CHAPTER SEVEN

MONETARY BASE: GOVERNMENT FISCAL OPERATIONS AND DEBT MANAGEMENT

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This chapter is concerned with domstic economic policies i.e. the monetary base, government fiscal operations and debt management in the Sudan. It is organised as follows: the first section gives an introduction to the money supply and government fiscal deficit. The second section examines the relevant theoretical and empirical economic literature. Thirdly, we present the fiscal structure, such as government revenues, expenditures and development expenditure and overall deficit and public debt. The fourth section estimates the macroeconometric models with Sudanese data to empirically analyse the government fiscal operations covering 1980/81 to 2001. the final section provides the empirical results and concluding remarks.

7.1 INTRODUCTION

Economic crises have both internal and external origins; externally, several shocks like the oil price hike of the 1973 (Arab-Israel conflicts) and 1979 (Iraq-Iran war),1990 and 2003 (Gulf wars) etc.,in compound with the domestic situation leading to economic problems of different crisis proportions. To reverse the economic decline and bring about macroeconomic stabilisation and structural adjustments, governments generally seek **IMF** and **IBDR** help. As part of the conditionality, the economic recovery programmes are

administered both on the demand and supply sides. For instituting and sequencing successful reforms, the binding constraints of growth process needs to be identified first. It is well known, government budget deficit is defined as the difference between government spending and government revenue, while growth stabilises the budget and improves the fiscal position of the economy. Here, recent years chronic inflation that is experinced by developing countries brings government budget deficit money-supply and inflation dynamic nexus sharp focus. This renewed concern, of course, emanates from the belief that governments attempts to extract real resources at a faster rate than is sustainable at given rate of inflation, which would result in increase in money supply leading to further inflation.

The Sudan is still a predominately agricultural country, and it is inevtible that the government bent on rapid growth in income as well as assuming a larger share of economic activity, find itself borrowing, taxing and spending more than previously the government used to do. When the government expenditure constitutes a high percentage of **GDP**, one may presumeably hope that most of it is meant for capital formation and development process, which is exceptionlly and hardly met in the Sudan. Government deficit as a ratio of **GDP** has increased markedly, and remained high in the 1990s. A substantially large part of these fiscal deficits has been financed by **BoS** credit to **GoS** which, in turn, has been the principal source of reserve money creation in the Sudan. Given the relationship between reserve money and money supply on the one hand, and between money supply and prices on the other, pervasive importance of the fiscal stimulus to money supply and inflation is clearly evident in the Sudanese context. In the next section briefly, we will survey the related literature.

7.2 REVIEW OF SELECTED RELATED ECONOMIC LITERATURE

Until the late 1970s, studies generally accepted monetarists' model exemplified by Cagan (1956) as their standard frame of reference concerning the monetary aspects of inflationary process in developing countries. Accordingly, money supply was treated as a policy-determinied exogenous variable and inflation was entirely attributed to variation and expansion of money supply without any reverse feedback effect, [*Aghevli and Khan, 1978; pp. 383-384*].[1] The uni-directional nature of monetarists model was questioned by a few economists; Anderson and Jordan (1968), Sagent and Wallace (1973), Frenkel (1977), Tobin (1963), Choudhary (1976), Aghevli (1977), Heller (1975-1980) Tanzi (1977 and 1978), Pathak (1978), Khan and Aghevli (1978), Farzin (1988), Jensen (1992), Saiyed (1997), Sundararajan Marston and Shabsigh (1998), and others. In this section, we are going to highlight some of these works as follows:

Sir James Stellart was one among the first to hold the view now upheld by the adherents of the "*New Orthodoxy*" that public debt should function as the balance wheel of the economy [Walter, 1945; p. 454],[2] who had been criticized by Adam Smith and Hume who both believed that the collapse of public debt was inevitable. Then the view of Classical School comes, under the leading of the famous classical economist J.B. Say who observed that:

> "*there is a grand distinction between an individual borrower and a borrowing government, that, in general, the former borrows capital for the purpose of beneficial employment, the latter for the purpose of burden consumption and expenditure*" [Walter, 1945; p. 477].

Adam Smith, Hume, Say and Ricardo disapproved of public debt because they thought it interfered with the natural order which was conducive to the creation of wealth and increase in material welfare of the nation.

Tobin's (1963)[3] analysis is mainly concerned with transferable demand debt and securities of different maturities held by the public. He has utilized the supply price of capital in measuring the impact of debt management. His model shows the shift from long-term debt to short-term debt, increases the liquidity preference in the economy. The stabilisation policy through debt management is generally based on such relative shift in the maturity pattern of public debt, such shift affects the liquidity.

Anderson and Jordan (1968)[4] have empirically tested the propositions that the fiscal actions affect more quickly, predictably and strongly over the economic activity, than monetary action. They have defined changes in government deficit or surplus (**R-E**), as fiscal actions. Monetary actions were defined in terms of changes in monetary resources and monetary base. They have taken changes in the spending as an indicator of economic activity, for measuring the influence to those two types of actions. They found that the impact of monetary actions are stronger, quicker and predictable than the impact of fiscal actions.

