Impact of Macroeconomic Variables on Government Budget Deficit in Nigeria: 1981-2010

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ABSTRACT

Empirical results are mixed and controversial across countries, data and methodologies on government budget deficits and macroeconomic variables. However, the results are far from conclusive. This paper examines at the trend and empirical analysis of macroeconomic variables on government budget deficit in Nigeria for the period 1981-2010 using data from the Central Bank of Nigeria. Unit root test (ADF) was used to investigate the stationarity of the variables. Johansen Co-integration showed that RGDP, INF, EXCH, RIR, GBD, and GI are cointegrated 1(I) with at least 5* cointegrating equations at 5% level. The VEC result indicated that GI established long run relationship with RGDP at 5%. Finally, there is no statistical significance between government budget deficit and the economic growth in Nigeria. Therefore, recurrent deficits are therefore not necessarily used in furthering economic growth and development through national investments, but utilized in the repayment of accumulated national debt. The paper recommends amongst others that there is a need for the development of both economic and political institutions that would improve macroeconomic policy making and implementation. Therefore, the Fiscal Responsibility Act should be implemented fully to avoid the leakages in the financial management system of government; the Nigerian government should reduce the level of massive corruption in the public sector for the fiscal responsibility and sustainability to be attained in the country.

Keywords: Budget Deficit, Economic Growth, ECM, ADF, Nigeria

INTRODUCTION

The correlation between budget deficit and macroeconomic variables is an important issue that affects every government universally. Sarker (2005) reported that this relationship between government budget deficit and macroeconomic variables represents one of the most widely debated issue in public finance and monetary economics literature. The issue of the fiscal position of government and how government budget deficits affect the decisions of households are important issues in the monetary economics and finance literature (Bayat, Kayhan and Senturk, 2012). Government budget deficit is one of the major problems affecting the growth and development of any given economy. According to Paiko (2012), when there is budget deficit, government finds ways of financing the deficit through borrowing, the issue of bonds and monetary instrument. Anyanwu (1997), Vaish (2002), Jhingan (2004), Nzotta (2004), Osiegbu, Onuorah and Nnamdi (2010), Paiko (2012) reported that government budget deficit in any given economy provides at least a type of macroeconomic imbalance in the form of inflation, debt crisis, crowding out of private investment, inflation and shortage of foreign exchange. Chimobi and Igwe (2010) reported that the growth and persistence of developing countries in recent times has brought the issue of budget deficit into serious focus. They stated that in developing country like Nigeria, budget deficits have been blamed for much of the economic crisis that beset them about two decades ago resulting in

over indebtedness and debt crisis, high inflation, poor investment and growth. Nigeria, government fiscal deficits increased continuously in the past two decades. Government budget deficits in Nigeria increased from N3,902.10 million in 1981 to N8,254.30 million in 1986 and further to N15,134.70 million in 1989. The rising trend of deficits continued except in the year 1995 when it was registered a surplus (that is N1,000 million). By the year 1998, overall deficits had jumped to N133,389.30 million and further to N301,401.60 million in 2002. Beginning from 2003, government fiscal deficits declined moderately from N202,724.70 million to N172,601.30 million, N161,406.30 million, and N101,397.50 million in 2004, 2005 and 2006; respectively. Similarly, fiscal deficits as a percentage of GDP (at 1990 factor cost), deteriorated from -3.8 percent in 1981 to -5.7 percent in 1986 and further to -9.5 percent in 1993. However, the value of deficits as a percentage of GDP declined to -0.1 percent in 1997 only to rise to -5.9 percent in 1999. The share of deficits in total GDP has been declining, from -2.0 percent in 2003 to -1.1 percent and -0.6 percent in 2005 and 2006, respectively. The inability of the Nigerian government to predict expenditure and revenue in the deficits of the budget is a course for concern.

Keho (2010) reported that a large budget deficit is a source of economic instability. Empirical studies do not conclusively support this view; results are mixed and controversial across countries, data and methodologies (Adam and Bevan, 2005; Chimobi and Igwe, 2010). According to Paiko (2012), excessive and prolong deficit financing through the creation of high powered money may negate the attainment of macro-economic stability, which in turn affect the level of desired investment in an economy and thereby stripe growth. Alexious (2009) study of seven eastern European country found that government spending on capital formation, development assistance, private investment and trade-openness all have positive and significant effect on economic growth. Sarker (2005) study of the impact of budget deficit on the economic growth of SAARC countries reported that budget deficit is significant to explain the GDP growth for Bhutan, India, Nepal and Pakistan. On the other, in case of Maldives, it is depicted that budget deficits has positive and significant impact on GDP growth. But, in contrast, budget deficits showed a negative and significant impact on GDP growth for Sri Lanka. This result of budget deficits on economic growth of Sri Lanka seems to be close to Bangladesh.

The lack of consensus on the effectiveness of government budget in achieving macroeconomic stability has motivated a further line of research that finds stronger evidence in favour of cointegration and causality between government budget deficit and the macroeconomic stability of any economy. The pertinent question is that whether the persistent government budget deficits from 1981-2010 causes macroeconomic economic stability in Nigeria. Therefore, this paper investigates the long run relationship between government budget deficit and economic stability for the period 1981-2010. To achieve this objective, the paper is divided into five interconnected sections. The next section presents the review of relevant literature on budget deficit and the economy of Nigeria. Section three examines the materials and methods used in the study. Section four presents the results and discussion and the final section examines the conclusion and recommendations.

