THE OBJECTIVES AND FRAMEWORK

1. Introductory

1.1.1 <u>Need For The Study</u> : A number of studies relating to
government expenditure have appeared recently in India and
other developing countries. This is primarily because,
there is a growing awareness among the economists regarding
the potential impact of government expenditure, coupled with
a sense of disappointment with the possibilities of achieving
the desired distributional objectives through tax policy only.
(see, Wulf, 1981, p. 55). Therefore, change in the composition
and direction of public expenditure is viewed as an effective
policy option open to governments to improve the distribution
of income and eradicate extreme poverty. Robert McNamara
(1972), in his address to the Board of Governors of the
WorldBank, expressed the idea emphathetically : "Shifts in
the patterns of public expenditures represent one of the
most effective technique a government possesses to improve
the conditions of the poor... Governments can best begin to
shift public expenditure towards those who need it most by
initiating surveys on the effects of the current patterns
of disbursement : where do the funds really go and who

benefits the most?"[*1]. Such studies assume all the more
importance in a third world country like India on account
of number of reasons mentioned below.

(i) Growth of Government Expenditure : Growth of government
expenditure in India since 1951 has been quite impressive. It
has grown at a faster rate than national income (see, Reddy,
1970). This is also evident from the fact that the percentage
of government expenditure to GNP has moved up from a mere
9.15 percent in 1951 to 17.58 percent in 1960-61, 19.11 per-
cent in 1970-71 and 23.64 percent in 1977-78 (see, Reddy,
1984).[*2] It is estimated that in 1982-83, the government
expenditure constituted almost 30.88 percent of our national
income (see, Gupta, Anand p., 1983). By any criteria,the
level and growth of government expenditure are so substantial
that it is not surprising to find a growing expression of
concern over the direction, impact and utility of government
efforts. Economists and policy makers alike are bound to be
interested in knowing as to where these expenditures are
going and how do they perform in terms of achievements of
various objectives in the economy?

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* 1. Robert McNamara : Address to the Board of Governors,
     The World Bank, Washington, D.C., September 25, 1972,p.17.

* 2. Government expenditure here refers to the combined
     government expenditure of centre, state and union
     territories, at current prices. It is inclusive of;
     (a) loans and advances (net) by the centre and the states,
     (b) self balancing items and (c) transfer to funds.

(ii) <u>Neglect of Expenditure Studies</u> : Inspite of such a
phenominal growth of government expenditure, until recently,
studies regarding welfare and distribution aspects of
government expenditures have been ignored in India. Reddy
(1980) rightly observes in his paper that since 1951, the
government of India conducted four major studies on incidence
of indirect taxation, but none on the incidence of government
expenditure.[*3] Late Professor C.N.Vakil (1978) had also
pointed out in his speech that "There have been various
commissions of enquiry into other activities, but we have
not known of any enquiry into government expenditure which
has grown to (such) astronomical figures".[*4] Having been
severely criticised by a number of scholars, the government
ultimately did appoint an expenditure commission in May 1979,
with several terms of reference, only to wind it up later on
in 1980, without even waiting for its report !! Thus the
present situation appears to be that the government goes on
spending in various socio-economic sectors without bothering
about their feedback !![*5] There are no clear cut answers to

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* 3. K.N.Reddy : "The Distribution of the Benefits of Public
     Expenditure : Significance, conceptual issues and an
     Empirical Framework", in THE JOURNAL OF INCOME AND
     WEALTH, Vol. 4, July 1980, p. 46.

* 4. C.N.Vakil, "Public Expenditure - Need For Economy". Veera
     Anstey Memorial Lecture No. 10, Indian Economic Association,
     Diamond Jubilee Session, December 24-25.

* 5. Recently the National Sample Survey (NSS) has undertaken
     a survey regarding the consumption of public services.
     However, methodology followed and the results of these
     surveys have not been available.

the questions whether the current expenditure policy does help to achieve the distributional objectives as emphasized by the various plans or do we need to make some drastic changes in the expenditure policy.

(iii) Regional Inequality and Poverty : Since the inception of planning, correction of regional imbalance and removal of poverty were included along with the other objectives like economic growth and development. However, with the growth in national income and also in government expenditure, income inequality among various states have remained quite high and has actually been increasing over years in real terms. (see, For example Dholakia, R.H., 1985; Nair, K.R.G., 1983). What is more disappointing is the fact that inspite of a remarkable growth of developmental expenditure, we have not been able to make a major dent on poverty. No doubt, there are marked variations in the various estimates of poverty in India due to the differences in methodologies adopted, class of people covered, period taken etc. Nevertheless, certain broad common conclusions can be drawn from these estimates : During 1960-61 and 1970-71, percentage of population below the poverty line has not decreased, though economists like Dandekar and Rath (1971) prefer to argue that poverty has not increased. A study by Ojha (1970) however, points out that the poverty ratio in rural areas increased from 51.8 in 1960-61 to 70 in 1967-68. According to Bardhan (1974) it increased from 38

percent to 53 percent during the same period. Although during 1970-71 and 1979-80, the poverty ratio is estimated to have marginally declined from 52 to 48 percent, the absolute number of people living below the poverty line is estimated to have increased during the same period. Even according to planning commission total number of people below the poverty line increased from 302.76 million in 1977-78 to 316.84 million in 1979-80 (see, Sixth Five Year Plan, 1980-85). Very recently, the official projections (see, Seventh Five Year Plan, 1985-90) based on an annual rate of growth of population at 1.83 percent, show that the sixth plan has already made a major dent on the problem of poverty. We feel complacent about the fact that we have brought down the poverty ratio to 37 percent, and also reduced the number of people below the poverty line from 306.74 to 272.7 million during 1977-78 to 1983-84. The scholar like Rajkrishna, however, (Cited by Tripathi and Tripathi, 1985) maintain that the poverty ratio remained stable at 56 percent during the 12 years ending in 1973-74. Moreover, it has also been estimated by him that instead of declining, the absolute number of people below the poverty line may rise to 472 million by the turn of the century. Even if we accept the official estimates as they are and believe that the number of the poors has reduced to 272.2 million, still, the number appears to be so large in magnitude in the absolute sense,

that the country cannot claim to have prospered without ameliorating this situation.

(iv) <u>Regional Inequality in Quality of Life</u> : Not only that the per capita income and consumption of calories are distributed unequally; it is also true for various basic qualities of life -, such as life expectancy, literacy, infant mortality etc.(see, Morris D. Morris and McAlpin, 1982; B.N.Ganguli and D.B.Gupta, 1976). This situation, over and above the inequality in income and calorie consumption, reflects inequality in the consumption of other services such as housing, drinking water, health, education, sewrage etc.

Thus, although, the government was supposed to act as a correcting mechanism for the various problems like poverty and inequality, it has not been able to do so on a satisfactory basis. The apparent failure of the poorest section of the country to benefit adequately, if at all, from the past efforts of the government thus calls for the research of the following type : To find out whether the existing programmes of the government do reach the 'vulnerable' section of the society and if they do, then to what extent? In other words, the research should address itself to the questions, like; how the benefits from government expenditures are distributed among various income groups? What is the efficiency and efficacy of each of the expenditure categories in terms of achievements of various laid down objectives?,

Which involves the quantitative measurement of welfare and distribution impact of the government expenditure.

