Chapter 1

BUDGETARY SUBSIDIES: CONCEPTS AND ISSUES
1.1. INTRODUCTION

The subject of subsidies has become highly debatable issue in recent period. During the present era of liberalisation, globalisation, privatisation and economic reforms, where the main policy thrust seems to be to right-size the role of government in the functioning of economy, through rationalisation of subsidies by improving cost recovery of the services provided either by increasing the revenues or limiting the role of government to limited services with high degree of externality or otherwise, or to public goods and merit goods and services. In this regard, both the Union and State Governments in India have introduced several reforms. Andhra Pradesh being one of the reforming states and with considerable fiscal strain is also a part of this exercise.

Perpetual fiscal imbalances in the Union and the state budgets have led the country to think in terms of bringing fiscal discipline. This requires, on the one hand, resource mobilisation in a prudent and efficient manner, while on the other hand it requires expenditure rationalisation. Reducing implicit budgetary subsidies or un-recovered cost is one of the important elements in economic reforms in India in this direction. As a result of worsening state finances, state governments have to find ways not only to improve revenues but also contain expenditures. Share of user charges in states' revenues has been continuously declining while the expenditure on provision of services by the government has been increasing, together resulting in an increase of un-recovered cost or
implicit budgetary subsidies. An unanimous opinion of the policy makers has emerged on raising revenues from user charges and improve the recovery rates of the non-public services provided by the Government.

Sharp deterioration in states' fiscal imbalances during the decade and a quarter since 1991 has been posing a worrisome fiscal trend in India. Deterioration is manifest in increasing revenue, fiscal and primary deficits besides a sharp decline in spending on creation and maintenance of physical infrastructure and social services. The revenue deficit as proportion of Gross Domestic Product (GDP) for all the states taken together has increased from 0.9 per cent in 1990-91 to 2.5 per cent in 2000-01. The fiscal deficit of all the states has also increased from 3.3 per cent of GDP in 1990-91 to 4.3 per cent in 2000-01. The share of capital expenditure has also declined sharply.

Andhra Pradesh is one of India's resource rich states. Major rivers such as Krishna and Godavari and many minor rivers are providing plentiful of water for irrigation, power generation and industrial use. The state also has vast reserves of mineral deposits, which are under exploited. It also has a vast fertile land particularly along the coastal line, enabling it to be a major producer of grains and cash crops such as oil seeds, cotton and sugarcane. Andhra Pradesh is known as rice bowl of India. Its long coastline provides vast opportunities for aquaculture and minor ports.

Despite this, the growth performance of Andhra Pradesh has been poor and the average growth rates of Gross State Domestic Product have been far
below its potential and significantly lower than the national average. Insufficient resources for infrastructure and human resource development and severe under funding of operation and maintenance expenditure are key factors responsible for a tardy growth of the state. Since early 80s Andhra Pradesh has developed a public expenditure strategy based on large allocation to numerous broad-based subsidy and welfare programmes. Among the states, Andhra Pradesh has the highest proportion of non-interest current expenditure allocated to such programmes and services. Misguided sectoral policies, particularly weak cost recovery and a policy and regulatory framework, which has been not conducive to private sector participation, has contributed to poor provision of infrastructure and fiscal imbalances. These subsidies -both implicit and explicit - have been important sources of pressure on budget that would lead to inefficient use of critical inputs and inefficiency in the public sector.

As in other states, the state of Andhra Pradesh also experienced a general trend of fluctuating fiscal imbalances. The revenue balance as per cent of GSDP has increased from a surplus 0.45 per cent in 1990-91 to a deficit 2.58 per cent in 2000-01 declined substantially to 1.86 per cent in 2001-02. The fiscal deficit of Andhra Pradesh has also increased from 2.73 per cent of GSDP in 1990-91 to 5.25 per cent in 2000-01 and declined marginally to 4.33 per cent in 2001-02. In the recent past, nearly half of the borrowings are made to finance the revenue deficit alone. In addition to the explicit budgetary deficits, there were also substantial increases in off-budget and contingent liabilities.

Outpacing growth of revenue expenditure over the revenue receipts has caused a worrisome trend as noted above. Under these circumstances, the Government of Andhra Pradesh initiated reform measures to control the ever-increasing gap between expenditures and revenues. An important reason for the same has to be found in declining contribution from non-tax revenues such as user charges, interest and dividend receipts.

The state government has already embarked on various fiscal adjustment measures in compliance with the conditions for structural adjustment assistance received from the World Bank. One of the important policy reforms implicit in these measures is to significantly increase revenue from user charges, particularly through better-cost recoveries.

