CHAPTER TWO
Review of Literature

The issue of overall public debt and debt sustainability is assuming importance worldwide. The various publications of national as well as international think tanks such as IMF and World Bank are continuously showing their concern towards ensuring sustainable fiscal position of governments. In the due course of analyzing public debt and fiscal management of India the relevant literature has been consulted. In the following paragraphs a brief summary of reviewed literature is presented.

Past research has focused on external debt for two reasons. First, while external borrowing can increase a country’s access to resources, domestic borrowing only transfers resources within the country. Hence, only external debt generates a "transfer" problem [Keynes, (1929)1]. Second, since central banks in developing countries cannot print the hard currency necessary to repay external debt, external borrowing is usually associated with vulnerabilities that may lead to debt crises.

James D. Hamilton and Marjorie A. Flavin (1986)2 questioned how long government budget deficits can continue unchecked or whether

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governments are subject to an analogous constraint. If governments are subject to this constraint, which is termed as present value borrowing constraint, the policy of running a permanent deficit is infeasible. He proposed an empirical framework for testing the practical limits to public borrowing of U.S. The conclusions drawn from the tests, viz, Dickey Fuller test, Generalized Flood Garber test and Restricted Flood Garber test, complement by Barro (1987) who has noted that while the official budget has registered a chronic deficit, the real value of government debt fell substantially in the post war period suggesting that the official accounts have grossly misstated the true fiscal posture of the government. He suggested an alternative measure of the government deficit that takes into account revenues from monetization and capital gains on gold but excludes interest payments. From the time series properties of the adjusted deficit series, one can construct a rational expectations forecast of the present value of future government budget surpluses. Such a forecast series can account for 53% of the observed variance of real government debt under the assumption that the government budget must be balanced in present value terms.

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Seshan (1987)\textsuperscript{4} was the first to draw a pointed attention to the possibility of domestic debt in India reaching an unacceptably high level in the none too distant future. Subsequently, the Report of the Controller and Auditor General (CAG) of India also warned against the alarming growth in domestic debt. The initial studies, based on simple trend analysis, were criticised by Rangarajan, Basu and Jadhav (1989)\textsuperscript{5}, on the grounds that they lacked ‘analytical constructs’ behind the findings. This study called for a comprehensive and much deeper analysis on measurement of budget deficit and debt. In their pioneering work the authors examined the dynamic nexus between the two. Using data for the 1970s and 1980s, the authors simulated two alternative scenarios for financing the deficit: a debt financing scenario and a monetary-financing scenario. Under the debt-financing scenario, they concluded that “the higher interest burden may invariably lead to a squeeze on budgetary capital outlays, thereby stifling economic growth.” Under the monetary-financing scenario they concluded “resorting to monetary financing is likely to set in motion a vicious circle of large deficit, higher monetary


\textsuperscript{5} Rangarajan, C, Anupam Basu and Narendra Jadhav (1989), “Dynamics of Interaction Between Government Deficit and Domestic Debt in India”, in Amaresh Bagchi and Nicholas Stern (ed.) \textit{Tax Policy and Planning in Developing Countries}, (Delhi: Oxford University Press); 135.
financing, greater inflation leading again to a larger deficit”.

Ritu Anand and Sweder Van Wijnbergen (1989)\(^6\) presents a simple framework to assess the consistency of appropriately defined fiscal deficits with other macroeconomic targets such as inflation. He also considers the relation of fiscal deficits to output growth, real exchange rate developments and management of internal and external debt. Finally, he considers the implications of relying on interest-bearing government debt to postpone the adjustment necessary to restore consistency with inflation targets.

He demonstrates how the intertemporal budget constraint of the government creates a trade off between current and future adjustment. Real interest rates and output growth rates are shown to determine the terms at which this trade off takes place. The usefulness of this framework is demonstrated through an analysis of fiscal policy options in Turkey in 1985 and highlights a number of interactions between different macroeconomic instruments and targets. First, Pursuing current restrictive money growth targets by relying on debt finance rather than cuts in the non-interest deficits sacrifices future budget balance if real

interest rates exceed the real growth rate of the economy. In this sense there is an intertemporal trade off between current and future inflation when bond issues rather than fiscal correction are used to support tight money.

Second, there is a conflict between fiscal retrenchment and increasing external competitiveness through exchange rate depreciation in the presence of a substantial foreign debt. This is because of the impact of a real depreciation on the real cost of foreign debt service. Finally, there is a link between stabilization policy and growth: a higher GNP growth rate relaxes the financing constraint by increasing revenue from seignorage and by allowing more foreign debt accumulation with in the constraint of given debt output ratio.

J.M. Kremers (1989)\textsuperscript{7} examines whether long run constraints on the accumulated stock of outstanding federal debt have influenced the annual conduct of budgetary policy of U.S. since the 1920's. The evidence is affirmative. During most of the inter and post war period policy in effect stabilized the federal debt relative to GNP. However, budgetary policy appears to have changed after 1981, as large debt and debt service costs failed to produce deficit reductions with the pattern of

previous decades.

