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IMPACT OF FISCAL DEFICITS ON MACROECONOMIC VARIABLES IN NIGERIA

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ABSTRACT

This paper examines the implications of federal government fiscal deficits on the macroeconomic variables in Nigeria. Using Auto-Regressive Distributed lag (ARDL) approach, the study found that there is significant long run relationship between fiscal deficit and selected macroeconomic variables in Nigeria. It established that federal government deficit does not have significant impact on external reserve in Nigeria in the short-run period, and also that there is no significant influence of federal government deficits on inflation in Nigeria within the period under study. This presupposes that increase in fiscal deficit will stimulate aggregate demand, output, and reduction in long-run inflation, although, real interest rate may rise to bring securities market into balance. The test conducted to examine if there is casual relationship between federal government deficits and lending rate in Nigeria shows a significant causal relationship between federal government deficits and lending rate, indicating the crowding out effect of fiscal deficit on the private sector credit in Nigeria. Furthermore, investment may also have been crowded out and output further reduced, and changes in the real exchange rates over the years could also be attributed to fiscal policy actions. Therefore the outcome of this paper underscores the imperative of fiscal deficit in the Nigeria economy.

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1. INTRODUCTION

In the world over, governance occasionally creates more expenditure than the available revenue. As expenditure increases without aligning revenue for the fiscal year, a deficit position emerges. This denotes that government expenditure is more than total receipts, and such expenditure could be used to acquire assets or to attain the aim of development of economic and social overhead of maintaining full employment. This is in agreement with Bahtia (2006: 235) who asserts that "… resource mobilization efforts in an underdeveloped country often necessitate deficit financing".When there is a budget deficit government can finance the deficit through tax revenue, money creation, borrowing from banks and non-banking public, and through the issue of long and short-term bonds. Deficit financing is a very potent tool in the hands of government for increasing effective demand. This is more so if the deficit is financed through creation of additional currency or borrowings from the central bank of the economy. However, budgetary deficit can add to the supply of money and credit and thereby generate pressure on aggregate demand and prices.

The issues of fiscal deficits are certainly not new. Even the developed nations like the USA, United Kingdom, Sweden and others have from one time experienced fiscal deficit. Increased government expenditure and declining government revenues could be responsible for the steep increase in the public sector deficits. From the traditional Keynesian view, the conventional economic effect of government deficit is expansionary in the short run. When government borrow to finance recurrent expenditure (or raise transfers), it stimulates aggregate demand, causing output to increase (where supply is elastic and prices and/wages are sticky). This is the short run effect. In the long run, however, the effect could be contractionary according to the neoclassical view point. This is because over time, real interest rate must rise to bring securities market into equilibrium, and as a consequence, investment gets crowded out and capital and output eventually fall. The Nigerian economy has over the years predominantly practiced deficit budget strategy to actualize its developmental objectives. The trend of the nation's economic management over the years shows that fiscal deficit dates back to 1961 when the first deficit financing exercise was undertaken. Deficit budgeting appeared justified during the immediate post-

independence era, largely because of the need then to expand the economy. This culture however became seemingly entrenched over time.

Up till 1970, the country ran fiscal deficits and sustained public sector spending boom. However, the mismanagement of the oil boom of the early 1970s led to the return to deficits in 1975. From 1982, the continuing decline in crude oil export earnings led to the resumption of fiscal deficits which were financed through heavy borrowing after reducing the nation's reserves. These trend continued unabated till 1995 (Isenmila & Okolie 2008, Oluba 2008). Fiscal deficits resumed in 1997 and continued into the early 2000.The global economic crisis, its contagion effect on the Nigerian economy and the banking crisis resulted in a dislocation in the relationship between the financial and real sectors. This resulted to an uptick in the movement of fiscal deficit between 2008 and 2010. Given the enormous resources needed to implement Vision 2020, federal government of Nigeria resorted to deficit budgeting in 2010 and the value of budget deficit increased to 5.8% in 2010 (CBN, 2011). Between 2011 and 2012 the budget deficit declined, but between 2012 and 2013, the budget deficit increased, may be as a result of the expansionary budget, however, due to high oil price for much of 2013, the growth rate was pushed up to 5.49 per cent.

The sustained high oil prices, the intervention programmes in agricultural sector for bulk of 2014, helped to push growth rate up to 6.22 per cent despite a lower budget deficit. In 2015 the budget was significantly expansionary with the highest deficit level when compared to the previous years, although economic growth rate fell significantly. The decline in economic growth could be attributed to the sharp fall in oil price from the fourth quarter of 2014 into 2015, with the rise in militant activities in the Niger Delta region, resulting in a depreciating Naira value and significant capital flight. Given the above scenario, the macroeconomic consequence of the fiscal deficit and its financing measures appears to be of paramount importance particularly for the assessment of economic growth and development in Nigeria.Over the years Federal Government retained revenue has consistently fallen short of its total expenditure, such that government had to continue to borrow to finance the expenditure-revenue gap, this is actually the conodrum of this paper. In the last thirty five (35) years, the few exceptions when Federal Government fiscal Balance was positive were in 1995 and 1996. Overall, fiscal deficit of the Federal Government grew from an average of N13.16 billion between 1981 and 1992 to N123.17 billion between 1993 and 2003, and N616.51 billion between 2004 and 2014 (DMO 2015). In the last seven (7) years (2009 - 2015), Federal Government fiscal deficit rose significantly to average of N1, 030.26 billion (DMO, 2015). Similarly, fiscal balance as a percentage of GDP, though depicting a declining trend, has consistently remained in the negative. Viewed from the historical perspective, Nigeria's economy faced perennial and persistent fiscal deficits, varying from as low as 0.20 per cent to as high as 6.73 per cent of GDP (DMO, 2015).

