Dispensing subsidies is a part of the core business of governments, the counterpart of collecting taxes. It is widely recognised that government should intervene and concern themselves with issues that are important to society, and that otherwise would not survive without government intervention. Public intervention is usually motivated socially and economically. Social objective commonly involve the abatement of poverty or the protection of poor or economically vulnerable population groups. Governments provide income support for a minimum subsistence level or they subsidise access to basic living needs such as water, food, energy. They also intervene for economic objectives. Stimulating economic growth, enhancing or protecting employment and investments or providing infrastructures access are common goal of subsidy policies.

This chapter is divided into two parts, *First part* discusses about theoretical rationale of subsidies in the context of the market failure, and the *Second part* is devoted to the review of empirical studies on subsidies.

2.1 An Economic Analysis of Public Subsidies and Policy Failures

No systematic attempt has been made yet to analyse the causes and consequences of public subsidies. The causes have to be looked for in a framework of political economy, while the consequences have to be analysed in a welfare economic framework.

The main argument is that public subsidies can generate two kinds of policy failure. *First*, public subsidies can frustrate new government policies that aim to correct market failures. *Second*, they can generate unintended negative welfare effects that are larger than the positive welfare effects generated by achieving the goal of the subsidies. The policy failure arises especially when the officially intended goal is barely achieved or even counteracted.

It is important to emphasise that there is nothing inherently bad about public subsidies. They are provided to achieve certain goals that are considered to improve...
welfare in a society such as maintaining the income of farmers or miners, or providing basic goods and services for low-income groups.

2.1.1 Public Subsidies and Market Failures

Standard welfare economics is concerned with the assessment of the total welfare of a group or society and the development of rational economic policies to maximize welfare. This is one of the fundamental propositions of welfare economics that presents a strong argument in favour of the market mechanism.

Externalities and public goods are phenomena that weaken this argument. Externalities occur when consumption of individuals or production of firms are affected by actions of others individuals or firms without mediation of the market. These can be positive (social security system preventing widespread poverty) or negative (air or water pollution).

The existence of externalities points to the failure of market to generate an efficient equilibrium, that is, an allocation of production and consumption that creates maximum private welfare. There is a need for government action to correct for market failures, particularly if externalities take the form of public goods like, for example, clean air. These are characterized by non-excludability and non-rivalry. Non-excludability means that when a good is provided to one individual or firm, other cannot be excluded from consumption. Examples are clean air, police protection and so on. Non-rivalry means that use of a good by one individual or firm does not mean that at the same time other can not use it. Clean water, national parks and police protection are examples. Government action is necessary to provide for a public good like clean air.

The government can use several instruments to correct for market failures. The most important instrument in welfare economics is the Pigouvian tax. This is a tax that exactly incorporates the externality and leads to consumption and production patterns that are consistent with maximum welfare.

Figure 2.1 shows the existence of an externality and a Pigouvian tax as a government action to correct for market failure such as water pollution.

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1 Generally, two approaches to correct market failures can be distinguished. The first approach is direct government intervention as suggested by Pigou and the focus here. The second approach is the distribution of property rights defining the property of externality and is based on Coase Theoram.
Figure 2.1 assumes a goods market with perfect competition among producers. The marginal private cost curve of a producer, $s_{priv}$, intersects the demand curve at $a$, which means that $q_{priv}$ is the quantity demanded and supplied at a price $p_{priv}$. The market is in equilibrium and private welfare is maximized. However, the production also leads to water pollution and total costs to society are represented by the marginal social cost curve, $s_{soc}$. This equals the marginal private costs plus the marginal external costs (additional costs caused by water pollution) due to the production of the good. The externality caused by the water pollution is $abf$. Government action by means of a Pigouvian tax $dc$ is necessary to correct for the market failure. The price rises to $p_{soc}$ and the quantity demanded and supply declines to $q_{soc}$. The external effect is reduced by $abcd$ to $dcf$, which is the optimal level of the external effect. Total welfare is the sum of consumer and producer surplus minus the external effect. Without government intervention consumer surplus is $ae_{p_{priv}}$ and producer surplus is $af_{p_{priv}}$. Total welfare without government intervention is $ae_{p_{priv}} + af_{p_{priv}} - abf = cef - abc$.

3 Less production automatically means a smaller externality effect. The magnitude of the externality reduction depends on the slop of supply curve compared with the slope of the demand curve, that is, the supply and demand elasticity.
Figure 2.1

Government Action Correction for Market Failure

\[ q = \text{quantity of the good}; \]
\[ p = \text{price of the good}; \]
\[ D = \text{demand curve}; \]
\[ S_{\text{priv}} = \text{marginal private costs}; \]
\[ S_{\text{soc}} = \text{marginal social costs}. \]
Government intervention to correct for the market failure increases welfare. Introduction of a Pigouvian tax of $cd$ generates total welfare of $cef$. As $abc > 0$, $cef > cef - abc$ and hence welfare has been increased as a result of government intervention. The external effect has been reduced by $abcd$. Welfare, however, has increased by a lesser amount, $abc$. A part of external effect reduction, $acd$, is not a welfare increase as the improved welfare resulting from a smaller external effect has partly been cancelled out by reduced welfare caused by the reduction of consumer and producer surplus. The triangle $acd$ called a dead-weight loss in the economic literature⁴.

Figure 2.2 shows that the introduction of public subsidies on the inputs of the producer, $fg$, shifts the marginal private costs curve downward to $s_{sub}$. Production increases to $q_{sub}$ and the negative external effect increases to $ijf$. The increase is $abji$. Government action aggravates the external effect. The incorporation of the external effect requires a Pigouvian tax $lc$ that is higher than $dc$ in a situation without the input subsidy. The addition Pigouvian tax $ld$, which is exactly the input subsidy of $fg$. In other words, the subsidy given to the producers should be taxed completely to reduce the external effect to efficient level.

---

⁴ Parry and Bento (2000) call this triangle the primary cost of policy.
Figure 2.2
Policy Failure Resulting from Public Subsidies

\[ q = \text{quantity of the good}; \]
\[ p = \text{price of the good}; \]
\[ D = \text{demand curve}; \]
\[ S_{\text{priv}} = \text{marginal private costs}; \]
\[ S_{\text{soc}} = \text{marginal social costs}; \]
\[ S_{\text{sub}} = \text{marginal private costs including an input subsidy}. \]
2.1.2 Public Subsidies and Policy Failures – Incorrect Policies

A policy failure means that active government policy leads to welfare that is less than in case of correct policy. An example is the existence of an-environmentally damaging subsidy that conceals information about the real marginal costs of producing firms in a market and leads to environmental policy measures that are incorrect.

Figure 2.3 shows relationship between government, the macroeconomic and social system, and the natural environment are presented. The government attempts to achieve certain economic and social aims such as increasing or maintaining employment and boosting productivity by using instruments as regulations, subsidies and taxes. This is shown by arrow 1. There is nothing inherently wrong with governments embarking upon a policy of subsidization. Subsidies may have positive welfare effects for society but these needs to be balanced against the (unintended) negative effects. Arrow 2 shows government interventions that are directly concentrated on protecting the natural environment, for example, defining protected areas. Arrow 3 is the central issue at stake and shows the effects of macroeconomic system, that is the aggregate of consumption and production, on the natural environment. It is here that the first arrow influences the natural environment and may undermine the effect of arrow 2, that is, direct environmental policy by the government such as Pigouvian taxes. This is first policy failure that will be elaborated in the present section. Many of the (often unintended) environment effects of arrow 3 can have a negative impact on welfare that is larger (in absolute value) than the positive welfare effects due to the government support of arrow 1. This is the second policy failure. The fourth arrow consists of the negative effects of environmental degradation of the economy. These are negative effects on employment and productivity due to health problems, early depreciation of capital goods and reduction of agricultural productivity because of soil damage.

The hidden character is a special feature of many public subsidies for two reasons. First, whereas money transfers relating to on-budget subsidies are visible in the government budget, the indirect channels through which they increase negative environmental and social effects are hard to detect empirically. Second, in the case of off-budget subsidies the magnitude of subsidies remains unclear. Estimates at a global scale reveal that the magnitude of subsidies with negative welfare (and possibly perverse) effects are very large.
Figure 2.3

Impact of Public Subsidies on the Economy
The Natural Environment and Equity

1. Achieving economic and social policy goals such as employment or income maintenance or securing energy supplies.

2. Environment policy to maintain natural environment.

3. Emission of pollutants that cause negative effects on the environment.

4. Effects of environmental degradation on production factors such as reduction of labour productivity due to health effects, early depreciation of capital goods due to acid and reduction of agricultural productivity.
The hidden aspect of many public subsidies aggravates uncertainties in policy making. The fact that many public subsidies are concealed and have detrimental effects on the environment frustrates other government policies. For example, hidden subsidies that affect the natural environment negatively, frustrate environmental policies.

Figure 2.4 focuses on producer subsidies, as these are dominant in most developed countries and have the most severe and indirect perverse effect.

Figure 2.4 shows a partial equilibrium analysis with demand and supply curves under perfect competition in a closed economy. Point a is the equilibrium situation that results when private production costs include neither subsidies nor externalities taxes. In this case, the amount of \( q_{\text{priv}} \) is produces and private welfare maximized. The marginal external effect generated at this production level is \( ab \), that is, the distance between the marginal private costs curve \( s_{\text{priv}} \) and the marginal social cost curve \( s_{\text{soc}} \). The total external effect is \( abf \). The total welfare is \( cef - abc \). A Pigouvian tax equal to \( dc \), that is the distance between the private cost curve and social cost curve at \( q_{\text{soc}} \), would generate the socially optimal equilibrium. Total welfare would be \( cef \), which is larger than \( cef - abc \).