LITERATURE REVIEW

Theoretical Framework

The impact of macroeconomic variables on budget deficits has been one of a long-standing argument in economic literature. There exists three distinct theories exists from the literature of the complex relationship between budget deficit and macroeconomic variables. These theories are the Keynesian theory, Neo classical theory and Richardian Equivalence theory.

The Keynesian Theory: The Keynesian theory states that government spending enhances growth. According to Okpanachi and Abimiku (2007), budget deficit stimulates economic activities in the short run by making

households feel wealthier, hence raising total private and public consumption expenditure. Vaish (2002), Jhingan (2004), Chakraborty and Chakraborty (2006), Ogboru (2006), Keho (2010) stated that budget deficit has a positive effect on macroeconomic activity, therefore stimulating savings and capital formation. Ussher (1998) reported that the Keynesian theory stimulates the economy, reduces unemployment and makes households feel wealthier using government spending. As a result, money demand rises and interest rates will increase and thus investment declines.

The Monetarist Theory: The neo classical theory states that government budget deficits constitute merely a transfer of resources from the private sector to the public sector with little or no effect on growth (Ahmad, 2000; Saleh, 2003; Dalyop, 2010). They further stressed that since the private sector is more efficient than the public sector, such a transfer could have a negative effect on growth. Nzotta, (2004), Okpanachi and Abimiku (2007), Osiegbu, Onuorah and Nnamdi (2010) reported to the contrary that the monetarist argue that increased government expenditure financed by monetary expansion has a strong stimulative effect on the economy and as such raises aggregate demand.

The Richardian Equivalence Theory: This theory states that fiscal deficit do not affect economic growth. Gray and Stone (2005) noted that Richardian equivalence implies that taxpayers do not view government bonds as net wealth; hence, its acquisition by individuals does not alter their consumption behaviour. Thus, they conclude that the effects of government spending in a closed economy will be invariant to tax versus bond financing. Chakraborty and Chakraborty (2006) then stated that fiscal deficit represents a transfer of expenditure resources from the private to the public sector and budget deficit is neutral to economic activity.

Nature and Scope of Budget Deficit

Budget deficit is a situation where total expenditure exceeds the revenue for a given financial year. According to Ogboru (2010), budget deficit arises when the revenue and accumulation of past savings become inadequate to finance the expenditure gap still left on the recurrent and capital accounts. Anyanwu (1993), Bhatia (2010) stated that budget deficit is a deliberate excess of expenditure over revenue. When carried out by the government, it is called compensatory finance or pump priming and it is a situation when expenditures have exceeded revenues. The purpose is to stimulate economic activity.

According to Anyanwu (1997), government budget deficit can be assessed using three structures. The first structure is the type of deficit to be measured within public sector coverage. The most important way to measure the public sector deficit depends on the purpose. The most obvious purpose is to measure the net claim on resources by the public sector; this in turn influences the external deficit, inflation, domestic interest rates, and employment. The standard measure of the deficit is the conventional deficit, which measures the difference between total government expenditure and revenue, excluding changes in debt. Another measure of government deficit is the non-interest deficit which excludes interest payments from the conventional deficit measure but this cannot identify the scope of government discretion. The second structure to assess the government fiscal deficit is the size of the public sector and its composition while the third structure assesses the relevant time horizon in which the deficit relates.

Government budget deficit in any given economy can be financed using monetary financing and debt financing. Monetary financing of a budget deficit has to do with printing of currency by the monetary authority the revenue accruing from which is called “seigniorage” (Jhingan, 2004; Nzotta, 2004, Ogboru, 2010). Government offers in the market a stock of money that exceeds the amount objectively justified to be into circulation, taking into account the proportions and the characteristics of the economy (Anyanwu, 1993; 1997). This situation, following Irving Fisher□s equation of exchange which expresses the relationship between the stock of money and its velocity, on the one hand, and the general price level and transactions, on the other, is expressed as: where Money stock; Velocity of money; General price level; and The volume of transactions directly reflects in a rising

level of prices for a given quantity of output. In Fisher□s view, the velocity of money is assumed to be constant, as it only depends on the payment habits of the economic entities, which stay unchanged for a certain period of time (Vaish, 2002; Jhingan, 2004, Nzotta, 2004). This relationship results in a redistribution of a part of the purchasing power of households, as the real value of money whittles down through inflation, in favour of the government, which makes use of the additional stock of money in order to buy goods and services or to make payments for public consumption (Ogburu, 2010). However, conditional on the demand for money, the volume of seigniorage that may be raised by the government from households decreases in real terms against the background of a high inflation rate, thereby containing the capacity for financing the deficit (Jhingan, 2004).