1.1.2 <u>Existing Studies on Government Expenditure In India</u> :
While much has been written on the expenditure side, unfortunately, very few attempts have been made to study the socio-economic impacts of government expenditure in India. Different studies on government expenditure in India relate to one or more of the following aspects :

(i) <u>Studies On Level, Growth and Structure of Government Expenditure</u> : Studies regarding the magnitude, level and growth of government expenditure, structure or composition of government expenditure, union-state financial relationships etc., are many. The studies by Reddy K.N.(1970; 1972; 1976; 1984), Bhargave, P.K. (1969), Bhargave, R.N. (1977); Gopal, M.H. (1964); Jain, Rajendra (1978); Kher (1967); Lakdawala (1967); Lal, G.S.(1976); Mukharjee, K. (1965); Nanjundappa (1972); Patnaik, S.C. (1970); Venkatraman, K. (1968); Bhatt, V.V. (1969); Gulati, I.S. (1961a), Tripathi, R.N.(1964), Rajachandrashekar (1981) have examined one or more of these aspects.

(ii) <u>Determinants of government expenditure</u> : These studies usually consider the government expenditure as a function of (dependent on) various factors like population, collection of tax revenue, per capita SDP urbanisation etc. Many of the

studies mentioned in (i) above, as well as other studies like Reddy K.N.(1976); V.G.Rao (1983); Rajachandrasekhar (1981); Mishra, P.N.(1982); Dar, Usha (1964) have examined these aspects of government expenditure.

(iii) <u>Interregional inequality in public expenditure</u> : The studies by Chelliah R.J.(1979); Reddy, K.N. (1972, 1976 a) and Rajachandrasekhar (1981); Rao (1983); Ahuja, S.P. (1968) have explicitly considered the aspects of interregional inequality in public expenditure.

(iv) <u>Government expenditure and Economic Development</u> : Studies by Mukharjee, K. (1965), Mohammad (1972), Gupta, S.P. (1967), Gupta, S.P. (1968), Reddy K.N. (1970), Tripathi R.N. and Tripathi, M. (1985), Dutt Sibani (1984) etc., have analysed the observed relationship between economic development and growth of public expenditure in India.

(v) <u>Economic Impacts of Government Expenditure</u> : These studies are not many. In these studies impact of government expenditure on the output of various sectors and subsectors is measured in value terms. This often involves the input-output analysis, on the basis of which various output multipliers of government expenditures are estimated. Few of them have also attempted to measure the impact of certain government expenditures on employment and imports (see, Sarma and Tulsidhar, 1984). Other worth noting studies regarding economic impacts of

government expenditures are studies by Reddy, Sarma, and Singh (1984), Paithankar, R.G. (1973), Sarma and Tulsidhar (1980) etc.

(vi) <u>Distributional Impact of Government Expenditure</u> : This is largely unexplored field. Very few studies like Gupta A.P. (1977; 1980), Mishra, P.N. (1982), Reddy, K.N. (1980), Ahuja (1978) and Ved Gandhi (1972) have made attempt in this direction.

It becomes clear from the above that last two categories viz. economic impacts and distributional impacts of government expenditure have been relatively ignored in India and hence need more attention. Moreover, in existing studies on distributional impact, assumption behind the analysis are usually highly unrealistic and the methodology used is unsatisfactory, incapable of yielding unbiased results. Lakdawala, in his forewarding remark to Ahuja's (1978) book had rightly pointed out, that although it has been recognised that public expenditure is of far greater importance than public tax-revenues from the view point of reducing poverty or promoting equality through greater provision of free or subsidised public services, no detailed study based on a satisfactory methodology was attempted before in India.

The need for such studies is now felt all the more keenly because, in the sixth plan as well as in the seventh

plan the objectives like removal of poverty, increase in the
life expectancy, and literacy, provision for proper health
services etc. have been given explicit and considerable
importance.[*6] (see, Sixth Five Year Plan 1980-85 and Seventh
Five Year Plan 1985-90). For instance, on the programme of
poverty alleviation alone the seventh plan has put aside
the amount of Rs. 1500 crores. Similarly more than 9000
crores are put aside for health and education. Thus, the
recent plan has given a priority to the programmes of
"Minimum Needs" type and some other programmes like National
Rural Employment Programme (NREP). . This implies that
expenditures on certain categories like health, education, and
employment . are still likely to increase substantially
over coming years. Under these circumstances the questions
like 'what' each rupee spent on each of these expenditure
category yields and for 'whom', become. quite pertinent for
determining the future expenditure policy as well as
identifying other implementation problems.

"In the absence of quantitative measurements of impact
of government expenditure on a specific activity, in a
specific region, over a specific time span, a decision maker
at the implementation stage is unable to make the decision

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* 6. It is envisaged that by the end of the century,
     illeteracy will be completely removed, and the goals
     like 'health for all' and 'poverty alleviation' will be
     achieved.

'optimal' in context to chosen objectives... Study of
distributional impact together with economic efficiency of
each component of expenditure should naturally precede any
exercise of a meaningful expenditure decision for planning
purposes".[*7]

Without such a knowledge, many of our programmes and
plans are likely to be quite ad hoc, like our various past
programmes. It has been vehemently alleged by various
scholars (see, Srinivasan, 1978; and Jain Anil, 1983) that
many of our past programmes like Draught Prone Area Programme
(DPAP), Food For Work etc., were launched without enough
preparatory work and therefore had resulted in a tremendous
waste of government resources. This can also be inferred from
evaluation reports of various other programmes about which
Dantwala (1973) says that "Every evaluation report has been
narrating the same story for the last fifteen years, lack of
competence, non-power seeking local leadership, red tape,
audit obduracy, lack of interdepartmental co-ordination, if
not active non-co-operation, bureaucretic inaptitude, lack
of knowledge and preparatory work. Perhaps a report can be
written even prior to the evaluation and the subsequent
field investigations can be guaranteed to confirm it".[*8]
(Emphasis Added).

* 7. P.N.Mishra : "Seminar on Government Expenditure Policy
     on Social Services", IIM Ahmedabad, September, 1982,p.2.
* 8. M.L.Dantwala, POVERTY IN INDIA - THEN AND NOW : 1870-
     1970 (Delhi, McMilan Company of India Ltd.), p. 44.

The above discussion suggests that there is a need to 'look back' and examine whether the poors do benefit from various government expenditures and that what has been the role of each of these expenditure category - like health, education, agriculture, industry etc., in terms of achievements of various objectives like.removal of poverty, improvement in literacy, health etc. These studies are not only interesting and important per se but are also quite useful for the purpose of future expenditure policy. However, they are not easy to carry out in empirical terms. There are controversies regarding which expenditures should be selected for this purpose, how the benefits from these expenditures should be measured in quantitative sense, to whom these benefits should be distributed and in what proportion, etc.

The methodology for such studies (measuring the distributional impact of government expenditures) has not developed very well so far. This is because, not only in India, but even in other countries also the studies regarding distributional impact of government expenditure have been initiated quite late. The first study of this kind was made by Barna (1941) and then it was followed by a few more studies, but until early seventies the progress was substantially low (see, Wulf, 1975). As a result of this a lot of conceptual and methodological issues have still remained unresolved in this regard, unlike tax incidence studies. Since the present study

aims at providing an alternative approach for measuring
the distribution and welfare impacts of government
expenditure, which would overcome at least some of the
problems, it would be appropriate at this stage to review a
few of the earlier studies, particularly in regard to the
development of methodology and then to put the methodology
of the present study in proper perspective. Section 2 is
therefore devoted to the discussion of various tneoretical
and empirical studies relating to welfare and distribution
impacts of government expenditure. Section 3 discusses a
few points regarding the usefulness of such studies in the
Indian context and Section 4 presents the basic framework of
our approach, which is to be used for the present study.
Section 5 finally gives the plan of the present study.