Assume for simplicity that a constant producer subsidy equal to \( fg \) per unit of output (independent of the level of production) is provided. This shifts the supply curve \( s_{\text{priv}} \) downward to \( s_{\text{sub}} \) and increases the level of production output that clears the market to \( q_{\text{sub}} \). The social cost produced at this level of production is \( hj \), i.e. sum of the marginal social cost due to the subsidy \( (hi) \) and the marginal externality cost \( (ij) \). Total welfare is \( cef - hjc \) (\( > cef - abc \)).
Figure 2.4

Inefficient Pollution Levels due to Hidden Producer Subsidies in a Closed Economy: Perfect Competition

$q = \text{quantity of the good;}

p = \text{price of the good;}

D = \text{demand curve;}

S_{\text{priv}} = \text{marginal private costs;}

S_{\text{soc}} = \text{marginal social costs;}

S_{\text{sub}} = \text{marginal private costs distorted by hidden producer subsidies;}

S_{\text{ss}} = \text{marginal social costs distorted by hidden producer subsidies.}
When subsidy is hidden, the policymaker may incorrectly regard $s_{\text{sub}}$ as the private production costs and $q_{\text{sub}}$ as the quantity based on the genuine private production costs, $q_{\text{priv}}$. The point $h$ is confused with point a. in that case $dc$, that is, the distance between $s_{\text{soc}}$ and $s_{\text{priv}}$ will mistakenly be regarded as the Pigouvian tax level associated with reducing the externality to its socially optimal level. However, taxes equal to $dc = pm$ imposed on $s_{\text{sub}}$ implies that the quantity produced and consumed will be reduced to $q_{ss}$, which is higher than the socially optimal quantity $q_{soc}$. This result is obtained by drawing a line parallel to $s_{\text{sub}}$ through point $k$, which is located at a distance $fg$ below point $c$, that is, $ck = fg$ (at $q_{soc}$). Under this incorrect environment policy the subsidy creates an additional external cost, that is, above the optimal level, equal to $qnf - cdf = q_{ndc}$. The cost of providing the subsidy is equal to $nmgf$. These costs cancel out against the additional producer and consumer welfare in a situation of incorrect government policy due to public subsidies is $cef - qpc$ which is lower than $cef$ as $qpc > 0$. If $qpc < abc$, a situation with perverse subsidies plus environment policy would be preferable over a situation without both public subsidies and an environmental policy. This occurs when subsidies is not too large. The steepness of the slopes of the demand and supply curves, that is the elasticity of demand and supply, determine the size of the welfare change due to perverse subsidies and incorrect environmental policy.

### 2.1.3 Intended Goals of Public Subsidies

Public subsidies are introduced to achieve certain policy goals. Important policy aims underlying many subsidy policies are:

- stimulating economic growth by sector development;
- protection of employment and investment;
- reduction of external dependency by safeguarding domestic supply;
- abatement of poverty by supporting low-income groups and provision of access to basic living conditions.

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6 Payments aimed at generating positive external effects, such as farmers preventing soil erosion, maintain biodiversity or avoiding rural-urban migration, cannot be considered as subsidies (with positive welfare effects) because the farmers have to render services to potential demanders, like government, private parties or NGOs, that pay a price in return.
Table 2.1

Sector Subsidy Policy and Their Goals

<table>
<thead>
<tr>
<th>Natural Resources</th>
<th>Developed Countries</th>
<th>Developing Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Consumer Subsidies</td>
<td>Producer Subsidy</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Maintain farm income and domestic supply</td>
<td>Support low-income groups Safeguard food security</td>
</tr>
<tr>
<td>Water</td>
<td>Increase farm production</td>
<td>Access to drinking water</td>
</tr>
<tr>
<td>Forestry</td>
<td>Sector Development</td>
<td>Sector Development</td>
</tr>
<tr>
<td>Fisheries</td>
<td>Maintain fish income</td>
<td>Support low-income groups Safeguard food security</td>
</tr>
<tr>
<td>Mining</td>
<td>Employment and investment protection</td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Energy and Industry</th>
<th>Developed Countries</th>
<th>Developing Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>Support low income group</td>
<td>Safeguard domestic supply</td>
</tr>
<tr>
<td>Road transport</td>
<td>Stimulate employment</td>
<td>Sector Development</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>Employment and investment protection Sector development</td>
<td></td>
</tr>
</tbody>
</table>

Source: Beers and Moor (2001).

Table 2.1 summarises subsidy policy goals that are generally considered important in both developed and developing countries in the natural resource sector and in the energy and industry sectors. It shows that these are differences in subsidy policy aims in some sectors, but also that the objectives might be quite similar in others. Many subsidy policies are motivated by economic and social considerations that are of a non-environmental nature.

A first observation from Table 2.1 is that in developed countries more policy goals for producers than for consumer subsidies occur. In developing countries it is just the other way around. With regard to sectors, the table shows that public support in developing countries’ agriculture and fisheries is aimed at safeguarding a domestic supply (food security) that is considered sufficient to guarantee economic
development. Governments in developing countries consider subsidies necessary to secure food supply. This is an important policy aim because lack of foreign exchange earnings limits sufficient food imports. In developed countries, agricultural support policies are more concentrated on producers to maintain farm income at an acceptable level.

The policy aims to be achieved by subsidising forestry and mining can be summarised in sector development and support for low-income groups. Forestry and mining are natural resource sector in which developing countries are more abundantly endowed than developed nations. The former countries have a comparative advantage in these sectors. Subsidizing the production of these sectors distort domestic production prices and lead to a production and export levels that are higher than justified on comparative advantage patterns. The result is that these countries sell out their resource base and hence subsidise the exploitation of their resources.

In the case of water, the main subsidy objective in both developed and developing countries is aimed at increasing farm production. In particular, irrigation subsidies to assist poor farmers are in this category. In the developing countries another aim can be added: securing access to drinking water for low-income groups.

Finally, the main subsidy goal for manufacturing is to safeguard employment, this is valid for developed countries.

Generally, governments favoured energy policies that were aimed at keeping energy prices low for both consumers and producers because –

- public concern with equity was greater than with efficiency;
- there were fear that higher energy prices would boost inflation and impede economic growth;
- a need existed to protect consumer from monopolistic practices by multinational oil companies.

In addition, public concern over the degradation of the natural environment has increased and has resulted in a greater awareness of the negative environment effects of energy consumption and production.

\[7\] Although producer subsidies are much less dominant in developing than in developed countries, subsidies in these two sectors are mainly producer-oriented.
Increasing factor mobility, especially labour mobility, is an important consideration in promoting and enhancing economic development by means of sector development. The most efficient allocation of production factors can be achieved when these are free to move to areas where they generate the highest returns. Particularly in developing countries, reduced mobility is a severe impediment to economic development. Encouraging physical mobility of low-income groups may improve employment opportunities and living conditions. Many road transport subsidies are of an off-budget character because they make the from of less than full cost recovery and thus lead to income transfers from the public budget to road users.

2.1.4 Public Subsidies and Policy Failures: Ineffective Policies

The microeconomic analysis focused on the welfare reduction introduced by public subsidies and the frustrated achievement of policy goals by other policy instruments the subsidies. The welfare analysis in this static framework takes into account the theoretical concepts of consumer and producer surpluses, and the negative external effects. Nothing has been assumed about whether the aim of the subsidy is achieved. Subsidies are often intended to redistribute welfare to group of consumers or producers that need them. An example is seen in agriculture subsidies that aim to maintain or increase the income of the agricultural producer. This is reflected in the producer surplus, that is, the excess of revenue over total variable costs (subtracting fixed costs generates profits). The impact of, for example an input subsidy on producer revenue depends on the slopes of the demand and supply curves.

Leakage emerges if the producer revenue increases as a result of the input subsidy but a lesser extent than planned.

For a given demand elasticity an increasing supply elasticity leads to a moderate increase of the externality and a large leakage effect. For a given supply elasticity an increasing demand elasticity generates large potential externality effects and a moderate leakage effect.

Homogeneous product produced in the primary sector such as agricultural and energy products, generally have an elastic supply and an inelastic demand. As a result the leakage effects in these sectors are high while potential externality effects are moderate. Subsidies in these sectors have a high probability of not achieving their goals and will produce negative externalities although to a moderate extant.
The actual balance between leakage and externality generation is hard to calculate in practice and so are the numerical benefits of removing the subsidies, depending on:

- the kind of subsidy; is it a consumer or producer subsidy? Generally a consumer subsidy is less distorting than a producer subsidy as the latter emerges earlier in the chain of economic activities;
- the actual elasticity of input or output depending on whether it is an input or output subsidy;
- the transmission of the effects on quantities and externalities from the market where the subsidy is provided to other markets, that is general equilibrium effects. For example, fossil fuel subsidies lead to higher production and/or consumption of fossil fuels. The extent of the increase depends on structural parameters such as the energy intensity of an economy and how dominant fossil fuels are in total energy use.

2.2 Review of Literature

In Indian context, the literature on subsidy in the form of empirical studies is available. In this section, we have reviewed them to examine the issues analysed and major findings related to subsidies.

According to Gupta, Anand P. (1980) expenditure on subsidies galore in India and all government give them. Some of the subsidies are open, other are hidden. Some involve budgetary outgo, others (e.g., interest subsidy under the soft loans scheme of the Industrial Development Bank of India) do not. If one takes into account all subsidies, the total may now add up to about Rs. 40,000 million.

As per the data compiled by the Central Statistical Organisation (CSO), the budgetary subsidies given by the Central and State governments amounted to Rs. 8,650 million in 1975-76. Of this, agriculture, forestry, fishing and hunting accounted for Rs. 5,120 million; mining manufacturing and construction, Rs. 780 million; economic services: general administration, regulation and research, Rs. 620 million; electricity, gas, steam and water Rs. 320 million; transport and communication, Rs. 90 million; other economic services, Rs. 1560 million; social security and welfare services, Rs. 130 million; housing and other community amenities, Rs. 10 million; and general administration, external affairs, public order and safety, Rs. 20 million.
The CSO data do not even tell how much of the subsidies were given by the Central government and how much by the State governments.