It is in this context the present study has been proposed to examine the issues relating to the burden arising out of un-recovered cost and to examine rationale for allowing such costs to continue. The study also examines the impact of economic reforms initiated since 1991, on either reducing implicit budgetary subsidies or rationalising them across various sectors. Un-recovered
costs include intended and unintended, explicit and implicit budgetary transactions in the provision of various public and non public services by the government. The present study focuses on the trend, volume, composition and burden of un-recovered costs, which, hereafter in the study are referred to as implicit subsidies. It is therefore considered necessary to critically review the related literature on status of state finances with particular reference to Andhra Pradesh and various reforms undertaken to improve the finances, and literature on definition, impact and measurement of subsidies in general and India or Andhra Pradesh in particular.

1.2. REVIEW OF RELATED LITERATURE

The finances of various state governments have been disturbing in the last one and a half decade prompting introduction of various measures to reform various sectors of the economy with a view to improve the fiscal health of the economy. One of the major problems facing the state governments is raising deficits, particularly revenue deficit taking away major portion of the borrowings for consumption purposes. The consumption expenditure of the government, includes, salaries, debt servicing, subsidies, welfare programmes and maintenance expenditure on services provided by the government. Expenditure on subsidies is one of the major components of expenditure. It is therefore, necessary to review the literature on analysis of state finances and reforms undertaken for correcting the imbalances in finances, subsidies – definition, measurement and impact on economic development. The review of
literature is presented here in four sections. The first section will focus on literature concerning the state finances and economic reforms. The second one is on definition of subsidies, while the third section is on impact of subsidies. The fourth section is devoted to the review of literature in measurement of subsidies in Indian budgetary context.

1.2.1. Literature on State Finances and Economic Reforms:

There is a lot of literature as far as economic reforms in India and state finances are concerned. There are some institutes in India continuously pursuing various studies in this regard. The prominent among them are the World Bank, Asian Development Bank, National Institute of Public Finance and Policy, National Council of Applied Economic Research, Madras School of Development Studies. Madras Institute of Development Research, Indira Gandhi Institute of Development Research, Institute for Social and Economic Change and many others. The government institutions like the Finance Commission, the Planning Commission, the Central Water commission etc. too review the finances of States and capture the impact of reform measures. Centre for Social and Economic Studies, Hyderabad is one of the prominent institutes in India that undertake research studies on state finances and impact of economic reforms with special reference to Andhra Pradesh. There are many eminent personalities in India who have been continuously writing on various aspects of state finances and economic reforms. Raja J Chellaiah, Sankar N Acharya, Manmohan Singh, Montek Singh Ahluvalia, D.K.Srivastava,
M. Govinda Rao, CH Hanumantha Rao, Mahendra Dev are, to cite a few, who have made notable contributions in the field chosen for this study. All of these authors suggested various tax, non-tax and expenditure restructuring reforms. They have been continuously cautioning the policy makers on deteriorating state and union finances and suggesting various reform measures, from time-to-time. They have been evaluating impact of these reforms quite often on welfare, development, employment etc. Basic crux of all these authors has been in favour of improving the finances of the state through rationalisation of taxes, better realisation of cost recovery through proper provisioning of services, reducing of revenue deficits in the first instance and fiscal deficits, increased investment in socio economic infrastructure, limiting the role of government in providing public and most meritorious goods and services, besides advocating for administrative, political and fiscal decentralisation. It is very difficult to say definitely as to which reform measure is important or unimportant, prominent or not. Though most of these literature is reviewed for the purpose of this study, review of some selected recent studies- Ahluwalia (2000), Rao (2002), Joseph (2003), Rao and Dev (2003), and Dev and Ravi (2003).

Ahluwalia (2000), observes that Liberalisation has reduced the degree of control exercised by the Centre in many areas leaving much greater scope for the State level initiatives in attracting investments. State level performance and policies, therefore, deserve much closer attention than they receive.
Economic, institutional, socio-economic or even socio-political characters of the state explain for differentials in the performance of different states.

Rao (2002) observes that serious concern of policy makers should be the deteriorating finances of states in India in last decade. Lower buoyancy of central transfers and spill over of central pay revisions have given an adverse impact on state finances in addition to negligible cost recovery and deterioration in fiscal performance of States. He further, strongly suggests restructuring of state finances through various tax, non-tax and expenditure reforms. Power sector reform, restructuring state enterprises, administrative reengineering, building up proper and reliable information system for planning and computerisation of various activities of the government in addition to investments in providing quality infrastructure are advocated in this paper for improving the fiscal health of the state governments. Raising revenues and generating surpluses are needed for investment and maintenance of expenditure. As most of the tax bases have been exploited and rationalisation is going on, there is need for raising cost recoveries in non-tax revenues and reducing the expenditure on subsidies with less externalities.

