



ANALYSIS OF FISCAL DEFICIT SUSTAINABILITY IN NIGERIAN ECONOMY: AN ERROR CORRECTION APPROACH

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ABSTRACT

The study investigates the sustainability of fiscal policy in Nigeria over the period of 1980-2010 to determine whether or not the government has violated intertemporal government budget constraint. Using error correction method of analysis, the study revealed that fiscal policy was weakly sustainable in the economy of Nigeria. This study therefore recommends that government should improve on her tax revenue generation and other source of income but limit her expenditure to growth enhancing projects.

Keywords: Sustainability, Fiscal policy, Error correction, Constraint, Economy.

1. INTRODUCTION

Fiscal sustainability analysis has, in the recent time, become an important component of macroeconomic health analysis of countries. This is predicated on the fact that the usefulness of annual budgetary balances and the public debt figures for assessing the soundness of public finances has gradually gone into extinction. Fiscal sustainability of the government policies therefore, exists if the implementation of the government programmes does not threaten the solvency of a country now or in the future. Also, solvency requires that the current and future expenditures and income are reduced into a common denominator (Adams *et al.*, 2010), or the financial ability of the government to service its debt obligations in perpetuity without being explicitly defaulted. Although, the issues surrounding fiscal deficits as well as national debts are certainly not new, but an important fact is that threats to fiscal sustainability have serious implications for macroeconomic growth and financial stability of a country as well.

In less developed countries of Africa, Nigeria inclusive, the growth, size and persistence of fiscal deficit, over the years, have been blamed for much of the macroeconomic crises that encompass them in the recent times: over indebtedness and the debt crisis, high inflation rates as well as poor implementation of policies targeted at poverty level reduction in the region. Therefore,

attempts to regain macroeconomic stability through fiscal policy adjustments by most of African countries achieve little or no success, raising questions about the macroeconomic consequences of public debts and fiscal deterioration or fiscal stabilization (Easterly *et al.*, 1994).

Empirical researches have documented macroeconomic consequences of fiscal policy unsustainability. Budina and Sweder van (2009) find that a long series of balance of payments crises have a link to unsustainability of fiscal deficit, particularly the series of failed stabilization efforts. Oshikoya and Tarawalie (2010) pointed out that fiscal deficit financed through foreign loans would increase external debt burdens which directly jeopardize current accounts sustainability. Consequently, a large accumulation of debts naturally generates a debt overhang that creates a permanent macroeconomic climate of financial instability for an economy. Therefore, sustainability analysis is crucial for an economy that has long term development plan such as Nigeria with vision 20: 20-20, as large debt servicing obligations crowd out necessary resources for social and economic development, thereby exacerbating poverty level. It should therefore, be noted that most of the research works in Nigeria concentrated on fiscal deficit and its implications on other macroeconomic variables such as Oladipo and Akinbobola (2011), Ezeabasili and Mojekwu (2011), (Obi and Nurudeen, 2009), Dalyop (2010), Chimobi and Igwe (2010) among others. To our knowledge, other authors have examined the consequences of fiscal deficit on macroeconomic variables. However, the study investigates the sustainability of fiscal deficit in Nigeria between 1980 to 2010. This is with a view to establishing whether or not the intertemporal government budget constraint has been violated within the period.

The paper has been divided into five sections. Section one is the introduction, while section two contains review of literature: conceptual framework and empirical review on sustainability. Section three discusses methodology of studying sustainability and section four analyses relevant data with an interpretation of the results. Section five contains the conclusion and recommendations.

2. REVIEW OF LITERATURE

2.1 Review of Conceptual and Empirical Literature

There are two prominent conceptual approaches to analyse fiscal sustainability; the accounting approach and the present value constraint (PVC)/econometric approach. The starting point for the two approaches is the temporal financial constraint or consolidated public sector which is generally known as government budget constraint (Cuddington, 1996).

