

**REPORT
OF
THE EXPERT GROUP
ON
ESTIMATION OF
PROPORTION AND NUMBER OF POOR**



सत्यमेव जयते

**PERSPECTIVE PLANNING DIVISION
PLANNING COMMISSION
GOVERNMENT OF INDIA
NEW DELHI
JULY, 1993**

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We, the undersigned, members of the Expert Group on Estimation of Proportion and Number of Poor, have adopted the Report and submit the same.

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CONTENTS

	Pages	
List of Tables	(ii)	
Chapter 1	Introduction	1
Chapter 2	Defining Poverty - Approach and Limitations	3
Chapter 3	Official Methodology and Issues in Poverty Estimation	8
Chapter 4	Recommendations of the Expert Group	30
Chapter 5	Related Issues and Further Work	41
Annexure I	Supplementary Note from Prof.P.V.Sukhatme	45
Annexure II	Supplementary Note from Shri S.Guhan	50
Annexure III	Exploratory Exercises	53
Annexure IV	Technical Note on State -Specific Cost of Living Indices and Poverty Lines	65
Annexure V	The Expert Group on Estimation of Proportion and Number of Poor	78

LIST OF TABLES

		Pages
3.1	Number and Percentage of Population Below Poverty Line by States, 1972-73 (Officially Released Estimates)	16
3.2	Number and Percentage of Population Below Poverty Line by States, 1977-78 (Officially Released Estimates)	17
3.3	Number and Percentage of Population Below Poverty Line by States 1983 (Officially Released Estimates)	18
3.4	Number and Percentage of Population Below Poverty Line by States, 1987-88 (Officially Released Estimates)	19
3.5	Percentage of Poor based on Unadjusted NSS Distribution.	20
3.6	Percentage of Poor based on Adjusted NSS Distribution	21
3.7	The Overall Adjustment Factor	22
3.8	Percentage of Poor based on Adjusted Distribution.	23
3.9	Distribution of Household Consumption Expenditure for Population Group Below Poverty (Rural) - India	24
3.10	Distribution of Household Consumption Expenditure for Population Group above Poverty (Rural) - India	25
3.11	Distribution of Household Consumption Expenditure for Population Group Below Poverty (Urban) - India	26
3.12	Distribution of Household Consumption Expenditure for Population Group above Poverty (Urban) - India	27
3.13	Monthly Per Capita Calorie Intake	28

3.14	Share of Deciles of Population in Consumption Expenditure	29
4.1	State -Specific Poverty Line with Base 1973-74	36
4.2	Number and Percentage of Poor based on Poverty lines as given in Table 4.1 - 1973-74	37
4.3	Number and Percentage of Poor based on Poverty Lines as given in Table 4.1 - 1977-78	38
4.4	Number and Percentage of Poor based on Poverty Lines as given in Table 4.1 - 1983	39
4.5	Number and Percentage of Poor based on Poverty Lines as given in Table 4.17 - 1987-88	40
AIII.1	Proportion of Hunger (Rural) - 1983	57
AIII.2	Proportion of Hunger (Urban) - 1983	58
AIII.3	Percentage of Poor (1983) using Food Share Criterion	59
AIII.4	State-wise Poverty Line Corresponding to Fixed Calorie Norm and Calorie Distribution of the same Year and Poverty Ratios - 1977-78	60
AIII.5	State-wise Poverty Line Corresponding to Fixed Calorie Norm and Calorie Distribution of the same Year and Poverty Ratio - 1983	61
AIII.6	Cross Tabulation of Percentage of Persons Below Poverty line and Below Calorie Norm (1977-78)	62
AIII.7	Cross Tabulation of Percentage of Persons Below Poverty Line and Below Calorie Norm (1983)	63
AIII.8	Cross Tabulation of Percentage of Persons Below Poverty Line and Below Calorie Norm (1987-88)	64
AIV.1	State -Specific Consumer Price Index Number for the Middle Rural Population (CPIMR) in 1973-74 with 1960-61 = 100	68

AIV.2	State -Specific Consumer Price Index Number for the Middle Rural Population (CPIMR) in 1977-78 with 1960-61 = 100	69
AIV.3	State -Specific Consumer Price Index Number for the Middle Rural Population (CPIMR) in 1983 with 1960-61 = 100	70
AIV.4	State -Specific Consumer Price Index Number for the Middle Rural Population (CPIMR) in 1987-88 with 1960-61 = 100	71
AIV.5	State -Specific Consumer Price Index Number for the Middle Urban Population (CPIMU) in 1973-74 with 1960-61 = 100	72
AIV.6	State -Specific Consumer Price Index Number for the Middle Urban Population (CPIMU) in 1977-78 with 1960-61 = 100	73
AIV.7	State -Specific Consumer Price Index Number for the Middle Urban Population (CPIMU) in 1983 with 1960-61 = 100	74
AIV.8	State -Specific Consumer Price Index Number for the Middle Urban Population (CPIMU) in 1987-88 with 1960-61 = 100	75
AIV.9	Inter-State Price Differentials and Poverty Lines in Rural Areas	76
AIV.10	Inter-State Price Differentials and Poverty Lines in Urban Areas.	77

Chapter 1

INTRODUCTION

1.1 (A number of methodological issues have been raised in respect of the estimates of poverty released by the Planning Commission.) In view of the importance of poverty eradication as a social objective, wide ranging references to the incidence of poverty in discussions relating to social problems as also their use in allocation of funds for poverty alleviation programmes, it was thought that all the issues relating to the estimation of poverty could be considered afresh by an expert group.

1.2 (The Planning Commission constituted, in September 1989, an 'Expert Group' to consider methodological and computational aspects of estimation of proportion and number of poor in India. The terms of reference of the Expert Group are as follows:

"to look into the methodology for estimation of poverty at national and state level and also to go into the question of re-defining poverty line, if necessary."

1.3 The initial composition of the Group and its subsequent re-constitution is shown at Annexure V.

1.4 The Group held a number of meetings and directed various empirical exercises to be carried out. Background papers circulated among the members of the Group included studies made by scholars, representations received from State Governments and a note from the Minister of State for Planning & Programme Implementation. After taking into account all the papers circulated and the empirical exercises carried out in the Perspective Planning Division, the Group finally recorded its recommendations which are presented in this Report. The Group gave due consideration to the available studies, the representations made and the issues raised and brought to its notice.

1.5 The layout of the report is as follows. Chapter 2 briefly outlines the concept of poverty, the definition of poverty line and its limitations. Chapter 3 discusses the present methodology of the official estimates of poverty and dwells upon various issues in the estimation of poverty that have generated a debate in recent years. Chapter 4 records the recommendations of the Expert Group. Chapter 5 deals with the related issues and the need for further work. There are two supplementary notes by two of the members, placed at Annexure I and II. A note on exploratory exercises is placed at Annexure III. A technical note on State specific cost of living indices and poverty lines alongwith weighting diagram is added at Annexure IV.