Joseph (2003) examines the performance of four southern states in his recent paper. He opines that Andhra Pradesh and Karnataka have done the most in initiating reforms in recent years. He feels the need for deepening these reforms and strategies as several individual and common challenges are faced by these states. Expenditure on non O&M, like subsidies, welfare programmes,
interest payments and salaries are cutting down the investment in socio-economic infrastructure.

'Initiatives taken by the government of Andhra Pradesh in fiscal correction and restructuring of institutions has earned it a reputation of being in the forefront of economic reforms' say Rao and Dev in their paper (2003). They also caution about the significant challenges facing the economic and social sectors and the need to address these challenges to derive full benefits of the reforms already initiated in the State. Andhra Pradesh’s distance from fast growing states has widened in the post reform period due to weak social and economic infrastructure and dominance of subsidies, salaries, interest payments and welfare programmes. State has to increase investment in building up a solid social and economic infrastructure. Little priority given for agriculture and slow industrial growth are the twin main problems facing the state that need to be addressed at the earliest say the authors.

Dev and Ravi (2003) examine the Andhra Pradesh State’s macroeconomic performance and policies in terms of economic growth and human development. The performance of Andhra Pradesh has been closer to marginally below to that of All India’s level. The paper provides details of all the reforms undertaken by the government of Andhra Pradesh such as power reforms, fiscal reforms, governance reforms and institutional reforms.

Above cited studies, suggest, increasing expenditure on subsidies as one of the main reasons for instability in state finances in addition to interest
payments and salaries. These studies take the position that there is need to improve the finances with better cost recovery of non public services and restructuring the expenditure pattern in favour of building up socio-economic infrastructure. Thus, it is necessary to study components of subsidies, how they are measured and what are the evils and benefits associated with subsidies.

1.2.2. Literature on the Definition of Subsidy

Subsidies comprise of all measures to keep down the prices for consumers below the market level or recovery which is less than marginal cost of production of the commodity. There was --- and still --- is much debate over what should be considered as subsidy. Various economists have used the word 'Subsidy' with different meanings and connotations in different contexts. A subsidy is defined as financial assistance granted by a government or philanthropic foundation to a person or association for the purpose of promoting an enterprise considered beneficial to the public welfare. The motivations and impacts associated with government subsidies differ considerably from those associated with private foundations. The Concise Oxford dictionary defines subsidy as “money granted by the state, public body, etc., to keep down the prices of commodities, etc.”. Initially subsidies were regarded as a payment on a tax concession from Government. Subsidies may be granted to keep the prices low, to maintain incomes or to preserve employment.
In a budgetary context, subsidies are taken as un-recovered costs of Public provision of non-public goods, although the term may be defined in variety of ways as discussed in a paper (Government of India, 1997). The House Committee on Agriculture of the US Congress (1972) acknowledges that, "the definition of a subsidy, like that of a beauty, varies with the beholder". The subsidy definition includes two important elements: the distinction between budgetary and market transfers; and the difference between production and consumption subsidies.

The concept of subsidy used in the Budget document refers to explicit payments made to producers to alter their prices or to consumers to encourage them to consume more. On the contrary, the National Accounting Concept in addition to the above explicit subsidies includes implicit transfers arising out of losses incurred by Public Sector Undertakings.

Subsidy, therefore, may be defined as money granted to individuals, firms or organisations, under charged services and other fiscal concessions given by the state. For this part of assistance no equivalent compensation is received. While a wide array of government activity may contain subsidy elements, Subsidies may be classified on the basis of following categories;

⇒ Subsidies are money transfers from government – direct government payments to producers or consumers (cash subsidies or cash grants);
⇒ Government guarantees, interest subsidies to enterprises, or soft loans (i.e., low interest government loans, credit subsidies);
Reduction of specific tax liabilities (tax incentives);
Government provision of goods and services at below-market prices or cost;
Government purchasing goods and services at above-market prices (procurement subsidies);
Implicit payments through government regulatory actions that alter market prices;
Government equity participation.

The basic intentions of these subsidies are to encourage consumption of a good or service by individuals/firms/organisations, and to reduce the cost or price of the commodities that have the externalities or help in achieving distributive justice, though in principle, it is possible to price these goods or services. They are subsidised because government wants to encourage their consumption/production for externality or merit good reasons. The recipient of subsidy may be required to bear some part of the cost (except for the goods with huge degree of externality). Subsidies are like negative indirect taxes that bring down the prices of a good or service. Subsidies have both substitution effect and the income effect.

In the budgetary transaction context, Mundle and Rao (1992) define subsidy as the "difference between the cost of delivering publicly provided goods or services and the recoveries arising from such deliveries". The choice of components of costs and receipts vary from one to the other.
1.2.3. Literature on Volume and Effects of Subsidy

There has been much debate on effects of subsidies on economy and finances of the government. There is a welfare angle attached to provision of subsidies. How far these welfare objectives have been achieved? Many studies suggest the need for rationalisation and reduction in subsidies to improve the fiscal health. Some suggest that investments in infrastructure and employment generation are advantageous in the long run etc. In the context of the economic effects, subsidies have been subjected to lot of debate in India during last two decades.