Heller's (1975)[5] paper examines the fiscal behaviour of eleven African countries, and concludes that:

> *"The results obtained from the estimation of the model are instructive as to the structure of the fiscal decision-making process in the public sector in Africa, and they shed light on some controversies on aid, taxation, and the public sector"*, [*Heller, 1975, p. 441*].

Further, in **Heller's (1980)**[6] paper, he has added an important note of dissent, while the study was covering twenty-four developing countries. His study found that although:

> *"...the hypothesis that the public expenditure adjusts more rapidly than revenue in response to inflation appears valid for approximately 60 percent of the countries in the sample, opposite result holds for a significant minority of the countries", [Heller, 1980, p. 746].*

Thus, demonstrating that the existence of the self-perpetuating dynamic process should not be taken for granted.

Choudhary (1976),[7] briefly, has reviewed the theoretical literature on the impact of the fiscal and monetary policy in the context of a government budget constraints. His work focuses attention on the long-run effects of money-financed or bond-financed deficit spending. He reviews the integration of fiscal and monetary sector of some of the existing econometric model, particularly, attention is given to **IS-LM** structure of these models to see how they incorporate an explicit or implicit. The problem with his mechanism is of setting it to be used for a number of small adjustments in the exchange rate, rather than the present system of few large changes.

Tanzi (1977)[8] explains the problem of lags in collection that is analysed in a theoretical framework, which he subsequently uses to explain the behaviour of revenue during inflation in Argentina (1974-1975). He shows in mathematical appendix how the lag and the rate of inflation interrelate with the elasticity of tax system. Consequently, due to such dynamic interactions higher inflation and higher deficit can cause each other to spiral upwards and therefore, can be self-perpetuating. And in **(1978)**[9] he studied the theory of inflation, real tax revenue and the inflationary finance; with application to

Argentina also from the year 1968-1976. He concluded that the existence of lags in tax collection, worsens the fiscal deficit and further that inflation creates the incentive to delay tax payment in case of Argentina and Chile.

Aghevli (1977)[10] has developed an econometric model of Indonesia's monetary sector using quarterly series (1968:1 to 1973:4) where the government revenue is composed of direct and indirect taxes. Due to lag involved in the assessment of certain taxes and heavy dependence on foreign trade, however, nominal taxes are slow in responding to prices rise and that will reduce the government revenue, [*Aghevli, 1977; p.42*]. He has found empirical support for self-perpetuating process of deficit-induced inflation and inflation induced deficifts. Fiscal policy also affects the supply of money. Especially, an increase in government expenditure results in an increase in money supply.

Aghevli and Khan (1978) studied the case of Brazil, Colombia, Dominican Republic and Thailand, presenting a model that has been replicated by so many researchers studies finding empirical support for the self-perpetuating process of deficit. Their hypothesis is especially important: government expenditure adjusts more rapidly than receipts to a given change in price level and as a result, inflation widens the fiscal leading through the central bank financing, to a larger money supply and further exacerbating inflation. They state that:

> "*The basic hypothesis was that, government revenues would tend to fall behind in real terms owing to collection lags. The financing of this inflation-induced deficit would then increase the money supply and generate further inflation. Thus, the increase in the supply of money would both cause inflation and would be the result of thereof, a*

phenomenon that was confirmed by our format tests of causality between the two variables." [*Aghevli and Khan, 1978*, p. 409]. They conclude that: *"...in developing countries, fiscal policy tends to be automatically destabilizing, the principal built-in destabilizer being the various revenue lags indicated earlier. A passive fiscal policy in times of inflation is, therefore, hazardous. The control of inflation requires deliberate action by budgeting authorities to eliminate budgetary deficit or even achieve surpluses, if the burden on monetary policy is not to be excessive. In any event, these countries should also give priority to reshaping the revenue system so as to mitigate the various lags"* [*Aghevli and Khan, 1978;* p. *411*].

Pathak's (1978)[11] study is an attempt to examine the role played by the Reserve Bank of India (**RBI**) in facilitating the government debt management operations. He also examined the impact of the government expenditure, revenue and budegtary deficits on central bank's debt holding operations. It further endeavous to evaluate the fiscal and monetary role of Reserve bank's open market operations (**OMOs**) policy. The main finding of his study is that monetary and fiscal policies are inextricably intertwined in India.

Farzin (1988)[12] empirically has studied the relationship between foreign borrowing and economic growth of the Sudan during 1975 to 1984 by using a simple open macroeconomic model. He states that:

> *"Heavy foreign borrowing combined with very poor economic performance (particularly in the foreign trade sector) and unfavorable external economic conditions resulted in sizeable debt service obligations which climbed to over 20 percent of GNP in 1983 and 1984."* [Farzin, 1988, p.7].

Farzin concluded that foreign borrowings were failure to contribute to economic growth, and took heavy toll on the economy.

Jensen's (1992)[13] study provides additional arguments in favour of rules rather than discretion in public policy making. Specifically, monetary commitment, moderates fiscal time inconsistency problems, and fiscal commitments moderate monetary time inconsistency problems. The gains from rules in either accommodative monetary or fiscal policy-making have therefore been underestimated previously. Jensen's approach most clearly identified the sources of time inconsistency problems and their interdependence; commenting on the degree of independence of monetary and fiscal policy making. He found that a positive explanation for the fact that monetary and fiscal policy indeed are performed by independent authorities in many countries of the world.

