Sustainable Fiscal Management in Nigeria – A Triangulation Analysis

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Abstract

This study examines sustainable fiscal management in Nigeria for the period 1970-2011. Going by the proliferations of investigation techniques in the empirical literature due to the multi-dimensional nature of fiscal sustainability, we employed a barrage of tests such as the descriptive statistics, threshold parameters, unit-root and co-integration tests to, on the one hand, ascertain if fiscal sustainability holds in Nigeria and, on the other hand, cover the gap in empirical literature where these investigations were undertaken exclusively. Our results show that fiscal policy is both strongly and weakly unsustainable in Nigeria; given the disaggregated components of government expenditure. Although sustainability is attained between capital expenditure and government revenue but the government has to contend with liquidity problems since the growth of capital expenditure is higher than that of its revenue counterpart. More so, the fiscal operations of government remained cyclically intoned with changing policies and regimes in Nigeria. Despite the existence of fiscal rules as enunciated in the Fiscal Responsibility Bill (FRB) and various constitutional provisions; the sustainability of fiscal policies in Nigeria still remains elusive. This suggests that the mere existence of fiscal rules does not guarantee its sustainability.

1.0 Introduction

The growth and development paradigm has undergone series of transformation and redefinition since the time of traditional economists like Sen (1984), Goulet (1986) and a host of others.

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From the traditional economic growth concept to pro-poor growth and recently to inclusive growth; today, economists of all leanings speak of sustainable growth, development and macroeconomic dynamics which suggests that the future should not be mortgaged or compromised in a bid to undertaking business and economic activities today. It is in this dimension that this study on fiscal sustainability is properly situated.

Essentially, fiscal sustainability cannot be over-emphasized for a developing oil-producing economy such as Nigeria; especially going by the negative effects of the Dutch disease syndrome that has eaten deep into the fabric of the Nigerian society. Admittedly, the observation of fiscal rules is the first order condition for fiscal sustainability (Marnefee, Aarle, Van De Wielen and Vareeck; 2011) and, as such, Nigeria has recently adopted the Fiscal Responsibility Bill (FRB) – as the brainchild of the National Economic Empowerment Development Strategies (NEEDS) – precisely in 2007. The bill sets to commit all tiers of government to avoid financial recklessness, imbibe transparency and accountability in public finance and seeks to improve inter-government fiscal coordination to secure greater macroeconomic stability (Okogu, 2006).

Interestingly, this study seeks to cover a large gap in the empirical literature as most researchers that have worked on fiscal sustainability have only contributed to existing methodologies and also produce alternative statistical tests for the investigation of sustainable fiscal policies (see Chalk and Hemming, 2000; Aktas and Tiftik, 2008; Burnside, 2004; 2005; Polito and Wickens, 2005; Alvarado, Izquerdo and Panizza, 2004; Talv and Vegh, 1998). These studies focused on exclusive empirical analysis that could not be considered holistic enough going by the multi-dimensional perspectives to which fiscal sustainability can be related. In effect, empirical literatures on fiscal sustainability are replete with varying and distinct measures. While all of these different measures lack consensus, some measures are methodologically bias (see Chalk and Hemming, 2000).

Going by these dynamics, it becomes imperative to provide a holistic analytical perspective to fiscal sustainability in Nigeria through a triangulation analysis. There have been mixed views on the uses of triangulation in researches.

Some authors argue that triangulation is just for increasing the wider and deep understanding of the study phenomenon (see Olsen, 2004). While others have argued that triangulation is actually used to increase the study accuracy which in this case triangulation is one of the validity measures (see Webb, Campbell, Schwartz, & Sechrest, 1966; Smith & Kleine, 1986; Denzin, 1978; Golafshani, 2003). Creswell & Miller (2000) delineate triangulation as "a validity procedure where researchers look for convergence among multiple and different sources of information to form themes or categories in a study" In a broad way, triangulation is defined as the use of multiple methods mainly qualitative and quantitative methods in studying the same phenomenon (Jick, 1979) for the purpose of increasing the study credibility. This implies that triangulation is the combination of two or more methodological approaches, theoretical perspectives, data sources, investigators and analysis methods to study the same phenomenon.

The benefits of triangulation include "increasing confidence in research data, creating innovative ways of understanding a phenomenon, revealing unique findings, challenging or integrating theories, and providing a clearer understanding of the problem" (Thurmond, 2001, p. 254). These benefits largely result from the diversity and quantity of data that can be used for analysis. This remains the kernel of this study and the existing gap in empirical literature that this study seeks to cover. As such, we undertakes triangulation analysis through the use of theoretical analyses such as the unit-root tests, threshold analyses and cointegration analysis coupled with the use of atheoretical analyses of descriptive and trend analyses such as the graphical and tabular analyses.

The motivation for this study is predicated on the threat of fiscal insecurity as well as fiscal risk that have been raised by the members of the executives despite strong and improved macroeconomic indicators (CBN, 2012). More so, the government debt has started building up again and large proportion of total expenditure is devoted to recurrent expenditure and payment of wages and salaries for which some of the workers can be classified 'ghost' workers and the annual budget basically non-performing. Again, the issue of financial recklessness and budgetary indiscipline on the part of government administrations remains the order of the day as both the legislative and executive arms of the government have always been at loggerheads for unapproved expenditure votes and extra-budgetary spending; thereby aggravating the spate of fiscal crises in the country.

In addition to this introductory section, the remaining part of this study is divided into five. Section II considers the conceptual and measurement issues, section III relates the review of theoretical literature and empirical studies while section IV deals with methodological and analytical techniques. Section V estimates results and discusses research findings and section VI, being the last, conclude and proffer policy suggestions.

