Chapter 2
Review of Related Literature

A researcher cannot perform significant research without first understanding the literature in the field.

Boote D. N. and Beile P. (2005), p. 3.

For every new study, it is important to know the existing alternate streams of thought and analyze their strengths and lacunae. As the objective of the present work is to study Indian public debt and debt policy for the post reform period, a review of the related theoretical and empirical studies is presented in this chapter. The chapter has been divided in four parts.

Part 2.1 deals with studies related to the role and effects of debt finance in an economy. The section consists of international studies which guided the later economic thought on public debt and fiscal policy. Apart from this, the section also includes studies which helped us in understanding the theoretical concepts related to the present study.

Part 2.2 deals with the issue of trends in Indian public debt and its impact on economy. The studies related to debt management and rule based fiscal consolidation are also included in this section.

Part 2.3 deals with the debate on public debt based fiscal policy crowding out the private sector in India.

The main conclusions and research gaps in the existing literature are presented in Part 2.4.1

2.1: Public debt and Economy- International studies

Domar (1944)²

This paper, written after World War II, proposes to examine the case, when private investment is insufficient to absorb savings of the economy over a relatively long period of time, and hence it becomes important for the government to mobilize these savings through public debt. Firstly, Domar takes hypothetical data and alternative
scenarios and later presents the results for US (United States) economy, using Simon Kuznets’s estimates for growth of real national income for 1879-1928 and US Department of Commerce estimates for 1929-1942. Taking three assumptions first that the burden of the debt equals the ratio of the interest charges to income, second that the price level is constant so that changes in money income and in real income are the same, and third that the interest rate as given and constant; the paper examines the effects of deficit financing on the magnitude of the debt and magnitude of the national income. Stressing that with a given average propensity to save, the level of national income will be a multiple of the level of investment expenditures (public or private); the paper shows that the problem of the debt burden is essentially a problem of achieving a growing national income. Faster the income grows; the lighter will be the burden of the debt. The paper concludes by suggesting that in order to have a growing income, there must be a rising volume of monetary expenditures and there must be an actual growth in productive powers in order to allow the increasing stream of expenditures to take place without a rise in prices.

Tobin (1963)

This paper theoretically provides conceptual distinction between internal debt management and fiscal policy. He stresses that total debt is the accumulation of past deficits and surpluses of the government and the course of the total debt depends on budgetary policies that determine the balance of receipts and expenditures. Therefore, debt does not come in the domain of fiscal policy only as the size of debt is determined by fiscal policy and the composition of the debt is determined by debt-management policy.

Friedman (1978)

This paper studies U.S economy for 1946 to 1977 on the debate of crowding in and crowding out. The principal conclusion of the paper is that the bond financing or transactions crowding out may not be damaging for expansionary fiscal policy; and hence the assessment of fiscal policy actions should start with the behavior of the real sector rather than that of the financial sector. According to Friedman, if fiscal policy is necessarily ineffective in a given situation, it is because of these effects in the goods market and not because of problems caused in the financial markets by an excess supply of bonds.

The second conclusion of the study is that debt management is one of the ignored aspects of macroeconomic policy. The portfolio behavior that follows the issuance of
government bonds need not diminish the intended effect of fiscal policy, although under improper debt-management policy it almost certainly can. As policy implication, the study suggests that though a period of large deficits and sluggish recovery of capital spending may be inappropriate for a debt-restructuring program, the treasury should be meeting its financing requirements during this period in such a way that it denies, not satisfies, the demands of investors for long-term securities, and hence stimulates the public to turn to the corporate business sector for more new issues i.e. the objective of debt-management policy should be to keep the market hungry for long-term assets, not merely to avoid over-feeding it. Though in the paper entire analysis is based on the assumption of a strictly unaccommodative monetary policy, it is also stressed that in real practice, this need not be the case. The paper concludes the analysis by stressing that if debt-management policy fails to pursue a path consistent with the objectives of fiscal policy, monetary policy can provide a satisfactory surrogate.

Ahluwalia (1983)\textsuperscript{5}

He analyses the various phases and aspects of international debt problem. According to him there is nothing wrong with being in debt provided the degree of indebtedness is within the limits of the ability to service the debt. This is true of individual economic agents within countries and it is also true of countries, borrowing on international capital markets. The long term solution to the indebtedness problem suggested is economic growth and recovery of both the developing and industrialized countries – which suggests that it is world recession and the protectionist policies adopted by industrialized countries and not only the hiking of oil prices in 1973 and 1979 which has brought into open the problem of indebtedness in developing countries. There are also short term remedies such as vigorous import substitution policies, which will make available more foreign exchange earnings for debt servicing purposes.

Blanchard (1985)\textsuperscript{6}

Assuming that economic agents have finite time horizon, this landmark paper analyzes the effects and the role of government debt and deficits. The paper presents a mathematical framework and is not based on empirical data. The paper makes an attempt to characterize the behavior of the economy in the absence of a government in terms of both individual and aggregate consumption functions and considers two extensions.
The first focuses on the effects of the elasticity of substitution of consumption. The second allows for declining labor income throughout life, to capture the effects of the saving for retirement motive on capital accumulation. Finally the paper elaborates on the effects and role of debt and deficits. Assuming that the government has lump-sum taxes at its disposal and the focus of the government is on inter-temporal reallocations of taxes, rather than on changes in spending, the paper introduces the government budget constraint and shows how finite horizons imply a role for debt policy. It studies whether and how an index of fiscal policy can be defined and how it evolves over time for particular reallocations of taxes. If an economy is closed, fiscal policy may affect the sequence of interest rates and asset accumulation. If the economy is open and interest rates given, the focus of fiscal policy can be on the current account and asset accumulation.

Taking the case of an open economy the paper tries to study dynamic effects of fiscal policy by considering two examples. The first is that of a reallocation which creates high deficits followed later by surpluses. The second studies the role of debt policy in smoothing aggregate consumption in the face of regular fluctuations in output. The paper finally presents a mathematical index of fiscal policy which can be used as an analytical tool.

**Arora (1986)**

An attempt is made in this paper to see financial crowding out in the context of a developed economy, by taking quarterly data for United States from 1959 to 1984. The paper is based on the theoretical background given in the loanable fund theory. The paper concludes that when real interest rate increases, it becomes attractive for international investors to invest in US financial markets, hence, the supply of the funds available to finance deficits increases. The paper concludes that structural budget deficits in US have crowded out long term investment in plant and equipment, housing and foreign trade, however these deficits helped the economy in its expansion over the period.

**Shroff (1987)**

On the basis of OECD(Organization for Economic Cooperation and Development)Debt Survey-1982, quoting the 900 percent increase in total external debt of developing countries and 1000 percent increase in debt service payment for the period 1971 to 1983, Shroff states that reasons for this huge accumulation of external debt burden can be traced majorly to the fact that the developing countries
being in a stage of development, where supply of domestic saving were low and current account payment deficits were high, needed external capital very badly to augment domestic sources. In initial stages because the developing countries had the needed factor endowment to work with, they were successful in promoting economic growth but gradually because of the overwhelming cost of debt servicing, the costs of external loans out weighted the benefits. After providing the overview of the situation, he stresses that the policy issues in the developing countries should revolve around ways in which development can be accelerated while sustaining external positions.