The long-run effects of the monetary financing of the budget depend on the use to which the funds so generated by the government are put. According to Ogboru (2006), if the resources resulting from the additional money issued in order to cover the budget deficit are employed to finance investment projects, which induce a rising output, the original increase in the money stock available in circulation will have as equivalent a rising quantity of goods and services subject to transactions. On the other hand, if the additional resources are employed to finance final consumption expenses, which do not determine a subsequent growth of GDP, the increase in the price level will be permanent and the monetary financing of the budget deficit will be inflationary. Besides, devaluation of the currency is most times intended to boost exports of domestic output given the new exchange rate. However, the inflationary trend creates uncertainty with regard to future business prospects, raising interest rates, which further discourages the expansion of output. Contrary to expectations therefore, according to Ogboru (2010), when the national supply of goods and services is insufficient and uncompetitive, the depreciated national currency encourages imports in order to make up for the deficits created by the reduced amount of national output and this leads to the degradation of the balance of payments. Debt financing of the budget deficit involves the borrowing of money by the government in order to meet budgetary obligations. Anyanwu (1993), Jhingan (2004a) Ogboru (2010) pointed that government borrowing can be achieved using voluntary private sector purchases of government debt in the domestic market, foreign borrowing, and forced placement of government debt, such as the creation of a “captive” market for government securities by forcing institutions to invest a certain share of their portfolios in such securities. These securities include the non-negotiable and non-transferable debt instruments of the Central Bank that banks are mandated to purchase at intervals in order to control their excess reserves (Ikhide and Alawode, 2001). According to Jhingan (2004a), there are two essential characteristics defining this form of raising extraordinary revenues. First of all, the resources collected this way are on a temporary basis, the state giving back the respective amount of money to the right owners (creditors) after a certain period of time. Secondly, the public loan, as all other loans, is costly; it supposes that states pay interest to their creditors as a price for using the temporary available resources. As a result of its characteristics, public loan can involve several undesired effects. It mainly leads to the accumulation of public debt and to the increase in interest payments, which determines an increase in the budgetary expenses that states have to cover (Jhingan, 2004b). The public loan, however, does not lead to the unjustified increase of the amount of financial signs which are in circulation and it does not generally have an inflationary character. As a consequence, it is usually accepted as a source to finance budget deficits in contemporary society (Ogboru, 2010). Nevertheless, when the indebtedness of the government to the central bank is accepted as a viable solution to covering deficits in the budget, the government may resort to the central bank, requiring it to lend it money in order to cover the temporary deficit in public treasury, in exchange for issuing treasury bills. If the government does not succeed in cashing in current revenues in order to pay back the particular amounts of money anymore, the money stock may unjustifiably increase, as banks which had hitherto acquired government securities, resort to the central bank in order to refinance when faced with shortage in liquidity; thus implying inflationary money issuing (Anyanwu, 1997; Osiegbu, Onuorah and Nnamdi, 2010). Besides, bond-financed

public deficits have the potential effect of crowding-out private investments. As government issues debt instrument on the domestic market, it withdraws from circulation part of the liquidity in the market, leading to short-fall in the demand-supply equilibrium. Interest rates therefore rise; just as they would under inflationary pressures. Consequently, private investment is crowded-out. This implication led to the Keynesian recommendation of deficit spending to boost economic activity during depression, at which point in a country's business cycle, interest rates are likely to be unresponsive (Okpanachi and Abimiku, 2007).

Government Budget Deficit in Nigeria

According to Saad and kalakech (2009), budget deficits represent a demand for funds by the government that must be met from an excess of domestic saving over investment and by borrowing from abroad, taxes, or the use of monetary policy. An increase in the budget deficit may drive up the interest rates since the Treasury bids for funds to finance the budget. In turn, high interest rate may crowd out private investment spending. Anyanwu (1997) stated that in the overall budget deficit is the difference the sum of both capital and current revenues plus grants and the sum of both capital and current expenditures plus lent lending. Nigeria, government fiscal deficits increased continuously in the past two decades. Government budget deficits in Nigeria increased from N3,902.10 million in 1981 to N8,254.30 million in 1986 and further to N15,134.70 million in 1989. The rising trend of deficits continued except in the year 1995 when it was registered a surplus (that is N1,000 million). By the year 1998, overall deficits had jumped to N133,389.30 million and further to N301,401.60 million in 2002. Beginning from 2003, government fiscal deficits declined moderately from N202,724.70 million to N172,601.30 million, N161,406.30 million, and N101,397.50 million in 2004, 2005 and 2006; respectively. Similarly, fiscal deficits as a percentage of GDP (at 1990 factor cost), deteriorated from -3.8 percent in 1981 to -5.7 percent in 1986 and further to -9.5 percent in 1993. However, the value of deficits as a percentage of GDP declined to -0.1 percent in 1997 only to rise to -5.9 percent in 1999. The share of deficits in total GDP has been declining, from -2.0 percent in 2003 to -1.1 percent and -0.6 percent in 2005 and 2006, respectively. The inability of the Nigerian government to predict expenditure and revenue in the deficits of the budget is a course for concern.

Prior Empirical Studies

Ghali (1997) study of Saudi Arabia for the period 1960-1996 using vector autoregression (VAR) found that there exist no consistent evidence that changes in government spending have an impact on per capital real output growth. Ghali (1998) in another study of Tunisia for the period 1963-1993 using Granger causality test, ordinary least square found that public investment have a negative short run impact on private investment and a negative long run impact on both private investment and economic growth. Monadjemi and Huh (1998) study of Australia, United Kingdom and United States for the period 1960-1991 using error correction mechanism (ECM) found that a limited support for crowding out effects of government investment and private investment. Ahmed and Miller (2000) in a cross-sectional study for the period 1975-1984 using ordinary least square, fixed effect and random effect methods suggested that reduction in investment leads to less revenue generation hence causing deficit, vice-versa when spending in transport. Khan, Akhtar and Rana (2002) study of Pakistan for the period 1982-1998 found that budget deficit has both direct and indirect effects on real exchange rate so a relationship between budget deficit and real exchange rate exists. Kosu (2005) study of fiscal deficit and the external sector performance of Sierra Leone: a simulation approach found that fiscal restraints improve the external sector of Sierra Leone by reducing money supply and the price level. Sill (2005) study of 94 countries found a positive relationship between budget deficit and inflation. Huynh (2007) conducted a study of developing Asian Countries for the period 1990-2006 found a negative impact of budget deficit on gross domestic product growth of the country while simply analyzing the trends in Vietnam. Alexious (2007) study of Greece for the period

