CHAPTER II
REVIEW OF LITERATURE

2.1 INTRODUCTION

Public expenditure has been an important strategy of economic development in India and many developing countries. Hence there are a number of studies analysing the various facets of public expenditure (PE). However, the studies concerning India are not many and have not dealt with the various facets in the period of economic reforms. The studies available confine either to particular states or pertain only to some aspects of public expenditure. Not many studies have focussed on all India level data, and those few studies have focussed only on the analysis of trends and composition, and a few facets of public expenditure management.

Thus there is a strong prima-facie ground to undertake a study covering determinants, efficiency and impact of public expenditure at the country level. The dearth of studies at the country level analysing these aspects is quite visible. Here we intend to review the available literature from two view points. We have tried to scan two broad groups of studies, one dealing with the various aspects of public expenditure and the other concentrating on the studies pertaining to the analysis of public expenditure in the Indian context. Keeping in view the issues we analyse the literature in four groups. The first group of studies involve the trends and composition of public expenditure in Indian context as most of the studies on public expenditure cover this aspect. The studies analysing determinants of public expenditure are reviewed in the following section. Third group of studies incorporate the analysis focussing on the impact of public expenditure and efficiency or productivity aspects of public expenditure. Lastly we a take look at the literature dealing with management of public expenditure specifically during the current period of economic reforms.
2.2 TRENDS AND COMPOSITION

Analysis of the trends and composition is an integral part of public expenditure analysis. In fact it marks the starting point in the analysis of public expenditure be it determinants, impact efficiency or management aspects. Some studies exclusively take up the analysis of trends and composition, while many other studies discuss this as a part of a broader scheme. The approach, scope, reach etc to the analysis of this segment are different in different studies. Some studies consider it at the international level, where they consider countries as a group like developing, developed, transition economic etc. The study of trends and composition national and local level public expenditure has been the focus of few other studies. Most of the studies consider only major items of expenditure at the level considered and analyse the changing structure. Sizeable number of studies takes up specific items of expenditure like expenditure on education, health, social sector, subsidies etc. individually and are subjected detailed analysis and scrutiny. While tracing the changes in trends and composition, some studies go further and also provide explanation far the possible behaviour of the aggregate public expenditure, and its different components.

The conventional approach to the study of this aspect is to analyse the time behaviour of public expenditure and its components at nominal as well as real prices. However, the increasing number of studies looks at public expenditure both as the proportion of GDP and also in per capita terms. Several studies also calculate growth of public expenditure and its items, along with the same for different revenue items. The differential growth of revenue and expenditure, the link between them, their contribution the emergence of surplus (or deficit) and thereby to the emergence public debt etc is also probed by some other studies. Few studies also take up the financing pattern of public expenditure along with the analysis of trends and composition of public expenditure.

In India too, large number of studies have taken up the trends and composition analysis, covering different time periods especially after independence. The studies analysing the pre-and post eighties trends and composition is no less in number. Studies
usually consider the economic as well as functional clarification of public expenditure in India. Analysing the public expenditure in India between 1980-81 and 1990-91 Rao and others (1995), note the behaviour of per capita expenditure and growth employing exponential kinked regression, suggested by Boyce, (1986) observe that expenditure growth has been highest than that of revenue receipts and with in public expenditure, revenue expenditure grew at the rates higher than capital expenditure. This, as the study notes, is due to higher growth of interest payments, wages and salaries which are many ascribed to the effective lobbying by the concerned interest groups. Carrying the analysis further Rao and Sen (1993), Kurian (2002), Gayithri (1992), Shome, Sen and Gopalakrishnan (1996) observe that the high and accelerating public expenditure in India in the eighties as compared to growth of revenue receipts, led to the emergence of the phenomenon of revenue deficits and burgeoning fiscal deficit. This ably helped by the diversion of capital receipts (mostly the borrowings) to the current expenditures, spoiled the fiscal health. This manifested in revenue expenditure crowding out capital expenditure. And increasing public expenditure that was financed by borrowings resulted in additions to the stock of public debt. The fast growing public debt increased the interest payment obligations of the centre.

Several studies take up specific items of public expenditure -like public expenditure on human development (Sen, 1992), health (Reddy, 1992), Subsidy (Mundle and Mukhopadhay; 1992, Srivastava and Rao, (2002) at different levels and also offer explanations for their behavior in the Indian context.

Mukherji (1965), analyses public expenditure in India for the period 1901 to 1951-52, while Reddy and others (1984) take up public expenditure behavior in India soon after the independence (1950-51 to 1977-78). Assessing the public expenditure behaviour in the transition economies, Gupta, Leruth et al. (2001) note that the government size in relation to GDP used as a conventional measure has declined in these economies since early 1990s. However, they note that it still remains high in terms or
some other indicators viz., rising indebtedness, prevalence of high non-cash transactions, heavy regulatory burden etc.

2.3 DETERMINANTS OF PUBLIC EXPENDITURE

Public expenditure at all levels is the result of a complex set of socio-economic and political factors, though the influence of each factor may vary depending upon the region and the level of government. Several studies explain the determinants of public expenditure, both at the individual country level and at the level of group of nations (i.e., developing, OPEC, Group of Seven, developed countries, etc.). By far, bulk of the studies focus on the demographic and electoral factors as explanations of public expenditure. However, quite a few studies also cover other determinants like inflation, institutional factors, ethnic heterogeneity of the nation, the nature of economic policy regime (including the fiscal policy regime), extent of decentralization, extent of corruption or rent seeking, revenue (size and composition), the expenditure of the neighbouring countries (especially with regard to defence expenditure). Most of the studies look both at the factors influencing the size as well as the composition of the public expenditure. The focus of quite a few studies is on public expenditure at the national (central) or aggregate level, with a few studies also focusing on public expenditure at the provincial/state levels and still fewer studies at the local level.

Among the demographic factors, the size and composition of the population seem to be important variables influencing the volume and composition of the public expenditure. Other demographic factors – growth rate of population and density of population - have also been included in few studies. Changes in the size of population as well as age structure will influence the public expenditure for different levels of administration in a different manner (Eschevarria and Cruz, 1995). The high and positive correlation between the age composition of the population and public expenditure composition was emphasised by many (Masson and Tryon, 1990; South Soot and Sunny, 1991; Johnson and Falkingham, 1988). The studies for USA and UK have revealed that the states (provinces in USA) with comparatively large child population spend
significantly less per child than the states with smaller number of children, and at the same time the states with relatively larger population spend marginally less on children, thereby revealing interesting relationship between the child population and public expenditure. Thus age composition of population seems to be high on the agenda of determining public expenditure.

The study by Johnson and Falkingham, (1988) noted that the welfare systems in USA and New Zealand have become increasingly generous towards older people and increasingly restrictive towards families with dependent children due to the fact that the age profile has shifted in favour of the elderly as opposed to children. This development seems to be natural as the age composition of population in the developed world is changing in favour of the elderly population. However, it is found that the British Welfare System has been neutral between age groups even in response to change in age composition of the population.

At the outset, it might seem obvious that the composition of public expenditure would change in accordance with the age composition; however the evidence from the available studies is inconclusive. Moreover, the researcher could hardly find any studies on this aspect for developing countries, particularly India. This might be due to two reasons: 1) the size of public spending on social welfare schemes is relatively low in developing world as compared to the developed countries both in absolute and relative terms, i.e., as percent of GDP and total expenditure. (And the change in public expenditure composition with reference to change in age structure is mostly true in case of public expenditure on welfare schemes); second, the non-availability of data on age-wise spending in these countries.

Studies also show that the increasing population size and population growth rate entail higher public expenditure (Eschevarria, 1995). The demographic changes in the future and its possible impact on social expenditure items like, expenditure on health, education, pensions, unemployment benefits and other social services, also influence the public expenditure policy decision (Demetriades and William, 1990). The other
demographic factors like age distribution/composition according to ethnicity (ethnic groups), religion, etc. also have a bearing on public expenditure composition (McCarthy, 1993). It is even argued that the ethnic heterogeneity impacts both quantity and quality of public spending. Evidence exists to show that more heterogeneous societies spend less on public goods and heterogeneity and population density also affects the efficiency of public expenditure outcomes (Kuijs, 2000).