According to Bagchi, A. (1981) the losses in the public undertakings are essentially nothing but subsidies not explicitly budgeted for by the government. He has attempted to derive an idea of the dimensions of the quantum of subsidy now being provided by the State Governments through the operations of public undertakings.

He summed up that subsidies provided by State Governments through uneconomic and sub-optimal running of public enterprises are not inconsiderable. There is nothing to show that such expenditures of public funds are always undertaken after a careful consideration in the implications from the equity and efficiency angle. If the welfare of the community is to be maximised, operation of State Undertakings should be governed by well defined norms.

Jackman, R. and R. Layard (1985), examined how taxes and subsidies by changing the incentives perceived by individual wage-setters, can alter wage-setting behaviour, and with it the natural rate of unemployment. They showed that a tax on wage offset by a subsidy on employment in a balanced budget package would reduce the equilibrium rate of unemployment for two types of reasons. First, it will alter wage-setting behaviour by changing the incentives perceived by wage-setters, in such a way as to raise the level of employment. Second, it will shift demand from high-wage to low-wage sectors, which given higher unemployment rates in the latter, will also reduce unemployment. The theoretical framework of this paper is imperfect competition, and unemployment is generated either because firm set "efficient wages" above the market-clearing level, or because of monopoly trade unions.

According to Asha, P. (1986), budgetary subsidies of the Central Government have witnessed a large-scale growth since the fifties. They reveal two distinct phases in their growth pattern. While the first phase covering the period till the end of sixties was characterised by a modest growth prone to wide fluctuations, the second phase in the subsequent period witnessed a steady and phenomenal growth, both in volume and diversity. In the first phase spanning two decades the growth in central subsidies was only a little over three fold against over fifty-two times in the second phase of seventeen years. A rapid growth in subsidies which pre – empts considerable resources calls for a detailed examination, which is all the more
significant now because of the resource crunch faced by the government and its compulsions for meeting expenditure by resorting to deficit financing.

Certain broad findings emerged from the study, in absolute terms, central subsidies reveals a tremendous growth. As a percentage of total expenditure (both developmental and non-developmental) they formed 8.5 per cent in 1986-87. Of the total, the share of developmental subsidies has generally been higher and within development subsidies more than 99 per cent is appropriated by economic services and less than one per cent goes to social services. This brings out the fact that ostensibly most of the subsidies are for productive purposes.

According to Singh, Chhotan and Puran Chand (1986), among the agricultural production incentives, input subsidies are most powerful instruments for accelerating the growth of agricultural production. The social justification of subsidies lies in the fact that they should be equally distributed among the regions and groups of society for achieving the goal of rapid growth of agricultural sector. In this study an attempt has been made to (i) study the growth of agricultural input subsidies in country, (ii) examine the regional and size class disparity in the use of agricultural input subsidies, and (iii) study the temporal changes in the use of agricultural input subsidies among the regions. The study confined to two major input subsidies, namely fertiliser and electricity for which the data pertaining to 1970-71 to 1982-83 were used. Linear regression and tabular analysis are used as the analytical tools. The results of study shows that the use of agricultural input subsidies increased tremendously. Fertiliser subsidy increased at a faster rate. The results also indicate that there was a large inter-regional disparity in the use of subsidies and the inequalities widened over time.

Punjab, Uttar Pradesh, and Maharashtra used about half of the total agricultural input subsidies but accounted for only 30 per cent of the gross cropped area of the nation. On the other hand, Rajasthan, Madhya Pradesh and Orissa received only nine per cent of the input subsidies but claimed 27 per cent of the gross cropped area of the country.

There was also large inter-regional inequality in the use of agricultural input subsidies per hectare of gross cropped area. It was found to be the highest in Punjab (Rs. 216.18), followed by Tamil Nadu (Rs. 133.20), and Uttar Pradesh (Rs. 100.99). In Rajasthan and Orissa, it was much lower, being of the order of Rs. 12.45 and Rs. 15.21 respectively.
The regional differences in the benefits of input subsidies per unit of food grains production also prevailed.

Foodgrains production was heavily subsidised in the State of Punjab, Tamil Nadu, Uttar Pradesh and Gujarat where the benefits of input subsidies were more than Rs. 100 per tonne of foodgrains while it was only Rs. 22.25 and Rs. 27.25 per tonne of foodgrains in Orissa and Rajasthan respectively. The regions where the benefits of input subsidies were higher, increased lower costs of production of foodgrains, resulting in higher net income from crop production.

Furthermore, the benefits of fertiliser input subsidy were biased against the small and marginal farmers and their share in the nation’s fertiliser subsidy was only 30 per cent. The use of fertiliser and electricity subsidies at the three point of time shows that during the early seventies and mid-seventies, both these subsidies had increased more as compared to the early eighties in all the States. This leads to unequal growth in input subsidies among the regions over time. Hence it is suggested that for growth in agricultural production on equity grounds, the critical input like fertiliser and electricity should be subsidised more in the backward region in addition to provision of other facilities. More input subsidies should be given to the small and marginal farmers, which will help them as well as encourage the poor region to utilise more inputs at lower cost resulting in higher income from crop production.

Reddy, K.S. (1987), analysed the trends in subsidies of the Central and State governments and also estimated the extent of Central subsidies accruing to Andhra Pradesh. The policies pursued by the Central and State governments with reference to agricultural subsidies and industrial subsidies intended for the development of backward area are also studied.

The major subsidies in the Central budget are on food, fertiliser, export, and interest. Analysis suggests that the expenditure on Central subsidies accruing to Andhra Pradesh increased at a higher rate as compared to other States. The direct subsidies provided by the State government also increased at a higher rate than those of other States. Perhaps the absorption capabilities of the State draw from Central pool has increased in the recent past due to the expansion of State’s own subsidies.

The primary objective of Gulati, Ashok (1989) was to quantify level and spread of subsidies on major agricultural inputs across States in India during 1980s. The
inputs covered are fertiliser, irrigation (canal), electricity and institutional credit. The concept of subsidy on these inputs is defined in a more economically meaningful sense, which differs significantly from the one generally delineated in government budgets. The study reveals that total input subsidy averaged over seven years, 1980-81 to 1986-87, turns out to be about Rs. 9,000 crore at all-India level. It is approximately 17 per cent of net value added in Indian Agriculture. More than 70 per cent of total input subsidy is on irrigation through major and medium schemes. At State level, the share of Uttar Pradesh, Andhra Pradesh and Punjab in total input subsidy comes to about one-third while they account for only one-fourth of all-India gross cropped area. Input subsidies as a percentage of State domestic product in agriculture averaged over 1980-81 to 1986-87, are highest for Tamil Nadu (31.7 per cent), followed by Punjab (24.5 per cent), Haryana (23.0 per cent), Andhra Pradesh (21.3 per cent) and Uttar Pradesh (18.2 per cent). At the bottom end are the States like Himachal Pradesh (2.0 per cent), Assam (2.4 per cent), and Jammu and Kashmir (5.4 per cent).

Poverty alleviation has been the overarching objective of the development strategy on India, although achievements have fallen far short of expectations. Over time a number of targeted and non-targeted poverty alleviation policies of varying extent of coverage and efficiency have been tried. Parikh, Kirit and T.N. Srinivasan (1990) compared the effectiveness of some of these policy interventions in alleviating poverty using counter-factual policy simulations with a sequential applied general equilibrium model of the Indian economy for the period 1980-2000. Specifically the simulated policies include (i) abolishing the existing subsidized public distribution of a specified amount of food grains to all urban residents or alternatively extending it to the rural areas and making it completely free; (ii) the introduction of a rural work programs (RWP) targeted at the poorest groups of varying efficiency in its design and execution as well as its success in targeting; (iii) abolition of the existing fertilizer subsidy and the use of part of the resources saved for augmenting aggregate investment and the remaining spent either on a rural works programme or on crating additional irrigated area. The results suggest that a well designed, executed and targeted RWP has the greatest impact in alleviating poverty.

Shetty, S.L. (1990), opined 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.

Jha, Shikha (1991), in her study entitled “Factor Determining The Allocation Of Food Subsidies In India” tried to find out that, what determined the quantity of foodgrains distributed through the public distribution system in each State? Is it directly related to the needs of the people in the respective States? Does it depend on well-accepted criteria such as the extent of poverty, the skewness in income distribution, the market availability of the subsidised goods, etc.? Or is it simply a result of political pressure? The author used cross-section regression to analyse the importance of different factors for two different time point, 1970 and 1983. It is only for the former time point that she found statistically significant relationship in between PDS quantities distributed and well-accepted criteria.

Jha, Shikha (1991a) analysed the effectiveness of self targeting in the Indian Public Distribution system and show that implicit targeting leaves a large scope for improvement. There is a wastage of the associated consumer subsidy in the sense that a substantial amount goes to the non-targeted population while a part of the deserving population is left out of the schemes due to various reasons. Hence, it is worth diverting resources to goods which are better targeted from goods which are poorly targeted. That is, even if targeting cannot be improved, switching of subsidies both between goods and areas can lead to improved distribution of subsidies to the poor.

According to Sagar, Vidhya (1991), the fertilizer policy was formulated in the context of food security, it served its purpose, and food security was achieved, at least in the macro sense. Future demand for fertilisers has to be met through indigenous production, as it would be increasingly difficult to import in the coming years. However, this policy has had its cost too. The continuously increasing gap between the retention price and the sale price of fertilisers implies distortion in the economy resulting in large fiscal imbalances. Removal of such imbalances is necessary for the healthy growth of the economy. However, partial tinkering of some of the parameters of the retention price formula to reduce this imbalance has seriously affected the growth of indigenous production capacity. This may imply yet to another widening gap, between increasing demand for fertilisers and its supply, in the near future.
Gulati, Ashok and G.D. Kalra (1992), observed that farmers, fertiliser industry and consumers of foodgrains all seems to be benefiting from fertiliser subsidy in one way or the other, and in varying degrees. The burden of readjustment (hike in fertiliser price) therefore, should fall on all the three fronts, almost simultaneously.