1970-2001 using OLS reported a positive association between growth in government spending and GDP growth. Muktar and Zakara (2008) in their study of the long run relationship between nominal interests rate and budget deficits for Pakistan using quarterly time series data for the period 1960-2005 found that budget deficit –gross domestic product ratio has a significant positive impact on nominal interest rate. Georgantopoulos and Tsamis (2011) study of Greece for the period 1980-2009 found a one way causalty between budget deficit and gross domestic product. Oladipo and Akinbobola (2011) study of budget deficit and inflation in Nigeria for the period 1970-2005 revealed that budget deficit affects inflation directly and indirectly through fluctuation in exchange rate in the Nigerian economy. Fatima, Ahmed and Rehman (2012) study of consequential effects of budget deficit on economic growth of Pakistan for the period 1978-2009 found a negative impact of budget deficit on economic growth. Bayat, Kayman and Senturk (2012) empirical analysis of budget deficit and interest rates in Turkey for the period 2006 and 2011 found no causal relationship between budget deficits, budget deficit ratio and gross domestic product and nominal interest rate.

Therefore on the basis of the literature, the following research questions and hypotheses were examined in this study:

Research Question 1: Are there any significant relationship that exists between government budget deficit and macroeconomic variables in Nigeria for the period 1980-2010?

Ho1: There is no significant relationship that exists between government budget deficit and macroeconomic variables in Nigeria for the period 1980-2010.

MATERIALS AND METHODS

The materials for the study was a time series data sourced from Statistical Bulletin, Economic and Financial Review and Annual Reports and Statement of Accounts of the Central Bank of Nigeria (CBN) of various issues for the period 1981 to 2010 in Nigeria.

Empirical Framework

The empirical framework for this study was adapted from prior studies of Obi and Nurudeen (2009), Keho (2010), Fatima, Ahmed and Rehman (2012).

$Y = f(X1, X2, X3, X4, X5)$ …… (1)

$GBD = f(INF, EXCH, RIR, GDP, GI)$ …….(2)

$\ln(GBD) = \beta0 + \beta1 \ln(INF) + \beta2 \ln(EXCH) + \beta3 \ln(RIR) + \beta4 \ln(GDP) + \beta5 \ln(GI) + \varepsilon$ ……. (3)

Where: GDP = Gross Domestic Product; INF = Inflation; EXCH = Real Exchange Rate; RIR = Real Interest Rate; GBD = Government Budget Deficit; GI = Gross Investment; β0, β1, β2, β3, β4, β5 are the coefficients of the regression, while ε is the error term capturing other explanatory variables not explicitly included in the model.

Empirical Method

This section elaborates the empirical method designed to estimate the parameters of the linear regression model above. Therefore, to achieve the objective of the paper, diagnostic tests, unit root test, cointegration test, error correction model and granger causality were applied.

Diagnostic Test:

Diagnostic test was applied to ascertain the stationarity of the variables used in the study. The Ramsey Regressions Specification Error Test was applied for misspecification of functional form of the model. White Heteroskedasticity test was also applied to test for heteroskedasticity of the variables. Breusch Godfrey test was used for serial correlation and Jarque Berra test was used for normality of the residuals.

Unit Root Test:

This involves testing the order of integration of the individual series under consideration. According to Asteriou and Hall (2006), Gujarati and Porter (2009), Kazhan (2010) reported that there are several procedures for the

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tests of order of integration have been developed. The most popular ones are Augmented Dickey-Fuller (ADF) test due to Dickey and Fuller, the Phillip-Perron (PP) due to Phillips and Perron and KPSS test due to Kwiatkowski, Philips, Schmidt and Shin. Augmented Dickey-Fuller test relies on rejecting a null hypothesis of unit root (the series are non-stationary) in favour of the alternative hypotheses of stationarity. The tests are conducted with and without a deterministic trend (t) for each of the series. The general form of ADF test is estimated by the following regression:

$$\Delta yt = \propto_o + \propto^1 y^{t-1} + \sum^n \propto \Delta yt + \varepsilon^t \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (4)$$

$$\Delta yt = \propto_o + \propto_1 y_{u-1} + \sum^n \propto_1 \Delta y_i + \delta_t + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (5)$$

Where:

Y time series, t = linear time trend, Δ = first difference operator, $\propto_{o\,=}$ constant, n = optimum number of legs in the dependent variable, ε = random error term and the Philip – Perm (PP) is equation is thus

$$\Delta yt = \propto_o + \propto y_{t-1} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (6)$$

The KPSS model $yt - \propto + \beta t + ut + ut \ldots\ldots\ldots\ldots \quad (7)$

$$Ut - ut - 1 + \delta ti\ \varepsilon t\text{-}_{wn(0,\delta^2)}$$

Cointegration Test:

This involves testing of the presence or otherwise of cointegration between the series of the same order of integration through forming a cointegration equation. The basic idea behind cointegration is that if, in the long-run, two or more series move closely together, even though the series themselves are trended, the difference between them is constant. It is possible to regard these series as defining a longrun equilibrium relationship, as the difference between them is stationary (Brooks, 2008; Gujarati and Porter, 2009; Kozhan, 2010). A lack of cointegration suggests that such variables have no long-run relationship: in principal they can wander arbitrarily far away from each other (Asteriou and Hall, 2008). We employ the maximum likelihood test procedure established by Johansen and Juselius and Johansen (Wooldridge, 2006). Specifically, if Yt is a vector of n stochastic variables, then there exists a p-lag vector auto regression with Gaussian errors of the following form: Johansen's methodology takes its starting point in the vector auto regression (VAR) of order P

given by

$$yt = u + \Delta_1 Y_{t-1} + \text{----------------} + \Delta p y_{t-p} + \varepsilon t \text{-------------------------------} \quad (8)$$