2. Review of Earlier Studies

1.2.1 <u>Approaches to Measurement of Distributional Impact</u> :
Basically almost all the approaches to measure the distri-
butional impact of government expenditures can be classified
in to two broad categories : (i) incidence approach and;
(ii) the real impact or welfare indicator approach proposed
by the present study. The incidence studies generally ask
either or both of these two questions : First, who benefits
from government expenditure and second, how the income
distribution has changed as a result of fiscal expenditure.

In all such studies income is taken to be the proxy for welfare and hence increase in income is considered to be equivalent to the increase in welfare (see, Meerman, 1978).

On the other hand, in 'welfare indicator approach' we would ask a question as to what actually happens to people in terms of their level of living and certain basic qualities of life. Here we attempt to measure the welfare in 'real' or 'utility' terms rather than in monetary terms. The present work belongs to the latter category. However, as a prelude to our study, some methodological and empirical issues regarding 'incidence approach' of measuring distributional impact need to be discussed here.

1.2.2 Incidence Approach : Unlike tax incidence studies, there exists a lot of controversy concerning even the meaning of expenditure incidence and how to measure it !! Authors like Musgrave (1974) and Meerman (1978) adopted the definition of expenditure incidence as the total change in the distribution of household income including publicly provided goods and services due to government. According to Mclure (1972,1974), incidence on spending side can be divided into two components viz., (i) Expenditure incidence – which deals with income distributional effects of government expenditure; (ii) benefit incidence which asks a question as to who benefits from government expenditure.

Wulf (1981) in his article "Where do we go from here" has classified various alternative approaches to measure the incidence of government expenditure into four broad categories. They are :

(i) Impact Incidence Approach

(ii) An Approach of 'On Whose Behalf Government Spends'.

(iii) Expenditure Incidence Approach

(iv) Benefit Incidence Approach

The studies carried out in various countries have adopted either of the above four approaches and hence it would be appropriate to discuss them here in somewhat greater detail to bringout their advantages and shortcomings.

1.2.3 Impact Incidence Approach : This approach is also called 'income approach' or 'Accounting flow approach' (see, Wulf, 1981). This is because, in this approach government expenditure is looked upon as a flow of money going to its direct recipients in the form of salaries, wages and other transfer payments like cash subsidy, pensions etc. Total benefits from government expenditure are assumed to be equal to the government expenditure in magnitude and are distributed among the recipients of salaries, wages etc. For example, expenditure on education and health are distributed only among teachers, doctors etc., as benefits. Snodgrass

(1974) calls them 'direct beneficiaries' of the government expenditures. In his work relating to Malaysia he emphasized the need for such a study as a necessary first step in the direction of measurement and distribution of benefits from government expenditures.

1.2.4 Studies on 'Accounting Flow' approach in India : Two such attempts have also been made in India, by Gupta, Anand (1977, 1980). The first deals with central government expenditures and relates to 1973-74. The second study relates to 1975-76 and also covers expenditures of different states and union territories together with that of central government. He argues that the government spends as high as 24.24 percent of its total expenditure (1975-76) on wage and salary payments and Rs. 8650 million on subsidy. This amount is quite substantial and hence a study regarding who benefits from the above could be quite relevant and revealing, particularly when nothing much has been done on expenditure side so far. Following the 'impact incidence' approach he allocated the total expenditure of the government on salaries, wages, subsidies etc. among their direct recipients, as benefits. For this purpose he divided the total number of beneficiaries into two groups viz. the poor and the non-poor. Both these studies conclude that though poor do gain from government expenditures, the non-poor gain much more than the poors do. Mishra, P.N. (1982) also attempted a similar kind of an

exercise and came to the conclusion that poors do not benefit much from the government expenditure. However, conclusion based only on such studies are likely to be quite misleading since they tend to hide more than what they may reveal. This is because, in attempting to answer a question as to who benefits, they precisely exclude those beneficiaries for whom the services are intended !! The purpose of the government behind incurring various expenditures on the services like health, education, agriculture etc. (as we understand) is not just to pay the salaries to the staff. They are meant to satisfy some 'merit wants' of the common people and hence evaluation of any such expenditure programme should necessarily be made in the light of these objectives.[*9] The work by Gupta A.P. (1977, 1980) and Mishra, P.N. (1982), miss precisely this point. Just on the basis of salary structure one should not conclude regarding who benefits from government expenditure. Even if 90 paise out of one rupee goes to the salary payments to the doctors but generates the benefits in terms of health which are worth more than one rupee, then there is no point in showing too much concern as shown by these authors. In a way the 'impact incidence' approach can be alleged to be focusing only upon 'inputs' of the governments' services rather than services or 'output' of these services, hence giving biased picture regarding magnitude and distribution of benefits of government expenditure. Even in

* 9. For meaning of the term 'Merit want' see, Musgrave R.A. and Musgrave P.B., Public Finance in Theory and Practice, 1980, pp. 84-86.

case of expenditures like cash subsidy, pensions, and some
other social welfare schemes, where intention of the
government could be to directly transfer the income to a
particular group of people, this approach would not
adequately measure its distributional impact. This is
because, 'benefit shifting' resulting from the changes in
relative prices of outputs and inputs of other commodities
due to subsidy are not taken into consideration. For example
subsidy provided to the farmer of rural area is likely to be
passed on to the consumers of food grains in rural as well
as urban area in the form of fall in prices of agricultural
products. Such benefits are not at all taken into account by
this approach, since only the direct recipients of subsidy
are assumed to benefit from it. B. Kumar and Bhatnagar (1980)
have also raised various issues regarding measurement of
subsidy and distribution of benefits from government subsidy.
They also concluded that, due to several obvious limitations
the above type of approach appears to be quite unsatisfactory.

1.2.5 'On whose Behalf Government Spends' Approach : Unlike
the earlier approach, in this, the benefits from government
expenditures are distributed among the recipients of these
services for whom they are intended. For example, students
and/or his family are assumed to benefit from the expenditure
on education. Here the accounting identity of benefits being
equal to expenditures is still maintained and then these

benefits are allocated among the assumed recipients of the
government services through various allocation formulae
mentioned in the later discussion.

This particular approach is symmetrical with tax
incidence approach used in empirical studies of various
countries, where the burden of tax is assumed to fall on
the payers of tax and indirect impact of tax is assumed to
be zero. A large number of empirical studies concerning the
incidence of fiscal expenditures have used this approach and
hence it would be appropriate to discuss it in some what
greater detail.

Basically three major issues would arise while carrying
out an empirical study of the type; 'on whose behalf
government spends'. They are as follows :

(a)   How to estimate the total benefits from 'pure public'
      goods like defence, justice, administration, diplomacy
      etc. which are jointly consumed by all?

(b)   How to estimate the total benefits from the expenditure
      on various 'merit goods' like education, health etc.
      provided by the government, specifically to cater to
      the needs of lower income groups?

(c)   What should be the basis of allocation of the above
      estimated benefits among the different class of people?

That is, among which income groups these benefits are
to be distributed and in what proportion?

Estimation of Total Benefits : As far as the problem of
estimating the value of total benefits is concerned, in both
the cases viz. (a) and (b) the problem is conveniently avoided
by assuming that total value of benefits is equal to the
expenditure or cost of production of these services to the
government. This assumption is defended on the ground that
in case of 'pure public goods' like defence administration
etc. there is no market mechanism 'yard stick' unlike private
goods, which can help calculating the value of these services
and in case of 'merit goods' like education, health etc.,
private market does exist but still, it becomes extremely
difficult to answer such questions as to what the people
would have paid for these services in absence of their
provision by the government. However, on whatever ground it
is made, the assumption of benefits equal to cost of production
is so strong and its implications are so severe (which will be
discussed later) that it significantly reduces the informative
value of such studies for any purpose. Such studies can be
alleged to have conceptually escaped from all the methodolo-
gical issues and hence command less respectability.