Saiyed (1997)[14] has empirically, attempted to examine the role of the central monetary authority in Indian context in facilitating the debt management and fiscal operation during 1970 to 1995. He has also examined the behaviour of public expenditure, trends in sources of revenues and overall deficit on the Central Bank's debt holdings operations. Further, he has empirically evaluated the Reserve bank of India credit and governement finance in the short-run as well as in the long-run. He concluded that the results obtained strongly support the contention that: "*National Debt has statistically strongly and positively influenced the level of RBI Net Credit to Government.*" [*Saiyed, 1997, p.214*]. he has also examined the influence of deficit (**G-R**) and found that: "*deficit statistics gave clear indication of absence of autocorrelation among resideduals.*" [*Saiyed, 1997, p.215*]. Further, he examined the influence of N.R.B.I. on Reserve Money: "*...Reserve Money (R.M) is statistically strongly influenced by N.R.B.I.G. Thus debt holding operations were chiefly resposible for considrable variations in R.M.*" [*Saiyed, 1997, pp.217-218*].

Sundararajan, Marston and Shabsigh (1998)[15] in their well-studied paper, examining recent progress in developing Islamic financial instruments for the management of monetary operations and public debt requirements in the Islamic Republic of Iran and the Sudan. They have explained the project specific instruments that meant for budget funding, applying principles of Mudharabah and Ijarah, citing their limited usefulness for a flexible monetary management and efficient domestic debt management. They criticised the general funding instruments as they say:

> *"The limitations of these instruments for efficient management of public sector funding requirements have meant that domestic financing of deficits have come to rely exclusively on central bank credit for countries operating under fully Islamic banking systems–thereby, exacerbating inflationary pressures"* [Sundararajan, et al 1998; p. 7]. In their concluding remarks, they note: *"Central bank monetary operations play a crucial and catalytic role in stimulating money and interbank markets and measures to foster these markets are essential or successful adoption of market base instruments. The weakness of central bank monetary operations in Islamic banking systems has been a major factor in ensuring financial repression, and overcoming this weakness is therefore crucial for financial deepening. The success in developing market-base instruments to regulate liquidity and meet general government borrowing needs would greatly enhance the discretionary control of central banks over the growth of their balance sheets, and strengthen monetary control."*, [Sundararajan, et al 1998; pp. 19-20]

7.3 GENERAL FISCAL STRUCTURE

One of Kynes's main idea in 1930s was that fiscal policy could and should be used to stabilise the level of output and employment. Fiscal policy has its initial impact in the goods markets. Monetary policy has its initial impact mainly in the assets markets. But because the goods and assets markets are closely interconnected, both monetary and fiscal policies have effects on both

the level of output and interest rates, [*Dombusch and Fischer, 1994; p. 123*].[16] Fiscal policy through variations in government expenditure and revenue profoundly affects national income, employment, output and prices. Keynes believes the government should cut taxes and/or raise spending (expansionary fiscal policy), so as to get the economy out of a slump. Conversely, he holds that the Government should raise taxes and/or cut spending (contractionary fiscal policy) to control inflation. The fiscal structure reflects the important role of the government in the economy highlighting some ways in which fiscal policy affect economic incentives leading to economic growth. The ratio of government expenditure to **GDP** has been high and mainly account of current government expenditures. This has necessitated the mobilisation of revenues that are also large and have relied on indirect taxes mainly, despite of late export of oil (5.1% and 4.8% of the **GDP** in 2000 and 2001 respectively). Hereafter, we would like to discuss the fiscal structure in relation with monetary base in the Sudan, during the period from 1980/81–2000 and 2001.

The general budget of 2001 was prepared in accordance with the policies aiming at directing the overall and sectoral policies, to rationalize aggregate demand, increase production and productivity by gearing expenditure towards priority sectors and basic services. The policy objectives rely on government's own resources, continuation of privatisation and on social support programs, while allowing for appropriate consideration of transparency. In line with these objectives, the government budgeted for a positive gross domestic product (**GDP**) growth rate not less than 6.5% and a reduction of average inflation rate to 5% by the end of the year. In actual performance of 2001, **GDP** growth reached 6.7% and inflation rate registered a lower rate of 4.8%.

7.3.1 THE STRUCTURE OF GOVERNMENT REVENUES

The Government has: (a) a revenue budget: that is the estimates of receipts and disbursements of revenue account, and (b) a capital budget, which relates to receipts and disbursements on capital account. The estimates of receipts on revenue account are further divided into two broad headings viz. tax revenue and non–tax revenue. Tax is in the form of: (i) taxes on income, (ii) taxes on property and capital transaction, and (iii) taxes on commodities and services. While non–tax revenue takes the form of: (a) fiscal and other services (b) interest (return) receipts, and (c) dividends and profits. Table (7.2) shows that the total revenues of the Government have been rising quite fast partly due to more taxes and higher rates of taxes, and partly due to inflation and foreign exchange deterioration (the value of the Sudanese pound). The total revenue of the Government was LS 732.1 million in the fiscal year 1980/81 (ending June), and SDD 331.4 billion in the fiscal year 2001 (ending December). But in the fiscal year 2001, the revenue was SDD 365.2 billion, i.e. a 10.2% rise. The revenue increase is primarily attributed to the increases in the value added taxes (**VAT**), from SDD 16.1 billion to SDD 37.7 billion, the actual tax revenue was much higher than non–tax revenue. Whereas, tax revenue increased from SDD 160.2 billion to SDD 188 billion (51.5% of the total revenue), non–tax revenues rose from SDD 171.2 billion to SDD 177.2 billion (48.5% of total actual revenue). Therefore, the total tax revenue had increased by more than 654 folds between the fiscal year 1980/81 to the fiscal year 2001. The Government revenues in terms of **GDP** have been very low in comparison with other developing counties. The revenues average stood at 9.3% of the **GDP** during 1980/81 to that of 19% in 2001 on average in developing counties. However, the revenues have been significantly more