Another important determinant of public expenditure is the political system and the agenda of polity in a democratic set up. Several studies provide enough evidence of the link between the size and composition of Public Expenditure and Elections/Democracy. The electoral constraints, partisan and opportunist/populist policies, divergent ideologies of political parties and the so called 'political business cycles' impact the magnitude and composition of public expenditure and public expenditure outcomes. Both size and composition of public expenditure are responsive to electoral considerations. On the one hand it is observed that it is not the overall level of public expenditure, but the composition, especially welfare spending that get affected by the electoral considerations (Gilligan and Matsusaka, 1995, Toole and Stroblee, 1995), while on the other, it is also noted that all expenditure categories show upward drift during the election times including the changes in composition (Easaw and Garratt, 2000; Van-Dalen and Swank, 1996). The political parties use fiscal policy instruments - expansionary fiscal policy - to sway electoral outcomes and this phenomenon is found both in developed and developing countries (Ferreti and others, 2001; Schuknechhi, 2000; Tridimas, 2001). This partisan and opportunistic cycle in public spending is found at the provincial/state levels too; especially in the highly visible areas of public expenditure (like schools, roads and hockey rings) tend to increase in the election years (Kneebone and McKenzie, 2001).

The use of expansionary fiscal policies by allowing large fiscal deficits to boost electoral prospects is found in many developing countries that are less trade oriented (as the additional demand does not leak abroad), and in countries that pursue fixed exchange
policies rather than the flexible exchange rate regimes (because the additional demand does not trigger a devaluation-inflation spiral). During election times, fiscal balance is found to have worsened by over 0.6 percent of GDP irrespective of whether the country is on the IMF supported program or not (Schuknecht, 1994). Using the general equilibrium growth model Ghate and Zak (1992) find that public expenditure conforms the Wagner’s hypothesis and electoral interests initially. After the government expenditure became large, the study identifies an endogenous threshold on the economy’s growth path where it is optimal for politicians to shrink the welfare state, cut taxes and stimulate output growth (ibid).

The external factors like foreign aid, composition and size of foreign savings, donor conditionality also determine the public expenditure size and composition, as the studies indicate. The foreign aid and its source – whether bilateral or multilateral, influences the recipient policy maker’s choice between the developmental and non-developmental expenditure (Gang, 1999). However this may not be true in all the cases as was found in case of Thailand where the donors by insisting on expenditure cuts and short term fiscal discipline (under typical IMF supported programs) tried to influence both the volume and composition of public expenditure which however was found to be ineffective in changing the composition of public expenditure and improving technical efficiency (Pradhan, 1996). The outward orientation of the economy has also something to do with public expenditure size and composition, more so on the latter. Public spending is found to be greater in countries with large foreign sectors and as the flows of foreign savings increase, per capita spending also increases. However, the greater outward orientation hand no relationship to spending on infrastructure (at least in the Central budget) in case of 27 low and middle income economies (time series data for 1980-86) (Hefley and others, 1996). The extent to which the aid increases public expenditure by the recipient government, both in total and across sectors, using panel data regression of aid on spending, for a sample of 14 low income countries, is analyzed by a study (Swaroop, 2001) and is found that no lag exists between the aid disbursement...
to government spending. The Study finds huge leakage of funds directed to agricultural sector and very less leakage in case of transport sector. However, as noted earlier, the size and composition of public expenditure bear no relation with the external factor during the elections, when the partisan political influences pervade over the considerations of fiscal policy discipline (Schuknecht, 1994).

The studies show that the corruption and rent seeking are also the factors which in turn may be the result of institutional and political set up, the kind of economic policy regime being pursued (whether market based or centralized planned regime) etc. An IMF study (Mauro, 1966) finds cross-country evidence between the corruption and the composition of government expenditure. The same is echoed by Gupta and Mirande (1998).

Corruption specifically affects the public expenditure composition and efficiency. It negatively impacts the efficiency of public expenditure, as a dynamic panel data approach based on data of 20 regions in Italy shows (Del Monte and Papagni, 2000). Another study by IMF (Gupta and others, 2002) using cross-sectional data for 50 developing and transitory economies shows that corruption leads to higher military spending and lower government spending on education and health care. However these conclusions are hard to arrive at as it is difficult to quantify corruption and rent seeking and empirical work in this direction is rather limited. Therefore most studies rely on the corruption indices generated by the private rating agencies (Gupta and Miranda, 1998).

The macro economic policy regime and its objectives (including the fiscal policy regime) is an important factor greatly influencing the public expenditure and its various facets. As noted earlier lesser the openness of the economy, larger the government size is likely to be, as the external influences are believed to bring about the fiscal discipline, of which expenditure compression is a major part. The type of macro economic policy viz., the extent of emphasis on macro-economic stability, involvement of private sector in providing quasi-public goods, distortions in labour markets and HRD etc influence the spending policy of the governments. The impact of private participation specially in
infrastructure is further highlighted by the study for 21 Latin American countries covering the period 1985-98 (Compos and others, 2002) which finds that the extent of private participation (in infrastructure) affects current public expenditure, public investment in addition to the overall private investment.

Another major macro policy objective in developing countries is the poverty alleviation. A study by Hefley and others (1966) using cross-national time series data for 1982-86 for 27 low and middle income countries shows that government’s objective, especially its commitment to poverty alleviation (along with nature of domestic economy and flow and composition of external assistance) influences public expenditure. The governments that are not committed to alleviating poverty or that are extremely committed to poverty alleviation spend less on infrastructure from the central budget, as the commitment to the cause of poverty intensifies, funding for the social programmes competes with the funding for developing infrastructure. The institutional arrangements accompanying the policy regime viz., bureaucracy, rent seeking political redistributions, perceptual and informational impediments impact the size, composition and outcome of public expenditure (Merrifield, 2000; Borcherding, 1986). In fact, as Borcherding (1986) observes these institutional components have influenced total public expenditure in the United States to the tune of one-third of the total.

The type of policy, especially fiscal policy regime greatly impacts public expenditure. Using a modelling framework for Sub-Saharan Africa (Fielding, 1997), a study finds that sources, size and composition of borrowing and revenue alter the public expenditure considerations. The fiscal regime/discipline/stance is a major factor among the overall policy regime, whether the fiscal regime has expansionary or contractionary or neutral stance also has something to do with the way the public expenditure behaves, which in turn could be the result of macro-economic policy stance. The larger the budgetary deficits, i.e., larger the tolerance for deficits (fiscal, budgetary and, revenue), larger could be the public expenditure. The access to borrowing, larger revenues and deficit financing and ease with which monetisation of deficit takes place – add up to the increasing size of public expenditure Easier access to deficit financing contributed to the
increased real government spending (Diamond, 1988). The nations with high indebtedness face substantial borrowing and revenue constraints, which further constrain the size of public spending (Fielding, 1997). Public expenditure also behaves in an asymmetric fashion in response to windfall revenue gains occasioned by a transitory commodity boom (Gupta and Miranda, 1991) as is found in the case of Sri Lanka, Malaysia and Kenya. The ability of governments to adjust borrowing and fiscal revenue (using modelling framework in Sub-Saharan Africa) too determines the public expenditure. During 1961-94, it was found in Greece that increase in public expenditure was the result of tolerance of large deficit (Hondroyiannis and Papapetrou, 2001) (Buchanan- Wagner Hypothesis).

Inflation as expected is also an important determinant. A study in case of Turkey (Anand and others, 1989) and sampling of 115 countries (Opler, 1988), broadly supported the hypothesis that inflation increases the public expenditure share as a consequence of political pressure brought about by unsettled implicit social contracts. Economic/Business cycles too have a bearing on expenditure as Goff’s study (1988) using ARIMA model and Cochrane’s non-parametric test supports that government spending in aggregate displays strong persistence to temporary shocks.

Whether centralization/decentralisation and localization affect public expenditure is of special interest especially in developing countries where much of the premium is placed on the process of decentralization. However, the testing of Leviathan model for an international sample of 45 countries (Anderson and Hendrik, 1998) finds no evidence of relationship between fiscal centralization and government size. However, as the number of democratically elected districts increases, government spending also increases (“Law of 1/n”) as it was found in case of USA , especially for the state of Georgia (Brandbury and Sephenson, 2003). A study with global data for period 1960-99 (Coller and Hoeffler, 2002) finds that the military expenditure is strongly influenced by the expenditure of the neighbours. The study gives an estimation of ‘arms race multiplier’ where an initial exogenous increase in military expenditure in one country is more than doubled in both the originating country and its neighbour.
2.3.1 WAGNER'S HYPOTHESIS

Wagner's hypothesis (WL) is one of the oldest hypotheses of public finance in general and of public expenditure in particular. It specifies the relationship between the economic growth (as represented by GDP) and public expenditure. According to the hypothesis as the national income increases the public expenditure also tends to increase at a faster rate than output. By implication, GDP turns out to be one of the most important determinants of the size of public expenditure. WL has evoked significant interest among the academicians and hence the law has been subjected to innumerable empirical investigations by many scholars. In fact any standard journal of public finance, money, finance, etc. contains an article on the testing of WL. Studies in this case, as in many other cases, are at individual country level and group of countries, investigating both short-run and long-run relationship between the GDP and public expenditure. While majority of the studies focus on aggregate public expenditure, some studies do analyze the relevance of WL for the major components of the public expenditure like defence, current and capital expenditure categories. Several studies are also available in the Indian context, unlike the other areas of public expenditure (such as determinants and efficiency of public expenditure, where hardly a very few studies are available and no macro level studies, seem to be undertaken, pertaining to the post reform period are found focussing on India).