1.6 The Late Professor D.T. Lakdawala, under whose Chairmanship this Expert Group was constituted, was deeply involved in the work of the Group right from the beginning. The outline of the report and the main thrust of the recommendations were almost finalised in the last meeting chaired by him about two weeks before his sad demise on 16th April, 1992. The Group gratefully acknowledges its deep sense of gratitude for the inspiration and guidance provided by its Late Chairman Professor D.T. Lakdawala.

1.7 Professor B.S. Minhas, Dr. Raja Chelliah and Dr. Y.K. Alagh, who were Members of the Group in its initial stages of working, greatly enriched the deliberations of the Group and helped in chalking out its course of work.

1.8 The Group is also grateful to the National Sample Survey Organisation and the Computer Centre of C.S.O. for retabulating some of the data on household consumer expenditure as per the requirements of the Expert Group.

1.9 The Expert Group wishes to place on record its gratitude to the officers and the staff of the Perspective Planning Division, Planning Commission who have worked hard to put together and analyse all the available material and have assisted the Group in completing its work. Shri J. Satyanarayana, Joint Adviser, Smt. Savita Sharma, Senior Research Officer and Shri Rajeev Malhotra, Senior Research Officer handled all the empirical work and assisted in putting together the final draft. Shri Shailendra Sharma, Joint Adviser, assisted the Member-Secretary in coordination of the work. Shri Deepak Rathore, Shri N.K. Arora and Shri Sanjay Gupta typed out the entire manuscript on the Word Processor and Shri Ashok Chanana, Senior Systems Analyst, NIC, assisted in the computer layout of the report.

DEFINING POVERTY-APPROACH AND LIMITATIONS

2.1 In spite of the diversity of opinion among experts on the methodology of measuring poverty, the importance of quantifying it has been well recognised, especially since poverty alleviation has become an important Plan objective and successive plans have been specifying poverty alleviation targets. Poverty estimates have entered the consciousness and parlance of a wide public - politicians, bureaucrats, academicians, media, students, and activists, and have helped to promote awareness and public action. The poverty estimates have not only been used for evaluating development efforts, but over time, have found use in the allocation of funds for poverty alleviation programmes among the States. An acceptable and representative quantitative index of poverty is, therefore, necessary.)

Definition of Poverty Line

2.2 Defining a poverty line is the first step in estimating poverty. A poverty line dividing the poor from the non-poor is used by putting a price on the minimum required consumption levels of food, clothing, shelter, fuel and health care, etc. The definition of poverty line in the Indian context was attempted for the first time in 1962 by a Working Group of eminent Economists and social thinkers after taking into account the recommendations of the Nutrition Advisory Committee of the Indian Council of Medical Research (ICMR, 1958) regarding balanced diet.) The Working Group¹, comprising Prof. D.R. Gadgil, Dr. B.N. Ganguli, Dr. P.S. Lokanathan, Shri M.R. Masani, Shri Ashok Mehta, Shri Pitambar Pant, Dr. V.K.R.V. Rao, Shri Shriman Narayan, Shri Anna Saheb Sahasrabudde, set up by the Seminar on Some Aspects of Planning, after considerable discussion on minimum standard of living, recommended (in 1962) that:

- (i) The national minimum¹ for each household of 5 persons (4 adult consumption units) should be not less than Rs.100 per month in terms of 1960-61 prices or Rs.20 per capita¹. For urban areas, this figure will have to be raised to Rs.125 per month per household or Rs.25 per capita (to cover the higher prices of the physical volume of commodities on which the national minimum is calculated.
- (ii) This national minimum excludes expenditure on health and education, both of which are expected to be provided by the State according to the Constitution and in the light of its other commitments.

1. See for reference: "Perspectives of Development : 1961- 1976, Implications of Planning for a Minimum Level of Living" (Paper prepared in the Perspective Planning Division of the Planning Commission) - in Bardhan and Srinivasan (1974) : Poverty and Income Distribution in India". Statistical Publishing Society, Calcutta.

- (iii) An element of subsidy in urban housing will have to be included after taking Rs.10 per month, or 10 per cent as the rent element payable from the proposed national minimum of Rs.100 per month.

2.3 Dandekar and Rath²⁾ in their seminal work on poverty (used an average calorie norm of 2,250 calories per capita per day for both rural and urban areas, as a criterion to define the poverty line. On the basis of National Sample Survey data on consumer expenditure, the study revealed that, in rural area, the households with an annual per capita expenditure of Rs.170.80 (or equivalently Rs.14.20 per capita per month) at the 1960-61 prices consumed on an average food with calorie equivalent of 2250 per capita per day together with such non- food items as they chose. The corresponding figures in the urban area were Rs.271.70 and Rs.22.60 at 1960-61 prices.) In comparison with the recommendations of the Working Group (1962), the authors observed that the rural minimum determined by them was considerably below, while the urban minimum determined by them was a little above the level recommended by the Group. In view of this, they decided to revise the rural minimum slightly upwards to Rs.180 per annum or Rs.15 per month. Similarly, they rounded off the urban minimum to Rs.270 per annum or Rs.22.50 per month, both at 1960-61 prices.

2.4 The poverty norm or national minimum of Rs.20 per capita per month in rural areas and Rs.25 per month in urban areas (proposed by the 1962 Working Group represented a broad judgement of minimum needs and was not strictly related to nutritional requirements, although it took them into account.) In the Perspective Planning Division (PPD) paper on "Perspectives of Development" (op.cit.), this norm was used to derive the target rate of growth required, under assumptions of invariant income distribution, to ensure the minimum level of living in the time horizon of 1961-1976.

2.5 Academic studies in early 1970s generated a rich and extensive literature on poverty based on, or related to, the poverty line. This was a result of greater data availability, increasing methodological sophistication, and emerging concerns and insights. The "Task Force on Projections of Minimum Needs and Effective Consumption Demand", Perspective Planning Division, (Jan. 1979), was able to bring together at one place the results of some of these studies and redefine the poverty line. The methodology as formulated by the 'Task Force' has, since then, been used in estimating the incidence of poverty in Planning Commission) ✧

2.6 The 'Task Force' (1979) defined the poverty line as the per-capita expenditure level at which the average per-capita, per day calorie intake was 2435 calories in rural areas and 2095 calories for urban areas. The Task Force used the age- sex-activity specific calorie allowances recommended by the Nutrition Expert Group (1968) to estimate the average daily per capita requirements for rural and urban areas using the age-sex-occupational structure of their respective population (as projected for 1982-83).

2. V.M. Dandekar, Nilkanth Rath, Poverty in India, Indian School of Political Economy, Pune, 1971

Thus, to the extent the data permitted, the age, sex and occupational differentials in the daily calorie requirement of the population were captured in the average norms. For reasons of convenience the calorie norms were rounded off to 2400 calories per capita per day for rural areas and 2100 calories per capita per day for urban areas.