On farmers’ front, an increase in fertiliser price must be absorbed through appropriate increase in support / procurement prices of main fertiliser consuming crops such as wheat, rice and cotton because the farmer is not ‘net-subsidised’ on account of pricing of outputs and inputs. For fertiliser industry, situation warrants a comprehensive exercise involving computation of domestic resource cost (DRC) of producing fertiliser on plant and product-specific basis, with an objective to identity plants that need retrofitting and revamping to come to acceptable norms of efficiency. On consumers’ front, there is urgent need to reorient the public distribution system (PDS) making it more sharply focused towards vulnerable section of society either by linking it with ‘food for work’ type programmes or by income targeting or by distributing coarser varieties of wheat and rice and coarser cereals, wherever possible.

Rao, M. Govinda and Sudipto Mundle (1992), undertaken a detailed analysis of subsidies at the State level. Analysis covers budgetary subsidies of fourteen major States at two point of time 1977-78 and 1987-88. They focused on the trend over time in the flow of subsidies at the State level. They concludes that the rapid growth of expenditures on social services (which carry low cost recovery rates) and declining rates of cost recovery for economic services both have contributed to the rapid growth of subsidies. Moreover, the volume of budgetary subsidies to State Public Enterprises have been increasing. Subsidies have been maldistributed across States and across income groups within the States, indicating that the federal transfer mechanism has failed to achieve fiscal equalisation objectives. Author argued that redistribution objectives would in some cases be better served by pure income transfers.

Ratha, D.K. and Atul Sharma (1992) used an applied general equilibrium model to analysed macro effects of three policy instruments, namely fertiliser and food subsidies and investment on irrigation for agricultural development in India. The results show that if a choice has to be made among these policy instruments, investment on irrigation has the potential of tackling two persistent problems of the Indian economy – vulnerability of agriculture to weather conditions and lack of
purchasing power of a large section of the populace to buy food – by way of reducing dependence on the rain God and improving income distribution.

In this paper, they analysed the desirability of fertiliser subsidies and also explored the implications of two alternative policies using a CEG model of India. They found that –

- It is not desirable to abolish fertiliser subsidies if the objective is just to ease the burden of budget deficit.
- When wages are not protected (fertiliser), input subsidy is better than (food) output subsidy. Strong income effect which is generated by wage indexation results in the reversal of this conclusion that is output subsidy becomes preferable to input subsidy.
- In comparison to price subsidies, investment on irrigation certainly promotes income distribution and perhaps, also growth.

Jha, Shikha and P.V. Srinivasan (1994), explores through simulation exercises the implications of private storage and subsidised distribution of foodgrains for price stabilisation policies in India. A multi market equilibrium approach is used to incorporate the simultaneity in the determination of both the supply and demand for three major cereals rice, wheat and coarse cereals. The policy implications of the results obtained are relevant to the current debate on agricultural policy reforms in India.

Under the PDS the government distributes to ration card-holders limited quantity of cereals, kerosene and sugar at subsidised prices. The distribution of cereals is supposed to protect the consumption of the poor by ensuring availability of food at a reasonable price particularly to the poorer segment of society. Parikh, Kirit S. (1995) examined the set of questions raised concerning effectiveness of Public Distribution System (PDS) and throw light on the impact of PDS on market prices and estimated the value of subsidy implicitly provided by multiplying the quantity purchased through PDS by difference between market and PDS prices for that commodity. The result showed that (i) the cost of PDS, which has been an important instrument of government policy, was rising; (ii) In the northern big States (Punjab, Haryana, Uttar Pradesh, Bihar, Orissa, Madhya Pradesh) more than 95 per cent of the population do not purchase any cereals from the PDS. Except urban Delhi and Jammu & Kashmir, the PDS is almost irrelevant as far as cereals are concerned; (iii) PDS does provide substantial support to those poor who gets cereals from it in a few selected States. Yet, most of the poor in most States are not reached by the
PDS. The same amount of money spent on PDS if spent on employment schemes, would provide more of an income support to the poor.

**Government of Uttar Pradesh (1995)** reported that since independence, India vigorously followed a policy of food security and accordingly initiated several promotional measures for increasing agricultural production. The government has been intervening, at various stages, in the process of agricultural production and accordingly making large allocations in the budgets to ensure a rapid growth in the key subsectors of agricultural economy. Some of the budgetary supports of the government have been termed as subsidy to agriculture.

This study seeks to analyse the extent to which these budgetary allocation "called subsidy" has benefited farmers in the real sense and to what extent these have gone elsewhere. Some of the programmes of agricultural sectors involving direct subsidies to the farmers have also been evaluated for their impact on the production. Fertiliser, Food, Electricity and Irrigation and Institutional Credit area are generally classifies as largest beneficiary of the subsidies in Uttar Pradesh.

**Gulati, Ashok (1995)** in the analysis of input subsidies in Indian agriculture reveals that subsidies have outlived that their aim and have become unsustainable. In order to release resources for higher investment in the agriculture sector, large scale price and institutional reforms are needed to relieve the pressure of subsidies on the exchequer. Under the circumstances, it makes much sense to improve terms of trade for agriculture and complement this by stepping up investment in agriculture through reduction in subsidies. The increased investment in agriculture appears to be a better bargain than short sighted measures such as subsidies. This is because of the fact that cultivate land in India is in short supply and raising productivity per unit of cultivable area will require heavy investments in irrigation, rural infrastructure, research and extension. Also, investment in basic infrastructure corrects for regional imbalances and promotes greater equity at farm level, while subsidies trends to accentuate inequity.

Main point of this paper is that Indian agriculture in not 'net subsidised' but 'net taxed'; that overvalued exchange rate and high protection to industry has discriminated against agriculture; that subsidies on key inputs have lost their rational and are now crowding out productive investment, damaging environment, accentuating inequity and promoting inefficient cropping patterns; that rising prices of their inputs is only a partial solution to the ills of the input sectors—they must
experience institutional reforms to make the system sustainable. The sequence of reforming in agricultural subsidies must start from liberalising the output markets, opening them to exports and thereafter involving farmers in carrying out reforms in input markets – particularly for non-tradable inputs like canal water, electricity, and rural credit. It is only such a comprehensive package for reforms that can contribute towards accelerated and sustainable growth of Indian agriculture.

Karnik, Ajit and Mala Lalwani (1996) examined the influence of interest groups in Indian agriculture. Specifically they were concerned with the provision of subsidies and public goods by the government in response to pressure of these interest groups. The results of their parametric and non-parametric exercises lead to believe that there is reasonable evidence of interest group influences in the framing of government policies with respect to supply of subsidies and agricultural public goods.

George, P.S. (1996) observed that the procurement operations and distribution through the Public Distribution System (PDS) outlets involved a certain amount of subsidy. The PDS in India has close links with food security for vulnerable segments of the population, budgetary support for food subsidy and price policy.

The total consumer subsidy depends on the quantity of food grains distributed through PDS and the rate of subsidy which in turn is determined by procurement price, handling charges of Food Corporation of India and the issue price. The rate of consumer subsidy is influenced by procurement price, handling charges and issue price. The handling charges include the procurement cost and the distribution cost.

Pandey, Rita et. al. (1996), attempted to estimate the volume and composition of housing subsidies flowing from the Central and the State government in Tamil Nadu and Andhra Pradesh. In the Case of Central government, the estimates are based on flows of transfers, loans and investments, government supported borrowings by Housing and Urban Development Corporation (HUDCO) and National Housing Bank for the year 1991-92 to 1994-95. Also estimated the revenue loss due to tax concessions and subsidy to government employees in General Pool Accommodation (GPA). Estimates of housing subsidy in the States are based on annual flows of transfers and loans for housing through State budgets for the corresponding years. Further, estimates of subsidy at the beneficiary level through various housing programmes in Tamil Nadu and Andhra Pradesh are also made.
Main conclusions that emerged from the analysis of the subsidy estimates are listed below-

- Housing subsidy from the Central government budget has almost doubled during the study period.
- In term of share in total subsidy the urban sector has benefited more vis-à-vis the rural sector in the year 1991-92 to 1992-93. However, in 1993-94, this has been reversed with the share of rural housing rising to 72 per cent.
- Subsidy in a number of housing schemes of Central government flows through HUDCO and the State level housing agencies. There is absence of transparency with respect to actual investment flows into housing for the target group.
- The estimates show that distribution of subsidies is in favour of rural housing in Andhra Pradesh. The Rate of recovery in rural housing schemes is low as compared to the rate of recovery in urban housing schemes.
- In Tamil Nadu budgetary subsidies grew at a rate of 15 per cent during the period 1990-91 to 1993-94.
- As a proportion of SDP, housing subsidy is low in Tamil Nadu when compared with the volume of housing subsidy in Andhra Pradesh.
- In both the State the capital subsidy has accounted for bulk of the subsidy and ahs also increased steadily.

Wolfson, Drik J. (1996), surveyed in his paper the most pressing conceptual issues involved in the use of fiscal instruments, for sustainable development with special reference to fossil fuels. Coal, oil and gas use exhibit the two key dimensions of environmental problem: (i) negative externalities of emission; and (ii) depletion of non-renewable. This paper begins by stating the case for fiscal intervention, as well as addressing the problem how to find the proper benchmark for setting the optimal price of energy, and how cross subsidisation can make things worse. It also discussed the tax design in a context of differential incidence analysis, and compress taxes with an approach that relies on tradable permits. Next, the economic issue involved are further clarified on the basis of empirical results. These results were then qualified by observations about modelling dilemmas, “double dividends”, excess-burden, and the benefits of neo-classical dynamics.