Many econometric techniques and their variants have been used, which however basically fall in a few systematic categories, viz., starting from simple regression techniques and basic multivariate approaches, the studies advance into the use of co-integrating and unit-root tests up to Engle-Granger version. Maximum likelihood (Johnsen type) and error correction models also have been employed. The debate on the question on the direction of the causality (whether the causation is from economic growth to public expenditure or the other way round) is also pertinent. Many studies try to answer this by resorting to the famous and familiar Granger causality test.
Among the empirical studies supporting the WL one of the important works is a study for the nineteenth century Europe (Thorfan, 1999) using Granger Causality Test and it finds uni-directional relation from income to government expenditure, thus, lending considerable support for WL for the nineteenth century Europe. The same line is echoed by a study using Co-integration technique for Group of Seven (G7) countries (Kolluri and others, 2000) for the period 1960-93 which finds that both the short and long run effects of growth in national income on government expenditure. For the USA (Bairam and Erkin, 1995) only the non-defence expenditure supported the WL. Studies for the European countries (Afsetiou and Serletis, 1966), for three Latin American countries (Thortan, 1998), for Jamaica, Guyana and Barbados (1967-70 to 1994-95) and Trinidad and Tobago (Alleyne, 1999) and Kuwait (Burney, 2002) also do not lend support to the WL. For Europe, WL held good neither for the aggregate expenditure nor for its components. For Kuwait however, the inclusion of other variables (socio-economic) finds only little evidence for the existence of long run relationship.

Therefore the support or lack of it varied with the inclusion of other explanatory variables. The study for Greece (Georgeakopoulos and Loizides, 1994) simple Wagner type models performed poorly. Adoption of structural Wagner type model (with industrialization and urbanization as explanatory variables) performed better and results further substantially improved (thereby lending support for the WL) when population variables were added to the regressors. Similar results also followed the study for 15 European Union (EU) countries (Karagianni and Pempetzungouli, 2002) and Gulf Corporation Council (GCC) countries (Ghamdi, 1991) with ambiguous results suggesting that the validity or invalidity of WL is very sensitive to the method (or version applied). These studies also show that the aggregate public expenditure is also affected by other factors (not just the economic factors like GDP, GDP- per capita), like institutional, ideological, socio-political factors, relative prices, stabilization policy (Courakis and others, 1990). For the UK (1948-1997) Chow, et.al, 2002, applying multivariate co-integration and causality tests, found that while the bivariate co
integration tests indicated absence of long run relationship between GDP and public expenditure, the introduction of the third variable (money supply) re-established a coreintegrating relationship between public expenditure and economic development variables. The Granger's multivariate causality test indicated unidirectional causality from income and money supply for public spending in the long run, thus providing support to Wagner's hypothesis.

2.3.2 PUBLIC EXPENDITURE AND ECONOMIC GROWTH

The extent and contribution of public expenditure and its components to income growth could be an indicator of efficiency or productivity of public expenditure. While the Wagner's Law, gives the relationship between the GDP and economic growth (causation being from former to the latter), the reverse causation i.e. public expenditure influencing the economic growth measured in terms of GDP growth or growth of per capita income (PCI) also needs to be appreciated. Extensive studies are available - again at individual and group of countries level - both among developing and developed countries - studying the phenomena theoretically as well as empirically. But the results again remain inconclusive, with large number of studies showing the absence of the phenomenon of public expenditure influencing the income growth. The techniques used are also wide but majority of them being the Time series analyses with Regression technique (standard OLS, VAR and others) along with the Granger Causality Test. While some studies have also used the Simultaneous Equations, Dynamic General Equilibrium and Production Function Approaches.

Fairly large number of studies exist-probing public expenditure – economic growth relationship. The nature of the studies, however, differs widely. Some studies restrict themselves to providing the framework for this kind of relation, while a few others carryout only the review of existing theoretical and empirical studies available without specifically taking up the particular cases. A majority of the studies take up the aggregate public expenditure and analyse its impact on the economic growth or contribution to GDP. However quite a few studies also consider the public expenditure at
disaggregated or decomposed level i.e. they take up specific heads of public expenditure like public expenditure on social sector, infrastructure etc. and analyse their impact on GDP growth. There are studies which look at this relation (public expenditure to GDP) under the regime of economic reforms. These focus whether the expenditure reforms (most of the times meaning expenditure cut/reduction) under the structural adjustment programme have had any bearing on the GDP, either way.

The study by Fan and others (2002) provides the general equilibrium frame work to estimate the effect of public expenditure on GDP. The study also deals with the impact of public expenditure on inequality, poverty etc. while estimating the impact of public expenditure on GDP for China for provincial level data for 1990-97. Ghali (1997) builds on Barro’s endogenous growth model and entangle the nature of relationship between public expenditure and economic growth for South Arabia, while Gerson (1998) making an extensive survey of the theoretical and empirical literature on the relationship between public expenditure and economic growth and concludes that well targeted public expenditure on health, education, and infrastructure would have positive impact on growth. However Agell (1997) claims that the theoretical and empirical evidence does not allow any conclusion on whether there is a relationship between the rate of economic growth and public expenditure, while Folster and Henrekson (1999) in their exclusive review provide the evidence that of the relationship may be more robustly negative than it first appears.

Probing whether, the public expenditure reduction, in the erstwhile socialist countries during the transition process, had any impact on their economic growth perspectives, Senjur and Ljublijana (1996) find that economic growth in the cross country analysis cannot be explained by the public expenditure rate or by the deviations from growth neutral public expenditure rate.

Quite a number of studies reveal the existence of positive relationship between public expenditure and economic growth. The cross country analysis (Bumey and Mutairi, 2001) using ordinary least squares (OLS) and random co-efficient (RC) methods
for two periods 1965-80 and 1980-90 confirms the existence of positive and stable relationship between public expenditure and GDP in both the periods. Similarly, an econometric panel study on sample of rich countries covering the period 1970-75 (Folster and Henreksan, 2001) also confirms the existence of robust relationship between government size and economic growth. The same result is echoed in case of many developed countries-for Greece 1948-1995 (Loizides and Vamvoukas, 2002), United Kingdom for eighteenth century (Jackson, 1990), OCED countries (Absam, Kwam, et al., 1989). The evidence of this positive relationship is also available for developing countries. Using unit-root and co-integration tests for South Korea(1954-94) Cheng and Lai(1997) find bidirectional causality between public expenditure and economic growth, thus ascribing to Wagnerian (GDP to public expenditure) as well as Keynesian propositions(public expenditure to GDP). Dua, Rashid and others (2000) analysing the impact of financial and fiscal variables on economic growth for India and Korea also support the proposition.

However, as noted earlier quite a few studies find lack of conclusive evidence on the relationship between public expenditure and GDP/economic growth. A study by Afxention and Serletis (1991) analysing the international evidence on income and public expenditure causality for 42 developing and 21 developing countries, finds, in both the group of countries, no statistically significant evidence of either aggregate government spending or government investment spending on economic growth. This according to the study is indicative of low productivity of government services and the dominance of consumption in government spending, the study opines. Calculating the income elasticity of demand for public expenditure in Canada, Abizadeh, and others (1990)-both for short run and long run refute the existence of public expenditure and GDP relation. Studying the public spending in the twentieth century for the industrialised countries Tanzi Vito and Schuknecht,(2000) demonstrating that the countries that contained the low growth of (public) spending performed equally well on even better than the countries with relatively big governments make the case for reducing the level of public spending and
improving the efficiency of public expenditure. Al Faris (2002), for GCC countries, also finds no evidence for the hypothesis of public expenditure causing NI as proposed by the Keynesian theory. The study for 64 liberalised and developing countries (Tore Strausis, 2001) toing the same line notes that most fiscal variables (including the public expenditure) are not significantly related to economic growth, the means of financing matters more than the government spending. public expenditure as not contributing to economic growth is also evidenced by several other studies like- Abizadeh and Youselifi (1998) for South Korea, Sinha D., (1998) for Malaysia and others. Several studies come out with mixed or inconclusive evidence on the relationship (between public expenditure and GDP) as noted by Fuente (1997), Ekpo (1999), Diamond (1989).