2.0 Review of Theoretical Literature

The theoretical literature for fiscal sustainability is anchored on three major strands viz; the convergence hypothesis, the Neoclassical and Keynesian propositions. Primarily, the convergence proposition is couched in finite, initial and infinite horizon outlook in relation to the convergence path with which the public-debt ratio threads (see Langenus, 2006). The first version, which was initiated by Domar (1944), predicts the convergence of debt ratio to a finite value, the second – which is enshrined in the study of Buiter (1990) and Blanchard, Chouraqui, Hagemann and Sartor (1990) requires convergence to an initial level while the last version popularised by Blanchard et al, (1990); implies that the debt ratio converges to zero. Given these multifarious dimension to fiscal sustainability, specific measurement indicator is lacking with different options revolving around real and nominal variables, gross or net debt level, nominal or market valuation of securities and delineation of government expenditure into recurrent and capital forms have been proposed (see Ballassone and Franco, 2000).

Besides, the sustainability of fiscal policy can be explained under the conditions to which fiscal policies are managed by observing existing fiscal rules (Marnefee, Aarle, Van De Wielen and Vareeck, 2011). It is from this thought that the motivation for both the (Neo)Classical and Keynesian propositions relate. According to Marnefee et al., (2011), fiscal rules can be categorized into two viz: (i) fiscal rules that primarily aim at restricting government spending, budgetary deficits and government debt in order to safeguard fiscal sustainability. The fiscal rules inspired by (neo) classical principles fall into this category. (ii) Fiscal rules that primarily aim at stabilizing macroeconomic fluctuations. These rules are guided by short-run (new) Keynesian principles of fiscal management.

On the one hand, the neoclassical economics, in its characteristics nature, rest on full employment equilibrium and symmetric market information without any room for policy impulses from the government to persuade policymakers to pursue balanced budget strategy. Government intervention through public expenditure is presumed to crowd-out private investment due to increasing interest rate. Fiscal rules based on (neo)classical principles concentrate on securing solvency of the government through the inter-temporal budget choice and also allow for public debt provided it is channeled towards productive investment that would yield a high return. In effect, this suggests that the solvency of government can go with public deficit since the present value of the discounted future amount is positive and higher, thus, amounting to the country's fiscal gap – that is, the measure of additional burden that will need to be imposed on future generations to satisfy the inter-temporal budget constraint. As a way of emphasis, the neoclassical theory presumed a long-run sustainability of fiscal policy through the balanced budget.

Going by the credence lend the Keynesian propositions on the heel of the 1930's Great Depression, cyclical revenues and expenses were proposed to mimic automatic market stabilization policies during recessionary period when balanced budget is favoured. This proposition is predicated on the Keynesian thought that market forces alone cannot be trusted to solely regulate the market and, thus, progressive tax rates and unemployment benefits are means through which the government regulates the market. The Keynesian's view suggests a short-term intervention to fiscal policy where diverse policy-mix – including bail-out measures – are employed during recessionary period to sustainability (Marnefee et. al., 2011).

3.0 Review of Empirical Literature

Empirical literatures on the subject matter have generally been divided into two prominent strands. These are those that harp on investigating fiscal sustainability under non-stochastic (certainty condition and constant discounting factor) environments – see for example the studies of Afonso, 2004; Hussin, Jauhari and Muszafarshah, 2012; Kredjl (2006) and Kia (2008) – and those which focus on stochastic (uncertain and risky) economic conditions – see Kia (2008). It is along these dimensions of empirical divides that we put up a review of empirical studies in line with existing time-series and time series cross-sectional data points.

In line with the first strand of empirical literature, Afonso (2004) conducted a cross-country study for the European countries for the period 1970-2003 through the use of cointegration and stationarity tests of analyses. The results of the paper revealed that with few exceptions, European Union governments might have sustainability problems, although debt-to-GDP ratios show signs of stabilizing at the end of the 1990s. However, a small number of countries emerged as less likely to exhibit sustainability problems namely Germany, Netherland, Finland, Austria and United Kingdom. Of these, Germany and the Netherlands almost appear as less likely to have sustainability problems (Afonso, 2004). More so, this result showed that even for those two countries, the absolute value of the relevant estimated coefficient in the cointegration relation is quite below unity implying that their budget deficit may not be sustainable with higher growth rates for expenditures than the growth rates of revenues. This, thus, has implication for inter-temporal primary deficit (Afonso, 2004).

This submission conformed to the findings in the study of Hussin, Jauhari and Muszafarshah (2012) which carried out an empirical study between fiscal sustainability and Gross Domestic Product (GDP) in Malaysia with the use of cointegration tests analysis under a Vector Autoregressive (VAR) framework coupled with the Vector Error Correction Modeling (VECM) technique for the period 1970-2009. The results indicated that the macroeconomic performance on the output in Malaysia was sustainable and thus further established that the levels of fiscal sustainability were sustainable in Malaysia. In effect, the results of the study which was based on an Error Correction Model (ECM) – showed that the conduct of fiscal policy within the sample frame was consistent with government policy but with a need for some fiscal adjustment.

It should be noted that Hussin et. al., (2012) employed a barrage of descriptive indicators for fiscal sustainability viz; ratio of government net financial liabilities, gross government interest payments, net government interest payments, government total disbursement, government total receipts, short-term nominal interest rate and long-term interest rate and suggested a simultaneous analysis of indicators and tests for fruitful policy evaluation and design.

While many studies in this strand arbitrarily trace the trends of fiscal policy to reach conclusion on the threshold for fiscal sustainability or otherwise, the work of Muhanji and Ojah (2011) which gauged the effect of governance infrastructures on debt sustainability in Africa reviewed a large retinue of sustainability thresholds computed by Manasse and Roubini (2009); Paltillio, Poirson and Ricci (2002) and those advanced by Highly Indebted Poor Countries (HIPC) initiatives. They employed simple Ordinary Least Square (OLS) to confirm the impact factor of debt indicators on institutional and macroeconomic variables.

Specifically, they employed the external debt to GDP measure – as the solvency indicator – and short-term debt to international reserves ratios – as the liquidity indicator; both serving as dependent variables respectively while political and legal infrastructures stood for institutional variables. After deriving an appropriate threshold level, they pointed to failure of appropriate levels of sustainable external debt, inadequate effective governance infrastructure and ineffective management of external shocks as important reasons why Africa's external debt problems have persisted.