volatile in 1990s. The bulk of Government's revenues are collected through indirect taxes. These taxes have contributed in between 31.2% to 70.5%, of all government revenues during 1980/81 to 2001. Subsequently, value-added-tax (**VAT**) was introduced in 2000, the trade tax systems have also been reformed reducing tax burden on imports by 13.8% on average and income taxes have generally contributed for a small share of revenue averaging between zero to 30%.

In view of the relatively low share of direct taxes in total revenues (11.6% to 27.7%), which generally tend to be more distorted than indirect taxes, it is quite likely that the growth-regressing effect of the tax system in the Sudan had been limited. However, a large share of trade taxes, including imports duties, could possibly have been importantly distinctive for the development of sectors dependent on imports, and in particular the up-growing manufacturing sector. Revenues system in the Sudan has also been characterised by a number of weaknesses. The share of both direct and indirect tax revenues in **GDP** has been stagnating or decreasing since early 1980s, notwithstanding the many reforms efforts. Furthermore, effective tax and tariff rates have been quite low in general despite high legal rates, reflecting numerous exemption and mass corruption.

7.3.2 THE GOVERNMENT EXPENDITURE PATTERNS

There has been tremendous increase in the Government expenditure, particularly, in the revenue expenditure financed through current taxation. The revenue expenditure of the Government is broadly classified into four types viz. civil expenditure (which includes wages, salaries, social subsidy

etc); contribution to states' fund, centralised item and steering expenditure. At the same time the Government adopted the other classification of expenditure into three headings viz. development, investment and capital expenditure. Table (7.1) reflects the actual performance of the public expenditure for the fiscal years 2000 and 2001. In the fiscal year 1980/81, which was ending in June, the current expenditure was only LS 844.3 million. But the situation changed, and the actual total expenditure rose from SDD 352.2 billion in the fiscal year 2000 to SDD 418.8 billion in the year 2001 (18.9% increases). This was mainly due to increase in wages, salaries (19.7%), meanwhile, development and investment expenditure and capital contributions increased by 45.6% in the year 2001 as compared to that of the year 2000.

Government's expenditures affect growth primarily through direct increase of the factors of production and thereby raise growth, and indirectly by raising the marginal productivity of privately supplied factors of production. Public spending on education, health, and other services that contribute to the accumulation of human capital are examples of such expenditures, [*Barro and Sala-i-Martin, 1992*].[17] In the Sudan, despite of its natural resources endowments and socio-political structures, the government has played a dominant role in the economy of the Republic. Interestingly, the share of expenditure in **GDP** was among the highest ones of the developing counties. The average ratio of the total expenditure in the Sudan approximately stands at 15.64% to the **GDP** (the lowest was 7.4% in 1997 and the highest was 23.3% in 1980/81). Also noteworthy is the fact that, the government expenditure displayed a larger fluctuation during the period 1980/81 to 2001. This large share was partly a reflection of the inward-oriented development strategy that the Sudan has adopted in the late 1970s through to the 1980s,

as well as the large defense expenditure in the 1990s and the mass corruption that engulfed the current regime in the 1990s.

The different ruling governments invested in nearly all sectors of the economy, either directly or through net lending to either Government owned or controlled enterprises which also had budgetary implications. Development expenditure made up a small part of the budget on average (really, it is ignored sector), it ranged up to one seventh of the overall budget. The Government was also involved in income redistribution and provision of social services with budgetary implications through subsidies and transfer, inaddition, there are the unknown expenditures by the ruling regime. But as a matter of fact the government, after the liberalisation process, spends very less in health and education as compared to defense and luxurious. The wages bill of the Government stands at 3.9% to **GDP** in 2001 more than the development expenditure with 2.4% in the same year, thus, made up one third of the total expenditure, (still not sufficient to the Government employees due to costly life expenses).

7.3.3 DEVELOPMENT EXPENDITURE

The interrupted available data of development expenditure from the year 1980/81 to 2001 showed too high increase on the development and investment expenditure item, especially, in the fiscal year 2000, which registered SDD 52.2 billion that had increased to 76 billion in the fiscal year 2001, while it was only LS 290.5 million in the year 1980/81. The actual development expenditure separately had increased from SDD 36.8 billion in the 2000, to 47.8 billion in the fiscal year 2001, i.e. 28.5%. The agricultural,

industrial, energy and mining sectors registered the highest shares with 24.3%, 20.7%, and 22.2% respectively, during the fiscal year 2001. But this increase is not enough for the most needed development projects in the country. The development expenditure declined from 3.8% of the **GDP** during the period 1980/81 to 1984/85 to 1.2 % of **GDP** during the period 1996 to 2000 and incresed to 2.4% of the **GDP** in the yeatr 2001, this amount of development expenditure is not sufficient to cover needed investment in public infrastracture and human resources development (**HRD**).