Where:

Yt = n x 1 vector of variable integrated of order (1) and εt = n x 1 vector of innovations

The VAR can be

$$\Delta yt = iU + \eta yt\text{-}1 + \sum_{i=1}^{p-1} ti\Delta yt\text{-}1 + \varepsilon t$$

Where:

$$\eta = \sum_{t=1}^{p} Ai\text{-}1 \quad \text{and} \quad r, = \text{-}p\ Aj$$

To determine the number of co-integration vectors, Johnson and Jaseline suggested two statistic test, the first

called trace test and the second maximum eigen value test (Greene, 2002).

Error Correction Model

If co-integration is proven to exist, then the third step requires the construction of error correction mechanism to model dynamic relationship. The purpose of the error correction model is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. The greater the co-efficient of the parameter, the higher the speed of adjustment of the model from the short-run to the long-run

$$\Delta yt = \propto o + bi\ \Delta Xt - \Delta \pi vt\text{-}1 \quad - \quad Yt \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (10)$$

Granger Causality:

Granger causality tests are conducted to determine whether the current and lagged values of one variable affect another. One implication of Granger representation theorem is that if two variables, say Xt and Yt are co-integrated and each is individually 1(1), then either Xt must Granger-cause Yt or Yt must Granger-cause Xt. This causality of co-integrated variables is captured in Vector Error Correction Model (VECM).

The Granger causality test for the use of two stationary variable yt and xt, involves as a first step the VAR model:

$$Yt = \propto 1 + \sum_{t=1}^{n} \beta_1\ Xt\text{-}1 + \sum_{t=1}^{m} YtYt\text{-}1 + eit \text{ ----------} \quad (11)$$

$$Xc = \propto 2 + \sum_{t=1}^{n} O_1\ X_{t-1} + \sum_{t=1}^{m} \delta iyi - 1 + ezt \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (12)$$

RESULTS AND DISCUSSION

The table 1 above shows the Breusch-Godfrey Serial Correlation LM test. The result of the test reveals that the probability values of 0.899782 (90%) and 0.884414 (88%) is greater than the critical value of 0.05; that is (90% & 88% >5%) this implies that the null hypothesis of no autocorrelation will be accepted because the p-value of about 90% & 88% is greater than the c-value of 5%.

The table 2 above shows the White Heteroskedasticity test. The result reveals that the p-values of 0.444630 (44%) and 0.384852 (38%) are greater than the c-value of 0.05; that is (44% & 38% > 5%), this implies that we accept the null hypothesis of no evidence of heteroskedasticity, since the p-values are considerably in excess of the 0.05.

The table 3 above shows the Ramsey RESET test. The result reveals that the p-values of 0.917275 (92%) and 0.904546 (90%) are greater than the critical value of 0.05 (5%); that is (92% & 90% > 5%) this implies that there is apparent linearity in the regression equation and so it will be concluded that the model is appropriate.

The table 4 above shows the result for Jargue Bera test for normality. The result reveals that the p-value of 0.062363 is greater than the critical value of 0.05, that is (0.06>0.05), hence we accept the null hypothesis of normality at the 5% level.

The table 5 above shows the Augmented Dickey-Fuller for Unit Root test of stationairty for real domestic product (RGDP) as proxy for economic growth.. The result reveals that the ADF value of -6.543573 is more negative than the critical value of 1% (-3.6959), 5% (-2.9750) and 10% (-2.6265), hence the null hypothesis of a unit root in first difference 1(I) data is rejected; this implies that the mean, variance and covariance are stationary at 1(0). Therefore, conintegration be used for the purposes of analysis (Rawlings, 1998, Greene, 2002;

Wooldridge, 2006; Asterious and Hall, 2007; Brooks 2008; Gujarati and Porter, 2009; Kozhan, 2010).

The table 6 above shows the Augmented Dickey-Fuller for Unit Root test of stationairty for inflation (INF). The result reveals that the ADF value of -5.202151 is more negative than the critical value of 1% (-3.6959), 5% (-2.9750) and 10% (-2.6265), hence the null hypothesis of a unit root in first difference 1(I) data is rejected; this implies that the mean, variance and covariance are stationary at 1(0). Therefore, conintegration be used for the purposes of analysis (Greene, 2002; Wooldridge, 2006; Asterious and Hall, 2007; Brooks 2008; Gujarati and Porter, 2009; Kozhan, 2010).

The table 7 above shows the Augmented Dickey-Fuller for Unit Root test of stationairty for exchange rate (EXCH). The result reveals that the ADF value of -4.588281 is more negative than the critical value of 1% (-3.6959), 5% (-2.9750) and 10% (-2.6265), hence the null hypothesis of a unit root in first difference 1(I) data is rejected; this implies that the mean, variance and covariance are stationary at 1(0). Therefore, conintegration be used for the purposes of analysis (Greene, 2002; Wooldridge, 2006; Asterious and Hall, 2007; Brooks 2008; Gujarati and Porter, 2009; Kozhan, 2010).