As at date the Nigerian economy is currently facing unfavorable domestic and global economic developments, due to the decline in the international crude oil price and the problem of insurgency in the North Eastern part of the country, amongst other issues. These have resulted in declining revenue to government and slowed down economic activities, with the attendant exchange rate volatility, increasing inflation as well as unstable lending rate. In 2015, annual consumer price inflation was 9.4 per cent., compared to 8.0 per cent in 2014. In 2013, 2012 and 2011, annual consumer price inflation were 8.0 per cent, 12.0 per cent and 10.3 per cent, respectively (NBS, 2015). As of 30 June 2016, year-on-year consumer price inflation was 16.5 per cent, it rose to 18.5% as of 30 November 2016 (NBS, 2016). The Nigerian gross external reserves witnessed an appreciable growth from 1998 to 2008, rising from U.S. $5.4 billion in 1999 to U.S.$53.0 billion in 2008. The stock of gross external reserves declined to U.S. $32.3 billion as of 31 December 2010 and U.S. $32.6 billion as of 31 December 2011. Although external reserves increased to U.S. $43.8 billion as of 31 December 2012, it decreased to U.S$43.6 billion as of 31 December 2013 and U.S$34.24 billion as of 31 December 2014. As of 31 December 2015, gross external reserves were U.S. $28.3 billion (CBN 2016). On the other hand the Naira exchange rate against the Dollar has remained unpredictable and has oscillated negatively against the Naira, even as the fiscal deficits have continued to increase over the years.

In the above light, the federal government of Nigeria, for instance approved a budget of N6.08 trillion with projected revenue of N3.86trillion and an outlay of N4.49 trillion; implying a deficit of N2.22trillion or 2.16 per cent of GDP in 2016. The deficit was to be financed by a combination of domestic borrowing of N984 billion and foreign borrowing of N900 billion totaling N1.884 trillion (FGN, 2015). Given the above scenario, fiscal deficit has become a challenge to the monetary and fiscal management of the Nigerian economy and therefore poses some concerns to economic managers. Therefore, the paramount question here is whether there is significant long run relationship between fiscal deficits and macroeconomic variables in Nigeria? Till date, the likely implications of fiscal deficits on the macroeconomy has remained a matter of raging controversy. Earlier empirical investigations focused on the effects of fiscal deficits on economic growth (Maji and Achegbulu (2012), Ezebasili et al (2012), Edame and Okoi (2015)), fiscal deficits and inflation (Anayochukwu 2012), fiscal deficits and interest rates (Ezabasili and Mojekwu (2011), fiscal deficits and macroeconomic aggregates (Wosowei (2013). In the receent time no study has thoroughly examined the relationship between fiscal deficits and macroeconomic variables in Nigeria. In view of the recent developments, relying on the findings of past studies might be misleading.

This study therefore, examines the macroeconomic effects of fiscal deficits in Nigeria. The selected macroeconomic variables are gross domestic product (GDP), external reserve, inflation, and lending rate. The major objective of this study is to assess the implications of federal government deficits on macroeconomic variables in the Nigeria economy. Specifically, this paper ascertains if federal government deficits significantly impact on external reserves in Nigeria; assesses the influence of federal government deficits on inflation in Nigeria; and ascertains if there is significant causality between federal government deficits and lending rate in Nigeria. The choice of this topic seems inevitable, particularly with the current assumption of imbalances in the Nigerian economy, especially the high inflation rate, large current account deficits, exchange rate volatility, amongst others, which makes this study a worthy one. It is expected that the outcome of this study will profer recommendations useful to policy makers, economic planners and other users of financial information in order to improve the economy.

2. LITERATURE RVIEW

2.1 Theoretical Review

Three major schools of thought are considered by economists while looking at the effects of fiscal deficits. The neoclassical school advances the crowding-out hypothesis (Barro, 1974; Blanchard, 1985), while the Keynesians postulates that an increase in government spending stimulates the domestic activity and crowds-in private investment (Friedman, 1978). The Ricardian Equivalence, however, argues that increase in the deficit financed by fiscal spending will be matched with a future increase in taxes, and therefore interest rates and private investment will remain unchanged (Bernheim, 1987; Barro, 1989; Bahmani-Oskooee, 1999)The neoclassical theory of deficits is of the view that budget deficits have the effect of increasing current consumption by government or individuals which may lead to a decline in investment. Therefore when consumption rises, there is the likelihood of a fall in savings. By inference a fall in savings raises interest rates and hence a reduction in investment which is the crowding out effect. Government may borrow money from the loanable funds market when it faces deficits and this action shifts demand as well as interest rates. It also implies that government borrowing crowds out private business by increasing interest rates. However, the neoclassical view opposes government deficit spending, because they believe that if the loanable funds market is left to itself, savings and investment would balance out.

Arguing on the point of partial crowding out, Keynes observed that the investment decision is a function of not only interest rates, but primarily expectations of future profit. He rather opines that an economy would experience only partial crowding out with only crowding out at times of deep depression. Keynesian further argument is that government deficits expands domestic production, and grantees private investors to be more optisimic about the future course of the economy which results to increase in investment. This is known as the “crowding-in” effect. But looking at the multiplier effect side, Keynesians note that the total impact of government spending can overweigh any loss of investment due to the higher interest rates. Hence government spending can increase total output. Therefore the conventional economic effect of government borrowing is expansionary in the short run. When government borrow to finance recurrent expenditure, it stimulates aggregate demand, causing output to increase (where supply is elastic and prices and /wages are sticky). This is the short run effect. In the long run, however, the effect could be contractionary according to the neoclassical view point. This is because over time real interest rate must rise to bring securities market into balance, and as a consequence, investment gets crowded out and capital and output eventually fall. This is the long run effect.

The Ricardian equivalence argues that an increase in budget deficits, say due to an increase in government spending, must be paid for either now or later, with the total present value of receipts fixed by the total present value of spending. Thus a cut in today’s taxes must be matched by an increase in future taxes, leaving interest rates, and thus private investment, unchanged (Barro, 1989). Considering the above views, we can therefore propose an analytical framework for evaluating the impact of federal government deficits over the years on some macroeconomic variables such as inflation, foreign exchange rate, price development, external reserves and cost of liquidity, amongst others. We assume that the increases in the deficit have two major outcomes. First, the tax reduction increases disposable income. Second, if the deficit is increased, there is an increase in net private sector financial assets (Khumalo (2013), Tharaka and Ichihashi (2012). This follows the equilibrium condition.

$$I + G = S + T \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

This can be written as

$$G - T = S - I \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

Where I is investment, G is government spending, S is national saving and T is the tax revenue, $G - T$ is the government deficit.