Another set of studies reveal that it is not just the size, but also the composition of public expenditure that also dictates the nature of its relationship with GDP. While overall size of public expenditure may not affect GDP, the specific components may have significant impact. The data from China indicated that the public expenditure on science and technology is positively related to per capita GDP growth, while the overall size of government, measured by total government spending to GDP, appears negatively related to per capita GDP growth (Lin and Song, 2002). For Nigeria, 1960-1992, a petroleum based economy, public expenditure on transport, communication and agriculture, education and health ‘crowded-in’ private investment (thereby positively impacting GDP growth), while public spending on manufacturing and construction ‘crowded out’ private investment (Ekpo, 1999). For a sample of developing countries Diamond (1989) finds that social expenditures and current expenditures (for directly productive purposes) had significant impact on growth, while the infrastructure expenditure and capital expenditure (for directly productive purposes) had little and negative influence on GDP growth (using Denison growth accounting approach).

For India, 1951-1987, Ansari and Singh (1997) using Vector Auto Regression (VAR) Model find that education expenditure indirectly affects economic growth by way of affecting private investment and capital formation. The study also showed that an
unanticipated increase in public spending on education had considerable positive effect on the national income in India. Another study for India, using simultaneous equation model and using state level data for 1970-93, (Fan, Hazell and Thorat (2000), finds that public investment in rural roads, agricultural research had significant and other investments (like-irrigation, soil and water conservation health etc) had only modest impact on growth and poverty per additional rupee spent.

The time series evidence for Greece (Argyrou and Brunei, 2000) showed positive long run relationship between GDP and productive public consumption expenditure and no long run relation between GDP and public sector personnel expenditure, public service expenditure. However, contrary to the general notion, a study using data for 43 developing countries over 20 years showed that increase in the share of current expenditure has positive and statistically significant growth effects and relationship between capital component of public expenditure and PCI growth is negative. That is as the study notes that the seemingly productive expenditures, when used in excess could become unproductive.

The relationship between public expenditure and GDP / economic growth is an area, where the researcher finds many studies with reference to Indian economy. In addition to the ones quoted above, the other Indian studies include: Sinha D. (1998), Sigh and Mitra (1999), Jha and Seth (1995), Bhat, Nirmala and Kamaiah (1991), Ansari (1996), etc.

2.3.3 PUBLIC EXPENDITURE AND PUBLIC REVENUE

Size of revenue and its composition are supposed to be the important determinants of public expenditure. However the contrary could also be true. This has led to ‘spend and tax’ and ‘tax and spend’ hypotheses, the causality being in both the directions (i.e., bi-directional). The evidence, as it is to be expected, is not conclusive. In some cases, the causality runs from revenue to expenditure, while in some other cases it is from expenditure to revenue. At the same time there are evidences of bi-directional causality between the revenue and expenditure. While the techniques used in several
studies are similar with the extensive use of econometric techniques like integration test, unit root test, Granger Causality test and variants of these techniques.

In case of China (Li, 2001) using vector error-correction, vector auto-regression and unit root test; Greece and Ireland (Kollias and Makrydatis, 2000); Chile and Paraguay (Ewing and Payne, 1998) using Engle-Granger bi-variate co integration approach, the studies confirm the existence of the bi-directional causality pattern.

'Tax and spend' phenomenon was observed with the causality running from revenue to expenditure in the several cases. These mainly include- Gorden and Wilson (1999), Kollias and Makrydakis (2000) for Spain, Craigwell, and others (1994) for Barbados by using seasonal unit root and co-integration tests for implementing Granger Causality Test, Manziri and Sarin for Switzerland by using Granger and Hsia Causality tests covering the period 1950-92, Fwizg and Payne (1998) for Columbia, Ecuador and Guatemala, Huang and Taeg (1992) for Taiwan.

On the other hand, 'spend and tax' causality (i.e., expenditure to revenue) was observed by several other studies including the one for India. The Granger's test for India (Dhanasekharan, 2001) suggested unidirectional causality flowing from government expenditure to revenue. Similar results were also noticed for Malaysia (Mithani and Khoon, 1999), indicating that higher government spending leads to higher taxes, i.e., size and growth of public expenditure and consequential tax burdens as well as fiscal deficits are largely determined by the spending decisions. The same was also experienced by Greece (Hondroyiannis and Papapetrou, 1996).

Finally, as observed in the study by Ram R. (1988) for 22 countries, there exists cross-country diversity in the causation, but one finds broadly similar causal pattern for developed and developing countries.

2.4 IMPACT AND EFFICIENCY OF PUBLIC EXPENDITURE

Of all the aspects of public expenditure (PE), the analysis of the impact of public expenditure seems to be the most widely discussed and researched component, if one
were to go by the availability of studies at different levels and over different periods of time. Following the Keynesian analysis, large numbers of studies focus on the impact of public expenditure on output — aggregate as well as sectoral and regional — through the channel of multiplier. The impact of public expenditure on several macroeconomic variables, in addition to the output of goods and services — like, consumption, employment, exports and imports, labour supply, etc. also has been widely analysed. The related issues like impact of public expenditure on business cycles or the ‘crowding out’ or ‘crowding in’ effect of public expenditure etc. are dealt by several other researchers. The equity aspect of the public expenditure — like its welfare implications, possible implication on income distribution — is dealt by few other studies. The impact on several financial and external sector variables is also widely covered, more so in the latter case.

Impact of public expenditure in aggregate terms or its different components on output growth could be the obvious starting point in the impact analysis. The effect of public expenditure on output in turn depends on the composition or allocation of public expenditure, its financing pattern, and whether public expenditure ‘crowds out’ or ‘crowds in’ private investment, consumption, etc.

The study on the impact of government expenditure on agriculture for a sample of 35 developing countries (1974-84), finds public expenditure significantly affecting the performance of the agricultural sector (Diakosavvas, 1990). The study also found that the fluctuation in public expenditure acts as a deterrent to agricultural output growth. Using the Granger model, Ansari’s study (1994) for Canada finds bi-directional causality between growth in government sector and in the service sector. Similarly, positive effect of public expenditure on output is echoed by Odedekun (1989), Dalamazas (1992) and several others.

More than the aggregate public expenditure, it is its allocation among different components, which gives better results. As Hansson and Magnus (1994) find for Sweden, the government transfers, consumption and total outlays have negative effects;
educational expenditure has positive effect; and government investment has no effect on GDP. In all these cases, the impact solely worked through total factor productivity and not via the marginal productivity of labour and capital.

The economy's response to an increase in public expenditure depends on how it is financed, as Ludvigson (1996) notes that the distortionary tax finance may lead to a decline in output, consumption and investment and where as deficit finance may increase output and consumption. For a large sample of 52 countries, Dalamagas (1992) notes that substitution of debt for taxes as a means of financing public expenditure may have desirable counter cyclical and growth effects. A far larger study for group of developed and developing countries by Miller and Russek (1973) throws up interesting results. The authors here find that for developing countries, debt-financed increases in the GE retard growth and tax-financed increases stimulate growth, while for developed countries, the former had no effect and the later hand negative effect. Similarly, the equity financed public expenditure was found to have positively contributing to the output (Hasan and Siddiqui 1994). The intensity/ strength of the multiplier effect of public expenditure also depend on how public spending is financed (Ambler, Phaneuf and Girald, 1976). This differential impact of different sources of financing of public expenditure is also highlighted by Yale University Working Paper (1988), Subramanyam, G (1993), Rajan and Asher (1997), Buffie (1992), Tompkinson and Bethwaite (1991) and others.

The public expenditure apart from influencing the domestic output also affects the output of imports, both in response to temporary and permanent policy changes, especially in an open economy (Turnovsky and Sen, 1991). Government spending and other fiscal policy measures affect labour supply which further depends on the degree of substitutability between government consumption and investment expenditure (Quintieri and Rosati, 1990). An increase in public expenditure in one sector will increase total employment and a general increase in public expenditure in fixed proportions will have a positive effect on employment, but below unit (Dixon, 1991).
The impact of public expenditure on macroeconomic variables like output, employment, consumption, etc. are mainly manifested through 'crowding out' or 'crowding in' effects, which in turn may depend upon the composition and source of financing of the public expenditure. The study by Levaggi (1999) using general microeconomic utility function for Italy finds that traditional public goods play a neutral role, while impure public goods crowd out private consumption. Different components of public expenditure and the way they are financed, also affect crowding out/in as Ahmed and Miller (2000) find using 'fixed and random effect' methods for sample of developed and developing economies. The study notes that in general, tax financed public expenditure crowds out more investment than the debt-financed expenditure. Expenditure on social security crowded out, while public expenditure on transport and communication crowded in investment in developing countries, the same study notes.