Following Cuddington (1996) accounting approach is sometimes viewed as a way to assess fiscal sustainability. It could also be interpreted as a way of assessing the mutual consistency among a number of macro policy targets; inflation rate, interest rate, etc. Summarily, the approach focuses on a particular debt ratio, typically constant ratio of debt to real GDP which focuses on steady-states and assumes that a fiscal deficit (or surplus) that leads to unchanging (constant) debt/GDP ratios over time is sustainable. The implication is that a primary deficit (or surplus) is

said to be sustainable if it does not generate an ever-increasing debt/GDP ratio, given a specified real GDP growth target and constant real interest rate.

The PVC/econometric approach, to determine the equation of government budget constraint, a set of assumptions are made; (a) that all debt is in the form of domestic bonds B with a nominal interest rate equal to I_t . (b) that debt is also real and is paid over a period of time. The approach states that the debt stock i.e. the initial debt, when measured in present value terms, vanishes in the limit. By implication, there exists No Ponzi Game (NPG) in financing debt; that is, the government is not 'bubble'-financing its expenditure by issuing new debt to finance the deficit. This is analogous to saying that the deficit is sustainable if and only if the stock of debt held by the government is expected to grow not faster than the average real rate of interest, which is viewed as a proxy for the growth rate of the economy. In another word, this condition states that the present value of the government's debt in the indefinite future converges to zero. The NPG condition is typically justified by arguing that lenders would presumably not allow a government to perpetually pay its entire current interest obligation merely by borrowing more. This is so-called Present Value Constraint (PVC).

The foregoing frameworks have copiously found applications in most existing empirical analysis of fiscal sustainability. [Oshikoya and Tarawalie \(2010\)](#) investigated sustainability of fiscal policy of West African Monetary Zone (WAMZ) countries. Using annual time series data to perform co-integration for the period 1980 to 2008, their empirical result revealed that fiscal policy was weakly sustainable for all the countries under investigation, including Nigeria, except Sierra Leone whose fiscal policy was found to be unsustainable. However, the authors result was in doubt as they failed to provide information about the statistical significance of the β through which weak or strong sustainability can be determined [Quintos \(1995\)](#). They used Johansen co-integration method instead of Engle-Granger 2-step procedure that could afford testing for statistical significance of the vector β .

[Ariyo \(1993\)](#) investigated fiscal sustainability in Nigeria over the period 1970 to 1990, using sustainability indicators. He found that the policy of fiscal deficit was not sustainable due to post civil war reconstruction efforts that occasioned the protracted increase in fiscal deficit. However, it is on record that the deficit continues even a long period after the war. It should be noted also that the transition to democratic administration could definitely change the fiscal behaviour of the government which has implication for debt profile. More importantly, a lot of events have taken place after 1990 when the study was conducted such as debt forgiveness and increasing revenue from oil exports which could have brought reduction to fiscal deficit in Nigeria.

[Jibao et al. \(2012\)](#), applied conventional linear co-integration test, tested the asymmetry relationship between revenue and expenditure i.e. making a distinction between the adjustment of positive (budget surplus) and negative (budget deficit) deviations from equilibrium. They used quarterly data on South Africa. The authors found that fiscal policies were sustainable though the authorities in South Africa were more likely to react faster when the budget was in deficit than when in surplus and that the stabilization measures by government were fairly neutral at low deficit

levels, that is, at quarterly deficit levels of 4% of GDP and below. They submitted that the increasing tension amongst local communities complaining about poor service delivery by the government could be a recipe for fiscal unsustainability. However, their finding was in contrast with the Lusinyan and Thornton's. Eyitayo (2010) investigated the sustainability of the current account balances of ten ECOWAS economies in 1980 to 2006. According to the author, the empirical investigation was carried out with a view to providing an insight into the possibility of achieving ECOWAS's goal of common currency in the region. The study employed Vector- Auto Regression technique of analysis. The results showed that, out of the ten countries, only Burkina Faso, Ghana and Nigeria had their current account balances sustainable. Although, Nigerian current account sustainability provided an insight to the economic relationship between Nigeria and the outside world. However, the author was not in line with internal consistency of fiscal policies unarguably relied upon to generate stability of the economy. Authors like Abdunnasser (2002) for Sweden, Anand and Wijnbergen (1989) for Turkey, Lusinyan and Thornton (2009) for South Africa, Adams *et al.* (2010), for Asian countries, and many others have investigated fiscal policy sustainability for different countries.