The effect of the tax cut and deficit increase is represented by an upward shift of the IS curve. The expansionary effect of the shift in IS curve will depend on whether the LM curve shifts or not. The movement of the LM curve will depend on how the deficit is financed. If additional reserves provided to the commercial banks are created, the money supply increases and the LM shifts to right, adding to the expansionary effect of the deficit. This ultimately affects the monetary policy decisions and general price level Each government has its budget constraint; it has to pay its bills just like individuals

households do. It raises revenue by levying taxes or going into debt by issuing government bonds. Ways of financing government spending are well defined by an expression known as the government budget constraint: which states that government budget deficit (BD) which is equal to the excess of government spending (G) over tax revenue (T) must equal the sum of changes in the monetary base (ΔMB) and the change in government bonds held by the public, ΔMB. Algebraically, we can write:

$$BD = G - T = \Delta MB + \Delta B \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

The government's constraint reveals two facts. If the government deficit is financed by an increase in bond holding by the public, there is no effect on the monetary base and hence on the money supply. But if the deficit is not financed by increased bond holdings by the public, the monetary base and the money supply increase. This boils down to inflation if the quantity theory holds. Financing a persistent deficit by money creation will lead to a sustained inflation (Mishkin 1997). If it is temporary, it would not produce inflation. In the period when the deficit occurs, there will be an increase in money to finance it, and the resulting rightward shift of the aggregate demand curve will raise the price level. This tells us that a deficit can be a source of a sustained inflation only if it is persistent rather than temporary and if the government finances it by creating money rather than by issuing bonds to the public. If we assume inflation rate could be associated with the scaled budget deficit and the income growth. This now states that inflation and monetary policy decision is explained by base money, budget deficit real income growth (Tharaka & Ichihashi 2012). Going our assumption that other macro variables such as real growth, lending rate, exchange rate, may be influenced by increasing fiscal deficits (fd)

We can write budget identity as:

$$fd = \sum_{i=0}^{n} \kappa_i \inf_{t-i} + \sum_{i=0}^{n} \nu_i FD_{t-i} + \sum_{i=0}^{n} \gamma_i RYG_{t-i} + \sum_{i=0}^{n} \pi_i NER_{t-i} + \sum_{i=0}^{n} \chi_i MDR_{t-i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 4$$

2.2 Empirical Review

2.2.1 Budget Deficit and Interest Rates

Many studies by different scholars have tried to establish a relationship between fiscal deficit and interest rates. Arguing that the financing of budget deficit through borrowing from the public paves way for an increase in the supply of government bonds, Premchand (1984) observes that government may in an attempt to expand the attractiveness of the bonds offer the bonds at a lower rate, which may lead to higher interest rates, hence this may discourage private spending, investment and bonds issuing. This is the financial crowding-out of the private sector. Using the Cointegration technique, Ewing and Yanochik (1999) studied the impact of budget deficits on the term structure of interest rates in Italy, their study suggests that budget deficit increase the yield spread between long-term government bonds and three month Treasury bill rate. Examining the relationship between interest rates and budget deficits from 1949 to 1994, Vamvoukas (1998) employed an ECM strategy for Greece economy, his findings supports the Keynesian model of a significant and positive relationship between both variables.Employing regression analysis to pooled cross-section and time series data for Nigeria, Gambia and Ghana to ascertain relationship between overall fiscal deficits and domestic nominal deposit interest rates, Anyanwu (1998) found no significant positive association between the two variables. He however reported a positive relation between domestic financing of the fiscal deficits and domestic nominal deposit rates.

Applying the vector Auto-regression approach, to ascertain the effects of fiscal deficits and government debt on interest rates in Nigeria, Obi and Nurudeen (2009) confirmed positive interest rates effect on fiscal deficits and debt. In summary the literature on the effect of budget deficit on interest rates shows two conflicting views. The above literatures reviewed illustrates the views of the Neoclassical and the Keynesian models, where the impact of increased deficits on interest rates operates through the effects of higher spending and increased wealth on the demand for money. While in the Ricardian view, the value of the new debt is simply perceived as the present value of the future tax liabilities, therefore we can opine that the effect of budget deficit on interest rates are inconclusive although most researchers are of the opinion that there is a link between the two. This study deviates from the previous studies as it employs other endogenous variables alongside fiscal deficit to test their relationship with interest rate in Nigeria.

2.2.2 Fiscal Deficits and Inflation Relationship.

Studying how budget deficit affect inflation in Sri Lanka, Tharaka & Ichidashi (2012) employed the vector autoregressive regression (VAR) model, and suggest that budget and inflation have positive relationship: at the same time a bi-directional causality structure exist.Khumalo (2013) studied budget deficits- inflation nexus for South Africa, using VAR with quarterly data for 1980 – 2012, and the findings suggest a direction of causation and a long run relationship between budget deficit and inflation in South Africa, and that budget deficit contributes positively to inflation in South Africa.Oladipo & Akinbobola (2011), investigated the nature and direction of causality among fiscal deficit and inflation in Nigeria. Employing Granger- Causality pair wise test their result showed that there were no causal relationship from inflation to budget deficit, rather there were causal relationship from budget deficit to inflation in Nigeria. Their result also

added that budget deficit affects inflation directly and indirectly through fluctuations in exchange rate in Nigeria.Using the causality approach Anayochukwu (2012), examined the relationship between fiscal deficits and inflation in Nigeria, covering the period 1970-2009. The autoregressive distributed lag (ARDL) model and the Granger-causality he employed, confirm a significant negative relationship between growth in fiscal deficit and inflation, but fiscal deficit/GDP causes inflation respectively. He recommended that one of the ways to achieve inflationary control is to aim at policies that will reduce fiscal deficit in Nigeria.