In the same vein, Kredjl (2006) considered the Czech Republic for public finance sustainability. He employed many indicators of fiscal sustainability such as the sustainability revenue ratio and sustainable primary balance along primary-gap and tax-gap thread. It was found that the sustainable primary balance would stabilize the debt ratio in the long-run. However, compliance with this target required immediately raising taxes or cutting spending by almost 3.0% of GDP and containing any future spending pressures projected at 7.3% of GDP either by systemic reforms preventing age-related spending from rising or by annual discretionary spending cuts and tax increases. The paper introduced several sustainability indicators varying in how closely they are related to the inter-temporal budget constraint (the infinite and finite horizon gaps); whether they take account of the future evolution of spending (the primary-gap and the tax-gap); and, in the case of the future horizon indicators, what target value of debt is set at the end of the given horizon.

For the second strand, Kia (2008) is one of the studies on stochastic and varying discounting factors for fiscal sustainability, even though it was also predicted on non-stochastic conditions.

He investigated fiscal sustainability in two emerging countries – Iran (an oil-producing country) and Turkey (an agricultural country) under a multi-cointegration framework. He argued that the standard model of intertemporal budget balance suffices for the non-stochastic economic environments but adjusted with some underlying assumptions for stochastic variability between government debt and government revenues and spending. Complementing this, is the use of tax-smoothing model, following the study of Barro (1979, 1986), to cater for the peculiarity of Iran as an energy-producing country. He decried the cointegrating relationship between tax and revenue in developing oil producing economy; especially with unorganized and unstructured tax system as a misleading measure of fiscal sustainability.

Chalk and Hemming (2000) also assessed fiscal sustainability; both in theory and practice. The paper summarized the general analytical background especially those that focused on present value budget constraint; the various tests of sustainability (including sustainability indicators) and sustainability with uncertainty. They further assessed the way in which these methods have been approached on the different studies by the International Monetary Fund (IMF). In this context, various indicators such as non-increasing government debt – as an indicator of solvency, and an enduring current fiscal policy which is devoid of government solvency; were employed. The study found a discount between theoretical and empirical works on fiscal sustainability and concluded that most IMF studies in this regard were largely based on atheoretical technique with less attention paid to the present value budget constraint (PVBC) as an indicator of sustainable fiscal policy.

For advanced economies, fiscal rules – as enshrined in the controlled approach to budgeting process – were found instrumental to the absence of fiscal distress. Tapsoba (2012) while investigating whether national numerical fiscal rules (FRs) really shaped fiscal behaviours in 74 developing countries over the period 1990-2007 also found same conclusion as he controlled for self-selection problem in policy evaluation. He employed a treatment effect evaluation and found that the effect of FRs on structural fiscal balance is significantly positive, robust to a variety of alternative specification and varies with the type of FRs. In terms of policy implication, the paper suggested that the introduction of rule-based fiscal policy frameworks remain a credible remedy for governments in developing countries against fiscal indiscipline.

Besides, Afonso and Jalles (2012) revisited fiscal sustainability for OECD countries. They employed panel cointegration test and further observed the structural breaks for these countries over the period 1970-2010. In the study, they traced the causal relationship between government expenditures and revenues and sought to confirm the panel cointegration test with time series trend for fiscal sustainability for robustness and completeness purpose. The result showed lack of cointegration as well as absence of sustainability between government revenues and expenditures for most countries (except for Austria, Canada, France, Germany, Japan, Netherlands, Sweden and the UK) and improvements of the primary balance after previous worsening debt ratios for Australia, Belgium, Germany, Ireland, Netherlands and the UK. Causality link occurred from government debt to the primary balance for 12 countries (suggesting the existence of the Ricardian regime). Overall, fiscal policy has been less sustainable for several countries, and panel results corroborate the time series findings.

4.0 Theoretical Framework and Model Specification

Fiscal sustainability describes the condition of fiscal policies, perhaps, due to the persistent implementation of fiscal rules, absence of political apathy and the existence of an economy; that is free from perpetual debt accumulation. Stemming from this, fiscal sustainability has been considered a multi-dimensional concept (Chalk and Hemming, 2000). More so, fiscal sustainability has definitional applications. As such, fiscal sustainability can be considered from an historical dimension or from a futuristic perspective in relation to the projective use of information. This aligns with the adaptive and rational expectation hypotheses. For the adaptive expectation view, the existence of historical fiscal variables is econometrically investigated on whether they affect the government budget constraints. Through this, stationarity tests, as documented in the studies of Hamilton and Flavin (1986) and Trehan and Walsh (1991), were conducted on public finance variables with the null hypothesis that public finance variables are non-unit-root. Symbolically, this unit-root measure of fiscal sustainability, as enshrined in the inter-temporal budget constraint, is represented below:

$$D_t - D_{t-1}(1+\gamma) = E_t - R_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(1)$$

Where;

R_t = Government Revenue; E_t = Government Expenditure (inclusive of interest payments); D_t = stock of public debts; γ = mean of the real interest rate on that debt.

Obtaining the first difference of equation (1); we have:

$$\Delta D_t = E_t - R_t = \sum_{n=0}^{\infty} (\frac{1}{1+\gamma})^{n+1}[(\Delta R_{t+n} - \Delta E_{t+n}) - \Delta(\gamma_{t+n} - \gamma)D_{t+n-1}] + \lim_{n\to\infty}(\frac{1}{1+\gamma})^{n+1}\Delta D_{t+n}$$
….(2)

If the government obeys its intertemporal budget constraint, then, the expected present value of future primary surpluses must be equal to the current value of debt. This implies that:

$$\lim_{n\to\infty}(\frac{1}{1+\gamma})\delta_t(\Delta D_{t+n}) = 0 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(3)$$