Barro (1989)

Barro in this paper elaborates on Ricardian approach to budget deficits. According to him, impact of fiscal policy of the government can be summarized by the present value of expenditures. Quoting a number of empirical studies for US economy for the period 1942 to 1986, he concludes that empirical findings on interest rate, consumption, savings and current account balance mainly tend to support Ricardian viewpoint.

Bernheim (1989)

Commenting on US fiscal policy of the period, he states that the evidence on fiscal effects is difficult to interpret as the empirical measurement of the effects of temporary budget deficits is not very reliable. According this paper, the US economy deficits of the 1980’s provide a test of the three paradigms viz. Neoclassical, Keynesian and Ricardian equivalence. The paper stresses that the Ricardian paradigm should be dismissed on theoretical grounds, as well as on the basis of indirect behavioral evidence. Bernheim also argues that, for analytical purposes, deficits should be decomposed into permanent and transitory components, and while the neoclassical paradigm provides a good theory of the permanent component, the Keynesian framework describes the effects of the temporary component. Showing his skepticism about the benefits of using temporary deficits as tools for macroeconomic stabilization, he concludes that the neoclassical paradigm offers the most relevant insights for public policy. He suggests that government should focus on stimulating saving and capital accumulation, and towards formulating a policy for gradually reducing permanent deficits.

Fischer and Easterly (1990)

The article theoretically analyses the macroeconomic effects of government budget deficits. Financing of deficit can lead to different types of macroeconomic imbalances
as printing money excessively leads to inflation, excessive use of foreign reserves leads to crises in balance of payments, high foreign borrowing leads to a debt crises and too much domestic borrowing leads to high real interest rates and crowding out of private investment. In this paper debt dynamics equation is used to show the constraints on fiscal policy.

**Metwally and O’Brien (1994)\(^1\)\(^2\)**

This 1994 paper examines the effect of debt servicing on economic development of six heavily indebted Asian countries of the period, namely Bangladesh, India, Indonesia, Pakistan, Papua New Guinea and Philippines; for the time period 1975 to 1990. Single and simultaneous equation models are used to test the interaction between debt servicing and rates of growth in exports, domestic saving, domestic absorption, inflow of foreign capital and outstanding foreign debt. The regression result suggests important feedback effects. Debt servicing had a negative effect on economic growth in each of the sample countries during the period of study. The problem was aggravated by the decline in export and capital flows and by adverse domestic policies which proved to be harmful to domestic savings. The writers argue that servicing a heavy debt actually worsens the debt situation of the debtor.

**Eisner (1994)\(^3\)**

In his paper Eisner challenges the opinion that government budget deficits reduce national saving. On the basis of Vector auto regression (VAR) for US economy over the 1972-1991 periods, he shows that estimated relations indicate otherwise, both for the traditional measure of national saving and a broader, more relevant measure, encompassing government and household as well as private business investment in tangible capital. Greater price-adjusted, high-employment deficits, increases in the real monetary base, and declines in real exchange rates have all been associated with more subsequent national saving.

**Balkan et al. (1995)\(^1\)\(^4\)**

This paper makes an attempt to find out whether pricing of international loans can be explained by the Capital Asset Pricing Model (CAPM) by undertaking an empirical test including 33 developing countries during the period 1971 to 1984. The results suggest that the CAPM model cannot fully account for the variation in the observed risk premia and other factors may also contribute to the pricing of loans. They also conclude that the absence of secondary markets during the estimation period may explain the divergence of actual behavior from that implied by the CAPM framework.
According to this paper, the inter-temporal solvency constraints impose very mild restrictions on the paths of trade balances, current account balance, primary fiscal balances, foreign debt and public debt that are consistent with a country or a government being solvent. A more restrictive and practical, solvency criterion suggests that the debt to GDP ratio should not increase forever. Thus, the resource (trade balance) gap or primary fiscal gap represent the amount of trade balance (or primary fiscal balance) adjustment required to stabilize the debt ratio and ensure solvency. The paper concludes that the implicit tax on domestic investment deriving from a high burden of existing debt may create a debt overhang, which may reduce the incentives to invest, and thus build capital and output to repay debt in the future. Therefore in cases where debt is unsustainable, debt reduction is certainly warranted.

On his analysis of the Stability and Growth Pact (SGP) of Maastricht treaty concludes that the reforms of the pact adopted in March 2005 have effectively killed it, despite two technical improvements in its design viz. greater attention to the cyclically corrected deficit and the stock of public debt figures more prominently alongside the flow of the government deficit. In the reformed pact there is ample leverage given to nations to cross the limits set by Maastricht treaty. He concludes that though individual nation states are well advised to adopt intelligent rules for their public debt and deficits to ensure fiscal-financial sustainability of the state and to enhance macroeconomic stability, the case for the supranational imposition, monitoring and enforcement of public debt and deficit rules is weak, except in one aspect, that is cross-border spillovers (externalities) that arise from unsustainable national fiscal-financial programs. He stresses the need for a regulatory response, rather than macroeconomic debt and deficit limitations.

2.2 : Public debt and policy - Studies in Indian Context

In context of Indian public debt, one of the oldest studies is by H.L. Saxena (1947). In his study he simply tabulates Indian public debt from 1888 till 1947 and also focuses on India’s sterling balances.
Some of the selected studies on post independence public debt scenario in Indian context are discussed below:

Srikantaradhya (1967)
This study tries to analyze the role of public borrowing in resource mobilization for economic development for the period 1951 to 1966. It also seeks to study the fiscal and monetary impact of growing public indebtedness in the context of economic development of India. The study covers debt of government of India (both internal and external debt) and of states for the period of first three five year plans. The conclusion of the study is that the growing internal as well as external public indebtedness need not be a matter of concern. Rather several defects and deficiencies are present in debt management of both internal and external public debt. The study stresses the need to make effective use of borrowed funds.