The relation between public and private investment spending is analysed for the Australian economy (Monadjemi, 1995) using regression analysis, however finds no significant evidence of crowding out. In fact public investment was found to complement the private investment during the period of study. Even the temporary changes in public expenditure may have impacted private consumption and investment. As noticed by Djajic (1987), the temporary increase in public expenditure is found to reduce (i.e., crowd out) investment if public and private goods are Edgeworth complements or independent. However, if they are substitutes, there exists the possibility of an increase in investment (i.e., crowding in). The studies by Weinblatt (1992) and Marrinan (1998), Tao (1988) also analyse the various aspects of public expenditure crowing out and crowding in of the private consumption and investment.

Another major impact of public expenditure is to pull out (or push in) the economy from (or into) the **business cycles**. The study for UK by Alogoskoufis (1987) reveals that (in addition to the competitiveness, oil prices) the government expenditures have been equally important independent sources of output fluctuations, both before and after (1973 oil shock). A similar study for USA (Aziz and Leruth, 1997) using general
equilibrium model shows that the cyclical effects of the size and composition of government purchases have significant effect on output, employment and welfare in the post-war period.

In addition to output growth and fluctuations, public expenditure also has several welfare and equity implications, either way, which rightly has been the focus of some studies. A lower public expenditure or cut in public expenditure does not necessarily lead to lower welfare, as measured by the physical quality of life as the study by Scully (2001) finds. This study, using functional (parametric) form of the non-linear equations concludes that considerably high amounts of public expenditure are not necessary to maximise the physical quality of life and at excessively high level, the public expenditure reduction would not lower the quality of life. Reflecting a similar view a study for South Africa (Hosking, 1992) draws attention to the limits of the welfare case for public expenditure on education. The welfare implications of public expenditure also depend on the alternative forms of tax financing of public expenditure, its crowding out effect and inter-temporal trade off (Turnovsky, 1992). The distributional impact of public expenditure is covered by Hemming (1991), Lambert and Pfahler (1998) and Sen, A (2002) as well.

The financial and fiscal economies are closely interrelated. The key financial sector variables like interest rates (level as well as structure), price level and inflation are greatly influenced by the size, composition and financing pattern of public expenditure. If the huge amount of public expenditure is debt-financed, then it would push the level of interest rate upwards. Public expenditure also influences the structure of interest rates, as Fisher and Turnovsky (1992) demonstrate. The study reveals that the public expenditure affects the term structure of interest rates and that even for very temporary public expenditure stock, both the short term and long term interest rates will diverge in the short run.

Impact of public spending on money supply, price level and inflation is a widely discussed area. The deficit financed public expenditure is most inflationary of all kinds.
of public expenditure financing. Developing a dynamic model of inflation, Ruge and Francisco (1999) show that the extent of newly created money to finance the budget deficit affects the inflation level as the money supply growth is constantly affected throughout the spending process. Similar views are also echoed by Bairam (1991) for USA and Garcia and Montes (1988) for Columbia. Another study for USA and UK (Sinclair, 1989) gives interesting results. The expansionary fiscal policies, under President Regan's regime in early 1980s, reduced both inflation and unemployment, possibly the only contemporary instance of such a development, the study notes. However, for the United Kingdom, the study observed the increased public expenditure exerting extremely upward pressure on prices.

The link between the domestic economy and external sector is now widely appreciated in the economic literature, both at theoretical and empirical levels. Accordingly plethora of studies enquire the link between the public expenditure and other fiscal variables on one side and the external trade variables – like current account, exchange rate, international competitiveness, etc., on the other. Probing the link between fiscal policy and competitiveness, Ghosh (1990) using two-commodities, two-country level general equilibrium model observes that rise of public expenditure on the foreign goods improves the home country’s competitiveness. However, the international transmission of government expenditure relies on the alternative methods of financing public expenditure as revealed by Bianconi and Turnovsky (1997). The study notes that the public expenditure financed by lump-sum taxation in addition to crowding out domestic consumption also leads to decline in the activity abroad during short, long and transition periods, while with capital income tax financing, all these responses are reversed and financing with a tax on labour gave ambiguous responses. The public expenditure (real terms) shock, using elasticities approach in general equilibrium, according to Rajan (1993), influences exchange rate, and trade balance. The evidence from several Latin American countries over the period 1974-84, shows that the current account and public expenditure linkage is much stronger in the event of a temporary
shock to government expenditures than in the event of a permanent shock. The opposite
is demonstrated by Okumura (1998) for Japan, using optimising approach, where the
current account deficit was due to a permanent increase in public expenditure. Ascribing
more to the classical version, Van-Wijnbergen (1986) show that the more open the
economy, the larger is the output response and smaller the price response to a fiscal
expansion, and hence the improvement in the current account.

The size of public expenditure per-se would not have assumed the role of a
villain, but for the policy makers' neglect/ inability to keep track of the
outcome/quality/efficiency or productivity aspect. If public expenditure were to be
productive, or efficient enough, as against the cost of borrowed funds, it would not have
raised the hackles. Then how does one measure the efficiency or productivity of public
expenditure? What are its determinants? How to improve the efficiency of public
spending? These are some of the important questions which have come to the fore in the
post-reform period.

Not many studies are available with reference to the efficiency aspect of public
expenditure; more so with respect to the measurement of efficiency. Most of the studies
in this area focus on the determinants of the efficiency and emphasise the need for it, and
the ways and means of achieving it. That way the aspect of public expenditure efficiency
enhancement is closely related with the aspect of management public expenditure.

Measurement of efficiency is the most untapped area, more so in case of the
aggregate expenditure i.e. at the macro level though several measurements at micro level,
viz., at the level of specific project or specific public sector unit are available. One such
method is given by Torres and Lopes (2001) who present the estimates of a model of
cost and productive efficiency for a sample of State Public Sector in terms of productive
capacity and allocation of labour. Chu, Gupta and others (1995) at IMF give a broad hint
at the measurement of efficiency of public expenditure at macro level in terms of its
relation with the economic growth. This study also provides a broad policy framework
for analysing public expenditure productivity for the economic policy makers and the
further notes that it is difficult to avoid making value judgement while assessing public expenditure productivity.


Gupta and Verhoevan (2001) talking of the experiences of 37 African countries during 1984-95, note that efficiency of public expenditure on education and health though improved during the reform period, but is still less efficient than the countries in Asia and the Western Hemisphere. The study by Gupta, Honj and Verhaven (1997) for 38 African countries using data on public sector inputs and outputs in education noted that the observed inefficiencies may be connected to the share of wages in total spending and the degree of inefficiency is higher at higher levels of per capita spending; hence clearly indicating that it is not the increasing budgetary allocations, but the efficiency improvements that is important to increase public expenditure outcomes, especially in education and health.

The aspect of determinants of the efficiency of public expenditure is the focus of many studies. The extent of public investment in human capital formation, public infrastructure are the major factors for Feehan and Matsumoto (2000), while it is corruption, especially in military spending for Gupta and others (2002). According to Wohrmanan (1999), along with the allocation of public expenditure (among - human capital, infrastructure, etc.) the financing pattern of the public spending is also crucial. The study notes that increase in human capital related public expenditure financed by lump-sum taxation or income tax rate has a positive effect on the steady-state growth
rates, the same is not true if these go to finance expenditure on government consumption or infrastructure.

2.5 PUBLIC EXPENDITURE MANAGEMENT

Management of public expenditure is an area which has been vigorously pursued and analysed in the 1980s and 1990s. Several proposals based on theoretical and empirical formulations have been put forward both at the country level and international level. This issue gained further prominence with several countries coming under the aegis of Fund-Bank purported Structural Adjustment Programmes following severe macro economic crises. In fact, public expenditure management today has become an integral part of the fiscal reform process, because the sustainable budgetary situations are the results of better management of the public expenditure (Schafer, 2003). The several of PEM proposals are borne out of the experiences with the several practices in different countries – developed as well as developing.

These management practices of public expenditure, as indicated by various studies broadly fall within the following categories: Budgetary Reforms – Policy formulation level and implementation level; public expenditure targeting; Better Public Debt Management; Reform of PSUs; Social Security Reforms; Tax Reforms; public expenditure Reforms at regional level.

