ASSESSMENT OF NIGERIA'S DOMESTIC DEBT SUSTAINABILITY

S. C. Rapu*

Abstract

This paper attempts to measure the sustainable domestic debt stock level of the Federal Government of Nigeria over a period of time. This is necessary, considering the growing proportion of the cost of domestic debt service in Federal Government total expenditure. The paper addresses definitional issues about domestic debt and domestic debt sustainability relative to national output as well as the necessary policy implications. It also examined the causes, size and growth, sources and structure, and the sustainability ratios of the Federal Government's public domestic debt from 1960 -2002. Using the budget constraint model relative to GDP, the paper concludes that under the current fiscal stance of primary deficit, the Federal Government domestic debt is not sustainable. In order, to achieve sustainability of domestic debt, the paper emphasised the need for the Federal Government to achieve primary surpluses of not below 0.9 percent in the next five years, as well as improvement in the growth rate of the economy, fiscal reforms and a more efficient domestic debt management, through domestic debt restructuring.

1.0 INTRODUCTION

The concern about the sustainability of domestic debt has become very central to economic management and analysis considering the share of domestic debt service in aggregate public expenditure of the Federal Government. Over the years, a lot of attention has been paid to the issue of external debt, its magnitude, composition, and sustainability. Therefore, most of the initiatives embarked upon to reduce the foreign debt tend to down play domestic debt sustainability. Debt sustainability implies maintaining both the domestic and external debts at a level that will enhance macro - economic stability, economic growth and development. The consensus among analysts is that domestic debt stock and its cost of servicing constitute a burden on the revenue of the Federal Government and therefore, reduces available resources for government expenditure on other important economic and social infrastructures.

The gravity of the problem of domestic debt could be gleaned from the rising proportion of domestic debt to total debt and the increasing cost of its service as a result of

*Mr. S. C. Rapu is an Assistant Director, Research Department, Central Bank of Nigeria, Abuja

liberalization of nominal interest rate. For instance, outstanding domestic debt of the Federal Government has risen drastically, and more than doubled since 1972. It peaked at ₦1,166.0 billion and constituted 20.3 percent of total debt in 2002. Similarly, internal debt service (interest rate payments) represented 27.1 percent of total retained revenue or 17.3 percent of total expenditure of the Federal Government in the same year.

The Federal Government uses four major instruments to raise funds from the domestic financial market, namely; treasury bills, treasury certificates, treasury bonds, and development stocks. Of these instruments, short- term treasury bills accounted for 62.9 percent of total domestic debt in 2002. Most worrisome, is that large proportion of the domestic debt was owned to the banking sector accounting for 89.1 percent.

Nevertheless, there are justifications for the accumulation of domestic debt by the Federal Government. Borrowing from the domestic financial markets by the Federal Government was necessitated by the need to finance budgetary gaps particularly, in the absence of foreign finance. There are several reasons for believing that the sustainability of domestic debt is a relevant issue. First, an unsustainable domestic debt burden is likely to impact negatively on monetary policy objectives of inflation or exchange rates targeting. Second, most Federal Government domestic debt instruments serve as collateral in the financial sector operations, and its future marketability is important in the operations of the financial sector. Lastly, since most holders are banks, the disruptions of the government securities market could generate financial instability and on the other hand, its sustainability will ensure stability in the financial market.

The objective of this paper is to determine the sustainable level of domestic debt with the aim of determining the ability of the country to service its domestic debt in the future without affecting the objectives of economic growth and development. Thus, the analysis will highlight some key issues of domestic debt sustainability and determine the Federal Government domestic debt long-term sustainability. Thus, discussions will focus mainly on how to determine a sustainable ratio of domestic debt/GDP. Attempt will be made to examine the likely consequences of unsustainable ratio of domestic debt/GDP ratio, make suggestions on how to maintain a sustainable domestic debt stock.

The rest of the paper is structured as follows: Section II surveys the literature on domestic debt. Thereafter, it presents the theoretical framework for the analysis of sustainable domestic debt. Section III focuses on the analysis of the Federal Government domestic

debt, highlighting the causes, size and growth; as well as sources and structure. Section IV appraises the sustainability ratios of domestic debt in Nigeria as well as determines the sustainable level of domestic debt stock in relation to national output. It will also, present policy implications and attempts to suggest some policy reforms. Section V concludes the paper.

2.0 CONCEPTUAL AND THEORETICAL EXPOSITIONS

2.1 What is Domestic Debt?

The domestic debt refers to a claim against the government by its citizens. These consists of debt instruments publicly issued through the monetary authority of the country, the capital market on behalf of the government; direct government borrowings or overdrafts from the monetary authority and deposit money banks, and outstanding contractual obligations of the country to its citizens such as debts owed to contractors or suppliers. The domestic debt can be classified into two broad categories - secured or unsecured domestic debt. On the other hand, it is also, classified in terms of maturity either as a short, medium and long term debt instruments (Okunrounmu, T, 2001).

For instance, the unsecured debts will include governments' borrowings from commercial banks, drawings from credit facilities (overdrafts), e.g. ways and means advances, in the case of Nigeria. In addition, the government may award contracts for specific projects and pay later after their completion, thereby, creating contractual obligations, debt to local contractors in the case of Federal Government of Nigeria. On the other hand, government borrows from the domestic financial system through the issuance of bonds as in form of money market and/or capital market instruments (Gray,S.,1996).

2.2 Concept of Sustainable Domestic Debt

A large literature has grown on the question of the sustainability of public debt, primarily, in relation to large fiscal deficits of 1980s and 1990s (Aigbokhan,2001). Thus, evaluating the growth of budget deficits requires the comparison of the financing overtime, which raises the problem of how to measure the sustainable amount of domestic debt.