2.2.3 Deficits and Private Sector Credit

Emran & Farazi (2009), explores the crowding-out of private investment in developing countries, employing a panel data on 60 developing countries for 32 years, the study measured the casual effect of government borrowing on private credit and finds that $1.00 more borrowing by government reduces private credit by $1.40.Using quarterly data spanning from 1998 to 2010, Fayed (2012), employed a cointegration approach to investigate the relationship between borrowing and private credit in Egypt, the study adapted and modified the Eman & Farai (2009) model by removing some control variables from the original version that only varied cross-sectionally. The study concludes that government borrowing from domestic banks leads to more than a one to one crowding out of private credit in Egypt. Examining the impact of government expenditures on private investment and also how the financing of budget crowds out private investment in Nigeria, Isah (2012), using regression analysis, finds a negative relationship between deficit financing and investment, indicating that deficit financing in Nigeria crowds out private investment.

2.2.4 Fiscal Deficits and Macroeconomic Variables

Kosimbei, (2009), evaluated the empirical effects of budget deficits on macroeconomic performance for Kenya. Employing the vector autoregressive (VARs) approached which was underpinned on the Mundell – Fleming model. He established that the budgeting process had loop holes which perpetrated budget deficits, as he included current account of the balance of payments, private consumption, private investment, money supply, treasury bill rates and real GDP. Wosowei, (2013) attempted to determine the relationship between fiscal deficits and macroeconomic aggregates in Nigeria, employing ordinary least square (OLS)/Causality test, he found that fiscal deficits did not significantly affect macroeconomic output.A critique of the above studies shows that earlier empirical investigations focused on the effects of fiscal deficits on economic growth (Maji & Achegbulu (2012), Ezebasil et al (2012), Edame & Okoi (2015)), fiscal deficits and inflation (Anayochukwu 2012), fiscal deficits and interest rates (Ezabasili & Mojekwu (2011). Wosowei (2013) attempted a study on fiscal deficits and macroeconomic aggregates 1980 – 2010.

Mohammed & Mahfuzul (2017), studied fiscal deficit and its impact on economic growth: Evidence from Bangladesh, using VECM and found a positive and sgnificant relationship between fiscal deficit and GDP growth rate supporting the Keynesian theory. His findings using World Bank data indicate that the impact is mild but negative and significant at 5 percent level.Nwakobi, Echekoba & Anawude (2017) while studing fiscal deficit in an oil dependent revenue country and selected macreconomic variables, using time series analysis for Nigeria, found no significant effect of fiscal deficit on gross domestic product, money supply and inflation. Their findingds also show a positive insignificant relationship between fiscal deficit and gross domestic product. Their findings supports the Keynesian postulation between fiscal deficit and macroeconomic variables.Using the autoregression model and vector error correction model Temur, Cicek, Eroglu & Erdem (2017), found the existence of an interaction between fiscal policy variables and macreconomic variables for EU and Turkey.

However, the evidence from Nigeria has been sketchy. To the author's best knowledge no study has thoroughly examined the relationship between fiscal deficits and macroeconomic variables in Nigeria, and in view of the recent developments, relying on the findings of past studies might be misleading. It is against this premise that this study considered the probable implications of Federal Government deficits over time on selected macroeconomic variables (GDP, external reserve, inflation, lending rate, inclusive) in the Nigeria economy. In line with the above, this study deviates from the previous studies by employing the analytical technique of the autoregressive distributed lag (ARDL) model using quarterly data of Nigeria from 2000 to 2015. This paper therefore adds to the search for this linkage.

3. METHODOLOGY

This study is a correlational descriptive as well as quantitative research that attempts to ascertain the implications of fiscal deficits on selected macroeconomic variables (economic growth, inflation rate, exchange rate and credit growth inclusive) in Nigeria. The study therefore employs a time series analysis to examine the implications of federal government deficits on selected macroeconomics variables in Nigeria.The analytical technique of the autoregressive distributed lag (ARDL) model using quarterly data were explored and inferences drawn based on the ARDL analysis to ascertain the implications of fiscal deficit on selected macroeconomic variables in Nigeria from 2000 to 2015.Based on the empirical literature and our theoretical framework which attempts to explain the relationship between fiscal deficits and macroeconomic variables, we postulate the following under listed equations which mimics earlier studies like, Ariyo and

Raheem (1991), Dockery and Ezeabasili (2012), and Awe and Funlayo (2014). In view of the earlier discussions the adaptation to be followed are linear regression equations to be estimated which takes the following general form:

$$fd = \sum_{i=0}^{n} \kappa_i \mathrm{INF}_{t-i} + \sum_{i=0}^{n} \nu_i FD_{t-i} + \sum_{i=0}^{n} \chi_i PLR_{t-i} + \sum_{i=0}^{n} \gamma_i RYG_{t-i} + \sum_{i=0}^{n} \pi_i ERD_{t-i} + \sum_{i=0}^{n} \chi_i MDR_{t-i} + \Pi^{fd} \theta_t^{fd} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 5$$

Where: (fd) represents fiscal deficit which is the independent variable, while Real GDP growth rate (RYG), prime lending rate (PLR), inflation rate (INF), 3 months deposit rate (MDR), external reserves (ERD) are the explanatory variables, θ_t^{fd} is square coefficient matrices. The equation (10) above group the variables into policy (fd , ryg , erd , mdr) and non – policy ($\inf$) blocks. The vector aside $\inf_t$ contains monetary policy variables that are considered as monetary policy indicators. We know that the central banks deal indirectly with price stability through interest rates and money supply. If we take the log of equation (10) we have:

$$Lfd = \sum_{i=0}^{n} \kappa_i \mathrm{LINF}_{t-i} + \sum_{i=0}^{n} \nu_i LFD_{t-i} + \sum_{i=0}^{n} \chi_i LPLR_{t-i} + \sum_{i=0}^{n} \gamma_i LRYG_{t-i} + \sum_{i=0}^{n} \pi_i LERD_{t-i} + \sum_{i=0}^{n} \chi_i LMDR_{t-i} + \Pi^{fd} \theta_t^{fd} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 6$$