Where; δ_t is the expected operator conditional on the information available at time t. The most common test of the sustainability hypothesis is to test whether debt is stationary, or I(0), in its first difference. As a sufficient condition for adaptive expectation, a collection of other scholars are concerned with the long-run equilibrium condition among public finance variables with the null hypothesis that no cointegration exist between them and accorded with over-arching sustainability criteria predicated on the value of government expenditure coefficient (see Afonso, 2004; Marinheiro, 2005; Mahdavi and Westerlund, 2011). This is, alternatively a cointegrating link between the revenue and expenditure as well as spending of government. That is;

$$R_t = \alpha + \beta E_t + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.(4)$$

Where; ε_t is the mean error term. This, together with equation (2) implies that the first difference debt can be written as;

$$\Delta D_t = E_t - R_t = (1-\beta)E_t - \alpha - \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots..(5)$$

Going by equation (5), Quintos (2005) and Afonso (2004) presupposes that debt is I(1) or I(2), in which case, fiscal sustainability can be of either strong or weak type. A proportional cointegration exists between revenue and expenditure and thus produces an expenditure coefficient; $\beta =1$ where ΔD_t is I(0); D_t is I(1) and the ε_t must be I(0). The case of weak fiscal sustainability where the coefficient of government expenditure ranges between 0 and 1, that is, $0<\beta<1$; is akin to sustainable but illiquidity of government's fiscal policy as the ΔD_t is I(1) so that D_t is I(2). In effect, fiscal sustainability presupposes that D_t is either I(1) or I(2) but Quintos (2005) informed that the case of absurdly weak sustainability describes a situation where an higher order of integration [above I(2)] is possible; even though it is theoretically implausible.

In another view, other authors such as Bohn (2005) and Crose and Juan-Raman (2005) have only considered a direct causal link between primary surplus and initial public debt ratio. A rising public debt is found sustainable given that it is below arbitrarily chosen target ratio. It is along this thread that Paltillo et. al; (2002) and Manasse and Roubini (2009) proposed macroeconomic thresholds for fiscal sustainability. According to the former, debt negatively affects per capita growth when debt to exports ratio is 160-170% and debt to GDP ratio is 35-40%. The latter gave four thresholds of fiscal sustainability such as total external debt threshold of 49.7% of GDP, low short term debt threshold of below 130% of reserve, low public external debt of below 214% of fiscal revenue and an exchange rate threshold not excessively appreciated with over-valuation below 48%. More so, the Highly Indebted Poor Countries (HIPC) initiatives pegged debt to export ratio to 150% and debt to Gross National Income (GNI) to 250% thresholds for fiscal sustainability. It is in this light that Muhanji and Ojah (2011) highlighted many indicators of debt management capacity and liquidity monitoring indicators viz; debt to GDP ratio, fiscal debt to exports ratio, government debt to current fiscal revenue ratio and share of foreign debt to total debt and short term debt to total debt.

As evident, the adaptive expectation view to fiscal sustainability is historical and could not be valid for the current analysis of public finance. Again, Bohn (2007) identified various shortfalls inherent in the methodological formations of both the stationarity and cointegration tests of fiscal sustainability by proposing an error-correction modeling framework.

Primarily, he opined that the rejection of low-level differencing and long-run equilibrium condition are consistent with the intertemporal budget constraint. Going by the various flaws noticed in the adaptive expectation dimension to fiscal sustainability, the rational expectation approach becomes relevant. This approach employs currently available information to predict future fiscal dimension of government deficits and debt dynamics. One aspect of the rational expectation views is enshrined in the inter-temporal fiscal analysis where the future generation would not bear the fiscal burden of the present generation. Although with many contrasting indicators as provided in the classical generational accounting set-up (see Langenus, 2006), the set-up have yielded many acceptable indicators of fiscal sustainability such as the permanent increase in the average pension that would necessarily equalize the generational burden of the youngest living generation and that of the future generation.

Again, long-term projection approach assessed the change in the ratio of ageing-related budgetary items (such as pension, healthcare, education expenditure) to GDP – being the total cost of ageing – over the period under review. Fiscal policy is unsustainable if debt ratio at the end of the period is high and rising. In effect, sustainability of public finance is concerned with the dynamics of balanced budget and public debt in relation to predetermined ageing costs. The final rational expectation view to fiscal sustainability is the synthetic indicators. This is predicated on certain sustainable debt ratio at a given future date in which an average tax rate is higher than the present value of the discounted future primary expenditure – known as the tax-gap (Blanchard, Chouraqui, Hagemann and Sartor; 1990). Premised on the shortcomings of the tax-gap ratio, the primary balance ratio was advanced instead by Delbecque and Bogaert (1994) and later refined by Langenus and Eugene (2005). The sustainability gap is the positive difference between required primary balance and the current one.

Summarily, a large retinue of methodological approaches has been adopted by researchers. In this study, we seek to identify the various channels with which fiscal policy can be sustainable or otherwise and it is upon these bases that we set forth various analytical techniques for investigations and estimations. Generally, growing tendency in the government debt level remained a prominent dimension to fiscal sustainability. Also, the existence of long-run equilibrium condition between government expenditure and revenue is another perspective to fiscal sustainability.

In this case, the understanding is that both revenue and expenses of government must have equilibrium condition that could keep both variables together into the long-run situation. Thirdly and even most importantly is the fact that for fiscal sustainability to be guaranteed, fiscal policies must follow some laid down fiscal rules. It is this perception that brought us to the main object of this study where we consider it necessary to consider fiscal sustainability of Nigeria around many indicators and measurement tools.

The analytical procedure for this study is therefore to establish whether fiscal policy is sustainable or otherwise in Nigeria for the time series period of 1970-2010 with data sourced from the Central Bank of Nigeria Statistical Bulletin (2011) and the World Development Indicators (2012). This will be done through the use of various tests of analyses ranging from descriptive, graphical and theoretical analyses to unit-root tests and cointegration analyses. Within this context, we observe various regime changes and policy variability during the period under review and then relate the implication for the dynamics of fiscal sustainability in the country. Significant policy periods in this regard include the 1986 Structural Adjustment Programme (SAP), the Military Era and Democratic dispensation in Nigeria; the debt forgiveness year of 2005 and the adoption of Fiscal Responsibility Bill (FSB) in 2007; thus, aptly justifying our choice of 1970-2011 as period of empirical investigations.