Gunning J et al, (2001) defines sustainability of domestic debt as the domestic debt level that is compatible with government revenue or the productive capacity of an economy. Therefore, domestic debt sustainability is the ability of a country to service its domestic liabilities without affecting the obligations of economic growth and development and recourse to debt rescheduling or accumulation of arrears. The implication is that a sustainable level of domestic debt stock should be consistent with the smooth functioning of monetary policy objectives, such as inflation or exchange rates targeting. This also, implies the sustainability of public expenditure of the government over a period of time.

2.3 Measuring Domestic Debt Sustainability

Much of the academic literature reasonably accepts some concepts of ratios for the analysis of public domestic debt sustainability. The common ratios include those for measuring the severity and gravity of domestic debt stock and debt service namely; domestic debt service to government revenue, domestic debt service to expenditure, domestic debt service payments to GDP , domestic debt stock to gross domestic product (GDP), and domestic debt stock to revenue . The domestic debt service /revenue, domestic debt service to expenditure and the domestic debt service /GDP ratios measure the severity of the debt service burden in the short - run, while the latter ratios explain the size and the gravity of debt stock on the economy and government revenue, These are therefore, broad macro-economic measures that take a long run perspective of the impact of domestic debt stock. The domestic debt -GDP and debt -revenue ratios examine the ability of the country to retire its domestic debt stock from its productive resources and government revenue, respectively. Thus, they indicate the proportion of output or government revenue that is devoted to redeeming the domestic debt stock within a given year. However, the use of these measures usually, raises several problems of measurement.

Chalk and Hemming (1999) in their work on fiscal sustainability of domestic debt of the G-7 adopted the net concept of domestic debt. The net concept of domestic debt measurement considers the endowed natural resources or the financial assets of a country. On the other hand, the gross concept does not consider the issues of natural resources endowment or the huge financial assets of the public sector. For instance, a country may be endowed with natural resources, may have deposits in the banking system, shares, and loans and advances, that will invariably, reduce the public liabilities of the

government[1]. Therefore, the net concept presents the true picture of the domestic debt situation. Nevertheless, the adoption of the net concept in measuring the domestic debt of most developing countries may prove very difficult as a result of lack of necessary data on the natural resources and balance sheet showing the financial assets and liabilities (Kiringai, J., 2001). Thus, an easy way is to use gross concept of domestic debt as the measurement in most of these countries. This method of measurement tends to over blow out of proportion the domestic debt situation of the government.

The second problem relates to the measurement of domestic debt either at face value or at market value. Cox (1985) argued that measurement of the market value of debt is the most relevant data, since it indicates what it will cost the government today to retire the debt. However, Nigel et al., (2000) argued that this type of measurement may not be feasible in most developing countries. This is as a result of lack of information on the market value of gross debt. In addition, market value of debt is also difficult to access in developing countries because government plays a domineering role in the debt market.

Carlos (1994) in his work on fiscal sustainability argued that a consolidated public sector account consists of the government sector, non- financial public enterprises and the central banks accounts is the true public debt. Thus, a consolidated public debt account will include the debts of the central government, the regional governments and the municipal councils, the non-financial public enterprises and that of the central bank and the inclusion of all debts of unsecured nature such as contractual obligations to contractors, suppliers' credit and advance deposits of customers.

2.4. Sustainability Qualifying Criteria

The domestic debt qualifying criteria ratios have proved very controversial in terms of international standard compared with external debt ratios. The measurement differs, however, there are some international acceptable standard. The Maastrichit Treaty, which sets certain pre-conditions for European Monetary Union, sets domestic debt-GDP ratio for members at 40 to 60 percent with a critical value of 60 percent. Others include domestic debt service/ total expenditure (7.5 -9.0 percent; with a critical value of 10.0 %); debt service /revenue (20-25 percent, max < 30 percent); debt service/GDP ratio

[1] Public liability is defined as a public debt while public assets include mineral resources reserve and several financial assets of government.

(3.0 -3.6 percent, max < 5.0 percent). Domestic debt stock to revenue is recommended for members at 150 to 200 percent. Thus, if any of the ratios exceed the critical values, the member is classified as severely indebted and having an unsustainable domestic debt profile.

2.5 Approaches to Sustainability Measurement

There are two major approaches to the determination of sustainability of debt. First, is the common practical approach of a 'non-increasing government debt' as a measurement of debt sustainability. Therefore, when the domestic debt is stable, the implication is sustainability while if it is increasing it is defined as unsustainable. The second approach focuses on whether current fiscal policies can be continued in the future without threatening government solvency. This means that sustainability is not only achieved when the domestic debt is constant, implying that an increasing domestic debt stock could be sustainable as long as it is consistent with economic growth (Nigel & Hemming, 2000). However, this approach is not implying an indefinite increase in the domestic debt/GDP ratio.

2.6 Theoretical Framework

Most discussions on sustainable domestic debt take their starting point of the sustainability model by defining the relationship between domestic debt and budget deficit. Budget deficit can be split into 'primary deficit' i.e. the deficit before interest payments and 'overall deficit' i.e. deficit after interest payments. The budget constraint model defines government debt as the sum of the debt service cost and the primary deficit. The basic assumptions of the model are:

- It is a simple closed economy;
- There is no monetary consideration.