3.1 Data Description

The study employs quarterly observations of Nigeria's real GDP growth rate (RYG), prime lending rate (PLR), inflation rate (INF), 3 months deposit rate (MDR), external reserves (ERD) covering the period 2000 to 2015. When the amount of goods and services produced in a given nation increases over a given time, the country is said to be experiencing economic growth. Broadly speaking, this growth may be identified by a noticeable rise in the standard of living of the people and a reduction in inequalities of income distribution (Jhingan 2004). The real growth shows this growth less inflation. We expect that an increase in fiscal deficits may contribute to a short-run economic growth. The data of official exchange rate of the Nigeria Naira was included to capture the exchange rate volatility effect. The prices at which one currency trades with another could be expressed as exchange rate. This rate links the general price level of a given economy with prices in other nations of the world which directly or indirectly affects the prices of goods and services within the system. An inflation adjusted nominal exchange rate, the real exchange rate (RER) is often used as a measure of an economy's competitiveness.External reserve comprises of assets within the central banks and other monetary authorities in different currencies generally held in significant quantities by governments and institutions of the nation. It is included in this study as a control variable, because when a country is running fiscal deficit, it is possible to spend the reserves to finance the deficit.

We employed the Consumer Price index for the estimate of the impact of inflation, which is the basis for determining inflation rate. Our a priori expectation is that fiscal deficit will induce a short-run economic growth, while an increase in fiscal deficit may cause an upsurge in inflation numbers in the short-run, foreign reserve is expected to be negatively impacted, while lending rate may uptick as deficit rises, hence the crowding out hypothesis of private savings in the short-run period.The data are sourced from Central Bank of Nigeria (CBN) and National Bureau of Statistics (NBS). The observations (2000 Q1 - 2015 Q4) are used for parameter estimation and forecast evaluation. The core principles in borrowing highlight the fact that every policy option is a trade-off, often associated with externality and implicit or opportunity costs. Hence, an optimal policy is capable, among all combinations, of generating the least cost to the economy.

3.2 Unit Root Test Results

To avoid the problem of spurious regression, the study began with the tests of unit root using Augmented Dickey-fuller (ADF) test. The tests are conducted at 5 percent level of significance. These tests are rejected if the absolute t-statistics are greater than the critical values. The result of ADF test is presented on table 1 below.

Table 1. Augmented Dickey – Fuller (ADF) Unit Root Test Results

Variable	At level	5%			5% Critical Value	
	t-statistics	Critical value	Integration Order	1st Difference t-statistics		Integration Order
LFD	-6.977255	-3.482763*	*I*(0)	*S @ L*	*S @ L*	*I*(0)
RYG	-5.500333	-3.482763*	*I*(0)	*S @ L*	*S @ L*	*I*(0)
INF	-3.275089	-3.478305	*N.S*	-7.601949	-3.479367*	*I*(1)
LERD	-0.195949	-3.478305	*N.S*	-5.294020	-3.479367*	*I*(1)
MDR	-2.376819	-3.478305	*N.S*	-5.281850	-3.479367*	*I*(1)
PLR	-2.270378	-3.478305	*N.S*	-6.435257	-3.479367*	*I*(I)

*Note: * denotes significance at 5 percent level, N.S means Not Stationary at Level, SL denotes stationary at level.*

From the table 1 above, the absolute t-statistics (6.977255 and 5.500333) for LFD and RYG are greater than their absolute critical values (3.482763, 3482763) respectively. This implies that at 5% level the series of these variables are stationary. However, INF, LERD, MDR and PLR are not stationary at levels. This is evident from their respective absolute ADF t-statistics (3.275089, 0.195949, 2.376819 and 2.270378) which are less than the absolute critical value (3.478305). The study accepts the null hypotheses and observed that the variables (INF, LERD, MDR and PLR) have unit root at level. However, after first difference of the individual series, the absolute t-statistics (7.601949, 5.294020, 5.281850 and 6.435257) are greater than the absolute critical value (3.479367). As a result of the above, the study concludes that the series were non- stationary at level but were stationary after first difference. This entails that LFD and RYG are integrated of order zero i.e. I(0), while INF, LERD, MDR and PLR are integrated of order one i.e. I(1).

3.3 ARDL Bounds Tests for Cointegration

In order to empirically analyse the long-run relationships and short run dynamic interactions among the variables of interest [fiscal deficits (LFD), real GDP growth rate (RYG), inflation rate (INF), external reserves (LERD), 3 months deposit rate (MDR) and prime lending rate (PLR), we apply the autoregressive distributed lag (ARDL) cointegration technique. The ARDL cointegration approach was developed by Pesaran and Shin (1999) and Pesaran et al. (2001). It has three advantages in comparison with other previous and traditional cointegration methods. The first one is that the ARDL does not need that all the variables under study must be integrated of the same order and it can be applied when the under-lying variables are integrated of order one, order zero or fractionally integrated. The second advantage is that the ARDL test is relatively more efficient in the case of small and finite sample data sizes. The last and third advantage is that by applying the ARDL technique we obtain unbiased estimates of the long-run model (Harris and Sollis, 2003). The ARDL model used in this study is expressed as follows:

$$\Delta yt = \beta 0 + \Sigma\, \beta i \Delta yt\text{-}i + \Sigma \gamma j \Delta x1t\text{-}j + \Sigma \delta k \Delta x2t\text{-}k + \Sigma \delta k \Delta x3t\text{-}k + \Sigma \delta k \Delta x4t\text{-}k + \theta 0 yt\text{-}1 + \theta 1 x1t\text{-}1 + \theta 2\, x2t\text{-}1 + \theta 3\, x3t\text{-}1 + \theta 4\, x4t\text{-}1 + \Omega 1\, xt\text{-}1 + \Omega 2\, x2t\text{-}1 + \Omega 3\, x3t\text{-}1 + \Omega 4\, x4t\text{-}1 + \ell 1\, xt\text{-}1 + \ell 2\, x2t\text{-}1 + \ell 3\, x3t\text{-}1 + \ell 4\, x4t\text{-}1 + \S 1\, xt\text{-}1 + \S 2\, x2t\text{-}1 + \S 3\, x3t\text{-}1 + \S 4\, x4t\text{-}1 + et \quad \ldots \quad (23)$$