Ghuge (1974)
In his study on the burdens and benefits of India’s national debt (1941 to 1974), he attempts to investigate various aspects of India’s national debt from 1941 to 1971 and concludes that in 1941-46 period, though inflationary increase in prices occurred, the internal national debt was responsible for it only to a very limited extent. In first five year plans period, primary liquidity effect of national debt proved to be beneficial to the economy, while in second five year plan the primary liquidity effect of internal national debt constituted a major source of inflation and rise in cost of living of the people. The inflationary trend evidenced during second plan period got further escalated in the course of the third plan period as a result of stronger liquidity effect of public debt. Even in fourth five year plan primary liquidity effect of internal national debt continued to be the principle source of monetary expansion, resultant galloping inflation and the cost of living. However, in contrast with the earlier period, other factors like commercial banks credit and foreign exchange resources turned out to be significant factors contributing to the upwards movements in money supply and price level. Regarding the relationship between public debt, debt management and monetary policy for the period 1941-74, Ghuge concludes that there neither exists any real conflict between public debt management and monetary policy in India in past, nor such a conflict was likely to rise in near future and the antagonism between the two, as conceived by Reserve Bank is an illusion and myth.
Lai (1978):20

In his 1978 study, Lai stresses that since the beginning of the first plan of India, the magnitude of public borrowing has been increasing rapidly to fill up the huge gap between the investment requirement and domestic saving of the economy. He takes into consideration the Indian debt policy and tries to analyze the role of Indian debt policy in revenue generation and maintenance of stability. He states that in the Indian economy loans have been floated without caring for the absorptive capacity of the public. Since the beginning of the first plan the proportion of domestic saving to internal debt has been decreasing. It is also reflected in the pattern of ownership of public debt. As the government securities have been floated beyond this limit, a considerably larger part of the debt is held by the government itself. Increasing institutionalization and expanding participation of banking sector in the public borrowing programme has become the distinguished feature of the Indian public debt policy but this is not a healthy sign because it has been the largest inflationary factor in the money supply of the economy.

Barman (1978)21

Barman has made a comprehensive study of India’s public debt and policy from 1951 to 1974. She starts her work by giving a detailed analysis of trends and structure of Indian public debt, covering debt of both government of India (internal as well as external) and that of states. On the base of data taken from RBI, Report on Currency and Finance (various issues), she concludes that the total internal debt of the government of India has increased since 1951 till 1976. The external public debt increased gradually till 1956, but from 1957 onward there was observed a steep rise in the outstanding external public debt. Within two years from the commencement of the second plan, foreign exchange resources were exhausted and there occurred foreign exchange crises, which compelled the government to borrow heavily from foreign countries and international financial institutions.

She further moves on to analyze the problems and objectives of debt management in India covering ownership pattern of public debt, maturity pattern of public debt and monetary impact of debt management in India.

In the last chapter of her book she studies the economic effects of debt redemption and concludes the chapter by studying the problems of internal debt redemption and external debt servicing in India.
Sawhney and Dipietro (1987)\textsuperscript{22}
This paper makes an attempt to show relationship between exports, foreign debt and economic growth. It shows that export expansion contributes to overall economic growth and importance of exports changes with the level of development. The paper finally concludes that heavy debt as witnessed in the production function based growth equation is deterrent to growth.

Chakraborty (1989)\textsuperscript{23}
The study shows that the internal public debt of India rose to as high as sixty five percent of GNP during 1988 compared to 1951. The study focused on the issue of rise in total internal debt of the country. Empirically testing the monetary implications of the ownership pattern of internal debt using the Granger-Sim’s causality method, he showed the presence of positive relationship between money supply and RBI’s holding of Government’s securities and treasury bills, a positive relation between the price level and the RBI’s holdings of government securities and a negative relationship between the price level and the holdings of total internal debt by the individuals.

Rangarajan \textit{et al.} (1989)\textsuperscript{24}
The study analyzed the impact on inflation if the government deficit is allowed to evolve passively and is financed by additional borrowing from Reserve Bank, while keeping the domestic debt financing and foreign financing at their base year ratios to GDP. Their empirical results indicated that this would lead to a vicious circle of larger deficits, higher monetary financing, and more inflation leading to larger deficit and so on. The study showed that an inflation rate as measured by GDP deflator, of less than 7 percent in the base year could, by this factor alone, rise to a level of about 20 per cent within five year period. If the real GDP growth rate turns out to be less than 5 per cent per annum, the inflation rate may easily flare up beyond 20 per cent per annum within a short span of time.

Buiter and Patel (1990)\textsuperscript{25}
This paper studies the solvency of the Indian public sector and the eventual monetization and inflation implied by stabilization of the debt—GNP ratio without any changes in the primary deficit for the period 1970-71 to 1986-87. Testing for the stationarity of discounted public debt series for total debt inclusive of external as well as internal, they conclude the series to be nonstationary. The nonstationarity of the discounted public debt suggested that historical behavior of debt process is
inconsistent with the maintenance of solvency. Their estimates of the base money demand function suggest that even maximal use of seigniorage will not be sufficient to restore solvency.

Chelliah (1991)

This paper traces the causes of the rapid growth of India's public debt, with special reference to internal debt. It then demonstrates that the growth of debt would become unsustainable by the end of the 1990s if the present trends continue. It analyses the causes of the growth of debt by tracing trends in the total fiscal deficit and in the primary deficit. In the base year 1989-90, the primary deficit was nearly 4 percent of GDP, while the total deficit was 7.6 percent. Examining public debt in India, the paper concludes that if present trends of borrowing by the Government of India continue, the country will plunge into financial crisis by the end of the 1990s. On the basis of a number of assumptions and using a simple projection methodology, the analysis demonstrates that maintaining the primary deficit even at a level of 3.5 percent is unsustainable because this would raise the debt-to-GDP ratio to 77.4 percent in 2000-01 from 60.2 percent in 1989-90, and the deficit-to-GDP ratio to nearly 10 percent. Interest payments would then absorb 6.4 percent of GDP, casting an unbearable burden on the budget. The paper projects 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 this is done, the growth of public debt will slow and the total deficit will be contained around 8 percent of GDP in 2000-01.

The paper suggests that in order to reduce the primary deficit to 2.5 percent of GDP, steps must be taken to reduce the deficit on the budget's revenue account to take much of the financing of the public enterprises out of the budget, to stabilize the rate of capital formation on government account, to raise the return on government lending and investment, and to increase the income elasticity of taxes through tax reform. Given the waste and slack in government, and in view of certain unjustifiable subsidies, expenditure reduction should be emphasized more than tax increases.

For this Chelliah suggests three concrete steps viz. narrowing the scope of government activities, freezing government employment, and cutting subsidies. To reduce capital expenditure, the government should privatize public enterprises and close down or sell inessential loss-making ventures, while compensating or rehabilitating the workers who will be displaced. He also stresses that the Planning
Commission's approach of approving the growth of expenditure within a five-year horizon without regard to how the higher expenditure will be sustained in the future, must be abandoned and once the first stage of adjustment is completed, loan finance should be largely limited to capital expenditures, whose benefits could be spread over a number of years. The paper ends by suggesting an accounting framework that would help regulate and evaluate the role of debt in government finance.

Anagol (1992)\textsuperscript{17}

The changed condition of debt profile and the consequent increase in debt burden and uncertainty introduced by large percentage of total loan being market related, has tremendously increased the pressure on liquidity i.e. the ability to service debt in cash-foreign exchange. The paper primarily studies the debt service ratios of India for 1985 to 1990. Regarding net transfer of funds it shows that gross inflow of long term funds, both from official and commercial creditors increased during 1985 to 1990 and debt servicing payments (including repayment of IMF credit), increased much faster from 1985 to 1988 and declined slightly in 1990. As a result, the net transfers (gross disbursements – total debt service payments) have been under pressure right from the beginning of seventh five year plan and during 1986-88 flows have started moving against India.