Therefore, the relationship between domestic debt and the budget is represented by:

$$Dt = -Pt + RtD_{t-1} \quad \ldots\ldots 1$$

Where:
Dt is the stock of debt at a given period
Pt is the primary surplus

R is 1+ r which is the discount factor of the government Dt-1 and therefore, is the cost of debt service of the existing debt stock

Equation 1 can be simplified as

$$Dt = -Pt + St \quad \ldots\ldots 2$$

Where St is the interest cost of domestic debt i.e. 1 + r

The policy implications of the budget constraint model are:

- That government primary deficit (P) may exclude non - stable revenue (drawn down on reserves, privatization receipts and Seigniorage revenue [2]) and extra- budgetary expenses;

- That sustainability requires that the present value of future primary surplus exceed the present value of future primary deficits to cover the interest cost;

- That there is no limitation to the growth of the debt stock of a country, as long as the present value of future primary surplus exceeds the present value of future primary deficits;

- Although, the primary deficit is inconsistent with the model, an overall deficit could be defined as sustainable. For instance, a country running a small primary surplus to cover a portion of the interest cost can be defined as sustainable even when there is an overall deficit.[3]

However, a number of criticisms have been raised about the budget constraint model. McCallaum (1984) argued that when interest rates are high, and the growth rate of the domestic debt is faster than the growth of the economy, then domestic debt could reach a high level, and beyond that point, could no longer be sustainable. Barro and Kremers (1989) also argued that the possibility of ever increasing primary surplus of government is not sensible. This is because there is a limit to which governments could increase tax rates in order to generate the necessary primary surplus to be greater than the primary deficits. The relationship between debt and the measure of the economic activities e.g.

---

[2] Seigniorage here is defined as base money growth as a % of nominal GDP.

[3] The overall deficits is revenue minus expenditure (including interest payments on debt)

GDP is very vital in the definition of sustainability and this was not part of the model. In order to get around this problem, Buiter and Blanchard in their separate works exploited the use of some macroeconomic variables. Buiter (1985) defined sustainable debt as the stable ratio of the public sector net worth to national output. However, the major pitfall of this indicator is that the information on public sector net worth is difficult to obtain in most developing countries. Blanchard (1990) advanced the argument further by introducing three indicators for measuring domestic debt sustainability, namely; the primary gap, the tax gap, and the medium-term tax gap indicators. The primary gap indicator focuses on the required permanent primary deficits that will stabilize the ratio of debt -to-GDP. Therefore, a negative value of the indicator connotes, that the current primary deficit is too large to provide stability to the ratio and therefore, not sustainable.

The tax gap indicator relates to the difference between the constant debt/ tax ratio and the current tax/GDP ratio. A negative value of the difference indicates that tax revenue is too low to stabilize the ratio and therefore, is unsustainable. The implication is the need by government to increase tax revenue through increase in tax rates so as to cover debt service payments and stabilize the ratio. The difference between the tax gap indicator and the primary gap indicator is that the latter emphasis reduction in primary deficits while the former relates to tax increases needed to stabilize the ratio. The medium-term tax gap indicator relates to the future N years. It therefore, measures how much the tax ratio needs to rise over the next N years to stabilize the debt ratio given current and expected future spending policies. Nevertheless, the indicators of sustainability by both Buiter and Blanchard are simple for the use of any economists; however, there are some difficulties in its use. This relates to the basic assumption that the indicators must be constant to qualify for sustainability. This differs from the BC model, which will not require a constant debt-to-GDP ratio or even a bounded ratio.

3.0 ANALYSIS OF NIGERIA'S DOMESTIC DEBT

3.1 Background

Several reasons have been advanced to explain the origin of Nigeria's domestic debt stock. These reasons included; high budget deficits, low rate of output growth, large expenditure growth, high inflation rate and narrow revenue base witnessed since the 1980s and 1990s. Inflation rate measured in terms of percentage change in the consumer

price index (CPI) escalated from an average of 1.6 percent in 1960-69 to an average of 20.5, 25.4, 24.4 and 25.4 percent in 1980-1984 and 1985-1989,1990-1994 and 1995-1999 periods, respectively. Also, output growth rate showed poor performance as it recorded annual average rates of -7.1, 5.9, 4.0, and 2.8 percent in 1980-1984, 1985-89, 1990-1994, 1995-1999 periods, respectively. Public expenditure as a percentage of gross domestic product (GDP), increased from 13.0 percent in 1960 - 69 to an average of 38.2, 31.7, and 29.7, in 1980 - 84, 1985-89, 1990-94, and 1995-1999 periods respectively.

The increased share of public expenditure to GDP resulted from the fiscal policy expansion embarked upon during the oil boom era of the 1970's. However, as the oil boom declined in the 1980s, priorities of government expenditures did not change. In addition, the revenue base of the Federal Government in relation to GDP declined continuously during the review period. From 19.5 percent of GDP in the 1970's, this declined to 11.0 percent of GDP in 2002, except for a high performance of 25.6 percent recorded in 2000. Consequently, fiscal operations of the Federal Government resulted in large deficits. From an average of 0.8 percent of GDP in 1970 -1979, the level of deficit increased persistently, averaging about 5.1, 7.2, 10.0, and 2.3, percent in 1980 - 1984, 1985 - 1989, 1990 -1994, 1995-1999, respectively. A remarkable feature of the government fiscal expansion was the financing of the excess expenditure from domestic sources, averaging 79.2 percent between 1980 and 2002 since foreign finance was difficult to obtain (Table 1).