3.4 Lag Order Selection Criteria

Before conducting autoregressive distributed lag (ARDL) cointegration test, the study first empirically examined the model selection criteria table so as to find out the lag length of the specifications. The lag length selected is denoted with asterisks. The results of the test are presented on the table 2 below:

Table 2. Model selection criteria table

Model	LogL	AIC*	BIC	HQ	Adj.R-sq	Specification
1	-69.127822	3.204261	4.146716	3.572907	0.211408	ARDL(1,4,4,4,4,4)

*Note: * denotes significance at 5 percent level.*

The table 2 above shows the various information criteria test results. The table revealed that the specification in the model is lag length 1 for the dependent variable (LFD) while the lag length for RYG is 4, INF is 4, LERD is 4, MDR is 4 and PLR is 4. Thus, the adopted lag lengths are used in the ARDL technique.

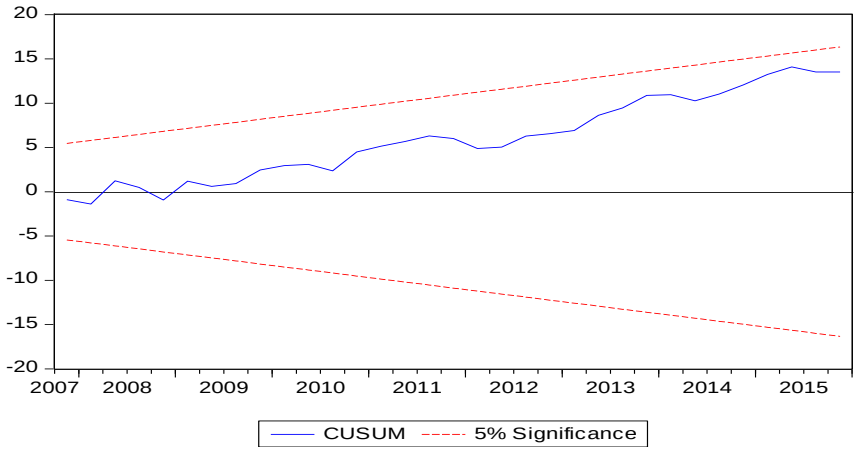
3.5 Diagnostic Tests

The validity of the regression for the underlying ARDL equation was tested against serial correlation (Breusch-Godfrey test) and stability of the model using cumulative sum of recursive residuals (CUSUM) so as to assess the parameter stability (Pesaran and Pesaran 1997).

Table 3. Diagnostic Tests

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.641073	Prob. F(4,29)	0.6375
Obs*R-squared	4.874415	Prob. Chi-Square(2)	0.3004

The Observed R-squared is 4.874415 while its P-value is 0.3004. The P-value is greater than the chosen level of significance [0.05], therefore we cannot reject the null hypothesis. This implies that this model does not have serial correlation. The model is tested to check if it is stable or not using CUSUM test:



The blue line is within the two red lines. This implies that the model is stable. The bounds test is mainly based on the joint F-statistic which its asymptotic distribution is non-standard under the null hypothesis of no cointegration. The first step in the ARDL bounds approach is to estimate the equations by ordinary least squares (OLS).

Table 4. ARDL long-run relationships test

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LFD(-1)	0.191408	0.164186	1.165806	0.2521
RYG	0.082804	0.072946	1.135148	0.2645
RYG(-1)	0.007945	0.093005	0.085429	0.9324
RYG(-2)	0.034902	0.100080	0.348742	0.7295
RYG(-3)	-0.044872	0.092775	-0.483666	0.6318
RYG(-4)	-0.025630	0.097668	-0.262419	0.7946
INF	-0.021242	0.071478	-0.297184	0.7682
INF(-1)	0.072334	0.082062	0.881452	0.3844
INF(-2)	-0.014304	0.064761	-0.220866	0.8266
INF(-3)	-0.059181	0.065420	-0.904627	0.3722
INF(-4)	-0.010913	0.056228	-0.194085	0.8473
LERD	0.436097	2.261504	0.192835	0.8483
LERD(-1)	2.225035	3.100965	0.717530	0.4781
LERD(-2)	-7.235965	3.049745	-2.372646	0.0236
LERD(-3)	3.586700	3.177066	1.128934	0.2671
LERD(-4)	0.452516	1.973218	0.229329	0.8200
MDR	-0.059246	0.179406	-0.330232	0.7433
MDR(-1)	-0.113661	0.276810	-0.410611	0.6840
MDR(-2)	-0.035467	0.276082	-0.128467	0.8986
MDR(-3)	0.026183	0.251357	0.104168	0.9177
MDR(-4)	0.084954	0.159966	0.531076	0.5989
PLR	-0.144919	0.267167	-0.542429	0.5912
PLR(-1)	0.570258	0.301343	1.892389	0.0672
PLR(-2)	-0.336381	0.308687	-1.089716	0.2837
PLR(-3)	-0.173084	0.302776	-0.571659	0.5714
PLR(-4)	-0.109193	0.256457	-0.425773	0.6730
C	19.39183	12.64494	1.533564	0.1347

R^2 = 0.558923, F-Statistics = 1.61, Prob(F-Statistics) = 0.098,

The estimation of the equation test for the existence of a long-run relationship among the variables was conducted by employing the P-value of F-test for the joint significance of the coefficients of the lagged levels of the variables of the ARDL Bounds test. The F-statistic is equally compared with the lower and upper critical bounds. We denote the F-statistic of the test which normalize on LFD= f (RYG, INF, LERD, MDR, PLR).