Garg (1993)\textsuperscript{28}

In this 1993 paper, Garg first of all analyses selected data on external public debt of India for period 1980 to 1989, for total debt outstanding, total debt service and debt service ratio. He concludes that there has been a threefold increase in ten years in external public debt, while debt service payments showed a little less than a fivefold increase. The debt service payments and debt grew at an annual compound growth rate of 19 and 13 percent respectively for period 1980 to 1989, and at the end of 1989, the total outstanding public debt for India represented 21 percent of its GNP and 226 percent of its exports of goods and services.

He further analyses Indian debt structure for the same period and concludes that the debt structure for India has consistently deteriorated overtime; with private lending replacing official lending. Due to typically higher costs associated with borrowing from private sources, the India’s debt structure has become highly unfavorable, and to make the situation worse the private lending characteristically carries shorter maturities and variable interest rates on its loans.
Moorthy et al. (2000) 29
This empirical study concludes that there is no evidence of a systematic shift to an unstable debt regime during the 1990s. The component of debt that displays potential instability is that of small savings and provident fund liabilities, because the administered rate has not been allowed to decline in tandem with other market interest rates. The paper also shows that the reduction in monetization has helped curb the fiscal deficit by inducing a fall in primary expenditures larger than the rise in interest payments. Giving evidence of surge in private investment relative to public investment, the paper concludes that the move to market borrowings or bond finance has been beneficial, though central and state government finances are in a precarious condition due to large non-market debt, unfunded liabilities and contingent liabilities.

Patil (2002) 30
According to his paper, though government securities market accounts for around 95 per cent of the turnover of the debt market in India, this market has not evolved much except that the reserve bank of India has significantly improved the settlement process. He classifies the investors of government securities in three groups. First group, or the wholesale segment, consists of institutional players like banks, insurance companies, primary dealers and mutual funds etc. Second category of investors called as middle segment include corporate, provident funds etc. and are generally the ones with relatively smaller amount of investible funds at their disposal. He calls third group as the retail segment, which include individuals and institutional investors, and less active traders. He stresses that the banks can help in connecting all three segments. The paper highlights the need of increasing transparency and bringing more reforms in the secondary market in government securities.

In his theoretical paper, Tarapore stresses that monetary policy and debt-management policy are inextricably interrelated and both can determine the composition of debt. The central bank determines the rate of interest at which it provides refinance and it also prescribes the reserve ratios. These are monetary tools, but affect the structure of domestic debt. Hence, domestic debt management policy and monetary policy are mutually reinforcing and it is important to ensure coordination between them.
Rangarajan and Srivastava (2003)

According to this paper, accumulation of debt can be seen as the resultant of the balance between cumulated primary deficits and the cumulated weighted excess of growth over interest rate. Decomposing the change in the central government’s liabilities relative to GDP since 1951-52, the paper shows that except for three recent years (2001-2003), the increase in debt relative to GDP was due to the cumulated primary deficits. They elaborate that a significant part of the effect of the cumulated primary deficits was absorbed in the sixties, seventies, and the nineties due to the excess of growth over interest rate. However, there were large unabsorbed parts in the fifties and the eighties. They further stress that the cushion provided by the excess of growth over interest rate may not continue to be available for long. They conclude their paper by suggesting that for stabilization of the debt – GDP ratio at current or reduced levels, focus on primary balance is necessary.

Chelliah (2004)

Chelliah starts his paper by providing statistics on alarming growth of public debt in 1980s, both absolutely and in relation to gross domestic product. He then tries to determine the degree of adjustment needed to restrict the growth of internal debt to a sustainable level. The conclusion of the study is that while the fiscal deficit has to be brought down to control the growth of debt and to reduce crowding out of private investment, doing so will adversely affect growth unless the revenue deficit is reduced or eliminated.

Rajaraman (2004)

The paper identifies fiscal parameters those give cause for concern, and examines whether the fiscal reform measures taken address these adequately. The primary fiscal indicators consolidated across central and state governments over the last fifty years, normalised by GDP and taken in first differences, are examined for evidence of countercyclical fiscal policy, and election-year extravagancy. According to the paper, the underlying structural cause of fiscal stress since the start of reform in 1992 is uncompensated loss of trade tax revenues which has led to a fall in the tax/GDP ratio, amounting by 2002 to two percent of GDP relative to the all-time peak of 16 percent achieved in 1990. Paper focuses on two major fiscal reforms initiated in 2000, viz. the accounting change whereby ‘small savings’, a supply-driven automatic borrowing channel, were re-routed into a newly created National Small Savings Fund, independently of the budget and fiscal responsibility legislation enacted by the
Centre. In context of NSSF, according to the paper, though it is just an accounting change, it had a profound effect in terms of signaling the need for financial viability in the small savings scheme, and thus eroding political economy pressures in the system that served to keep up interest rates. In context to fiscal responsibility, simulated outcomes show that without an improvement in revenue effort, the required fiscal compression of non-interest revenue expenditure is so extreme that it could well result in political turbulence. The paper concludes that improved revenue effort is the key to fiscal reform in India.

Mohan; Dholakia and Karan (2005)\textsuperscript{35}
This paper revisits the proposition that India’s debt problem is unsustainable. The paper is based on data for 1991-92 to 2003-04, and on the methodology suggested by Rangarajan and Srivastava (2003). The paper terms the mainstream literature on reforms as \textit{deficit pessimism}, the notion that India’s fiscal situation cannot be remedied by growth alone, but by a combination of rapid growth and change in government behavior.

The paper firstly separates out the effects of growth and government behavior over the past decade. Assuming that government behavior of the recent past will continue the paper seeks growth rate that would be required in order to make the central debt position sustainable. The paper finds that a growth rate of 6.1 percent suffices for the purpose. Next, assuming a real growth rate of 6.2 percent in the coming years and making suitable assumptions about revenue resilience, the paper empirically estimates the growth in primary expenditure that would be permissible.

Rajaraman and Mukhopadhyay (2005)\textsuperscript{36}
The term sustainability embodies concern about the ability of the government to service a debt. A government which does not generate enough current revenues to service its debt must either default on its obligation, or borrow more in order to pay off past debt. The latter is called a ponzi game and according to Rajaraman and Mukhopadhyay, will eventually show up in the time path of the debt / gross domestic product (GDP) ratio.

The paper presents the advantages of examining the time series properties of debt/GDP in undiscounted terms using structural time series models (STSM). The time frame taken to study Indian domestic debt is 1952 to 1997. The STSM that best fits the domestic debt/GDP series for India is one with a stochastic level and fixed slope in the trend with a structural break in 1974. The fixed slope shows that the time
series properties of the historical series do not tend towards stabilization at any level, implying that public debt in India is not sustainable. As a policy implication the paper recommends immediate fiscal correction in India so that public solvency is preserved.