Myers, et. al. (1998) estimate that perverse subsidies in the world may amount to as much as $1.5 trillion, which is larger than the economies of all but five countries in the world (using purchasing power parity for the GNPs of China and India). They argue that perverse subsidies have the capacity to exert a highly distortive impact on the global economy and to inflict large-scale injuries on environment.

Shetty (1990) and Narayan (1987) opine that the magnitude and incidence of subsidies whether explicit or implicit, have spun out of control and their burden on government finances are becoming unbearable resulting into declining public investment in agriculture and irrigation.

Subba Rao (1984) and Gulati (1989) argue that agricultural subsidies are distorting cropping pattern and are leading to inter-regional disparities. General
subsidies on scarce inputs like water and power have distorted their optimal allocation say Mundle and Rao (1991), Sirohi (1984) and Gupta (1996) argue that subsidies basically cover only inefficiencies than the targeted group. Reddy and Deshpande (1992) speak about the impact of subsidies particularly of irrigation, power and fertilisers on the quality of the environment and ecology. Sisodia (1992) brings to the fore another issue regarding subsidies as to whether government services are to be priced, and if so, whether it should be on economic or social criteria.

Implications of subsidies regime in a general equilibrium framework have been analysed by many. Prominent among them are Browning (1993) and (1976), NG, Yew-Kwang (1980), Fullerton (1991). These studies mainly focus on the welfare implications of tax – financed subsidies. Browning (1993) attempts to extend the partial equilibrium analysis to take into account welfare costs of raising taxes to finance a subsidy, by using marginal social cost and marginal social benefit to determine the second best optimal subsidy. He argues that subsidies are more efficient when these involve lower levels of spending to achieve desired output level. World bank (1997) suggests in its agenda for Economic Reforms in Andhra Pradesh that substandard quality products (rice) to be distributed so that higher income bracket does not misuse the subsidies, meaning thereby low spending and better targeting.

Subsidies are advocated to stimulate economic development or growth; protect employment and investments; safeguard domestic supply and reduce
external dependency; reduce poverty or support the poor; and provide the basics of life. The subsidies, therefore, are meant for the poor, for raising the consumption of those goods, which maximise the general welfare or reduce disparities. Subsidies are also meant for providing basics of life, which cannot be charged through user charges. Samuelson (1955) classifies the goods and services provided by the government as public goods and non-public goods. He defines public goods as those, which are non-rival and non-excludable. Consumption of public good by one person does not reduce the quantity available to another. There is no additional cost involved in provision of public good to additional members of the society. If goods or services can be consumed by one person only for which he is paying a price is known as exclusion (Musgrave and Musgrave, 1973). When a person cannot be excluded from consuming or getting the benefits arising out of the consumption of goods by others, it is considered as non-excludable and in this case pricing is not possible. Pure private goods are rival and excludable. On the contrary, public goods are non-rival and non-excludable. Cullis and Jones (1998, p.50) classify goods and services into four categories. A) Public goods – non-excludable and non-rival, B) Private goods – excludable and rival, C) goods that are non-rival but excludable and D) the goods that are rival but non-excludable. It is in the case of A, C and D type of goods market forces do not operate efficiently as they are either non-rival or non-excludable. "A" is pure public good and ‘C’ and ‘D’ are impure public goods. Rao and Amar Nath (2003)
categorise the services provided by the government based on the arguments made by Samuelson, Musgrave and Cullis and Jones.

Some of the major studies as for as direct subsidies are concerned are by Asha (1986), Gulati (1989 and 1990), Jha Shikha (1991 and 1994), who conclude that the consumer subsidies are not directed towards the population below poverty line and many leakages exist in the administration of these subsidies. Rao (1997) review the agricultural taxation and subsidies and conclude that there is no correlation between subsidies and productivity in agriculture.

Though there are many studies on Direct subsidies like Food, Fertiliser, export subsidies etc., the concept of implicit budgetary subsidies in India started with Mundle and Rao (1992), Tiwari (1996), Srivastava and Sen (1997), Srivastava and Amar Nath (2001), and Hemalata Rao and Amar Nath (2003). These studies concentrated on quantifying various hidden subsidies by defining them as un-recovered costs in provision of public services. They classify the government services in various categories so as to initiate debate on what is necessary. The studies Mundle and Rao (1991), and Tiwari (1996) use the same budgetary classification of services such as general services, social services and economic services. While treating general services as public goods, subsidies on the social services and economic services were estimated and broad indications were given on preference towards certain sectors in provision of
subsidies. Since these studies mainly concentrate on estimation methodology, volume and composition it is necessary to look at them in greater detail.