Table 5. ARDL Bounds Test

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	4.633677	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

The F-statistic value is 4.633677 approximately, while the lower and upper bounds of the critical values at 5% level of significance are 2.62 and 3.79 respectively. We compare the P-value of F-statistic value with a given (0.05) significance level. The first level is calculated on the basis that LFD and RYG included in the ARDL model are integrated of order zero i.e. I(0), while other variables are calculated on the basis that the variables are integrated of order one i.e. I(1).

Table 6. Error Correction Model (ECM)

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RYG)	0.082804	0.072946	1.135148	0.2645
D(RYG(-1))	-0.034902	0.100080	-0.348742	0.7295
D(RYG(-2))	0.044872	0.092775	0.483666	0.6318
D(RYG(-3))	0.025630	0.097668	0.262419	0.7946
D(INF)	-0.021242	0.071478	-0.297184	0.7682
D(INF)	0.014304	0.064761	0.220866	0.8266
D(INF)	0.059181	0.065420	0.904627	0.3722
D(INF)	0.010913	0.056228	0.194085	0.8473
D(LERD)	0.436097	2.261504	0.192835	0.8483
D(LERD(-1))	7.235965	3.049745	2.372646	0.0236
D(LERD(-2))	-3.586700	3.177066	-1.128934	0.2671
D(LERD(-3))	-0.452516	1.973218	-0.229329	0.8200
D(MDR)	-0.059246	0.179406	-0.330232	0.7433
D(MDR(-1))	0.035467	0.276082	0.128467	0.8986
D(MDR(-2))	-0.026183	0.251357	-0.104168	0.9177
D(MDR(-3))	-0.084954	0.159966	-0.531076	0.5989
D(PLR)	-0.144919	0.267167	-0.542429	0.5912
D(PLR(-1))	0.336381	0.308687	1.089716	0.2837
D(PLR(-2))	0.173084	0.302776	0.571659	0.5714
D(PLR(-3))	0.109193	0.256457	0.425773	0.6730
ECM(-1)	-0.808592	0.164186	-4.924864	0.0000

To capture the speed of the adjustment to the long run equilibrium, ECM is estimated.

Table 7. Serial Correlation test of ECM

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.550285	Prob. F(1,32)	0.2221
Obs*R-squared	2.772468	Prob. Chi-Square(2)	0.0959

The Obs*R-squared is 2.772468 while its P-value is 0.0959. Since the P-value is greater than 0.05, we cannot reject the null hypothesis. This means that there is no serial correlation in the model. Having ascertained that ECM does not have serial correlation, it is a good model. The model is desirable for estimation.

4. DISCUSSION OF FINDINGS

This section focuses on the analysis and discussion of results obtained from all the empirical tests conducted. The result presented in table 1, depicts that two (2) of the variables were stationary at level I(0) (i.e. LFD and RYG) whereas four (4) variables (i.e. INF, LERD, MDR and PLR) were homogenous I(1) (i.e. stationary after first differencing). The first difference estimation was performed on the series to forestall spurious regression or nonsense regression with the application of the Augmented Dickey Fuller test statistic.The Auto-Regressive Distributed lag (ARDL) approach is efficient and most suitable for testing the presence of a long-run association between variables that are fractionally integrated or

possesses mixed levels of integration. Thus, the bound testing procedure was employed to determine whether the variables were co integrated so as to establish the presence of long run relationship between the dependent variable LFD and the regressors. The null hypothesis of no co integration (H0: $\beta2=\beta7=\beta12=\beta17=\beta22=0$) is tested against the alternative hypothesis (H1: $\beta2\neq\beta7\neq\beta12\neq\beta17\neq\beta22\neq 0$).

Table 3 above reports the result of the ARDL approach to co integration. The F-statistic value is 4.633677 approximately, while it's lower and upper bounds of the critical values at 5% level of significance are 2.62 and 3.79 respectively. We compare the F-statistic value with the lower and upper bounds. The null hypothesis of no cointegration is rejected since the value of the F-statistics [4.633677] is greater than upper bounds of the critical value (3.79). From these results, it is clear that there is a long run relationship amongst the variables. This implies that the null hypothesis of no cointegration among the variables is rejected. It indicates that all the six (6) variables (LFD, RYG, INF, LERD, MDR and PLR) move together in the long run.The value of R-squared (0.612) shows that about 55.9% changes of fiscal deficits (LFD) in the long run are explained by the independent variables such as real GDP growth rate (RYG), inflation rate (INF), external reserves (LERD), 3 months deposit rate (MDR) and prime lending rate (PLR). Breusch-Godfrey serial correlation LM test indicates that model is free from serial correlation. Short run dynamics and Long run relationship of variables in the model was explained by table 4 and 5. This table shows the result of the short run dynamic coefficients associated with the long run relationships obtained from ECM equation. The error correction term in the model is highly significant and correctly signed. In specific terms, the result indicates a coefficient of (-0.808592) with a P value of (0.0000) which is less than (0.05) level of significance. The results of ECM indicate that there is system adjustment from the short disequilibrium to the long run equilibrium. The coefficient of one period lag residual coefficient is negative and significant which represent the long run equilibrium. The coefficient is -0.8086 meaning that system corrects its previous period disequilibrium at a speed of 80.86% quarterly. Thus the result shows a quick speed of adjustment from short run dynamics to long run steady state. The CUSUM test shows stability of the short and long run coefficients of the fiscal deficits (LFD) function within the sample period.

4.1 Test of Employed Hypotheses

Based on empirical results obtained, the following hypotheses were tested to justify their empirical validity.

Hypothesis one

H01: There is no significant long run relationship between federal government deficits and macroeconomic variables in Nigeria

Hypothesis Two

Federal government deficit does not have significant impact on external reserve in Nigeria.

Hypothesis Three

H03: There is no significant influence of federal government deficits on inflation in Nigeria.

Hypothesis Four

H04: There is no significant causality between federal government deficits and lending rate in Nigeria.