5.0 Estimations and Discussion of Findings

5.1 Graphical Trends of Fiscal Sustainability in Nigeria: 1970-2011

Figure 1: Trends of Structural Fiscal Balance
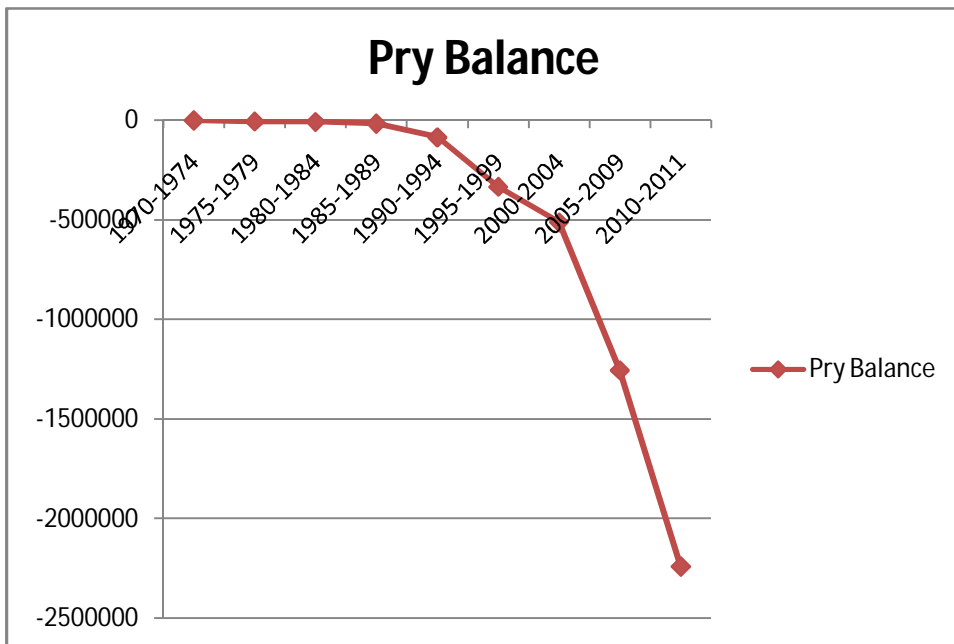
Source: Author

The trend depicted in Figure 1 above shows that Nigeria operated a balance budget from 1970 to 1987 and ever since, the primary balance has nose-dived and remained negative. This shows that Structural Adjustment Programme (SAP) had a side effect on the fiscal operations in Nigeria wherein the expenditure of the government has continually surpassed its revenue. This trend is highly instructive in that latter policy changes and structural breaks such as the democratic dispensation of 1999; the debt forgiveness of 2005 and Fiscal Responsibility Bill (FSB) of 2007; in which government at all levels are expected to follow fiscal rules for fiscal probity and transparency; could not save the situation but further worsen it.

Figure 2: Fiscal Balance Ratio to GDP
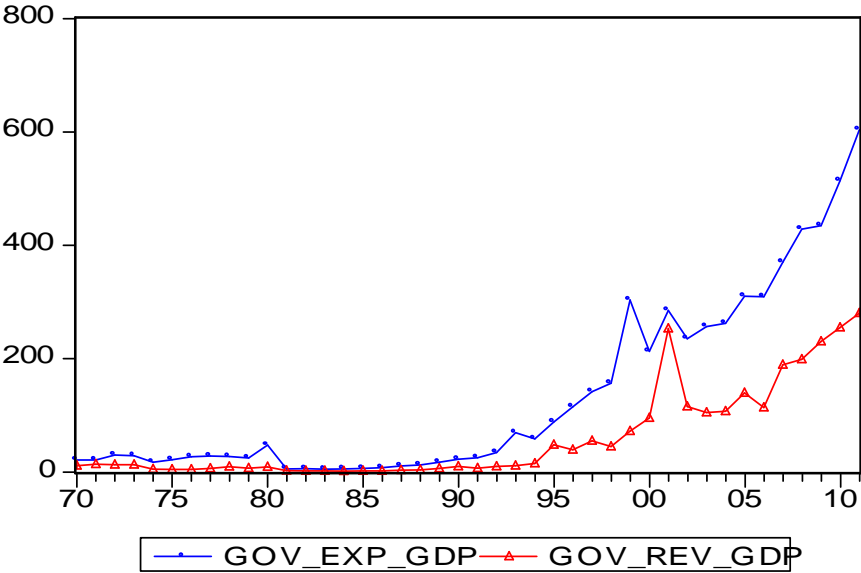
Obviously from Figure 2, the ratio of government expenditure to GDP (i.e. GovExp_GDP) overlaps with that of the ratio of government revenue to GDP in Nigeria from 1970-2011. Although both trended the same pattern but government expenditures rises over and above that of revenue over the latter time period. By implication, government had been running deficit budgeting most of the time under review.