According to Hussain, Abid (1997) agricultural policies have an economy-wide impact and that there is a direct correlation between Indian agricultural performance and the standards of living of a majority of our population.
Undoubtedly, subsidies which were used for keeping the input prices low in agriculture were effective in improving agricultural growth to a certain extent, but it is important to make sure that they do not become a permanent feature of the Indian Economy. Subsidies result in inefficient allocation of resources. There is a growing criticism against the continuance of agricultural subsidies for the following reasons.

First, these subsidies are fiscally unsustainable and lead to wasteful consumption. Second, they encourage misuse of resources also leading to environmentally malignant developments like land degradation, water logging, depletion of ground water resources, salinity etc. Third, the delivering agencies have become economically unviable as their costs cannot be recovered and that they have lost their manoeuvrability to expand services to cover larger number of farmers. Fourth, they 'crowd out' public investment in irrigation, research and many other significant areas and adversely affecting the overall agricultural growth. It is possible that a progressive withdrawal of subsidy would induce farmers to interact more vigorously with global market and thereby boost levels of production and at the same maintain 'input consumption level'.

According to Strong, Maurice F. (1997), Government of both developing and industrialised countries have long made a practice of extending subsidies direct and indirect, to certain sectors and products for which they considered it in the national interest to provide special incentives. These range from agriculture, energy, natural resource development, transport, water, and fisheries to a variety of manufactured goods and commodities. The recent movement towards more open, market oriented economies, free trade and budgetary austerity have resulted in some modifications and reductions in these subsidies. But they continue to exact a heavy cost from people as taxpayers and consumers while distorting markets and undermining economic efficiencies.

In principle, there can be no question that subsidies can be a useful and beneficial means of providing incentives to meet objective that governments believes are economically or socially desirable. But in practice such subsidies tend to become deeply entrenched in the expressions and interest of those who benefit from them, long after they have served their original purposes; there is also great resistance to any attempt to change these subsidies, even when their costs have reached a point where they far outweigh any conceivable benefits.
While explaining about ‘Who gets the input subsidies’, Dev, S. Mahendra (1997) explained that, “During the initial stages of the adoption of new technology in agriculture some of these subsidies may be justified as ‘front-up cost’. Over time it was found, that the richer States and well-irrigated areas, certain crops, and sometimes rich farmers captured a disproportionately high share of the major input subsidy programmes of fertiliser, power, irrigation and credit. Besides, the farmers are not getting the entire amount so called ‘agricultural subsidies’. Some estimates show that cultivators receive only 50 per cent of the budgeted fertiliser subsidy. Similarly, official and independent estimates show that large amount of power subsidy given to agriculture. First, it may be noted that cross subsidisation takes care of some of the losses due to agricultural sector. Secondly, the power subsidies are overestimates because we do not have meters in many States to indicate power consumed by agriculture. The unmetered supply of electricity to the agricultural sector is being misused to cover very high transmission and distribution (T&D) losses and pilferage. The T&D loss is fast increasing in the absence of adequate systemic improvements. Thus, farm power subsidies are overestimates and the farmers may be getting only a part of this subsidy.

Godbole, Madhav (1997) in his work has studied for the subsidies of the two States namely Maharashtra and Jammu & Kashmir, where subsidies are eating deeply plan resources and undermining development. The paper differentiated between ‘public goods’ such as defence, law and order, general administration and justice and other goods. A distinction was made between ‘merit’ and ‘non-merit’ subsidies based on perceived significant externalities associated with merit goods/services. The study brought to the fore the massive magnitude of subsidies in the provision of economic and social services by the government.

Gulati, Ashok and Anil Sharma (1997), the issue of subsidies in general and agricultural subsidies in particular, has attracted a lot of attention of policy makers in the on-going reform process. The rational of subsidising agriculture in developing countries generally stems from their role in either stimulating agricultural development or protecting the meagre income of some vulnerable cultivators, who may not have the risk bearing capacity. In developed countries, however, subsidies to farmers are generally extended to keep them in ‘parity’ with non-farming communities. There are two most common ways of subsidising agriculture. Firstly, the governments may pay much higher support / procurement prices for agricultural products than what farmers can get under free market environment, and secondly
by supplying inputs at below cost prices. Higher prices for farm products can provided mainly by insulting the domestic markets from the world economy through a restrictive trade policy. On the other hand, vital inputs like irrigation, water credit, electricity used in the agricultural sector can be subsidised through State exchequer. Of these two alternatives, subsidies on input are normally preferred because it is believed that benefits of government expenditure can be derived by the farmers only in proportion to their use of inputs. Input subsidisation also avoids raising food and raw material prices, thus avoiding the adverse effects on a growing industrial sector or the large mass of poor living in developing countries. However, most often, it is not just a single mechanism but a combination of both – higher output prices and lower input prices – which has been used to subsidise agriculture with objective varying from the need to raise domestic production and protect income of the farming community.

Mayers, N., et. al. (1998) estimate that perverse subsidies in the world may amount to as much as $ 1.5 million, 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.

Pandey, Rita and P.S.A. Sundram (1997), estimated the subsidy to Central government employees through staff housing and draw some inferences about (i) the extent of subsidy to allottees in different income groups, (ii) effects of the subsidy on distribution of income, and (iii) the budgetary impact of the subsidy. Though the provision of staff housing is not guided by considerations either of profitability or high rate of return, the negative rate of return may, however, influence the allocation of funds needed to meet housing shortage and improve the quality of housing.

Competitive populism of political parties has led to a distortion of the subsidy system in India. Ambirajan, S. (1999) examined the nature, causes, and consequences of growth of subsidies in India in general and Tamil Nadu in particular. The study showed that subsidies in Tamil Nadu are wasteful, corrupt, and regressive and counter-productive. The remedy of the problem lies in a comprehensive package of reforms involving improvement in the institutional structures and market organisation.
Gulati, Ashok and Sudha Narayanan (2000) tried to find out, who is getting benefits from subsidies? This paper estimated plant specific domestic resources cost of all urea plant in the country, and aggregate measure of support for selected commodities through power subsidies. It also gives some policy options both for the Centre to tackle fertiliser subsidy and to the State to minimise power subsidy. The paper is divided into thee parts, section I discuss about the existing policy of pricing fertiliser and power for agriculture, second section examines the very important question of who really benefits from these subsidies. Section III seeks to find a way out and in doing so address the issue of reform and how this would serve national interest.

According to Gupta, Sanjeev (2000), the reform of the price subsidies has been a key element of IMF supported programs in many countries. These reforms have brought prices of subsidized items closer to their market-clearing levels and have sought to target any remaining subsidies to the needy. Reform is typically undertaken in the context of macroeconomic adjustment, and its major aim is to achieve fiscal savings consistent with stabilization of prices allocative efficiency and promote economic growth, but can – at least in the short run – have adverse social and political effects. These effects can be mitigated or eliminated by establishing social safety nets and, in some cases, by gradually phasing out subsidies.

In his paper Panagariya, Arvind (2000), presented a systematic critique of the arguments for export subsidies. The arguments falls into two categories: those based on welfare maximisation as the objective and those that take export expansion or diversification towards manufactures as the target. In the former case, the argument often suffer form same flaws as the arguments for protection, advanced during 1950s through 1970s to promote import substitution. In the latter case, based on the Latin America experience, it is far from clear that export subsidies are the least-cost instrument for achieving export expansion or diversification.

The paper also reviewed briefly the experience of Latin America, East Asia and India with respect to export subsidies. Based on important study Nogues (1989), the author conclude that export subsidies are most costly instruments of achieving export expansion than other policies. In the case of India, innumerable export-subsidy instruments have been in place for many years. Yet significant break in exports came only after substantial import liberalization and real exchange-rate depreciation were achieved in the 1990s. The East Asian experience is more
controversial. But even if one accept that export subsidies played a positive role in these economies in view of the experience in India and Latin America, it is arguable that such experience can be replicated elsewhere with a high probability of success.

Pandey, Rita and D.K. Srivastava (2001) examined the interface between subsidies and environment with a view to highlighting both the positive and adverse roles that subsidies may play in affecting the environment. While subsidies will be interpreted in a broad way, focus will be on subsidies that emanate from government budget in India. In Environment is affected by subsidies in a variety of ways. On the other hand, there are subsidies specifically designed to promote or benefit some aspect of environment, e.g. subsidisation of an afforesatation programme. On the other hand, there are subsidies that, while promoting some other economic objective (like agricultural output), have an indirect, and sometimes unanticipated effects on environment. Often these effects may be budgetary subsidies that have a bearing on environment, whether direct or indirect. While attempting to examine the nature and impact of the subsidy induced effects on affecting some aspect of the economy, and adversely affecting the environment during some phase of the life cycle of the subsidisation process.

Some of the reasons that have been advances in support of farm subsidies are: food security and encouragement to use new farming methods. Farm subsidies have, however, put enormous strain on government budgets. In addition to straining budgets, subsidies distort prices of agricultural inputs and thereby affect levels of input use. This has an effect on the availability of inputs and resources used in agriculture. When supply of inputs is constrained by natural or other factors, the sustainability of agricultural development may be affected. Excessive and inefficient use of agricultural inputs such as fertilisers, water, and pesticides is also reported to have detrimental consequences for the environment and human health and welfare.

Certain facts about the environment related (ER) budgetary subsidies in India are:

- Subsidies identified as having a bearing on environment, account for less than one per cent of the GDP, Centre and States considered together. Of these subsidies having a clear positive impact on environment are only a small fraction.
- Division of subsidies between Centre and States shows that environment related subsidies emanate relatively more from the State budgets.
• A profile of recovery rates for ER subsidies across States shows that the north-eastern States like Mizoram, Assam and Sikkim and also the hilly State of Jammu and Kashmir have extremely low recovery rates.

• Inter-State comparisons of per capita ER subsidies broadly indicate that: (i) per capita subsidy is higher for States with higher per capita incomes; and (ii) a substantial share of ER subsidies pertain to irrigation.

• Subsidies relating to major and medium irrigation, minor irrigation and soil and water conservation had the largest share in ER subsidies for most States.