Table 1
NIGERIA: Selected Basic Economic Indicators

Year	Inflation Rate (%)	GDP Growth Rate	Pub Exp/GD (%)	Fiscal Deficit GDP (%)	Savings/ GDP (%)	Retained Rev./ GDP (%)	Primary Surplus/GDP %	Real Interest Rate %
1960-69	1.6	3.6	13.0	-5.2	n.a	n.a	n.a	n.a
1970-79	15.3	7.6	35.9	-0.8	6.5	19.5	18.1	-11.6
1980-84	20.5	-7.1	38.2	-5.1	14.5	12.6	10.5	-13.8
1985-89	25.4	5.9	31.7	-7.2	12.9	12.3	2.6	-8.5
1990-94	24.4	4.0	29.7	-10.0	11.9	13.3	0.3	-20
1995-99	25.4	2.8	19.7	-2.3	-0.8	14.5	9.5	-18.5
2000	6.9	3.8	15.1	-2.9	n.a	25.6	13.5	6.1
2001	18.1	4.7	18.7	-4.1	n.a	14.5	15.9	1.0
2002	12.9	2.9	17.1	6.2	n.a	11.0	-3.2	5.5

Sources: Compiled by the author from the CBN Annual Reports (Various Issues)

3.2 Size and Growth of Domestic Debt

Following these developments, the nominal gross domestic public debt of the Federal Government increased from ₦1.1billion in 1970 to ₦7.9 billion in 1980. This rose further to ₦84.1billion in 1990 and peaked at ₦1,166.0 billion in 2002. These developments represented an annual average growth rate of 27.7 percent between 1980 and 2000, however, declined to 14.7 percent in 2002. Domestic debt compared with total debt

outstanding was an average of 50.2 percent between 1970 and 2000, while it declined to 23.6 percent in 2002, resulting from the further depreciation of the naira exchange rate which beefed up the value of the external debt component of the public debt.

Total domestic debt service (interest payments only) also grew faster than the total debt stock. From ₦0.06 billion in 1970, debt service payments increased to ₦ 0.2 billion in 1980. Debt service payments further increased to ₦8.7 billion in 1990 and rose sharply to ₦108.8 billion in 2000. This increased again to ₦155.4 billion or 15.3 percent and ₦170.6 billion or 17.3 percent of total expenditure in 2001 and 2002, respectively. Thus, the domestic interest payments grew at an average of 38.1 percent between 1980 and 2002. The sharp increase in debt service payments was attributed to several factors, among other things, the rising amount of debt stock, sharp increase in domestic nominal interest rate, following financial deregulation, and the fact that a large proportion of the debts were short - term debts instruments (treasury bill) with the roll-over syndrome. (Table 2)

Table 2
Nigeria's Domestic Debt Indicators

Year	Domestic Debt in nominal terms ₦ billion	Domestic Debt as % of Total Debt	Debt Service ₦ billion	Debt Service as % of Exp.
1960	0.02	n.a	n.a	n.a
1970	1.10	99.9	0.06	6.2
1980	7.90	78.2	0.2	1.6
1990	84.10	22.0	8.7	14.4
2000	898.3	22.5	108.8	15.5
2001	1,017.0	24.3	155.4	15.3
2002	1166.0	23.6	170.6	17.3

Sources: Compiled by the author from CBN Annual Reports

3.3 Sources and Structure of Domestic Debt

Table 3 explains the sources and structure of domestic debt, indicating the share of each of the domestic debt instrument as well as the holders of the debt instruments. Between 1960 and1969, short-term debt instruments (treasury bills) had higher share of 50.1 percent of total debt stock while the share of development stocks stood at 47.5 percent. However, the shares of the two instruments declined and the share of treasury certificates peaked up at 23.8 percent in the period 1970- 1979. During the 1980- 1989 period, the share of treasury bills rose to 60.7 percent while the share of development stocks declined sharply to 19.8 percent. The introduction of Nigerian Treasury Bonds in the 1990s also, contributed to the decline in the shares of other instruments. Thus, the shares of treasury bills, treasury certificates and developments stock declined sharply to 42.8, 12.3 and 1.6 percent, respectively. With the abrogation of the NTC's in 1997, treasury bills and treasury bonds became the dominant debt instruments, having shares of 62.9 and 36.9 percent in 2002, respectively.

Analysis of holders of the Federal Government domestic debt instruments showed that the banking system was dominant. In the 1960s, the non-bank public was dominant as the holding was an average of 56.5 percent while the banking system holding amounted to 43.5 percent. However, since the 1970s, the share of the non- bank holdings declined consistently, reaching 10.9 percent in 2002 while the share of the banking system increased persistently, to 84.4 percent in the 1990s and peaked at 93.9 percent in 2000 and declined further to 89.1 percent in 2002. The reason for the shift in the structure of creditors was because the Federal Government debt instruments became important financial instruments and therefore, played a central role in the monetary policy implementation.

Under the banking system, the share of the Central Bank of Nigeria (CBN) increased from 19.2 percent in the 1970s to 53.1 and 71.3 percent in the 1980s and 1990s, respectively. However, there was a sharp decline to 55.5 percent in 2000, following an increase in the share of commercial banks holdings while it increased again to 66.9 percent in 2001. The deposit money banks share in the 1970s stood at 37.9 percent compared to the 17.6 percent share in the 1960s. However, the share declined to 11.6 percent in the 1990s, and peaked at 36.1 percent in 2000, while it declined to 19.6 percent in 2001 but increased further to 44.3 percent in 2002.

Table 3

The Structure of Nigeria Domestic Debt Instruments by Type and Holders

Composition of Domestic Debt (Percent)	1960-1969	1970-1979	1980-1989	1990-1999	2000	2001	2002
Treasury Bills	50.1	35.6	60.7	42.8	51.8	57.5	62.9
Treasury Certificates	2.4	23.8	20.5	12.3	0.0	0.0	0.0
Treasury Bonds	-	-	-	43.3	47.9	42.3	36.9
Development Stock	47.5	40.6	18.8	1.6	0.2	0.2	0.2
Others	-	-	-	-	-	-	
Total	100.0	100.0	100.0	100.0	100.0	100.0	1000
Types of Holders (Percent)							
Banking System	43.5	57.7	78.3	84.4	93.9	86.5	89.1
Central Bank	25.8	19.2	53.1	71.3	55.5	66.9	55.7
Commercial Bank	17.6	37.9	23.8	11.6	36.1	19.6	44.3
Merchant Bank	0.1	0.6	1.4	1.5	2.3	-	-
Specialized Banks	-	-	-	-	-	-	-
Non – Bank Public	56.6	42.3	21.7	15.6	6.1	13.5	10.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100

Sources: Compiled by the author from the CBN Annual Reports 1960 - 2002.