**Srivastava (2005)**

Srivastava first of all studies the growth and structure of central debt and combined debt of central and state governments in India for the period 1950-51 to 2003-04. According to him, in the management of debt, the central government has to play a leading role in following a debt policy that is sustainable and conducive to growth and the increment in debt, that is, fiscal deficit is a potent instrument available to the government to address both the growth and macro-economic stability objectives.

**Rangarajan and Srivastava (2005)**

With a view to analysing debt-deficit sustainability issues along with the considerations relevant for determining suitable medium and short-term fiscal policy stance this paper examines the long term profile of fiscal deficit and debt relative to GDP in India. According to them, the impact of debt and fiscal deficit on growth and interest rates, that arises from their effect on saving and investment are critical in any examination of sustainability of debt and deficit. It is argued that large structural primary deficits and interest payments relative to GDP have had an adverse effect on growth in recent years and Fiscal Responsibility and Budget management Act (FRBMA) of the central government has defined fiscal deficit target, it should be considered in conjunction with a target debt-GDP ratio. Further, the central FRBMA should be supplemented by state level fiscal responsibility legislations and an effective hard budget constraint on sub-national borrowing. They stress on the need to bring down the combined debt-GDP ratio and suggest that the process of adjustment can be considered in two phases: adjustment phase and stabilisation phase. In the adjustment phase, fiscal deficit should be reduced in each successive year until revenue deficit is eliminated. In the second phase, fiscal deficit could be stabilised at 6 percent of GDP. According to their analysis, the debt-GDP ratio would eventually stabilise at 56 percent.

**Singh (2005)**

Singh starts his paper by citing the fact that historically a large component of domestic government debt in India was incurred at low rates of interest which was statutorily prescribed for subscription by the institutional investors. The substantial amount of domestic debt was also monetized, and hence on the basis of these facts,
the paper stresses that the fiscal domination of monetary policy has left very little flexibility for the Reserve Bank of India, to pursue a monetary policy conducive to the overall objective of development of financial markets, price stability and economic growth. In view of post reform developments in the government security market viz., market related rates of interests, introduction of new instruments, setting up of trading institutions, and improved regulatory and technological developments, the paper stresses that it would be prudent to consider now the separation of monetary and debt management. The separation would provide the central bank with necessary independence in monetary management and an environment to pursue an inflation target, if assigned by the government.

**Mallick (2006)**

Mallick worked on central government debt for the period 1960-61 to 1999-00. His study period includes the decade of 1960’s and 1970’s when there was occasional surplus in revenue account, the decade of 1980’s when the fiscal health of the country started deteriorating and the post reform decade of 1990’s.

Apart from analyzing the trend and compositional character of the domestic debt of the central government, the study makes an empirical analysis of sustainability of domestic debt in India. The study observes that within the expenditure management policy of the central government, it is the inefficiency with regard to the utilization pattern of financial resources which led to a precarious fiscal situation of the central government.

The study also makes an attempt to evaluate the macroeconomic impact of domestic public debt on private consumption and on private investment. On the basis of empirical evaluation under autoregressive distributed lag (ARDL) framework, the study concludes that in the long run, domestic public debt has an adverse impact on private consumption, while domestic public borrowing has no impact on private investment.

**Saket (2006)**

Saket’s study basically deals with thirty year period 1970-71 to 1999-00. He shows that internal liabilities of the government of India registered a moderate increase in the beginning but have assumed an alarming rate of growth since the beginning of seventh plan. Though he warns that the external capital is a temporary measure and it should not occupy a permanent place in the development process, he stresses that the significance of the external assistance in increasing the productive capacity of the
economy cannot be undermined. He also concludes that growing external public debt has created the external debt servicing problem of a severe nature, mainly because the term of loans has not been favorable to the Indian economy.

Rao (2009)\(^42\)

In this paper Rao attempts to make an assessment of the fiscal situation in the country by analyzing the trends in fiscal imbalances and examining the efforts at fiscal consolidation since the enactment of Fiscal Responsibility and Budget Management (FRBM) Act, 2003. The paper highlights the shortcomings of the act in achieving fiscal consolidation. According to this paper there is lack of counter-cyclical element in the fiscal restructuring plan. Though the reduction in fiscal deficit exceeded the targets set under FRBM legislation, the reduction in revenue deficit has lagged behind the plan.

According to this paper the so called ‘sudden’ deterioration in 2008-09 in fiscal situation is neither sudden nor is it due to economic slowdown in the country. It was not sudden because a substantial proportion of deficit in the year was due to non-payment of subsidies that accrued in the previous year, but the payment was simply postponed to 2008-09. Apart from this, a substantial proportion of the deficit was due to budgeting of expenditures for pay revision, loan waiver and additional expenditure provision for National Rural Employment Guarantee Act which was extended to 250 districts from 100 districts in the previous year, but was not budgeted. He stresses on the need to analyze that how much deficit is structural and how much is cyclical. According to him, the cyclical component of deficit is not a serious cause for concern, but the structural component needs attention. The paper concludes that the deficit is largely structural in nature and hence caution should be used while providing post 2008 fiscal stimulus package.

Dholakia et al. (2009)\(^43\)

The study emphasises that for meaningful framework on fiscal consolidation during the post Fiscal Responsibility and Budget Management (FRBM) period in India there is a need for reconciling the discrepancies between the fiscal deficit and movement in debt. It finds that discrepancy between the two arise mainly due to exclusion of off budget liabilities and Market Stabilisation Scheme (MSS) in fiscal deficit while being part of outstanding liabilities; and secondly, because part of National Small Savings Fund (NSSF) is utilised by the states to finance their deficits being shown as liabilities
of the central government; and thirdly, financing of fiscal deficit by draw-down or build-up in cash balances. Thus, the paper makes an attempt to reconcile the discrepancy by including the off-budget liabilities and MSS explicitly as above the line items, excluding the NSSF utilised by the states from the outstanding liabilities of the central government and adjusting the cash balances from gross fiscal deficit (GFD).

For the fiscal consolidation framework, the burden of interest payments on revenue receipts is considered the target variable. Given the targeted level of this chosen variable, the paper provides a framework based on budgetary identity to derive the tolerable level of deficit and debt under alternative assumptions of growth and interest rate. With the tolerable level of deficit so derived, the components of expenditure are calibrated by making adjustments in the discretionary component. The paper further reclassifies the expenditure components into current and investment component as against the current budgetary practice of defining them into revenue and capital component. The reclassification is based on the procedure adopted by Economic and Functional Classification of budget, which recognises that a significant proportion of the presently defined revenue expenditures in the budget are investment in nature, while defence capital outlay are primarily consumption in nature as recognised in the national income accounting. The paper also proposes for zero current deficits by 2013-14 so that the entire net borrowing goes to meet the investment expenditure.