1.2.4. Literature on Estimation of Subsidies.

How does one measure these subsidies when they are hidden? Literature as far as the methodology of estimating hidden or implicit subsidies is concerned, has picked up momentum with Mundle and Rao (1991) in India. They have defined implicit budgetary subsidy as un-recovered cost. Subsequently, Tiwari (1996) also used the same methodology. Un-recovered cost is the excess of cost over recovery in providing a service or good by the Government. They have classified all the services provided by the Government into public goods and non-public goods and followed the same budgetary classification of services, such as, general, social and economic services. Srivastava et. al., (1997) followed the same methodology as advocated by Mundle and Rao for a different time period. Further, they classified non-public services into merit and non-merit goods. Rao and Amar Nath, (2003), while estimating subsidies for Karnataka for the year 1998-99 used the same methodology and assumptions of Mundle and Rao (1991). These studies have assumed two per cent depreciation and taken the capital stock accumulated at historical prices. The major limitation of these studies was that no gestation period was considered for capital investment. Transfer payments to individuals, transfers to funds and assistance to public sector undertakings have been netted out in some and not in other. The classificatory adjustments made in derivation of
costs and receipts also varied from one another leading to over estimation. The merit and non-merit classification made by Srivastava and Sen were criticised for no scientific basis and categorising entire services into two categories leaving only two options for policy to subsidise public goods and merit goods and suggesting to cut down non-merit goods. Rao and Amar Nath went further in classifying these services into public goods, merit goods, private goods with distributive justice and pure private goods but did not prescribe how much to be subsidised in each of these categories. Major modifications to the methodology of estimating implicit budgetary subsidies have been taken up by Srivastava and Amar Nath (2002), wherein they could reduce some overestimation of capital cost with adjusted depreciation rate which allowed for depreciation, inflation and converting capital stock for real prices from historical current prices. But their estimations and classification of implicit budgetary subsidies were limited to that of Union Government for the year 1996-97 and not for any of the States. The goods and services were categorised as public goods and non public goods, and the latter again into merit one, two and three arguing for heavy subsidisation in the first category, little less in the second and phasing out for the third. They fixed some targets for reducing subsidies in all these non public services for the government of India. The targets assumed were a recovery of 5 per cent in short run and 10 per cent in the long run for merit one services with current cost for merit one category of services. For merit two services a short term target of 30 and 40
per cent is set for recovery in social and economic services respectively and in the medium term a target of 50 and 70 is set for the same. For the merit three services a short-term target of 70 per cent of current costs and 90 per cent in the long run were set. Here the short term is defined as two years and the long term as 5 years. For the recovery of capital cost the short and medium term targets of 40 and 60 per cent for the merit 1 services, 50 and 60 per cent for the merit two services and 60 and 90 per cent for merit three services have been assumed. However, the estimates made by the first three studies (Mundle and Rao (1991), Tiwari (1996), and Srivastava and Sen (1997)) on state subsidies are not comparable for different methodology and parameters used on the one hand, and various classificatory adjustments made in defining the cost and receipts though definition of Mundle and Rao has been retained. For Example, Mundle and Rao and Tiwari included assistance given to loss making PSUs as current cost in provision of services, whereas other studies excluded the same from cost treating it as direct subsidy and transfer payment. Rao and Amar Nath excluded the grants in aid given to institutions and local bodies as transfer payment. At the same time, they did not consider the assistance given to cooperatives as transfer payments. Even in the capital cost, annualised return was calculated on negative capital stock resulting into some under estimation in the annualised capital cost. Therefore, there are no estimations of subsidies made for most of the States, including Andhra Pradesh in India by applying a single methodology and making similar conceptual definitions. It is therefore
necessary to estimate subsidies with one common and most appropriate methodology of Srivastava and Amar Nath for different periods so as to study the impact of economic reforms in rationalising and reducing subsidies.

1.3. IMPORTANCE OF THE STUDY

Literature available so far suggests a few challenging tasks of reducing or rationalising subsidies to improve fiscal health of the state and should be the main focus of the economic reforms. The estimates made by earlier studies are not comparable over a period of time. The methodology of estimating budgetary subsidies has undergone many changes and the conceptual definition used in various studies differs from each other. Justification of subsidies in each of these subsidies on certain services through classification of public services varies from one another. The economic reforms have picked up momentum since 1991 in India in general and Andhra Pradesh in particular. The Discussion Paper brought out by the Ministry of Finances, Government of India in 1997, cautioned for increasing burden of subsidies both explicit and hidden on exchequer of both Union and State Governments and the need for reducing the same for improving the fiscal health of the government. Therefore, it is necessary to estimate implicit budgetary subsidies with one single methodology and conceptual clarity over a period of time and examine whether there has been any impact of reforms on reducing or rationalising the implicit and explicit budgetary subsidies so as to improve the fiscal health of the state and set an agenda for reducing these subsidies.
The present study attempts to estimate the volume and composition of explicit and implicit subsidies and tiptoes around policy measures required to target them. The important sectors analysed in this study include irrigation, power and transport, in addition to increasing allocations to welfare schemes, which rarely adds to socio-economic infrastructure. Subsidies in these sectors, as per earlier studies, constitute a significant portion of over all implicit subsidies in the State and rationalising these sectors with reforms can contribute significantly in improving the finances of the State.