4.0 ANALYSIS OF NIGERIA'S DOMESTIC DEBT SUSTAINABILITY RATIOS

Table 4 provides the ratios that are relevant to the determination of the Federal Government domestic debt sustainability. The analysis covered several ratios such as domestic debt-GDP ratio, debt service - revenue ratio and domestic debt stock – revenue, domestic debt interest cost to gross domestic product and domestic debt to total Federal Government expenditure.

Table 4
Federal Government Basic Domestic Debt Sustainability Ratios

Years	Domestic Debt as % Of GDP	Domestic Debt as % of Revenue	Domestic Debt Service as % of Revenue	Domestic Debt Service as % of GDP	Domestic Debt Service as % of Expenditure
1960-69	8.0	72.6	6.4	n.a	n.a
1970-79	11.4	84.4	5.7	1.4	6.2
1980-89	31.6	253.0	16.9	4.4	2.0
1990-94	34.6	273.2	31.0	4.0	14.4
1995	28.5	164.0	13.6	1.7	19.8
1996	12.1	93.1	6.3	0.8	6.9
1997	11.5	83.9	7.6	1.1	7.5
1998	18.9	151.1	17.8	1.5	8.6
1999	23.5	119.9	12.0	2.5	8.4
2000	24.9	150.4	18.2	3.0	15.5
2001	18.7	127.6	19.5	2.9	15.3
2002	20.3	185.2	27.1	3.0	17.3
Average	20.3	164.4	23.1	3.0	13.9

Source: Compiled by the author from CBN Annual Reports

Domestic Debt-to-GDP Ratio

The proportion of nominal GDP used to liquidate the domestic debt in the early 1960's and 1970's was relatively small, as it amounted to an average of 9.7 percent. During this period the growth rate of the economy was greater than real interest rate i.e. $g > r$ was positive, as a result of financial regulation. During the period, the Federal Government was able to run primary surpluses averaging 18.1 percent and overall deficits of 2.8 percent. However, as the growth of the economy declined in the 1980's, reaching a negative value of 1.4 percent, the ratio leaped to an average of 31.6 percent. In the 1990's, the ratio declined again to an average of 21.5 percent, reflecting the decline in public expenditure. The favorable sustainability position was also enhanced by the higher real growth of output exceeding the real interest rate.

The position was however, reversed in 2000 as the real interest rate exceeded real growth rate. With that, the debt -to-GDP ratio rose to 24.9 percent despite the decline in overall

deficit to 2.9 percent and an increase in the primary surplus to 13.5 percent of GDP, respectively. In 2001, as real output growth rate exceeded the real interest rate, the ratio declined again to 18.7 percent of GDP, despite the increases in the public expenditure and overall deficit. This position was further enhanced by the increase recorded by the government in the form of primary surplus, which stood at 15.9 percent of GDP (Tables 1 and 5). Again, the ratio witnessed an increase in 2002 to 20.3 percent and was attributed to the increasing real interest rate which exceeded the output growth rate.

Domestic Debt Stock - to -Revenue

The domestic debt stock as a ratio of retained revenue of the Federal Government was an average of 78.5 percent in the 1960's and 1970's, but leaped to 253.0 percent in the 1980's. This development was attributed to the growth in domestic debt and the low revenue base during the 1980's. However, remarkable improvements were achieved as revenue base improved in the late 1990's, thus the ratio declined to 147.5 percent in the same period while it further decreased to 185.2 percent in 2002.

Domestic Debt Service -to -Revenue Ratio

The ratio averaged 14.1 percent between 1960 and 2001, however, showed some remarkable changes over the years. Thus, from an average of 6.4 percent in the 1960's and 5.7 percent in the 1970's, the ratio leaped to 16.9 and 31.0 percent in the 1980s and 1990 – 1994 period, respectively. The increase was attributed to the growth in domestic debt stock and the sharp increase in nominal interest rate, following the liberalization of interest rates in the late 1980's and early 1990's as well as the low revenue base. However, the ratio since 1995 has persistently remained below 20 percent.

Debt Service - to - GDP

The ratio of debt service reflects the amount of national output devoted to payment of interest cost on domestic debt stock for a year. From a position of 1.4 percent in the 1970's, it rose to 4.4 percent in the 1980's, representing a big leap in the cost of debt service during the period. However, the ratio since the 1990's has recorded a steady decline, reaching the level of 2.9 percent in 2001 but increased further to 3.0 percent in 2002, averaging 3.0 percent between 1960 and 2002.

4.1 Evidence from Sustainability Ratios

This section briefly compares the Nigeria domestic debt ratios with some qualifying international criteria in section two.

