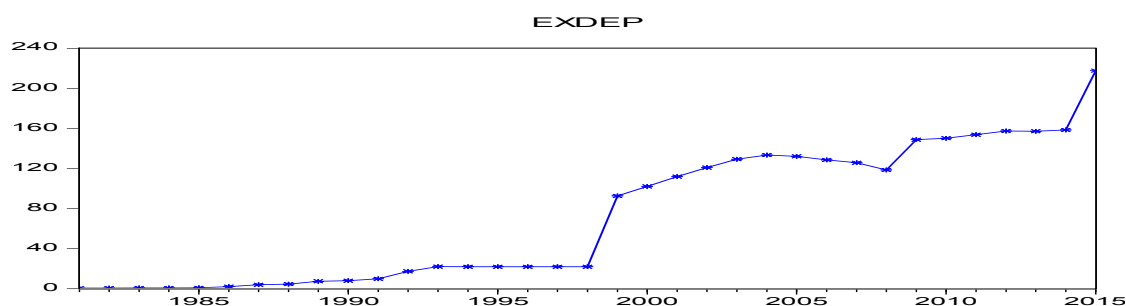Source: Central Bank of Nigeria (CBN) Statistical Bulletin 2015.

Figure 5: Trend in Exchange Rate 1981 to 2015
Source: Central Bank of Nigeria, 2015.

E. Exchange Rate

Fig. 5 shows that the trend in exchange rate during the period 1981 and 2015 deteriorated considerably, depreciating from 0.6100 to 217.7900 a depreciation of over 9,971% based on the official exchange rate of one Naira against one US dollar. The exchange rate at the end of the year 2009 declined to 148.8802, a depreciation of 20.36% from 2008, when it was 118.5669 against one US dollar.

4.2 Variables Descriptive Properties

The descriptive characteristics of the variables are presented in Table 1. The mean values of the GDP, MS, INF, FD and EXDEP are 17834983, 3665072, 19.43457, -20992.85, and 72.23930 while their median are 4189200, 488150.0, 12.00, -1158.500, and 22.05110 respectively. The series depicts the maximum values of 72.80000, 32049.40, 18579418, 95090000 and 217.7900 for GDP, MS, INF, FD and EXDEP respectively. The minimum values are 94300.00 for GDP, 14470.00 for MS, 5.4 for INF, -285104.7 for FD and 0.61 for EXDEP. The series standard deviation is 28147347 for GDP, 5675329 for MS, 17.24453 for INF, 55611.18 for FD and 67.73478 for EXDEP. All the variables are positively skewed towards normality as evidenced by the positive sign of the skewness except for fiscal deficit. The Kurtosis that measures the peakedness of the distribution of each of the variables are 4.443467, 3.769403, 4.586599, 16.14351, and 1.568145 for GDP, MS, INF, FD

and EXDEP respectively. These values are greater than 3, indicating that all the variables are leptokurtic in nature except for EXDEP. The Jarque-Bera suggests that all the variables are normally distributed as the p-values are significant at 5% level of significance except EXDEP.

Table 1: Descriptive Properties of the Variables

	GDP	MS	INF	FD	EXDEP
Mean	17834983	3665072.	19.43457	-20992.85	72.23930
Median	4189200.	488150.0	12.00000	-1158.500	22.05110
Maximum	95090000	18579418	72.80000	32049.40	217.7900
Minimum	94300.00	14470.00	5.400000	-285104.7	0.610000
Std. Dev.	28147347	5675329.	17.24453	55611.18	67.73478
Skewness	1.695722	1.480793	1.600093	-3.520815	0.307069
Kurtosis	4.443467	3.769403	4.586599	16.14351	1.568145
Jarque-Bera	19.81217	13.65434	18.60614	324.2407	3.539924
Probability	0.000050	0.001084	0.000091	0.000000	0.170339
Sum	6.24E+08	1.28E+08	680.2100	-734749.9	2528.375
Sum Sq. Dev.	2.69E+16	1.10E+15	10110.71	1.05E+11	155992.0
Observations	35	35	35	35	35

Source: Computer output data using E-views 8.0.

4.3 Diagnostic Test Result

A. ARCH Heteroskedasticity Test

The ARCH test is a Language Multiplier (LM) test for autoregressive conditional heteroskedasticity in the residuals. The rationale behind choosing this heteroskedasticity specification was based on the fact that in many financial time series, the magnitude of residuals appears to be related to the magnitude of recent residuals. The probability of the Chq. statistic for the model is insignificant at 5% level of significance, suggesting that there is no existence of heteroskedasticity in all the models. This is in line with econometric assumption that a model should be free from problem of heteroskedasticity. Table 2 presents the ARCH test of heteroscedasticity for the models.