The table 8 above shows the Augmented Dickey-Fuller for Unit Root test of stationairty for rate of interest (RIR). The result reveals that the ADF value of -5.096809 is more negative than the critical value of 1% (-3.6959), 5% (-2.9750) and 10% (-2.6265), hence the null hypothesis of a unit root in first difference 1(I) data is rejected; this implies that the mean, variance and covariance are stationary at 1(0). Therefore, conintegration be used for the purposes of analysis (Greene, 2002; Wooldridge, 2006; Asterious and Hall, 2007; Brooks 2008; Gujarati and Porter, 2009; Kozhan, 2010).

The table 9 above shows the Augmented Dickey-Fuller for Unit Root test of stationairty for government budget deficit (GBD). The result reveals that the ADF value of -5.869199 is more negative than the critical value of 1% (-3.6959), 5% (-2.9750) and 10% (-2.6265), hence the null hypothesis of a unit root in first difference 1(I) data is rejected; this implies that the mean, variance and covariance are stationary at 1(0). Therefore, conintegration be used for the purposes of analysis (Greene, 2002; Wooldridge, 2006; Asterious and Hall, 2007; Brooks 2008; Gujarati and Porter, 2009; Kozhan, 2010).

The table 10 above shows the Augmented Dickey-Fuller for Unit Root test of stationairty for gross investment (GI). The result reveals that the ADF value of -4.444059 is more negative than the critical value of 1% (-3.6959), 5% (-2.9750) and 10% (-2.6265), hence the null hypothesis of a unit root in first difference 1(I) data is rejected; this implies that the mean, variance and covariance are stationary at 1(0). Therefore, conintegration be used for the purposes of analysis (Greene, 2002; Wooldridge, 2006; Asterious and Hall, 2007; Brooks 2008; Gujarati and Porter, 2009; Kozhan, 2010).

Using the Johansen and Granger two stage techniques, the co-integration test result in table 11 above reveals that the residuals from the regression result are stationary at 1% level of significance. This means that inflation (INF), exchange rate (EXCH), government (GBD), rate of interest (RIR) and gross investment (GI) are co-integrated with real gross domestic product (RGDP) in Nigeria over 1981 to 2010 periods. In order words there exists a

long run stable relationship between the dependent and independent variables. This finding also reveals that any short run deviation in their relationships would return to equilibrium in the long run. It also shows that the deterministic trend is normalized at most 5** with co-integrating equations.

Table 12 above reported that the Vector Error Correction for government budget deficit and economic growth in Nigeria from 1981 to 2010 using auto-regressive regression techniques, the results clearly showed a well defined coefficient. The coefficient measures the speed at which INF, RIR, EXCH, GBD and GI measure the significant change in the RGDP. Furthermore the coefficient of determination (R-squared=0.704939) reveals that about 70% of the systematic variations in Nigeria real gross domestic product is jointly explained by INF, EXCH, RIR, GBD and GI using the ECM model. The F-test which is used to determine the overall significance of regression models, reveals that there exists a statistically significant linear relationship between the dependent and explanatory variables at 5% levels (F-value 121.46>F-critical value 0.05) in the ECM model. Specifically, inflation which is the INF explanatory variable in this study is negatively related to RGDP and others are positively related to RGDP in Nigeria as shown. The variables INF, RIR, GBD, and EXCH were insignificant but GI were statistically significant at 5% level. This finding is consistent with the findings of Dalyop (2010) that fiscal deficits had a negative, though insignificant impact on the growth of the real GDP as well as Fatima, Ahmed, and Rehman, (2012) in their study of Pakistan of consequential effects of budget deficit on economic growth of Pakistan for the period 1978-2009 found a negative impact of budget deficit on economic growth. Therefore, budget deficits in Nigeria have been shown from empirical analysis to have a dampening effect on the growth rate of the Real Gross Domestic Product: giving credence to the monetarist position that government budget deficits were counter-productive to economic growth. When government budget deficits are invested on non-self-liquidating ventures, such as consumption, the deficits ultimately result in increasing the national debt, which over time eventually result in recurrent deficits in the future when the principal and interest have to be repaid to the creditors. These recurrent deficits are therefore not necessarily utilized in furthering economic growth and development through national investments, but utilized in the repayment of accumulated national debt. Fiscal deficits thus become counter-productive. However, the statistical insignificance of this relationship suggests that fiscal deficits in the Nigerian economy are Ricardian. Fiscal deficits therefore have little effect on the level of economic activity (Huynh, 2007; Dalyop, 2010;

Table thirteen (13) above presents the econometric analysis of budget deficit and economic growth in Nigeria using Granger Causality test. The result suggests that inflation (INF) does not granger cause real gross domestic product (RGDP) because the probability of 0.32409 is greater than the critical value of 0.05, that is (0.32409>0.05), also real gross domestic product (RGDP) does not granger cause inflation (INF) because the probability value is greater than the critical value of 0.05 (0.11950>0.05); exchange rate does granger cause real gross domestic product (RGDP) because the probability value of 0.09749 is greater than the critical value of 0.05 (0.09749>0.05), also real gross domestic product (RGDP) does granger cause exchange rate because the probability is greater than critical value (0.40071>0.05); real interest rate (RIR) does not granger cause real gross domestic product (RGDP) because the probability value is greater than the critical value (0.09162>0.05), also real gross domestic product (RGDP) does not granger cause real interest rate because probability is greater than critical value (0.50992>0.05). Government budget deficit does not granger cause real gross domestic product (RGDP) that is (0.74159>0.05) and real gross domestic product does not granger cause government budget deficit (0.83532>0.05). Gross investment does granger cause real gross domestic product (0.04002<0.05) and real gross domestic product does not granger cause gross investment (0.35506>0.05). Therefore, the Granger Causality analysis suggests that governemtn budget deficit does not affect economic growth. This result is

consistent with the multiple regression output that budget deficit is not statistically significant with tax economic growth in Nigeria.