The present study also examines the sources these implicit subsidies in terms of low cost recovery and low productivity in the provision of services. The study forms the basis for policy options to correct fiscal imbalances in the State and warrants a careful calibration of budgetary subsidies with a view to making them more transparent and targeting them to intended beneficiaries. In the absence of any study in estimating subsidies for more than one year to study the impact of economic reforms in any state, the present study highlights the success or failures of economic reforms in containing subsidies or rationalising them towards engines of growth, i.e., socio-economic infrastructure. The present study is also necessary to estimate the burden of subsidies on the State exchequer. The significance of the study is in its categorisation of services to weed out unnecessary subsidies, in which, the role of the government can be reduced or withdrawn.
1.4. **SCOPE OF THE STUDY**

The present study, after reviewing various earlier studies, uses the most suitable methodology with utmost conceptual clarity, in estimating the implicit budgetary subsidies for the State of Andhra Pradesh for different years in a comparable manner after the initiation of economic reforms and various fiscal adjustment measures during the reform period. The study, besides suggesting a prescriptive policy, also attempts to highlight the direction in which these implicit budgetary subsidies are moving. The study covers a discrete series of time period since 1990-91 till 2000-01 by taking 1990-91 as the initial year of concern for economic reforms, 1993-94 as first application for the assistance from the World Bank, 1995-96 as structural adjustment loan from the World Bank and conditions attached to it, 1998-99 and 2001-02, the latest years for which the data is available by using one common definition as adopted by Srivastava and Amar Nath, 2001.

1.5. **OBJECTIVES**

The following are the objectives of the present study:

1. To develop a conceptual framework for estimating and analysing the budgetary subsidies;

2. To estimate and to compare a discrete series of both explicit and implicit budgetary subsidies from non-public services for the State of Andhra Pradesh;
3. To examine the trend and the composition of Budgetary subsides and recovery rates from the non public services provided by the State Government of Andhra Pradesh;

4. To arrive at the meaningful inferences to suggest required measures to reduce or redirect the subsidies in favour of social welfare.

1.6. HYPOTHESES

The fiscal correction measures initiated since 1991, have no doubt given some indication that the governments, both at the Union and the State level, have been serious about improving the finances of the government by various means. Rationalisation of subsidies is one of the serious concerns of the governments both at Union and State levels. The impact of these measures on subsidies - implicit and explicit - in reorienting subsidies towards welfare including social or economic services needs to be captured. In this context, the present study considers the following null hypotheses;

1. The reform measures undertaken by the Government of Andhra Pradesh have not resulted in containing budgetary subsidies.

2. The Government of Andhra Pradesh has not given priority in directing subsidies towards social sectors during the post-reform period

1.7. METHODOLOGY

The data relating to explicit budgetary subsidies have been provided in the Budget documents of the Government or Finance Accounts. For consistency in statistical analysis, the study mainly depends on the Finance Accounts published by the Comptroller and Auditor General of India for
collecting the required information on explicit budgetary subsidies. As such there is no need for estimation process involved in arriving at the explicit budgetary subsidies.

The implicit budgetary subsidies have been defined as un-recovered costs of providing non-public goods measured as the excess of aggregate costs over aggregate receipts. Non-public goods are classified as social and economic services in The budget documents. Costs have two elements: (1) Current costs or variable costs and (2) Annualised capital costs. Aggregate receipts consist of revenue from user charges and interest and dividend received from lending and investment, respectively. The current costs consist of revenue expenditures directly related to the provision of services classified under different budgetary heads. Transfers to funds, which do not contribute to the provision of services, and transfer payments to individuals, which adds to incomes of the recipients and do not constitute the cost of providing services, are excluded from these expenditures. Whereas, the capital costs are considered, cumulative Investment is separated from cumulative capital expenditure to arrive at capital stock. An imputed rate of return (Cost of borrowing) is applied on investment and capital stock to arrive at opportunity or imputed cost of capital stock and investment, and an estimated depreciation on capital stock to arrive at annualised capital cost. Like the earlier studies a two per cent depreciation in nominal terms with an assumption of life span of 50 years on capital investment in public sector is assumed. But, here a different
methodology is applied to adjust the capital stock, which is a summation of nominal investments in historical prices into real terms and an adjusted depreciation rate is arrived. The simulated adjusted depreciation rate also considers investment growth as one of the parameters. The depreciation rate thus, is arrived at by simulating the alternative values of parameters of inflation and growth rate of investment. Capital Stock is adjusted for conversion into real terms and allows for a gestation period by Srivastava and Amar Nath methodology, but continues with the earlier assumption of 50-year life span for the capital invested in public sector. The imputed rate of interest is the actual cost of borrowing in the previous year by the Government.