Table 2: ARCH LM Heteroskedasticity

Models	F-statistic	Probability
Model 1	2.94570	0.08562
Model 2	1.53381	0.12356
Model 3	2.19039	0.09082

Source: Computer Output data using E-views 8.0

B. Serial Correlation LM Test

The serial Correlation test is an alternative to the Q-statistic test for serial correlation. Unlike the Durbin Watson statistic for AR(1) errors, the LM test may be used to test for higher order ARMA errors and is applicable whether there are lagged dependent variables or not. Therefore, it is recommended in preference to Durbin Watson whenever there are concern that errors may exhibit possible autocorrelations. The null hypothesis of LM test is that there is no serial correlation up lag order 2. The p-values of the Breusch-Godfrey serial correlation test in Table 3 suggest that the null hypotheses could not be rejected. Consequently, the models are free from autocorrelation. This overrides any possible result of Durbin Watson in testing autocorrelation in any stated model.

Table 3: Breusch-Godfrey Serial Correlation LM Test

Models	F-statistic	Probability
Model 1	0.58235	0.90987
Model 2	2.68602	0.07120
Model 3	1.22701	0.86514

Source: Computer Output data using E-views 8.0

C. Ramsey RESET Test

The Ramsey RESET test determines whether a model is correctly specified/fitted or not. It also gives an inference as whether or not variable(s) are neglected in a model. The rationale behind the test is that if non-linear combinations of the independent variables have any power in explaining the dependent variable, the model is not well specified. The p-values as depicted in Table 4 are insignificant at 5% level of significance. The alternate hypotheses that the models are well specified is accepted.

Table 4: Ramsey RESET Test

Models	F-statistic	Probability
Model 1	0.26146	0.5231
Model 2	1.73538	0.0789
Model 3	1.90182	0.0936

Source: Computer Output data using E-views 8.0

D. Multicollinearity Test

It can be inferred from the correlation matrix in Table 5 that all the independent variables are negatively correlated with inflation but positively associated with gross domestic product and money supply. Since the independent variables are from

different sectors of the economy and the correlation between them is 0.14, an indication that multicollinearity does not exist between them.

Table 5: Correlation Matrix

	GDP	MS	INF	FD	EXDEP
GDP	1.000000	0.966392	-0.368414	0.210902	0.908376
MS	0.966392	1.000000	-0.334268	0.214731	0.809296
INF	-0.368414	-0.334268	1.000000	-0.065264	-0.421724
FD	0.210902	0.214731	-0.065264	1.000000	0.137381
EXDEP	0.908376	0.809296	-0.421724	0.137381	1.000000

Source: Computer Output data using E-views 8.0

4.4 Unit Root Result

A. Augmented Dickey-Fuller (ADF) Test

The ADF test was performed at level and first difference at intercept and trend and intercept. The result of the ADF test in Tables 6 and 7 performed at level form at intercept and trend and intercept disclose that all the variables have no unit root at intercept and trend and intercept except INF and EXDEP at trend and intercept.

Table 6: ADF Test Result at Level: Intercept

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDP	3.585211 (0.00)*	-3.639407	-2.951125	Stationary
MS	4.664932 (0.00)*	-3.639407	-2.951125	Stationary
INF	-2.769583 (0.07)	-3.639407	-2.951125	Not Stationary
FD	-3.677707 (0.00)*	-3.639407	-2.951125	Stationary
EXDEP	0.727482 (0.00)*	-3.639407	-2.951125	Stationary

Source: Computer Output using E-view 8.0.

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Table 7: ADF Test Result at Level: Trend and Intercept

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDP	0.932080 (0.00)*	-4.252879	-3.548490	Stationary
MS	1.482549 (0.00)*	-4.252879	-3.548490	Stationary
INF	-2.881762 (0.18)	-4.252879	-3.548490	Not Stationary
FD	-3.566024 (0.04)**	-4.252879	-3.548490	Stationary
EXDEP	-2.076726 (0.54)	-4.252879	-3.548490	Not Stationary

Source: Computer Output using E-view 8.0.

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

The unit root result in Tables 8 and 9 at intercept and trend and intercept of first difference show that the ADF test statistic for all the variables were greater than the critical values at 5% first difference at intercept and trend and intercept. The null hypotheses that the variables have unit root at first difference is accepted. Hence, all the variables are stationary at first difference at the 5% level of significance and integrated of order one i.e. 1(1).

Table 9: ADF Test Result at First Difference: Intercept

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDP	-3.938303 (0.00)*	-3.646342	-2.954021	Stationary
MS	-4.066083 (0.00)**	-3.646342	-2.954021	Stationary
INF	-9.269562 (0.00)*	-3.646342	-2.954021	Stationary
FD	-11.23505 (0.00)*	-3.646342	-2.954021	Stationary
EXDEP	-4.612606 (0.00)*	-3.646342	-2.954021	Stationary

Source: Computer Output using E-view 8.0.