CONCLUSION, RECOMMENDATIONS AND POLICY IMPLICATIONS

This paper examined the government budget deficit and macroeconomic variables in Nigeria. The paper reviewed relevant literatures that provided mixed evidence of the use of the government budget deficit on achieving macroeconomic stability in developed and developing economies. This research empirically substantiated the results of prior studies of the level of relationship between government budget deficits and economic growth. The study highlights the various variables in the government budget deficit literature and economic growth of Obi and Nurudeen (2009), Keho (2010), Fatima, Ahmed and Rehman (2012). The empirical analysis provided that there is no statistical significance between government budget deficit and the economic growth in Nigeria. Therefore, the paper concludes that recurrent deficits are not necessarily used in furthering economic stability and development through national investments, but utilized in the repayment of accumulated national debt. Therefore, the following recommendations are provided to achieve an effective and efficient government budget deficit management in Nigeria: the examination of the fiscal system of Nigeria suggests the need for fiscal reforms so that the fiscal sector can perform a positive role in economic growth and development. Any fiscal reforms in Nigeria should be related to tax restructuring and less dependent on oil revenue. Therefore, the revenue mobilization effort needs to be strengthened and steps should be taken to modernize the tax administration system; there is a need for government expenditure reforms for the creation of an efficient fiscal system. Financial losses in the public sector enterprises have often been the root cause of persistent fiscal deficits in Nigeria; to increase private investment for accelerated growth would require the efficient mobilization and allocation of savings by the banking system and the capital market. Moreover, private sector investment for the expected higher output growth rates in the future would require demand signals. With macroeconomic balances restored in the recent years, the challenge now is to move to a higher growth path, fore fronted with private sector led growth; there is a need for development of both economic and political institutions that would improve macroeconomic policy making. Therefore, the fiscal responsibility Act should be implemented fully to avoid the leakages in the financial management system of government in Nigeria; the Nigerian government should reduce the level of massive corruption in the public sector for the fiscal responsibility and sustainability to be attained in the country. Therefore, the major policy implication that we draw from this study is that to reduce persistent problem of budget deficits in Nigeria, a reliable and sustainable strategy should focus more on reducing the public expenditure patterns. Any attempt to reduce budget deficits by raising taxes or revenues without reducing the level of government spending will be counter-productive.

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APPENDIX

Table 1: Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.016214	Probability	0.899782
Obs*R-squared	0.021134	Probability	0.884414

Source: e-view output

Table one above shows the

Table 2: White Heteroskedasticity Test:

F-statistic	1.046813	Probability	0.444630
Obs*R-squared	10.65707	Probability	0.384852

Table 3:Ramsey RESET Test:

F-statistic	0.011028	Probability	0.917275
Log likelihood ratio	0.014381	Probability	0.904546

Source: e-view output

Table 4: Jargue Bera Normality Test

Jargue Bera Normality	Critical value
0.062363	0.05 (5%)

Table 5: Augmented Dickey-Fuller Unit Root Test for RGDP 1(I)

ADF Test Statistic	-6.543573	1% Critical Value*	-3.6959
		5% Critical Value	-2.9750
		10% Critical Value	-2.6265

*MacKinnon critical values for rejection of hypothesis of a unit root.

Table 6: Augmented Dickey-Fuller Unit Root Test for INF 1(I)

ADF Test Statistic	-5.202151	1% Critical Value*	-3.6959
		5% Critical Value	-2.9750
		10% Critical Value	-2.6265

*MacKinnon critical values for rejection of hypothesis of a unit root.

Table 7: Augmented Dickey-Fuller Unit Root Test for EXCH 1(I)

ADF Test Statistic	-4.588281	1% Critical Value*	-3.6959
		5% Critical Value	-2.9750
		10% Critical Value	-2.6265

*MacKinnon critical values for rejection of hypothesis of a unit root.

Table 8: Augmented Dickey-Fuller Unit Root Test for RIR 1(I)

ADF Test Statistic	-5.096809	1% Critical Value*	-3.6959
		5% Critical Value	-2.9750
		10% Critical Value	-2.6265

*MacKinnon critical values for rejection of hypothesis of a unit root.

Table 9: Augmented Dickey-Fuller Unit Root Test for GBD 1(I)

ADF Test Statistic	-5.869199	1% Critical Value*	-3.6959
		5% Critical Value	-2.9750
		10% Critical Value	-2.6265

Table 10: Augmented Dickey-Fuller Unit Root Test for GI 1(I)

ADF Test Statistic	-4.444059	1% Critical Value*	-3.6959
		5% Critical Value	-2.9750
		10% Critical Value	-2.6265

Table 11: Johansen Cointegration Test

Date: 06/30/12 Time: 20:46

Sample: 1981 2010

Included observations: 28

Test assumption: Linear deterministic trend in the data

Series: RGDP INF EXCH RIR GBD GI

Lags interval: 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.802977	109.6484	94.15	103.18	None **
0.674085	64.16420	68.52	76.07	At most 1
0.493752	32.77284	47.21	54.46	At most 2
0.282182	13.71246	29.68	35.65	At most 3
0.142086	4.429379	15.41	20.04	At most 4
0.004928	0.138334	3.76	6.65	At most 5