According to Dornbush and Fischer (1990), an understanding of the financing of fiscal deficit is also important because there are different implications of the method of debt financing in the economy. Economic theory tells that if debt financing is met by borrowing from central bank, it is inflationary; if borrowing is from commercial banks; there is a possibility of crowding out of private sector investment. Again, if it is met by issuing bonds, the cost of debt financing will be high. So, debt financing and the method of its management are important issues. In general, deficit financing is met by expanding monetary base. Debt financing by issuing bond is less popular than the money creation.

Nilss Olekalns and Paul Cashin (1990) examined whether the magnitude of long running fiscal deficits has involved a violation of India’s intertemporal budget constraint. Finding no evidence of co-integration, a result that implies a violation of intertemporal solvency, author declares that the current fiscal policies are unlikely to be sustainable in the long run. The result supports the proposition that the

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9 Nilss Olekalns and Paul Cashin (1990) “An Examination of the Sustainability of Indian Fiscal Policy” Research Department, IMF.
indefinite continuation of the current stance is unsustainable, and needs to be altered to prevent an adverse response from lenders. This conclusion is based on a time-series analysis of the behavior of Indian government’s revenue and expenditure data which indicates that adherence to the intertemporal budget constraint has not characterized Indian fiscal policy, and provide support for the moves towards fiscal consolidation which occurred since the early 1990’s. However it is important to note that the reforms are unlikely to have led to a sustainable path for the debt stock.

This is despite the fact that the size of the budget deficit as a proportion of GDP has fallen since 1991. Following the reforms deficits have been financed through borrowings in a relatively less regulated financial market. As domestic markets have been liberalized, the cost of domestic borrowing has increased and concessional external financing has become a smaller proportion of total borrowing. This has led to a major increase in interest liabilities and to an increase in the debt-to-GDP ratio. Further fiscal consolidation may well be required in Indian public finances are to be consistent with debt sustainability.

Chelliah (1991)\textsuperscript{10} suggested that the first stage of fiscal adjustment should consist of measures to enable the Government to reduce the

primary deficit to 2.5 percent of GDP by the year 2000/01. If that were done, the growth of public debt would slow down and the total deficit would be contained at around 8 percent of GDP in 2000/01.

Henning Bohn (1991)\(^{11}\) has shown that the sustainability question has not been systematically examined in stochastic models. The sustainability of simple policy rules like balanced budgets or tax rate smoothing should not be taken for granted in a stochastic environment with no uncertainty, balanced budget and tax smoothing are sustainable in any sense of the terms. With stochastic aggregate income complications arise for a variety of tax policies when the government borrows in terms of safe debt because low realization of income will then raise the debt-GDP ratio. Neither tax smoothing nor balance budgets are sustainable, if there is an upper bound on the feasible tax rates that limits the governments ability to service debt. The no sustainability result for balance budget and tax smoothing with safe real debt turn out to be more generally valid for generic debt-financing methods, with the debt policy that support perfect tax smoothing being the unique exception. In particular, balanced budgets in nominal terms and tax smoothing policies are non sustainable when debt is nominal debt, unless inflation and

income growth are correlated in specific ways.

While discussing the role of debt management to which sustainability is very sensitive, author blames the use of ad-hoc, exogenously specified debt management policies as the major problem area. It states contingent debt is used to support a tax-smoothing objective; the resulting policy of perfect tax smoothing is sustainable under general condition. This highlights the fact that in contrast to deterministic models, tax policy does not completely specify the government’s financial policy under uncertainty.

Craig S. Hakkio and Mark Rush (1991)\(^\text{12}\) analyze the question “is the budget deficit too large” in the context of U.S. to arrive at the conclusion about the consistency of government behavior with its intertemporal budget constraint. Author focus on co-integration of government spending and revenue but follows a different approach from the authors like Smith and Zin (1991)\(^\text{13}\), who implicitly assume that expected real interest rate is constant. Unlike Trehan and Walsh he used several different sample periods to test the co-integration.


Domestic public debt is not a new phenomenon for developing countries. Guidotti and Kumar (1991)\textsuperscript{14} study the case of 15 emerging market countries and show that their domestic public debt-to-GDP ratio went from 10 per cent in 1981 to 16 per cent in 1988. They also point out that, while the ratio of domestic debt to total public debt remained more or less constant over the period (at about 30 percent), there were important differences in the process that led to the accumulation of domestic and external debt. The increase in domestic debt was mainly due to new borrowing and that of external debt was due to accumulation of arrears. This suggests that if emerging market countries had not been shut down from the international capital market, they would have probably accumulated more external and less domestic debt.

A.M. Gagales (1991)\textsuperscript{15} study the dynamics of public debt and develop criteria for evaluating the sustainability of fiscal deficits. Applying these ideas to Greek data he find evidence that the level of fiscal deficits which prevailed in the eighties is not sustainable and consider alternative profiles of fiscal deficit reduction. The central theme in this paper has been that the behavior of interest payment is crucial for


understanding debt dynamics. Interest payment depends exclusively on financial factors, namely the level of outstanding public debt and the interest rate, both of which are beyond the direct control of the authorities. Interest payments, in many countries, have surpassed primary borrowing requirements and are expected to remain in this dominant position for as long as real interest rates stay high and public debt continues to expand.