7.3.4 OVERALL DEFICIT AND PUBLIC DEBT

It would not be out of place to give a brief account of overall deficit position of the Sudanese government. The statistical data for expenditure, revenue and overall deficit indicate that there has been a progressive increase in the deficit from LS 531.1 million in the year 1980/81, but stands to be SDD 18.2 billion in 2000, while it was SDD 25.0 billion in the year 2001. It is also observed that aggregate expenditure has increased approximately by many folds during the period of this study. Considerable variations among these fiscal variables were observed. It is this mounting deficit that has caused enormous increase in the Sudan's debt position. Having examined the government expenditure and revenue pattern, we would like to examine public debt in brief. Concentrating on external and internal public debt in general and its relative behaviour, though external debt is significantly great against well known short falls of it especially to the less-developed economies, as against to raise more resources internally of which the Sudan is not an exception. During the 1970s and 1980s, external aid and loans helped to finance public investments and expansionary government policies. The oil crises, loss of

purchasing power, and increased interest rates contributed in worsening the economic situation, making it even more and more difficult to serve external debt. However, access to external financing dried up as arrears began to accumulate. Expenditure expansion, a low and declining revenue to – **GDP** ratio (11.4% in 1980/81-1984/85, 8.8% in 1985/86-1989/90, 7.3% in 1991/92-1994/95, 8.0% in 1996-2000 and 11.3% in 2001), and limited access to foreign finance resulted in a surage of government borrowing from **BoS**, fueling inflationary pressures. Measures to cut budget deficits were, therefore, of utmost importance for stabilising the economy and curbing the inflationary rate.

According to Article (57–1–9) of Bank of Sudan Law Act 1959 (amended June, 1999) states that the Government may borrow from Bank of Sudan an amount of not more than 25% of the projected total ordinary revenue for the year underconsideration, provided that the amount is repaid within a period not exceeding first six months of the next fiscal year. The amount of temporary financing offered to the government was LS 299.2 million in the year 1980/81. It has increased to SDD eight billion in the year 2000 and by the year 2001 the internal financing figure stood at SDD ten billion. Thus within a matter of twenty years the internal financing increased by more than 33 times. In fact large part of debt instruments were held by the monetary system and central monetary authority has played a vital role in clearing market. Mounting public debt and Bank of Sudan holding of those debt instruments reflect the fact that fiscal and monetary authorities are working with full co–ordination and fiscal structure has fairly developed in the Sudan. The overall budgetary position also affects economic growth, mainly through the impact on financing. The inflationary financing of large and possibly

growing budget deficits distort relative prices, create uncertainties, and often contribute to inefficiencies in the allocation of resources. Non-inflationary financing of large fiscal imbalances leads to build-up of debt and can crowd out private investment through pressures on rate of returns and/or the availability of funds. Furthermore, an environment with large fiscal imbalances, in which the stance of future policies is unclear, adversely affect long-term investment decisions, which require a minimum level of forecasting clarity. Most of the analysis in economic literature of the growth, role of public debt have been conducted in terms of the situation obtaining in developed countries. The important role of public borrowing in economic development is a relatively recent phenomenon and such much to do with the collapse of the principle of laissez faire, the rise of modern welfare states and imperatives of accelerated economic development of developing countries.

7.4 GOVERNMENT FISCAL OPERATIONS AND PUBLIC DEBT

An attempt would be made in this chapter to review the controversy about the burden of public debt and its management in the Sudan. There is a broad agreement on the institutional elements of public debt among economists, but the theory or principles of public debt have been a matter of controversy for the last two hundred years. It is widely believed that the resurgence of the transfer, hence, no burden argument followed by the Keynesian Revolution of the 1930s and was strengthened by the post Keynesian emphasis on deficit financing. However, Buchanan (1958)[18] has summed up the basic tents of what he called 'new orthodoxy' and proceeded to demolish them one by one. Thus, the controversy relating to the burden of public debt once again became

a subject of lively debate on the late 1950s and 1960s and the position of today is stated in the words of Buchanan:

> "*Prediction as to the development of analysis or the acceptance of ideas are risky at best but it seems reasonable to suggest that the principle of public debt are on the verge of synthesis. Undue optimism is, however, surely to be avoided; especially in the history of debt theory is to be used as guide*" [Buchanan, 1958; p 34]. And according to Wright (1940)[19]: "*The financial burden of the national debt is ... to be measured by the effects of the interest charges and the taxes levied to meet them. The relation which the taxes for interest bear to the national money income is the question of primary importance*" [Wright 1940; p. 199], this is an interpretation of the definition of burden of the debt.