Allocation of Benefits from General Expenditure : Another
issue which needs to be addressed in such studies is that
'What should be the basis for allocation of benefits from

pure public goods as well as from 'merit goods'? Various allocation formulae based on variety of assumptions are used for this purpose. For example, in case of expenditure on general goods like defence, justice etc., authors like Adler and others (1952) and Bird (1970) prefer to distribute them in proportion to income, whereas Urrutia and Sandoval (1971) feel that all the benefits from 'pure public goods'(which are often called 'general goods') should be distributed among the wealthiest 10 percent only, since it is this group which has something to protect to !! Mann (1973) also prefers to allocate such benefits to the wealthiest people only. Musgrave (1974) used the following three alternative formulae and studied the distributional implications in each case :

(a)   Allocation of general benefits was made in
       proportion to income,

(b)   in proportion to tax burden and

(c)   on per capita basis.

Sahota (1972) on the other hand distributed a part of benefits according to their.merits and a part of it on the basis of proportion of income. Bhatia (1960) distributed 50 percent of expenditure for protection on equal per capita basis and 50 percent in proportion to income. He then distributed the rest of the 'general expenditure' in proportion to the distribution of the benefits received from

'specific' services. A notable effort in this regard was made by Aaron and McGuire (1970), who tried to provide an allocation formula through a theoretical framework, for pure public goods. They made use of Lindhal's (1964) 'Voluntary exchange model in this context and arrived at the conclusion that total benefits from 'pure public goods' (general goods) should be distributed in proportion to the reciprocal of the marginal utility of expenditure on the private goods. They thus advocate the use of utility of money function for the allocational benefits, about which there is no general agreement among the . scholars. All the above studies can be criticised on the ground that their allocation procedure is quite arbitrary and does not have any theoretical basis. Even the latest formula derived by Aaron and McGurie (1970) is also not an exception to it ! Wulf says in this regard that "... No agreement exists among economists regarding specific utility of money function and hence there is no unique agreed way to allocate the benefits from general expenditure".[*10] What is more important to point out here is that the distributional results are highly sensitive to the each of the above formulae and one really does not know as to which estimates should be regarded as near to the correct approximation of the benefits. Authors like Meerman (1979) and

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* 10. Luc De Wulf : Fiscal Incidence Studies in Developing Countries : Survey and Critique", IMF STAFF PAPERS, Vol. 22, No. 1, 1975, p. 82.

Selowsky (1979) have tended to exclude such general expenditures like defence, justice, etc. from their studies. In one of his papers Meerman justified this by saying that "If one's interest is to improve the long-term welfare of the disadvantaged groups through such studies, it makes sense to disregard such expenditures since it is unlikely that even substantial changes in their magnitude and form will have much impact on absolute welfare of the poor".[*11]

Allocation of Benefits From Specific Expenditure : In regard to the allocation of the benefits from merit good also, no uniformity exists in the procedures. For example, Musgrave (1974) allocates the benefits from services like health, education etc. among the recipients' families, whereas Bird (1970) assumes that it is largely the middle income group which benefits from health services and the two highest quintiles of income groups which benefit from education and accordingly he allocates the benefits from health and education only among the above respective income groups. Raymond and Smolensky (1977) have assumed the benefits of non-university education to fall on children under nineteen. Mann (1973) on the other hand, preferred to allocate the benefits from goods like health, education etc. on the basis of different assumptions depending upon the economic rationality prevailing in the country which he studied. Ved Gandhi (1972) treated the expenditure on health in very much the

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* 11 Jacob Meerman : "Do Empirical Studies of Budget Incidence Make Sense?" in PUBLIC FINANCE, Vol. 33, 1978, p. 307.

same way as the expenditure on general benefits, whereas
Bhatia (1960) allocated half of total health expenditure in
proportion to income of the families and half on the equal
per capita basis, recognising perhaps that this expenditure
affects not only the income distribution but also the over all
productivity level of the economy. Urrutia and Sandoval (1971)
used the income classification of the patients of the hospital
as an allocation guideline whereas Ahuja (1978), Meerman
(1979) and Selowsky (1979) used the household surveys as an
allocative guide. Thus, there are numerous ways of allocating
the benefits from expenditure on merit goods and no general
agreement exist as to which one is better. It is important to
consider the major limitations of the approach itself and
some general limitations of the empirical studies following
this approach.

Major Limitations of The Approach 'on Whose Behalf Government Spends':

(i)   In this method benefits are assumed to be equal to costs
      of production which implies the assumption that it is
      only the supply side which determines the value of
      benefits. Thus, consumer's choice and their view point
      about the quantity and quality of the government
      supplied services are not taken into account at all.

(ii) In almost all the studies, capital expenditure on the
      public goods are not treated properly. Either they are

completely ignored or else they are dealt with an assump-
tion that current flow of benefits from accumulated
capital expenditure of the past equals the capital
expenditure during the year under study. This cannot
be justified particularly when the composition of
various investment items is changing sharply over years
(Wulf, 1975, p. 83).

(iii) Valuation of benefits according to cost is also
questionable since good investment would yield positive
return and bad investment would yield negative returns
in future, whose accounting before hand becomes difficult
(Wulf, 1975, p. 83).

(iv) This approach entirely ignores the indirect beneficia-
ries of public expenditure. For instance, expenditure
on some specific services like water, health, education,
not only provide benefits to their users but they also
benefit other households and also increase the overall
efficiency of the system, which are not accounted for
in this approach.

(v) Such studies do not allow for the differences in the
quality of services.

(vi) Due to the assumption of total government expenditures
equal to benefits, the problem of leakages and efficiency

of government expenditures are conveniently ignored in such studies. Analysis based on this approach reduces to the analysis of declared intentions of the governments rather than their actual efforts in the system. Such an analysis would therefore be highly misleading, particularly when several **S**tudies reveal that government programmes are resulting in to benefitting altogether different income groups than the one for which they are intended. (see Godbole Achut, 1973; Gupta, A.P.,1983).

Inspite of all its limitations this approach is well accepted by various authors. Meerman (1978) feels that, "information concerning the distribution of public costs by beneficiary should be regarded as a necessary first step for acquiring the knowledge of how well existing programmes are functioning in terms of which reach poor and which do not.

., "...Whether or not we compare the actual with exante hypothetical distribution, knowledge concerning benefit is valuable per se".[12]

He in fact suggested in his paper that "... study of benefit incidence should be redefined. It should not attempt the impossible, namely to estimate the value of all benefits to recipient, but rather to estimate the distribution of publicly financed outputs and corresponding public costs by beneficiary"... If the poor are to escape poverty through

* 12 See Jacob Meerman, _Ibid._, p. 308.

public expenditure then, measuring benefit incidence becomes a basic policy input". *13

He carried out such an exercise for Malaysia for 1974, using the data of a sample survey of 1465 households (Meerman, 1979). He attempted to identify the beneficiaries of various public programmes like medical care, education, agriculture and public utilities and distributed the expenditure among them as benefits on the basis of their actual participation in these activities. Selowsky (1979) also made a study for Colombia using the same approach namely "On whose behalf government spends". He also attempted to identify the beneficiaries by using the sample data on 4019 households, of government expenditures on health, education, drinking water etc. and allocated the benefits on the basis of their participation. Moreover, he also attempted to explain the existing distribution of consumption in terms of supply and demand, that is, to what extent is the absence of consumption of a particular service the result of an unavailability of supply and to what extent it is the result of demand factors, governing the utilization of such supply. Foxely (1981) and others have carried out a similar exercise for Chile. Following are the special features of their study :

(a) A 'target group' consisting of the poorest 30 percent
   . of the population was identified according to various

definitions and impact of fiscal expenditure on this
group was specifically examined.