Gregor W. Smith & Stanley E. Zin (1991)\(^\text{16}\) examine the time-series properties of Canadian federal government budget deficits and the market value of outstanding federal debt and suggests that public financial policy has not obeyed a present value borrowing constraint. This conclusion is suggested by several tests and is robust to time aggregation within the 1946 to 1984 sample. The rejection of the hypothesis can be interpreted implying that the government is systematically financing public debt charges by issuing further debt. Alternatively, bondholders may expect the government to finance future interest payments form a source other than primary surpluses such as the sale of physical assets.

Soren Bo Nielson (1992)\(^\text{17}\) studies the sustainability of primary


budget deficits in a situation where the public sector has also incurred debt to the private sector. The preferred vehicle for this study was the “overlapping families” framework in which consumers live for ever and new generations are born throughout time. He found that, for certain constellations of “deep structural” parameters of the closed economy under consideration, an economically meaningful and stable steady state will exist with public debt and primary budget deficits. What it takes is a high growth rate, a low rate of pure time preference, a modest sized public sector and a sufficiently small excess of public spending over tax revenue.

Bagachi, A. and Sen, T. (1992)\(^\text{18}\) seeks to provide an overview of current debates focusing on the basic issues that arise in translating the ideas of federalism into practice and dilemma or trade-off involved in order that any reforms sought to be undertaken are guided by informed judgment.

To conclude, federalism is not just a structure, it is process and therefore it is more important to activate an interaction. From this perspective, the revival of the interstate council and a more active role of

the National Development Council (NDC) have to be welcomed. But the ramification of any fundamental change need to be considered with care with a clear-eyed view of the alternatives and the trade offs of course.

Buiter and Patel (1992 a)\textsuperscript{19} using annual data for 18 years (1970-71 to 1987-88), with four alternative interest rates, demonstrated that discounted public debt in India is non-stationary. They pointed out that without a sharp reversal of the primary deficit to a primary surplus, avoiding repudiation or default would require eventual mobilization of large seignorage or inflation tax.

Willem H. Buiter & Urjit R. Patel (1992 b)\textsuperscript{20} studies the solvency of the Indian public sector and the eventual monetization and inflation that would be implied by stabilization of the debt-GNP ratio in the absence of changes in the primary deficit. Author observes four reasons why a rising public debt burden may be of concern \textit{i.e.}, financial crowding out, difficulty in smoothing, potential inflationary consequences, and possibility of insolvency.


Rao, M. Govinda (1992)\textsuperscript{21}, in their Working Paper “Public Expenditure in India: Emerging Trends” regard that public expenditure policy in India has been employed as a major instrument to enhance capital formation. Therefore, it is important to understand the changing structure and pattern of government expenditure and its possible effects on the growth process in the Indian economy. The present study makes such an attempt to analyze the trends in government expenditure, its growth and changes in composition since 1970s. Specially, the study attempts to examine whether there has been acceleration in the growth and changes in composition since 1970s.

Detailed analysis of subsidies at the state government level has been attempted in Rao and Mundle (1992)\textsuperscript{22} for the fourteen major functional categories at two points of time 1977-78 and 1987-88. Aggregate level of subsidies and the sector composition are calculated and differences across states and sectors as well as trends over time are documented. Levels of subsidies grew phenomenally over the decade between 1977-78 and 1987-88, with the growth of recoveries lagging far behind.

behind the increase in costs. It is interesting to note, however that both aggregate and per capita subsidies went disproportionately to the better-off states. Relative shares of states in total subsidies remained remarkable stable between the 1970s and the 1980s. Social services claimed a predominant share of subsidies in all of the major states, with education accounting for the largest share within social services, followed by health. Per-capita subsidies tend to be higher. This study shows the extremely low rates of cost recovery prevalent in social services, even is sectors like higher education where distributional and other justification for subsidies is weak. In the case of economic services, the authors noted that irrigation and agriculture subsidy costs account for more than half of the total, while power and transport also involve substantial subsidies. Analysis of trends suggested that distortions induced by subsidized provision of various economic services have been increasing over time. As in the case of total subsidies and those on social services, subsidies on economic services are skewed in favor of the more developed states. Inefficiency in state public undertakings as well as inadequate tariff increases, resulting in worsening rates of return have been major factors contributing to the rise of subsidies.

The meaning and significance of the fiscal deficit was analyzed by
Rao (1993)\textsuperscript{23} in lecture delivered at Gokhle institute of politics and economics, Pune. The conclusion of the study is as follows:

(a) If the real rate of growth of the Indian economy could be maintained at 5.5 to 6 percent per annum during the next ten years or so, then fiscal adjustment would only require that the fiscal deficit of the center be reduced from amount 5.6 percent of GDP in 1992-93 to 3 percent in 2002-03.

(b) To avoid inflationary pressure, the monetized deficit of the center should be limited to the amount of reserve money required to create not more than the additional demand for cash balances.