2.7 To work out the monetary equivalent of these norms (i.e., poverty lines), 28th Round (1973-74) NSS data relating to household consumption both in quantitative and value terms were used. Using appropriate conversion factors, the calorie content of consumption baskets corresponding to various per capita expenditure classes were worked out. Inverse linear interpolation method was applied to the data on average per capita monthly expenditure and the associated calorie content of food items in the class separately for rural and urban areas. Based on the observed consumer behaviour in 1973-74 it was estimated that, on an average, consumer expenditure of Rs.49.09 per capita per month was associated with a calorie intake of 2400 per capita per day in rural areas and Rs.56.64 per capita per month with a calorie intake of 2100 per day in urban areas. Thus, the concept of poverty line used here was partly normative and partly behavioural. This way of deriving the poverty line, while being anchored in a 'norm' of calorie requirement, does not seek to measure the nutritional status, and more specifically the incidence of malnourishment or under-nourishment in the population. It focuses rather on the purchasing power needed to meet the specific calorie intake standard with some margin for non-food consumption needs. Moreover the calorie norms relate to an average for the reference group and not the minimum required for biological existence, given that there is a considerable variation in calorie requirement of individuals depending on their workload, age, sex and activity status.

Estimating the Number of Poor

2.8 The poverty line serves as a cut-off line for separating the poor from the non-poor, given the size distribution of population by per capita consumer expenditure classes. Population with per capita consumer expenditure levels below the level defined by the poverty line is counted as poor. The data on the size distribution of population by expenditure classes is obtained from the household consumption survey conducted under various National Sample Surveys (NSS) rounds. The ratio of the population below the poverty line to the total population is the poverty ratio, also known as the head-count ratio.

2.9 The estimates relating to the number and proportion of the poor and variations and trends relating to them across States and over time, have served to retain 'poverty reduction' prominently on the development agenda and in the discourse relating to it, academic and public. More specifically this approach has been fruitfully used for:

- (i) Estimating the extent of poverty (in absolute numbers and in proportion), all India and State-wise for rural and urban at different points of time. Thus enabling single-point rural-urban and inter-state assessments and over time comparisons;
- (ii) Providing a quantitative framework for research on the magnitude, distribution, causation, consequences and other aspects of poverty;

- ✓(iii) Designing and budgeting for targetted anti-poverty programmes and identifying poor household for the purposes of such programmes; and
- ✓(iv) Evolving criteria for resource transfers from the Centre to the States (overall and programme specific).

Limitations of the Poverty Line Approach

2.10 The Poverty Line approach has been critiqued and its limitations have been pointed out from a number of angles. Broadly, they fall in two groups: the first related to the concept itself and the second arising from the data and methodologies used in India for estimating the poverty line.)

2.11 Major criticisms which are inter-related in good measure include the following:

- ✓(i) [The poverty line is anchored in a norm for calorie consumption which is taken as representing an absolute nutritional requirement based on the age, sex and activity status of the entire population.] Although derived from a nutrition-related norm, the poverty line does not take into account intra and inter-personal variations or homeostatic adaptation. Accordingly, the poverty line is not a true indicator of malnourishment which it might be mistaken for.
- ✓(ii) [The notion of 'absolute poverty' is inadequate because 'relative poverty' is also an equally important aspect of poverty and is, in fact, a determinant of absolute poverty at a given level of national income.] More generally, the concepts of 'inequality and poverty', although distinct, need to be constantly viewed together as closely associated concepts.
- (iii) The poverty line approach, as practised, usually freezes the notion of poverty, as it were, by not taking into account that even what is considered as 'absolute poverty' need not be immutable over time: what are wants today can become needs tomorrow because of changes in perceptions, legitimate aspirations, taste, technology, etc.
- (iv) [The poverty line, quantified as a number is reductionist. It does not capture important aspects of poverty -- ill health, low educational attainments, geographical isolation, ineffective access to law, powerlessness in civil society, caste and/or gender based disadvantages, etc.]
- (v) [The poverty line provides the conceptual rationalization for looking at the poor as a 'category' to be taken care of through targeted ameliorative programmes, ignoring structural inequalities and other factors which generate, sustain, and reproduce poverty.]
- (vi) [Poverty line derived from personal consumption patterns and levels do not take into account items of social consumption such as basic education and health, drinking water supply, sanitation, environmental standards, etc. in terms of

normative requirements or effective access.]

- (vii) Normative and behavioural elements are compounded in the poverty line in as much as , while being based on the calorie norm, it is derived from the actual expenditure pattern. Related to this: (a) the proportion of non-food expenditures on essentials (rent, fuel, clothing, health care, etc) is not normative but empirical and likely to be seriously inadequate with reference to normative standards. (b) per contra, consumption of what might normatively be considered as 'inessentials' (e.g., alcohol and intoxicants) is accommodated. This conflates 'primary' and 'secondary' poverty.
- (viii) Since the poverty line in India is based on consumption, not income, it obfuscates dependence on debt, use of common property resources, and informal social security.]
- (ix) The head-count ratio based on the poverty line does not capture the severity of poverty in terms of the poverty deficit (total shortfall from the poverty line) or additionally the distribution of consumption expenditure among the poor.]
- (x) [The head count ratio is insensitive to mobility within the below poverty line group. It is also invariant to upward and downward mobility across the poverty line so long as such mobility takes place in equal measure.]
- (xi) [There are also a number of issues and problems related to the primary data base (sampling and non-sampling errors in NSS) and to data and statistical procedures used in estimation] (choice of deflators, data used in construction of deflators, interpolation procedures).
- (xii) [In a country of India's continental size and diversity, poverty line based on aggregation at all-India level ignores State-specific variations in consumption patterns and/or prices.]

2.12 While being aware that the poverty line is only an approximate and stylized indicator of a complex, [multi-faceted, and changing reality], it is also necessary to recognize the continued necessity and utility of poverty estimation. A practical approach will, accordingly, have to consist in:

- (i) Improving the set of poverty estimates as may be feasible from time to time with reference to (a) concepts (b) data (c) methodology;
- (ii) Supplementing the poverty line approach with indicators and information on various aspects of the conditions of the poor; and
- (iii) Promoting research on the understanding and estimation of poverty on a sustained and cumulative basis.

OFFICIAL METHODOLOGY AND ISSUES IN POVERTY ESTIMATION

3.1 Following the recommendations of the Task Force on 'Projections of Minimum Needs and Effective Consumption Demand' (1979), the Planning Commission has been estimating the proportion and number of poor separately for rural and urban India at national and State levels. These estimates have been released from the year 1972-73 onwards, using the full survey data on household consumption expenditure collected by the National Sample Survey Organisation (NSSO) at an interval of five years. The estimates are available for the years 1972-73, 1977-78, 1983-84 and 1987-88. The methodology behind these estimates, often termed as the 'official methodology' has been outlined in the following sections.