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Table 9: ADF Test Result at First Difference: Trend and Intercept

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDP	-5.336346 (0.00)*	-4.262735	-3.552973	Stationary
MS	-3.767558 (0.03)**	-4.262735	-3.552973	Stationary
INF	-10.63424 (0.00)*	-4.262735	-3.552973	Stationary
FD	-11.98895 (0.00)*	-4.262735	-3.552973	Stationary
EXDEP	-4.753384 (0.00)*	-4.262735	-3.552973	Stationary

Source: Computer Output using E-view 8.0.

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

B. Phillips Perron (PP) Test

The Phillips Perron (PP) test was performed at level and first difference at intercept and trend and intercept. Tables 10 and 11 depicts the result of the level form test at intercept and trend and intercept while Tables 12 and 13 that of first difference at intercept and trend and intercept. The result in Tables 10 and 11 show that all the variables have no unit root.

Table 10: PP Test Result at Level: Intercept

Variables	PP Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDP	3.585211 (0.00)*	-3.639407	-2.951125	Stationary
MS	4.664932 (0.00)*	-3.639407	-2.951125	Stationary
INF	-2.769583 (0.07)	-3.639407	-2.951125	Not Stationary
FD	-3.677707 (0.00)*	-3.639407	-2.951125	Stationary
EXDEP	0.727482 (0.99)	-3.639407	-2.951125	Not Stationary

Source: Computer Output using E-view 8.0.

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Table 11: PP Test Result at Level: Trend and Intercept

Variables	PP Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDP	0.932080 (0.99)	-4.252879	-3.548490	Not Stationary
MS	1.482549 (0.00)*	-4.252879	-3.548490	Stationary
INF	-2.881762 (0.18)	-4.252879	-3.548490	Not Stationary
FD	-3.566024 (0.04)**	-4.252879	-3.548490	Stationary
EXDEP	-2.076726 (0.53)	-4.252879	-3.548490	Not Stationary

Source: Computer Output using E-view 8.0.

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

The Phillip Perron (PP) test in Table 12 and 13 illustrates that all the variable are stationary at first difference. The result of the unit root test through ADF and PP show that all the variables are stationary at first difference hence permitting for the testing of the long run relationship between the variables.

Table 12: PP Test Result at First Difference: Intercept

Variables	PP Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDP	-3.938303 (0.00)*	-3.646342	-2.954021	Stationary
MS	-6.066083 (0.00)*	-3.646342	-2.954021	Stationary
INF	-9.269562 (0.00)*	-3.646342	-2.954021	Stationary
FD	-11.23505 (0.00)*	-3.646342	-2.954021	Stationary
EXDEP	-4.612606 (0.00)*	-3.646342	-2.954021	Stationary

Source: Computer Output using E-view 8.0.

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Table 13: PP Test Result at First Difference: Trend and Intercept

Variables	PP Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
GDP	-5.336346 (0.00)*	-4.262735	-3.552973	Stationary
MS	-3.767558 (0.03)**	-4.262735	-3.552973	Stationary
INF	-10.63424 (0.00)*	-4.262735	-3.552973	Stationary
FD	-11.98895 (0.00)*	-4.262735	-3.552973	Stationary
EXDEP	-4.753384 (0.00)*	-4.262735	-3.552973	Stationary

Source: Computer Output using E-view 8.0.

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

4.5 Short Run Test/Relationship

The short run test/relationship between Nigeria's gross domestic product, money supply, inflation and fiscal deficit with the incorporation of exchange rate depreciation as a control was performed using the OLS regression approach. The results were interpreted using the global utility (coefficient of Adjusted R-squared, F-statistic and Durbin Watson statistic) and relative statistics (coefficient of the constant and independent variables) of models developed in section three. However, the lagged values of the dependent variables were applied to improve the Durbin Watson in addition to the serial correlation test performed in Table 3.

A. Gross Domestic Product and Fiscal Deficit

The model relative statistic reveals that gross domestic product, fiscal deficit and exchange rate depreciation are positively related. However, the relationship between gross domestic product and exchange rate depreciation is statistically significant at 5% level of significance. The coefficient of the constant 544379.9, suggests that holding fiscal deficit and exchange rate depreciation constant, gross domestic product would be N544, 379.9 million. A percentage up surge in fiscal deficit increases the gross domestic product by N5.00 million. The exchange rate depreciation coefficient of 12454.78 entails that a unit appreciation in the exchange rate of Naira against the US dollar would result to N12, 454.78 rise in Nigeria's gross domestic product within the period reviewed.

The Adjusted R-squared value of 0.997724 indicates that the independent variables explained 99.77 variations in Nigeria's gross domestic product within the period studied. The F-statistic of 3507.984 and p-value of 0.0000 show that fiscal deficit and exchange rate depreciation jointly and significantly influenced variations in gross domestic product. The Durbin Watson statistic of 2.0 shows the presence of no

autocorrelation in the model. However, the absent of autocorrelation in the model was further confirmed by the serial correlation LM test Table 3.