In terms of mathematical symbols, methodology of estimating implicit budgetary subsidies can be expressed as follows:

1. The costs of providing public services can be defined as

\[ C = RX + (i + d^*) K_o + iZ_o \]

where,

RX = revenue expenditure on the service head net of adjustments
i = effective interest rate
d* = depreciation rate
K_o = aggregate capital expenditure at the beginning of the period
Z_o = sum of loans and equity investment at the beginning of the period
Adjustments in deriving RX relate to transfer to funds, which are deducted and transfer from funds, which are added. Transfers to individuals are also not counted, although these are separately compiled. Expenditure on running secretariat social and economic services are also not counted as these relate to general administration, and are also not decomposable among different heads of services.

2. Receipts from providing services are defined as:

\[ R = RR + (I + D) \]

where,

\[ RR = \text{revenue receipts} \]
\[ I = \text{interest receipts} \]
\[ D = \text{dividends} \]

3. Implicit Budgetary Subsidy (S) is defined as:

\[ S = C - R \]

Other parameters are effective interest rate and depreciation rate. The effective interest rate is obtained by dividing the interest payment in current year by outstanding debt at the beginning of the concerned year. Only three components of debt are considered for this purpose. They are basically a) Loans and Advances from Centre, b) Internal debt of the government and c) Small Savings and Provident funds.
Estimation of depreciation costs should take into account, the fact that capital stock in the finance accounts presents an accumulation of past investments at different prices prevailing in different years in the past.

The depreciation rate is to be calculated with reference to the stock of capital at the beginning of the year. This stock of capital is the sum of nominal investments in previous years. Since these are additions of nominal figures, all at historical prices, the calculation of depreciation rate has to take this into account. The methodology used for this purpose is explained below.

Let the life of a capital asset be \( T \) years. The rate of depreciation would be \( 1/T \) per year for the asset to be written off. For example, if \( T = 50 \) (years), \( 1/T = 0.02 \). Let the current year be \( T + 1 \). The past years under consideration are from 1 to \( T \). Let nominal investments in these years be written as \( I_1, I_2, \ldots, I_T \).

Assuming an investment growth rate of \( z \), we have

\[
I_2 = (1 + z) I_1 \quad \ldots \quad I_T = (1 + z)^{T-1} I_1
\]

Thus,

\[
I_1 = I_T/(1 + z)^{T-1}
\]

Correspondingly,

\[
I_1 = I_T/(1 + z)^{T-1} \\
I_2 = I_T/(1 + z)^{T-2} \quad \ldots \quad I_{T-1} = I_T/(1 + z) \\
I_T = I_T
\]
If the long-term rate of inflation is \( i \), a nominal amount of 1 in year 1, is \((1 + i)^{T-1}\) in terms of the prices of the \( T_{th} \) year.

Then, the sum of \( I_1 \), etc., in terms of the prices of the \( T_{th} \) year can be written as

\[
I_1 \left( \frac{1 + i}{1 + z} \right)^{T-1} + I_2 \left( \frac{1 + i}{1 + z} \right)^{T-2} + \ldots + I_T
\]

\[
= I_T \left[ w^{T-1} + w^{T-2} + \ldots + 1 \right]
\]

where,

\[
w = \left( \frac{1 + i}{1 + z} \right)
\]

Let, \( K_T = (I_T + I_{T-1} + \ldots + I_1) \) indicate aggregate capital expenditure obtained by summing investments measured in the prices of the respective years in which they were made. We can write:

\[
K_T = I_T + \frac{I_T}{(1 + z)} + \ldots + \frac{I_T}{(1 + z)^{T-1}}
\]

\[
= I_T \left[ 1 + \left( \frac{1}{1 + z} \right) + \ldots + \left( \frac{1}{1 + z} \right)^{T-1} \right]
\]

\[
= I_T \left[ 1 + x + \ldots + (x)^{T-1} \right]
\]

where,

\[
x = 1/(1 + z)
\]

or,
\[ I_T = K_T / (1 + x + ... + x^{T-1}) \]