(b)   Not only they studied the individual sectors but various
programmes within the sectors were also studied to focus
upon their impact on the various groups. Nearly one
hundred and forty such programmes belonging to different
sectors like, health, education, industry and agriculture
etc. were studied by them.

However, basically their approach also remained partial
and tentative and shared several shortcomings of the studies
mentioned earlier, particularly in that it valued the benefits
of most public programmes in terms of their costs.

For India, such studies are attempted by Ahuja, S.P.
(1978), Mishra, P.N. (1982), Gandhi Ved, P. (1972) etc.
The work by Gandhi (1972) is relating to specific sectors
like education, health and agriculture. He treated expenditure
on health in very much the same way as the expenditure on
'general benefits' and the expenditure on education was
allocated to the students' families on almost similar assump-
tions.

Recently, a work by Ahuja (1978) is widely discussed due
to its detailed empirical work and use of methodology regarding
'who benefits from government expenditure' in India'. His study
is based on the sample data of households of the three

districts viz. Kanpur, Thanjavur and Gaya. With the help of
these data and the data on expenditures, he claims to have
assessed quantitatively whether the poors do benefit from
government expenditure. He also claims to have evaluated
whether the budgetary outlays both revenue and capital,
jointly as well as severally, are progressive in their
effects (i.e. the share of the households in 'benefits'
flowing from public expenditure decreases as the households
move up the income scale) on the standard of living (or level
of consumption) of various segments of the population.
However, his study is severely criticised by both Reddy,K.N.
(1980) and Gupta, A.P. (1979), on various grounds. Over and
above the shortcomings of the approach itself his study
suffers from certain other limitations. It is alleged that
the choice of district as a unit of inquiry was not proper
and the way of measuring the benefits was also quite defective,
since they were expressed as a percentage of household income.
Because of this the study tends to over estimate the benefits
received by the poor on one hand and underestimate the
benefits received by the non-poors on the other. Moreover,
his study is based on such heroic assumptions like government
expenditure does reach the persons for whom it is intended,
capital expenditure of current year is equal to the flow of
benefits from past capital expenditure etc.. These are so
unrealistic assumptions that the conclusions of his study
are highly biased and hence cannot be used for any purpose
in a meaningful way.

Mishra (1982) has also attempted to estimate the benefits and its distribution among the poors and the non-poors. He used three alternative criteria for analysing distribution impact. The first relates to finding out the group of people who receive money spent by government by way of supplying goods and services. The second criterion relates to how much is spent on employees. The third criterion includes finding out what proportion goes directly to beneficiary group in terms of materials received by them. However, his study can be said to have given too much emphasis on the expenditure patterns of the government and expenditure per se rather than the benefits generated by them. Moreover, he also assumes that 'benefits are equal to expenditure' itself and government actually ends up by spending for those for whom they are intended. He thus assumes away all the problems of leakages from the government expenditure and the problems like inefficiency and lack of coordination in the government sector. Further, he uses the NSS consumer expenditure data for allocating the benefits among poors and the non-poors which would still make his estimates of distribution impact highly inaccurate. This is because, NSS consumer data are known to be defective on following grounds :

(i)   The consumer expenditure data (NSS and NCAER) do not
       include the items of public consumption like public
       health, education etc. and hence under estimates the

consumption level of different households to different extent.

(ii)   The sampling design of this data under represent (in a probabilistic sense) the rich.

(iii)   The sampling design by its very definition of house-holds excludes some houseless people like beggars, vagrants etc. This may be a serious shortcoming, particularly in the estimation for the urban sector. Tyagi (1983) has discussed various shortcomings of NSS consumer expenditure data. In his view such factors may seriously affect the estimation of the poors.

Thus, it is obvious that if the data on consumer expenditure are quite defective, the estimates of distribution of benefits on the basis of such data are likely to be quite inaccurate.

One more study (though not empirical) belonging to this approach is by K.N.Reddy (1980). In his paper he discusses various conceptual and methodological issues regarding the estimation and distribution of benefits from government expenditure and finally provides a framework for carrying out an empirical exercise on 'who benefits from government expenditure', for India. For this purpose he suggested to use the detailed classification of the budgets by economic-cum-

functional categories which would help to (i) distinguish a priori, the categories which are allocable from those which are unallocable and; (ii) capture the influence of government transactions of different sectors of the economy. But, like earlier studies, he also feels, that assumption of benefits equal to cost has to be made on practical considerations, which again casts doubt regarding the informative value and usefulness of such study. Moreover, he suggested the use of NSS consumer expenditure data (due to non-availability of reliable data on income distribution) for the allocation of benefits among different income groups. However, as already discussed above, the NSS data on consumer expenditures are likely to be quite defective for this purpose and hence the reliability of the estimates based on such data would significantly reduce.

It follows from the above discussion that empirical studies on expenditure incidence have yet not proceeded without the assumption of benefits equal to costs, which not only lead to exclusion of all the indirect beneficiaries of the government expenditure, but also ignore all kinds of inefficiencies and leakages in the government sector. This could be considered as the major limitation of such studies.

1.2.6 Expenditure Incidence Approach : It may be noted in the starting that this approach has largely remained

theoretical in nature. This is because, it addresses the
question as to how the income distribution has changed as a
result of government expenditure, implying that one has to
deal with general equilibrium problems resulting from change
in relative prices, output, techniques of production and
level of employment due to government expenditure. Such a
change is obviously quite difficult to measure since the
relationship between expenditure and its overall effects on
input and output prices is diffused and acquires time
dimension. Moreover, the factor intensity of the public as
well as private sector is quite likely to be different, in
which case the distributional implications of government
expenditures are bound to be substantial and quite difficult
to measure. Thus, the expenditure approach involves the
measurement of various macro effects of government expenditure
which become almost impossible to measure empirically. A
gigantic theoretical model of budget incidence which
incorporates all these macro effects was constructed by
Meerman (1978). He calls all the macro effects of government
expenditure as RPTO (Relative Prices, Technical and Output)
incidence. However, the model is a good theoretical exercise
but has no operational value. He himself recognised that such
a (RPTO) change is quite difficult to measure and hence
empirical studies of budget incidence will have to be carried
out in isolation from such macro effects of government

expenditure. Although, theoretically his model is quite
sound and complete, operational value of the model is almost
nil since it requires us to compare a situation with the
government, with a situation without the government which is
empirically almost impossible. The data requirement of such
a gigantic model is so overwhelming that no empirical work
appears to be possible on this line (see Wulf, 1981, p. 59).