Table 14: OLS Regression Result of Gross Domestic Product and Fiscal Deficit
Dependent Variable: Gross Domestic Product

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	544379.9	375722.8	1.448887	0.1585
FD	5.003347	2.676238	1.869545	0.0720
EXDEP	12454.78	5319.631	2.341286	0.0266
R-squared	0.998009	Mean dependent var		31669182
Adjusted R-squared	0.997724	S.D. dependent var		17383200
S.E. of regression	829302.6	Akaike info criterion		30.23329
Sum squared resid	1.93E+13	Schwarz criterion		30.46003
Log likelihood	-493.8492	Hannan-Quinn criter.		30.30958
F-statistic	3507.984	Durbin-Watson stat		2.010027
Prob (F-statistic)	0.000000			

Source: Computer output data using E-views 8.0.

B. Money Supply and Fiscal Deficit

Table 15 shows that fiscal deficit and exchange rate depreciation have positive but insignificant relationship with money supply. The coefficient of the constant 544379.9 is an indication that if fiscal deficit and exchange rate depreciation are held constant, the value of money circulation would be N544, 379.9 million. The fiscal deficit coefficient of 0.905332 reveals a percent increase in fiscal deficit would result to N0.91 million increase in money supply. The exchange rate depreciation coefficient of 3149.237 suggests that a unit appreciation in the exchange rate of Naira against the US dollar would increase money supply by N3, 149.237 million.

From the Adjusted R-squared in Table 15, 99.20% changes in money supply was attributed to the joint effects of fiscal deficit and exchange rate depreciation. The F-statistic of 993.1739 and p-value of 0.0000 show that fiscal deficit and exchange rate depreciation statistically and significantly explained the variations in money supply within the period reviewed. The Durbin Watson value of 2.0 is the bench mark for no autocorrelation. Nevertheless, the serial correlation test in Table 3 shows that the variables in the model are not serially correlated.

Table 15: OLS Regression Result of Money Supply and Fiscal Deficit

Dependent Variable: Money Supply

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	59842.99	150298.3	0.398161	0.6935
FD	0.905332	1.646246	0.549937	0.5867
EXDEP	3149.237	2351.347	1.339334	0.1912
R-squared	0.993001	Mean dependent var		3886281.
Adjusted R-squared	0.992001	S.D. dependent var		5774024.
S.E. of regression	516399.5	Akaike info criterion		29.28588
Sum squared resid	7.47E+12	Schwarz criterion		29.51262
Log likelihood	-478.2170	Hannan-Quinn criter.		29.36217
F-statistic	993.1739	Durbin-Watson stat		2.055390
Prob (F-statistic)	0.000000			

Source: Computer output data using E-views 8.0.

C. Inflation and Fiscal Deficit

The regression result in Table 16 reveals that fiscal deficit and exchange rate depreciation have negative and insignificant relationship with inflation. The coefficient of the constant 20.16346 suggests that holding fiscal deficit and exchange rate depreciation constant, inflationary trend in Nigeria would be 20.16%. A unit rise in fiscal deficit would lower inflation by 2.43%. The exchange rate depreciation negative coefficient of -0.085585 discloses that inflation would be reduced by 0.08% each time the exchange rate of Naira against the US dollar depreciates.

The Adjusted R-squared in Table 16 which shows the percentage variation in the dependent variable attributed to explanatory variable(s) infers that only 41.89% changes in inflation trend within the period studies was as a result of fluctuation in fiscal deficit and exchange rate depreciation. This finding is statistically significant at 5% as affirmed by F-statistic of 6.769080 and p-value of 0.000607. The Durbin Watson value of 1.88 is quite close to the bench mark of 2.0, an insinuation that there is no problem of autocorrelation in the model. The serial correlation test in Table 3 also upheld this Durbin Watson's Table 3 assertion of no autocorrelation.

Table 16: OLS Regression Result of Inflation and Fiscal Deficit

Dependent Variable: Inflation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.16346	6.590488	3.059479	0.0048
FD	-2.43E-06	4.27E-05	-0.056909	0.9550
EXDEP	-0.085585	0.042027	-2.036441	0.0513
R-squared	0.491615	Mean dependent var		19.74576
Adjusted R-squared	0.418988	S.D. dependent var		17.63693

S.E. of regression	13.44360	Akaike info criterion	8.173611
Sum squared resid	5060.452	Schwarz criterion	8.400354
Log likelihood	-129.8646	Hannan-Quinn criter.	8.249903
F-statistic	6.769080	Durbin-Watson stat	1.884657
Prob (F-statistic)	0.000607		

Source: Computer output data using E-views 8.0.