Table 5

Comparative Analysis of Nigeria's Domestic Debt Sustainability Analysis

'Percent'

Indicators	Baseline Scenarios *Maastricht Treaty*	Nigeria's Threshold	Remarks
Domestic Debt/GDP	40-60	20.3	Sustainable
Domestic Debt/Revenue	200	185.2	Sustainable
Domestic Debt Service/Revenue	20-25(max=25)	27.1	Unsustainable
Domestic Debt Service/GDP	3-3.6(max<5.0)	3.0	Slightly Sustainable
Domestic Debt Service/Expenditure	7.5-9.0(max=10.0)	17.3	Unsustainable

Table 5 indicates sustainability for all the ratios except for the domestic debt/revenue and domestic debt / expenditure ratios which were above the critical value otherwise, the remaining ratios were within the limits of the baseline scenarios. However, the position of the domestic debt service/GDP ratio (interest payments only) is likely to enter the critical range. The review of the gross domestic debt/GDP and the domestic debt/revenue indicate a comfortable position of domestic debt stock. Thus, the overall conclusion that can be drawn from the above analysis, is that the Federal Government has a short – run difficulty in servicing its domestic debt particularly, as the proportion of interest cost of domestic debt in total expenditure is high(>10 %). The implication is the reduction of scarce resources that could be invested in other social and economic infrastructure. Therefore, if this situation is allowed to continue, the major indicators of domestic debt/ GDP and revenue are expected to increase, thereby, worsening the domestic debt situation in the near future.

This is also true with interest rates liberalization and the declining government revenue, following the vulnerability of the oil revenue to international manipulation, requiring further domestic borrowings by the Federal Government. Consequently, real interest rate is expected to trend upwards. Therefore, the cost of servicing the debt is likely to rise very sharply, far above the critical value compared with expenditure, revenue and gross domestic product. This analysis calls for a proper examination of the sustainable level of the Federal Government debt stock and a review of the sustainability of the current fiscal stance. The current fiscal stance of the government shows that the government has not only accepted overall deficit as normal position but is gradually, accepting large primary deficits in relation to national output also as a norm.

4.2 Determination of Nigeria's Domestic Debt Stock Sustainable Level

In this section, we will make an attempt to determine the sustainable domestic debt stock levels for Nigeria within the next five years that is 2003 to 2007. In addition, we will examine the policy implications of exceeding the sustainable level and make some recommendations which will enhance the sustainable debt stock.

4.2.1 Analytical Framework

Making assumptions that the level of domestic debt in each period is Dt; the level of real output in each period is Yt; and the level of debt service is represented by St. Also, let r and g, represent the real interest rate and the real growth of output.[4]

Thus, the equation can be written as follows:

$$Dt = Dt\text{-}1\ (1+r) - St \quad \ldots\ldots 3$$

$$Yt = (Yt\text{-}1\ (1+g)) \quad \ldots\ldots 4$$

Relating the debt to output, we divide equation 3 by equation 4

$$Dt\ /Yt = Dt\text{-}1\ /Yt\text{-}1*(1+r)/\ ((1+g))\ -(S/Y)t \quad \ldots\ldots 5$$

Thus, solving for the stable ratio of domestic debt service to GDP we obtain:

$$S/Y = ((r-g)\ /\ ((1+g)*D/Y) \quad \ldots\ldots 6$$

4 For more details see Gunning and Mash, November 2000.

Substituting equation 2 into equation 6 we will obtain

$$\Delta(D/Y) = - (P/Y) + (r-g) / (1+g)^* (D/Y)\ t) \quad 7$$

Simplifying equation 7 we will make the derivation of the debt-GDP ratio by using lower case variables. Thus let:

d = debt/GDP i.e. (D/Y)

p = the primary surplus /GDP ratio i.e. (P/Y)

Then the equation can be written as

$$\Delta d = -p + ((r-g) / ((1+g))^*dt \quad 8$$

Some implications could be derived from this mathematical relationship above and they include:

- An increase in the growth rate of public domestic debt of the Federal Government is sustainable only when the real growth rate of output is greater than the real interest rate since there will be a declining domestic debt - GDP ratio;
- However, when the real interest rate exceeds the rate of growth of output, an increasing domestic debt is unsustainable as the ratio of debt and GDP will rise sharply while the S/Y will at the same time increase;
- To sustain an increase in the level of debt/GDP ratio, the federal government must generate enough primary surplus to cover a portion of the interest cost while an overall deficit may be sustainable as long as it is not large;
- In any case, if the primary surplus position deteriorates into large primary deficits, then an upwards pressure may be mounted on the real interest rate. This happens because the government with less scope for expenditure cuts on non-debt expenditure might be forced to borrow substantially from the domestic financial market, in the absence of further foreign borrowing. This will therefore, put pressure on domestic nominal interest rates, leading to rise in the real interest rate.

The caveat to this analytical model is that there is a limit to which government revenue could rise so as to achieve higher primary surpluses over the period of estimation. This is because tax rate increases has its own limitations and beyond a particular point, an increase in domestic debt will be unsustainable. In addition, chronic primary surplus

could imply higher government spending in the future. This may also send signals of future defaults of payments of debt service by government and therefore, could push up interest rates in the short run.

4.2.2. Data Sources

The sources of the data for analysis were from the fiscal and national accounts. However, it should be noted that the data on public domestic debt was limited by the fact that:

- The data on Federal Government public enterprises, state and local governments public domestic debt were not available;
- The lack of data on accumulated arrears (unsecured debts) of suppliers credit and contractors debts understated the public domestic debt;
- The data on public debt are measured at face value since the data at market value was not available;
- Finally, the gross measurement concepts were used, as data on financial assets were not readily available.

The above reasons impose constraints to what extent the data should be interpreted. Nevertheless, the analysis used available Federal Government domestic debt data as a proxy of total public sector domestic debt.

4.3. Determining The Sustainable Domestic Debt Stock

Applying equation 8, the desired primary surpluses needed to be achieved over a period of five years were obtained. Two options were advocated namely;

- maintain the current level of debt / GDP ratio in 2002 at 20.3 percent over the five years; and

- increase the debt/GDP ratio with 4.4 percentage points per year over the next five years .