The Sudanese economy was gradually drifting towards fiscal crisis since the early 1980s, two factors were responsible for its initiation and creation of macroeconomic imbalances; one was external front, the economy faced continues current account deficit which created payments crisis; on the internal front, from the early 1980s, the total expenditure of the Government for-exceeded its total revenue and this reflected in the increasing budgetary deficit, year after year; but more important and serious was the fast determination of revenue account of the Government budget, which showed continuous excess of revenue expenditure over revenue receipts leading to revenue deficits. This increase in these two deficits was not restricted to them only, but over widening the gap between expenditure and revenue of Government, led also to mounting fiscal deficit, which measures the aggregate resources–gap in Government's fiscal operations. The fiscal deficits were financed by increasing internal borrowings from banks and that increased the interest burden (rate of return) on revenue account. Externally, the persistent current account deficits in the balance of payments (**BOPs**)

were financed through external borrowings, imposing increasing burden of debt servicing, and created external debt crisis

The Sudan's public debt crisis did not arise merely from a need to offset temporary external shocks i.e., increase in imports costs or decrease in exports; adverse domestic policies contributed to it importantly. As a matter of fact, in the 1970s the Sudan had launched an ambitious development programme that was expected, from its inception to be financed largely by foreign loans. However, the situation did deteriorate in the early 1980s with the prevalence of high real interest rates, sluggish export demand and of course the decline in commodity prices plus to the restart of the civil war. Heavy foreign borrowing especially to finance the deficit in the national budget, combined with poor economic performance and unfavourable economic conditions resulted in sizeable debt services. As it is known that the country failed to meet its repayment obligations and began to build up debt services arrears. Rapid accumulation of arrears necessitated a series of debt rescheduling on increasingly concessional terms.

Clearly, the accumulation of external debt (most of the stock of debt in arrears), even if incurred to finance economic development, can potentially impede economic growth if the borrowed amounts are massive and are located to uses which, relative to repayment terms, do not generate adequate economic return in time. In such a situation, debt services payments can take a heavy tall of the national income and result in a shortage of domestic resources needed to maintain and expand productive capacity, thereby, inhibiting economic growth or even leading to an economic decline. Several questions arised: Did the Sudan incur too much debt (heavily indebted poor

country '**HIPC**')? Were the types and repayment terms of the external loans that the Sudan undertook suitable to its needs and economic realities? Were the borrowed resources used prudently to promote economic growth? To be able to answer these or any related questions requires a better understanding of the relationship between foreign public debt, monetary base, fiscal operations and long-run growth.

The Sudan's external public debt was US $ 6,103,383 in December 1980, and it is projected at US $ 20,175 millions for the end of December 2001, most of it on non-concessional terms. The debt is about ten times the value of exports, fourteen times the value of government revenue (including oil). About 86% of the country's total external debt is in arrears, of the US$ 20,175 million approximately 19% due to multilateral creditors; 30% to Paris club creditors; 36% to non-Paris Club official creditors; and 15% to commercial banks. Saudi Arabia, Kuwait, the United States and the United Kingdom are by far the longest bilateral creditors, followed by France and Italy. In order to manage and monitor the enormous debt better, the government has taken steps to improve data reporting and institutional management. In January 2001, Bank of Sudan established an external debt unit that is the sole agency in the Sudan responsible for managing the external debt portfolio.

Inability to finance the debt has constrained the Sudan's access to international financial assistance, which in turn has restricted investment and economic growth. Recently, with oil receipt inflows, the Sudan has taken initiatives to normalise relations with some of its creditors. Given the size of the public debt, a comprehensive and phased approach including coordinated multidonor support, will be essential for the Sudan to benefit from the

programme for heavy-indebted-poor country (**HIPC**). A comprehensive strategy for arrears clearance is needed, and rapid debt reduction must follow. Engineering debt sustainability is complicated not only by the sheer size of the financing needs for arrears clearance and debt relief, but the parallel needs for short-term humanitarian support, quick interventions, reconstruction and development. Therefore, extraordinary efforts will be required from all parties-multilateral, officials' bilateral creditors and commercial banks. The government, for its part, needs to address simultaneously a number of critical issues including establishing lasting peace and solve all conflicts; establishing creditable transports and an appropriate management of public resources; establishing an appropriate expenditure programme; and preparing an inclusive and pro-poor interim programme that genuinely reflects the needs and voice of the country.

7.5 MACROECONOMETRIC MODEL OF GOVERNMENT FINANCE

In this section, a macro-econometric model is applied to analyse the Government expenditure, revenues, fiscal deficit and debt management. The fiscal policy and government's budget are modeled explicitly because of the crucial role that they play in money supply process and overall economic activity in a developing economy [*Khan and Knight, 1981; p.11*].[20] The model is adopted from the work of Aghevli and Khan 1978, Khan and Knight 1981 and Jadhav 1994. The model is expected to work as follows: An initial government deficit raises money supply. Increased money supply (**M**), given income (**Y**), determines the prices level (**P**). Higher price level affects government expenditure and receipts [*Jadhav 1994, p.163*].[21] On revenue side, it has differential impact on tax and non-tax revenues. On the expenditure side, it

warrants larger development expenditure to maintain a given level in real terms, and also determines the evolution of non-development expenditure, including profit payments (Islamic financial system of Government Musharakah Certificate to finance the Government deficit) on domestic debt and interest payments on foreign debt. Since the effect of inflation is stronger on expenditures than receipts, and because expenditures adjust faster than revenues, the government deficit tends to widen further, setting in motion a self-perpetuating process.