4.6 Long Run Relationship

Having confirmed that all the variables are free from stationary defects associated with most time series data via the unit root test conducted with ADF and PP, the long run test was conducted and the result presented in Table 17, 18 and 19. The long run test in Table 17 reveals that there is a long run relationship between gross domestic product and fiscal deficit. This affirmed by the trace test which indicates one (1) at 5% level of significance. However, the max-eigenvalue indicates no co-integrating equation(s) between the dependent and the independent variables.

Table 17: Johansen Co-integration Result for GDP, FD and EXDEP

Unrestricted Co-integration Rank Test (Trace) GDP, FD and EXDEP				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.446683	31.94749	29.79707	0.0278
At most 1	0.312897	12.41731	15.49471	0.1380
At most 2	0.001010	0.033361	3.841466	0.8550
Unrestricted Co-integration Rank Test (Maximum Eigen Value) GDP, FD and EXDEP				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None	0.446683	19.53019	21.13162	0.0825
At most 1	0.312897	12.38395	14.26460	0.0970
At most 2	0.001010	0.033361	3.841466	0.8550

Trace test and Max-eigenvalue test indicate 1 and no co-integrating eqn(s) at the 0.05 level;

* denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.

From Table 18, the trace test and Max-eigenvalue test show the presence of one (1) co-integrating equation at the 5% level of significance in line with MacKinnon-Haug-Michelis (1999) p-values. The result infers the existence of a long run relationship between money supply and fiscal deficit incorporated with exchange rate depreciation as a control variable.

Table 18: Johansen Co-integration Result for MS, FD and EXDEP

Unrestricted Co-integration Rank Test (Trace) MS, FD and EXDEP				
Hypothesized Number of CE(s)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.479490	33.71200	29.79707	0.0168
At most 1	0.306045	12.16478	15.49471	0.1492
At most 2	0.003276	0.108287	3.841466	0.7421
Unrestricted Co-integration Rank Test (Maximum Eigen Value) MS, FD and EXDEP				
Hypothesized Number of CE(s)	Eigen Value	Maximum Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.479490	21.54722	21.13162	0.0437
At most 1	0.306045	12.05649	14.26460	0.1085
At most 2	0.003276	0.108287	3.841466	0.7421

Trace test and Max-eigenvalue test indicate 1 co-integrating eqn(s) each at the 0.05 level;

* denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.

The implication of the result in Table 19 is that there is a long run association between inflationary rate in Nigeria and fiscal deficit. The trace and Max-eigenvalue test reveal one (1) co-integrating equation at the 5% level of significance.

Table 19: Johansen Co-integration Result for INF, FD and EXDEP

Unrestricted Co-integration Rank Test (Trace) INF, FD and EXDEP				
Hypothesized Number of CE(s)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.525008	35.57691	29.79707	0.0096
At most 1	0.279692	11.00979	15.49471	0.2109
At most 2	0.005539	0.183292	3.841466	0.6686
Unrestricted Co-integration Rank Test (Maximum Eigen Value) INF, FD and EXDEP				
Hypothesized Number of CE(s)	Eigen Value	Maximum Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.525008	24.56711	21.13162	0.0158
At most 1	0.279692	10.82650	14.26460	0.1631
At most 2	0.005539	0.183292	3.841466	0.6686

Trace test and Max-eigenvalue test indicate 1 co-integrating eqn(s) each at the 0.05 level;

* denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.

4.7 Short Run Dynamics

This study having established the presence of a long run relationship between gross domestic product, money supply, inflation and fiscal deficit in Nigeria, the short run dynamics was tested with the aid of the Vector Error Correction Model (VECM) and results shown in Table 20, 21 and 22. This test was performed to ascertain if or not all

the variations in dependent variables were as a result of the co-integrating vectors trying to return to equilibrium and the error correction term that captures this variation. On the long run linkage between gross domestic product and fiscal deficit, the error correction coefficient in Table 20 did not show the expected negative sign expressing that there is a no tendency by the model to correct and move towards the equilibrium path following disequilibrium in each period and by implication no significant error correction is taking place, i.e. there are adjustments to instability in the short term. 0.19% of the error generated in the previous year is corrected in the current year.

Table 20: Vector Error Correction Model for GDP, FD and EXDEP

Variables	Coefficient	Standard Error	T-Statistic
C	716713.7	303055	2.36496
D(GDP(-1))	0.534102	0.17196	3.10604
D(GDP(-2))	0.142820	0.18294	0.78071
D(FD(-1))	11.33126	4.47446	2.53243
D(FD(-2))	6.662610	2.58028	2.58213
D(EXDEP(-1))	15770.98	17238.9	0.91485
D(EXDEP(-2))	-32171.70	18737.4	-1.71697
ECM (-1)	0.001936	0.00131	1.48199

Source: Computer analysis using E-views 8.0.