Under alternative assumptions of growth, interest rate, revenue buoyancy and chosen ratio of targeted interest payments to revenue receipts, the framework provided in the paper generates a menu of choices on the path of fiscal consolidation during the medium term.

**Kanan and Singh (2009)**

This paper makes an attempt to trace out the evolution of public debt and deficits over a medium term horizon and its dynamic interaction with other key macroeconomic variables such as interest rate, inflation, trade gap and output. The policy simulations for India reveal that persistence of high level of fiscal deficits and debt may have adverse impact on interest rate, output, inflation and trade balance in the medium to long run. The passive evolution of fiscal deficits leads to an unstable regime over the medium to long term as debt-GDP ratio rises asymptotically. The findings of the paper imply that fiscal adjustment with compositional shifts in expenditure to achieve convergence not only leads to acceleration in the investment rate in the economy, it
also facilitates monetary management by moderating inflation expectations and contributing to stable interest rate regime. The adjusted converging debt path is consistent with the higher growth trajectory. They conclude that such corrections also do not pose the challenge of growth inflation trade-off.

Simone and Topalova (2009) This paper examines India’s experience with fiscal rules with a view to inform the design of a possible successor fiscal framework to the Fiscal Responsibility and Budgetary Management (FRBM) act 2003. They have made an attempt to enlist main weaknesses in India’s current FRBM act. According to the paper first major weakness is absence of well defined accounting definitions for target fiscal indicators. As a result, in order to meet targets, these ambiguities have been exploited by meeting current expenditure through the issue of special bonds (e.g., subsidy-related bonds) and hence these creative accounting measures undermine the credibility of government’s commitment to fiscal discipline. Second problem is insufficient transparency in budget preparation. The FRBM numerical targets were not supported by a comprehensive plan of medium-term policy measures for expenditures. At the time of the FRBM implementation, measures on the revenue side were discussed in detail, and actual revenue performance was very close to the FRBM roadmap. However, measures underpinning expenditure projections, where all the slippages occurred, were kept at a very general level. Third problem is absence of well-defined sanctions for noncompliance. Among several proposals to strengthen the FRBM act, a framework that focuses medium-term fiscal policy on debt sustainability by the use of a medium term debt target, and annual nominal expenditure growth rules is proposed. The paper concludes numerical targets should be supported by structural reform measures for both revenues and expenditures, while the coverage of the fiscal rules should be expanded.

Topalova and Nyberg (2010) This paper discusses possible medium-term public debt targets for India, based on evidence from the economic literature on prudent levels of public debt and the feasibility for the country to meet a particular target over the next 5-6 years. While recognizing the challenges in determining an appropriate debt target, cross-country analysis and simulations suggest that a debt ratio in the range of 60-65 percent of GDP by 2015-16 might be suitable for India. Such a debt ceiling, while still above the average debt level for emerging markets, is within the range of debt ratios that would
provide room for countercyclical fiscal policy and contingent liabilities. It would also send a strong signal of the government’s commitment to fiscal consolidation by making a clear break with the past.

De (2012)47

This 2012 study examines the trajectory of India’s fiscal policy with a focus on historical trends, fiscal discipline frameworks, fiscal responses to the global financial crisis and subsequent return to a fiscal consolidation path. The initial years of India’s planned development strategy were characterized by a conservative fiscal policy whereby deficits were kept under control. The tax system was geared to transfer resources from the private sector to fund the large public sector driven industrialization process and also cover social welfare schemes. However, growth was very low and the system was prone to inefficiencies. In the 1980s some attempts were made to reform particular sectors. But the public debt increased, as did the fiscal deficit. India’s balance of payments crisis of 1991 led to economic liberalization and after that the reform of the tax system commenced. When the deficit and debt situation again threatened to go out of control in the early 2000s, fiscal discipline legislations were instituted. The deficit was brought under control and by 2007-08 a benign macro-fiscal situation with high growth and moderate inflation prevailed. During the global financial crisis fiscal policy responded with counter-cyclical measures including tax cuts and increases in expenditures. The post-crisis recovery of the Indian economy is witnessing a correction of the fiscal policy path towards a regime of prudence. The paper suggests that in the future, the focus would probably be on bringing in new tax reforms and better targeting of social expenditures.

Kumar et al. (2012)48

The focus of this paper is on the debate of Reserve Bank of India (RBI)’s role conflict and separation of debt management from monetary management. The cost minimization for government’s market borrowings might stop the Reserve Bank from increasing the interest rates and in the process; it might be compromising with its core mandate of price stability. In this study, they have made an attempt to verify empirically the arguments of conflict of interest, estimating monetary policy reaction function in a vector autoregressive (VAR) framework. They tried to see whether the Government market borrowings have statistically significant influence on the monetary policy reaction function taking monthly data on the policy target rate as dependent variable and inflation, output gap and government market borrowing
explanatory variables from April 2004 to December 2011. Further, they also estimated the relationship taking quarterly data from 2000 to 2011 to substantiate the results of estimation done with monthly data. The call rate was taken as proxy of policy rate. Based on the VAR Granger Causality results, they conclude that government market borrowing does not Granger cause the policy operating rate. The results of all tests in VAR, i.e., variance decomposition, impulse response function (IRF) and Granger Causality display that the response of the policy rate to the Government market borrowing is not statistically significant.

**Sundaram and Chowdhury (2013)**

Focus of this paper is on the role of fiscal policy in generating employment. The paper blames that rather than focusing on employment generation and growth, focus of fiscal policy has completely shifted towards debt control. And as the policymakers struggle to deal with the twin problems of unemployment and debt, their reliance on harsh fiscal measures, with no offsetting effort to foster growth and job creation, has typically failed to induce growth, create jobs, raise incomes and restore investor confidence. Rather these harsh measures have exacerbated unemployment, social unrest and are political instability. They suggest to deepen tripartite social dialogue among investors/employers, employees and governments.