(c) The revenue deficit has to be eliminated. It should be brought down continuously with zero deficits being reached latest by 2002-03 with such reduction, the growth of net interest payment will be cut down in relative terms, leaving scope for the growth of other expenditure.

(d) It would be desirable to raise the revenue buoyancy through a reform of the tax system and better enforcement and

(e) The process of fiscal adjust as detailed above would not involve any cut in the absolute level of public expenditure in real terms.

\textsuperscript{23} Rao, M. Govinda and Tapas Sen (1993) "Government Expenditure in India: Level Growth and Composition" Discussion paper, NIPFP.
Parthasarthi Shome’s edited work “Fiscal Policy, Public Policy and Governance” made a significant attempt regarding budget process, fiscal and expenditure management. Three significant articles contributed by D.K. Shrivastava, Amresh Bagchi and Amiya Kumar Ghosh deal with ‘Budget Process and Expenditure Management in India’, ‘Fiscal Management- The Federal Dimension of Developing Countries’ and ‘Effective Budgetary Control for Expenditure Management and its Ramifications for Public Policy and Governance’ respectively. Various concrete suggestions have been given in these contributions by eminent experts on Public Finance.

Tanner and Liu (1994)\textsuperscript{24} re-examined the Hakkio and Rush’s study (1991)\textsuperscript{25}, adding a level-shift dummy to post 1982 period co-integration relationship, involving tax revenue and government expenditure. They find that the Hakkio and Rush conclusions regarding sustainability of U.S. fiscal policy are reversed once the break is taken into account. Ahmed and Roger’s (1995)\textsuperscript{26} analysis of sustainability of fiscal and current accounts in the United States and United Kingdom includes

annual data from 1792-93 and 1692-93, respectively.

The U.S. sample, therefore, includes major wars such as the civil war, World War I and World War II. The U.K. sample includes the wars of Spanish succession, Austrian succession, the seven years war, American independence, and wars with France, the Crimean and Boar wars and World War I and II. The authors carry out a through analysis of the co-integration relationship implying sustainability taking into account the above mentioned break points. In the LDC’s context over much shorter time plans, structural breaks are often frequent. Thus the sustainability tests proposed by Ahmed and Rogers are unlikely to produce definitive conclusions about the sustainability. Therefore a possible compromise was outlined. Rather than using time series techniques to describe constant fiscal regimes, one can specify fiscal rules into the foreseeable future based on country-specific information of fiscal targets as stated in IMF stabilization program. The implied time path for domestic and foreign debt, given current debt levels as initial conditions, can then be calculated. Using this hypothesized time path for debt, one can then ask whether it satisfies the No-Ponzi Game condition. If it does, fiscal policy is sustainable.
Chelliah, Atri and Rangammanar (1994)\textsuperscript{27} tried to find out how the composition of govt. expenditure is responsible for increasing fiscal deficit in India. The study tried to give ways to reduce the fiscal deficit. They also analysed the impact of subsidies on fiscal deficit and suggested to reduce them and to invest the released funds in various projects that help to boost the economy.

Lalvani, M. (1995)\textsuperscript{28} measures the size of government by statistical profile of combined expenditures of central and state governments considered the period from 1960-61 to 1999-2000. The data of government expenditure have been classified into two categories i.e. economic classification and functional categories. The compound growth rates of all the expenditure and GDP have been computed for the entire period as also the decadal growth rates tracing a profile of major categories of expenditure at current prices, in real terms, in per capita terms and as a proportion of Gross Domestic Product. The study has also examined the growth rates of various categories of expenditure. Such a statistical profile of central government expenditure services bring out the fact that with expenditures serving government sizes the Indian

government has certainly grown in size since independence.

Bhat, Nirmala, and Kannabiran (1995)\textsuperscript{29} examined the impact of fiscal variables on economic growth in the context of Indian states. The necessary data for the analysis were collected from the Reserve Bank of India bulletins and then census of India for the years 1978-79 to 1988-89. Multiple regression equations were used to examine the influence of fiscal variable on growth. They found that public expenditure had a negative influence on the growth of the states. In addition, the impact of budget deficit was found to be negative. Hence they had recommended on the basis of their findings that the government should raise taxes and cut public expenditure so as to reduce their budget deficits.

Nunes, Jose and Loukas (1995)\textsuperscript{30} examined the link between rate of interest and deficit. They found a positive evidence. The common analogy of their study is that in a growth of economy with accumulation, increasing budget deficits may create over a long term a shortage of funds available for investment. If this potential imbalance between the supply of funds and intended investment is not met, long term rate of investment


react as economic agents anticipate shortage of funds. Their study also concluded that the impact of fiscal deficit on rate of interest depends not only on the levels of deficit but also on the financing pattern of deficit.