Table 21: Vector Error Correction Model for MS, FD and EXDEP

Variables	Coefficient	Standard Error	T-Statistic
C	494881.5	160032	3.09239
D(MS(-1))	-0.112072	0.19875	-0.56389
D(MS(-2))	0.806210	0.19173	4.20501
D(FD(-1))	4.904588	2.73060	1.79616
D(FD(-2))	0.441510	1.39415	0.31669
D(EXDEP(-1))	-30622.51	10591.9	-2.89111
D(EXDEP(-2))	-17206.63	11033.9	-1.55944
ECM (-1)	0.010097	0.00360	2.80414

Source: Computer analysis using E-views 8.0.

For money supply and fiscal deficit long run relationship, Table 21 infers that the error correction coefficient again did not show the expected negative sign expressing that there is a no tendency by the model to correct and move towards the equilibrium path following disequilibrium in each period and by implication, no significant error correction is taking place. Only 1.0% of the error generated in the previous year is corrected in the current year.

Table 22 shows that for inflation and fiscal deficit long run nexus, the error correction coefficient shows the expected negative sign expressing that there is a tendency by the model to correct and move towards the equilibrium path following disequilibrium in each period and by implication significant error correction is taking place. About 21.11% of the error generated in the previous year is corrected in the current year as evidenced by ECM (-1) coefficient of -0.211137.

Table 22: Vector Error Correction Model for INF, FD and EXDEP

Variables	Coefficient	Standard Error	T-Statistic
C	1.912954	3.95673	0.48347
D(INF(-1))	0.084020	0.17510	0.47983
D(INF(-2))	-0.286588	0.18300	-1.56609
D(FD(-1))	8.38E-05	0.00011	0.78204
D(FD(-2))	-1.57E-05	5.3E-05	-0.29465
D(EXDEP(-1))	-0.367026	0.34593	-1.06099
D(EXDEP(-2))	-0.135298	0.39373	-0.34363
ECM (-1)	-0.211137	0.15964	-1.32255

Source: Computer analysis using E-views 8.0.

4.8 Variance Decomposition

In order to determine whether it is fiscal deficit or exchange rate depreciation (a control variable incorporated in the model) that exerts greater influence on gross domestic product, money supply and inflation, the variance decomposition function was estimated and presented in Table 23, 24 and 25. From the result in Table 23, it is observed that government fiscal deficit is greater in explaining the variations in gross domestic product than exchange rate depreciation. Fluctuations in gross domestic product were more explained by variations in gross domestic product itself.

Table 23: Variance Decomposition of GDP

Period	S.E.	GDP	FD	EXDEP
1	789450.3	100.0000	0.000000	0.000000
2	1405832.	96.25955	0.028496	3.711955
3	2103463.	98.30202	0.038124	1.659856
4	2765412.	97.73678	1.302879	0.960343
5	3552065.	94.21105	4.792536	0.996414
6	4360250.	90.47111	8.581804	0.947086
7	5176339.	87.99237	11.14494	0.862690
8	5968861.	86.28315	12.97800	0.738850
9	6753743.	84.91142	14.39963	0.688952
10	7525541.	83.60419	15.72617	0.669641

Source: Computer analysis using E-views 8.0

Table 24: Variance Decomposition of MS

Period	S.E.	MS	FD	EXDEP
1	429439.9	100.0000	0.000000	0.000000
2	769219.0	87.63906	0.374212	11.98673
3	1242236.	83.35200	0.152012	16.49599
4	1688860.	78.47346	0.146502	21.38003
5	2175324.	77.39563	0.276804	22.32757
6	2659761.	76.00778	0.361081	23.63114
7	3177785.	75.40223	0.463968	24.13380
8	3699497.	74.52008	0.543576	24.93635
9	4236723.	74.00578	0.629331	25.36489
10	4773394.	73.46571	0.698567	25.83572

Source: Computer analysis using E-views 8.0.

For the variations in money supply, Table 24 depicts that exchange rate depreciation explained more of the changes in money supply compared to fiscal deficit. Nevertheless, fluctuation in money supply was attributed majorly to changes in money supply itself compared to fiscal deficit and exchange rate depreciation. Finally, by a careful look at the fiscal deficit values from period 1-10 in Table 25, it is observe that fiscal deficit explained more of the changes in inflation than exchange rate depreciation. Nevertheless, the variations in inflation itself by explained more by inflation following the variation from period 1-10.

Table 25: Variance Decomposition of INF

Period	S.E.	INF	FD	EXDEP
1	15.03524	100.0000	0.000000	0.000000
2	21.41799	95.26337	0.195399	4.541229
3	24.01072	88.14612	4.954077	6.899801
4	26.14450	84.13633	8.809328	7.054346
5	27.91034	84.97351	8.718363	6.308125
6	29.61607	86.35623	7.965445	5.678329
7	31.57537	86.85880	7.459755	5.681441
8	33.53700	86.43336	7.609721	5.956916
9	35.17398	86.00020	8.050047	5.949756
10	36.59682	85.98449	8.215281	5.800233

Source: Computer analysis using E-views 8.0.