The Basis of Official Estimates

3.2 **Calorie Norm** : The official estimates are based on a calorie norm of 2400 calories per capita per day for rural areas and 2100 calories per capita per day for urban areas. The poverty line for the base year 1973-74 has been taken as the per capita expenditure level at which these calorie norms have been met, on an average, for the country as a whole, as per the NSS household consumption expenditure survey for the corresponding year.

3.3 **Poverty Line in the Base Year** : The Task Force (1979) defined the poverty line as the per capita expenditure level at which the calorie norms were met on the basis of the all-India consumption basket for 1973-74. This was equivalent to Rs.49.09 and Rs.56.64 per capita per month for rural and urban areas respectively at 1973-74 prices.

3.4 **Deflators** : The poverty line so defined needs updating over time to take care of changes in the price levels. Initially the wholesale price index was used to reflect the price changes. However, private consumption deflator derived from the National Accounts Statistics (NAS) was recommended for this purpose by a Study Group on 'The Concept and Estimation of Poverty Line', (Perspective Planning Division, Planning Commission, November, 1984). The Study Group recommended the use of a price index appropriately weighted by the consumption basket of the poor as an index for reflecting price changes relevant to the poor. The implicit private consumption deflator from NAS was found, at that time to be very close to such an index and hence it was used for adjusting the poverty line for the years 1977-78, 1983-84 and 1987-88.

3.5 **The Adjustment Procedure for Estimating Poverty Population**: In order to arrive at the estimates of the number of poor, Planning Commission has been making adjustment in the National Sample Survey (NSS) data on distribution of households by consumption expenditure levels. Such an adjustment has been felt to be necessary because the aggregate private household consumption expenditure as estimated from the NSS data is different from the aggregate private consumption expenditure estimated in the National Accounts Statistics (NAS). It was considered desirable to have compatibility between the two sets of data in order to ensure consistency between the

two important components of the plan model, i.e., the input-output table (based on NAS) and consumption sub-model (based on NSS data). The procedure followed has been to adjust the expenditure levels reported by the NSS uniformly across all expenditure classes by a factor equal to the ratio of the total private consumption expenditure obtained from the NAS to that obtained from the NSS. The old NAS series was used for deriving the adjustment factor for the estimates up to year 1983 and the new NAS series has been used for the 1987-88 estimates.

3.6 The poverty population is, thus, estimated by applying the updated poverty line to the corresponding adjusted NSS distribution of households by levels of consumption expenditure. To estimate the incidence of poverty at the State level, all-India poverty lines and the adjustment factors have been used on the State specific NSS distribution of households by levels of consumption expenditure uniformly across the States. These official estimates are presented in tables 3.1, 3.2, 3.3 and 3.4 respectively.

Issues in Poverty Estimation

3.7 The methodology followed in official estimates of poverty at national and at State levels, as outlined above, has been regarded by some as inappropriate and even inadequate in giving a representative picture of incidence of poverty in India. Infact, the use of State level estimates of poverty in allocating plan resources for poverty alleviation programmes has brought this debate into sharper focus. The States have become very sensitive about their respective estimates of poverty. Representations have been received from some of the State Governments. Scholars and academicians have also raised conceptual and methodological issues in this regard. The adoption of uniform calorie norms and fixed consumption basket, base year price differentials and uniformity of deflators across the States as also the practice of adjusting the NSS distribution have been widely contested. These and other related issues are discussed in what follows.

The Base-Year Consumption Basket

3.8 The poverty line has been anchored in a given calorie norm and the corresponding all-India consumption basket for the year 1973-74. The poverty line needs to be updated overtime for changes in price levels relevant to the consumption of the people around the poverty line. Updating the poverty line over time can be done in two ways:

- (a) The poverty line as estimated for the base year (i.e. 1973-74) can be updated for changes in prices overtime;
- (b) A fresh poverty line can be calculated from the latest available consumer expenditure survey data using the procedure suggested by the Task Force.

3.9 These two alternatives indicated above have somewhat different implications for the concept of poverty and its measurement overtime. Method (a) amounts to defining the poverty line in terms of a certain consumption expenditure with which the households, on an average, consumed food which met the calorie norm together with

such non food items as they chose. In this method the poverty line is updated over time to allow only for changes in prices with reference to the consumption basket associated with the poverty line in the base year.

3.10 On the other hand, method (b) allows for changes in the consumption basket provided the food items meet the calorie norm. Thus, while the calorie norm remains unchanged, the consumption basket associated with that calorie norm would change. Hence if there is a change in the consumption behaviour due to shift in individual preferences, the two methods of updating the poverty line would give different results. In particular, method (b) would not give results comparable overtime.

3.11 As per the recommendations of the Task Force 1979, the Planning Commission has been using method (a). This Group is in favour of using the same.

Choice of Price Deflators

3.12 It has been argued that the deflator for poverty line should be based on the cost of living of the poor. Construction of such an index requires a detailed information on the consumption basket of the poor and the relevant and appropriate prices. While it may not be impossible to construct such an index, there may be practical difficulties in obtaining reliable information in time and in sufficient details to construct such an index for the year for which poverty is to be estimated. It has been further argued that the assumption of identical price vector for the consumption baskets of people in rural and urban areas is highly questionable. It is observed that the relative price movements of the rural and urban sectors are distinct and are also different from CSO's consumption deflator.

3.13 In order to accommodate both the points discussed above a suggestion has been made that taking the commodity group indices available from Consumer Price Index of agricultural labourer for rural areas and the consumption pattern of the people around the rural poverty line at the national level for 1973-74 as weights, a special index may be constructed for updating the rural poverty line. Similarly, for urban areas a special index of consumer prices may be constructed using the sub-group indices of industrial workers weighted by the consumption pattern of the population group around the urban poverty line. A simple average of this index and the CPI for urban non-manual employees for the urban areas can be used to update the urban poverty line. The Group favours the use of this option in this Report.

Estimation of Poverty at State Level

3.14 The Planning Commission's methodology to estimate State level poverty implicitly makes the following assumptions:

- (i) Age-sex and occupation distribution of population in the States follows the all-India pattern. Hence, calorie requirements per capita are the same in different States.

(ii) The price structure of the consumption baskets and price trends across the States are identical.

3.15 It has been pointed out that there are important inter-State differences in terms of population structures, activity status, climatic and topographical considerations, and so on, which would need to be reflected in calorie requirements. Accordingly, normative calorie requirements would differ from State to State.

3.16 The consumption basket of the poor also differs significantly across the States. It is inherent in the poverty line concept that non-food expenditures such as clothing, housing and fuel are not normatively estimated. The food habits will depend on local availabilities as well as on cultural and consumer preferences reflected in differing choices between vegetarian and non-vegetarian food items, between fine and coarse foodgrains and in the greater or smaller use of milk and milk products.