Helmut Frisch (1995)\textsuperscript{31} analyse and assess some recent research in the context of growing concern that the excessive debt accumulation is not sustainable even in the industrial countries. He opines that Domar’s (1944)\textsuperscript{32} famous treatment of the debt accumulation problem for a long time gave a misleading answer: An economy growing with a constant rate in which the government borrows year after year a fixed proportion of the GNP would eventually reach a constant debt to GNP ratio. Domar’s result is valid only for a steady state economy when the rate of growth of the real economy exceeds the real interest rate. If real interest rate exceeds the real rate of growth, a solvency condition has to be introduced to avoid a debt explosion. Both the Blanchard’s et al. (1990)\textsuperscript{33} and Barro’s (1979)\textsuperscript{34} concepts of “sustainable tax rate” and “tax smoothing” are observationally equivalent as an optimization programs depending on tax

rate and Seigniorage rate. It is shown that tax smoothing and seigniorage smoothing has the property of a sustainable fiscal policy.

Pattnaik (1996)\textsuperscript{35} to assess the sustainability of Central Government finances. The empirical findings are that under a medium-term perspective, fiscal sustainability requires that the debt-GDP ratio be brought down to 50 percent by the end of fiscal 2000 from the 1996-97 level of 54 percent. This is possible by gradual scaling down of the GFD to about 3.90 percent of GDP by 2002. Assuming a real growth rate of 7 percent, inflation rate of 5 percent and real effective interest rate of 7 percent, a primary balance relative to GDP was recommended as against a deficit of 1.90 percent in 1995-96.

The discussion about trends and issues in public expenditure in India by Sudipto Mundle and M. Govinda Rao (1997)\textsuperscript{36} reveals that sharp growth of current expenditure since the mid 80’s has crowded out both public and private investment, built up inflationary and balance of payment pressures and, above all, led to the emergence of a debt-deficit spiral that is now difficult to escape. The crowding out of investment has


also emerged as a serious long-term impediment to growth and the shortage and poor quality of physical infrastructure in clearly one of the most important constraints to raising the long-term rate of growth of the economy. They further reveal that India’s experience with public expenditure allocation in general and the redistribution programme especially underlines the pre- eminent role of political economy rather than rational economic calculation in determining the allocation of public expenditure.

Willem II. Buitcr and Urjit R. Patel (1997)\textsuperscript{37} observed that the fiscal adjustment underway in India since 1991 has not eliminated the spectra of insolvency. The fiscal correction so far has been inadequate to correct for the profligacy of the 1980’s. Though the overall public sector financial and primary deficits as ratios to GDP have declined form their peak in 1990-91, both the debt to GDP ratio and the present discounted value of the debt in rupee terms continue to exhibit an underlying upward trend and a credible reversal of this pattern seems unlikely without further measures to reduce public expenditure and/or increase government revenues. He concluded that despite the fiscal adjustment that has already been undertaken solvency is not assured. Further fiscal retrenchment, an

increase in the augmented primary surplus, by the public sector of the
order of four and a half points of GDP is needed to achieve the modest
objective of stabilizing the debt-to-GDP ratio.

Several papers in the sustainability literature note that the time
series characteristics of fiscal variables may vary over time, exhibiting
apparent “structural breaks” from time to time. Wilcox (1989)\textsuperscript{38} finds that
the series of discounted debt for the United States was stationary prior to
1974 but became non stationary there after (1975-84).

Henning Bohn (1998)\textsuperscript{39} analyzes the behavior of U.S. public debt
and deficits. How does government react to the accumulation of debt?
They take corrective measures, or do they let the debt grow? Whereas
standard time series tests cannot reject a unit root in the U.S. debt to GDP
ratio, this paper provides evidence of corrective action by examining the
response of the primary budget surplus to changes in the debt to GDP
ratio. A positive response shows that the governments are taking actions
reducing non interest outlays or raising revenue that counteract the
changes in debt. This approach is more promising than a univariate time
series analysis of the debt to GDP ratio because the debt to GDP ratio is

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in practice bounced around by various shocks e.g. fluctuations in income, growth in interest rates and in government spending, that make mean-revision difficult to detect.

The positive response of primary surpluses to the debt to GDP ratio also implies that debt to GDP ratio should be mean reverting, despite the fact that a unit root is virtually impossible to reject in standard univariate time series test. The study shows that the unit root tests are inconsistent and misleading because they do not properly adjust for fluctuations in government spending and GDP. Finally an estimated positive response of primary surpluses to the debt to GDP ratio can be interpreted as a new test for sustainability.

S. Gurumurthi’s (1999)\(^4\) study on the topic “Fiscal federalism- towards an appropriate VAT system for a federal economy”. The paper analyses the current division of responsibility between the center and states with regard to commodity taxation in its historical perspective and the efforts initiated during the last 15 years to introduce the VAT in place of union excise duties at the central level and the sales taxes at the state levels. It offers an alternative VAT model for India based on certain principles applicable also to other federal economies planning to

introduce the VAT.

Analysis of the state and national level public expenditure (both revenue and capital) on various levels has been attempted by Shariff and Ghosh (2000)\textsuperscript{41} considering four points in time; 1980-81, 1985-86, 1990-91 and 1995-96. They concluded that the annual rate of growth of expenditure of education as a whole has decline between the two sub-periods of 1980-81 to 1990-91 and 1990-91 to 1995-96. Similarly, the share of education in the budgets of most state governments decline significantly and state-wise figures reveal that per-pupil expenditure on education, especially by the less developed states has also decline.