Depreciation for one year in terms of the prices of year \( T \) is given by

\[ = \left( \frac{1}{T} \right) I_T (1 + w + w^2 + ... + w^{T-1}) \]

\[ = \left( \frac{1}{T} \right) K_T \frac{(1 + w + w^2 + ... + w^{T-1})}{(1 + x + ... + x^{T-1})} \]

Depreciation in terms of prices of year \((T + 1)\), i.e., the current year, can be obtained by multiplying the above expression further by \((1 + i)\). Thus, if \( K_T \) (i.e., outstanding accumulated capital stock in nominal terms) is to be used as the base, the depreciation rate on this should be

\[ \left( \frac{1}{T} \right) \left( \frac{1 + w + w^2 + ... + w^{T-1}}{1 + x + x^2 + ... + x^{T-1}} \right) (1 + i) \]

This is expressed as the adjusted depreciation rate (ADR). The adjusted depreciation rate has a behaviour corresponding to the behaviour of Inflation and Investment growth rate. Higher the inflation rate, higher is the depreciation rate, for any given rate of growth of investment. Higher the investment growth rate, the lower is the depreciation rate for any given inflation rate. Inflation rate is arrived at by using the deflator of gross capital formation at national level as there is no data available at the state level in real terms. The growth rate of investment is arrived at by calculating the growth rate of capital formation available at state level from the Directorate of Economics and Statistics, Government of Andhra Pradesh, Hyderabad.
The average inflation rate during the period 1950-51 and 2000-01 is 8.3153 per cent. The growth rate of investment from 1950-51 to the respective years, the calculated depreciation rates and imputed rate of return or interest are given in the table below.

Table 1.1

<table>
<thead>
<tr>
<th>Year</th>
<th>Growth Rate of Investment*</th>
<th>Depreciation Rate</th>
<th>Imputed Interest Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990-91</td>
<td>0.13423</td>
<td>0.05134</td>
<td>10.0375</td>
</tr>
<tr>
<td>1993-94</td>
<td>0.13602</td>
<td>0.05068</td>
<td>11.0259</td>
</tr>
<tr>
<td>1995-96</td>
<td>0.13795</td>
<td>0.04999</td>
<td>11.8406</td>
</tr>
<tr>
<td>1998-99</td>
<td>0.13920</td>
<td>0.04956</td>
<td>13.2340</td>
</tr>
<tr>
<td>2000-01</td>
<td>0.13954</td>
<td>0.04944</td>
<td>12.8573</td>
</tr>
</tbody>
</table>

Note: Growth rate of Investment refers to compound growth rate of gross capital formation in public sector of Andhra Pradesh 1950-51 to the respective year.


There are several features and limitations of the estimation methodology, which arises from various assumptions made or procedures followed at different steps. In particular, it may be noted that tax expenditures are not included in the estimates. Average life of an asset is assumed to be fifty
years. Estimates are based on actual prices even if these are administered and not on the basis of market prices which would prevail in the absence of regulations. Subsidies arising from administered price regimes or off-budget subsidies are also not captured here. The estimation does not cover the inefficiency cost in provision of services.

Implicit budgetary subsidies for non-public goods are classified based on the basis of merits and externalities involved. A detailed discussion about the classification is provided in chapter four. The recovery rates of both variable cost and capital costs are estimated and analysed for all the selected years. Simple ratios are calculated for the analysis and testing the hypotheses.

1.8. DATA SOURCES

The data required for the study are mainly collected from the Finance Accounts, published by the Comptroller and Auditor General every year. Information on the state income and capital formation are collected from the Central Statistical Organisation and the Directorate of Economics and Statistics, Government of Andhra Pradesh. Data on State finances is collected from State Finances, Reserve Bank of India, various issues for a time series of analysis. Sufficient care is exercised while collecting the data from various sources for conceptual clarity and classificatory adjustments. Population data is taken from central statistical organisation, Government of India and Gross State Domestic Product data is obtained from “State Domestic Product of Indian States”, EPW research foundation, Mumbai, 2003, for the earlier years.

1.9. CHAPTERISATION

The present study is presented in five chapters. The introductory first chapter explains – the concept of Budgetary subsidies, review of literature, the need for the study, the objectives, the hypotheses and the methodology adopted in the present study. A brief review of finances of the Government of Andhra Pradesh and the changes that took place during the post-reform period in the State finances are explained in the second chapter. The estimation of budgetary subsidies in Andhra Pradesh and a comparison with earlier studies are discussed in the third chapter. The fourth chapter analyses the budgetary subsidies of the Government of Andhra Pradesh during post-reform period with modified methodology. Empirical inferences drawn from the statistical analysis on budgetary subsidies have been compared over a period of time and across the sectors to draw the policy implications in the fifth chapter. Besides, it also presents summary of findings of the study along with suggestions for the improvement of the state finances in containing unnecessary budgetary subsidies.