Hypothesis One

In testing the empirical validity of hypothesis one, the F statistic in the ARDL bound were used. The null hypothesis of no long run relationship is rejected if the F statistic is greater than upper bounds of the chosen level of significance 0.05 (5%). As observed in Table 4, the F-statistic value is 4.633677 and is greater than upper bounds of the critical value (3.79) at 5% level. When we compare the F-statistic value with the lower and upper bounds, it implies that the null hypothesis of no cointegration among the variables is rejected. Therefore, there is significant long run relationship existing between fiscal deficit and selected macroeconomic variables in Nigeria.

Hypothesis Two

In a bid to test the second hypothesis, the P value of the t- statistics is used to test for the significance of the individual estimated parameter (LERD). The result indicates that P value of the t-statistic (0.8483) in table 5, is greater than the chosen level of significance of (0.05). Therefore, the null hypothesis is accepted and this implies that federal government deficit does not have significant impact on external reserve in Nigeria within the period under study. It further indicates that Federal government deficit does not have direct significant impact on external reserves, may be as a result of poor utilization of the borrowed funds, which sometimes end up in private coffers, and/or current expenditures, instead of capital projects that should help build the economy.

Hypothesis Three

In a bid to test the third hypothesis, the P value of the t- statistics is used to test for the significance of the individual estimated parameter (INF). The result indicates that P value of the t-statistic (0.7682) is greater than the chosen level of significance of (0.05). Therefore, the null hypothesis is accepted and this implies that there is no significant influence of federal government deficits on inflation in Nigeria within the period under study.

Hypothesis Four

Granger causality test was conducted to examine if there is casual relationship between federal government deficits and lending rate in Nigeria.

4.2 Granger Causality test

Table 8. Pair-wise Granger Causality Test Results

Null Hypotheses	Obs.	F-statistic	Prob.
PLR does not granger cause LFD	63	6.15884	0.0159
LFD does not Granger cause PLR		0.76930	0.3839

Note: denotes significant at 5 per cent level*

In table 8, the null hypothesis of no causal relationship existing between federal government deficits and lending rate are rejected since the p-value (0.0159) is less than 0.05. Since this p-value is less than 0.05, the study rejects the null hypotheses and concludes that there is significant causal relationship existing between federal government deficits and lending rate.

5. IMPLICATIONS OF RESULTS

The empirical analysis has shown clearly the likely implication of fiscal deficits of the federal government on some macroeconomic indicators in terms of GDP, reserves, credit to the economy and the general price levels. The result presupposes that fiscal deficit may be considered by policy makers, as a long term tool for economic growth, given the effects it is likely to have on the economic growth objectives of the Nigerian economy in the long run, as indicated in our result. A no direct positive impact of fiscal deficits on the reserves also presupposes that a reduction in external reserve in the face of the observed increasing fiscal deficit is counter intuitive, though it could be attributable to over reliance on import and other issues. However, it is possible that the borrowed funds may have ended up in private coffers or spent on current expenditures instead of capital projects that should grow the economy. Further implication is that there will likely be a trade-off within the context of achieving the macroeconomic objectives of government for borrowing. The objective of lowering cost of liquidity may be challenging as the indicator for cost of liquidity, 3 months deposit rate, is not positively and directly influenced by fiscal deficits.

This is an agreement with Isah (2012) using regression analysis, who finds a negative relationship between deficit financing and investment, indicating that deficit financing in Nigeria crowds out private investment.While prime lending rate could be moderated by government efforts through other measures, deficit by government may not be a good tool for short term result. The rate of inflation although, it is not directly determined by fiscal deficit, may not be reduced in the short run. This result corroborates with the findings of Anayochukwu (2012), who examined the relationship between fiscal deficits and inflation in Nigeria, for 1970-2009. Using ARDL model and the Granger-causality, confirmed a significant negative relationship between growth in fiscal deficit and inflation in Nigeria. Perhaps, in the overall, the trend of these macroeconomic variables requires a trade off or sacrifice for achieving the output growth for the period under study.

6. RECOMMENDATIONS

The empirical analysis has shown clearly that there exist a long-run relationship between fiscal deficit and the selected macroeconomic variables. Based on the above, we propose that policy makers/government may consider the following:Fiscal deficit may be considered a long run tool by policy makers, given the effects it is likely to have on the economic growth objective of the Nigerian economy in the long run. This is predicated on the outcome of the macroeconomic - fiscal deficit relationship which indicated a positive impact in the long run.A reduction in external reserve in the face of the observed increasing fiscal deficit is counter intuitive, though it could be attributable to over reliance on import and other issues. It is possible that the borrowed funds may have ended up in private coffers, or spent on current expenditures instead of capital projects that should grow the economy. Therefore the need for government to re-strategize on the current war on corruption in order to close the loop holes and as well as punish offenders becomes expedient.

The fact that, an upward trend of inflation is expected in a period of expansionary fiscal policy, borrowing by government, therefore, which may be the starting point of increasing fiscal deficit, should be anchored on infrastructure or other projects that may likely increase economic growth and development.That the objective of lowering cost of liquidity may be challenging in the face of increasing deficit, as the indicator for cost of liquidity, 3 months deposit rate, may not be directly influenced by fiscal deficit of the federal government in the short run, hence the need for more proactive measures. For instance a decline in prime lending rate may help restore confidence in the economy, especially the manufacturing subsector which has been clamouring for lower rate to encourage local manufacturing. The alternative could be the promotion of local production through monetary stimulus (the CBN intervention) and fiscal policy measures, for instance, the CBN special interventions in agriculture may help reduce over dependence on imports.

7. CONCLUSION.

Employing the Auto-Regressive Distributed lag (ARDL) approach, this study found that there is significant long run relationship between fiscal deficits and selected macroeconomic variables in Nigeria. This outcome is in disagreement with Wosowei (2013), and Nwakobi., Echekoba,, & Ananwudu, (2018), who found that fiscal deficit did not significantly affect macroeconomic output in Nigeria. We therefore, postulate that, the outcome of this paper underscores the imperative of fiscal deficit in the Nigeria economy. Hence, fiscal deficit could be considered by policy makers, as a long term tool for economic growth, given the effects it is likely to have on the economic growth objectives.

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