3. Empirical Model and Analytical Techniques

This study employs Present Value Constraint (PVC)/econometric approach as methodology for modeling the empirical analysis of fiscal sustainability pioneered by Hamilton and Charles (1985) and Hakkio and Rush (1991). The choice of this methodology is as a result of the fact that the approach is predicated on recent advances in the econometrics of non-stationary and co-integration methodology for analyzing fiscal sustainability. In addition, contrary to the accounting approach, the (PVC)/econometrics does not make assumptions that debt can continue to grow at the growth rate of the GDP in the economy, so that debt/GDP ratios remain constant, leaving rather no role that lenders ultimately play in the economy. More importantly, the accounting approach considers seigniorage (printing more money by central bank to finance deficit) as a major variable in assessing sustainability, a variable which has never been considered in financing deficit in Nigeria.

Adopting Cuddington (1996) and Jibao *et al.* (2012), to determine the equation of government budget constraint, given the assumption that all debt is in the form of domestic bonds B with a nominal interest rate equal to I_t , budget constraint in nominal terms is simply:

$$B_t = B_{t-1} + I_t B_{t-1} - P_s \dots \dots \dots (1)$$

From equation (1), we obtain equation (2) by factorization;

$$B_t = (1 + r_r) B_{t-1} - P_s \dots \dots \dots (2)$$

Where B_t denotes current debt of government measured at the end of period t , B_{t-1} is the outstanding debt at period $t-1$, I_t denotes the domestic interest rate in period t and P_s is the primary surplus. The following assumptions are made; time is discrete, debt matures in one period, and financing and interest payments take place evenly throughout the year.

Rewriting equation (2) by dividing it by price index P_t such as the GDP deflator or CPI, moreover, the auxiliary assumptions required in the econometric tests of sustainability are more

likely to be satisfied if we consider real debt. Dividing both sides of (2) by P_t , making use of $P_t/P_{t-1} = 1 + \pi_t$ where π_t is the domestic inflation rate between t-1 and t. Equation (2) yields

$$B_t/P_t = (1 + r_t) B_{t-1}/P_t - P_s \Rightarrow b_t = \frac{(1+r_t)b_{t-1}}{(1+\pi_t)P_t} - p_s \dots\dots\dots(3)$$

Equation (3) above becomes

$$b_t = (1+r_t)b_{t-1} - p_s \dots\dots\dots(4)$$

Equation (4) is the real values of the variables denoted in small letters which describes government budget constraint. Given time paths for i_t and P_s , the government financing constraint in (4) describes the time path of the stock of debt, i.e., the dynamics of debt accumulation or otherwise. It is straightforward to rewrite the financing constraint in (4) in terms of ratios to GDP, denoted by Y_t . Use the identity $Y_t/Y_{t-1} = (1 + g_t)Y_{t-1}$, where g_t is the real GDP growth rate between t-1 and t and use arithmetic analogous to that used in deriving (4) from (3).

$$\frac{b_t}{Y_t} = \frac{(1+r_t)b_{t-1}}{(1+g_t)Y_{t-1}} - \frac{p_s}{Y_t} \dots\dots\dots (5)$$

$\frac{b_t}{Y_t} = b_t$ is the ratio of current debt to GDP, $\frac{(1+r_t)b_{t-1}}{(1+g_t)Y_{t-1}} = \frac{1+r_t}{1+g_t} b_{t-1}$ is the ratio of initial debt to GDP and