Budget Reform is the most important one, for everything pertaining to the public expenditure starts from here. The budget reform further falls into two categories: Budget making (the process) and Budget implementation (the practice), both requiring better management, more so in the latter case. And transparency is the key requirement at both the levels. At the budget making process the need for the reassessment of the methodology and data so as to improve the information base is stressed (Ahmed and Chalk, 1993; Allen and Tommasi, 2001). This in turn would include the formula controlled public expenditure (Heald, 1996), implementation of ‘resource budgeting’, (akin to zero-based budgeting) (Likierman, 2003) and cash limits (Deadman and Mealli, 1998) as practiced in the United Kingdom. At this policy making/process level
transparency is important and the process needs to mention explicitly all the items of expenditure (and revenue) including the hidden public expenditure items (such items which are mentioned in the budget but the expenditure is shifted to state owned banks and financial institutions (Schafer,.).

**Budget implementation/execution** is a far more crucial step. This calls for accountability wherein the public expenditure needs to be clearly assigned. This further calls for institutional reforms which greatly influence the size, allocation, public expenditure outcome, extent of fiscal discipline and technical efficiency of resource use (Campose and Pradhan, 1997). This also calls for the review of the role of political institutions (Premchand, 1990). At times these reforms may not have the desired outcome as it happened in UK where the focus on treasury failed in its historic mission to restrain the growth of public spending during 1976-93 (Thain and Maurice, 1995). In fact many hand-books are available (specially from IMF, World Bank, ADB etc.) giving the detailed guidelines for better public expenditure management specifically prepared for the transition economies in Central and Eastern Europe, Asia and Latin American countries. These examine various issues like budgeting, expenditure control, audit and accounting, financial reporting, institutional/operational/organizational issues, execution and control, international standards for public expenditure management (PEM) systems, micro and macro level appraisal/evaluation of public expenditure, delivery of services, corporate management practices, i.e., adoption of corporate governance practices for public expenditure Management (Premchand, 1990; Allen and Tommasi, 2001; Corry, 1997).

The mammoth growth of the PSEs has added to the expenditure burden of the governments in many countries. Thus the **PSE reform** is the focus of many studies - as part of better public expenditure management. UK has been the pioneer in the reshaping of the PSEs and that began during Thatcher's regime. The PSEs reform would include offloading to the private sector (**disinvestment** in Indian parlance), containing expenditure on programmes remaining and reducing cost through greater efficiencies.
(Harrison, 1989) that could include operational and financial autonomy to PSEs among others. This would further logically stretch into the privatization or public-private participation in the provision of welfare services too. Of course, it is another matter whether private sector would provide an adequate substitute for public expenditure (Jones and others, 1998). Whatever, the ‘Public-Private partnership’ has great implication for the public expenditure management (Premchand, 1999). PSE reform would also include the ‘contracting out’ of public services which would introduce ‘ex-ante competition’ for market through competitive tendering. The evidence for UK suggests that the savings due to contracting out were to the tune of 20 percent without sacrificing the quality of the service provided (Domberger and Jensen, 1997).

However, the PSE downsizing (with the objective of reducing public expenditure and increasing the economic efficiency) which involves retrenchment and Voluntary Retirement Schemes need to be optimally designed (Rama, 1997) lest it would lead to some awkward situations (also experienced in India) where the schemes like VRS would result in a situation where the PSUs loose the best workers and the worst staying back. Hence the PSE reforms need to be carefully designed and sequenced (Ibid). Here one can learn from UK’s experience which introduced methods like ‘golden rule of public sector investment’ (where borrowing should not exceed net capital formation in the government sector) and maintenance of ‘comprehensive balance sheet’ of public sector assets and liabilities (Buiter, 2001). The new methods/ approaches to public expenditure management like creation of task-oriented agencies, performance agreement, competitive tendering and contracting, etc. have also been gaining currency of late (Premchand, 1996). The targeting of public expenditure would go long way in reducing public expenditure and reducing the efficiency.

Debt servicing and interest payments eat up substantial part of current revenues of the governments. In fact in India and many other developing countries ‘interest payments’ today constitute the single largest item of the government expenditure. (For example, in Turkey it accounts 15 percent of GDP, Brazil 7 percent of GDP). Hence, the
'Public Debt management' does become an important issue under the public expenditure management. And rightly, many studies focus on this aspect of public expenditure management. Under the reform regime, as the interest rates on public debt are being linked to the market rate of interest, it becomes evident that financial sector liberalization/reform need to go hand in hand so that it would help in bringing down the interest rates and thereby reduce the debt servicing burden of the governments (Schafer, 2003). Some emerging markets (Brazil and Turkey for example) - substituted debt denominated in domestic currency (with higher interest rate) by bonds and loans in foreign currency (with lower interest rates). However while doing so the factors like exchange rate risk, dollarisation of the economy need to be given due consideration.

Reforms are also required in the social security/social sector expenditure. This would include the public pension fund management as for instance, in countries like Brazil payments to the states' pensioners accounted 4.2 percent of GDP (in 2002) nearly equivalent to public sectors' total primary surplus (Schafer, 2003). The case is no different in India where the pension payments have sharply increased in the recent years. Management of the public expenditure also invariably needs to involve the reform at the regional/provincial level which account for almost 50 percent of the government deficit and total public expenditure in countries like India and Brazil (ibid).

Interestingly, the public expenditure management is also very much tied to the tax reforms. This is due to the fact that public expenditure very much depends on the public revenue of which tax revenue is a major part. Tax revenue in turn depends on the extent of 'preferential provisions' such as - deductions, exemptions, credits, deferrals, preferential tax rates, exclusions from taxation etc. These measures affect the buoyancy of the tax system which ultimately may have a bearing on the size as well as the composition of the public expenditure. Hence the public expenditure management needs to give due attention to the aspect of tax reforms as well.
2.6 ECONOMIC REFORMS AND PUBLIC EXPENDITURE

Stabilization Policy (SP) and Structural Adjustment Programme (SAP) have been the typical responses of the crisis driven economies in the 1980's and 1990s, broadly guided by the international institutions. The fiscal reform-fiscal discipline and fiscal consolidation have been the integral part of the reform both under SP and SAP, and the expenditure reform in turn has been an indispensable part of the fiscal reforms. While the expenditure compression is the sole reform measure under the SP (with regard to expenditure reform), the SAP has much wider agenda including among others - expenditure targeting, improving the efficiency and productivity of public expenditure.

Many developing countries in Asia, Africa and Latin America have initiated economic reforms much before India, most of them under aegis of the IMF conditionality. Some developed industrialized economies have also embarked on the PE reform path on their own in response to the domestic compulsions, while some European countries resorted to the expenditure reform as a part of the obligation to fulfil the convergence criteria under the Maastricht Treaty to pave the way for the formation of European Monetary Union(EMU). Thus reasons for public expenditure reform could be different, but the agenda and the focus of the reforms have been more or less similar.

The major focus of the studies under public expenditure reforms contains assessing the content, model and impact of the public expenditure reforms and putting forward the suggestions for the better public expenditure management and delineating the direction of the future reform to achieve fiscal consolidation and other stated objectives of the reform. Studies again have been at the cross country level and specific country level and techniques used are the familiar econometric techniques (co-integration and error correction models and general equilibrium models).

Study for Australian economy (Quiggin, 1992) puts forth two types of models 'Fight back' and 'One Nation' plans for economic recovery where both the models envisage a steady decline in the government expenditure as proportion of GDP. The
Fund-Bank consensus models entail more or less the same prescription, though not explicitly. A study on the cross-country analysis of the public expenditure calls for the focus both on the quantitative and qualitative dimensions of the reforms process (Asad and Sundberg, 2002), while Toye (2000) recommends the policies consistent with the broad liberalization measures and the objectives of growth and poverty alleviation.

Many a studies focusing on public expenditure reforms as a part of broader economic policy reform dwell on the impact of the reforms especially on various macroeconomic variables including the size and composition of the public expenditure under the reform regime. A study for Latin America (Perotti, 1996) analyses the impact of deficit/expenditure reduction measures on social expenditure and thereby on income distribution and poverty in 1970s and 1980s. The same (impact of deficit and expenditure reduction) on short run and long run output and employment is analysed for group of developing countries (Cuddington, 1992) using co-integration and error correction models. The study for Egypt (1974-91) (Morley and Perdikis, 2000) finds public expenditure positively correlating with growth. The same is painted in a study for Bangladesh using inter-temporal general equilibrium model (Ball and Fetenstein, 1998) which showed that fiscal austerity (public expenditure reduction being a major component) resulted in small improvements for the economy. Hence majority of studies indicate that fiscal austerity positively affects the growth and within that the programmes relying on government expenditure reduction seem to be more successful than those that rely on revenue increases (Kapopoulos, 1996; Bradley and Whelan, 1997). With regard to the impact of reforms on size and composition of public expenditure, it is observed that, while the majority of countries show downward trend in total public expenditure (Ghafoor, et al, 2000) a look at disaggregated level reveals that this has been achieved at the cost of reduction in the public expenditure on education, health and physical infrastructure (Jonokin and Stephens, 1999; Ghafoor et al, 2000; Papagapitos, 1992) thereby hampering the process of improvement in the economic and social indicators.
(Tanzi and Schuknecht, 1997). While making comparisons across countries the ‘fixed effects technique’ was used to control country-specific differences (Ghafoor, 2000).