Ashok K. Lahiri (2000)\textsuperscript{42} has conducted a study on Sub-national Public finance in India. This article discusses budget constraints relative deficits of centre and states, issues of expenditure prioritization and state tax issues. All governments in India are under fiscal stress because of increasing interest burdens from debt contracted states catching up with the centre in terms of fiscal deficit. Rapid increase in interest and wage payment is crowding out capital and other developmental expenditure at the state level. Subsidies that do not benefit the poor and do not generate


\textsuperscript{42} Lahiri Ashok and R. Kannan (2000). "India’s Fiscal Deficits and their Sustainability in Perspective" Discussion Paper, NIPFP.
much positive externalities is one area that offers a large scope for fiscal responsibility to have a medium-term frame work for containing debt interest payment, and to impose ceilings on guarantees. The states should also have closer look at their strategy of using their share of small saving for financing the deficit, and at the cost of such funds. It also necessitate to move away from the gap filling approach in fiscal devolution and device stronger incentives for states to mobilize additional resources, reprioritize expenditure, and reduce deficits.

The paper by Rajaraman and Mukhopadhyay (2000)\textsuperscript{43}, presents the first unbroken data series for the post-Independence period on public domestic debt in India. Public domestic debt is defined as nonmonetised liabilities of government aggregated across Central and all state governments. The results of subjecting the debt series obtained to univariate time-series analysis using structural time-series models are that the series exhibits no natural tendency to stabilise at any level. The paper also examines the time-path of the nominal interest rate on domestic debt, and finds that it crossed over the nominal growth rate of the economy, for the first time after a gradual lifting of financial repression, during the

period 1996-98. This crossover establishes a regime switch in terms of the sign requirement for the difference between the primary deficit and the sum of monetisation and foreign borrowing, in order for stabilisation of domestic debt/GDP to obtain. Given prudential macroeconomic limits on monetization at 1.6 percent of GDP, and on (net) foreign borrowing at 0.4 percent of GDP, the required limits on the primary deficit (p) for stabilisation of public domestic debt for plausible future values of (n) and (i), using a base value of non-monetised domestic debt/GDP of 40 percent, was worked out at 1.6 percent of GDP. This is the consolidated value for the permissible primary deficit aggregating across Central and state governments.

Antonio Afonso (2000) discussed the issue of sustainability in case of EU-15 for the 1968-1997 periods. Through stationarity test for the stock of public debt and co-integration tests between government revenues and expenditures an attempt was made to assess the sustainability of fiscal policy. The stationarity of the first difference of the stock of the public debt, a sufficient condition for fiscal policy sustainability, was accepted only for three countries Germany, Austria and Netherlands.

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Nigel Chalk and Richard Hemming (2000)\textsuperscript{45} contributed the valuable literature about the assessment of fiscal sustainability in theory and practice. This study is a hybrid, part a review of the literature on fiscal sustainability, part a description of how the IMF goes about assessing fiscal sustainability in different contexts and part about fiscal sustainability. The discussion suggests the following:

A. There is something of disconnect between the theoretical work that has been done on fiscal sustainability and assessment of fiscal sustainability in practice. In particular, country work undertaken by the IMF and others generally pays less attention to the present value budget constraint, focusing instead on indicators of sustainability that are not grounded in theory.

B. While the arbitrary nature of indicators of sustainability is a clear shortcoming, one advantage of the IMF approach to assessing fiscal sustainability in the context of a broader medium-term macroeconomic scenario is that debt targets that are not sufficiently ambitious will usually be revealed by the weakness in one or more key macroeconomic indicators.

C. Finally the link between fiscal and external sustainability warrants

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further consideration, with a view to developing an integrated analytical framework that combines both aspects of sustainability and from which fully consistent indicators of fiscal and external sustainability can be derived.

Neils Kelis Frederiksen (2001)\textsuperscript{46} analyzed the sustainability of fiscal policy in 19 OECD countries. The approach involves an assessment of the long-term change in the primary surplus combined with the assumption that the gradual impact of demographic change on government finances can be described by a simple measure of the spread of adjustment. Given these two parameters, the required rate of current fiscal consolidation may be found and compared to the current structural budget surplus. Based on this simple measure the results indicate that fiscal sustainability requires an average budget improvement of about 2 to 3 percent of GDP. However, fiscal policy is sustainable in U.S., Italy and Canada while several EMU countries will sooner or later face very substantial tax increases or expenditure cut.