### 2.3 : Public debt and Crowding Out - Studies in Indian Context

**Sundararajan and Thakur (1980)**

In this paper a dynamic model of public investment, private investment, savings and growth is presented and applied to India and Korea. The model highlights the impact of public investment on private investment and growth by incorporating the various channels of influence from public investment to private investment. The authors show that public investment exerts a short-term ‘crowding out’ effect on private investment; but it also raises the productivity of private capital stock and, by creating demand for the output of the private sector, raises the output expectations and investment requirements of the private sector. It also raises aggregate output and savings, thereby offsetting part of the initial crowding-out effects.
On his commentary to 2001-02 budget, Patnaik negates the proposition that the size of the fiscal deficit affects the level of interest rates and stresses that such a belief has made the budgetary strategy fundamentally flawed. Blaming the Bretton Woods institutions for this proposition that the size of the fiscal deficit affects the level of the interest rate, he writes that though this proposition has an appealing simplicity as a fiscal deficit means fresh demand for loans by the government, and hence an increase in the supply of government securities; this increase, it stands to reason, must lead to a fall in the prices of securities in general, i.e., a rise in the interest rate; this proposition is theoretically erroneous. The statement that an increase in the supply of government securities must lower security prices in general, requires the assumption that the total demand for securities is given. But this assumption is incorrect because a fiscal deficit increases not only the supply of securities, but also their demand, i.e., it shifts both the demand and the supply curves outwards; and to say that a rise in the fiscal deficit raises the interest rate, which logically amounts to saying that the interest rate is determined by the demand for and the supply of savings, is to deny that economic agents have a choice regarding the form of holding wealth. If this choice is denied, and economic agents are invariably assumed to hold their wealth only directly, in the form of capital stock, then the possibility of full employment savings not being invested is ruled out by assumption. It follows that anyone who believes that a rise in the fiscal deficit necessarily raises the interest rate, also believes that the system can never be demand-constrained, i.e. is always at full employment. Patnaik calls the argument that the consequences of a high fiscal deficit depend upon the way the deficit is financed (i.e. whether it is financed by monetisation or by market borrowings), a theoretically flawed argument. On the case of monetisation, he stresses that even if the deficit is financed by monetisation (which adds to bank reserves), this need not cause an inflationary squeeze on the poor as long as the real economy is demand deficient. And even if the entire deficit is completely monetised, if the value of the Keynesian multiplier (at unchanged interest rates) is higher than the money multiplier times income velocity of circulation of money (also at unchanged interest rates), there would be an excess demand for money that would push up the interest rates. Therefore the proposition that when the fiscal deficit is monetised it affects not the interest rates but only prices relative to money wages is wrong. On the second case, where there is no monetisation, according to paper even if the entire deficit is
financed by borrowing in the domestic financial market, it need not raise the interest rate at all if banks had excess reserves to start with. On the other hand, if the fiscal deficit so financed occurs in a real economy which is supply deficient to start with, then it raises prices in terms of the wage-unit, thereby imposing an inflationary squeeze on the poor. He concludes that it is not how the fiscal deficit is financed that matters but the state of \textit{ex ante} excess demand in the goods and the money markets and how these are affected by the fiscal deficit; and the theorists who say that fiscal deficit either causes inflation or increase in rate of interest implicitly assume that the real economy is supply constrained and that bank credit is supply constrained. He stresses that both these assumptions are wrong in the context of the Indian economy.

\textbf{Chakraborty (2002)\textsuperscript{52}}

One of the pioneering works on crowding out in India, this paper examines whether in the financially deregulated regime, shift in the financing pattern of the fiscal deficit away from seigniorage and external debt financing to bond financing has the probability of creating an upward pressure on the rate of interest in India. The study covers a period from January 1993 to December 1999 and is based on monthly data. In order to analyze whether there is any impact of rising fiscal deficit on the real rate of interest, treasury bill rate is used as the reference rate and the amount of borrowing done on the monthly basis via auction of 364 days, 91 days, 14 days and 182 days treasury bills is taken as a proxy for fiscal deficit. This measure of deficit is justified by stressing that the net borrowing requirement of the government on a monthly basis via auction of 364 days, 91 days, 14 days and 182 days treasury bills constituted around 65 per cent of the gross market borrowing in the nineties. Using an asymmetric vector autoregressive model, the paper concludes that in the deregulated financial regime, the fiscal deficit did not create a rise in the interest rate. Rather, the causality runs from the \textit{ex ante} real rate of interest to fiscal deficit.

In this paper Chakraborty has used Hsiao’s (1981) asymmetric vector autoregressive model to detect causality while stressing that this methodology has got an advantage of judicious parameterisation using Akaike’s Final Prediction Error (FPE), when compared to Sims-Granger framework of causality and that VAR-FPE approach doesn’t infect the model with spurious restrictions on variables.

\textbf{Das (2004)\textsuperscript{53}}

This paper makes a thorough theoretical analysis of the concept of crowding out, which is later analyzed empirically. Das is skeptical about the proposition that an
increase in the fiscal deficit, financed by government borrowing, necessarily raises the real rate of interest and thus crowds out private investment. He presents alternate economic scenarios to see effect of fiscal deficit on interest rate. First case presented by him is treasury view or the ‘fixed pool of savings’ view, in this case, assuming that savings do not depend on rate of interest, and hence saving curve is perfectly inelastic, he concludes that in this case, as savings cannot increase with increase in investment demand and increase investment demand has to be curtailed by increasing the rate of interest to maintain an *ex post* identity. In second case, he drops the assumption of full employment, and shows that the process of income and employment due to an increase in demand would continue until an amount of saving, which is equal to increase in investment is generated, and hence, rate of interest will not increase. In third case, he considers both investment and savings to be function of real rate of interest and if aggregate investment increases due to deficit financing, the rate of interest would increase but there would not be full crowding out because aggregate savings would also increase because of increase in rate of interest. In next case, he focuses on loanable fund framework and calls it ‘intelligence failure’ citing that this theory implicitly assumes given level of income, and for every level of income, there must be a different supply of loanable fund curve, and hence no increase in rate of interest. Lastly he elaborates on IS-LM framework which shows that given the normal LM curve, increase in government spending will shift IS curve to right and hence rate of interest will increase, but if LM curve is horizontal, rate of interest will not increase.

He further tests crowding out empirically by taking annual data for Indian economy from 1990-91 to 2000-01. Taking a number of rates viz. government bond yield, rate on treasury bills, call rate, lending rate, deposit rate etc as target rate of interest, he concludes that there is no evidence of financial crowding out in India. He further tests the hypothesis by taking data on 22 countries for 1983 to 1999 and rejects the crowding out hypothesis.

The paper ends with the conclusion that interest rates do not necessarily depend on fiscal deficit and the policies based on this understanding are erroneous.

*Rangarajan and Srivastava (2005)*

Rangarajan and Srivastava stress that in the argument that high levels of debt-GDP lead to high interest payments relative to GDP, which crowd out government capital expenditure and reduce the overall saving rate, two relationships are of critical
importance; first the responsiveness of changes in the saving ratio with respect to changes in the fiscal deficit levels; and secondly the responsiveness of government capital expenditure to changes in the level of interest payments.

They provide empirical estimates of the short-term and long term relationships, using annual data for the sample period from 1950-51 to 2001-02 and using the concept of cointegration. The interest rate on deposits of 3 to 5 years is taken as the reference interest rate. Real interest rate is obtained by deducting the expected inflation rate from the nominal interest rate. The inflation rate pertains to the implicit price deflator of GDP at factor cost from which trend inflation rate is estimated by using the HP filter. The estimation of the error correction model (ECM), which estimates together the long-run relation and the short-term dynamics they conclude that while private savings respond positively to private disposable income, the effect of public saving is negative, implying that a fall in public savings is associated with a rise in private saving but the compensation is partial. The effect is found to be negative both in the level and the first difference. The positive sign and the magnitude of the lagged dependent term show that the long-term effect is higher than the short run effect.