Srivastava, D.K. and C. Bhujanga Rao (2002) opined that budget subsidies in India are large, largely hidden, and mainly input-based, are generally regressive. These subsidies hide and promote inefficiencies. There is evidence that subsidies have sharply risen in the late nineties. These have grown because of excessive participation of governments in the provision of goods and services where there are no clear externalities. At the same time, critical areas like health and education have suffered where par capita expenditures have remained low although the degree of subsidisation may be high. The primary remedy is for the government to disengage itself from several sectors where its presence is not required, and in the remaining sectors, reasonable user charges should be charged and changes in user charges should be linked to increases in costs.

Gayithri, K. (2003), observed that capital investment subsidy is an important fiscal concession aimed at promotion of industry in the backward regions. Government has sharply enhanced the scope and volume of concession during the reform phase. Concomitant to this amount of subsidy released has sharply increased. However, the scheme has not served its purpose very well as its financial benefits have largely accrued to regions that did not deserve subsidy, such as Bangalore Urban District, and many such units have ceased to exist.

The scope and volume of concession under the scheme has varied from time to time. Introduction of economic reforms and the formulation of New Industrial Policy (NIP) have resulted in a stiff interstate competition to attract industrial investment. One of the strategies that State government adopted was to announce very attractive fiscal incentives. A review of Karnataka Government's industrial policy packages over a period clearly account for the sharp increase that has taken place in the scope and volume of concessions during the reform phase. Capital investment subsidy being an explicit subsidy, the fiscal burden is tantamount to an
increased direct expenditure by the government. Departmental statistics reveal that subsidy released to the industrial units in the State has increased sharply. Such a sharp increased is very burdensome to the State government, which is already reeling under huge an increase in fiscal and revenue deficit. Ironically, this sharp increase coincide with reform phase, which advocated a reduction in subsidies of all kinds.

Deshpande, R.S., M.J. Bhenede and T. Raveendra Naika (2003) attempted to quantify food and agriculture subsidies in Karnataka and examined the allocative implication of agricultural subsidies. They tried to analyse few important issues emerging in the context of subsidies provided to the agricultural sector. Their important recommendations are following:

(i) it is essential to reduce the ever-increasing burden of subsidies in agriculture sector and direct these funds towards more productive investment in the sector especially towards infrastructure development; (ii) the State government should restrict its expenditure on food subsidy by confining to BPL families identified by the Central Government. This will reduce expenditure by almost half the present volume; volume (iii) the prices of foodgrain supplied through PDS should be fixed such that are the subsidies are under manageable limit; (iv) the problems of loss making public undertakings should be identified clearly. The loss making public undertaking should be closed or merged with other enterprises, if they do not serve any social purpose.

According to Rao, Hemlata and H.K. Amarnath ( 2003) analysis of various social and economic services in Karnataka States shows that cost recoveries are not only low but also have declined over the years. Both implicit and explicit subsidy constitutes a large proportion of NSDP. There is a need to rationalise subsidies, prune unnecessary subsidies arising out of inefficiency, misutilisation, wrong prioritisation, and defective policies.

According to Vivekananda, M. (2001), there is a phenomenal increase in power sector subsidy in Karnataka. As there is considerable cross subsidisation from industrial and commercial sectors to agriculture sector, the subsidy between different sectors shows large differences. In the aggregate, while the unit cost of supplying power in 1999-2000 was Rs. 2.90 per KWh, the cost was Rs. 2.06. The gap has been steadily increasing over the years from 10 paisa/KWh in 1991-92 to 84 paisa in 1999-00. This has resulted in widening the deficit year after year.
Gulati, Ashok and Sudha Narayana (2003), explained the key issues of agriculture subsidies and some of the important issues taken up for detailed examination. The basic objective is to measure the degree of support to Indian agriculture, demystify the large input subsidies supposedly flowing to agriculture, and find out ways and means to contain these open ended subsidies. The challenge is daunting, and therefore special efforts is made to understand the complexities of the issues involved, and suggest policy measure that can take care of them. The ultimate criterion is to ensure efficiency in the use of resources, reasonable equity in the distribution of gains, and financial and environmental sustainability in agricultural operations and programmes.

Rao, M. Govinda (2003) in a edited book entitled “Volume and Composition of Budgetary subsidies in Karnataka” highlighted that the search for policy options to correct fiscal imbalances at the State level warrants a careful calibration of budgetary subsidies, with a view to making them more transparent and targeting them to intended beneficiaries. Subsidies can be targeted to intended beneficiaries either through pure income transfers or subsidising items of their consumption of desired services. Direct transfer payments are transparent, and their beneficiaries can be explicitly targeted. As pure redistributive device, this should be preferred policy instrument. However, if the intention is to induce higher consumption of specified public services, subsidies would be necessary. The problem, however, is that the total volume of subsidies involved is often not known, it can have unintended allocative consequences and its distributive implications remain unclear.

Raju, K.V. and H.K. Amar Nath (2003), analysed the irrigation subsidy in the Karnataka. According to them over the last three decades, Karnataka has focused more on creating irrigation potential. Although, it has resulted in spending more on creating capabilities, there has been no commensurate increase in revenue generation. Unfortunately, increased expenditure (in nominal terms) in the irrigation sector has not resulted in improvement of social services, mainly owing to considerable increase in non-plan expenditure both under capital and revenue heads.

Narayana, M.R. (2003), analysed higher education subsidies in Karnataka, the paper estimates the volume and composition of implicit subsidies in the Karnataka for selected years from 1990-91 to 2000-01. The detailed analysis shows that in all levels and all types of higher education, recurring cost constituted more than 90 per cent of the total cost of providing educational services. At the same time, although
there are variations, cost recovery by way of students’ fee in the government institutional was not very significant. The highest recovery rate was in collegiate technical education followed by collegiate medical education.

Saleth, R. Maria and G.S. Bhasri (2003), studied subsidy in water supply and sanitation sector in Karnataka. In terms of coverage and quality of service levels, both rural and urban water supply in Karnataka are better then the national average. There are problems such as concurrent competitions from other sectors, risk associated with water quality deterioration, groundwater depletion, investment requirement in the context of poor cost recovery and severe resources crunch on the State budget. An upward revision of water rates is a key component of the strategy for subsidy reduction; administrative reforms in terms of resizing the bureaucracy, administrative streamlining, and decentralisation are possible steps to meet the challenges for future demand.

Gayithri, K. (2003), has observed that government of Karnataka has initiated a number of housing schemes with an explicit subsidy component. In addition, implicit subsidy arising out of non-recovery of costs has also increased. On the policy front, multiplicity of programmes and a number of departments involved in the design of these programmes are the issues that deserve close attention. There is also a duplication of programmes by the Central and the State government agencies, therefore, administrative costs of designing and implementing tend to be higher.

Howes, Stephen and Rinku Murgai (2004), examined the agricultural power subsidy as a case study, and situate India’s growing subsidy bill within the context of a trend towards agricultural protectionism, while there are ways to reduce India’s subsidies through a combination of efficiency improvements and tough decisions, progress in this direction to date has been disappointingly small, if not negative. There is no assured path forward, and sustained reduction in the subsidy bill will require institutional experimentation.

Anand, Mukesh and Raghvendra Jha (2004) explained that (i) subsidy estimated as the unrecovered costs of the present consumption programme should not exceed the budgetary deficit; (ii) not all of the individual burden of tax and non-tax expenditure in commensurate with the individual consumption of publicly provided goods and services. This essentially results in some redistribution. This redistribution, however, does not affect the budget (and can be termed as interpersonal transfer); (iii) valuation or estimation of the subsidy involves subjective
judgements and qualitative assessment especially when estimating the social rate of
discount or the rate of time preference; (iv) the money or the rupee in the hands of
government may be chosen as the numeraire and a rupee of tax collected from a
rich individual may entail a lesser cost to the government (that is, the social planner,
and may be also the particular individual) than a rupee of tax collected from a poor
individual. Analogously, a subsidy generated by the rich may be valued lower
(socially) than one reaching poor. However, the latter set of all adjustments leads us
to social valuation (not concern of this paper) as distinct from the actual (financial)
estimate of burden; (v) finally, the use of opportunity cost concept (as earlier used
by taking resource to the market rate of interest) is not justifiable in the context of
this methodology. This is especially true when the expenditure programme of the
government is oriented towards activities that really do not function in the mature
markets to warrant the use of market rate.

Singh, R. (2004), examined the issue of inter-crop, inter-regional, and inter-class
equity in fertiliser subsidy distribution in terms of shares of different farm classes,
crop and States in total fertiliser use on different size categorise of farmers. The
paper shows that paddy and wheat cultivators are the major beneficiaries of fertiliser
subsidy. Interstate disparity in fertiliser consumption still remains high, though it has
been falling over the years. More significant is the finding that there prevails a fair
degree of inter-class equity in distribution of fertiliser subsidy, contrary to the widely
prevalent impression. A uniform approach to reduction of all types of subsidies is not
justified. Instead a well through out, properly sequenced, gradualist and regionally
differentiated approach to subsidy reduction needs to be adopted.

Subsidies have been used in India as an important instrument of development policy
to fulfil growth and distributional objectives. In the agriculture sector, with accounts
for the bulk of the subsidies, input and credit subsidies have been extensively used
along with support prices to boost agricultural output by promoting adoption of new
technology particularly by the resource poor and risk averse marginal and small
farmers.

This paper also shows that fertiliser subsidy is not as regressive as power and
irrigation subsidies, which account for a much larger part of agricultural subsidies.
Hence, a uniform approach to reduction of all types of subsidies is not justified.
Instead a more well thought out, regionally differentiated, properly sequenced and
gradualist approach to subsidy reduction will have to be adopted. A dual price
system for fertiliser for different categories of farmers, though justified on equity
grounds, will not be practicable manage. However, it may be possible to have regionally differentiated level of fertiliser subsidy to push fertiliser use in States which are lagging. This needs to be supported by appropriate extension efforts for encouraging optimum and balanced use of fertiliser.