$\frac{p_s}{Y_t} = p_s$ is the ratio of primary surplus to GDP. Then equation (6) becomes;

$$b_t = \frac{(1+r_t)}{(1+g_t)} b_{t-1} - p_s \dots\dots\dots (6)$$

From (6), the change in the debt/GDP ratio equals:

$$\Delta b_t \equiv b_t - b_{t-1} = \frac{(r_t - g_t)}{(1+g_t)} b_{t-1} - p_s \dots\dots\dots (7)$$

Where p_s is the ratio of real primary surplus to GDP. Thus, in the simple case where seigniorage revenue and foreign borrowing are ignored, the sustainable primary surplus to GDP ratio is determined by setting the change in the debt/GDP ratio in (7) equal to zero, then;

$$p_s = \frac{r-g}{1+g} b_{t-1} \dots\dots\dots(8)$$

This is the level of the primary surplus that would be required each year to keep the debt/GDP ratio constant at its current level. In this case, p_s in equation (8) should be interpreted as the primary surplus inclusive of sustainable seigniorage revenue (as a ratio of GDP). The seigniorage revenue is typically calculated by assuming that the ratio of real high-powered money to GDP is a negative function of the inflation rate, with the relevant elasticity taken from estimated (high-powered) money demand functions. The target inflation rate is then used to calculate the steady-state monetary base/GDP ratio and the resulting seigniorage (Cuddington, 1996). The above analysis completes the process of accounting approach.

With the government budget constraint in real level terms, not ratios to GDP, as in (4) above, making B_{t-1} the subject of the formula:

$$b_{t-1} = \frac{b_t}{1+r_t} + \frac{p_s}{1+r_t} \dots\dots\dots (9)$$

This expression can then be iterated forward N periods. If we make the simplifying assumption that real interest rates are constant over time, the result of this forward iteration:

$$b_{t-1} = \sum_{j=0}^N \frac{p_s}{(1+r)^{j+1}} + \frac{b_{t+N}}{(1+r)^{t+N}} \dots \dots \dots (10)$$

The assumption of a constant interest rate is made here for expositional convenience.

Here, the so-called No Ponzi game (NPG) condition is invoked to argue that the last term in (10) goes to zero in the limit i.e.

$$\lim_{N \rightarrow \infty} \frac{b_{t+N}}{(1+r)^{t+N}} = 0 \dots \dots \dots (11)$$

Equation (11) states that the debt stock, when measured in present value terms, vanishes in the limit. By implication, it excludes Ponzi financing; that is, the government is not ‘bubble’-financing its expenditure by issuing new debt to finance the deficit.

Assuming that the NPG condition in (11) is satisfied, it is easy to see from (10) that the government debt, at any point in time, must equal the present value of its expected future primary surpluses:

$$b_{t-1} = \sum_{j=0}^N \frac{p_{t+j}}{(1+r)^{j+1}} \dots \dots \dots (12)$$

The above equation (12) is called intertemporal government budget constraint.

b_{t-1} is the value of initial debt, p_{t+j} represents primary balance while $(1+r)^{j+1}$ is the discounting factor. This is the so-called present value constraint (PVC).

The (PVC)/econometric approach to evaluating fiscal sustainability involve econometric techniques instationarity and co-integration analysis. The starting point for these tests is to take the first difference of equation (10) to get an empirical testable representation of the intertemporal government budget constraint. Following [Jibao et al. \(2012\)](#), equation (12), the intertemporal government budget constraint can be written as follows:

$$G_t - R_t = \sum_{j=0}^{\infty} (1+r)^{-j+1} (\Delta R_{t+j} - \Delta G_t + r B_{t+j}) \dots \dots \dots (13)$$