3.17 Ideally the inter-State differences in population structure, activity composition, climate and topographical price structures and their trends over time should be reflected in the State-specific poverty lines. On practical consideration, the Planning Commission had adopted the all-India calorie norms and used a common deflator for all the States for estimating the incidence of poverty. A number of States were of the view that given the current methodology, Planning Commission grossly underestimated their poverty status. There is therefore a need to streamline the methodology in this respect. In this context, it has been argued that there should be State-specific poverty lines reflecting the State-specific price differentials of the relevant consumption basket and that the national poverty line should be a weighted average of these 'State-specific' poverty lines to ensure consistency. It has been further argued, that in estimating the State-specific poverty lines, the State-specific consumption basket associated with the calorie norm should be used.

3.18 It may, however, be noted that any meaningful comparison, whether longitudinal or latitudinal, of incidence of poverty would require the use of same consumption basket associated with the given calorie norm. If the State-specific consumption basket was used in the base year, it would no doubt provide a more meaningful comparison overtime of the poverty situation in that State. If the concern is to ensure comparability across states as well as over-time we need to adopt the same consumption basket for all the States. For this the obvious candidate is the all-India basket. In making such inter-State comparisons in any given year, we have to take into account the fact that prices of different commodities in different States are not the same in any given year nor are the changes in prices similar over the years. One of our members, Shri. S. Guhan, is of the view that in addition to the estimates furnished by us, it will be desirable for the Planning Commission to give a separate set of poverty estimates based on all-India calorie norms (for want of state-specific calorie norms), State level consumption baskets in the base year, and State level price indices and deflators relatable to the respective base year consumption baskets at the State level. His views have been reproduced in a supplementary note appended at Annexure II.

Differences in NSS and NAS Estimates of Consumption Expenditure

3.19 It has been observed that the aggregate private household consumption expenditure as estimated on the basis of National Sample Survey (NSS) is different from the aggregate private consumption expenditure estimated in National Accounts Statistics (NAS). Usually the latter has been higher than the former, and the difference has been increasing over time. The difference in the two estimates is the result of several factors including differences in coverage, sources and quality of data and methods of estimation. The practice in the Planning Commission has been to raise the expenditure levels reported by the NSS across all expenditure classes by a factor equal to the ratio of the total private consumption as obtained from NAS and the total as estimated from NSS. This factor is applied uniformly to all expenditure classes. Poverty is then estimated from this adjusted distribution of population by expenditure classes. Since the NAS estimates of per capita private consumption are generally higher, this procedure gives a lower estimate of the incidence of poverty than the estimate derived without adjusting the NSS data. For instance, the overall proportion of poor is estimated to be 57.16 and 52.83 per cent for 1977-78 and 1983 respectively, using the unadjusted NSS distribution and the poverty lines as used in the official estimates (Table 3.5). This proportion falls to 48.30 and 37.4 per cent for 1977-78 and 1983 respectively, when the adjusted NSS distribution is used. The adjustment factors used in the poverty estimates cited above are based on the old series of National Accounts with base year 1970-71. However, with the new series with base year 1980-81, the differences in the NSS and NAS-based aggregates are wider. Consequently, the adjustment factors, for the same years go up further, thereby bringing down the poverty ratios to 43.00 and 30.13 per cent respectively for 1977-78 and 1983 (Table 3.6). Thus, with the existing procedure for adjusting NSS-based consumption expenditure, everytime the CSO revises the estimates of private consumption expenditure, the estimates of the incidence of poverty also change. The increase in overall adjustment factor using new and old series of National Accounts Statistics can be seen from Table 3.7.

3.20 Detailed cross validation exercises carried out by Minhas, et.al^{3&4} have critically examined the different sources of discrepancies between NSS and NAS estimates of consumer expenditure at a detailed disaggregated level for 1972-73, 1977-78 and 1983. It becomes clear from their exercises that it is indeed hazardous to carry out pro-rata adjustment in the observed size distribution of consumer expenditure in a particular NSS round by multiplying it with a scalar derived from the ratio between the NAS estimate of the aggregate private consumption for the nearest financial year and the total NSS expenditure available from that particular NSS round. Studies of comparative trends in respective (NSS vs. NAS) aggregates should be made after adjusting for differences in coverage, time-periods, classification schemes, implicit prices, etc.

3 Minhas, B.S. (1988), "Validation of Large Scale Sample Survey Data - case of NSS Estimates of Household Consumption Expenditure," Sankhya A, Series B, Vol.50, Part 3, Supplement pp1-63.

4 Minhas, B.S. and S.M. Kansal (1989), "Comparison of the NSS and CSO Estimates of Private Consumption : Some Observations Based on 1983 Data. The Journal of Income and Wealth, Vol.II, No.1, January, 1989, pp 7-24.

3.21 Such exercises are useful to identify and correct the sources of differences and should continue as part of the effort for improving the quality of estimates. However given that the direction and magnitude of differences between the two estimates vary greatly from commodity to commodity and that we do not yet have sufficient basis to judge the relative accuracy of the two, it is perhaps premature to make adjustments with confidence.

3.22. Even granting for the moment that adjustment is required, it may not be wholly justified to apply a uniform adjustment factor to raise the level of expenditure in all the expenditure classes, given that the discrepancy in the two sets of estimates is much larger in respect of certain items than in respect of others. If we look at the correspondence between the two estimates at somewhat disaggregated level, say, by 11 major commodity groups, we find that the NAS based estimates are higher by a very large factor for commodity groups like sugar, edible oils, clothing and footwear, durable consumer goods and rent, fuel and power. These items typically occupy larger weights in the consumption basket of higher income groups. The adjustment factor is lower for other items in the food group and for cereals the adjustment factor turns out to be other way round, i.e., the NSS based estimate of cereals are higher than NAS based estimate.

3.23 Thus the overall adjustment factor would be lower for lower expenditure groups and higher for higher expenditure groups. Hence, if adjustment is a must, a case may be made for commodity group specific and population group specific adjustment (rather than pro rata aggregate adjustment). An exercise was undertaken to apply commodity groupwise adjustment to the consumption distribution. The results are summarised in table 3.8.

3.24 However, if commodity - specific adjustment is adopted, the problems in respect of differences in coverage, time -period, classification schemes and implicit prices between the NSS and the NAS series will still remain.

3.25 If estimates of poverty-incidence are to be made with minimum recourse to adjustments based on arbitrary assumptions, the best course would be to base them entirely on the NSS. The use of NSS is preferable to NAS for several reasons. The NAS estimates relate to private consumption rather than household consumption which is the appropriate basis for assessing poverty -incidence. The NAS estimate of private consumption is derived as a residual by deducting from estimated production of the various goods and services (adjusted for foreign trade), the estimated use for capital formation and public consumption. Apart from the lack of reliable direct data on production for a sizeable segment of the economy, the adjustments for uses other than private consumption are based on scanty data, often of the distant past, and subjective judgements; they do not take into account differences in prices across States; nor do they provide State level estimates of private consumption.