5.2 Stylized Facts on Fiscal Sustainability in Nigeria

Table 1: Trends of Fiscal Operations in Nigeria: 1970-2011

| Indicators	1970	1975	1980	1985	1990	1995	2000	2005	2010	2011
Ex_Debt_GDP	4.2	1.3	5.9	8.6	111.6	254.7	940.9	479.6	92.2	n.a
Ex_Debt_Rev	37.4	28.2	64.8	419.2	1,139.1	529.3	984.9	343.3	36.2	n.a
Ex_Debt_Expo	19.8	7.1	13.2	147.6	271.7	75.4	159.2	37.2	6.3	n.a
Ex-Debt_GNI	n.a.	6.2	14.6	68.1	130.7	131.7	78.5	22.6	5.8	6.1
Debt_Int_Export	n.a	n.a	3.30	12.7	14.6	7.4	3.6	8.8	0.14	0.15
Debt_Int_GNI	0.002	0.17	1.50	6.30	8.40	3.50	1.90	5.10	0.06	0.07
Int_LT_Debt($'B)	0.255	4.54	529	1,286	2,123	859	690	4,937	59.3	96.2
Int_ST_Debt($'B)	0	0	379.3	436	32.0	56.0	64.1	63.7	43.6	45.3
LT_Debt_Stock($'B)	n.a	1,143	5,385	13,661	31,935	28,443	30,257	20,248	4,691	6,395
ST_Debt_Stock ($'M)	n.a	543.8	3,553	4,994	1,504	5,651	1,120	1,836	3,118	4,139
Total_Expendt(N'B)	0.904	5.943	14.97	13.04	60.27	248.77	701.06	1,822.1	4,194.2	4,299.2
Overall Deficit/Surplus(N'B)	-0.46	-0.43	-1.98	-3.04	-22.12	1.000	-103.8	-161.4	-1.105	-1.159
FGRR (N'B)	0.45	5.51	12.99	10.00	38.15	249.77	597.28	1,660.7	3,088.8	3,140.6
Recurrent Expenditure (N'B)	0.716	2.735	4.805	7.576	36.22	127.63	461.6	1,223.7	3,310.3	3,054.3
Debt_Serv_Ext_Debt ($'T)	0.299	269.8	1,151	4,429	3,336	1,833	1,855	8,871	358.7	418.3

Sources: World Development Indicator (2012); CBN Statistical Bulletin (2011). Note; FGRR = Federal Government Retained Revenue.

The estimates obtained in table 2 above will be compared with the validated threshold values computed by Manasse and Roubini (2009); Paltillo et. al., (2002); and also in accordance to the benchmark provided by the Highly Indebted Poor Countries' (HIPC) Initiative. Following this, the debt to GDP ratio remained sustainable till 1985 but immediately after then and coincidentally when SAP was adopted, it went beyond the estimated thresholds of 35-40% - precisely 111.6% in 1990; 254.7% in 1995; 940.9% in 2000 but declined to 479.6% in 2005 – and that even the post debt-forgiveness period (year 2005 and beyond) could not relieve since in 2010; this ratio is still 92.2%. The external debt to export ratio followed a different pattern as it grew above the threshold range of 160-170% in the year 1990, declines to 75.4% in 1995, increased to 159.2% in 2000 and declines to 37.2 in 2005 and further declines to 6.3% in 2010.

This shows that the export sectors of the Nigerian economy has fluctuated cyclically but has become robust enough to curtail the growing trend of external debt in the country such that not only did the debt forgiveness became meaningful by this indicator but has also decline significantly since that time. More so, it is evident that Nigeria experienced overall deficit throughout the periods of 1970-2011 and this patterned the trend in external debt to export ratio; except for 1995 where there exist an overall surplus of N1 billion and the lowest deficit recorded in both 1970 and 1975 with N0.46Billion and N0.43Billion deficit balance respectively while the year 2000 has the maximum with N103.8Billion deficit balance.

Also, the ratio of public external debt is expected to be below 214% of the fiscal revenue threshold. The estimates obtained for Ext_Debt_Rev ratio shows that this could not be sustainable since 1985 where the proportions were 419.2% in 1985; 1,139.1% in 1990; 529.3% in 1995; 984.9% in 2000; 343.9% in 2005 and 36.2% in 2010. The trend behaves cyclical in tandem with some structural policies and policy breaks such as the impacts of the SAP in 1986 which shut up this indicator to 1,139.1% in 1990 and the debt forgiveness is drastically reduces it to 36.2% in 2010 from 984.9% in 2005. The interest rates on debt as a proportion of export (proxied as Debt_Int_Export), the interest rate on debt as a proportion of Gross National Income (denoted as Debt_Int_GNI), the interest rate on long term debt (proxied as Int_LT_Debt), the interest rate on short term debt (indicated as Int_ST_Debt) and the debt service on external debt (proxied as Debt_serv_External_Debt) also followed the same dimension (see Table 1 above).

Nonetheless, the recurrent expenditure has majorly accounts for the larger proportion of the total expenditure bordering around 79.2% in1970; 46.0% in 1975; 32.1% in 1980; 58.1% in 1985; 60% in 1990; 51.3% in 1995; 65.8% in 2000; 67.2% in 2005; 78.1% in 2010 and 71.0% in 2011. This indicated that recurrent expenditure was highest in the post civil war era, perhaps, due to the post-war strategy of dividing the country into twelve (12) states by General Yakubu Gowon in order to upheld the unity of the Country, Nigeria. This is closely followed by the 2010 proportion with 78.1%. Except for a lower dip in 1990; this has remained continually increasing since 1985 with 58.1% to 78.1% in 2010. This falls to 71.0% in 2011.

Figure 3: Fiscal Management and Balances for the Periods: 1970-2011
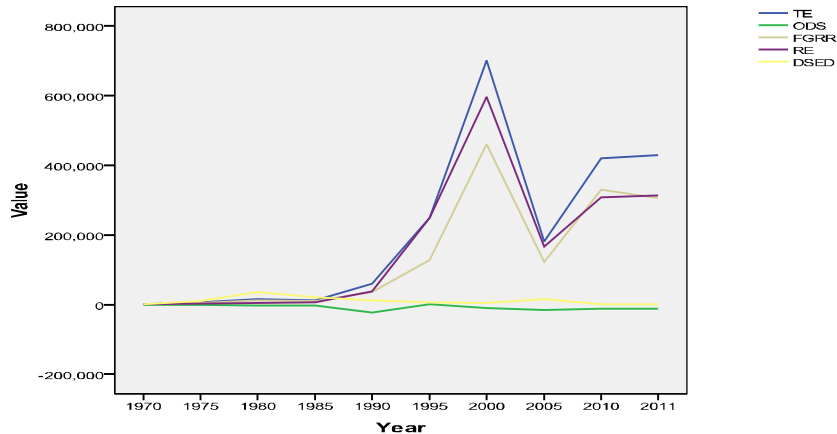
Note; TE is Total Expenditure, ODS is Overall Surplus/Deficit; FGRR is Federal Government Retained Revenue; RE is Recurrent Expenditure and DSED is Debt Service of External Debt.