As a part of the reform the other key focus of studies has been on the aspect of Public Expenditure Management. All the studies make a case for better public expenditure management so as to achieve the policy goals and the studies also provide a detailed enumeration of the various public expenditure management practices and ways of travelling through it. Targeting of public expenditure especially that of social expenditure is been a widely analysed area. Public expenditure targeting, its scope, effectiveness is an important part of fiscal adjustments around the world. The targeting though has theoretical problems (like distorting individual decisions), in practice its practical benefits are noteworthy and hence public expenditure targeting becomes ‘inescapable’ (Perotti, 1996). The Chilean adjustment of 1970s and 1980s shows that its social consequences would have been much worse if the government had not engaged in widespread targeting of redistribution (Ibid.). Moreover, the replacement of universal benefits by more generous benefits is found to have helped the poor, apart from reducing the government expenditure (Coulter, 1997). The effects of targeting could be practical and more effective if they are carefully designed (Ibid) so that the benefits can be maximized. For this, it is recommended that the targeting could include self selection mechanism which targets the services to the poorest (Toye, 2000). In this context the recommendations from various other studies (Asad and Sundberg, 2002; Toye, 2000) are also worth considering. An extensive World Bank Study (Datta and Jayati, 1997) analysed the Bank’s experience with the fiscal management (of which public expenditure management was an integral part) between 1997-94 in countries with structural and sectoral adjustment loans- drew host of lessons and recommendations. These include (apart from targeted transfers) - disinvestment in state owned enterprises, interplay between fiscal policies and institutional arrangements (especially in transition economies), cost recovery, clear cut rationale for the public expenditure which should be
motivated by a desire to correct market failure or alleviate poverty (Toye, 2000); due
attention to the public expenditure outcomes and development of performance indicators.

2.7 RESEARCH GAPS

Wide ranges of studies are available at the global level on a plethora of issues, covering various aspects of government spending. The same is not true in the Indian context. Most of the studies concerning India broadly relate to the analysis of trends and composition of public expenditure (Reddy and Others, 1984; Bhattacharya, 1992; Rao et al. 1995; Mundle and Rao, 2000; Srivastava and Rao, 2001) rarely focussing on the other aspects. The same is true in case of the analysis of the determinants of the public expenditure in India, both its size and composition at national and state levels. In contrast, at the international level, large number of studies focus on the analysis of the determinants of public expenditure (Opler, 1988; Ghamdi, 1991; Gang, 1999; Cruz, 1995; Compos et al. 2002) covering not just the economic determinants, but the non-economic ones (socio-political and institutional) as well.

The issues concerning the impact of public expenditure on various macro economic variables of price level, income distribution and poverty, output growth, financial and external sector, indicators etc. are few and far between (Rajan, 1993; Ghosh, 1990). When the focus of the study is at the state level, it is understandable, as it is difficult and not so appropriate to deal with these facets at this level. There are some studies available at the national level focussing on one or two main issues like public expenditure and output growth (Dua et al. 2000, Sinha, 1998, Singh and Mitra, 1999 etc.), public expenditure and poverty and income distribution (Sen, 2000, Scully, 2001; Hemming, 1991), public expenditure, Money supply and Price level (Fisher and Tunnovsky, 1992; Ruge and Franco, 1999; Bairam, 1991). But they do so taking into account the specific component of the public expenditure like public expenditure on social sector (health, education, etc) and their impact on social indicators, poverty, etc. thus not carrying out the comprehensive analysis of public expenditure at the aggregate level.
Therefore the impact of public expenditure is the area which needs to be researched in some detail, with specific focus on efficiency along with its impact on equity aspect (poverty, inequality, income distribution). The possible impact of public expenditure on external sector, viz., BOP, exchange rate also needs some attention. This is more as the openness of the Indian economy has increased from the start of the globalisation process in the early 1990s. Moreover the available theoretical and empirical evidence suggests that the interplay between the domestic and external variables is possible and necessary and the domestic decisions (say, public expenditure decision) cannot be initiated without giving thought to its likely consequences on the external sector variables.

Very few studies have come out discussing public expenditure issues in the post reform period (i.e., post-1991). The available ones mainly focus, as noted, on specific sectoral expenditures (e.g., social sector expenditure, etc) (Dev and Mooij, 2002).

The researcher has hardly come across (within his limitations) any study in the Indian context (both before and after reforms) studying the aspect of public expenditure efficiency and productivity at aggregate level, though there are studies analysing the same at the level of specific project, or public sector unit for other countries (Wohrman, 1999; Feehan and Matsumoto, 2000; Torres and Lopes, 2001) Only broad inferences have been drawn without actually making an attempt in the direction of measurement of the productivity. This is all the more important as the New Economic Policy has sought to improve the overall efficiency and productivity of our economic system, including of course that of public expenditure.

The concept of public expenditure management is relatively new in the Indian context. Of course, there are some practices being following since independence. However, we do not find studies focusing on this aspect. However, learning from the international experience, certain studies do make the mention of the need and types of public expenditure management practices suiting our system. Hence there is a need to look into to this aspect for the Indian economy (both the need for it and forms of it) and
also carry out the review of the available practices, their efficiency and relevance in the changed scenario.

With these research gaps/issues in the background, the researcher has formed the following objectives and hypothesis

2.8 STATEMENT OF THE PROBLEM

In view of the research issues identified it was planned to analyse the behaviour of public expenditure in India especially the developments in the aftermath of the economic reforms. The problem for the analysis is stated as-

“Public Expenditure in India: An analysis of Post- Reform Trends”.

2.9 OBJECTIVES

1. To trace the major trends in the level and the composition of public expenditure in the post-reform period in relation to its behaviour before the reforms.

2. To arrive at the determinants of the size and composition of the Public expenditure during the study period as a whole.

3. To analyse the impact of public expenditure on some important macro economic variables like income/ economic growth, poverty, price level, external and financial sector variables etc.

4. To study and analyse the public expenditure management practices adopted in India in the pre and post reform periods and interpose them with respect to the experience of other countries and suggest new avenues for public expenditure management for India suiting the changed scenario.

5. To suggest broad policy recommendations with respect to the public expenditure policy in India.
2.10 HYPOTHESES

H_1: The government has retreated from the economic activities, in keeping with the ideology of the market based reforms as measured by the size of the government.

H_2: Public expenditure in the post reform has moved in favour revenue expenditure and away from the capital expenditure.

H_3: The share of committed expenditure has increased.

H_4: The determinants of public expenditure size and composition have changed. In particular the economic determinants now have larger say as compared to the non-economic factors (like socio-political factors) in the post reform period.

H_5: The external factors/ the external trade indicators have emerged as the important determinants of the size and composition of the public expenditure.

H_6: The better public expenditure management practices have been evolved and adopted.

2.11 DATA SOURCES

The data for the study is taken exclusively from the secondary sources. The Required data is obtained from -

- Indian Public Finance Statistics, Ministry of Finance, Government of India, Various Issues
- Budget Documents, Ministry of Finance, Government of India, Various Issues
- Economic Survey, Ministry of Finance, Government of India, Various Issues
- Reserve Bank of India, Various Publications.
- International Sources (International Monetary Fund, World Bank research publications).
2.12 METHODOLOGY

For the analysis of the changing structure of public expenditure in India i.e. for the trade and composition analysis the expenditure items classified as economic cum functional classification was considered both at current and constant prices. In order to remove the impact of price rise the growth and composition of public expenditure will be considered at constant prices with reference 1993-94 as the base year. By using GDP deflator, the current expenditure items were converted into constant (1993-94) prices. To take care of growing population and its possible impact in public expenditure growth, public expenditure in per capita terms was also analysed. For this purpose the mid year population figures as available in the CSO's National Accounts Statistics was used. To analyse the trend and the break or discontinuation in the trends and various phases of public expenditure growth the public expenditure as percentage of GDP was plotted using line graph and different phases were identified.