*(**) denotes rejection of the hypothesis at 5%(1%) significance level

L.R. test indicates 1 cointegrating equation(s) at 5% significance level

Unnormalized Cointegrating Coefficients:

RGDP	INF	EXCH	RIR	GBD	GI
-0.057769	0.000826	0.002940	0.049039	-0.473828	0.058125
-0.074193	-0.013837	0.000650	0.031455	0.776345	-0.013990
-0.021491	0.012057	-0.000618	-0.024640	0.776788	-0.098362
-0.016967	0.004823	0.003114	-0.039852	0.217188	0.006917
0.030945	0.002188	-0.001776	-0.039041	-0.961281	-0.053830
0.039613	0.006798	-0.008827	-0.063285	-1.352457	-0.091848

Normalized Cointegrating Coefficients: 1 Cointegrating Equation(s)

RGDP	INF	EXCH	RIR	GBD	GI	C
1.000000	-0.014290	-0.050892	-0.848870	8.202053	-1.006151	25.01291
	(0.03407)	(0.01298)	(0.13381)	(4.36109)	(0.25914)	

Log likelihood -375.0294

Normalized Cointegrating Coefficients: 2 Cointegrating Equation(s)

RGDP	INF	EXCH	RIR	GBD	GI	C
1.000000	0.000000	-0.047894	-0.818629	6.873636	-0.921125	22.98387
		(0.01429)	(0.15886)	(3.91619)	(0.33128)	
0.000000	1.000000	0.209839	2.116153	-92.96054	5.949967	-141.9888
		(0.11310)	(0.25743)	(30.9986)	(2.62227)	
Log likelihood	-359.3337					

Normalized Cointegrating Coefficients: 3 Cointegrating Equation(s)

RGDP	INF	EXCH	RIR	GBD	GI	C
1.000000	0.000000	0.000000	-0.041841	-16.57816	1.256225	-16.84463
			(0.31732)	(13.9261)	(0.76707)	
0.000000	1.000000	0.000000	-1.287219	9.789701	-3.589740	32.51334
			(1.28867)	(56.5557)	(3.11519)	
0.000000	0.000000	1.000000	16.21896	-489.6620	45.46200	-831.5998
			(7.52362)	(330.187)	(18.1873)	
Log likelihood	-349.8036					

Normalized Cointegrating Coefficients: 4 Cointegrating Equation(s)

RGDP	INF	EXCH	RIR	GBD	GI	C
1.000000	0.000000	0.000000	0.000000	-17.27516	1.303577	-18.14854
				(10.0565)	(0.47400)	
0.000000	1.000000	0.000000	0.000000	-11.65316	-2.132985	-7.600619
				(43.8316)	(2.06595)	
0.000000	0.000000	1.000000	0.000000	-219.4820	27.10690	-326.1639
				(266.088)	(12.5417)	
0.000000	0.000000	0.000000	1.000000	-16.65828	1.131706	-31.16327
				(15.1183)	(0.71258)	
Log likelihood	-345.1620					

Normalized Cointegrating Coefficients: 5 Cointegrating Equation(s)

RGDP	INF	EXCH	RIR	GBD	GI	C
1.000000	0.000000	0.000000	0.000000	0.000000	1.269762	-13.96541
					(1.05445)	
0.000000	1.000000	0.000000	0.000000	0.000000	-2.155796	-4.778839
					(2.10004)	
0.000000	0.000000	1.000000	0.000000	0.000000	26.67728	-273.0170
					(17.1821)	
0.000000	0.000000	0.000000	1.000000	0.000000	1.099099	-27.12952
					(1.11660)	
0.000000	0.000000	0.000000	0.000000	1.000000	-0.001957	0.242147
					(0.05707)	
Log likelihood	-343.0165					

Source: e-view output

Table 12: Vector Error Correction Output

Date: 06/30/12 Time: 21:20
Sample(adjusted): 1984 2010
Included observations: 27 after adjusting endpoints
Standard errors & t-statistics in parentheses

	D(RGDP)
D(RGDP(-1))	0.512957
	(0.20691)
	(2.47916)
D(RGDP(-2))	0.496015
	(0.22757)
	(2.17963)
INF	-0.048381
	(0.06511)
	(-0.74311)
EXCH	6.95E-05
	(0.02026)
	(0.00343)
RIR	0.037509
	(0.15346)
	(0.24441)
GBD	0.830035
	(4.17406)
	(0.19886)
GI	0.370156
	(0.16077)
	(2.30239)
R-squared	0.704939
Adj. R-squared	0.626420
Sum sq. resids	388.9136
S.E. equation	4.409726
F-statistic	121.462406
Log likelihood	-74.32287
Akaike AIC	6.023916
Schwarz SC	6.359874

Mean dependent	0.513333
S.D. dependent	4.639043

Table 13: Pairwise Granger Causality Tests
Date: 06/30/12 Time: 21:17
Sample: 1981 2010
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Probability
INF does not Granger Cause RGDP	29	1.01032	0.32409
RGDP does not Granger Cause INF		2.59173	0.11950
EXCH does not Granger Cause RGDP	29	2.95517	0.09749
RGDP does not Granger Cause EXCH		0.72992	0.40071
RIR does not Granger Cause RGDP	29	3.06831	0.09162
RGDP does not Granger Cause RIR		0.44644	0.50992
GBD does not Granger Cause RGDP	29	0.11108	0.74159
RGDP does not Granger Cause GBD		0.04409	0.83532
GI does not Granger Cause RGDP	29	0.61493	0.04002
RGDP does not Granger Cause GI		0.88663	0.35506

Source: e-view output

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