According to Tilak, J.B.G. (2004), though public subsidisation of many social and economic services in common services is common feature of most countries of the world, of late with increasing budgetary constraints, many began raising questions of the rational of government subsidies, and arguing favour of drastic reduction, if not eliminating altogether of subsidies. Concentrating on education sector, this paper review some of the well known arguments in favour of, and counter arguments against public subsidies. Much of the controversies are around subsidies in higher education. It has been shown that the level of subsidies in education in India is not particularly high, nor is the rate of the cost recovery particularly low, in comparison with the developed and developing countries. It has also been found that some of the specific subsidies in education are fairly progressively distributed.

According to Barde, Jean-Phillipe and Outi Honkatuki (2004/2005) the objective of governments' subsidies to various economic activities are presented as to promote economic growth, employment and income. Subsidies distort prices, affect resources allocation decisions and change the amount of goods or services produced or consumed in an economy. Policies providing subsidies are generally introduced for various social and economic reasons, but they are generally ignored. Subsidies can thus result in a policy failure and be harmful to the environment. In agriculture, for example they can lead to overuse of pesticides and fertilisers and in fisheries to the overexploitation of the fish stock. Fuel tax rebates, subsidies to road transport, and low energy prices generally stimulate the consumption of fossil fuels and green house gas emission and increase congestion and air pollution.

Bhatia, M.R., C. A. K. Yesudian, A. Gorter, K. R. Thankappan (2006), observed that reproductive and child health services in India are tax financed and provided through supply side financing mechanisms. Some of the limitations of supply side financing are the inability to target the poor, lack of user choice, and the absence of linkage between provider payments and performance. Hence, there is a need to develop innovative financing mechanisms, which are able to target scarce resources at those who can not afford to pay. One option is demand side financing. Demand side subsidies are not only better at targeting subsidies to the poor, but by linking subsidies with output, also provide the right incentive for efficiency.
According to Jain, Virendra (2006), the electricity subsidy distribution pattern needs to be scrutinised to assess whether the policy benefits small producers, a normative argument often made while granting non-discriminatory electricity subsidies to the agricultural sector. This study highlighted the existence of disparities in the flow of electricity subsidy between the advanced and backward regions. While the medium and large farmers reap the major benefits of the subsidy, the poor small farmers, especially in the backward areas, remain excluded due to their non-possession of electricity connections. In a nutshell, this paper questions the justification for introducing such a policy and puts forward the case for user charges based on open access to electricity.

According to Komives, Kristin, et. al. (2006) Subsidies for utility services are widespread in the water supply, sanitation, and electricity sectors. One motivation is to improve social welfare of the poor by facilitating their access to and use of such services, as well as by redistributing resources to augment their purchasing power. At the same time, such subsidies have often been seen engendering resources use inefficiencies and financially weak utilities, which hobble efforts to expand and improve services. Those adverse consequences have often been used to argue against charging consumers less than cost of services. The impact of subsidies on both count has been subject of much controversy.

Chanda, T.K. (2007) observed that issue of subsidies is of special importance as it has direct relationship with food which is the basic necessity of life. Various countries provide subsidy to agriculture in different names. Developed countries provide huge amount of subsidy to support the farm sector. Subsidy on food and fertiliser in India has grown manifold over the years. However, it is far lower in India than many countries. Indian agriculture is now passing through a very difficult phase. There are reports of stagnation in growth in agriculture, particularly of foodgrains in the recent years in India. Majority of the farmers are not able to get even survival income. Therefore, agriculture sector needs strong support for fulfilling the objective of the Second Green Revolution in India. The paper presents a detailed analysis of various issues of subsidy, including the objectives, importance, amount and type of subsidies provided to the agriculture sector by developed and developing countries.

According to Lalwani, Mala (2007), the opportunity provided by high growth and a comfortable revenue situation to make a serious attempt to boost allocations for education and agriculture has been allowed to slip away. The high priority status
accorded to these sectors in the budget speech is not backed by numbers. Instead the numbers have been played around with – such gimmickry only serves to make budgets lose their credibility. Further, the track record of the government fails to inspire confidence that the fiscal targets will attained. One cannot help but conclude that Budget 2007-08 appears to be long on words alone.

OECD (2007), the functional classification of spending shows that there is considerable scope for reorienting public expenditure, particularly in the area of outlays for government enterprises and subsidies. In India, around two third of the total government outlays (excluding interest but including loans) is on functions other than general administration and defence. One half of this is spent on support to commercial undertakings and subsidies for the food and the agriculture sector. Three quarters of the transfers to enterprises go to electricity, gas, water and communication enterprises, either in the form of outright subsidies or as capital transfers to cover losses and / or finance expansion. A large part of the total sum spent on the enterprises is provided as loans. However, given that most of the State-owned utilities are loss-making, such loans do not represent a source of future income for the government but rather a source of future subsidy payments.

Aside from subsidies and transfer to public utilities, a considerable part of the subsidy on food, fertilisers and kerosene results in the waste of public money due to faulty delivery. Given the proportion of families living below the poverty line, the government has put into place a programme to ensure that low income families are able to purchase a number of basic product at subsidised prices through a network of “fair price shops”. Overall expenditure on food and agriculture subsidies was equivalent to 1.6 per cent, of which food subsidies amounted to 0.8 per cent of GDP in 2004, double their level of 1990. Analysis for the programme shows that it is bedevilled by poor administration and corruption. Nationwide, over one-third of the grain distributed through the system is diverted either by the shopkeepers or through the existence of “ghost” ration cards. The beneficiaries of this diversion are officials in State government and the Food Corporation of India and wholesale and retail dealers. In addition, one-fifth of the grain goes to people wrongly included in the programme, bringing the total loss to 58 per cent. In two of the poorest States, Bihar and Uttar Pradesh, the loss rises to 98 per cent and 80 per cent respectively for fertilisers, only 68 per cent of the subsidy is estimated to accrue to farmers, with the bulk being paid to large farmers in irrigated areas.
Ramana, M.V. (2007), estimated the cost of producing heavy water at the Manuguru plant by analysing the available budget figures and assuming reasonable values for other factors that affect the cost and whose values are not publicly available. Their results suggest that the production cost significantly exceed the price charged under even extremely favourable and unrealistic assumptions. Nuclear power, therefore, is being subsidised through the provision of cheap heavy water.

According to Thomas, Kenneth P. (2007), since the investment incentives are subsidies, they share with all subsidies to capital three important potential drawbacks that affect efficiency, equity and the environment. This is not to say that subsidies are always bad policy; far from it. Some policy goals can be usefully addressed with subsidies, but whether the benefits will offset those potential problems when they do occur must be addressed on a case-by-case basis.

According to Mohan, Rakesh (2008), while subsidies may provide short-term benefits, they tend to hinder long-term investments as well as encourage inefficiency in the use of resources. This issue is important in the context of agricultural development, especially in the context of domestic-demand-supply gaps of major crops and elevated international prices. Public investment in agriculture declined from 3.4 per cent of agricultural GDP during 1976-80 to 2.6 per cent during 2005-06, while budgetary subsidies to agriculture increased from three per cent (1976-80) to seven per cent of agricultural GDP (2001-03). It is observed that greater emphasis on slapping up public investment and containment of subsidies, while adhering to the fiscal consolidation, is likely to pay rich dividends. It would not only engender current growth impulses but also contribute to food securing and domestic price stability.

**Major Studies** - Though there are many studies on direct subsidies like food, fertilisers, export subsidies etc., the concept of implicit budgetary subsidies in India started with Mundle and Rao (1991) followed by Tiwari (1996), Srivastava and Sen (1997), Srivastava and Amar Nath (2001), Srivastava et.al. (2003), Kumar et.al. (2004). These studies concentrated on quantifying various hidden subsidies by defining them as unrecovered costs in provision of public goods/services. They classify the government services in various categories to initiate debate on subsidies for essential or less essential services. Mundle and Rao (1991) and Tiwari (1996) used the same budgetary classification of services such as general as public goods and subsidies on non-public goods as for social and economic services were estimated and broad indications were given on preferences towards certain sectors.
in provision of subsidies. Srivastava and Sen (1997) classified non-public services into merit and non-merit goods. Since these studies mainly concentrate on estimation methodology, volume and composition it is necessary to look at them in detail.

Mundle, Sudipto and M. Govinda Rao (1991), has defined government subsidies as the difference between the cost of delivering various publically provided goods or services and the recoveries arising from such services. They estimated total volume and composition of government subsidies in India in the year 1987-88, after costing government services on a user charges basis for Central government and fourteen major State governments. The exercise shows that the annual volume of subsidies was huge, amounting to Rs. 42,324 crore or almost 15 per cent of the GDP and observed that they were inequitably distributed.

Pure transfer payments are transparent and their beneficiaries are explicitly targeted. The explicit subsidy, as revealed in the budget for 1987-88, amounted to only Rs. 5,982 crore.

The results show that the large concentration of subsidies were in more developed States. They observed patterns of higher per capita subsidy levels were in the States with higher capacity to raise revenues. The federal transfer policy has failed to achieve its major objective, namely, offsetting the lower revenue raising capacities of fiscal disadvantaged States. It is suggested that there is a necessity to reform them in a more egalitarian direction.

Tiwari, A.C. (1996), did a continuation of Mundle and Rao (1991) study, but it covers other related aspects and issues also. The study covers the subsidies provided by the Central and the same fourteen State governments in the year 1992-93 i.e. almost two years after the economic reforms initiated in 1991-92 had been place. The estimates include both explicit and implicit subsidies.