Dynamics of causal relationship between revenue and expenditure in the Indian context is based on annual data from 1960-61 to 1995-96 in

\textsuperscript{46} Niels Kleis Frederiksen (2001) "Fiscal Sustainability in the OECD, A Simple Method and some Preliminary Results" Working Paper No. 3, Finansministerit.
Dhanasekaran (2001)\textsuperscript{47} work. The co-integration and Geweke's Decomposition Models are employed in this study. In estimating the co-integration and causality models, co-integration equations require non-stationary variables and Geweke's models need stationary variable. Hence the following Dickey Fuller Test (DF) and Augmented Dickey Fuller Test (ADF) are performed on tax revenue and expenditure variables to identify the order of integration. The main findings of the study showed the absence of co-integration between government tax revenue and expenditure variables implying non evidence of a stable long run relationship between them. The Geweke's test provided different inference for the causal relationship between tax revenue and government expenditure. In the model with tax revenue as the dependent variable, Geweke's test indicated the existence of bi-directional causality while in the case of the model with government expenditure as the dependent variable, Geweke's test showed the absence of any causal relationship between the variables, but the Granger's test suggests unidirectional causality flowing from government expenditure to tax revenue concluding thereby the causal inferences were found to be sensitive to the specification of the model.

Edwards Sebastian (2002)\textsuperscript{48} analyzed the relationship between fiscal policy, aggregate public sector debt sustainability and debt relief for the case of Nicaragua. The model developed in this paper shows that whether a country indeed achieve sustainability is likely to depend on three additional set of variables along with acceleration in growth. These are: (1) The initial stock of domestic debt, (2) The availability of concessions loans going forward, (3) The future path of grants and donations. The application of model illustrates the challenges of the post HIP (Highly Indebted Poor) period. Under a reasonable set of assumption regarding future GDP growth, concessional loans and donations, the required fiscal adjustment appears to be severe.

Ahluwalia (2002)\textsuperscript{49} observed that India’s fiscal and debt indicators are comparable to or worse than that of Argentina, Brazil and Turkey, countries which have actually experienced a serious recent macroeconomic crisis. The author, nevertheless, concludes that India is not vulnerable to a repeat of its 1991 fiscal and balance-of-payments (BoP) crisis because of the build up of foreign exchange reserves, capital


controls, flexible exchange rate system and widespread public ownership of banks.

Enzo Croce and V. Hugo Juan-Ramon (2003)\textsuperscript{50} proposed a recursive algorithm derived from the law of motion of the debt to GDP ratio subject to a government reaction function that links convergence to the targeted debt ratio with primary fiscal surpluses to assess fiscal sustainability. Based on quarterly estimates of this algorithm in the 1990’s, 12 developed and developing countries were ranked according to their sustainability. During the 1990’s unsustainable countries had a larger increase in type-1 public expenditure (wages, current transfer and welfare), and a larger coefficient of variation for this variable than the other countries.

Phebby Kufa, Anthony Pellechivo and Saqib Rizavi (2003)\textsuperscript{51} propose several quantitative and structural guidelines for the member countries of Eastern Caribbean Currency Union to improve their deteriorating sustainability of finances. The developments responsible for the deterioration have been identified as: Greater wage and interest payment and capital spending, in addition with hampered tax collection


by large tax concessions. The deterioration in Eastern Caribbean Currency Union’s fiscal performance accelerated in 2001 owing to the global economic slowdown and deterioration in external competitiveness associated with appreciation of U.S. dollar and wage increases, led by the public sector that succeeded inflation. The quantitative benchmark regarding public sector savings, investment, deficits, debt to GDP ratio, debt service payments and primary surplus were stipulated to compare them with the existing values of variables. The structural elements indicate a need for a degree of tax harmonization to enhance the efficiency of the tax structure and revenue collection and to limit tax competition. The revenue base by eliminating discretionary and other tax concessions, strengthening tax and customs administration and implementing a VAT type tax.

Mark Allen and Gobind Nankani’s (2004)\textsuperscript{52} paper developed an operational framework for debt sustainability assessments in low income countries and draws policy implications for donors, creditors and borrowers. Low income countries face significant challenges in meeting their development objectives; while at the same time ensuring that their external debt remains sustainable. The aim of the study is to guide

borrowing decisions of low income countries in a way that matches their need for funds with their current and prospective ability to service debt. Given the central role of official creditors and donors in providing new development resources to these countries, the proposed framework simultaneously provides guidance for their lending and grant allocation decisions to ensure that resources to low income countries are provided on terms that are consistent with their long term sustainability.

S. Das (2004)53 made a study to examine the effect of fiscal deficit on interest rate, the purpose of the study is to investigate whether there is any reason to believe that a high fiscal deficit- GDP ratio necessarily increase the real rate of interest and causes a crowding out of private investment.

The causes of fiscal deficits and their impact on the usual indicators of fiscal and external debt sustainability in the case of Eritrea have been examined by Ayumu Yamauchi (2004)54. Following a promising start after independence in 1993, the war with Ethiopia during 1998-2000 drastically changed the performance of the Eritrean economy: GDP declined, inflation rose, and external current account worsened,

international reserves were nearly depleted and banking assets were severely compromised. However the most significant change was the sharp deterioration of the public finances and rapid increase in domestic and external public debt, as a result of both war-related factors and policy decisions. Against the backdrop of these developments the various sustainability indicators named-

A. Primary gap indicator
B. Tax gap indicator
C. Expenditure gap indicator

indicate that fiscal policies over the last 10 years have significantly moved away from sustainability. To illustrate the dependence of changes in the sustainability gap and the need for adjustment on the two critical variables, GDP growth and interest rate, a matrix based on these two variables has been calculated to indicate the size of primary deficit needed to stabilize the debt to GDP ratio.

