CHAPTER VII

SUMMARY AND CONCLUSIONS

The aim of present study is to make an attempt to: (i) formulate alternate theoretical and statistical procedures for welfare measurement based upon human needs and their Welfare Providing Capacities (WPCs); and (ii) use the alternate statistical procedure, for deriving MEW and MEC for 58 countries from their GDP figures for the year 1980 with an aim to derive inferences about: (i) The suitability of using GDP figures as a proxy for MEW of different countries; (ii) Inter-country variations in MEW and MEC in the countries considered; and (iii) the relation with economic development (when it is assumed to be associated with increase in the level of economic activity or GDP per capita) on the one hand and MEW and MEC on the other.

The origin of the modified theoretical procedure has been traced back to the limitations of the existing theories of economic welfare, which, in turn, have been shown to originate from:

(i) the assumed direct relationship between economic
and social welfare in the existing theory of economic welfare. It has been shown that as a result of this presumption due consideration has not been given to some important features of real economic and non-economic welfare, possibility of substitution between them and their optimal combination which have been thought to be prerequisite for any theory of economic and social welfare measurement.

(ii) overlooking the distinction between value-in-use and value-in-exchange. It has been shown with the help of this distinction that real theories of economic welfare should have been based on value-in-use rather than value-in-exchange. But theories of welfare somehow got based on value-in-exchange and quantities, main outcome of which has been shown to be: (a) lack of effort to incorporate, the nature and type of human needs which various economic activities fulfil and usefulness of these needs to human beings, into the theory of economic welfare; (b) inability of the existing theories of welfare to properly account for the effect on welfare of some goods which are well known to be extremely harmful; and (c) overlooking some
important aspects of consumer behaviour which are directly related to value-in-use, incorporation of which have been thought to be a prerequisite for developing a comprehensive theory of economic and hence social welfare.

(iii) non-availability of any general and consistent procedure to differentiate final and intermediate economic activities. Major consequence of this has been shown to be difficulty in differentiating costs from benefits and hence in deriving MEC and MEW.

The above limitations of the existing theories of economic welfare have been overcome by:

(1) examining the basic characteristics of human needs;
(2) preparing an exhaustive list of human needs, both economic and non-economic and exploring the possibility of substitution between them; and then evaluating the usefulness of these needs to human beings to make value judgement about the nature and type of welfare fulfilment of these needs lead to and their respective WPCs;
(3) suggesting a general procedure to differentiate final and intermediate economic activities; and
(4) formulating a suitable modified utility function.

It has been discussed that human needs have the following distinguishing characteristics:

(a) human beings basic needs are not much different. Number of these needs is limited but means to satisfy them are unlimited;

(b) due to biological and other constraints there are upper limits to which each need can be satisfied and hence welfare can be derived; and

(c) various human needs have varying degrees of urgencies.

To put the analysis of needs into a proper perspective human needs have been classified into : (i) Direct Needs (DN); and (ii) Indirect Needs (IN). DN have been defined as needs which are directly a source of welfare; and IN as needs which are only means to fulfil DN.

DN have further been divided into : Biological Needs (BN) which are innate or inborn; and (b) Psychological Needs (PN) which are acquired ones and originate from the environment one lives in and from the relative position of the individual in the society.
BN and PN have still further been classified into
economic and non-economic needs depending upon whether
they are fulfilled through economic or non-economic
means respectively.

Value judgement regarding WPCs of BN and PN have
been made by analysing their following characteristics:
(a) whether the needs are avoidable or unavoidable;
(b) effect of fulfilment of a need by an individual on
oneself and other members of the society;
(c) whether a need can be fulfilled either or both
through economic and non-economic means.

Needs which are unavoidable (or even avoidable)
and fulfilment of which do not inflict any negative
externality on oneself and other members of the
society have been termed as Real Needs (RN) which have
high WPCs. Needs which are avoidable and fulfilment
of which inflict a negative externality on oneself and
other members of the society have been termed as Unreal
Needs (URN) which have negligible, zero or even
negative WPC. Moreover, depending upon whether they
are satisfied through economic and non-economic means,
they have been called Real Economic Needs (REN) and
Real Non-Economic Needs (UNEN). Further classification
of BN and PN into Real and Unreal, Economic and Non-
economic and the type of welfare fulfilment of these needs lead to, has then been made. It has further been presumed that fulfilment of various needs lead to corresponding type of welfare.