Where $(1+r)^{-j+1}$ is the discounting factor while ΔR_{t+j} and ΔG_t are differences of government revenues and expenditure respectively. The inter-temporal budget constraint, under the no-Ponzi scheme rule, imposes restrictions on the time series properties of government expenditure and revenue given by the right hand side of equation (13). This will be stationary, as long as government expenditure, revenue and the stock of debt are all stationary in first differences. Specifically, if (G_t) and R_t are I(1), they will be co-integrated, implying that there exists an error-correction mechanism pushing government finances towards the levels required by the inter-temporal budget constraint [Jibao et al. \(2012\)](#). Consequently, equation (13) can be rewritten as

$$G_t = \alpha + R_t + \lim_{i \rightarrow \infty} \frac{B_{t+i}}{(1+r)^{j+i}} + \varepsilon_t \dots \dots \dots (14)$$

Equation (14) forms the basis for testing the hypothesis of sustainability of fiscal deficit. If the transversality condition for the budget constraint holds and the limit term in (14) is zero, we obtain the equation below;

$$R_t = \alpha + \beta G_t + \varepsilon_t \dots\dots\dots(15)$$

along with the null hypothesis of $\beta = 1$ and ε_t is a stationary process (Quintos, 1995). From the above, (R_t) is the government revenue, α is a constant parameter, β represents the slope of the equation, (G_t) is the government expenditure and ε_t is the error term of the model.

Following Quintos (1995), the deficit is strongly sustainable if and only if the I(1) process of R and G are co-integrated and $\beta = 1$. The deficit is only weakly sustainable if R and G are co-integrated and $0 < \beta < 1$ while fiscal policy is not sustainable if $\beta \leq 0$. He argued that $0 < \beta < 1$ satisfied both necessary and sufficient conditions of fiscal sustainability. Therefore, to test for sustainability or otherwise of the fiscal sustainability in Nigeria, this study, for co-integration test, uses the Engle-Granger 2-step procedure. Engle-Granger test for co-integration is used because it is widely accepted as a reliable test for causality between two or more variables. Also, this test estimates long-run models using Ordinary Least Squares (OLS) which provides reliable coefficients of the model (Doh-Nani, 2011). Applying the Engle-Granger test, the long run co-integration relation between government revenue and government expenditure (all as ratio of GDP) series are estimated by using OLS technique. Taking first differencing of both sides, equation (15) becomes;

$$\Delta(GREV_t) = \alpha + \beta \Delta(GEXP_t) + \varepsilon_t \dots\dots\dots (16)$$

Take the variables as stated above.

Quintos (1995) suggested that it is imperative to test the linear restriction for statistical significance of β . A linear restriction test for statistical significance of the co-integrating vector β is performed i.e. we test whether the coefficient of the independent variable is statistically different from 1. It should, however, be noted that the value of β needs not necessarily be 1 in absolute terms, but in statistical terms.

Furthermore, the short-run nexus between revenue and expenditure of Nigeria are estimated using error correction model (ECM). It is noted that if co-integration relationship exists between government revenue and government expenditure, there is always a presence of corresponding error correction representation (Doh-Nani, 2011). The process assists in ascertaining the co-integrating relationship between the variables of interest as change in government revenue does not only depend on change in the government expenditure and its own past values, but also on the extent of disequilibrium between the levels of these variables. Therefore, the study uses the first difference of the variables. Equation (16) is hereby specified in error-correction model of the form;

$$\Delta(GREV_t) = \alpha + \beta \Delta(GEXP_t) + \pi \Delta(ECM_{-1}) + \varepsilon_t \dots\dots\dots(17)$$

$\Delta(GREV_t)$ is the difference of government revenue, $\Delta(GEXP_t)$ is the difference of government expenditure and $\Delta(ECM_{-1})$ is the error correction model generated from the OLS residuals estimated in equation (18). π is the coefficient of the error correction term which incorporates feedback in the relationship between revenue and expenditure. In another word, the coefficient of

the error correction term represents speed of adjustment to long run equilibrium following shocks to the system. Hence, it captures the transitional dynamics of the system to the long-run equilibrium (Doh-Nani, 2011).