The volatile nature of debt servicing of external debt on fiscal operations in Nigeria relatively declined in 1995 after a steady increase since 1970. This remains stable between 1995 and year 2000. This trend captures the change in public administration in the country. This period marks Nigeria as a relatively closed economy as the then government, maintained hostile economic interactions with many countries in the World including international capital market. During this period, Nigerian economy was virtually detached from international finance and investment due to the political atmosphere in operation. However, it portends a positive outlook for debt servicing in Nigeria as debt servicing on external debt during this period was stable.

Figure 4: Debt Management and Fiscal Sustainability for the Periods: 1970-2011
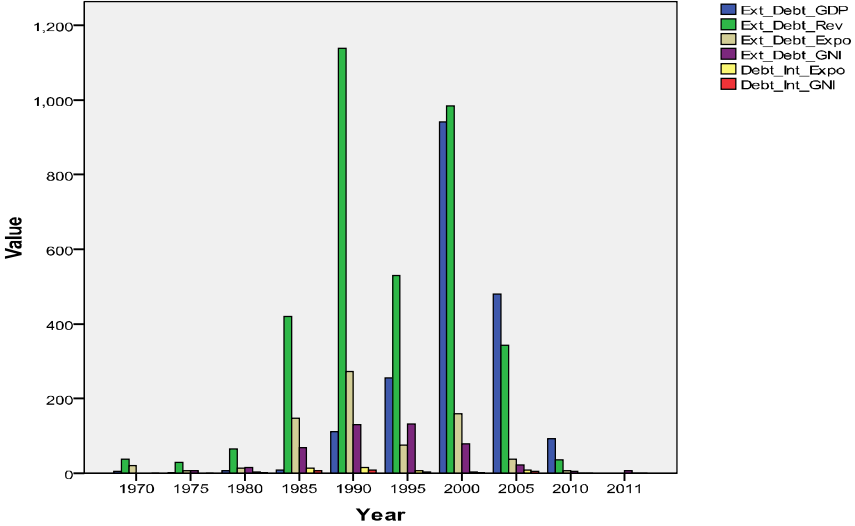
Source: Authors.

   The shock of the SAP in 1986 had a greater impact on the Debt-Revenue ratio in Nigeria as it maintained an all-time high thereafter. This subsides in 1995 which was the era that marked the peak of military incursion into the public cum political administration of Nigeria. The Debt-GDP ratio remained the highest in the year 2000; the period marking the beginning of Democratic dispensation in Nigeria. The implications of these policy changes are that the Nigeria economy is mostly susceptible to policy shocks and that policy lags are effectual.

Table 2: Descriptive Statistics on Fiscal Sustainability in Nigeria: 1970-2012

Indicators	Mean	Max. Values	Min. Values	Std. Dev.	Skewness	Kurtosis	Jarque-Pera (Probability)
Debt_Serv_Ext.	2.07E+09	8.87E+09	1.38E+08	1.78E+09	2.16	8.38	69.47 (0.000)
Debt_Export	158.43	412.07	12.57	124.73	0.49	2.15	2.48 (0.29)
Debt_GNI	67.47	161.71	5.63	51.88	0.26	1.69	2.88 (0.24)
LT_Debt_Stock	1.83E+10	3.27E+10	9.85E+08	1.12E+10	-0.23	1.39	4.07 (0.131)
ST_Debt_Stock	3.61E+09	7.46E+09	4.65E+09	1.83E+09	0.176	2.03	1.56 (0.458)
Debt_Int_Export	6.81	20.86	0.14	6.09	0.60	2.13	3.22 (0.20)
Debt_Int_GNI	2.92	8.42	0.06	2.66	0.64	2.12	3.15 (0.17)
Int_LT_Debt	8.50E+08	4.94E+09	52066000	9.10E+08	2.752	12.71	181.61 (0.000)
Int_ST_Debt	1.29E+08	7.00E+08	0.000	1.74E+08	1.72	5.00	23.05 (0.000)
Int_Debt_Total	9.81E+08	5.01E+09	52066000	9.29E+08	2.43	11.08	129.62 (0.00)
Tota_Expendt	857443.6	4299155	7406.7	1254756	1.587	4.386	17.49 (0.000)
Overall Deficit/Surplus	-148309.8	32049.4	-11585.2	288878.6	-2.66	9.05	94.57 (0.000)
Rec_Expenditure	575560.4	3310343	2,800.0	900149.5	1.76	5.15	24.75 (0.000)
Federal Government Retained Revenue	705817.5	3193440	5178.10	1025260	1.43	3.65	12.50 (0.000)

Source: E-Views Output with Data Sourced from WDI (2012) and CBN Statistical Bulletin (2011)

The descriptive statistics detailed in table 2 above show that all the indicators of fiscal sustainability and/or index of fiscal liquidity in Nigeria depart remarkably from their mean or average values. While the stock of long term debt and the overall deficit/surplus are negatively skewed, all other indicators skewed positively. The implication is that government's activities of fiscal operations have over time over-shoot the required thresholds which are healthy for the sustainability of fiscal policies in Nigeria. Lending credence to this submission is the estimates obtained for kurtosis which conventionally should hovers around 3.00. But the estimates obtained for the kurtosis of these indicators either fall below or ranged above the threshold of 3.00 kurtosis value. This indicates that government fiscal operations in Nigeria are not normally distributed for the period under review.

The trend of debt growth post debt-forgiveness era is a pointer to this conclusion. Nigeria's debt stood at US$36 billion in December, 2004 and by June, 2005; the Paris Club agreed on debt relief package with Nigeria to the tune of US$18 billion which accounted largely for 85.82% of total external debt for Nigeria. Before the debt relief package, Nigeria's debt to GDP was about 58%; almost double the recommended threshold of 30%.