However, the domestic debt sustainability determination requires the forecast of the real interest and the output growth rates. Thus, any assessment will rely jointly upon the accuracy of the variables, r and g. The uncertainty about the future direction of the two

variables makes the determination a probabilistic concept. The simulation exercises assumed the growth rate of 5 percent which has featured in the budgets as the Federal Government underlying assumption for the growth of the economy. On the other hand, a real interest rate of 6 percent based on the past trend.

Under option A i.e. a constant debt -GDP ratio, the government needs to achieve primary surpluses of 1.0 percent of GDP between 2003 and 2007, if the debt stock level is to be sustainable. In option B, the Federal Government will require to achieve primary surpluses to GDP of between 5.4 to 6.2 percent over the next five years (Table 6). However, if the growth rate of the economy falls below 5.0 percent and the real interest rate remains stable, then the government has to achieve higher surpluses to keep the debt stock sustainable. On the other hand, if the real interest rate decline, due to increase in inflation rate, then the government may be required to achieve lower primary surpluses. This last option may not be attractive because of the other consequences of higher inflation rate.

Table 6
Projected Sustainable Levels of Domestic Debt/GDP Ratio in Nigeria 2003-2007

Years	Real Interest (%)	Growth Rate of Real GDP (%)	Domestic Debt/GDP (%)	Primary Surplus/GDP (%)
2003	6.0	5.0	24.7	5.4
2004	6.0	5.0	29.1	5.6
2005	6.0	5.0	33.5	5.8
2006	6.0	5.0	37.9	6.0
2007	6.0	5.0	42.3	6.2

4.4. Policy Implications

Under the current fiscal policy stance of having primary deficits makes the domestic debt profile of the Federal Government unsustainable. For instance, the results of the 2002 fiscal operations of the Federal Government that is the achievement of 3.2 percent primary deficit/ GDP and 6.2 percent overall deficit/GDP ratios indicate a position of

unsustainable domestic debt under the two options. Thus, for a sustainable domestic debt stock under the current fiscal stance the Federal Government must reduce the debt / GDP ratio through an option of domestic debt stock reduction. However, the possibility of achieving this under the present political dispensation may prove very difficult, as the government has maintained consistent overall deficit in the past four years.

This implication is that if the government allows the primary deficit to deteriorate further coupled with the limited scope to cut down on the non-debt expenditure or increase domestic taxes, the debt stock level is likely to rise and the ratio will deteriorate further while the debt service to GDP ratio will rise sharply, signifying unsustainable stock both in the short and the long runs. Thus, as the debt stock increases, the tendency is for the nominal interest rate to push upwards, thereby, increasing the real interest rate. Particularly, the debt profile could worsened, as a high proportion of short term debts (Treasury Bills) constitute the majority of the domestic debt stock which tends to increase its vulnerability to interest rate changes.

4.5 Policy Reforms

Given this high overall deficit, therefore, the option is for the Federal Government to embark on some policy reforms for sustainability of the growth in the domestic debt stock.

These reforms include,

⇒ *Improving the growth rate of the economy through policies aimed at increasing productive activities:*

These policies are defined as measures by government that will increase the ability of the domestic productive sector to supply real goods and services and these policies include;

- Policies designed to raise the long - run rate of growth of output, through stimulating domestic savings and investments and building human capital.
- Policies aimed at increasing the inflow of foreign savings either in forms of increased development assistance, private lending, and foreign direct investment.

These policies will generally grow the economy at a higher growth rate, thereby, making further increases in domestic debt sustainable.

⇒ *Fiscal Reforms are needed to stem the current unsustainable fiscal policy through:*

- Expenditure reforms, which involves the reconsideration of the areas that the Federal Government should be involved in the economy. Therefore, high considerations should be given to the most effective utilization of scarce government sector resources. Therefore, expenditure reforms should help to promote higher productivity of government resources. This can be done through:

  - Encouragement of productive government investments, which are of high quality in terms of their contributions to national output growth, particularly in areas of public infrastructure which have high complementary effects on private sector investment.

  - Funding of operations and maintenance of existing capital investment in the areas of public infrastructure.

  - Employment of cost - effective expenditure policies in the management of public expenditure so as to reduce wastes.

  - Encouragement of privatization of public utilities that are large drains on government revenue.

- Tax Revenue reforms should include emphasis on domestic income taxes.

- Make governments' Budgets over these years to be in tandem with the available revenue, as well as the available borrowing sources.

⇒ *Improvement in the Domestic Debt Management*

Domestic debt management is the art and source of making decisions on the various domestic debt operations in such a way as to maximize the best interest of government, its holders and the economy. This involves the assessment of the service capacity and the structure of the domestic debt. Since the structure of domestic debt is of largely, short-term there is the need for restructuring. There are several options for restructuring the domestic debt however, depending on two major factors namely, cost and macro-economic implications of each option. Cost factors consider the present value and the

time profile of the debt. Macro-economic factors refer to the effects of each option on fiscal and monetary policies, private sector development and the income distribution effects. These options for restructuring are: domestic debt rescheduling; and domestic debt buyback. Rescheduling of domestic debt involves the lengthening of repayment terms, including interest payments. This implies restructuring the debts from shorter - term to longer -term maturity instruments with appropriate interest rates. A longer maturity structure implies a smaller proportion of the debt being refinanced at any given time. Debt buyback involves the repurchase of government debt from the investors. This option can be applied when the revenue of the Federal Government exceeds the expenditure, indicating an overall surplus. The surpluses can be applied to the repurchase of most of the short-term debts. This is also possible by applying the share of the Federal Government from excess crude oil earnings to the liquidation of some domestic debt stock.