3.26 The NSS gives a State-wise estimates of size distribution as well as commodity composition of private consumption for the rural and urban population separately. The estimate is based on information provided by households on quantities and price of large number of goods and services consumed by them. The surveys are carefully

organised, use uniform concepts and procedures across the country and the sample households are selected by rigorous scientific procedures. NSS data are of course not free of errors, biases, comparability over time and other problems. The nature of these have been widely debated and there is a sustained effort to refine and improve the survey design and procedure. Even as these efforts continue - as of course they must the NSS remains the best available source of assessing poverty incidence and the characteristics of the poor across space and time.

Special Problems of Hill Areas

3.27 It has been pointed out that hill States, with their rough terrain and harsh living conditions and especially for people living in the mid and higher hills, are at a disadvantage at least on two grounds. Owing to the extremes in climate and lack of well developed infrastructure, including transport and communications, hill people perforce have to lead a more strenuous life as compared to people in the plains. Consequently they have to have a higher daily calorific intake even for performing the normal activities related to their work and living. Besides, due to climatic conditions, the average resident has to incur heavier expenditure on clothing, food and energy for cooking and heating needs, compared to his counterparts in the plains.

3.28 The problem is genuine. However, there are practical difficulties in taking account of this problem. Terrains are not uniform in all the hilly States. There is a problem in defining a "Hilly State" itself. Then there are certain large States with hilly regions, and the question is how they should be treated for this purpose. Separate calorie norms are also not available for persons residing in hilly regions. Therefore, any attempt at accounting for the problems of hilly States in defining the poverty line will open up a interminable and indeterminate debate rather than solve the problem. If the concern is only allocation of resources, it needs to be noted that such regions/States are already given special treatment.

Other Issues in Poverty Estimation

3.29 The relationship between poverty, level of living and nutrition has been a subject of debate. Absolute poverty, as it is empirically measured, is a concept related to the "consumer expenditure" and the "purchasing power" of that expenditure. Measurement of poverty is based on NSS data where the main point of reference is expenditure, except for the food group of commodities where actual consumption is recorded. Health, education, housing, etc., are the components of level of living on which the NSS data records only the cash outlays incurred by the households. Consumption of free goods and services provided by the State or charitable institutions is not recorded. Social consumption of these publicly provided services is in the nature of transfer from the government to the people. In other words, the real levels of living of the poor, inclusive of social consumption are expected to be higher than what is reflected through the estimates of private consumption expenditure reported in NSS data. It has therefore been argued that there is a need to broaden the concept of poverty and delink food poverty from poverty in general.

3.30 The assumption that there is a monotonic relation between calorie intake and reported expenditure is also difficult to sustain. This is because households report only the food cooked at home. Part of this may be consumed by casual visitors and/or domestic helpers. Before we estimate the calories of food taken, it may be desirable to adjust for meals gifted, meals (including purchased meals) - eaten outside and for wastages before and after the meal is served.

3.31 As to the relationship between calorie intake nutrition and poverty, there has been considerable debate on nutritional adaptation and inter-individual variability which brings out the complexities involved in the measurement of under-nutrition. One of our members Prof. P.V. Sukhatme holds the view that a man's capacity for work is not determined by his intake but by efficiency with which he converts food energy into metabolisable energy over his homeostatic range of intake. His letter elaborating this view is appended at Annexure I. We prefer to distinguish and keep separate measurement of under-nutrition and measurement of poverty and to confine ourselves to the latter. The use of calorie norm in measuring poverty amounts only to a first order approximation to what may be considered to be an acceptable level of minimum need.

3.32 It is also worth noting that significant shifts in consumption pattern have been observed during the recent years. See tables 3.9, 3.10, 3.11 and 3.12. There is shift of expenditure from coarse to finer cereals, from cereals in general to non-cereal food like meat, milk, eggs, fruits, etc. and from food as a whole to non-food items of expenditure in almost all expenditure groups. It has been observed from NSS rounds on household consumption distribution that even for the people below poverty line (both in rural and urban areas) the proportion of expenditure on cereals as also on total foodgrains is falling and at the same time proportion of expenditure on quality food (animal products, fruits and vegetables etc.) is rising. Infact where these shifts in consumption pattern are predominant, the cost of requisite calories is becoming higher. There is, thus, a decline in the average intake of calories across expenditure classes even though, the real per capita expenditure has been rising. See table 3.13.

3.33 Inequality and poverty are, of course, distinct concepts but there is a close causal relationship between the two. Given the level of development and the level of per capita income/consumption expenditure, a less unequal distribution would result in lower incidence of poverty. A practical way of looking at the inequality issue would be to look at the share of lower deciles in the aggregate income/consumption expenditure. Table 3.14 describes the decile-wise share in the consumption distribution over the years for which the poverty estimates have been worked out, separately for rural and urban areas. On the whole, it can be observed that the share of various deciles has not changed significantly over the years.

Table - 3.1

Number and Percentage of Population Below Poverty Line by
States, 1972-73 (Officially Released Estimates)

S.No.	State	Rural		Urban		Combined	
		No. Lakhs	%age	No. Lakhs	%age	No. Lakhs	%age
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Andhra Pradesh	207.1	57.7	38.5	43.8	245.6	54.9
2.	Assam	69.0	48.2	4.9	33.8	73.9	47.0
3.	Bihar	291.2	55.8	25.9	43.4	317.1	54.5
4.	Gujarat	86.9	43.9	26.6	34.0	113.5	41.1
5.	Haryana	18.4	21.5	5.6	29.9	24.0	23.1
6.	Himachal Pradesh	5.1	15.5	0.3	12.5	5.4	15.1
7.	Jammu & Kashmir	14.1	36.1	4.7	51.6	18.8	39.0
8.	Karnataka	119.0	52.3	34.3	45.8	153.3	50.5
9.	Kerala	106.4	57.8	19.2	52.7	125.6	56.9
10.	Madhya Pradesh	222.3	61.4	32.5	44.8	254.8	58.6
11.	Maharashtra	191.5	53.9	56.7	34.3	248.2	47.7
12.	Manipur	2.4	24.7	0.4	24.2	2.8	24.7
13.	Meghalaya	1.8	20.6	0.2	10.8	2.0	19.0
14.	Orissa	147.3	71.0	8.5	43.3	155.8	68.6
15.	Punjab	22.6	21.5	7.3	21.8	29.9	21.5
16.	Rajasthan	105.0	47.5	18.8	39.3	123.8	46.0
17.	Tamil Nadu	183.5	63.0	67.8	52.2	251.3	59.7
18.	Tripura	6.2	42.6	0.3	18.7	6.5	39.9
19.	Uttar Pradesh	413.1	53.0	66.4	51.6	479.5	52.8
20.	West Bengal	220.9	64.0	41.6	35.9	262.5	56.8
21.	Nagaland and All Union Territories	8.4	37.6	12.8	26.7	21.2	30.2
All India		2442.2	54.1	473.3	41.2	2915.5	51.5

Notes: (1) The above estimates are derived by using the poverty lines of Rs.41 and Rs.47 per capita per month for rural and urban areas respectively at 1972-73 prices, corresponding to the poverty lines of Rs.49.1 and Rs.56.6 respectively at 1973-74 prices.