After the debt relief, however, the total external debt outstanding of about US$5Billion owed Multilateral Financial Institutions, Promissory Notes Holders, London Club Creditors and Non-Paris Club Bilateral Creditors were still outstanding; thus, making Nigeria's external debt owing sustainable (DMO, 2005). Information available in the Debt Management Office in 2012 suggests that Nigeria's total debt profile stood at US$44 billion which has increased by 4,300% barely seven (7) years after. Although the debt level as at 2012 which is only 17.83% of GDP ratio still remains below the threshold level but the rising trend coupled with the newly sought medium term external borrowing plan – to the tune of US$1.3trillion – entered into by the Federal Government with the Islamic Development Bank serves as a serious concern for prudency and fiscal sustainability.

In effect, these trends of fiscal arrangements portend danger for the fiscal sustainability in Nigeria; the degree and significance of which this paper seeks to investigate. To corroborate this assertion are the maximum and minimum values of recurrent and capital expenditures respectively. Estimates obtained show that the maximum value of recurrent expenditure accounts for 74.3% of the total while the minimum value of recurrent expenditure accounts for barely 70.0% of its total. Again, the overall deficit reigns supreme for virtually all the periods with only one instance that the overall surplus is recorded.

5.3 Stationarity Tests for Fiscal Sustainability in Nigeria

Table 3: Stationarity Results

Variables	Augmented Dickey Fuller		Phillip Perron	
	I(0)	I(1)	I(0)	I(1)
Cap_Exp	0.132	-6.713	0.132	-6.713
Domestic_Debt	3.9739	-	3.9739	-
Ext_Debt	-1.5277	-4.009	-1.5277	-4.009
Gov_Rev	2.724	-6.5317	2.724	-6.5317
LT_Debt_Stock	-1.3209	-4.1006	-1.3209	-4.1006
Rec_Exp	5.9854	-	5.9854	-
ST_Debt_Stock	-2.9554	-7.0286	-2.9554	-7.0286
Tota_Debt	-0.2924	-4.506	-0.2924	-4.506
Tota_Exp	6.9154	-	6.9154	-

Source: E-Views Output Note: Critical Values – 1% = -3.602; 5% = -2.936; 10% = -2.606

The unit-root tests tabulated above (see Table 3) indicates that only the domestic debt, recurrent expenditure and total expenditure of the government are stationary at levels (that is, I(0)) while other variables such as the capital expenditure (proxied as Cap_exp), external debt (proxied as Ext_debt), the long term debt stock (proxied as LT_Debt_Stock), short term debt stock (proxied as ST_Debt_Stock) and the total debt stock (proxied as Tota_Debt) became stationary after integration at an order one; that is I(1). As posited in the studies of Afonso (2004) and Quintos (1995), sustainability of fiscal policy holds under two conditions: (1) strongly sustainable if both the revenue and expenditure could be non-unit root or stationary at levels but weakly sustainable if both are cointegratable after being integrated at an order one; that is, both revenue and expenditure of the government are I(1) each. However, this sustaianability can only truly hold if the coefficient of cointegration ranges between zero and one; that is, $0 < \beta < 1$ (see Marinheiro, 2005; Mahdavi and Westerlund, 2011).

The implication of the stationarity estimates obtained is that fiscal policy is not strongly sustainable in Nigeria. Also, fiscal policy is weakly unsustainable in Nigeria since the precondition to investigate weak sustainability is that both the revenue and expenditures of government must be integratable at order 1. But for Nigeria, both revenue and expenditure have different order of integration with that of revenue being at order 1 while those of recurrent, total expenditure, being at levels; except for the capital expenditure which is also at order 1 (see Table 3 above). This shows that weak sustainability can only be investigated between capital expenditure and revenue of government in Nigeria. To account for the weak sustainability, we employ the co-integration test of long-run equilibrium.

5.4 Cointegration Test

Table 4: Long-Run Equilibrium of Revenue and Capital Expenditure of Government in Nigeria

Gov_rev; Cap_Exp			
LR	5%	1%	Ho: r
41.7	15.41	20.04	None**
0.46	3.76	6.65	At most 1

Source: E-Views Output ** (*) denotes Cointegration at 1% (5%) critical value

As depicted in the table above, cointegration exists between government revenue and capital expenditure with one cointegrating equation. Since this is accorded with a coefficient (eigen) value of 0.653; it implies that the capital expenditure and total revenue aspect of fiscal policy are not only weakly sustainable but also that the government fiscal policy suffers from liquidity problem. This is so in that the government capital expenditure grows faster than its revenue.

6.0 Conclusion and Policy Suggestions

The conclusion that can be drawn from the above is that fiscal policy is grossly unsustainable in Nigeria. This coterminous with the results derived in the study by Tapsoba (2012) for some developing countries and that of Afonso and Jalles (2012) on sustainability between revenue and expenditure for some European countries. More so, policy and regime changes impact significantly on fiscal policies in Nigeria throughout the period under investigation. Also, it is noted that policy breaks have important implications for behaviour of the economy. Despite the existence of fiscal rules as enunciated in the Fiscal Responsibility Bill (FRB) and various sections of the constitutions, fiscal sustainability eludes the economy of Nigeria; suggesting that the mere existence of fiscal rules does not guarantee it sustainability. Also, the findings in this study show that government recurrent expenditure in Nigeria is over-bloated while that of its capital expenditure is still accommodating but unsustainable. This conclusion is evident in all of the triangulation approaches such as the threshold analyses, descriptive analyses and empirical analyses employed in this study.

As such, government should look beyond the enactment of fiscal rules for the sustainability of fiscal policies in Nigeria. More pragmatic procedure should be instituted such as the creation of institutions that will punish erring public officials who breach fiscal laws. As noted by Tapsoba (2012), mere existence of rule without any implementation aid in terms of institution cannot assist the sustainability of fiscal policy in Nigeria. The presence of institutional framework will engender rule-based fiscal policy framework rather than fiscal indiscipline.

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