The initial government deficit, besides raising money supply, may also lead to expansion of domestic debt which raises profit payments burden, thus increasing expenditure augments the production potential in the economy, thereby promoting economic growth. Economic growth, on one hand, moderates the inflationary tendencies generated by increased money supply. Assuming that the desired real expenditure of the government is related to the level of income, it may be reasonable to assume that, in the long-run, the government wishes to increase its expenditure proportionately with the growth of real income and, therefore, we would expect g_1 the income elasticity of government expenditure, to be equal to unity. Actual expenditures are specified as adjusting to the difference between the desired expenditures and actual expenditure in the previous year. In these cases specifying the adjustment of expenditure in real or nominal terms makes no difference [*Aghevli, 1977*]. Hence, we can specify the function in logarithms for the government expenditure, revenue and deficit as follows:

$$\log GE_t = yg_0 + yg_1 \log Y_t + (1-Y) \log \left(GE/p\right)_{t-1} + \log P_t \qquad (1)$$

Where, GE_t denotes the government expenditure, **P** stands for price level, **Y** is level of income, **y** is the coefficient of adjustment, **1>y>0.** Desired revenues (GR_t) of the government are assumed to be functionally related to the level of nominal income. Actual revenues adjust to the difference between desired revenues and actual revenues obtained in the previous year (period). If, in the long-run, government revenues grow at the same rate as income, we would expect t_1 to be equal to unity. Thus, we use the following equation for government revenues:

$$\log GR_t = g_0 + g_1 \log (YP)_t + g_2 \pi_t \qquad (2)$$

Where, GR_t denotes the level of revenues, $g_1 > 0 > g_2$ and other variables are defined as before. We expected that the elasticity of revenues, t_1, will be positive. The Government budget deficit is defined as the difference between government spending and government revenue. Growth stabiles the budget and improves the fiscal position of the economy. The priori effect of increased output on the budget deficit is negative [*Roger 1995, Hebbel 1993*].[22] This is partly explained by the presence of automatic stabilizers such as a progressive income structure. Increased output lowers the fiscal deficit through higher tax and non-tax revenue. However, lower revenue is expected when there is high inflation, which thus worsens the fiscal deficit. Empirical studies show that inflation creates the incentives to delay tax payments [*Tanzi,1997*]. Consequently, due to such dynamic interactions higher inflation and higher deficit can cause other to spiral upwards and can thus be self perpetuating [*Tanzi, 1977, 1978*]. The following specification is adopted to examine the behaviour of fiscal deficit:: $GD_t = GE_t - GR_t$

$$\log GD_t = C_1 + C_2 GD_t(-1) + C_3 M + C_4 \triangle M_t(-1) - C_5 \triangle Y_t \qquad (3)$$

Where, GD_t denotes the fiscal deficit, π is the rate of inflation, M_t growth of money supply, Y_t stands for income, and **C** stands for consumption.

THE EMPIRICAL RESULTS

The followings are the out come of the statistical analysis

(1) Expenditure

$$log\ GE_1 = P - .856155 + YR\ .749497$$
$$(-1.116) \qquad (.977)$$
$$R^2 = .07601 \qquad F = .65808 \qquad \text{Significance} = .5313$$

$$DW = 1.06289$$

(2) Revenue

$$log\ GR_1 = P - .942049 + YR\ .979326$$
$$(-1.241) \qquad (1.290)$$
$$R^2\ .09431 \quad F = .83307 \quad \text{Significance}\ F = .4527$$

(3) Deficit

$$log\ GD_1 = Y - .854584 + GD - 1.139244 + M\ 3\ .\ 11022 + DM\ -3.471$$
$$(-1.075) \qquad (-2.700) \qquad (1.149) \quad (-1.086)$$
$$R^2 = .82454 \qquad F = 3.52447 \quad \text{Significance}\ F = ..1644$$

The reporting results of the above regressions estimates, we typically reproduce the **t** value for each individual regression coefficient in part theses individual below it. The equation data quite well as indicated by the values of **R2, F** and **DW**. The above regression results strongly suggest that the there is positive correlation among the variables, with significant at 5%, and DW at around 2.

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Table No. 7:1

The Public Sector Performance 1980/81 – 2001

(SDD millions)

Item	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
Total Ordinary Revenue	732 1	890 6	1,240.3	1,469 0	1,485 5	1,790.4	2,742 0	4,016 0	6,306.0	8,300.0	15,400
Total Current Expenditure	844.3	975.1	1,186.5	1,642.1	2,512.2	3,378.3	3,498.2	3,843.5	6,234 7	15,0503	31,000
Surplus (+) / Deficit (-)	-112.2	-84.5	+53.8	-173.7	-1,026 7	-1,587.9	- 756.2	-173.5	+ 072.3	- 7,750.7	-15,600
Development Expenditure	-290.5	-306.4	-443.0	-486.0	-453.0	-369.1	n.a	n a	n.a	n a	n a
Overall Deficit	-531.1	-596.8	-569.2	-656.7	-1,479.7	-1,957.0	- 756.2	n.a	n.a	n.a	-15,600
Financing of the Deficit	531.1	596.8	569 2	656.7	1,479.7	1,957 0	756.2	n.a	n a	n.a	15,600
(a) External Financing	253.1	354.0	429 2	n.a	n.a	n.a	n a	n.a	n.a	n a	7,000
(b) Domestic Financing	-21.2	121.5	030.0	n.a	n.a	n.a	n.a	n.a	n a	n.a	8,600
(c) BoS Finance (Net)	299.2	121.3	110 0	n.a	n.a	n.a	n.a	n a	n a	n a	n a

Sources: (1) Bank of Sudan Annual Reports
(2) Ministry of Finance and National Economy, Government of Sudan, Khartoum.