(2) The number of persons below poverty line relates to the population as on 1st oct., 1972.

Table - 3.2

**Number and Percentage of Population Below Poverty Line by
States 1977-78 (Officially Released Estimates)**

S.No.	State	Rural		Urban		Combined	
		No. Lakhs	%age	No. Lakhs	%age	No. Lakhs	%age
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Andhra Pradesh	176.8	45.4	40.6	37.2	217.4	43.6
2.	Assam	78.0	48.5	6.4	36.5	84.4	47.3
3.	Bihar	330.5	57.8	33.7	44.8	364.2	56.3
4.	Gujarat	94.6	43.1	27.5	29.8	122.1	38.9
5.	Haryana	22.0	23.2	7.9	32.5	29.9	25.2
6.	Himachal Pradesh	10.2	27.8	0.5	17.2	10.7	27.0
7.	Jammu & Kashmir	13.9	31.7	4.5	40.5	18.4	33.4
8.	Karnataka	131.9	53.2	41.6	44.6	173.5	50.8
9.	Kerala	94.1	47.4	23.0	53.2	117.1	48.4
10.	Madhya Pradesh	242.7	61.6	43.1	46.9	285.8	58.9
11.	Maharashtra	234.1	60.4	62.1	31.4	296.2	50.6
12.	Manipur	2.9	29.2	0.8	26.8	3.7	28.7
13.	Meghalaya	5.2	51.2	0.6	28.6	5.8	47.4
14.	Orissa	151.6	67.9	11.1	41.8	162.7	65.1
15.	Punjab	15.0	13.1	10.5	25.6	25.5	16.4
16.	Rajasthan	82.7	33.5	20.8	33.9	103.5	33.6
17.	Tamil Nadu	177.2	56.3	67.2	45.3	244.4	52.8
18.	Tripura	10.6	64.5	0.6	27.5	11.2	60.5
19.	Uttar Pradesh	422.8	49.8	83.2	49.2	506.0	49.7
20.	West Bengal	220.4	58.3	45.1	34.5	265.5	52.2
21.	Nagaland and All Union Territories	13.8	41.5	6.2	10.1	20.0	21.1
All India		2531.0	51.2	537.0	38.2	3068.0	48.3

Notes: (1) The above estimates are derived by using the poverty line of Rs.60.6 per capita per month for rural areas and the poverty line of Rs.69.9 per capita per month for urban areas at 1977-78 prices, corresponding to the poverty lines of Rs.49.1 and Rs.56.6 respectively for 1973-74.

(2) The number of persons below poverty line relates to the population as on 1st March, 1978.

Table - 3.3

Number and Percentage of Population Below Poverty Line by
States 1983-84 (Officially Released Estimates)

S.No.	State	Rural		Urban		Combined	
		No. Lakhs	%age	No. Lakhs	%age	No. Lakhs	%age
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Andhra Pradesh	164.4	38.7	40.7	29.5	205.1	36.4
2.	Assam	44.9	23.8	4.9	21.6	49.8	23.5
3.	Bihar	329.4	51.4	36.1	37.0	365.5	49.5
4.	Gujarat	67.7	27.6	19.9	17.3	87.6	24.3
5.	Haryana	16.2	15.2	5.5	16.9	21.7	15.6
6.	Himachal Pradesh	5.8	14.0	0.3	8.0	6.1	13.5
7.	Jammu & Kashmir	8.1	16.4	2.2	15.8	10.3	16.3
8.	Karnataka	102.9	37.5	34.7	29.2	137.6	35.0
9.	Kerala	55.9	26.1	15.6	30.1	71.5	26.8
10.	Madhya Pradesh	218.0	50.3	36.9	31.1	254.9	46.2
11.	Maharashtra	176.1	41.5	55.9	23.3	232.0	34.9
12.	Manipur	1.3	11.7	0.6	13.8	1.9	12.3
13.	Meghalaya	3.9	33.7	0.1	4.0	4.0	28.0
14.	Orissa	107.7	44.8	10.4	29.3	118.1	42.8
15.	Punjab	13.7	10.9	10.7	21.0	24.4	13.8
16.	Rajasthan	105.0	36.6	21.2	26.1	126.2	34.3
17.	Tamil Nadu	147.6	44.1	52.6	30.9	200.2	39.6
18.	Tripura	4.6	23.5	0.5	19.6	5.1	23.0
19.	Uttar Pradesh	440.0	46.5	90.6	40.3	530.6	45.3
20.	West Bengal	183.9	43.8	41.2	26.5	225.1	39.2
21.	Nagaland and All Union Territories	17.9	47.4	14.4	17.7	32.3	27.1
All India		2215.0	40.4	495.0	28.1	2710.0	37.4

Notes: (1) The above estimates are derived by using the poverty line of Rs.101.8 per capita per month for rural areas and the poverty line of Rs.117.5 per capita per month for urban areas at 1983-84 prices corresponding to the poverty lines of Rs.49.1 and Rs.56.6 respectively for 1973-74.

(2) The number of persons below poverty line relates to the population as on 1st March, 1984.

Table - 3.4

**Number and Percentage of Population Below Poverty Line by
States 1987-88 (Officially Released Estimates)**

S.No.	State	Rural		Urban		Combined	
		No. Lakhs	%age	No. Lakhs	%age	No. Lakhs	%age
(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Andhra Pradesh	153.1	33.8	42.6	26.1	195.7	31.7
2.	Assam	50.4	24.5	2.5	9.4	52.9	22.8
3.	Bihar	300.3	42.7	36.1	30.0	336.4	40.8
4.	Gujarat	56.2	21.2	17.1	12.9	73.3	18.4
5.	Haryana	13.5	11.7	4.7	11.7	18.2	11.6
6.	Himachal Pradesh	4.4	9.7	0.1	2.4	4.5	9.2
7.	Jammu & Kashmir	8.4	15.5	1.4	8.4	9.8	13.9
8.	Karnataka	102.8	35.9	33.7	24.2	136.5	32.1
9.	Kerala	37.4	16.4	11.6	19.3	49.0	17.0
10.	Madhya Pradesh	194.0	41.5	30.9	21.3	224.9	36.7
11.	Maharashtra	166.9	36.7	47.2	17.0	214.1	29.2
12.	Orissa	124.2	48.3	10.9	24.1	135.1	44.7
13.	Punjab	9.6	7.2	4.3	7.2	13.9	7.2
14.	Rajasthan	80.5	26.0	19.0	19.4	99.5	24.4
15.	Tamil Nadu	138.4	39.5	38.5	20.5	176.9	32.8
16.	Uttar Pradesh	373.1	37.2	75.2	27.2	448.3	35.1
17.	West Bengal	137.2	30.3	36.3	20.7	173.5	27.6
18.	Small States & UT's	9.3	11.8	4.9	4.7	14.2	7.7
All India		1959.7	33.4	417.0	20.1	2376.7	29.9

Notes: (1) The above estimates are derived by using the poverty line of Rs.131.8 per capita per month for rural areas and 152.1 per capita per month for urban areas at 1987-88 prices, corresponding to the poverty lines of Rs.49.1 and Rs.56.6 respectively for 1973-74.