5. Discussion of Findings

The regression result in Table 14 shows that there is positive but insignificant relationship between gross domestic product and fiscal deficit in line with the

Keynesian theory that fiscal deficit spurs economic growth. This finding agrees with the result of previous studies by Aslam (2016) and Onwioduokit and Bassey (2013) for Sri Lanka and Gambia respectively but disagrees with Nkalu (2015) for Ghana. In the context of studies done in Nigeria, it affirms the findings of Umeora (2012), Duokit and Ekong (2016), Okpara and Odionye (2013) and Adesuyi and Falowo (2013) that the level of economic growth attained by Nigeria at current was a result of government's fiscal deficit over the years. However, the result in Table 14 would not upheld the assertion of Wosowei (2013) and Awe and Funlayo (2014) that fiscal deficit deteriorates economic growth of Nigeria based on the negative relationship between gross domestic product and fiscal deficit established in their empirical studies. The positive but insignificant relationship between money supply and fiscal deficit in Table 15 is a suggestion that fiscal deficit increases the magnitude of money in circulation in Nigeria in unison with Keynesian school of thought. This result is in line with the studies of Muhtar and Zakaria (2010) and Khrawish, Khasawneh and Khrisat (2012) that fiscal deficit increases the money supply in Pakistan and Jordan respectively. For results of studies in Nigeria, it supports the works of Umeora (2013), Maji, Bagaji, Etila and Sule (2012) that the level of money supply is increased by virtue of government fiscal deficit. That notwithstanding, the finding in Table 15 did not lay credence to research conducted in Nigeria by Umeora & Ikeora (2016) who envisaged that fiscal deficit reduces money supply in Nigeria. From Table 16, a unit increase in fiscal deficit leads to reduction in inflation by a magnitude of 20.16%. This is an indication of a negative relationship between inflation and fiscal deficit in Nigeria. This is in consonance with the works of Nkalu (2015), Oladipo and Akinbobola (2011), Ozurumba (2012), Orji, Onyeze and Edeh (2014) and Umeora (2013) on the negative association between fiscal deficit and inflation rate in Nigeria. On the other hand, it refutes the findings of Dockery, Ezeabasili and Herbert (2012) for Nigeria and Zonuzi, Pourvaladi and Faraji (2011) for Iran on the positive correlation between inflation and fiscal deficit.

The granger effect assessment test in Table 26, 27 and 28 reveal that there is no unidirectional relationship between gross domestic product, money supply, inflation and fiscal deficit in Nigeria within the period studied. Causality does not flow from fiscal deficit to gross domestic product, money supply and inflation at 5% level of significance. From Table 26, fiscal deficit has no significant effect on gross domestic product of Nigeria. This is in agreement with Wosowei (2013) that in spite of fiscal deficit meeting economic a prior expectation in terms of its negative coefficients, it did not significantly affect Nigeria's real gross domestic product but refutes the research finding of Okpara and Odionye (2013) on the significant effect of fiscal deficit on economic growth expressed via gross domestic product. It also affirms the study of

Bhoir and Dayre (2015) and Samirkas (2014) in the context of India and Turkey respectively. The no significant effect of fiscal deficit on supply as shown in Table 28 disagrees with results of Oladipo and Akinbobola (2011), Ozurumba (2012), Orji, Onyeze and Edeh (2014) that fiscal deficit granger cause inflation in Nigeria. The insignificant effect of fiscal deficit on money as illustrated in Table 27 supports the work of Mukhtar and Zakaria (2010) that fiscal deficit does not granger cause money supply in Pakistan. In the same vain, it rejects the findings of Umeora and Ikeora (2016) and Maji, Bagaji, Etila and Sule (2012) that there is a unidirectional relationship between fiscal deficit and money supply in Nigeria.

5.1 Test of Hypotheses

Decision Criteria: If the p-value of F-statistic in granger causality test is less than 0.05, the null hypothesis is rejected. On the other hand, if the p-value of F-statistic granger causality test is greater than 0.05, the null hypothesis is accepted.

5.1.1 Hypothesis One

Restatement of Research Hypothesis

H_0: Fiscal Deficit has no significant effect on Nigeria's Gross Domestic Product.

The result in Table 26 indicates that fiscal deficit does not granger cause gross domestic product, that is, there is no bidirectional or unidirectional relationship between that fiscal deficit and gross domestic product at 5% level of significance rather it is exchange rate depreciation that exert significant effect on gross domestic product. This outcome denotes that fiscal deficit has significant effect on gross domestic product of Nigeria. Looking at the F-statistics of 0.09601 with p-value of 0.9088, the null hypothesis that fiscal deficit has no significant effect on Nigeria's gross domestic product would not be rejected that is, the null hypothesis that fiscal deficit has no significant effect on Nigeria's gross domestic product is accepted.