The data set used for this empirical analysis consists of annual time series data for the period 1980 to 2010 on total government revenue (GREV) and government expenditure (GEXP) inclusive of interest payments on debt. All variables are expressed as ratio of GDP. Data were obtained from the Central Bank of Nigeria Statistical Bulletin, 2009 and 2010 issues.

4. DATA ANALYSIS AND RESULTS

4.1. Stationarity Test

Given the recent developments in time series modelling, unit root tests of the variables in the model were performed to determine their time series properties or characteristics. The order of integration of the series was ascertained using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests statistics. The ADF test assumes that the residuals from the test equation are normal but the PP test does not make any assumption about the residuals of the test equation. Similarly, the essential condition for testing for long run relationship in time series is that the variables are integrated of order one i.e. $I(1)$, that is, stationary in the first difference. The results of the unit root tests are provided in Table 1

Table-1. Result of the Unit Root Test

Variables	ADF		PHILLIP-PERRON		
	LEVELS	1 st Difference	LEVELS	1 st Difference	Order of Integration
GREV. (Constant)	-6.858*	-6.735*	-6.812*	-11.606*	I(0) and
(Constant & Linear)	-6.768*	--6457*	-6.688*	-10.606*	I(1)
GEXP. (Constant)	-3.738*	-8.469*	-3.696*	--15.188*	I(0) and (1)
(Constant & Linear)	-4.777*	-8.339*	-4.814*	--15.063*	

Note: (*) indicates rejection of the null hypothesis of non-stationary at 1 percent significance level based on the MacKinnon critical values.

Source: Author's Computation

In this study, the results of the unit root test, using ADF and PP tests, showed that there was presence of unit root in government revenue and government expenditure (all as ratio of GDP) series at levels, but there existed an indication of stationarity after first differencing of the variables. Therefore, we concluded that all the variables were stationary and integrated of order one.

4.2. Co-integration Test

Having established that government revenue and expenditure are integrated of the first order $I(1)$, we continued to assess the potential long run relationship between government revenue and government expenditure. In this case, we test whether government revenue and expenditure are co-integrated. This is because stationarity of the variables of interest has satisfied the prerequisite of using the econometric technique of analysis. Doh-Nani (2011), also argued that stationarity of the

variables is a necessary condition for testing sustainability of fiscal deficit. We apply the Engle-Granger 2-step procedure of co-integration. Table 2 and 3 below present the results of the co-integration.

Table-2.Engel-Granger Co-integration Test (OLS)
Dependent Variable: GREV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GEXP	0.464813	0.087966	5.284035	0.0000
C	4.770620	1.671003	2.854944	0.0079

Source: Author's Computation

In the second step to the Engle-Granger 2-step procedure of cointegration, the estimated OLS regression of relationship between government revenue and government expenditure generated residuals. The residuals generated are then subject to the unit roots test, using ADF and PP. Following the procedure, rejecting the null hypothesis of the presence of unit root in the residuals indicates rejection of the null hypothesis of no co-integration. The result of the unit root test for the residuals is represented in table 3 below.

Table-3.Test for Unit Root in Residuals

Variable	ADF	PHILLIP-PERRON
RESID. (Constant)	-5.384577**	-5.375209**
(Constant & Linear)	-6.101181**	-6.095413**

**indicate rejection of the null hypothesis of non-stationary at 1% significance level based on the MacKinnon critical values.