(2) The number of persons below poverty line relates to the population as on 1st March, 1988.

Table - 3.5

Percentage of Poor Based on Unadjusted NSS Distribution

(Poverty Line Updated by using Private consumption Deflator
as Obtained from the New Series Of NAS)

	1977-78		1983-84		1987-88	
	Poverty Line	Porpor- tion of Poor	Poverty Line	Porpor- tion of Poor	Poverty Line	Porpor- tion of Poor
Rural	62.10	60.19	101.70	56.33	131.60	50.87
Urban	71.65	46.55	117.34	41.94	151.83	33.25
Total		57.16		52.83		46.27

Table - 3.6

Percentage of Poor Based on Adjusted NSS Distribution

	1977-78		1983-84		1987-88	
	Pov.Line (Rs.)	Propor- tion of Poor (Percent)	Pov.Line (Rs.)	Propor- tion of Poor (Percent)	Pov.Line (Rs.)	Propor- tion of Poor (Percent)
A. Using Overall Adjustment Factor and New Series of NAS *						
Rural	62.10	45.74	101.70	32.62	131.60	30.02
Urban	71.65	33.42	117.34	21.75	151.83	17.88
Combined		43.00		30.13		26.85
Adjustment Factor		1.1961		1.3303		1.2666
B. Using Overall Adjustment * Factor and Old Series of NAS (**)						
Rural	60.60	51.20	101.80	40.40	131.80	33.40
Urban	69.90	38.20	117.50	28.10	152.10	20.10
Combined		48.30		37.40		29.90
Adjustment Factor		1.09		1.21		1.22

Notes : * Poverty line updated by using private consumption deflators as obtained from the new series of NAS.

** There was no "old series" for the year 1987-88. However, the poverty line for 1987-88 was obtained by updating the poverty line of 1983-84 which was based on deflators obtained from the "old series".

Table - 3.7

The Overall Adjustment Factor

Year	New Series of NAS	Old Series of NAS
1977-78	1.1961	1.09
1983	1.3303	1.21
1987-88	1.2666	

Table - 3.8

Percentage of Poor Based on Adjusted Distribution

(Using Commodity Specific Adjustment Factors Obtained from New Series of NAS)

[Poverty Line Updated by Using Private Consumption Deflator as Obtained from New Series of NAS]

	1977-78		1983-84		1987-88	
Poverty Line	Porpor- tion of Poor	Poverty Line	Porpor- tion of Poor	Poverty Line	Porpor- tion of Poor	
Rural	62.1	46.7 (1.1832)	101.7	37.9 (1.2493)	131.6	35.6 (1.1888)
Urban	71.7	32.0 (1.2192)	117.3	22.8 (1.3087)	151.8	20.0 (1.2194)
Total		43.4		34.2		31.6

Note: Within brackets are given the averages of commodity specific adjustment factors, relevant to the consumption basket of people around the poverty line. These adjustment factors, therefore, are different for rural and urban areas.

Table - 3.9

**Distribution of Household Consumption Expenditure
for Population Group Below Poverty (Rural)-INDIA**

		(Percentage)			
S.No.	Items	1977-78	1983	1986-87	1987-88
1.	Total Cereals	47.06	46.61	39.56	37.95
2.	Gram	0.39	0.28	0.38	0.19
3.	Cereal Substitutes	0.60	0.28	0.11	0.12
4.	Pulses	4.28	3.91	4.84	4.68
5.	Total Foodgrains	52.33	51.08	44.89	42.94
6.	Milk & Milk Products	4.21	3.74	5.48	5.05
7.	Edible Oil	3.88	4.14	5.52	5.31
8.	Meat, Fish & Egg	2.69	2.51	3.13	2.77
9.	Vegetables	4.60	5.58	6.25	6.18
10.	Fruits & Nuts	0.80	0.79	1.01	0.99
11.	Sugar	2.35	2.40	2.88	2.64
12.	Salt & Spices	3.91	3.23	3.57	3.48
13.	Beverage & Refments	2.15	2.27	2.50	2.88
14.	Pan, Intoxicant etc.	3.33	3.20	3.84	3.53
15.	Total other than Foodgrains	27.92	27.86	34.18	32.83
16.	Food Total	80.25	78.94	79.07	75.77
17.	Non-Food Total	19.75	21.06	20.93	24.23
18.	Total Expenditure	100.00	100.00	100.00	100.00

Note : "Poverty" in this table refers to officially released estimates of Poverty.

Table -3.10

**Distribution of Household Consumption Expenditure
for Population Group above Poverty (Rural)-INDIA**

		(Percentage)			
S.No.	Items	1977-78	1983	1986-87	1987-88
1.	Total Cereals	26.79	29.10	24.02	20.19
2.	Gram	0.43	0.25	0.39	0.26
3.	Cereal Substitutes	0.22	0.16	0.14	0.12
4.	Pulses	3.62	3.46	3.21	3.49
5.	Total Foodgrains	31.06	32.97	27.76	24.06
6.	Milk & Milk Products	9.08	8.37	10.41	10.39
7.	Edible Oil	3.43	4.00	4.75	4.67
8.	Meat, Fish & Egg	2.66	3.13	3.84	3.16
9.	Vegetables	3.42	4.53	5.10	4.55
10.	Fruits & Nuts	1.24	1.50	1.74	1.79
11.	Sugar	2.76	2.92	3.08	2.92
12.	Salt & Spices	2.66	2.34	2.60	2.49
13.	Beverage & Refments	2.63	3.50	3.72	4.12
14.	Pan, Intoxicant etc.	2.70	2.93	3.37	2.91
15.	Total other than Foodgrains	30.58	33.22	38.61	37.00
16.	Food Total	61.64	66.19	66.37	61.06
17.	Non-Food Total	38.36	33.81	33.63	38.94
18.	Total Expenditure	100.00	100.00	100.00	100.00

Note : "Poverty" in this table refers to officially released estimates of Poverty.