1.2.7   Benefit Incidence Approach : This approach is also
known as 'welfare' approach (see, Wulf, 1981, p. 65). Unlike
other approaches, in this the valuation of benefits from
fiscal expenditure also involves the assessment of government
supplied services from the point of view of users. In all the
earlier approaches it was only the supply side of public
goods which was assumed to determine the benefits, whereas
in this approach 'demand' for these services or valuation of
these services from consumer's side is also to be considered.
For example, for measuring the benefits from education the
estimate is needed as to how much a student or his family
would be willing to pay for the education, if they were to
purchase from the free market. Thus, estimation of benefits
from education not only requires the consideration of costs
but they also involve the calculation of rate of return and
estimation of indirect benefits flowing to other families.
Here, the accounting identity between costs and benefits is
necessarily lost because the theoretical framework required

for this purpose has to allow the accounting of all the
positive and negative externalities in consumption. Perhaps,
it is because of this reason that very few scholars have
attempted to analyse the impact of government expenditure in
this way. Those who have done, did so, mainly in the context
of project analysis or have dealt with the benefit incidence
of only 'pure public goods' (see, Wulf, 1981). Studies by
Aaron and McGuire (1970), Sholmo (1975), Brennan (1976),
Neenan (1976) are carried out on this line. Pioneering work
on this line was initiated by Aaron and McGuire (1970). They
made use of Lindhal's (1964) 'voluntary exchange model' for
this purpose. Thus the attempt of valuation of benefits
(which was largely based on cost of production) was shifted
to an attempt to measure 'how much a person would be willing
to be taxed in returns for a given public good'. Originally
speaking, Lindhal's model was used as a framework of
budgetory - decision making, but Aaron and McGuire (1970)
made use of it in the context of estimation of distributional
impact. Using this approach they carried out an empirical
exercise for an illustrative purpose. The crux of their
results is as follows : "To each house hold should be imputed
a fraction of the total value of the public goods, proportional
to the reciprocal of its marginal utility of private goods
expenditure".[14] The shape of the utility of income function

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* 14 Aaron and McGuire : "Public Goods and Income Distribution,
ECONOMETRICA, Vol. 38, Nov. 1970, p. 911.

then determines the distributional implications of this
analysis :

(i) If the marginal utility of money is assumed constant,
     all households benefit equally from public goods.

(ii) If the marginal utility is assumed to be declining with
     income then the quantitative outcome of the analysis
     depends on the variable α in the equation :

$$Mu = C/Y^{\alpha}$$

where,   Mu = Marginal utility of income

         C = Constant

         Y = Income

if, a) $\alpha = -1$, benefits would be distributed in proportion
         income

    b) $\alpha < -1$, more benefits would have to be assigned to
         upper income class households

    c) $\alpha > -1$, more benefits would be assigned to lower
         income class.

This implies that it is the value of α which will determine
the distribution of benefits according to such models. But
this gives rise to an empirical problem as to which value of
α should be selected? There is controversy among the scholars
regarding selection of the value of α. Aaron and McGuire
(1970) and Neenan (1976) took the value of α to be unity

whereas Sholmo (1975) after various considerations preferred to choose the value of α to be -1.5. Of late, it is generally agreed that the value of α is likely to be less than minus unity, implying more benefits to upper income class. However, there is no general agreement regarding the value of α to be selected. This greatly reduces the operational value of this model. Besides this, there are also some other limitations of this approach on theoretical as well as empirical count which are as follows :

(i)   In the operational sense, the 'voluntary exchange approach suffers from a distributional bias towards the status quo, since what an individual will be prepared to pay is largely determined by his income and wealth.

(ii) It assumes that all public goods enter each households utility function in the same way. This assumption was needed to allow the model to treat public goods as an undifferentiated lot. But this is quite an unrealistic assumption. This is because these goods not only enter the utility function of households in different way but may enter the utility function of some groups of households but not other groups.

(iii) This model deals with only 'pure public goods' like defence and justice and does not study the distributional

impact of 'merit goods' which is likely to be quite
significant and also crucial in this respect.

Wulf (1981) has brought out various explicit and
implicit assumptions of this model and finally concluded that
operational value of this model is quite limited due to a
string of unrealistic, simplyfying assumptions.

3. General Limitations of Incidence Studies

1.3.1. Unrealistic Assumptions : Survey of the above studies
reveals one thing very clearly, that empirical estimation of
benefits without the assumption of 'Benefits equal to costs
of production' has been found quite difficult and hence has
not been attempted. Even the empirical study by Aaron and
McGuire (1970) also had to assume 'benefits equal costs' to
avoid various complications. The most pertinent question
which then arise is that do such studies make much sense,
particularly for a country like India? The answer is likely
to be quite disappointing. This is because, the assumption of
Benefits equal to costs involves further assumptions like
(i) marginal cost of public goods must remain constant;
(ii) the public goods are produced quite efficiently and
effectively, implying that there are no leakages from the
government and that there is neither oversupply nor under-
supply of any kind of public goods and (iii) whatever is
spent by the government does actually reach the persons for
whom it is intended.

1.3.2 <u>Limited Applicability</u> : Such assumptions appear to be quite unrealistic, particularly in the context of Indian economy, where inefficiency in the government sectors and leakages from government expenditure are known to be quite substantial. A recent study, made on black economy in India (Acharya et al.. 1985) reveals that leakage from the government expenditure constitute a major proportion of illegal transfer payments as a source of non-reported income in the country. Moreover, the study also indicates that the importance of this category seems to be increasing over a period of time. For 1975-76, it was estimated to be Rs. 900 crores which has increased to Rs. 1683 crores in 1980-81. The study thus estimates that the proportion of illegal transfers from public expenditure constitute about 10 to 12 percent of the total evaded income in India and points out at one stage that "This category represents arguably the most relevant form of illegal transfer payments".[*15] There is no dearth of various anecdotes regarding the wide spread corruption and inefficiency in the government sector (see, Gupta A.P., 1983). Classic illustrations like schools without teachers' teachers without schools and purchase of ambulance without the provision for driver's salary which are often reported in some of the official reports also reveal that

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* 15 Shankar Acharya et al. : ASPECTS OF BLACK ECONOMY IN INDIA, Report of a study by National Institute of Public Finance and Policy, Ministry of Finance, Govt. of India, March. p. 169.

government expenditures **many** a times benefit no body or benefit altogether different income groups than the one for which they are intended. Under these circumstances can such studies which assume 'everything is fine with the government' reveal the truth regarding who benefits from government expenditures ! Wulf remarks in a similar context that "The benefit approach alone is inadequate when government expenditure does not provide the services that it is supposed to provide or provides substandard services. In this case it would be naive to insist on distributing non-existent benefits to those for whom this expenditure was allegedly made".[16]

1.3.3 <u>Biased Estimates</u> : It is also alleged - rightly - that the studies based on the assumption of 'benefits equal costs' will have a pro-poor bias since they are most likely to understate the benefits derived by upper income groups and overstates the benefits assumed to be derived by lower income groups. This would be a serious shortcoming particularly in terms of its policy implications. Moreover, even if we grant that whatever is being spent by the government is spent correctly and efficiently, the estimation of 'benefit shifting' or indirect benefits' still poses a problem which the incidence studies have not been able to resolve empirically.

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* 16 Luc De Wulf : "Fiscal Incidence Studies in Developing Countries - Survey and Critique", in IMF STAFF PAPERS, Vol. 22, No. 1, p. 77.

Thus, the estimates regarding the size and distribution of benefits, based on the accounting identity between benefits and costs of production of public goods are likely to be highly inaccurate, pro-poor biased and misleading and hence quite limited in their applicability. Wulf says in this regard that "The welfare interpretation of incidence results obtained by valuing government output at the cost of the inputs used, is, at best uncertain and at worst quite useless !! "[*17] We have therefore, attempted an altogether different approach for measuring the welfare and distribution impacts of government expenditure which is discussed in the following section.

4. Welfare Indicator Approach

1.4.1. <u>Non-Monetary Measurement of Benefits</u> : As the name suggests, this approach, unlike incidence approach discussed above, attempts to measure the welfare in real terms, through combination of various socio-economic indicators; improvement in which would invariably indicate improvement in the welfare. Unlike earlier approach where the estimates of total benefits from government expenditure are valued by total costs of production and distributed them among some assumed beneficiaries through some arbitrary formula - this approach measures the benefits in terms of some concrete results like improve-

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* 17   Luc De Wulf, <u>Ibid</u>., p. 78.

ment in literacy rate, life expectancy, reduction in
mortality etc. This, to our knowledge is quite a new
approach of measuring the distributional impact of government
expenditure and has yet to navigate largely unchartered
waters. Moreover, the indicators selected for measuring
benefits of government expenditures are such that improvement
in them necessarily indicate improvement in the well-being of
the poorest section of the society. This takes into account
the distribution' aspects of benefits.