Christensen (2005)\(^{55}\) shows that also low income countries have a tradition of domestic borrowing (in his sample of sub-Saharan African countries, domestic public debt was about 10 per cent of GDP in 1980).

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Most of the domestic debt issued by low income sub-Saharan African countries is held by commercial banks and has short maturity (average maturity is ten months and the majority of bonds have a 3-month maturity).

There are also important interactions between domestically issued government debt and the functioning of the banking sector. Also here the effect can go either way. Most analysts find that in emerging market countries banks are the main holders of government bonds is a source of vulnerability and is a signal that government debt crowds out credit to the private sector.\textsuperscript{19} However, Kumhof and Tanner (2005)\textsuperscript{56} suggest that, rather than being a symptom of financial repression, these holdings of public debt are largely voluntary and improve the working of the financial sector in countries characterized by poor institutional quality and lack of collateral. In some countries a liquid market for government bonds can foster financial sector development, can lead to a more competitive setting for interest rates, and can improve the effectiveness of monetary policy.

Debt sustainability is an essential condition for macroeconomic stability and sustained economic growth. Most often, high public debt

levels create repayment flows that can crowd-out much needed public spending, and can generate adverse incentives for private investors to engage in activities that spur long-term growth. An excessive level of public debt can make the nation vulnerable to interruption in aid flow or to sudden shifts in domestic financial market sentiment. These problems are aggravated by a narrow export and production base and various structural, political, and institutional factors that reduce returns on investment (ADB, 2006).\(^{57}\)

Caballero and Cowan (2006)\(^{58}\) use the standard practice arguments to explain why some emerging market countries are now issuing domestic currency denominated debt but they are not using more efficient forms of insurance. Conventional wisdom suggests that emerging market countries can now sell domestic currency debt to foreign investors because these investors expect an appreciation of the local currency against the dollar. However, Caballero and Cowan (2006) point out that this view is only stifled if lenders expect a larger appreciation than borrowers, and it is clear why this should be the case. As an alternative explanation, they suggest that domestic currency borrowing is now envogue because the

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\(^{57}\)ADB (2005), Quarterly Economic Update, Bangladesh, September.

expected appreciation allows prudent policymakers to hide the implicit insurance premium embedded in domestic currency borrowing.

Finally, debt composition has important implications for the cost of defaulting on debt obligations. The sovereign debt literature highlights two channels through which these costs may materialize: reputation and direct sanctions, but various empirical studies found that these costs of default tend to be fairly small (Borensztein and Panizza, 2006)\(^59\), provide a survey of this literature). They argue that the reason why countries do repay their debt may have more to do with the domestic cost of default which, in turn, is positively correlated with the share of debt held by domestic investors.\(^20\) As a consequence, domestic debt is much more difficult to restructure than external debt and several countries which successfully managed to reduce their external debt obligations (sometimes through debt relief) are still burdened by high levels of domestic debt.

Bangladesh's debt sustainability has been assessed by Islam and Pada (2006)\(^60\) using debt dynamics equations for the sample period of

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FY81-FY06. They found that the change of debt-GDP ratio showed a mixed trend during FY81-FY06. The change of debt-GDP ratio, on average grew by 2.5 percent in the 1980s, 2.1 percent in the 1990s, and 0.6 percent during FY01-FY06. The stress test for different components indicated that the interest component contributed more to changes in the stock of debt-GDP ratio during the whole sample period compared with the growth component's contribution. Net effect of the interest component stood at 6.2 percent on average during the whole period while growth effect averaged 2.5 percent. The exchange rate component also contributed about 2.1 percent during FY81-FY06 period. They also found that the combined effect of primary budget deficit and changes in high powered money to debt-GDP ratio was strong in the 1980s, which gradually eased during the 1990s and FY01-FY06 due to improvement in primary balances.

Abbas and Christensen (2007)\textsuperscript{61} show that bank-holdings of domestic public debt in low income countries were about 5.5 per cent of GDP in the 1975-1985 period and increased to 8.4 per cent of GDP in the 1996-2004 period. The increase was particularly large in emerging

market countries, where bank-holdings of public debt went from 7.8 to 14.3 per cent of GDP.

In the light of above review it is worth noting that in both developed and developing countries the fundamental cause of insolvency and unsustainability lies with the unhealthy state of government expenditures particularly the non-development revenue expenditures. The implications of such state of affairs leads to unmanageable stock of debt, accumulated over time. In most states, the entire capital expenditure and revenue deficits are financed by borrowing which raises outstanding debt. The increased debt servicing costs accentuate revenue imbalances along a vicious circle that eventually leads to a debt trap.

In view of the above review, it is clear that in the wider domain of the analysis of public debt and debt sustainability a large number of research studies have been conducted. But the major drawback of the above studies in this context has been a lack of consistency of results. It calls for an examination of the issues related to the trends and effect of public debt on fiscal management in India. The present study attempts above issues.