2.12.1 DETRENDING OF THE DATA SERIES

In most of the time series data “the aggregate variables exhibit a steadily increasing or decreasing pattern, known as trend” (Ramanathan, 2002:498) or move in the same direction (e.g., income, output, prices, public expenditure, tax revenue etc). The presence of trend, therefore, may lead to high $R^2$ value indicating greater amount of the association between the two variables, (say public expenditure and GDP,) which may not be the case, and high $R^2$ may be more reflective of the common trend present in them. This leads to spurious associations and nasty conclusions. Hence, before going any further with the causality test and regression analysis, it is essential to remove the underlying trend, which is called ‘detrending’.

The detrending procedure is as follows:

1. The first step is to fit the graphs of the variable over time and identify from it, the kind of trend the series exhibits – linear, quadratic or exponential.
(The data series in the present study mostly showed either linear or exponential trend)

2. Once, the inherent trend is identified, the next step is to regress the variable (say Y) on time and estimate Y* i.e., obtain estimated value of Y. The present study also introduced the dummy variable to account for the break in the series.

The regression equation(s) used for the purpose are

\[
Y^* = a + b^T_T + b^D_d + e_1 \quad (4.3) \quad \text{for the linear series}
\]

\[
\log Y^* = a + b^T_T + b^D_d + e_2 \quad (4.4) \quad \text{for the exponential series}
\]

Where,

- \( Y^* = Y \) estimated, i.e., estimated value of the variable
- \( T \) = Time
- \( D \) = Dummy variable (for the break in the series)
- \( E \) = Error term

3. Next step is to obtain the residual (error) from the regression gap, i.e., \( e = Y - Y^* \)

4. \((Y + e)\) give the de-trended values for the series

However it has to be noted that the detrending the series is "not an end in itself, but it would be useful as part of a broader modelling strategy in which a dependent variable is related to several independent variables, including, perhaps, trends"(Ramanathan, 2002:500). Accordingly the present study also only after detrending the whole of the data set, proceeds with causality testing and regression analysis in order to study the determinants, impact and efficiency analysis of the public expenditure in India.

2.12.2 PROCEDURE FOR CAUSALITY TESTING

Direction of causality between the public expenditure and other economic determinants is far from clear at both the theoretical and empirical level. This is more so in the Indian context, where, at the empirical level not many economic variables – except the GDP and revenue constraints – are considered for the public expenditure determinants analysis.
Several techniques for causality testing are available in the econometric literature. In fact the question of causality is not specific to public expenditure; it is a general case among most of the economic variables, where "the apparent direction of causality is not clear" (Ramanathan, 2002:476) Therefore to find out "whether statistically one can detect the direction of causality (cause and effect relationship) when temporarily there is a lead-lag relationship between two variables" (Gujarati, 1988:541), several techniques have been employed in the recent past. One of the most popular techniques is provided by C.W. J. Granger and is popularly known 'Granger's test for causality'. In fact, it is "the first attempt at testing for direction of causality" (Ramanathan, 2002:476). Several other tests have also been proposed and used since the Granger's celebrated article -- important among them include -- Sims (1972); Geweke, Meese, and Dent (1983); Pierce (1977); Pierce and Haugh (1977); and Nelson and Schwert (1982) (Ibid).

The assumption underlying Granger's procedure is that the information relevant to the prediction of respective variables is contained solely in the time series data on these variables (Gujarati, 1986). The procedure of Granger's test is briefly explained below.

The test involves the estimation of two regression equations. Let us consider the two variables involved as GDP and public expenditure (PE). The logic behind the procedure is simple and straightforward. If GDP causes public expenditure (but not the other way), then the past values of GDP are able to predict the future values of public expenditure, but the past values of public expenditure are not able to forecast the values of GDP (Ramanathan, 2002). Let us consider the following regression equations.

\[ \text{PE}_t = \sum_{i=1}^{n} b_1 \text{GDP}_{t-i} + \sum_{j=1}^{n} b_2 \text{PE}_{t-j} + u_{1t} \]  
\[ \text{GDP}_t = \sum_{i=1}^{m} b_3 \text{GDP}_{t-i} + \sum_{j=1}^{m} b_4 \text{PE}_{t-j} + u_{2t} \]  

Where, PE = Public expenditure  
GDP = Gross Domestic Product
The interpretation of the coefficients and the direction of the causality is as follows:

1. **Unidirectional causality runs from GDP to public expenditure**, if the set of lagged GDP coefficients (in 4.1) are statistically different from zero as a group (i.e., $\sum b_1 \neq 0$) and set of estimated coefficients on lagged public expenditure (in 4.2) is not statistically different from zero, (i.e., $\sum b_4 = 0$).

2. **Unidirectional causality from public expenditure to GDP** is indicated if the set of lagged GDP coefficients (in 4.1) is not statistically different from zero (i.e., $\sum b_1 = 0$) and the set of lagged public expenditure coefficients (in 4.2) is statistically different from zero (i.e., $\sum b_4 \neq 0$).

3. **Bilateral causality exists** if the sets of lagged GDP and public expenditure are statistically different from zero in both the equations (i.e., $\sum b_1 \neq 0$ and $\sum b_4 \neq 0$).

4. **Both the variable are independent** if the sets of lagged GDP and public expenditure coefficients are not statistically different from zero in both the regression (i.e., $\sum b_1 = 0$) and $\sum b_4 = 0$).

The causal testing can also be carried out for the public expenditure and other set of variables in a similar fashion, and interpreted.

### 2.12.3 PERIOD OF STUDY

For analysis the trends and composition of public expenditure the period covering four decades from 1960-61 to 2000-01 was considered. Whereas, for the analysis of the determinants and impact of public expenditure in India, the decade of sixties was removed. The sixties, as is widely acknowledged marks the decade of considerable adjustments during which the economy experienced quite a few external shocks like wars, droughts. Hence its inclusion might distort the analysis.
2.12.4 DETERMINANTS AND IMPACT OF PUBLIC EXPENDITURE

The determinants analysis data was used with one year the lag of as the aggregate public expenditure and its components are not immediately affected by the independent variables like GDP, money supply, savings etc of the same year, rather it is affected by the previous year’s figure. For the delineation of the variables affecting public expenditure stepwise- multiple regression analysis was used. Whereas, for impact analysis the simple OLS regression procedure was used. Chow test for test of equality of the co-efficients of the pre and post reform period was used in the impact analysis.

2.13 LIMITS

A study cannot be complete in all aspects. Certain limitations do accompany the study and the present one is no exception. To enable inter temporal comparisons in the expenditure figures were converted into constant prices using GDP deflator. The same could have been done using the wholesale price index. While calculating the growth rates of major public expenditure items for different sub-periods exponential growth as available in EXCEL package is adopted. However, the method suggested by Boyce and others could be used for better sophistication and results.

For the determinants and impact analysis only selected economic variables were used, as there exist variety of economic as well as non-economic determinants that affect public expenditure and in turn get affected by it. While carrying out the analysis of determinants and impact of public expenditure the de-trending procedure was adopted to remove the possible effect of trend on the time series variables. Better methods for the same like co-integration analysis are available.

The controversy over the direction of causality among Public Expenditure and the other economic variable was resolved by employing Granger procedure. However direction of causality is sensitive to the period covered and the nature and the variant of the economic variables considered. For instance, while testing the cause effect relationship between public expenditure and GDP i.e. Wagner’s hypothesis only the
aggregate public expenditure was used. However the direction of causality between GDP and different components of the public expenditure may give different results. The results may also differ if one considers the variable in per capita or other forms.

2.14 CONCLUSION

The available literature is broadly categorised into four groups: i) Studies concerning trends and composition of public expenditure, ii) Determinants of public expenditure, iii) Impact, efficiency and productivity of public expenditure, and iv) Issues concerning the management of public expenditure.

The studies covering trends and composition are analysed at different levels of government and for different expenditure items. Public expenditure behaviour is analysed at current and constant prices and also in per capita terms. Growth of aggregate public expenditure and its components is also used for the purpose. The studies in the Indian context reveal that the revenue expenditure has grown at a faster rate than capital expenditure, especially since eighties. This higher growth, in comparison with the growth of revenue items contributed to the emergence of deficit culture, the studies note.

The studies covering the determinants of public expenditure show that among the economic determinants the variable like demographic factors, external trade variables, the revenue considerations, the type of economic policy regimes and objectives, and inflation have influenced public expenditure and its components in different ways at different levels of government. Public expenditure influences several economic variables in a significant manner. Therefore the impact analysis emerges to be the most widely researched aspect of public expenditure analysis. Accordingly the studies analyses impact of public expenditure and its different components on income, output, employment, external trade variables etc. The several aspects of PEM and efficiency as well as productivity of public expenditure have been the focus of quite a few studies.