It has been shown with the help of above that whereas fulfilment of BEN are the source of REW, fulfilment of majority of PEN are the source of UPEW, and social welfare is dependent upon the nature of needs which are fulfilled and their WPCs; and economic welfare depends upon needs which are fulfilled through economic means and their WPCs.

Since indirect needs are only instrumental in satisfying DN, they have been considered as representative of total cost not in terms of prices but in terms of socially scarce resources. It has been shown that IN like DN can be both economic and non-economic; and fulfilment of PEN is also the source of economic cost.

An attempt has then been made to formulate micro and macro utility functions to get further insights into the nature of problems which are likely to arise in the derivation of MEW and MEC from the national income accounts.
Main feature of the modified utility function is that it has been based upon the properties of human preferences for the fulfilment of economic needs and their WPCs rather than goods and services (economic activities). But as economic needs can only be fulfilled with the help of goods and services, utility has ultimately been made a function, though indirect, of economic activities and their WPCs. Welfare of the consumer, thus, has been made dependent upon how many economic needs consumer is in a position to fulfil, WPC of each need and extent to which each need is satisfied.

As usual it has been assumed that the consumer is rational. Here consumer refers not to an individual but to a family or household and rationality means that consumer applies perfect logic and care and makes true or impartial choices. Rationality further means that: consumer's choice is independent of the choices of other consumers in the society and vice versa; all choices for him are made by the consumer himself; the consumer is capable of ranking different needs in order of their degree of urgency and fulfil his more urgent need before moving to the satisfaction of lesser ones, and wants to fulfil the maximum number of
needs with his given income; and he is capable of distinguishing various economic activities on the basis of needs they satisfy.

Given the income of the consumer, prices of various economic activities and WPCs of various needs, solution to the problem of maximisation of utility subject to income constraints, by applying the usual techniques, lead to consumer's demand for various economic activities as a function of his income, WPCs of the needs and prices of various economic activities.

Choices made on the basis of above assumptions have been considered 'true choices' which maximise utility and require no further adjustments and modifications in them, except segregation of economic activities which fulfil direct needs from those which fulfil indirect needs. This has been considered to be necessary since even the consumer does spend part of his income to increase his earning capability or on economic activities which are not a direct source of welfare but only help to satisfy some of his direct needs. It has further been shown that if all assumptions of micro utility function are satisfied only then aggregate (macro) MEW and MEC will just be simple sum of individual (micro) MEW and MEC,
respectively, of all the consumers in the society. Otherwise 'actual choices' will be different from 'true choices' and thus aggregate MEW and MEC will not be simple sum of individual MEW and MEC.

The main reason why actual choices may deviate from true choices at the macro level have been shown to be due to the following factors:

1. decrease in logic and care at the macro level, and
2. even if a choice is consistent with individual's ethics it may not be consistent with the national (macro or society's) ethics.

It has been shown that as a consequence of above a few adjustments in the individual MEW and MEC become necessary if reliable aggregate (or even individual) MEW and MEC are to be derived; and sum total of utilities and costs to be represented by the aggregate welfare and cost functions can only be sum total of micro utilities and costs which have been adjusted for the deviation of actual choices from true choices due to non-satisfaction of the assumptions of micro utility function.

Implication of the above analysis for the
derivation of MEW and MEC from national income accounts has been found to be that since national income includes only economic activities, fulfilment of only economic needs are required to be considered to achieve this objective.

The modified statistical procedure reclassifies the conventionally adopted categorisation of various economic activities included in national income accounts on the basis of human needs viz. Direct Economic Needs (DEN), BEN, PEN etc. these economic activities fulfil.

Initially, various economic activities included in the national income accounts have been suggested to be represented by Type I, Type II and Type III depending upon whether they satisfy BEN, PEN and IEN, respectively. Then differentiation between Type I and Type II economic activities (which fulfil DEN and have been considered as a source of welfare) and Type III economic activities (which fulfil IEN and have been considered only as a source of economic cost) has been suggested to be made after an indepth analysis of each economic activity about whether it satisfies the need of human beings or need of the economic activities, which, in turn, satisfy the needs of human beings. If
it satisfies the need of human beings it has been suggested to include it in either Type I category or Type II category. But if it satisfies the need of economic activities only, it has been suggested to include it in Type III category.