Results showed that the total volume of subsidies in providing social and economic services was Rs. 95,375 crore and formed 15.20 per cent of the GDP. The share of Central Government was Rs. 36,829 crore and constituted 5.87 per cent of GDP, that of States Rs. 58,544 crore and covered 9.33 per cent of GDP. Out of total subsidies, explicit subsidies (including ‘assistance’ to non-government educational institutions and other ‘assistance’) amounted to only about Rs. 21,000 crore and constitute 22 per cent. Thus, the level of implicit subsidies was much higher (78 per cent).
There were large inter-State variation in the level of subsidies. Generally, Subsidy rates for social and economic services were significantly lower in low income States compared with high and middle income States.

An inter-country comparison with subsidy levels prevailing in some other countries had also been attempted. Even if the comparison in not of like of like, it appears that level of subsidy as a percentage of GDP prevailing in India higher than prevailing in developing and developed countries for which the data were available.

Srivastava, D.K. and Tapas K. Sen (1997), provided an estimation of (i) the aggregate volume of government subsidies; (ii) its distribution across services provided by the government; and (iii) the extent of subsidisation in different services. Some general observations on the incidence of the major subsidies, and their implications for efficiency, are also made. Some of the major subsidies in India have been discussed individually, including distributional pattern of their benefits. The Central and State government both are covered in the study.

Main findings of the study were (i) that explicit subsidies in the budget of the Central government accounted for only about 30 per cent of the total Central Subsidies in 1994-95; (ii) when a comprehensive view of the Central subsidies is taken, it is the subsidies on economic services of the non-merit kind that dominated the scenario; (iii) recovery rates of less than ten per cent in these cases indicating over subsidisation by a wide margin; and (iv) highlight the considerable potential for raising recovery rates and thereby mitigating the draft on fiscal deficit that originates from maintain subsidies at such unduly high leaves.

A reduction in the quantum of subsidy level can be achieved through (i) a reduction in level of provision of governmental services and (ii) by increasing the relevant user charges, fees, etc., by increasing the price of the service. In each case, there would be beneficial secondary effects if resource allocation becomes more efficient as a result of release of resources from pre-emptive claims by the government, or as a result of better alignment of prices of resources to their true opportunity costs.

The design of a suitable subsidy reform package needs to be carefully considered. This task calls for prioritisation and phasing. Sectors where the extent of subsidisation is extremely high and not easily justified, need to be targeted first. For the Centre, as well as for the States, a sustained programme of reducing and restructuring of subsidy regime can improve overall efficiency of the system, and make a significant positive impact on the fiscal profile of the country. In designing a
subsidy reform programme, sector-level and State-specific, studies should now be undertaken.

Srivastava, D.K. and H.K. Amar Nath (2001) in their study revisited the subsidies and focused on the central budgetary subsidies. What to subsidise, how to subsidise, and how much to subsidise are three burning issues. Main features of this study are (i) reclassification of subsidies within the merit and non-merit categories using information on expenditure heads, where necessary; (ii) modification of methodology of calculating depreciation costs; (iii) estimation of implicit and explicit central budgetary subsidies, estimation of “excess” subsidisation by grouping goods/services into three broad categories deserving high, intermediate, and low subsidisation; (iv) qualification of scope of subsidy reduction under alternative assumption; (v) identification of the ways and means of subsidy reduction.

The main findings of the study were, subsidies both explicit and implicit, emanating from the Central budget is estimated at Rs. 43,000 crore in 1995-96, and Rs. 48,000 crore in 1996-97. This amount is about 40 per cent of Centre’s net revenue receipts. The recovery rates are as low as 8.26 per cent of cost for services and 16.58 per cent for economic services. Of the total subsidies, nearly 60 per cent are in the non-merit category deserving less subsidisation. The category where a high degree of subsidisation may be considered desirable, account for only 4 to 6 per cent of total subsidies. Using a sensitivity analysis, making alternative assumptions about the average degree of subsidisation for different categories, it would appear that excess subsidisation is about 70 per cent of total subsidies. Subsidies can thus be cut down to nearly 30 per cent of their present level while maintaining a desirable degree of subsidisation in the relevant category.

Srivastava, D.K., C. Bhujanga Rao, Pinaki Chakraborty and T.S. Rangamannar (2003) provided an estimate of budgetary subsidies for 1998-99 for central and State government and discuss some of the key subsidy related issues in the Indian context. Main findings of the study are aggregate Central budgetary subsidies in 1998-99 are estimated to be Rs. 79828 crore, amounting to 4.59 percent of GDP at current market prices, and constituting 53.40 percent of the net revenue receipts of the Centre, which, as an item, is the highest draft on revenue receipts as compared to estimates for earlier years.

The Central subsidies decreased from 4.25 percent of the GDP in 1994-95 to 3.49 percent of the GDP in 1996-97. Reversing the trend of a decline since 1994-95, they
increased to 4.59 percent of GDP in 1998-99. Four reasons account for the
inordinate increase in the central budgetary subsidies in 1998-99: (i) the impact of
salary revisions in the wake of the recommendations of the Fifth Central Pay
Commission; (ii) the deterioration of position of railways from a surplus sector into a
subsidy sector; (iii) large increase in explicit subsidies of the Centre; and (iv)
increase in other input costs unaccompanied by any improvement in recovery rates.
The explicit subsidies, especially in food have risen sharply since 1996-97.

In the case of Central subsidies, economic sector subsidies are nearly five and half
times as large as those for the social sector. Economic sectors arranged in
diminishing order of size of subsidies are: agriculture and allied services, industry
and minerals, energy, general economic services, and transport. Current costs
dominate total costs in both social and economic services, and more so in social
services. The energy sector is a notable exception where the capital costs have a
much larger share.

Budgetary subsidies of the State governments amounted to 8.96 per cent of the
GDP and about 90 percent of their revenue receipts. After adjustment for salary
arrears paid in 1998-99, the State budgetary subsidies are estimated at 8.47 percent
of the GDP. Relative to the GDP, aggregate budgetary subsidies of the State
governments have fallen in 1998-99 as compared to the earlier available estimates
for 1994-95. The recovery rate has also fallen. This can only be explained by a fall in
expenditure (relative to GDP), revenue and capital, allocated to social and economic
services in the State budgets.

Agriculture and irrigation sectors accounted for the largest share in the State
subsidies, followed by elementary education, energy, secondary education and
medical and public health.

Per Capita State subsidies generally showed a regressive pattern: the higher the per
capita income of a State, the higher is the per capita subsidies. Per capita subsidies
in education and health showed a regressive pattern where, in comparative terms,
low subsidies are available to residents of low income States and vice-versa.

In 1998-99, aggregate budgetary subsidies of the Central and State governments
are estimated to be 13.54 percent of GDP at market prices, and 85.8 percent of the
combined revenue receipts of the Centre and States. After adjustment done for
salary arrears paid in 1998-99, the aggregate all India subsidies are estimated to be
about 13 percent of GDP.
As compared to 1994-95, subsidies as percentage of GDP have virtually remained unchanged. Although central subsidies have increased as percentage of GDP, the State subsidies show a small fall. The relative share of the Centre is about one-third of the total subsidies, and that of the States, about two-thirds.

Agriculture, irrigation, energy, and industry and minerals have the highest shares in that order, followed by elementary education.

Subsidy reforms must focus on selected sectors in the first instance which would yield maximum results. In particular, attention can be focused on food and fertiliser subsidies at the Central level, and agriculture, irrigation, power, industries, and transport sectors at the State level.

In their Study Kumar, Surender, Tapas K. Sen, N.J. Kurian (2004), updated the estimates of Central budgetary subsidies for 2002-03 and 2003-04, and highlighted continuing concerns with the size, relevance, and effects of these subsidies. In the last few years, the budgetary subsidies of Central government have increased sharply. This is true of explicit as well as implicit subsidies. Total Central budgetary subsidies amounted to 4.25 per cent of GDP in 2003-04 and 4.18 per cent of GDP in 2003-04. For these subsidies, in both social and economic services, current cost dominated, but with a much larger margin in social services.

Three reasons accounted for the inordinate increase in the Central budgetary subsidies, viz. (i) the transformation of petroleum sector from a surplus sector into a subsidy sector, (ii) an increase in the share of explicit subsidies; and (iii) increase in other input costs unaccompanied by any improvement in recovery rates.

Operational inefficiency leads to higher cost of production. This creates a wedge between subsidies that are actually received by the user charges of the services is attended by several types of inefficiencies. Apart from direct costs like overstaffing, poor maintenance of assets, procedural delay, and delay in taking critical decisions, there are systemic inefficiencies. Moreover, subsidy interventions by the government distort market prices and often lead to sub-optimal use of inputs in the economy, thereby raising overall costs in the system. As a result of these and other inefficiencies, the costs associated with governmental provision of services tend to be high.
Chapter Overview

Two kinds of policy failures have been emphasised in the theoretical rationale of subsidies. First, public subsidies can frustrate new or existing government policies other than the subsidy instruments. Second, public subsidies can generate unintended negative welfare effects that are larger than the positive welfare effects generated by achieving their goals.

Both policy failures are analysed in a standard welfare economics framework. With regard to the first policy failure, it is shown that government actions aimed at internalizing the negative welfare effects are frustrated by the existence of so-called hidden off-budget subsidies. These are often hidden for two reasons. In the first place, the indirect channels along which on-budget subsidies affect the natural environment and equity are not clear to policy makers, second, it is difficult to recognize and estimate the size of off-budget subsidies. It is also shown that public subsidies affect international trade flows. Hidden producer subsidies may frustrate environmental policies such that an economy, which in the optimal environmental policy situation would import a good, starts to become an exporter.

From the review of empirical studies, it is clear that a huge amount of the subsidies is given by both by the Central and State governments. A lot of attention to subsidies is given after mid eighties in India. Most of the work is done on the explicit subsidies like food, fertiliser, agriculture etc. The major work on implicit budgetary subsidies is done by National Institute of Public Finance and Policy. From the studies of NIPFP, it is clear that the burden of subsidies is very high on both Central and State governments and there is a need to rationalise the subsidies. In the next chapter, we will discuss the status of Central government subsidies in India.