5.0 CONCLUSION

The paper examined the sustainable level of domestic debt stock for Nigeria. This was to facilitate discussion on sustainable fiscal policy, considering the impact of domestic debt service on government revenue and fiscal performance. To understand the process of the determination of a sustainable domestic debt, the paper addressed several issues. These issues included what are domestic debt and its origin, causes, size and growth, and sources and structure of Nigeria's public domestic debt. To understand the process of measuring the sustainable stock of domestic debt, an analytical framework was presented. The framework showed the concepts of sustainability, and the mathematical relationships between domestic debt, budget deficit, gross domestic product, real interest rate and real growth rate of output.

The paper applied the model to the Nigeria situation and the result showed that under current fiscal stance of primary deficits the domestic debt ratio either maintaining it at the current level of 18.7 percent or increasing it by 6 percentage points on annual basis is unsustainable. Nevertheless, the paper admitted that the result was limited by various reasons. These included the use of the gross domestic debt instead of the net concept, measuring the domestic debt at the face value, and an inadequate coverage of the public sector debts and other unsecured debts.

The paper therefore, concludes that for a sustainable level of domestic debt, government

needs to run primary surpluses of between 0.9 and 8.0 percent. In other words, if the government wants to maintain the current level of debt/GDP ratio, then it must maintain primary surpluses of 0.9 percent over the next five years. While if the Federal Government intends to borrow more, thereby increasing the ratio at an annual rate of 6.0 percentage points, it needs to achieve primary surpluses of between 6.9 to 8.0 percent over the years. However, if it wants to continue with the current fiscal stance of primary deficits, then it needs to reduce its debt/GDP ratio. For instance, if it runs a 4.5 percent primary deficit to GDP as in the 2002 budget, then it must maintain the ratio at 13.3 percent to achieve sustainability through reduction in the domestic debt stock.

The paper made some suggestions so as to achieve a desired level of sustainable domestic debt stock by the Federal Government. These included, improving the growth rate of the economy, fiscal reforms and the review of the Federal Government Budget framework, and improvement in domestic debt management, through the restructuring of the existing debts, which invariably will bring down the real interest rate.

REFERENCES

Aigbokhan:(2001): 'Government Expenditure Programme Measurement, Trends and Issues'

A paper presented at the National Center for Economic Management and Administration on Public Expenditure Programme and Management course August 13-24, 2001, Ibadan, Nigeria.

Barro, R. J. (1989): ''The Ricardian Approach to Budget Deficits,'' Journal of Economic perspectives, vol. 3 (Spring) pp 37 -54.

Blanchard, Oliver j., (1990): ''Suggestions for a New set of Fiscal Indicators'' Organization for Economic Cooperation and Development Working Paper, No 79(April), (Paris:OECD).

Buiter W. (1985): '' Guide to Public Sector Debt and Deficits''. Economic Policy: A European Forum, Vol1 (November), pp13-79

Carlos Alfredo, R., (1994):'' Argentina: Fiscal Disequilibra Leading to Hyperinflation'' In Public sector Deficits and Macroeconomics Performance ed. by W.Easterly, Carlos A R., and Klaus Schmidt-Hebbel Washington, World Bank, Nov. 1994 pp.101-165.

Chalk, Nigel and Richard Hemming, (1999):''What should be done with a Fiscal surplus''? International Economic Policy Review, Vol1, Ed by Paul Masson, PadamaGptour, and Timothy Lane (Washington: IMF).

Central Bank of Nigeria (2000): 'Annual Report and Statement of Accounts' CBN, Abuja, Nigeria, June 2000.

Cox,W. (1985): ''Behaviour of Treasury Securities: Monthly, 1942-1984,'' Journal of Monetary Economics , Vol. 16 (September), pp 227 40.

Easterly W& Shmidt- Hebbel K (1993): Fiscal deficits and Macroeconomic Performance in Developing Countries in World Bank Research observe Volume 8 No2 July 1993

Fischer s and w. Easterly (1990): 'he Economics of Government Budget Constraint' World Bank Research Observer, Vol.5, No.2 Washington DC.

Gunning J. W and Marsh R (2001): "Fiscal Implications of Debt and Debt Relief; Issues' A background paper for a DFID Workshop on the Fiscal Implication of Debt and Debt Relief; November 1998, London

Gray S; (1996):"The Management of Government Debt' Center for Central Banking Studies Handbooks in Central Banking, Bank of England No 5, May, 1996.

Hemming R and Mackenzie G.A (1991): "Public Expenditure and Sustainable Fiscal policy": In Public Expenditure Handbook: A guide to Public Policy in Developing Countries Eds. by Key - yong chu and Richard Hemming, IMF, Washington D.C.

Kiguel, Miguel A, and Niussan Liviatan (1988):''Inflationary Rigidities and Orthodox Stabilization Policies: Lessons from Latin America'': The World Bank Economic Review 2(3): 273 - 298.

Kiringai Jane (20001): "Debt and the FRSP conditionality; The Kenya case: A paper presented at the Wider Development Conference on Debt Relief 12-18 August 2001, Helsinki, Finland.

Kremers J. M., (1989):''U.S. Federal Indebtedness and the Conduct of Fiscal Policy,'' Journal of Monetary Economics, vol.23 (March), pp. 219-38

MaCallum, B.T., (1984):''Are Bond Financed Deficits Inflationary?'' A Ricardian Analysis,'' Journal of Political Economy, Vol. 92 (February), pp. 123-35.

Okunrounmu, T. (2001): ''Creation of Public Debt'': A paper presented at a course on Domestic Debt Management organized by The West African Institute of Financial Economic and Management, Accra, Ghana, September, 2001.