Thus, there are two special features of the present
approach : First is, that it tries to measure welfare in
terms of utility of various goods supplied by the government
rather than measuring it in money terms. Unlike other studies
benefits are measured in terms of rate of movement towards
ultimate objectives of the government. viz. literacy rate,
poverty reduction, etc. The second distinct feature of the
present study is, that these impacts are related with long
term efforts of the government, through consideration of
present as well as past expenditures of the government in
real terms, rather than only current expenditures. However,
before we go into the further details of the methodology of
the present approach, it would be appropriate to mention a
few things regarding the concept of 'welfare' which is being
used for the present study.

1.4.2 <u>Concept Of Basic Welfare</u> : The concept of 'welfare'
which is used here does not refer to the total welfare or
'maximum achievable' welfare in the economy. Total welfare
is quite a vague concept and its empirical measurement
gives rise to various controversies (see, Chaudhary UmaDutt
Roy, 1978). Moreover, it is also believed that the concept
of welfare have different connotation in regard to the time
and place and hence a unique measure of welfare cannot be
derived. Gothaskar says in this regard that "Our ideas of
welfare would be conditioned by : (a) the area or community
whose welfare we are considering and (b) the political
philosophy adopted by the people. Thus the Chinese notion of
welfare might clash with the Indian notion and a capitalist's
idea of welfare will be different from a socialist's concept...
the indicators of welfare would be different for developed
and developing countries. While the elimination of a high
level of criminal activity among teenagers and the rate of
unemployment relief may be indicators of welfare in the USA,
provision of drinking water in villages and elimination of
zamindaries could be welfare activities in India. Thus
priorities of welfare activities and importance could
differ from country to country".[18]

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* 18 S.P.Gothaskar : Problems in Measurement of National
welfare, in THE JOURNAL OF INCOME AND WEALTH, Vol. 2,
No. 2, April, 1978, p. 179.

Looking to the current objectives of the nation, at least as far as our official pronouncements reveal (see, Seventh Five Year Plan, 1985-90), the first priority lies in removing the mass poverty and severe destitution, along with greater provision for other 'Minimum Needs' like health care, minimum education etc., Accordingly the concept of 'welfare' which would be most appropriate is the concept of 'basic' or 'minimum desired' welfare rather than 'total achievable' welfare of the nation. We have therefore, used the concept of 'basic welfare' which is defined in terms of achievements of certain basic minimum needs of the poor. Morris et al. also stressed that "The immediate operational task in the development sense is a much narrower one. It is to measure the progress that is (or is not) being made in satisfying certain basic needs for the poors. It is possible that this less ambitious objective - a measure that does not try to incorporate every thing of measurable welfare but that focuses on the poorest countries and the poorest people is within our grasp".[19]

The entire idea of measuring the welfare in terms of only basic minimum needs achievements was evoked from the pioneering work by Morris and Morris (1979) and Morris and McAlpin (1982).

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[19] Morris D. Morris and McAlpin : MEASURING THE CONDITIONS OF INDIA'S POOR : THE PHYSICAL QUALITY OF LIFE INDEX (New Delhi, Promilla and Co., 1982, p. 7.

They attempted to measure the conditions of world's poor and India's poors, in their respective studies by constructing a welfare index which is known as 'Physical Quality of Life Index (PQLI). Since our approach requires to make extensive use of their basic methodology for constructing indicator indices and component indexes, we have discussed their work in greater detail in Chapter II in the appropriate context. Although, we agree with their basic methodology, we do not completely agree with their selection and composition of indicators. Therefore, we have changed the number and composition of the indicators used by them, quite substantially, with a view to construct a more reliable and comprehensive index of 'basic welfare'. Moreover, the novelty of the present work lies in the fact that it tries to relate the rate of improvement in the 'basic welfare' (and its individual indices) with government expenditure through an appropriate theoretical framework. A theoretical model for measuring the distribution impact which incorporates both - welfare in somewhat real sense and its relationship with government expenditure in somewhat quantitative sense has not been attempted so far. It may also be noted that our way of measuring basic welfare as well as selection of indicators, emerge from a theoretical frame of the welfare model rather than any ad hoc considerations.

1.4.3 <u>A Theoretical Framework of The Model</u> : It is possible
to demonstrate that our approach of welfare indicators has
its roots in the standard welfare theory. In what follows,
we make an attempt to formally derive our approach from the
generally accepted framework of welfare theory. Such an
exercise is necessary to formulate the criteria for selecting
different indicators on the one hand and decide on the speci-
fication of the empirical model and methods of measurement of
variates involved on the other hand. In the present chapter,
we merely outline the framework leaving the discussion and
derivation of all other details to the next chapter.

We begin by considering the standard 2x2x2 model as a
reference for the theoretical structure.[20] Thus, we divide
the whole economy into two groups of individuals : the poor (A)
and the non-poor (B). Similarly we consider only two
commodities : the basic commodity (X) and the non-basic
commodity (Y); and only two factors of production : labour
and capital. For equilibrium in this framework, we must have
a well-defined and well-behaved social welfare (W) function :

$$W = W(U, V) \quad _____ \quad (1)$$
$$and \quad U = U(X, Y) \quad _____ \quad (2)$$
$$V = V(X, Y) \quad _____ \quad (3)$$

where U and V are the total utility functions of individuals
A and B respectively.

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* 20   For details, see Koutsoyiannis : MODERN MICRO ECONOMICS,
       ELBS/Macmillan, 1979, pp. 529-531.

It is clear from the three equations above that total
welfare (W) is dependent on the consumption of the two
commodities X and Y.

$$\therefore \quad \partial W/\partial X = W_u \cdot U_x + W_v \cdot V_x \quad - - - (4)$$
$$\partial W/\partial y = W_u \cdot U_y + W_v \cdot V_y \quad - - - (5)$$
$$\text{and} \quad dW = (\partial W/\partial X)\, dX + (\partial W/\partial y)\, dy \quad - - - (6)$$

where dW, dX and dY represent changes in total welfare,
basic commodity (X) and non-basic commodity (Y) respectively.
Similarly $(\partial W/\partial X)$ and $(\partial W/\partial Y)$ represent the marginal
welfare gains, or additional total welfare generated in the
economy by a unit increase in the commodity (X or Y) in
question other things remaining the same.

Since our objective is to examine the distribution and
welfare implications of the government expenditures only, we
are not interested in the total change in the welfare of the
society over a given period of time. We need first of all to
eliminate that part of the change in the total welfare which
is not directly attributable to the government expenditure. In
our framework, we have to convert this condition in terms of
the commodity consumption. If we identify commodity X as that
commodity which is directly affected by the government
expenditures and commodity Y as the one which is not directly
affected by the government expenditures, we can say that the
welfare change in which we are interested is not the one

given by equation (6) but only the part of it attributable to the change in the basic commodity. In other words, our welfare measure requires $dY = 0$ in equation (6). Thus,

$$dW' = (\partial W / \partial X) \, dX \ \_ \_ \_ \_ \_ \_ \ (7)$$

Where dW' refers to the change in the basic welfare due only to the change in the basic commodity.

Using equation (4), equation (7) can be rewritten as :

$$dW' = (W_u \cdot U_x + W_v \cdot V_x) \, dX \ \_ \_ \_ \_ (8)$$

The following observations can be made about equation (8):

(i) W_u and W_v being the weights used in the social welfare function can be taken as constants over the planning horizon.

(ii) U_x and V_x being the marginal utilities of X for the poor and non-poor respectively, can be considered as constants for the given initial amounts of consumption of X by the corresponding two groups.