Citing their argument that as interest rates increase relative to current revenues of the government, a process of adjustment starts in government expenditure, which may lead to a reduction in public investment, particularly, government investment relative to GDP, they further make an attempt to look at the relationship between government capital expenditure, interest payments and revenue receipts with reference to the combined account of central and state governments, by converting data into real terms by deflating with the GDP deflator. They conclude that while interest payments in real terms affect negatively the real government capital expenditure, revenue receipts in real terms have a positive impact.

Chakraborty (2006)55

Chakraborty extends her 2002 paper by analyzing the real and financial crowding out in India during 1970-71 to 2002-03. In case of real crowding out, using asymmetric vector autoregressive model the paper shows that there is no evidence of direct crowding out of private capital formation by public investment in India. The impact of non-homogeneity of public capital formation in India on private capital formation is also analyzed through public infrastructure and non-infrastructure investment revealing that the former has complimentary relationship with private corporate
investment and no evidence of direct (real) crowding out in India. Furthermore, in determining private capital formation, the rate of interest is found significant. Stressing that confirmation of no financial crowding out can be detected only after analyzing real interest rate rise induced by fiscal deficit operations of the government, because if the real rate of interest is not induced by fiscal deficit, then there is no evidence of occurrence of financial crowding out even if private corporate investment is interest rate sensitive. By taking prime lending rate as the reference rate, the study concludes that there is no evidence of financial crowding out in India.

The paper further elaborates on the reasons for no crowding out highlighting that no crowding out in the context of India can be explained from the pattern of savings in the economy, especially that of the households, which has moved in favour of financial assets. This compositional shift in the savings in India towards financial assets could moderate the crowding out effects, as it increases the loanable funds in the economy and thereby puts less pressure on rate of interest.

Raju and Mukharjee (2010)\textsuperscript{56}

This paper examines the long run relationship between fiscal deficit, crowding out of private capital formation and net exports for the Indian economy during the period from 1980-81 to 2008-09. Applying unit root tests for stationarity and cointegration technique for gross fiscal deficit of centre as well as centre and states both, the paper concludes that there is no long run relationship between fiscal deficit and crowding out of private capital formation. They reject both the crowding out as well as crowding in hypothesis and conclude that it does not matter whether government finances its deficit by debt finance or by tax finance, and hence for Indian economy, Ricardian equivalence is the best theory.

Chakraborty (2012)\textsuperscript{57}

Using the high frequency macro data of financially deregulated regime, in this paper Chakraborty further extends her 2002 and 2007 studies to examine whether there is any evidence of fiscal deficit determining interest rate in the context of India. This time the weighted average of Treasury bill rates of 91 days, 182 days and 364 days are used as the rate of interest variable. The period of analysis is from 2006-07 to 2011-12. The results show that increase in fiscal deficit does not cause the rise in interest rates. Using the asymmetric vector autoregressive (VAR) model, it is shown that the rate of interest is affected by the reserve money changes, expected inflation and volatility in the capital flows, but not the fiscal deficit.
2.4 : Gist of Studies and Research Gaps

On the basis of the review of related literature, we draw a number of broad conclusions, which we found to be extremely useful in our understanding of the subject domain and in formulating research objectives for the present study. The main conclusions are:

- Public debt is a much studied and debated topic. Economists have accepted its significance in channelizing domestic savings, but at the same time, there has always been stress on keeping it within manageable limits.

- There is no single criterion of debt sustainability in literature. Domar’s work on public debt acts as a landmark in debt sustainability analysis. Almost all the later studies on debt sustainability have mentioned it directly or indirectly. (See, Domar 1944)

- Most of the comprehensive studies on composition and trend of Indian public debt were done in 60s and 70s. (Srikantaradhya, 1967; Ghuge, 1974; Lal, 1978, Barman, 1978). Very few comprehensive studies are available in which post reform public debt was compared with pre-reform public debt. Though Saket (2006) in his study provides data on the recent scenario of public debt i.e. for period 1990-91 to 2005-06, his study does not include any empirical evaluation of the trends or public debt policy. Chakraborty (1989) and Mallick (2005) have done a comprehensive analysis of internal debt of central government, but have not considered external debt.

- Few studies were also available by Indian economists on international debt problem, especially 1980 - external debt crisis and in context of developing countries. (Ahluwalia, 1983; Shroff 1987).

- Studies available on post-reform public debt scenario have concentrated mainly on sustainability of debt (Rangarajan and Srivastava, 2003; Chelliah 2004; Mohan, Dholakia and Karan 2005; Srivastava 2005; Rajaraman and Mukhopadhyay 2005). In Indian context, to analyze sustainability of public debt attempts have been made to modify this condition and link it to deficits (Chakraborty 2002; Rangarajan and Srivastava 2003, 2005; Dholakia et al. 2005, 2009).
In post reform period hardly any study is available on sovereign external debt, and focus is on total external debt that is government as well as non-government borrowing from external sector. Some studies have also sought to find the effect of external public debt on exports (Sawhney and Dipinetra (1987), Garg (1993), Metwally & O’Brien (1994), Raju and Mukharjee (2010)).


Studies have also debated whether public debt may lead to inflation in the economy and hence may interfere with monetary policy. Studies by Tobin (1963), Friedman (1978), and Tarapore (2002) agree that public debt comes in the domain of both monetary and fiscal policy, and for efficient management of debt, there is need of coordination between monetary policy, fiscal policy and debt management policy.

Analysis of debt burden depends upon time horizon being taken into consideration that is whether time horizon is being taken as finite or infinite (Blanchard, 1985; Bernheim 1989; Eisner 1994).

While Arora (1986) in her study on US economy had remarked that the crowding out is difficult to empirically test for the less developed countries for the lack of flexibility in the interest rate adjustment in reaction to changes in the money supply and money demand in the economy; the role of public debt in crowding out private sector is a much debated topic in recent literature in Indian context. Economist like Patnaik (2000), Das (2004) totally negate the concept, stressing that it is against macroeconomic theory and is based on unrealistic assumptions, Rangarajan and Srivastava(2005), Chakraborty (2002, 2006, 2012) have made empirical assessment of the phenomena in Indian context under alternative scenarios. In Indian context no study has shown any evidence of crowding out.

Fiscal responsibility and Budget management (FRBM) act is also a much studied and appreciated topic in recent literature in context of deficit control, though most of the studies have also criticized it for the absence of an explicit
debt ceiling. Many of these studies have also criticized current debt accounting framework (Dholakia and Karan 2005; Dholakia et al., 2009)

After defining our objectives and after detailed review of related theoretical and empirical literature we now proceed to elaborate on empirical methodology in the next chapter.
Notes and References:

The issue of debt sustainability and related studies are discussed in Chapter 7.


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