Further differentiation between Type I economic activities (which fulfil BEN) and Type II economic activities (which fulfil PEN) has been suggested to be made after an indepth analysis of each economic activity which satisfy DEN about whether it satisfies the needs of human beings or needs of the economic system human beings live in. If it satisfies the needs of human beings it has been suggested to include it in Type I category; otherwise in Type II category.

Secondly, to arrive at comparable levels of different types of economic activities consumed in different countries to fulfil the same (or different) quantity(ies) of a given need it has been shown that ICP type of procedure is quite suitable to achieve this objective.

Thirdly, to arrive at comparable levels of a given economic activity vis-a-vis quantity of need that is fulfilled in different countries selection of some suitable objective explanatory variable/variables which
can reliably be used as a proxy for the quantity of need that is aimed to be fulfilled (or is fulfilled) by the consumption of different levels of this economic activity, in different countries, has been suggested.

It has been shown that if a given level of a specific need is fulfilled by two different levels of the same economic activity in two countries then the most appropriate adjustments in the latter to arrive at their comparable levels vis-a-vis need they fulfil is to treat the excess level of economic activity used by a country over the other as representative of cost of welfare rather than representative of welfare.

It has been shown that since PEN originate from the relative position of the individuals in the society, consumption of higher and higher levels of these economic activities by all consumers in the same proportion will keep their relative position and hence level of need fulfilled unchanged. Consequently, it has been thought to be more appropriate to consider higher and higher levels of these economic activities as representative of cost.

Fourthly, derivation of MEW has been based upon the idea that fulfilment of only REN lead to REW and
the sum of REW derived from the fulfilment of all REN gives rise to MEW. Once comparable levels of Type I economic activities which fulfil REN have been derived for various countries, then MEW for each economic activity has been derived as follows: firstly, corresponding to a vector of comparable levels of each economic activity, a corresponding vector of quantities of need fulfilled by them has been framed. Secondly, on the basis of these vectors, simple average rate of increase in the level of economic activity, used for the per unit increase in the fulfilment of this need (taking minimum need fulfilled as the base) has been calculated for the levels of economic activities of different countries (except those for which the level of economic activity is higher than that of a country which fulfils the maximum need). Let it be $\bar{X}$. Thirdly, the levels of economic activities adjusted for the quantities of need fulfilled have been derived by adding to the minimum level of economic activity, the product of the difference in the quantities of need fulfilled (from its minimum level) and $\bar{X}$. These adjusted levels of economic activities have been considered to be representative of REW as derived from different levels of each economic activity. Fourthly, sum of adjusted levels of all economic activities of
each country have been taken as its MEW. Finally, the difference between levels of each economic activity and its adjusted levels have been thought to be the result of fulfilment of PEN or IEN. It has been shown that this helps to separate each of the need fulfilled by an economic activity which satisfies a variety or hierarchy of needs as well.

It, however, has been suggested that it may be more appropriate to consider the weighted average rather than \( \bar{X} \), weight being population of different countries.

MEC on the other hand has been taken to be the sum of comparable levels of Types II and III economic activities which fulfil PEN and IEN, respectively, for each country. For both Types II and III economic activities, formation of need matrices has not been considered to be essential since higher and higher levels of Type II economic activities serve the same need and thus have been considered as representative of cost rather than welfare; and Type III economic activities, by definition, are directly a source of economic cost.

Data used are from: Phase IV of ICP 1980, which also fulfil the requirements of arriving at comparable
levels of economic activities of different countries; and World Development Reports. Since the basic source of REW is fulfilment of BEN, life expectancy of countries considered has been considered to be the best proxy variable for the quantity of fulfilment of these needs.

The above discussion has been used to reclassify the economic activities of ICP on the basis that whether they provide REW or are a source of cost. REW providing economic activities have been shown to be:

(I) food; (II) non-alcoholic beverages; (III) clothing and footwear; (IV) gross rents; (V) fuel and power; (VI) household furniture, household textiles and other household goods; (VII) medical care; (VIII) barber and beauty shops, toilet articles; and (IX) part of govt. expenditure which satisfies REN such as expenditure on health, housing, amenities, social security and welfare etc.

On the other hand following economic activities have been considered as representative of cost: (I) alcoholic beverages; (II) household appliances; (III) transport and communication; (IV) equipment for recreation and recreational services; (V) books and periodicals, and education; and (VI) hotels and
lodgings; restaurants and cafes; domestic household and other services and miscellaneous goods and services; (VII) domestic capital formation; and (VIII) part of the govt. expenditure which is representative of cost.