Table 26: Granger Causality Result GDP, FD and EXDEP

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
FD does not Granger Cause GDP	33	0.09601	0.9088	No Causality
GDP does not Granger Cause FD		0.67000	0.5197	No Causality
EXDEP does not Granger Cause GDP	33	6.23617	0.0058	Causality
GDP does not Granger Cause EXDEP		1.10989	0.3437	No Causality

Source: Computer analysis using E-views 8.0.

5.1.2 Hypothesis Two

Restatement of Research Hypothesis

H₀: Fiscal Deficit has no significant effect on Money Supply in Nigeria.

From Table 27, there is no causal relationship between fiscal deficit and money supply as causality does not flow from fiscal deficit to money supply, however, causality flow from money supply to fiscal deficit at 5% level of significance. As contained in Table 27, exchange rate depreciation has significant effect on money supply in Nigeria. In the light of this, the null hypothesis that fiscal deficit has no significant effect on money supply in Nigeria is accepted.

Table 27: Granger Causality Result MS, FD and EXDEP

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
FD does not Granger Cause MS	33	0.04044	0.9604	No Causality
MS does not Granger Cause FD		0.72439	0.4935	No Causality
EXDEP does not Granger Cause MS	33	3.52980	0.0429	Causality
MS does not Granger Cause EXDEP		2.60685	0.0916	No Causality

Source: Computer analysis using E-views 8.0.

5.1.3 Hypothesis Three

Restatement of Research Hypothesis

H₀: Fiscal Deficit has no significant effect on Inflation Rate in Nigeria.

Table 28 shows that unidirectional or bidirectional relationship does not exist between fiscal deficit and inflation rate in Nigeria as causality does not flow from fiscal deficit to inflation neither does it flow from inflation to fiscal deficit at 5% level of significance. To this effect, the null hypothesis that fiscal deficit has no significant effect on inflation rate in Nigeria would be rejected.

Table 28: Granger Causality Result INF, FD and EXDEP

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
FD does not Granger Cause INF	33	0.61045	0.5502	No Causality
INF does not Granger Cause FD		0.00939	0.9907	No Causality
EXDEP does not Granger Cause INF	33	1.87737	0.1717	No Causality
INF does not Granger Cause EXDEP		0.90251	0.4170	No Causality

Source: Computer analysis using E-views 8.0.

6. Concluding Remark, Policy Implications and Limitations

6.1 Concluding Remark

The nexus between fiscal deficit and macroeconomic variables have received considerable attention in the past based on different perspective held by scholars and

economists such as the neoclassical, Keynesians and Ricardian school of thoughts among others. This study established that fiscal deficit does not significantly influence gross domestic product, money supply and inflation in Nigeria. The Nigeria experience in respect to fiscal deficit-macroeconomic fundamentals model is in unison with the Keynesian school of thought. However, the findings of this research should not be a conclusive empirical evidence in this subject matter in Nigeria. Further research regarding fiscal deficit and other macroeconomic variables is suggested for future studies.

6.2 Policy Implications

The empirical findings of the research show that fiscal deficit has positive relationship with gross domestic product but has not significantly propelled real gross domestic product, improved exchange rate and lowered the rate of inflation in Nigeria over the years. This could be hinged to the argument that fiscal deficit leads to higher interest rate, discourages the issue of private bonds, private investments and private spendings, increases inflation level and cause a similar increase in the current account deficits and finally slows the growth rate of the economy through resources crowding out. In view of the findings, the following recommendations are put forward for consideration and implementation by policymakers.

- Government should allocate and effectively monitor funds sourced as a result of fiscal deficit to the provision of critical economic infrastructures such as electricity, access road, health, communication among others to reap the benefits associated with fiscal deficit.
- To prevent too much money in circulation which might lead to inflation, excessive fiscal deficit to be avoided by all cost by the government and recurrent expenditure should be reduced to barest minimum.
- Monetary policy should be structured to compliment fiscal policy so that the level of inflation would be lowered whenever government relies majorly on fiscal deficit as an instrument of fiscal policy.

6.3 Limitations

This study only utilized three macroeconomic variables: gross domestic product, money supply and inflation. The relationship between macroeconomic variables and fiscal deficit are ideal in government formulation of fiscal policies. Further research should be conducted on other macroeconomic variables such as interest rate, gross fixed capital formation, foreign direct investment among others as fiscal policy is affected by changes in those macroeconomic fundamentals. Furthermore, the study applied yearly/annual

data from 1981 to 2015. The use of quarterly or monthly data beyond the time frame of 1981 to 2015 is suggested for further study to ascertain that the findings of this study is not induced by number of data observation.

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