Table No. 7:1 (Cont.)

The Public Sector Performance 1980/81 – 2001

(SDD millions)

Item	1991/92	1992/93	1993/94	1994/95	Jul-Dec 1995	1996	1997	1998	1999	2000	2001
Total Ordinary Revenue	34,000	8,358.62	13,119 3	28,470.6	20,674.7	69,777.1	108,559	159,200	205,200	334,000	365,200
Total Current Expenditure	83,000	7,966.81	11,943.6	27,820 3	19,925.3	83,001 0	124,361	157,500	196,418	312,500	342,800
Surplus (+) / Deficit (-)	-48,000	+3,91.81	+1,175 7	+650.3	+749.4	-13,223.9	-15,805	+1,700	-8,782	+21,500	+22,400
Development Expenditure	n.a	3,396.18	2,546.3	1,773 7	1,848 5	7,795 0	6,978	18,000	29,500	39,700	47,400
Overall Deficit	-48,000	-3,004.37	-1,338 5	-1,099.1	-1,099.1	-21,017.9	-22,780	-16,300	-21,800	-18,200	-25,000
Financing of the Deficit	48,000	3,004.37	1,338.5	1,099.1	1,099.1	21,017.9	22,780	16,300	21,800	18,200	25,000
(a) External Financing	14,000	1,309.40	392.3	52.7	183 7	2,200.0	2,389	3,400	10,500	11,600	5,400
(b) Domestic Financing	34,000	1,065 22	000	684.7	516.5	2,379 0	11,491	12,900	11,300	0000	00200
BoS Finance (Net)	n.a	629.75	978 3	601 1	398 9	16,438.9	7,900	n a	n.a	6,600	19,600

Sources: (1) Bank of Sudan Annual Reports
(2) Ministry of Finance and National Economy, Government of Sudan, Khartoum.

Table No. 7:2

Economic Classifications of the Government Expenditures

	1980/81-84-85	1985/86-89/90	1991/92-93/94	1996-00	2001
Total expenditures	21.3	21.4	13.9	8.9	12.7
Current expenditures	17.5	17.7	12.6	7.3	10.2
Wages and salaries	0.3	1.1	1.4	2.8	3.9
Goods and services	6.4	4.6	3.5	2.0	1.5
Transfers	4.2	5.2	3.7	0.6	1.0
To regions	3.1	2.2	0.4	-	-
To institutions	1.1	3.0	3.3	-	-
Debt service paid	2.8	3.8	0.5	0.5	1.0
Other	3.8	3.0	3.5	1.4	2.8
Extra budgetary	0.0	1.2	0.1	0.4	0.1
Development expenditures	3.8	2.5	1.2	1.2	2.4

Sources: Ministry of Finance and National Economy, Khartoum, the Sudan.

Table No.: 7.3

The Government Budget

	1980/81-1984/85	1985/86-1989/90	1990/91-1994/95	1996-00	2001
			Percent of GDP		
Total revenue	11.4	8.8	7 3	8 0	11.3
Tax revenue	9 7	6 3	5 5	5 8	5 8
Total expenditures					
	21.3	21 4	13 9	8 9	12 7
Current expenditures	17.5	21 4	12.6	7 3	10 2
Extra budgetary	0 0	17.7	0 1	0.4	0.1
Capital expenditures	3 8	1.2	1.2	1.2	2.4
Overall cash deficit	-9.9	2.5	-6 6	-0 9	-1.4
Financing	9 6	-12.3	6.7	1.4	---
External	7.8	6.7	2.7	0.3	---
Net domestic borrowing 1/	1.8	5.6	4 0	1.1	---

Source. Ministry of Finance National Economy.
1/Net domestic borrowing includes net domestic bank borrowing and exceptional domestic borrowing.
2/ Total revenues less recurrent expenditures.

Table No.7:4

Development Expenditure for 2000 and 2001 (SDD Billions)

Years	2000			2001			
Items	Expenditure (projected)	Expenditure (actual)	% of Total	(projected)	% of Total	Expenditure (actual)	% of Total
1–Agriculture	11.6	1.3	35	19.9	24	11.5	24.3
2–Energy & Mining	11 3	5.5	15	14.5	18	10.5	22.2
3–Water	3.7	1.9	5	3.7	5	1.5	3 2
4–Transport & Communication	5.2	4 7	13	11.9	15	4	8.4
5–Social Development	6.8	2.8	7	11.6	14	7 3	15.4
6–Industry	4.1	6.6	18	11.5	14	9.8	20.7
7–Peace & Resettlement Programme	5	3	1	0.8	1	2.2	4.6
8–Development Reserve	4.5	2.2	6	7	9	0.6	1 2
Total	47.8	36.9	100	80.9	100	47.4	100
Sources of the Deficit Financing							
Local Sources	21.8	29.8	80.8	61	75.4	42	88.6
Foreign Sources	7.9	7.8	19.2	19.9	24.6	5.4	11.4

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