(iii)   The implication of (i) and (ii) above is that the bracketed term in equation (8) remains constant. Thus, dW' and dX are directly and proportionately related.

(iv)   Considering our expressed policy concerns and planning goals of reducing disparities and alleviating poverty, we can infer that the weight attached to the utility

gain of the poor (W_u) is much more than the weight attached to the utility gain of the rich (W_v) in our social welfare function. Therefore, if we want to consider the distribution effect simultaneously with the welfare implication of the government expenditure, we should define our basic commodity X in such a way as to make U_x always greater than V_x.[*21] In other words, we should select our commodity definition of X in such a way that X becomes basic necessities whose consumption levels are by definition higher (or satiating) among the rich as compared to the poor - so that the marginal utility of the so-defined commodity X is always lower (almost zero) for the rich than for the poor. This is because, if U_x is greater than V_x, given that W_u is greater than W_v, definite distribution implications can be derived from equation (8) above. An increase in the basic commodity (X) in the economy under such conditions would necessarily lead to an increased share of the poor in the total basic welfare in the society. A decrease in the level of X similarly would result in the decreased share of the poor in the total basic welfare. In order to examine, therefore, both the distribution and welfare implications of the government expenditure, we must

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* 21 Such a statement may imply that we are making inter-personal utility comparison. Although broadly speaking this is true, we do not require any Cardinal Property for such comparison. Mere ordinal comparisons are sufficient for our purpose.

define our X so as to fulfil basically the following two criteria : (i) X should be directly affected by the government expenditures and (ii) X should be such that its marginal utility should be higher for the poor and lower (almost zero) for the rich.

Moreover, we should note that equation (8) also implies that dW' and dX are directly and proportionately related. Thus, whatever measures dX would also measure dW' because the two have a direct monotonic relationship which is assumed to be stable over the planning horizon.

1.4.4 <u>Interrelationship Between dW' and dW</u> : At this stage, it is important to see the interrelationship between our concept of the change in basic welfare due only to the change in the basic commodity X (i.e. dW') and the traditional concept of the change in total welfare (i.e. dW). In order to carry out such a comparison more meaningfully, we may note at the outset that the poor in our economy are living in such a destitution that even their basic needs are not adequately satisfied. We may, therefore, not be unjustified in assuming that non-basic commodities Y is almost out of their reach. Thus, the equation (5) becomes :

$$\partial W / \partial y = W_v \cdot V_y \ - - - - - - - - \ (9)$$

Under such conditions, any improvement in Y would result

in increasing the share of the rich in the total welfare

other things remaining the same. On the other hand, as we

have noted, with appropriate definition of X, any improvement

in X would result in the increase in the share of the poor in

the total basic welfare of society, other things remaining the

same. Therefore, when we consider the total change in the

system over time, various possibilities would arise : (i) both

dX and dY are positive; (ii) both dX and dY are negative;

(iii) dX is negative and dY is positive and (iv) dX is

positive and dY is negative. All these possibilities are

shown diagrammatically in Figure 1 below.

Figure 1
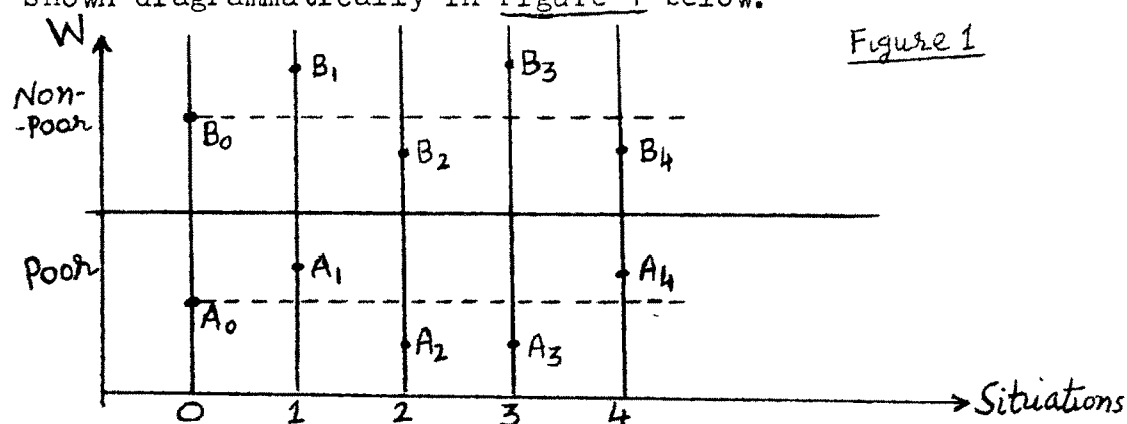
Out of these four situations, it is clear that situation 1

in relation to the initial situation 0 represents a clear

improvement in both the basic welfare and the total welfare.

Similarly situation 2 in relation to the initial situation 0

represents deterioration in both the basic welfare as well as

the total welfare. In the remaining two situations, viz.

situations 3 and 4 as compared to the initial situation 0,

the change in the total welfare is uncertain since they

involve improvement of one group and deterioration of the
other in terms of welfare. The uncertainty arises because
the weights for the utility changes of the two groups in the
social welfare function are not specified, so also the extent
of gain and loss in individual utilities of the two groups.
However, in terms of our concept of basic welfare, Situation 3
in relation to situation 0 represents deterioration and
situation 4 represents an improvement. Thus, in terms of our
concept of the basic welfare none of the four situations
presented above creates any uncertainty of outcome. This
might alternatively be interpreted to mean that our concept
of basic welfare can be derived from the traditional concept
of total welfare by choosing nearly unity as the weight for
the welfare change of the poor in the social welfare function.

5. Plan of the Study

It emerges from the above discussion that primary task
in our approach is to answer :

(i)   What constitutes the basic commodity X?

(ii)   How can we measure X and dX?

(iii) How dX is related to the government expenditure?

Since it follows from our model that change in X would
measure the change in W the first task which needs to be
done is to decide about the measurement of level and change

in X - which is defined to be the actual consumption of the basic commodity whose marginal utility to the non-poors is quite low and which is directly and substantially affected by the government efforts. Chapter II discusses this in detail. Further, the relationship between X and government efforts is expressed in mathematical as well as econometric form for empirical measurement and testing. A simultaneous equation model is also constructed to take in to account various inter-relationships among endogenous and exogenous variables which is presented in Chapter III. In addition to this we have also presented zero order coefficient of correlations among various endogenous and exogenous variables of our model, where endogenous variables are defined to be the Disparity Reduction Rate in various welfare indicators and exogenous variables are defined to be the average annual rate of change in government expenditure.

In order to demonstrate the value and applicability of this approach to the real world, we have also performed the detailed empirical exercise of the model, through which we have tested the hypothesis regarding direction of marginal returns to government efforts (where output is defined in terms of social results).

Chapters IV, V, VI are devoted to the empirical results of our simultaneous equations model. For the empirical

exercises we have used the cross-section data of sixteen
major states of India. The periods for analysis are 1961-71
and 1971-81. However, due to non-availability of certain
data for Assam we had to drop that state for 1971-81. Though,
the principal objective of the present study is to explore
the possibilities of developing an approach for measuring
the distributional impacts of government expenditure, which
overcomes at least some of the limitations of the earlier
'incidence approach' and although the purpose of our
empirical exercise is basically one of illustration, we have
striven conscientiously to avoid being cursory and super-
ficial. For this purpose we have also used various econometric
techniques like Chow-test, restricted least squares, dummy
variable etc. over and above the simultaneous equations
technique. All the results are presented in the Chapters IV,
V and VI. Finally Chapter VII summarises our findings and
briefly discusses the policy implications.