Source: Author's Computation

The test of the unit root in residuals generated from OLS estimation as shown in Table 3 revealed that the residuals are stationary at levels i.e. I(0), rejecting null hypothesis of the existence of unit root at 1% significance level. In this case, co-integration (long-run relationship) exists between government revenue and government expenditure which reveals that fiscal policy is sustainable in Nigeria. The intuition behind the existence of co-integration between the variables is that, although government expenditure and government revenue may grow over time, a stable equilibrium i.e. co-integrating relationship exists between them. Specifically, a fiscal policy is sustainable if either government expenditure or government revenue does not drift away over the long run. In other words, expenditure and revenue can drift apart from equilibrium for a while over the short run, but economic forces and/or fiscal policy (government action) bring them back together over the long run.

To determine whether there exists weak or strong sustainability of fiscal policy in an economy, assuming that both variables are I(1), strong sustainability occurs if there is co-integration and the slope coefficient is unity, $\beta = 1$ while weak sustainability occurs when co-integrating vector β is statistically less than one, regardless of the order of integration of the residuals. Therefore, we test

the linear restriction for statistical significance of β , using Wald coefficient restriction test. The result of the Wald statistical restriction test is presented here below.

Table-4.Wald coefficient restriction Test

Equation	Coefficient	F-statistic	Std-Error	t-statistic	Prob.	Null Hyp.
$\Delta(\text{GREV})=f\Delta(\text{GEXP})$	0.535116	36.97662	0.08800	6.080840	0.0000	$\beta=1$

Source: Author's Computation

Table 4 shows that the study fails to reject the alternative hypothesis of $\beta \neq 1$ at 1 percent significance level where government revenue depends on government expenditure. Hence, it is concluded that the coefficient ($\beta = 0.54$) is statistically different from one at 1 percent level of significance.

4.3. Error Correction Analysis

To estimate the short-run dynamic relationship between government revenue and government expenditure, the error correction model (ECM) in this study employed the first difference of the variables and the changes in the variables represented elasticity while the coefficient of the ECM denoted speed of adjustment of government revenue back to the long run relationship of government expenditure. The results of the short-run model of the relationship between government revenue and government expenditure were presented below.

Table-5.Error Correction Model (dependent variable $\Delta \ln \text{GREV}$)

Variables	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.201905	0.390081	-0.517599	0.6090
$\Delta(\text{GEXP})$	0.558891	0.074123	7.540029*	0.0000
ECM_{-1}	-0.824547	0.154777	-5.327328*	0.0000

Source: Author's Computation

From Table 5, the coefficient of ECM presented the conventional negative sign and statistically significant at 1 percent, which further confirmed the long run relationship (co-integration) between the variables. This also suggests that, in the long run when budget deficit exceeds that of the past period, the error correction term works to push government revenue back towards the path of equilibrium.

Accordingly, it also indicated that 83 percent of disequilibrium between government revenue and expenditure generated in Nigerian economy was restored yearly following shocks to the economy. Therefore, there was a high rate of convergence toward equilibrium. Any disequilibrium within the budget deficit of Nigeria in the short run was highly adjusted and converged back to equilibrium in the long run. However, the coefficient of government expenditure was still less than one, therefore, this result indicated weak sustainability of fiscal policy sustainability of Nigeria's economy and it confirmed the result obtained from co-integration analysis.

5. SUMMARY AND CONCLUSION

The study investigated the sustainability or otherwise of fiscal policies in Nigeria from 1980 to 2010, to determine whether or not government has violated intertemporal government budget constraint. Based on the results obtained, the study concluded that Nigeria's fiscal policy is weakly sustainable. This finding is not at variance with the result of Oshikoya and Tarawalie (2010). The implication of this result is that the budget deficit of Nigeria will explode over the long run. Hence, it is not possible for government of Nigeria to continue generating stable debt-to-GDP ratio indefinitely. Because of this reason, government cannot continue to finance its debt which accumulates from budget deficit without necessary adjustment to the balance of expenditure and revenue. Otherwise, the revenue capacity of government will not be able to support government expenditure in the long run or the situation may call for sudden fiscal adjustments which is inimical to economic stability of the country.

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