Tobacco because of its extremely harmful effects on human health was found to be negative REW providing economic activity.

The findings of the study suggest that overlapping in the values of MEW and MEC among the groups of countries considered, which have been formed on the basis of ascending order of GDP per capita, is quite common but is limited to at the most three consecutive groups of countries. For MEW it has been shown to imply that within a certain range of GDP, MEW of different countries are not consistent with their GDPs, that is, it is not necessary for a country with higher level of GDP to have a higher level of MEW as well-providing thereby preliminary confirmation to the doubt about the unsuit-ability of GDP to be used as a proxy for MEW.

The analysis of the relation between MEW and MEC for all the countries further reveals a significant positive relationship between these variables, with increase in MEW being less than MEC. But intragroup analysis reveals non-existence of any significant
relation between these variables, implying, thereby, that within different groups of countries, countries with higher level of MEW are not necessarily the ones which have higher MEC as well or within the same group of countries, it is possible for a country to have a higher value of MEW and lower value of MEC compared to other country(ies) or for two countries to have same level of MEW but with widely different levels of MEC.

The analysis shows that countries with comparatively higher level of GDP but lower level of MEC have comparatively higher level of MEW and vice-versa; and countries with comparatively lower level of GDP with higher level of MEW have comparatively lower level of MEC and vice-versa. If welfare generating efficiency is judged by cost per unit of welfare, then it immediately follows from above that: -

1. Only the countries which experience comparatively higher level of MEW with comparatively lower level of income can be more efficient producers of welfare; and

2. it is not possible to draw inference about welfare generating efficiency of a country from its GDP figures.
The results further show that with minor exceptions the gaps between maximum and minimum values of MEW and MEC attained by different countries within various groups keep on diminishing as one moves from Group I to Group VI. Moreover, MEW and MEC values vary more unsystematically for countries with lower levels of GDP per capita but as GDP increases both of these start varying more and more systematically. Thus, with increase in GDP, more and more clustering of the values of MEW and MEC of different countries takes place. Results further reveal that whereas variations in MEW are far more pronounced than those of MEC for countries with the lowest level of GDPs, that is, Group I, for all other groups of countries in general and Groups IV, V and VI in particular, variations in MEC are more pronounced than those of MEW. It has been noted that this is the case despite the fact that for these groups of countries (Groups IV, V and VI) the gap between maximum and minimum values of GDP is much higher than for other groups. The above results suggest that with lower levels of GDP, substantially different levels of welfare can be achieved through not much different costs. But with increase in economic development (increase in GDP) not much different levels of welfare are attained even through comparatively substantially
different levels of costs. This implies that after a certain stage of economic development possibility of substantial change in MEW is much less than that of MEC. That is, after a certain stage of economic development whereas welfare can not be increased much yet there can be relatively considerable increase in cost.

The analysis further reveals that although initial increments in GDP contribute significantly towards increasing MEW and lead to decrease or only small increase in MEC yet subsequent increments in GDP either contribute lesser and lesser to MEW or even decrease it, and are accompanied by significant increase in MEC. Thus, the noteworthy outcome of economic development is that with the process of economic development whereas growth of MEW gets sharply checked or even decreases, MEC shows no such trend and keeps on increasing significantly.

Thus the hypotheses that after a certain stage of economic development:
1. increments in MEW get sharply checked because of the upper limit of MEW; and
2. higher and higher levels of economic activities,
particularly the intermediate ones, are employed to get more or less same level of economic welfare but at a higher economic cost, stand accepted.

The analysis of the study also points strongly to the conclusion that when income differences among the countries for which welfare comparisons are to be made are not much, the use of national income as a MEA, may it be GDP in dollars or ICP values, can lead to serious errors in ranking as well as magnitude. Moreover, if the income differences among the countries for which welfare comparisons are to be made are substantial, the use of national income as a MEA as a proxy for national income as a MEW will not cause any errors in ranking but will definitely cause errors in magnitude. Therefore, the principal conclusion of the present study is that for any set of countries it is not advisable to use National Income as a MEA as a proxy for National Income as a MEW. Thus it becomes necessary to derive a separate National Income as a MEW from National Income as a MEA for making reliable welfare comparisons of the set of countries considered.